

BEFORE THE HON'BLE CENTRAL ELECTRICITY REGULATORY COMMISSION

NEW DELHI

PETITION NO.....

For True-up in Petition No- 426/GT/2020

IN THE MATTER OF : Petition Under Section 62 and 79 (1) (a) of the Electricity Act, 2003 read with Chapter III of the Central Electricity Regulatory Commission (Conduct of Business) Regulations, 2023 and Chapter-3, Regulation-13 of Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2019 for revision of tariff of **Rihand Super Thermal Power Station St-II (1000 MW)** for the period from **01.04.2019** to **31.03.2024** after the truing up exercise

INDEX

Sl. No.	Description	Page No.
1.	Petition for Revision of Tariff for Rihand Super Thermal Power Station St-II (1000 MW)	1-10
2.	Affidavit	11-12
3.	Appendix-I (Tariff Forms)	13-117
4.	Appendix-IA (ECS- DeNOx System Tariff Forms)	118-140
5.	Annexure-1	141-146
6.	Annexure-2	147-347
7.	Annexure-3	348
8.	Annexure-4	349-353
9.	Annexure-5	354-355
10.	Form-15	356-365
10.	Balance Sheet	366-801



परिमल पीयूष/PARIMAL PIYUSH
अपर महाप्रबन्धक (वाणिज्यिक)
Addl. General Manager (Commercial)
एन टी पी सी लिमिटेड/NTPC LIMITED
EOC, A-8A, Sector-24, Noida-201301 (U.P.)

BEFORE THE CENTRAL ELECTRICITY REGULATORY COMMISSION

NEW DELHI

PETITION NO.....

For True-up in Petition No- 426/GT/2020

IN THE MATTER OF

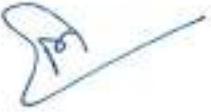
: Petition Under Section 62 and 79 (1) (a) of the Electricity Act, 2003 read with Chapter III of the Central Electricity Regulatory Commission (Conduct of Business) Regulations, 2023 and Chapter-3, Regulation-13 of Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2019 for revision of tariff of **Rihand Super Thermal Power Station St-II (1000 MW)** for the period from **01.04.2019 to 31.03.2024** after the truing up exercise

Petitioner:

: NTPC Ltd.
NTPC Bhawan
Core-7, Scope Complex
7, Institutional Area, Lodhi Road
New Delhi-110 003

Respondents

1. Uttar Pradesh Power Corp. Ltd. (UPPCL)
Shakti Bhawan
14, Ashok Marg
Lucknow – 226 001
2. Rajasthan Urja Vikas Nigam Limited (RUVNL)
Vidyut Bhawan, Janpath,
Jaipur – 302 005 (Rajasthan)
(On Behalf Rajasthan Discoms)


परिमल पीयूष/PARIMAL PIYUSH
अपर महाप्रबन्धक (व्यापारिक)
Addl. General Manager (Commercial)
एन टी पी सी लिमिटेड/NTPC LIMITED
EOC, A-8A, Sector-24, Noida-201301 (U.P.)

3. Tata Power Delhi Distribution Ltd.
Grid Substation, Hudson Road
Kingsway Camp, New Delhi- 110009
4. BSES Rajdhani Power Ltd. (BRPL)
BSES Bhawan, Nehru Place
New Delhi – 110019
5. BSES Yamuna Power Ltd. (BYPL)
Shakti Kiran Building
Karkardooma
Delhi- 110092
6. Haryana Power Purchase Centre
Shakti Bhawan, Sector-VI,
Panchkula, Haryana – 134109
7. Punjab State Power Corporation Ltd. (PSPCL)
The Mall, Patiala – 147 001
8. Himachal Pradesh State Electricity Board Ltd.
(HPSEB Ltd.)
Kumar Housing Complex Building-II
Vidyut Bhawan, Shimla – 171 004
9. Power Development Department (PDD-J&K)
Govt. of J&K , Civil Secretariat
Srinagar
10. Electricity Department (Chandigarh)
Union Territory of Chandigarh
Addl. Office Building, Sector-9 D
Chandigarh



परिमल पीयूष/PARIMAL PIYUSH
अपर महाप्रबन्धक (व्यापारिक)
Addl. General Manager (Commercial)
एन टी पी सी लिमिटेड/NTPC LIMITED
EOC, A-8A, Sector-24, Noida-201301 (U.P.)

11. Uttarakhand Power Corporation Ltd. (UPCL)
Urja Bhavan, Kanwali Road
Dehradun – 248 001

The Petitioner humbly states that:

- 1) The Petitioner herein NTPC Ltd. (hereinafter referred to as 'Petitioner' or 'NTPC'), is a Government of India Company within the meaning of the Companies Act, 1956. Further, it is a 'Generating Company' as defined under Section 2(28) of the Electricity Act, 2003.
- 2) The Petitioner is having power stations/ projects at different regions and places in the country. Rihand Super Thermal Power Station Stage-II (2 X 500 MW) (hereinafter referred to as Rihand-II) is one such station located in the State of Uttar Pradesh.
- 3) The power generated from Rihand-II is being supplied to the respondents herein mentioned above.
- 4) Section 62 of Electricity Act, 2003 provides for determination of tariff by the Appropriate Commission for supply of electricity by a generating company. The Hon'ble Commission, under Section 79(1)(a) of Electricity Act, 2003, is vested with the jurisdiction to regulate the tariff of the Generating Companies owned or controlled by the Central Government.
- 5) The Hon'ble Commission has notified the Central Electricity Regulatory Commission (Terms & Conditions of Tariff) Regulations, 2019 (hereinafter 'Tariff Regulations 2019) which came into force from 1.4.2019 and specify the terms & conditions and methodology of tariff determination for the period from 01.04.2019 to 31.03.2024 under Section 62 & 79 of the Electricity Act, 2003.
- 6) Regulation 9(2) of CERC (Terms & Conditions of Tariff) Regulations 2019 provides as under:

परिमल पीयूष/PARIMAL PIYUSH
अपर महाप्रबन्धक (वाणिज्यिक)
Addl. General Manager (Commercial)
एन टी पी सी लिमिटेड/NTPC LIMITED
EOC, A-8A, Sector-24, Noida-201301 (U.P.)

"9. Application for determination of tariff:

.....
"(2) In case of an existing generating station or unit thereof, or transmission system or element thereof, the application shall be made by the generating company or the transmission licensee, as the case may be, by 31.10.2019, based on admitted capital cost including additional capital expenditure already admitted and incurred up to 31.3.2019 (either based on actual or projected additional capital expenditure) and estimated additional capital expenditure for the respective years of the tariff period 2019-24 along with the true up petition for the period 2014-19 in accordance with the CERC (Terms and Conditions of Tariff) Regulations, 2014"

- 7) In accordance with the above, Petition No. 426/GT/2020 for determination of tariff for Rihand Super Thermal Power Station Stage-II (2 X 500 MW) was filed before the Hon'ble Commission based on the admitted capital cost as on 31.03.2019 and projected estimated additional capital expenditure for the period 01.04.2019 to 31.03.2024.
- 8) The tariff for Rihand-II for the period from 01.04.2019 to 31.3.2024 was determined by the Hon'ble Commission vide order dated 08.04.2022 in Petition No. 426/GT/2020. The capital cost allowed for tariff determination included the projected additional capital expenditure admitted by the Hon'ble Commission after prudence check.
- 9) Further, Chapter-3, Regulation 13 of the Tariff Regulations 2019 provides as under:

"(13) Truing up of tariff for the period 2019-24:

- (1) The Commission shall carry out truing up exercise for the period 2019-24 along with the tariff petition filed for the next tariff period, for the following:
- a) the capital expenditure including additional capital expenditure incurred up to 31.3.2024, as admitted by the Commission after prudence check at the time of truing up:

परिमल पीयूष/PARIMAL PIYUSH
अपर महाप्रबन्धक (वाणिज्यिक)
Addl. General Manager (Commercial)
एन टी पी सी लिमिटेड/NTPC LIMITED
EOC, A-8A, Sector-24, Noida-201301 (U.P.)



b) the capital expenditure including additional capital expenditure incurred up to 31.3.2024, on account of Force Majeure and Change in Law.

(2) The generating company or the transmission licensee, as the case may be, shall make an application, as per Annexure-I to these regulations, for carrying out truing up exercise in respect of the generating station or a unit thereof or the transmission system or an element thereof by 30.11.2024.

-"
- 10) In line with the provisions quoted above, the Petitioner is filing this petition for truing up the additional capital expenditure for the control period 2019-24, based on admitted capital cost as on 01.04.2019 and actual capital expenditure incurred during the tariff period from 01.04.2019 to 31.03.2024.
- 11) The year wise actual capital expenditure has been indicated and enclosed as part of **Appendix-I** herewith. In addition to the actual additional capital expenditure as above, discharge of liabilities during the period from 01.04.2019 to 31.03.2024 (year wise) out of the liabilities excluded from capital cost for the works already allowed/ claimed have also been indicated.
- 12) As per para 43 of CERC order dated 08.04.2022 in petition no. 426/GT/2020 the capital cost as on 31.3.2024 is Rs 300644.20 Lakh, as shown in Form-5. Further, the Petitioner has claimed additional capitalization under the regulatory provisions of CERC Tariff Regulations-2019 for truing up of tariff. The difference in additional capitalization amounting to Rs (-) 1,609.70 Lakh wrt earlier add-cap has been adjusted to arrive at the capital cost as on 31.3.2024, as shown in Form-9A. Hon'ble Commission may be pleased to take the same into consideration while approving the tariff of the instant station.

Supplementary Tariff for DeNOx(ECS) system

- 13) Hon'ble Commission, vide order dated 17.11.2021 in Petition No. 501/MP/2019 has accorded in-principle approval for implementation of Emission Control system (ECS) in the instant station. The Emission Control System approved


परिमल पीयूष/PARIMAL PIYUSH
अपर महाप्रबन्धक (वाणिज्यिक)
Addl. General Manager (Commercial)
एन टी पी सी लिमिटेड/NTPC LIMITED
EOC, A-8A, Sector-24, Noida-201301 (U.P.)

by the Hon'ble Commission and being implemented by the Petitioner comprises-(i) De-NOx system and (ii) SO₂ removal system. Out of these two systems, DeNOx system has been implemented by the Petitioner in two units of Rihand-II during FY: 2021-22 of the control period 2019-24. Accordingly, the petitioner humbly submits before the Hon'ble Commission for determination of supplementary tariff based on the actual expenditure incurred for implementation of DeNOX system in the instant station during the Tariff Period 2019-24. The tariff forms for the supplementary tariff pertaining to ECS (DeNox) System are attached as **Appendix-IA**.

- 14) Further, in accordance with the provisions of the Regulation-31 of Tariff Regulations 2019, for the purpose of computation of the Return on Equity, the base rate has been grossed up with the effective tax rate (MAT) applicable to NTPC at the end of respective financial years for the period 2019-24. The same is indicated in the Form-3 attached at **Appendix-I/ Appendix-IA**.
- 15) Further, in accordance with the provisions of the Regulation-34 of Tariff Regulations 2019, for the purpose of computation of the Interest on Working Capital, the landed fuel cost (taking into account normative transit and handling losses) and gross calorific value of the fuel as per actual weighted average for the third quarter of FY 2018-19, FY 2019-20, FY 2020-21, FY 2021-22 & FY 2022-23 is considered. Also, the rate of interest on working capital is considered at bank rate as on 1st April of each of the financial year during the tariff period of 2019-24. The same is indicated in the Form-O attached at **Appendix-I /Appendix-IA**.
- 16) It is submitted that some of the loans allocated to this station have been refinanced by taking new loans with lower rate of interest. As per Regulation 61 (1) of Tariff Regulations 2019, the benefits of refinancing of loans has to be shared with the beneficiaries in the ratio of 50:50 (Beneficiaries: Generator). The same has been applied by adjusting the rate of interest of new loans while computing weighted average rate of interest. The adjustment in rate of interest for new loans has been done as illustrated below:

Rate of interest of existing loan: 8.000% (say)


परिमल पीयूष/PARIMAL PIYUSH
अपर महाप्रबन्धक (वाणिज्यिक)
Addl. General Manager (Commercial)
एन टी पी सी लिमिटेड/NTPC LIMITED
EOC, A-8A, Sector-24, Noida-201301 (U.P.)

Rate of interest of new loan for refinancing of existing loan: 6.000% (say)

Rate of interest of new loan considered for computing weighted average rate of interest: 7.000%.

- 17) It is relevant to submit that the Petitioner has filed Appeal before the Hon'ble Appellate Tribunal for Electricity in respect of certain disallowed claims by Hon'ble Commission. It is humbly submitted that the Petitioner reserves the right to approach this Hon'ble Commission and/or file amended Petition based on the outcome of such Appeal and/or any subsequent appeal(s).
- 18) Hon'ble Commission vide tariff order dated 08.04.2022 in tariff petition 426/GT/2020 of the stations at Para 62 has allowed the truing up of water charges, which has been allowed by the Hon'ble Commission in the instant order based on actual/projections. Accordingly, the details for water charges at actuals have been submitted in the instant petitioner. Hon'ble Commission may be pleased to allow the same.
- 19) It is submitted that Hon'ble Commission at para 65 in its order dated 08.04.2022 in petition no. 426/GT/2020 has allowed the consideration of the claim on merits towards capital spares consumption at the time of truing up. Accordingly, the same has been claimed in Form-3A of the attached Appendix-I. The details of the year wise capital spares consumed have been provided in Form-17 of the attached Appendix-I. It is prayed before Hon'ble Commission to consider the same and allow the expenditure on capital spares consumption as claimed under Regulation 35(1)(6) of the 2019 Tariff Regulations.
- 20) It is further submitted that at para 64 of order dtd. 08.04.2022 in petition no. 426/GT/2020 for the instant station, the claim against security expenses had been claimed by the petitioner on estimated basis, and the same has been considered by Hon'ble Commission subject to truing up. The details of actual security expenses has been provided in Form-3A of the attached Appendix-I for the period 2019-24. It is prayed before Hon'ble Commission to consider the same and allow the expenditure on security expenses as claimed under Regulation 35(1)(6) of the 2019 Tariff Regulations."

परिमल पीयूष/PARIMAL PIYUSH
अपर महाप्रबन्धक (वाणिज्यिक)
Addl. General Manager (Commercial)
एन टी पी सी लिमिटेड/NTPC LIMITED
EOC, A-8A, Sector-24, Noida-201301 (U.P.)

21) **Ash Transportation expenses**

- (i) It is submitted that Hon'ble Commission vide its order dated 28.10.2022 in Petition No. 205/MP/2021 has allowed ash transportation on actual basis for the period 2019-22 and the monthly billing for ash transportation charges for 2022-24 period as below:

“

39. Petitioner has furnished the details of the distance to which fly ash has been transported from the generating station, schedule rates applicable for transportation of fly ash, as notified by the State Governments along with details, including Auditor certified accounts. These documents have been examined and accordingly, the total fly ash transportation expenditure allowed to the Petitioner generating station wise for the period 2019-22 is as per the table in para 38 above totalling to Rs.309704.03 lakh and the same shall be recovered from the beneficiaries of the respective generating stations in 6 (six) equal monthly installments. However, the Petitioner is directed to submit details regarding award of transportation contracts, distance to which fly ash has been transported along with duly reconciled statements of expenditure incurred on ash transportation at the time of filing petitions for truing up of tariff for the 2019-24 tariff period of the generating stations.

Monthly billing

43. In the light of the above discussion and keeping in view that the Petitioner is entitled for recovery of fly ash transportation charges, under change in law, as additional O&M expenses, we permit the provisional billing at 90% of the fly ash transportation charges incurred by the Petitioner, in respect of its generating stations, for the balance period (i.e. 2022-24), on a monthly basis, based on self -certification, and the beneficiaries shall pay the same accordingly. This is, however, subject to prudence check of the claims, at the time of truing-up of tariff for the period 2019-24, in respect of the generating stations of the Petitioner, in terms of Regulation 13 of the 2019 Tariff Regulations.

परिमल पीयूष/PARIMAL PIYUSH
अपर महाप्रबन्धक (व्यापारिक)
Addl. General Manager (Commercial)
एन टी पी सी लिमिटेड/NTPC LIMITED
EOC, A-8A, Sector-24, Noide-201301 (U.P.)

44. We direct that the fly ash transportation cost incurred by the Petitioner, shall be recovered, in proportion to the coal consumed corresponding to the scheduled generation at normative parameters in accordance with the 2019 Tariff Regulations or at actuals, whichever is lower, for the supply of electricity to the respective Discoms. If the actual generation is less than the scheduled generation, the coal consumed for actual generation shall be considered for the purpose of computation of transportation of fly ash. The Petitioners are directed to furnish along with its monthly regular and/or supplementary bill(s), computations duly certified by the auditor, to the Respondent Discoms. The Petitioners and the Respondent Discoms are also directed to carry out reconciliation in respect of the claims, annually and the same is subject to triuing-up, in terms of Regulation 13 of the 2019 Tariff Regulations."

.....
.....
Carrying Cost

47. In line with the above decision and since the Petitioner has been permitted to recover the fly ash transportation cost as 'additional O&M expenses', for the period 2019-24, in exercise of the regulatory powers under Section 79(1)(a) of the Act, we permit the recovery of these charges, along with carrying cost, at the rate of interest as specified, in terms of Regulation 10 (7) of the 2019 Tariff Regulations."

It is pertinent to mentioned here that in compliance to the various directives of the Hon'ble commission in petition no 205/MP/2021, petitioner has already submitted entire set of documents i.e. transportation contracts, price discovery mechanism, end user certificate etc and duly audited statement of ash transportation and ash fund for the FY 2019-20, 20-21 and 21-22. Based on the above said submissions of petitioner, the Hon'ble Commission has already decided the Ash Transportation expenditure for NTPC Stations including Rihand-II station for the said period which has achieved finality.

Further, in compliance to Hon'ble Commission directives vide order dated 28/10/2022 in petition no 205/MP/2021 (para 43), the petitioner continued monthly billing of ash transportation expenditure @90% of expenditure provisionally for the balance period 2022-24.


परिमल पीयूष / PARIMAL PIYUSH
अपर महाप्रबन्धक (वाणिज्यिक)
Addl. General Manager (Commercial)
एन टी पी सी लिमिटेड / NTPC LIMITED
EOC, A-8A, Sector-24, Noida-201301 (U.P.)

In view of the above directions passed by this Hon'ble Commission, the Petitioner is now submitting the actual transportation cost incurred for ash transportation for the period 2022-24 on actual basis in Form-3A along with the required documents. It is relevant to mention that Form-3A contains information of Ash Transportation for entire control period of 2019-24 for the sake of brevity/ simplicity. It is prayed that this Hon'ble Commission may be pleased to allow the same as prayed for.

- 22) The tariff calculation based on the above & other applicable provisions, in the formats provided in the **Appendix-I** of the Tariff Regulations 2019 and supplementary tariff calculations in the formats compiled under **Appendix-IA** are enclosed herewith.
- 23) The filing fee for the tariff determination has already been paid for the period from 2019-24 as per provisions of CERC (Payment of Fees), Regulation 2012. Accordingly, no fee is payable along with this petition for revision of tariff.

Prayer

In the light of above submissions and submissions made in respect of the directions of the Hon'ble Commission in its order dated 08.04.2022 the Petitioner, therefore, prays that the Hon'ble Commission may be pleased to:

- i) Approve revised tariff of **Rihand Super Thermal Power Station Stage-II (2 X 500 MW)** for the tariff period 2019-24 as per provision of Regulation 13 of Tariff Regulations 2019.
- ii) Approve supplementary tariff for Rihand Super Thermal Power Station Stage-II (2x500MW) on installation of Emission Control System for controlling Nox emissions.
- iii) Allow the Petitioner to recover the additional O&M cost for ash transportation.
- iv) Allow the reimbursement of water charges, capital spares, and security expenses for the instant station, as claimed by the Petitioner.
- v) Pass any other order as it may deem fit in the circumstances mentioned above.

(Petitioner)

Noida (U.P.)

Date: 18.11.2024

परिमल पीयूष/PARIMAL PIYUSH
अपर महाप्रबन्धक (वाणिज्यिक)
Addl. General Manager (Commercial)
एन टी पी सी लिमिटेड/NTPC LIMITED
EOC, A-8A, Sector-24, Noida-201301 (U.P.)

BEFORE THE CENTRAL ELECTRICITY REGULATORY COMMISSION
NEW DELHI

PETITION NO.....

For True-up in Petition No- 426/GT/2020

IN THE MATTER OF : Petition Under Section 62 and 79 (1) (a) of the Electricity Act, 2003 read with Chapter-V of the Central Electricity Regulatory Commission (Conduct of Business) Regulations, 2023 and Chapter-3, Regulation-13 of Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2019 for revision of tariff of **Rihand Super Thermal Power Station St-II (1000MW)** for the period from 01.04.2019 to 31.03.2024 after the truing up exercise.

Petitioner: : NTPC Ltd.
NTPC Bhawan
Core-7, Scope Complex
7, Institutional Area, Lodhi Road
New Delhi-110 003



Respondents:

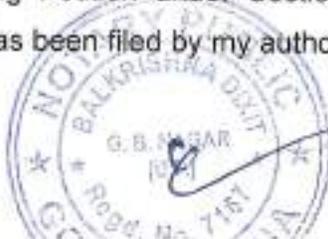
1. Uttar Pradesh Power Corp. Ltd. (UPPCL)
Shakti Bhawan
14, Ashok Marg
Lucknow -226 001

And
Others

AFFIDAVIT

I, Parimal Piyush, Son of Late Bharat Mishra, aged about 49 years, resident of IN1-2004, Inspire, Eldeco Amantran, Sector-119, Noida (UP), do hereby solemnly affirm and state as follows:

1. That the deponent is the Additional General Manager (Commercial) of the Petitioner NTPC Ltd., and is well conversant with the facts and the circumstances of the case and therefore competent to swear this affidavit.
2. That the accompanying Petition under Section 62 and 79 (1) (a) of the Electricity Act, 2003, has been filed by my authorized representative under my



Signature

instruction and the contents of the same are true and correct to the best of my knowledge and belief.

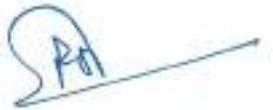
3. That the contents of Para No...1... to...23... as mentioned in the Petition are true and correct based on the my personal knowledge, belief and records maintained in the office.
4. That the annexures annexed to the Petition are correct and true copies of the respective originals.
5. That the Deponent has not filed any other Petition or Appeal before any other forum or court of law with respect to the subject matter of the dispute.

परिमल पीयूष/PARIMAL PIYUSH
अपर महाप्रबन्धक (वाणिज्यिक)
Addl. General Manager (Commercial)
एन टी पी सी लिमिटेड/NTPC LIMITED
EOC, A-8A, Sector-24, Noida-201301 (U.P.)


(Deponent)

Verification:

Verified at Noida on this 16th day of November 2024, that the contents of my above noted affidavit are true and correct to my knowledge and no part of it is false and nothing material has been concealed therefrom.


(Deponent)

परिमल पीयूष/PARIMAL PIYUSH
अपर महाप्रबन्धक (वाणिज्यिक)
Addl. General Manager (Commercial)
एन टी पी सी लिमिटेड/NTPC LIMITED
EOC, A-8A, Sector-24, Noida-201301 (U.P.)



ATTESTED

BALKRISHNA DIXIT
Advocate (Notary)
R. N. 7167
GAUTAMBUDH NAGAR (U.P.)
16 NOV 2024

TARIFF FILING FORMS (THERMAL)

FOR TRUING-UP OF TARIFF

FOR

Rihand Super Thermal Power Station Stage-II

(From 01.04.2019 to 31.03.2024)

PART-I

APPENDIX-I


परिमल पीयूष/PARIMAL PIYUSH
अपर महाप्रबन्धक (वाणिज्यिक)
Addl. General Manager (Commercial)
एन टी पी सी लिमिटेड/NTPC LIMITED
EOC, A-8A, Sector-24, Noida-201301 (U.P.)

Checklist of Main Tariff Forms and other information for tariff filing for Thermal Stations

Form No.	Title of Tariff Filing Forms (Thermal)	Tick
FORM- 1	Summary of Tariff	✓
FORM -1 (I)	Statement showing claimed capital cost	✓
FORM -1 (II)	Statement showing Return on Equity	✓
FORM-2	Plant Characteristics	✓
FORM-3	Normative parameters considered for tariff computations	✓
FORM-3A**	Statement showing O&M Expenses	✓
FORM-3B**	Statement of Special Allowance	✓
FORM- 4	Details of Foreign loans	NA
FORM- 4A	Details of Foreign Equity	NA
FORM-5	Abstract of Admitted Capital Cost for the existing Projects	✓
FORM-5A**	Abstract of Claimed Capital Cost for the existing Projects	✓
FORM- 6	Financial Package upto COD	NA
FORM- 7	Details of Project Specific Loans	NA
FORM- 8	Details of Allocation of corporate loans to various projects	✓
FORM-9A**	Summary of Statement of Additional Capitalisation claimed during the period	✓
FORM-9##	Statement of Additional Capitalisation after COD	✓
FORM- 10	Financing of Additional Capitalisation	✓
FORM- 11	Calculation of Depreciation on original project cost	NA
FORM- 12	Statement of Depreciation	✓
FORM- 13	Calculation of Weighted Average Rate of Interest on Actual Loans	✓
FORM- 14	Draw Down Schedule for Calculation of IDC & Financing Charges	NA
FORM- 15	Details of Fuel for Computation of Energy Charges	✓
FORM- 15A**	Details of Secondary Fuel for Computation of Energy Charges	✓
FORM- 15B**	Computation of Energy Charges	✓
FORM- 16	Details of Limestone for Computation of Energy Charge Rate	NA
FORM-17	Details of Capital Spares	✓
FORM- 18	Non-Tariff Income	✓
FORM-19	Details of Water Charges	✓
FORM-19A**	Details of Water Charges Computation	✓
FORM-20	Details of Statutory Charges	✓

Provided yearwise for the period 2019-24

List of Supporting Forms / documents for tariff filing for Thermal Stations

PART-I

Form No.	Title of Tariff Filing Forms (Thermal)	Tick
FORM-A	Abstract of Capital Cost Estimates	NA
FORM-B	Break-up of Capital Cost for Coal/Lignite based projects	NA
FORM-C	Break-up of Capital Cost for Gas/Liquid fuel based Projects	NA
FORM-D	Break-up of Construction/Supply/Service packages	NA
FORM-E	Details of variables , parameters , optional package etc. for New Project	NA
FORM-F	Details of cost over run	NA
FORM-G	Details of time over run	NA
FORM-H	Statement of Additional Capitalisation during end of the useful life	NA
FORM-I	Details of Assets De-capitalised during the period	✓
FORM-J	Reconciliation of Capitalisation claimed vis-a-vis books of accounts	✓
FORM-K	Statement showing details of items/assets/works claimed under Exclusions	✓
FORM-L	Statement of Capital cost	✓
FORM-M	Statement of Capital Woks in Progress	✓
FORM-N	Calculation of Interest on Normative Loan	✓
FORM-O	Calculation of Interest on Working Capital	✓
FORM-P	Incidental Expenditure up to SCOD and up to Actual COD	NA
FORM-Q	Expenditure under different packages up to SCOD and up to Actual COD	NA
FORM-R	Actual cash expenditure	NA
FORM-S	Statement of Liability flow	✓
FORM-T	Summary of issues involved in the petition	✓

** Additional Forms

(Petitioner)

श्री शंकर/PARIMAL PIYUSH
 Adnl. General Manager (tariff/energy)
 EOC, A&A, Sector-24, Noida-201301 (U.P.)

List of supporting documents for tariff filing for Thermal Stations		
S. No.	Information / Document	Tick
1	Certificate of incorporation, Certificate for Commencement of Business, Memorandum of Association, & Articles of Association (For New Station setup by a company making tariff application for the first time to CERC)	NA
2	A. Station wise and Corporate audited Balance Sheet and Profit & Loss Accounts with all the Schedules & annexures on COD of the Station for the new station & for the relevant years. B. Station wise and Corporate audited Balance Sheet and Profit & Loss Accounts with all the Schedules & annexures for the existing station for relevant years.	✓
3	Copies of relevant loan Agreements	NA
4	Copies of the approval of Competent Authority for the Capital Cost and Financial package.	NA
5	Copies of the Equity participation agreements and necessary approval for the foreign equity.	NA
6	Copies of the BPSA/PPA with the beneficiaries, if any	NA
7	Detailed note giving reasons of cost and time over run, if applicable. List of supporting documents to be submitted: a. Detailed Project Report b. CPM Analysis c. PERT Chart and Bar Chart d. Justification for cost and time Overrun	NA
8	Generating Company shall submit copy of Cost Audit Report along with cost accounting records, cost details, statements, schedules etc. for the Generating Unit wise /stage wise/Station wise/ and subsequently consolidated at Company level as submitted to the Govt. of India for first two years i.e. 2019-20 and 2020-21 at the time of mid-term true-up in 2021-22 and for balance period of tariff period 2019-24 at the time of final true-up in 2024-25. In case of initial tariff filing the latest available Cost Audit Report should be furnished.	✓
9	Any other relevant information, (Please specify)	NA
10	Reconciliation with Balance sheet of any actual additional capitalization and amongst stages of a generating station	✓
11	BBMB is maintaining the records as per the relevant applicable Acts. Formats specified herein may not be suitable to the available information with BBMB. BBMB may modify the formats suitably as per available information to them for submission of required information for tariff purpose	NA
(Petitioner)		

परिमल पीयूष/PARIMAL PIYUSH
अपर महाप्रबन्धक (वाणिज्यिक)
Add. General Manager (Commercial)
एन टी पी सी लिमिटेड/NTPC LIMITED
EOC, A-8A, Sector-24, Noida-201301 (U.P.)

Summary of Tariff

**PART-J
FORM- 1**

Name of the Petitioner:	NTPC Limited
Name of the Generating Station:	Rihand Super Thermal Power Station Stage-II
Place (Region/District/State):	Northern Region/Sonebhadra/ Uttar Pradesh

S. No.	Particulars	Unit	Amount in Rs. Lakhs					
			2018-19	2019-20	2020-21	2021-22	2022-23	2023-24
1	2	3	4	5	6	7	8	9
1.1	Depreciation	Rs Lakh	5,719.18	5,745.47	5,786.66	5,889.66	6,059.77	6,230.68
1.2	Interest on Loan	Rs Lakh	920.81	476.37	127.87	-	-	-
1.3	Return on Equity	Rs Lakh	17,523.08	16,666.73	16,663.74	16,699.40	16,782.57	16,847.57
1.4	Interest on Working Capital	Rs Lakh	5,252.84	4,447.99	4,227.97	3,923.84	4,135.00	5,112.71
1.5	O&M Expenses	Rs Lakh	20,927.18	25,610.14	28,211.58	29,208.85	32,998.01	40,097.25
	Total	Rs Lakh	50,343.09	52,946.69	55,017.83	55,721.76	59,975.36	68,288.21
2.1	Landed Fuel Cost of coal as per FSA approved by beneficiaries	Rs/Ton	1,698.87	2,228.61	2,248.06	2,161.19	2,422.66	2,409.13
	(%) of Fuel Quantity	(%)	97.12%	100.00%	100.00%	100.00%	100.00%	100.00%
2.2	Landed Fuel Cost of Imported Coal as per FSA approved by beneficiaries	Rs/Ton				NA		
	(%) of Fuel Quantity	(%)				NA		
2.3	Landed Fuel Cost of coal other than FSA	Rs/Ton	5,890.58			NA		
	(%) of Fuel Quantity	(%)	1.11%			NA		
2.4	Landed Fuel Cost Imported Coal other than FSA.	Rs/Ton	6,663.22			NA		
	(%) of Fuel Quantity	(%)	1.77%			NA		
2.5	Secondary fuel oil cost	Rs/Unit	0.03	0.03	0.03	0.02	0.03	0.04
	Energy Charge Rate ex-bus 2A, 2B, 2C, 2D	Rs/Unit	1.20	1.42	1.42	1.42	1.49	1.56

परिमल पीयूष/PARIMAL PIYUSH
अपर महाप्रबन्धक (वाणिज्यिक)
Addl. General Manager (Commercial)
एन टी पी सी लिमिटेड /NTPC LIMITED
EOC, A-8A, Sector-24, Noida-201301 (U.P.)


(Petitioner)

Name of the Petitioner: NTPC Limited
Name of the Generating Station: Rihand Super Thermal Power Station Stage-II

Amount in Rs. Lakhs

Statement showing claimed capital cost – (A+B)

S. No.	Particulars	2019-20	2020-21	2021-22	2022-23	2023-24
1	2	3	4	5	6	7
1	Opening Capital Cost	2,96,123.42	2,95,461.70	2,96,017.48	2,96,727.35	2,98,969.59
2	Add: Addition during the year	46.63	835.31	959.73	2,652.36	641.41
3	Less: De-capitalisation during the year	-777.00	-684.90	-249.85	-421.23	-576.51
4	Less: Reversal during the year	-	-	-	-	-
5	Add: Discharges during the year	68.65	405.37	-	11.11	-
6	Closing Capital Cost	2,95,461.70	2,96,017.48	2,96,727.35	2,98,969.59	2,99,034.50
7	Average Capital Cost	2,95,792.56	2,95,739.59	2,96,372.41	2,97,848.47	2,99,002.05

Statement showing claimed capital cost eligible for RoE at normal rate (A)

S. No.	Particulars	2019-20	2020-21	2021-22	2022-23	2023-24
1	2	3	4	5	6	7
1	Opening Capital Cost	296123.42	295461.70	296017.48	296727.35	298969.59
2	Add: Addition during the year	46.63	835.31	959.73	2652.36	641.41
3	Less: De-capitalisation during the year	-777.00	-684.90	-249.85	-421.23	-576.51
4	Less: Reversal during the year	0.00	0.00	0.00	0.00	0.00
5	Add: Discharges during the year	68.65	405.37	0.00	11.11	0.00
6	Closing Capital Cost	295461.70	296017.48	296727.35	298969.59	299034.50
7	Average Capital Cost	295792.56	295739.59	296372.41	297848.47	299002.05

**Statement showing claimed capital cost eligible for RoE at weighted average rate of interest
on actual loan portfolio (B)**

S. No.	Particulars	2019-20	2020-21	2021-22	2022-23	2023-24
1	2	3	4	5	6	7
1	Opening Capital Cost	0.00	0.00	0.00	0.00	0.00
2	Add: Addition during the year	0.00	0.00	0.00	0.00	0.00
3	Less: De-capitalisation during the year	0.00	0.00	0.00	0.00	0.00
4	Less: Reversal during the year	0.00	0.00	0.00	0.00	0.00
5	Add: Discharges during the year	0.00	0.00	0.00	0.00	0.00
6	Closing Capital Cost	0.00	0.00	0.00	0.00	0.00
7	Average Capital Cost	0.00	0.00	0.00	0.00	0.00


(Petitioner)

परिमल पीयूष/PARIMAL PIYUSH
अपर महाप्रबन्धक (वाणिज्यिक)
Addl. General Manager (Commercial)
एन टी पी सी लिमिटेड/NTPC LIMITED
EOC, A-8A, Sector-24, Noida-201301 (U.P.)

Statement showing Return on Equity at Normal Rate

**PART-I
FORM- 1(IIA)**

Name of the Petitioner	NTPC Limited
Name of the Generating Station	Rihand Super Thermal Power Station Stage-II

S. No.	Particulars	Amount in Rs. Lakhs				
		2019-20	2020-21	2021-22	2022-23	2023-24
1	2	3	4	5	6	8
	Return on Equity					
1	Gross Opening Equity (Normal)	88,837.02	88,638.50	88,805.24	89,018.20	89,690.87
2	Less: Adjustment in Opening Equity	-	-	-	-	-
3	Adjustment during the year	-	-	-	-	-
4	Net Opening Equity (Normal)	88,837.02	88,638.50	88,805.24	89,018.20	89,690.87
5	Add: Increase in equity due to addition during the year	13.99	250.59	287.92	795.71	192.42
7	Less: Decrease due to De-capitalisation during the year	233.10	205.47	74.96	126.37	172.95
8	Less: Decrease due to reversal during the year	0.00	0.00	0.00	0.00	0.00
9	Add: Increase due to discharges during the year	20.60	121.61	0.00	3.33	0.00
10	Net closing Equity (Normal)	88,638.50	88,805.24	89,018.20	89,690.87	89,710.34
11	Average Equity (Normal)	88,737.76	88,721.87	88,911.72	89,354.54	89,700.61
12	Rate of ROE (%)	18.782%	18.782%	18.782%	18.782%	18.782%
13	Total ROE	16,666.73	16,663.74	16,699.40	16,782.57	16,847.57



(Petitioner)

परिमल पीयूष / PARIMAL PIYUSH
 अपर महाप्रबन्धक (व्यावसायिक)
 Addl. General Manager (Commercial)
 एन टी पी सी लिमिटेड / NTPC LIMITED
 EOC, A-8A, Sector-24, Noida-201301 (U.P.)

Statement showing Return on Equity at Weighted Average Rate of Interest

**PART-I
FORM- 1(IIB)**

Name of the Petitioner: **NTPC Limited**
 Name of the Generating Station: **Rihand Super Thermal Power Station Stage-II**

S. No.	Particulars	Amount in Rs. Lakhs				
		2019-20	2020-21	2021-22	2022-23	2023-24
1	2	3	4	5	6	8
Return on Equity @ Weighted Average Rate of Interest						
1	Gross Opening Equity (Normal)	0.00	0.00	0.00	0.00	0.00
2	Less: Adjustment in Opening Equity	0.00	0.00	0.00	0.00	0.00
3	Adjustment during the year	0.00	0.00	0.00	0.00	0.00
4	Net Opening Equity (Normal)	0.00	0.00	0.00	0.00	0.00
5	Add: Increase in equity due to addition during the year	0.00	0.00	0.00	0.00	0.00
7	Less: Decrease due to De-capitalisation during the year	0.00	0.00	0.00	0.00	0.00
8	Less: Decrease due to reversal during the year	0.00	0.00	0.00	0.00	0.00
9	Add: Increase due to discharges during the year	0.00	0.00	0.00	0.00	0.00
10	Net closing Equity (Normal)	0.00	0.00	0.00	0.00	0.00
11	Average Equity (Normal)	0.00	0.00	0.00	0.00	0.00
12	Rate of ROE (%)	9.35%	9.35%	9.35%	9.35%	9.35%
13	Total ROE	0.00	0.00	0.00	0.00	0.00



(Petitioner)

परिमल पीयूष / PARIMAL PIYUSH
 अपर महाप्रबन्धक (वाणिज्यिक)
 Addl. General Manager (Commercial)
एन टी पी सी लिमिटेड / NTPC LIMITED
 EOC, A-8A, Sector-24, Noida-201301 (U.P.)

Name of the Company:		NTPC Limited	
Name of the Power Station:		Rihand Super Thermal Power Station Stage-II	
Plant Characteristics			
Unit(s)/Block(s)/Parameters	Unit-I	Unit-II	
Installed Capacity (MW)	500	500	
Schedule COD as per Investment Approval	NA	NA	
Actual COD /Date of Taken Over (as applicable)	15.08.2005	01.04.2005	
Pit Head or Non Pit Head	Pit Head		
Name of the Boiler Manufacture			
Name of Turbine Generator Manufacture			
Main Steams Pressure at Turbine inlet (kg/Cm ²) abs ¹			
Main Steam Temperature at Turbine inlet (°C) ¹			
Reheat Steam Pressure at Turbine inlet (kg/Cm ²) ¹			
Reheat Steam Temperature at Turbine inlet (°C) ¹			
Main Steam flow at Turbine inlet under MCR condition (tons /hr) ²			
Main Steam flow at Turbine inlet under VWO condition (tons /hr) ²			
Unit Gross electrical output under MCR /Rated condition (MW) ²			
Unit Gross electrical output under VWO condition (MW) ²			
Guaranteed Design Gross Turbine Cycle Heat Rate (kCal/kWh) ³			
Conditions on which design turbine cycle heat rate guaranteed	N/A		
% MCR			
% Makeup Water Consumption			
Design Capacity of Make up Water System(DM)—m ³ /hr			
Design Capacity of Inlet Cooling System-m ³ /hr			
Design Cooling Water Temperature (°C)			
Back Pressure/mm Hg abs)			
Steam flow at super heater outlet under BMCR condition (tons/hr)			
Steam Pressure at super heater outlet under BMCR condition) (kg/Cm ²)			
Steam Temperature at super heater outlet under BMCR condition (°C)			
Steam Temperature at Reheater outlet at BMCR condition (°C)			
Design / Guaranteed Boiler Efficiency (%)			
Design Fuel with and without Blending of domestic/imported coal			
Type of Cooling Tower	Induced draught type Cooling tower		
Type of cooling system ⁵	Closed Cycle		
Type of Boiler Feed Pump ⁶	2X50% Steam Driven + 1X50% Electrical Driven for each unit		
Type of coal Mill			
Fuel Details ⁷			
-Primary Fuel	Coal		
-Secondary Fuel	LDO		
-Alternate Fuels	LDO		
Types of SOX control system	FGD under implementation		
Types of NOX control system	Combustion Modification System		
Details of SPM control system	ESP		
Special Features/Site Specific Features ⁸			
Special Technological Features ⁹			
Environmental Regulation related features ¹⁰	1.ESP is provided 2. DeNOx (Combustion Modification) Installed 2.FGD under implementation		
			
Petitioner			

परिमल पीयूष/PARIMAL PIYUSH
अपर महाप्रबन्धक (व्यावसायिक)
Add. General Manager (Commercial)
एन टी पी सी लिमिटेड./NTPC LIMITED
EOC, A-8A, Sector-24, Noida-201301 (U.P.)

Normative parameters considered for tariff computations							PART-I FORM-3		
Name of the Petitioner:		NTPC Limited							
Name of the Generating Station:		Rihand Super Thermal Power Station Stage-II							
Particulars 1	Unit 2	(Year Ending March)							
		2018-19 3	2019-20 4	2020-21 5	2021-22	2022-23 6	2023-24 8		
Base Rate of Return on Equity at normal rate	%	15.50%	15.50%	15.50%	15.50%	15.50%	15.50%		
Base Rate of Return on Equity on Add. Capitalization at Weighted Average Rate of Interest on Loan	%	8.03%	7.71%	7.71%	7.71%	7.71%	7.71%		
Effective Tax Rate	%	21.55%	17.47%	17.47%	17.47%	17.47%	17.47%		
Target Availability	%	85.00%	85.00%	85.00%	85.00%	85.00%	85.00%		
In High Demand Season	%	85.00%	85.00%	85.00%	85.00%	85.00%	85.00%		
Peak Hours	%	85.00%	85.00%	85.00%	85.00%	85.00%	85.00%		
Off-Peak Hours	%	85.00%	85.00%	85.00%	85.00%	85.00%	85.00%		
In Low Demand Season(Off-Peak)	%	85.00%	85.00%	85.00%	85.00%	85.00%	85.00%		
Peak Hours	%	85.00%	85.00%	85.00%	85.00%	85.00%	85.00%		
Off-Peak Hours	%	85.00%	85.00%	85.00%	85.00%	85.00%	85.00%		
Auxiliary Energy Consumption	%	5.75%	6.25%	6.25%	6.25%	6.25%	6.25%		
Gross Station Heat Rate	kCal/kWh	2375.00	2390.00	2390.00	2390.00	2390.00	2390.00		
Specific Fuel Oil Consumption	m ³ /kWh	0.50	0.50	0.50	0.50	0.50	0.50		
Cost of Coal/Lignite for WC	in Days	45	40	40	40	40	40		
Cost of Main Secondary Fuel Oil for WC	in Months	2	2	2	2	2	2		
Fuel Cost for WC	in Months								
Liquid Fuel Stock for WC	in Months								
O&M Expenses	Rs lakh/MW	20.43	22.51	23.30	24.12	24.97	25.84		
Maintenance Spares for WC	% of O&M	20.00%	20.00%	20.00%	20.00%	20.00%	20.00%		
Recoveries for WC	in Days	2months	45.00	45.00	45.00	45.00	45.00		
Storage capacity of Primary fuel*	MT	8.9 lakh MT							
SBI 1 Year MCLR plus 350 basis point	%	13.50%	12.05%	11.25%	10.50%	10.50%	12.00%		
Blending ratio of domestic coal/imported coal									

*Combined storage capacity of Rihand St-I, Rihand St-II and Rihand St-III.



Petitioner

परिमल पीयूष/PARIMAL PIYUSH
अपर महाप्रबन्धक (वणिज्यिक)
Addl. General Manager (Commercial)
एन टी पी सी लिमिटेड/NTPC LIMITED
EOC, A-8A, Sector-24, Noida-201301 (U.P.)

Calculation of O&M Expenses

Name of the Company : **NTPC Limited**
Name of the Power Station : **Rihand Super Thermal Power Station Stage-II**

S.No	Particulars	Amount in Rs. Lakhs				
		2019-20	2020-21	2021-22	2022-23	2023-24
1	2	3	4	5	6	8
1	O&M expenses under Reg.35(1)					
1a	Normative	22510.00	23300.00	24120.00	24970.00	25840.00
2	O&M expenses under Reg.35(6)					
2a	Water Charges	466.24	466.24	466.24	466.24	477.83
2b	Security expenses	1244.50	1535.62	1251.15	1503.19	1667.45
2c	Capital Spares*	1389.40	1791.07	1217.69	1847.84	5355.02
3	O&M expenses-Ash Transportation**	0.00	1118.65	2153.78	4210.75	6756.94
	Total O&M Expenses	25610.14	28211.58	29208.85	32998.01	40097.25

*Capital spares: The above amount for Rihand-II is by apportioning the capital spares for Rihand-I, II & III based on installed capacity (in MW).

Hon'ble commission vide its order dated 28.10.2022 in petition no 205/MP/2021 had allowed the Ash transportation expenses of Rs 0 Lakhs, Rs 3125.21Lakh, Rs 7229.05 Lakhs for the period from 2019-20, 2020-21 & 2021-22 after accounting for the revenue earned through sale of ash for the Rihand Station (Stage-I, II and III combined), as per the audited data submitted by the petitioner. Also, Hon'ble commission had allowed the provisional billing at 90% of the ash transportation expenses incurred by the petitioner for the remaining tariff period (i.e. 2022-24). The details of same apportioned for Rihand-I, II & III provided in Annexure-3B. Auditor certificate enclosed as **Annexure-1.


Petitioner

परिमल पीयूष/PARIMAL PIYUS
अपर महाप्रबन्धक (वाणिज्यिक)
Addl. General Manager (Commercial)
एन टी पी सी लिमिटेड/NTPC LIMITED
EOC, A-8A, Sector-24, Noida-201301 (U.)

Statement of Ash Transportation Expenses

Name of the Petitioner: NTPC Limited
Name of the Generating Station: Rihand Super Thermal Power Station Stage-II

S.No.	Particulars	UOM	Amount in Rs. Lakh				
			2019-20	2020-21	2021-22	2022-23	2023-24
1	Total Ash Transportation Charges Incurred, Rihand Station	Rs Lakh	11.90	3,364.53	7,229.05	11,810.27	21,277.18
2	Income from sales of Ash, Rihand Station	Rs Lakh	11.90	239.32	-	5.49	44.09
3	Net Ash Transportation Charges, Rihand Station	Rs Lakh	-	3,125.21	7,229.05	11,804.78	21,233.09
4	Ash Trans. Charges- Rihand Super Thermal Power Station Stage-II	Rs Lakh	-	1,118.65	2,153.78	4,210.75	6,756.94
5	Ash Trans. Charges- Rihand Super Thermal Power Station Stage-I	Rs Lakh	-	928.83	2,506.71	3,577.34	7,269.50
6	Ash Trans. Charges- Rihand Super Thermal Power Station Stage-III	Rs Lakh	-	1,077.92	2,568.56	3,940.88	7,206.65
			-	3,125.20	7,229.05	11,728.97	21,233.09

Note- Ash Transportation charges from 2019-20 to 2021-22 were allowed by Hon'ble Commission vide its order dated 28.10.2022 in Petition No-205/MP/2021 which is pro-rated based on SG in different stages.



(Petitioner)

परिमल पीयूष/PARIMAL PIYUSH
अपर महाप्रबन्धक (वणिज्यिक)
Addl. General Manager (Commercial)
एन टी पी सी लिमिटेड/NTPC LIMITED
EOC, A-8A, Sector-24, Noida-201301 (U.P.)

Abstract of Admitted Capital Cost for the existing Projects

Name of the Company :	NTPC Limited	
Name of the Power Station :	Rihand Super Thermal Power Station Stage-II	
Last date of order of Commission for the project	Date (DD-MM-YYYY)	26-09-2023
Reference of petition no. in which the above order was passed	Petition no.	Review Petition no. 34/RP/2022 in main petition no. 426/GT/2020
Following details (whether admitted and /or considered) as on the last date of the period for which tariff is approved, in the above order by the Commission:		
Capital cost as on 31.03.2024	(Rs. in lakh)	3,00,644.20
Amount of un-discharged liabilities included in above (& forming part of admitted capital cost)		
Amount of un-discharged liabilities corresponding to above admitted capital cost (but not forming part of admitted capital cost being allowed on cash basis)		261.91
Gross Normative Debt as on 31.03.2024		2,10,450.95
Cumulative Repayment as on 31.03.2024		2,10,450.95
Net Normative Debt as on 31.03.2024		-
Normative Equity as on 31.03.2024		90,193.28
Cumulative Depreciation as on 31.03.2024		2,28,679.22
Freehold land		-
		 (Petitioner)

परिमल पीयूष/PARIMAL PIYUSH
 अपर महाप्रबन्धक (वाणिज्यिक)
 Addl. General Manager (Commercial)
 एन टी पी सी लिमिटेड/NTPC LIMITED
 EOC, A-8A, Sector-24, Noida-201301 (U.P.)

Abstract of Claimed Capital Cost for the existing Projects

Name of the Company :	NTPC Limited	
Name of the Power Station	Rihand Super Thermal Power Station Stage-II	
Reference of Final True-up Tariff Petition	Affidavit dated	
Capital Cost as on 31.03.2024 as per Hon'ble Commission's Order dated 19.05.2024 in Pet. No.	Rs. Lakhs	3,00,644.20
Adjustment as per Para 12 i.e. capital cost as on 31.03.2024 as per present true-up petition		-1,609.70
Following details as considered by the Petitioner as on the last date of the period for which final true-up tariff is claimed:		
Capital cost as on 31.03.2024	(Rs. in lakh)	2,99,034.50
Amount of un-discharged liabilities included in above (& forming part of admitted capital cost)		-
Amount of un-discharged liabilities corresponding to above admitted capital cost (but not forming part of admitted capital cost being allowed on cash basis)		316.60
Gross Normative Debt as on 31.03.2024		2,09,324.16
Cumulative Repayment as on 31.03.2024		2,09,324.16
Net Normative Debt as on 31.03.2024		-
Normative Equity as on 31.03.2024		89,710.34
Cumulative Depreciation as on 31.03.2024		2,27,018.64
Freehold land		-
 (Petitioner)		

परिमल पीयूष/PARIMAL PIYL
 अपर महाप्रबन्धक (वाणिज्यिक)
 Addl. General Manager (Commercial)
 एन टी पी सी लिमिटेड/NTPC LIMITED
 EOC, A-5A, Sector-24, Noida-201301 (U)

Form-8	
Particulars *	* XXI 7.7125%
Series	21
Source of Loan ¹	BONDS
Currency ²	INR
Amount of Loan sanctioned	100000
Interest Type ⁶	Fixed
Fixed Interest Rate, if applicable	7.7125%
Base Rate, if Floating Interest ⁷	N/A
Margin, if Floating Interest ⁸	N/A
Are there any Caps/Floor ⁹	No
If above is yes, specify caps/floor	
Moratorium Period ¹⁰	4.5 yrs *
Moratorium effective from #	02.02.06
Repayment Period ¹¹	9.5 yrs
Repayment effective from	02.08.2010
Repayment Frequency ¹²	Half Yearly
Repayment Instalment ^{13,14}	5000
Base Exchange Rate ¹⁶	
Door to Door Maturity	14 yrs
Name of the Projects	25,000
 (Petitioner)	

परिमल पीयूष/PARIMAL PIYUSH
 अपर महाप्रबन्धक (वाणिज्यिक)
 Addl. General Manager (Commercial)
 एन टी पी सी लिमिटेड/NTPC LIMITED
 EOC, A-8A, Sector-24, Noida-201301 (U.P.)

Total (B)	-	-	-	-	-	-	-	-	*
Total Add. Cap. Claimed (A+B)	-661,719	555,775	709,877	2,242,242	64,908				

 (Petitioner)

परिमल पीयूष/PARIMAL PIYUSH
 अपर मनेज्यन्स (पारिपियुस)
 Addl. General Manager (Commercial)
 एन टी पी सी लिमिटेड/NTPC LIMITED
 EOC, A-3A, Sector-24, Noida-201301 (U.P.)

Year wise Statement of Additional Capitalization after CDD										
Name of the Petitioner		NTPC Limited								
Name of the Generating Station		Rohat Super Thermal Power Station Stage-I								
CDD		01-04-2006								
For Financial Year		2015-20								
Sl. No.	Head of Work/Equipment	Agency's Name	Accrual basis as per Ind AS	Ind AS adjustment	ACE Claimed			Regulations under which claimed	Justification	Admitted Cost by the Commission, if any
					Accrual basis as per IGAAP	Un-discharged Liability included in col. 3	Cash basis			
1	2		3	4	5 = (3-4)	6	7	8	9	
A. Works under Original scope, Change in Law etc. eligible for RoC at Normal Rate										
A. Claims										
A.1 Claimed/Waived Items										
1	2nd Raising of Mithani Ash Dyke Lagoons - I	Baghel Infrastructures	30.05	-	30.05	-	30.05	25(1)(x)	Horble Commission vide para 26 of order dtl. 22.03.2002 in petition no.1/2007/2005 has allowed the work of 2nd Raising of Mithani Ash Dyke Lagoon-I in 2014-19 control period and corresponding capitalization of Rs. 1241.90 Lakh. Present capitalization pertains to release of payment for balance work. Horble Commission may be please to allow the same under reg. 25(1)(g) of Tariff Regulations, 2019.	
2	Main Plant Package	BHEL	3.19	-	3.19	-	3.19	25(1)(d)	These works are part of the Original scope of works and were completed & capitalized before cut-off date. The present capitalization pertains to supervisory services for PG test of Condenser Online Tube-Cleaning System. Being a part of original scope Horble Commission may be please to allow the same under reg. 25(1)(g) of tariff regulations, 2019.	
3	Upgradation of Control System of HVAC Vapour Absorption System	Thermax Ltd	12.60	-	12.60	-	12.60	25(2)(c)	The Existing Varn Control Panel S7-200 Plc Series & Associated io Modules Have Been Declared Obsolete. For Future Maintenance to Keep The Varn Running the S7-200 Plc Series & Associated io Modules have been upgraded With S7-1200 Plc Series & Associated io Modules. S7-1200 transition manual from OEM Siemens depicting obsolete scope attached as Annexure-2A/1.	
4	Main Plant Package (Package ERV)	BHEL	-75.36	-	-75.36	-75.36	-	25(1)(x)	Horble Commission may be please to allow the same. The present capitalization is reimbursement of liabilities due to Foreign Exchange Rate variation corresponding to the works allowed by Horble Commission. Horble Commission may be please to allow the same as and when the liabilities are discharged.	
Subtotal (A.1)			-28.74	-	-28.74	-75.36	46.62			
A.2	Capitalization of MBOAs		-	-	-	-	-			
A.3	Decap of MBOAs: Part of Capital Cost		-352.88	-359.05	-742.93	-	-742.93	25(2)	These assets were part of capital cost, have become unserviceable. Accordingly the same are decapitalized.	
A.4	Decap of Spares: Part of Capital Cost		-10.64	-21.04	-34.67	-	-34.67	25(2)	These spares were part of capital cost, have become unserviceable. Accordingly the same are decapitalized.	
TOTAL Claim (A)			-392.25	-413.49	-805.74	-75.36	-730.37			
A.5	Discharge of Liability						88.60	25(1)(f)	Details given in Form-5, i.e. Liability Flow Statement.	88.60
Total additional capitalization claimed with RoC at Normal Rate (A)							461.72			
B. Works beyond Original scope excluding add-on due to Change in Law eligible for RoC at Wtd. Average rate of interest										
Total (B)										
Total Add. Cap. Claimed (A+B)							661.72			

परिमल पीयूष/PARIMAL PIYUSH
 अपर महाप्रबन्धक (वाणिज्यिक)
 Addl. General Manager (Commercial)
 एन टी पी सी लिमिटेड/NTPC LIMITED
 EOC, A-8A, Sector-24, Noida-201301 (U.P.)

Year wise Statement of Additional Capitalization after COD

Name of the Petitioner: NTPC Limited
 Name of the Generating Station: Rihand Super Thermal Power Station Stage-I
 COD: 01-04-2008
 For Financial Year: 2020-21

Sl. No.	Head of Work /Equipment	Agency's Name	Accrual basis as per Ind AS	Ind AS Adjustment	Accrual basis as per IRAP	ACE Claimed			Regulations under which claimed	Justification	Amount in Rs. Lakh Admitted Cost by the Commission, if any
						Un-discharged Liability included in col. 3	Cash back	EDC included in col. 3			
1	2		3	4	5	6	7	8	9		
A. Works under Original scope, Change in Law etc. eligible for RoC at Normal Rate											
A.1 Claimed/Withdrawn Items											
1	Augmentation of Railway Siding & MDR System S&T	RITES LTD	27.35	0.00	27.35	0.00	27.35	0.00	25(1)(f) & 7B	This work pertains to original scope and expenditure against the same was allowed by the Hon'ble Commission vide para 27 of order dttd. 02.08.2012 in petition no. 254(2009). Present capitalization pertains to release of balance payment on account of contract closing activities. Hon'ble Commission may be pleased to allow the capitalization for the work of original scope under reg. 25(1)(f) and reg. 7B of tariff regulations, 2012.	
2	Upgradation of Coal Mill feeder	Silbernick Process Solutions	462.94	4.34	467.28	0.00	467.28	0.00	25(2)(c)	Stock make control equipment are installed in Gravimetric Feeder (196 MT MPC used for feeder controls). Spares are required to be maintained in order to ensure availability of the system, but coils of STOCK make 196MT Controllers are obsolete, hence it is necessary to upgrade the existing feeder control system to latest DT-9 based control system. Also, old Eddy current clutch drive is installed in gravimetric feeder's for speed control of belt, and thereby maintaining the feed rate as per requirement. They are subject to continuous heavy-duty operation under heat and dust conditions in boiler area, and have repetitive breakdowns which increase the down time of feeder resulting in generation loss. So there is requirement to upgrade them with VFD drive to replace old eddy current clutch drives. Present capitalization pertains to upgradation of Gravimetric feeder by installing VFD & DT9 Controller. Hon'ble Commission may be pleased to allow the same.	
3	Upgrade of Control System in Office areas	Net Cascade Automation Pvt. Ltd.	282.11	0.00	282.11	11.11	251.01	0.00	25(2)(c)	Control system installed in office areas like Feed Water Pump House, Fuel Oil Pump House, Wagon Trolley, etc. has been declared obsolete by OEM Emerson Automation Solutions Intelligent Platforms (Earlier known as GE Intelligent Platforms Pvt. Ltd.) on 1st Aug 2017. Spares support is also not available. So to keep healthy running of Office area PLC system the existing PLC 50-33 has been upgraded with latest available RoC system. Hon'ble Commission may be pleased to allow the same.	


परिमल पीयूष/PARIMAL PIYUSH
 अपर महाप्रबन्धक (वाणिज्यिक)
 Addl. General Manager (Commercial)
एन टी सी लिमिटेड/NTPC LIMITED
 EOC, A-8A, Sector-24, Noida-201301 (U.P.)

4	Installation of load cells below Silo	Garage Automation Pvt. Ltd.	132.16	0.00	132.16	42.45	89.67	0.00	25(1)(b)	<p>It is submitted that MOEFCC vide notification dtd 03.11.2008 had directed that all the Thermal Power Plants shall achieve 100% Ash utilization within 5 years. Subsequently, vide notification dtd 25.01.2010, the target date for 100% Ash utilization was revised to 31.12.2017. It is further submitted that in the 2nd meeting of Joint Committee (JC) under the Chairmanship of Shri Rakesh Kumar Singh, Joint Secretary, (MOEFACC) held on 17th and 18th July 2010 to discuss action plan to achieve 100% fly ash utilization by the Thermal Power Plants (TPPs), it was decided that NTPC should submit revised quarterly action plan for Category 'C' TPPs, which includes Rihand STPS, to achieve 60% utilization of fly ash including bottom ash by FY 18-20 and 100 % fly ash utilization by FY 20-21. Copy of notification dtd 03.11.2008, notification dtd 25.01.2010 and minutes of meeting dtd 18.07.2010 are attached as Annexure-2(B)(1).</p> <p>It is respectfully submitted that in view of the remote location of Rihand STPS, it is not possible to utilize the ash locally and it has been decided to transport the ash to potential utilization sites like Kanti in Madhya Pradesh through rail and store it there for distribution of the same to various agencies for utilization.</p> <p>The present capitalization pertains to installation of load cells for weighing the ash sent through rail. This expenditure is towards utilization of fly ash as mandated by MoEFACC.</p> <p>It is further submitted that Hon'ble Commission vide order dtd. 26.10.2002 in 205MP/2001 has allowed recovery of ash transportation expenses after adjusting the revenue through sale of ash. The instant claim is incurring expenditure on ash transportation in excess of revenue through ash sale.</p> <p>The petitioner humbly submits that the present expenditure is towards developing infrastructure for enabling ash utilization as mandated by MoEFACC.</p> <p>Hon'ble Commission may be pleased to allow capitalization under compliance of existing law.</p>
	Subtotal (A1)		854.58	4.34	888.90	53.60	835.31	0.00		
A.2	Capitalization of MRDAs	Various Parties	0.00	0.00	0.00	0.00	0.00	0.00		
A.3	Decep of MBOAs: Part of Capital Cost		0.00	0.00	0.00	0.00	0.00	0.00		
A.4	Decep of Spares: Part of Capital Cost		-201.87	-403.03	-684.90	0.00	-684.90	0.00	25(2)	These spares were part of capital cost, have become unusable. Accordingly the same are de-capitalized.
	Total claim (A)		652.69	-398.69	204.00	53.60	150.41	0.00		
	Discharge of Liability						485.37		25(1)(b)	Details given in Form-5, i.e., Liability Flow Statement.
	Total additional capitalization claimed with RoE at Normal Rate (A)						666.77			
B.	Works beyond Original scope extending add-on due to Change in Law eligible for RoE at Wtd. Average rate of interest									
	Total (B)									
	Total Add. Cap. Claimed (A+B)						666.77			

परिमल पीयूष/PARIMAL PIYUSH
 अपर महाप्रबन्धक (वाणिज्यिक)
 Addl. General Manager (Commercial)
 एन टी सी लिमिटेड/NTPC LIMITED
 EOC, A-SA, Sector-24, Noida-201301 (U.P.)

Name of the Petitioner		Year wise Statement of Additional Capitalization after CCG							PART-I	
Name of the Generating Station		NTPC Limited							FORM-B	
CCD		Rihand Super Thermal Power Station Stage-II								
For Financial Year		01-04-2006								
2001-02										
Sl. No.	Head of Work/Equipment	Agency's Name	Accrual basis as per IED AS	Ied AS Adjustment	ACE Charged			Regulations under which claimed	Justification	Amount in Rs. Lakh
					Accrual basis as per IGAMP	On-discharged Liability included in cet. 3	Cash Basis			
1	2		3	4	5	6	7	8	9	10
A	Works under Original scope, Change in Law etc. eligible for RoE at Normal Rate									
A.1	Claims/ Allowed items									
1	Upgradation of HMI System	Etural Heavy Electricals Limited	929.07	1.38	929.35		929.20	25(2)(c)	<p>The HMI system installed at the Rihand Station was based on Windows XP-SP2 which no support from OEM is available. Accordingly, in compliance of CEA (Cyber Security in Power Sector) Guidelines, 2021 and direction from DoI order dated 28.04.2022 the HMI system was upgraded for ensuring safe and reliable operation of the Station as no spares and service support was available for the obsolete HMI system. (Enclosed as Annexure-2C1).</p> <p>CEA under the provision of Regulation (10) of the Central Electricity Authority (Technical Standards for Connectivity to the Grid) (Amendment) Regulations, 2019 issued CEA (Cyber Security in Power Sector) Guidelines, 2021 (Attached as Annexure-2C2). The CEA guidelines, 2021 require for compliance of following salient points w.r Cyber Security in Power Sector:</p> <p>i) Phasing out of legacy systems. ii) Creating security hardening with additional controls in consultation with the OEM iii) Maintaining system logs at least for 6 months duration.</p> <p>Further, Ministry of Electronics and Information Technology (MeitY), Govt of India vide its order No-2003/2002-CERT-In DoI dated 28.04.2022 issued Directions under sub-section (5) of section 70B of the Information Technology Act, 2008 (Attached as Annexure-2C3) which inter alia provide:</p> <p>"All service providers, intermediaries, data centres, body corporate and Government organisations shall mandatorily maintain logs of all their ICT systems and maintain their security for a rolling period of 180 days and the same shall be when ordered / directed by CERT-In".</p> <p>In view of above HMI system has been upgraded. It is humbly submitted that Hon'ble Commission may be pleased to justify/allow as provided in A.1.2 of form "B-20-21".</p>	
2	Upgradation of Coal Mill feeder	Science Process Solutions	29.50		29.50		29.50	25(2)(c)	<p>It is submitted that Hon'ble Commission may be pleased to justify/allow as provided in A.1.2 of form "B-20-21".</p>	
3	Installation of load cells below Silo	Strategic Automation Pvt. Ltd.	0.80		0.80		0.80	25(1)(b)	<p>Justification as provided in A.1.4 of form "B-20-21".</p> <p>Hon'ble Commission may be pleased to allow the capitalization.</p>	
A.2	Capitalization of RBDs	Various Parties	959.46	1.28	959.73		959.73			
A.3	Decap of RBDs: Part of Capital Cost		-24.80	-100.33	-125.13	0.00	-125.13	25(2)	<p>These assets were part of capital cost, have become unserviceable. Accordingly the same are derecognized.</p>	
A.4	Decap of Spares: Part of Capital Cost		-41.37	-61.35	-124.72	0.00	-124.72	25(2)	<p>These spares were part of capital cost, have become unserviceable. Accordingly the same are derecognized.</p>	
	Total claim (A)		892.28	-152.41	739.88		739.88			
	Discharge of Liability						0.00	25(1)(b)	<p>Details given in Form-S, i.e., Liability Flow Statement.</p>	
	Total additional capitalization claimed with RoE at Normal Rate (A)						739.88			
B	Works beyond original scope excluding add.cap due to Change in Law eligible for RoE at WtG, Average rate of Interest									
	Total (B)									
	Total Add. Cap. Claimed (A+B)						739.88			

परिमल पीयूष/PARIMAL PIYUSH
 अपर महाप्रबन्धक (व्यापारिक)
 Addl. General Manager (Commercial)
 एन टी सी लिमिटेड/NTPC LIMITED
 EOC, A-8A, Sector-24, Noida-201301 (U.P.)

20/

Petitioner

Name of the Petitioner: NTPC Limited
 Name of the Generating Station: Rihani Super Thermal Power Station Stage-II
 COD: 01-06-2006
 Year wise Statement of Additional Capitalization after COD: 2022-23

Sl. No.	Head of Work / Equipment	Agency's Name	Account basis as per Ind AS	Ind AS Adjustment	ACE Claimed			IDC included in col. 3	Regulations under which claimed	Justification	Amount in Rs Lakh	Revised Cost by the Commission, if any
					Account basis as per IGAAP	Un-discharged Liability included in col. 3	Cash basis					
A. Works under Original scope, Change in Law etc, eligible for HEC at Normal Rate												
A.1 Claims/ Allowed Items												
1	2nd Raising of Mihini east dyke Lagoon-I	Euchras Mining & Construction Ltd.	1405.98	0.00	1405.98	47.03	1358.95	0.00	25(1)(g)	Hon'ble Commission vide para 16 of order dtd. 08.04.2022 in petition no. 426/GT/2020 has allowed the work of Mihini Lagoon-I 2nd raising. Present capitalization pertains to capitalization against the allowed work. There is variation from the expenditure allowed vide order dtd. 08.04.2022 in petition no. 426/GT/2020 as expenditure allowed was based on estimation while expenditure claimed is based on actual awarded value. Hon'ble Commission may be pleased to allow the same.	1080	
2	3rd raising of Mihini East Dyke-I	National Prestige Construction Co	1284.16	-2.62	1281.54	35.20	1246.34	0.00	25(1)(g)	Hon'ble Commission vide para 15 of order dtd. 08.04.2022 in petition no. 426/GT/2020 has allowed the work of Mihini Lagoon-I 3rd raising. Present capitalization pertains to capitalization against the allowed work. There is variation from the expenditure allowed vide order dtd. 08.04.2022 in petition no. 426/GT/2020 as expenditure allowed was based on estimation while expenditure claimed is based on actual awarded value. Hon'ble Commission may be pleased to allow the same.	1100	
3	Augmentation of Railway Siding & MGR System GST	RITES LTD	5.31	0.00	5.31	0.00	5.31	0.00	25(1)(g) & 7b	This work pertains to original scope and expenditure against the same was allowed by the Hon'ble Commission vide para 30 of order dtd. 7.12.2015 in petition no. 310/GT/2013 & 2068/GT/2014. Present capitalization pertains to payment on account of contract closing activities. Hon'ble Commission may be pleased to allow the same.		
4	Upgradation of HMI System	Bharat Heavy Electronics Limited	28.50	0.00	28.50	0.00	28.50	0.00	25(2)(c)	Justification as provided in A.1.1 of form 'D-21-22'. Hon'ble Commission may be pleased to allow the capitalization.		
5	RTU Replacement	Power Grid Corporation of India Limited	13.74	0.00	13.74	0.00	13.74	0.00	26(1)(b)	Hon'ble Commission vide its order dated 28.08.2019 in Petition no-315/RG/2018 directed 18035 stations as under: "i. All such (SSS) stations whose (and) is determined or adopted by CERC shall have communication from the nearest with band node to the RTU in the unit control room. ii. The Central Transmission Utility (CTU) is directed to have communication availability from NLDG/RLDCs to the nearest wide band node/switchyard for the generating stations in a redundant and alternate path ensuring route diversity and dual communication. iii. The NLDG is also directed to commission the required communication infrastructure. iv. The expenditure as a result of compliance of the above directions may be claimed as per relevant regulations or provisions of the PPP." The copy of Hon'ble Commission's order dated 28.8.2019 is attached as Annexure-2DI. Further, in various meeting of NRPC including 16th Test Sub Committee meeting of NRPC held on 14.11.2019 it was decided to replace existing old RTUs with latest RTUs on 104 Protocol so as to enable seamless communication required for AGC implementation as well as for communication of other telemetry and protection data. The extract of NRPC meeting dtd 14.11.2019 is attached herewith as Annexure-2DI2. Accordingly, in compliance of direction of Hon'ble Commission order (dt) 28.8.2019 and also as mandated in NRPC meeting, the work of RTU replacement was carried out. Hon'ble Commission may be pleased to allow the same under Regulation 26 (1) (b) of Test Regulations, 2019.		

परिचय पत्र/ PARIMAL PIYUSH
 Addl. General Manager (Commercial)
 एच.टी.पी. लिमिटेड / NTPC LIMITED
 EOC, A-8A, Sector-24, Noida-201301 (U.P.)

Total (A1)		2727.89	-2.62	2725.07	82.83	2652.24	0.00			
A.2	Capitalization of MBOAs	Various Parties	0.12	0.00	0.12	0.00	0.12	0.00	25(2)(b)	These MBOAs were capitalised due to replacement of assets which were deployed under original scope. The old assets outlived their useful life and were fully depreciated. Hon'ble Commissioner may be pleased to allow the capitalisation of these MBOAs as per Regulation 25 (2) (a) of Tariff Regulation, 2019 as replacement of these MBOAs were reclassified since the useful life of these assets were not commensurate with the useful life of the Station.
A.3	Decap of MBOAs: Part of Capital Cost		-99.73	-257.33	-357.06	0.00	-357.06	0.00	25(2)	These assets were part of capital cost, have become unserviceable. Accordingly the same are decapitalized.
A.4	Decap of Spares: Part of Capital Cost		-15.637	-48.530	-64.173	0.000	-64.173	0.000	25(2)	These spares were part of capital cost, have become unserviceable. Accordingly the same are decapitalized.
Total claim (A)			2622.453	-308.488	2313.965	82.830	2231.136	0.000		
Discharge of Liability							11.71		26(1)(a)	Details given in Form-S, i.e., Liability Flow Statement.
Total additional capitalization claimed with RoE at Normal Rate (A)						2242.24				
B. Works beyond Original scope excluding add-cap due to Change in Law eligible for RoE at 9% Average rate of interest										
Total (B)										
Total Add. Cap. Claimed (A+B)						2242.24				


 (Petitioner)

परिमल पीयूष/PARIMAL PIYUSH
 अपर महाप्रबन्धक (वाणिज्यिक)
 Addl. General Manager (Commercial)
एन टी पी सी लिमिटेड/NTPC LIMITED
 EOC, A-8A, Sector-24, Noida-201301 (U.P.)

Year wise Statement of Additional Capitalisation after COD

Name of the Petitioner: NTPC Limited
 Name of the Generating Station: Rihand Super Thermal Power Station Stage-II
 COD: 01-04-2005
 For Financial Year: 2023-24

Sl. No.	Head of Work /Equipment	Agency's Name	Accrual basis as per Ind AS	Ind AS Adjustment	ACE Claimed (Projected)				Regulation s under which claimed	Justification	Amount in Rs Lakh Admitted Cost by the Commission, if any
					Accrual basis as per IGAAP	Un-discharged Liability included in col. 3	Cash basis	IDC include d in col. 3			
1	2				3	4	5= (3-4)	6	7	8	9
A. Works under Original scope, Change in Law etc. eligible for RoE at Normal Rate											
A. Claims											
A.1 Claimed Items											
1	2nd Raising of Mithini ash dyke lagoon-II	Bodhiraja Mining & Construction Ltd.	104.27	-	104.27	24.24	80.03	-	25(1)(g)	Hon'ble Commission vide para 18 of order dttd. 08.04.2022 in petition no. 426/GT/2020 has allowed the work of Ash Dyke Raising (Mithini Lagoon II 2nd and Mithini Lagoon I 3rd raising). Present capitalization pertains to payment for balance works of 2nd raising of Mithini Ash Dyke Lagoon-II.	1080
2	3rd raising of Mithini Ash Dyke-I	National Prestige Construction Co	0.04	-	0.04	-	0.04	-	25(1)(g)	Hon'ble Commission may be pleased to allow the same. Hon'ble Commission vide para 18 of order dttd. 08.04.2022 in petition no. 426/GT/2020 has allowed the work of Ash Dyke Raising (Mithini Lagoon II 2nd and Mithini Lagoon I 3rd raising). Present capitalization pertains to payment for balance works for 3rd raising of Mithini Ash Dyke Lagoon-I.	1100
3	Upgradation of HMI System	Bharat Heavy Electricals Limited	355.95	3.87	359.82	30.13	329.69	-	25(2)(c)	Hon'ble Commission may be pleased to allow the same. Justification as provided in A.1.1 of form '9 21-22'. Hon'ble Commission may be pleased to allow the capitalization.	

परिमल पीयूष/PARIMAL PIYUSH
 अपर महाप्रबन्धक (वाणिज्यिक)
 Addl. General Manager (Commercial)
 एन टी पी सी लिमिटेड/NTPC LIMITED
 EOC, A-8A, Sector-24, Noida-201301 (U.P.)

4	Augmentation of the Fire Detection and Protection System (CHP)	Thermosystems Pvt. Ltd.	252.73	-	252.73	24.55	228.18	-	26(1)(b)	<p>The work has been carried out in compliance to regulation 12(5) of Central Electricity Authority (Technical Standards for construction of Electrical Plants and Electric Lines) Regulations, 2022, published in The Gazette of India no. 241581 dtl. 23rd Dec, 2022 (Attached as Annexure-2(E1)).</p> <p>Coal Handling Plant (CHP) area due to presence of coal is vulnerable to fire hazard and mobile fire protection equipments may not be able to control the spread of fire. Hon'ble Commission may please allow capitalisation on account of fire protection system under Regulation 26(1)(b) of 2019 Tariff Regulations in line with Central Electricity Authority (Technical Standards for construction of Electrical Plants and Electric Lines) Regulations, 2022.</p> <p>The same work has been allowed by Hon'ble Commission in Rihand-I generating station vide para 17 of order dtl. 15.09.2023 in petition no. 439/GT/2020.</p> <p>Hon'ble Commission may be pleased to allow the present capitalization.</p>
Subtotal (A:1)			713.00	3.87	716.87	78.93	637.94	-		
A.2	Capitalization of MBOAs	Various Parties	3.48	-	3.48	-	3.48	0.00	25(2)(a)	<p>These MBOAs were capitalised due to replacement of assets which were deployed under original scope. The old assets outlived their useful life and were fully depreciated. Hon'ble Commission may be pleased to allow the capitalisation of these MBOAs as per Regulation 25 (2) (a) of Tariff Regulation, 2019 as replacement of these MBOAs were necessitated since the useful life of these assets were not commensurate with the useful life of the Station.</p>
A.3	Decap of MBOAs: Part of Capital Cost		-	-	-	-	-	0.00	25(2)	<p>These assets were part of capital cost, have become unserviceable. Accordingly the same are decapitalized.</p>
A.4	Decap of Spares: Part of Capital Cost		-137.88	-438.62	-576.51	-	-576.51	0.00	25(2)	<p>These spares were part of capital cost, have become unserviceable. Accordingly the same are decapitalized.</p>
Total claim (A)			578.59	-434.75	143.84	78.93	64.91	0.00		
Discharge of Liability									25(1)(c)	<p>Details given in Form-S, i.e., Liability Flow Statement.</p>
Total additional capitalization claimed with RoE at Normal Rate (A)							64.91			
B. Works beyond Original scope excluding add-cap due to Change in Law eligible for RoE at Wtd. Average rate of Interest										
Total (B)										
Total Add. Cap. Claimed (A+B)							64.91			

परिमल पीयूष/PARIMAL PIYUSH
 अपर महाप्रबन्धक (वाणिज्यिक)
 Add. General Manager (Commercial)
 एन टी सी लिमिटेड/NTPC LIMITED
 EOC, A-8A, Sector-24, Noida-201301 (U.P.)

(Petitioner)

Statement of Depreciation							PART-I		
							FORM- 12		
Name of the Company :			NTPC Limited						
Name of the Power Station :			Rihand Super Thermal Power Station Stage-II						
								(Amount in Rs Lakh)	
S. No.	Particulars	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24		
1	2	3	4	5	6	7	8		
1	Opening Capital Cost	295133.38	296123.42	295461.70	296017.48	296727.35	298969.59		
2	Closing Capital Cost	296123.42	295461.70	296017.48	296727.35	298969.59	299034.50		
3	Average Capital Cost	295628.40	295792.56	295739.59	296372.41	297848.47	299002.05		
1a	Cost of IT Equipments & Software included in (1) above	-	272.43	272.43	271.92	26.24	26.24		
2a	Cost of IT Equipments & Software included in (2) above	-	272.43	271.92	26.24	26.24	25.76		
3a	Average Cost of IT Equipments & Software	-	272.43	272.17	149.08	26.24	26.00		
4	Freehold land	0.00	0.00	0.00	0.00	0.00	0.00		
5	Rate of depreciation								
6	Depreciable value							SPREAD-OVER	
7	Balance useful life at the beginning of the period	2,66,065.56	2,66,240.55	2,66,192.85	2,66,750.08	2,68,066.25	2,69,104.44		
8	Remaining depreciable value	12.69	11.69	10.69	9.69	8.69	7.69		
9	Depreciation (for the period)	72,554.22	67,184.51	61,859.40	57,070.84	52,659.44	47,913.95		
10	Depreciation (annualised)	5,719.18	5,745.47	5,786.66	5,889.66	6,059.77	6,230.68		
11	Cumulative depreciation at the end of the period	5,719.18	5,745.47	5,786.66	5,889.66	6,059.77	6,230.68		
12	Less: Cumulative depreciation adjustment on account of un-discharged liabilities deducted as on 01.04.2009	1,99,230.52	2,04,821.50	2,10,120.11	2,15,568.91	2,21,466.58	2,27,421.18		
13	Add: Cumulative depreciation adjustment on account of liability Discharge	0.00	0.00	0.00	0.00	0.00	0.00		
14	Less: Cumulative depreciation adjustment on account of de-capitalisation	0.00	0.00	0.00	0.00	0.00	0.00		
15	Net Cumulative depreciation at the end of the period after adjustments	154.49	488.05	440.86	162.10	276.09	402.55		
15	Net Cumulative depreciation at the end of the period after adjustments	1,99,076.03	2,04,333.45	2,09,679.25	2,15,406.81	2,21,190.50	2,27,018.63		


 (Petitioner)

परिमल पीयूष/PARIMAL PIYUSH
 अपर महाप्रबन्धक (वाणिज्यिक)
 Addl. General Manager (Commercial)
 एन टी पी सी लिमिटेड/NTPC LIMITED
 EOC, A-8A, Sector-24, Noida-201301 (U.P.)

Details of Source wise Fuel for Computation of Energy Charges

PART-I
FORM- 15

Name of the Company : **NTPC Limited**

Name of the Power Station : **Rihand Super Thermal Power Station Stage-II**

S. No.	Month	Unit	Oct-18				Nov-18		Dec-18	
			Domestic		Imported	Domestic	Imported	Domestic	Imported	
1	Opening Quantity of Coal/ Lignite	(MT)								
2	Value of Stock	(Rs.)	7,98,600.00		8,63,300.00			6,58,000.00		
3	Quantity of Coal supplied by Coal Company	(MT)	173,150,494		1,82,70,84,955.00			2,01,33,08,246.00		
4	Adjustment (+/-) in quantity supplied made by Coal Company	(MT)	11,03,800.00	-	10,26,100.00	-	-	11,65,700.00		
5	Coal supplied by Coal Company (1+2)	(MT)								
6	Normative Transit & Handling Losses	(MT)	11,03,800.00		10,26,100.00			11,65,700.00		
7	Net coal/ Lignite Supplied (3-4)	(MT)	3,200.00	-	2,700.00	-	-	3,390.63		
8	Amount charged by the Coal Company*	(Rs.)	11,00,600.00		10,23,400.00			11,82,309,370		
9	Adjustment (+/-) in amount charged made by Coal Company	(Rs.)	2,20,62,88,010.00		2,53,12,17,257.00			2,36,46,12,979.00		
10	Handling, Sampling and such other similar charges	(Rs.)								
11	Total amount Charged (6+7)	(Rs.)	2,41,45,258.00		2,81,11,557.00			5,84,28,824.00		
12	Transportation charges by rail ship, road transport	(Rs.)	2,23,04,94,268.00		2,55,93,28,814.00			2,42,30,41,803.00		
13	Adjustment (+/-) in amount charged made by Railways/ Transport Company	(Rs.)	3,65,20,499.00		2,22,83,997.00			3,83,10,986.00		
14	Demurrage Charges, if any	(Rs.)								
15	Cost of diesel in transporting coal through MGR system, if applicable	(Rs.)								
16	Total Transportation Charges (9+10+11+12)	(Rs.)	2,09,94,373.00		1,84,34,410.00			1,85,27,883.00		
17	Total amount Charged for coal supplied including Transportation (8+13+13A)	(Rs.)	5,75,14,872.00		4,07,18,407.00			5,68,38,869.00		
18	Landed cost of coal (14)/(5)	Rs./MT	2,28,79,49,140.00		2,80,00,47,221.00			2,47,98,80,672.00		
19	Blending Ratio	%	2,116.40		2,346.48			2,224.00		
20	Weighted average cost of coal	Rs./MT	100.00%		100.00%			100.00%		
21	GCV of Domestic Coal of the opening stock as per bill of Coal Company	(kCal/Kg)			2228.62					
22	GCV of Domestic Coal supplied as per bill Coal Company	(kCal/Kg)	4660.00		5009.00			4667.00		
23	GCV of Imported Coal of the opening stock as per bill of Coal Company	(kCal/Kg)								
24	GCV of Imported Coal supplied as per bill Coal Company	(kCal/Kg)								
25	Weighted average GCV of coal/ Lignite as Billed	(kCal/Kg)	4660.00		5009.00			4667.00		
26	GCV of Domestic Coal of opening stock as received at Station	(kCal/Kg)	4000.00		4402.00			4137.00		
27	GCV of Domestic Coal supplied as received at Station	(kCal/Kg)								
28	GCV of Imported Coal of opening stock as received at Station	(kCal/Kg)								
29	GCV of Imported Coal supplied as received at Station	(kCal/Kg)								
30	Weighted average GCV of coal/ Lignite as Received	(kCal/Kg)	4000.00		4402.00			4137.00		

Note- Break-up of coal receipt through different modes for computation of Normative Transit loss attached as Annexure-3.

परिमल पीयूष / PARIMAL PIYUSH
अपर महाप्रबन्धक (व्यापारिक)
Addl. General Manager (Commercial)
एन टी पी सी लिमिटेड / NTPC LIMITED
EOC, A-8A, Sector-24, Noida-201301 (U.P.)

(Petitioner)

Details of Secondary Fuel for Computation of Energy Charges

Name of the Company : NTPC Limited
Name of the Power Station : Rihand Super Thermal Power Station Stage-II

Sl.No.	Month	Unit	Oct-18		Nov-18		Dec-18	
			LDO	HFO	LDO	HFO	LDO	HFO
1	Opening Quantity of Oil	KL	561.95	4383.4	736.45	4263.2	3639.84	4114.2
2	Value of Opening	(Rs)	2,90,44,499.00	13,41,81,533.00	4,10,05,239.00	13,05,02,056.00	21,55,94,390.00	12,59,40,974.00
3	Quantity of Oil supplied by Oil Company	KL	233.00		3,433.980			
4	Adjustment (+/-) in quantity supplied made by Oil Company	KL						
5	Oil supplied by oil company (1+2)	KL	233.00		3,433.98			
6	Normative Transit & Handling Losses	KL						
7	Net Oil Supplied (3-4)	KL	233.00		3,433.98			
8	Amount charged by the Oil Company	(Rs)	1,52,17,996.00		20,60,16,697			
9	Adjustment(+/-) in amount charged made by Oil Company	(Rs)						
10	Total amount charged (8+7)	(Rs)	1,52,17,996.00		20,60,16,697.00			
11	Transportation charges by rail / ship / road transport	(Rs)						
12	Adjustment (+/-) in amount charged made by Railways/Transport Company	(Rs)						
13	Demurrage Charges, if any	(Rs)						
14	Cost of diesel in transporting Oil through MGR system, if applicable	(Rs)						
15	Total Transportation Charges (9+10-11+12)	(Rs)						
16	Others -Entry Tax on Oil	(Rs.)						
17	Total amount Charged for fuel supplied including Transportation (8+13+14)	(Rs)	1,52,17,996.00		20,60,16,697.00			
18	Weighted average GCV of Oil as fired	kCal/kL	9790		9790			
19	Weighted average rate of Secondary Fuel	Rs/kL	55,679.60	30,611.29	59,231.77	30,611.29	59,231.83	30,611.29

Note: In terms of the order of Hon'ble Supreme Court regarding ban on use of furnace oil, main secondary fuel at Rihand-II station is LDO w.e.f. 01.01.2019 and the same has been considered for calculation of Working Capital.

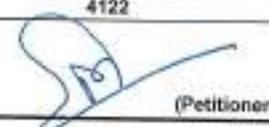

परिमल दीयूष/PARIMAL DEYUSH (Petitioner)
अपर महाप्रबन्धक (व्यापारिक)
Addl. General Manager (Commercial)
एन टी पी सी लिमिटेड/NTPC LIMITED
EOC, A-8A, Sector-24, Noida-201301 (U.P.)

Details of Source wise Fuel for Computation of Energy Charges

PART-I
FORM-15

Name of the Company :		NTPC Limited						
Name of the Power Station :		Rihand Super Thermal Power Station Stage-II						
S. No.	Month	Unit	Oct-19		Nov-19		Dec-19	
			Domestic	Imported	Domestic	Imported	Domestic	Imported
1	Opening Quantity of Coal/ Lignite	(MT)	44500.0000		1,66,800.00		4,68,400.00	
2	Value of Stock	Rs.	95247214		35,57,23,828.00		1,16,56,43,857.00	
3	Quantity of Coal supplied by Coal Company*	(MT)	13,81,300.00		13,11,600.00		10,73,900.00	
4	Adjustment (+/-) in quantity supplied made by Coal Company	(MT)	-		-		-	
5	Coal supplied by Coal Company (1+2)	(MT)	13,81,300.00		13,11,600.00		10,73,900.00	
6	Normative Transit & Handling Losses	(MT)	3,800.000		3,000.000		2,100.00	
7	Net coal / Lignite Supplied (3-4)	(MT)	13,77,500.000		13,08,600.000		10,71,800.000	
8	Amount charged by the Coal Company*	(Rs.)	2,85,01,51,643.00		3,23,30,89,518.00		2,02,14,10,220.00	
9	Adjustment (+/-) in amount charged made by Coal Company	(Rs.)						
10	Handling, Sampling and such other similar charges	(Rs.)	2,96,57,197.00		4,60,07,174.00		6,45,95,642.00	
11	Total amount Charged (6+7)	(Rs.)	2,88,00,08,840.0		3,27,90,96,692.0		2,08,60,05,862.0	
12	Transportation charges by rail, ship, road transport	(Rs.)	3,72,12,719.00		1,44,18,692.00			
13	Adjustment (+/-) in amount charged made by Railways/ Transport Company	(Rs.)						
14	Demurrage Charges, if any	(Rs.)						
15	Cost of diesel in transporting coal through MGR system, if applicable	(Rs.)	2,40,48,159.00		2,14,95,274.00		165,560.07	
16	Total Transportation Charges (9+10+11+12)	(Rs.)	6,12,60,878.00		3,59,14,966.00		1,66,58,007.00	
17	Total amount Charged for coal supplied including Transportation (8+13+13A)	(Rs.)	2,94,12,69,718.0		3,31,50,11,658		2,10,26,81,869	
18	Landed cost of coal (14)/(5)	Rs./MT	2,135.38		2,488.35		2,122.04	
19	Blending Ratio	%	100.00%		100.00%		100.00%	
20	Weighted average cost of coal	Rs./MT			2248.09			
21	GCV of Domestic Coal of the opening stock as per bill of Coal Company	(kCal/Kg)	4558		4578		4898	
22	GCV of Domestic Coal supplied as per bill Coal Company	(kCal/Kg)	4579		4939		4229	
23	GCV of Imported Coal of the opening stock as per bill of Coal Company	(kCal/Kg)						
24	GCV of Imported Coal supplied as per bill Coal Company	(kCal/Kg)						
25	Weighted average GCV of coal/ Lignite as Billed	(kCal/Kg)	4578		4898		4432	
26	GCV of Domestic Coal of opening stock as received at Station	(kCal/Kg)	4126		4072		4355	
27	GCV of Domestic Coal supplied as received at Station	(kCal/Kg)	4070		4391		4020	
28	GCV of Imported Coal of opening stock as received at Station	(kCal/Kg)						
29	GCV of Imported Coal supplied as received at Station	(kCal/Kg)						
30	Weighted average GCV of coal as Received	(kCal/Kg)	4072		4355		4122	

Note- Break-up of coal receipt through different modes for computation of Normative Transit loss attached as Annexure-3.


(Petitioner)

परिमल पीयूष/PARIMAL PIYUSH
अपर महाप्रबन्धक (वाणिज्यिक)
Addl. General Manager (Commercial)
एन टी पी सी लिमिटेड/NTPC LIMITED
EOC, A-8A, Sector-24, Noida-201301 (U.P.)

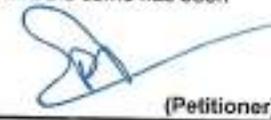
Details of Secondary Fuel for Computation of Energy Charges

PART-I
FORM- 15A

Name of the Company : **NTPC Limited**
Name of the Power Station : **Rihand Super Thermal Power Station Stage-II**

Sl.No.	Month	Unit	Oct-19		Nov-19		Dec-19	
			LDO	HFO	LDO	HFO	LDO	HFO
1	Opening Stock of Oil	KL	5,772.386		5,507.386		5,383.390	
2	Value of Opening Stock	Rs.	30,57,75,957		29,17,38,325		28,51,69,772	
3	Quantity of Oil supplied by Oil Company	KL						
4	Adjustment (+/-) in quantity supplied made by Oil Company	KL						
5	Oil supplied by oil company (3+4)	KL						
6	Normative Transit & Handling Losses	KL	-	-	-	-	-	-
7	Net Oil Supplied (3-4)	KL	-	-	-	-	-	-
8	Amount charged by the Oil Company*	(Rs)						
9	Adjustment(+/-) in amount charged made by Oil Company	(Rs)	-	-	-	-	24,084.00	-
10	Handling, Sampling & Such other charges	(Rs)						
11	Total amount charged (6+7)	(Rs)	-	-	-	-	24,084.00	-
12	Transportation charges by rail / ship / road transport	(Rs)						
13	Adjustment (+/-) in amount charged made by Railways/Transport Company	(Rs)						
14	Demurrage Charges, if any	(Rs)						
15	Cost of Diesel in transporting Secondary Fuel through MGR system, if applicable	(Rs)						
16	Total transportation charges	(Rs)	-	-	-	-	-	-
17	Total amount charged for the Oil supplied including transportation	(Rs.)					24,084.00	
18	Landed Cost of Oil	Rs/KL	52,972.20	-	52,972.19	-	52,976.70	-
29	Weighted average GCV of Oil as fired	kCal/kL	9609		9605		9609	

Note: In terms of the order of Hon'ble Supreme Court regarding ban on use of furnace oil, main secondary fuel at Rihand-II station is LDO w.e.f. 01.01.2019 and the same has been considered for calculation of Working Capital.


(Petitioner)

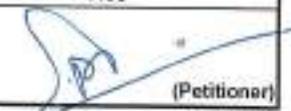
परिमल पीयूष/PARIMAL PIYUSH
अपर महाप्रबन्धक (वाणिज्यिक)
Add. General Manager (Commercial)
एन टी पी सी लिमिटेड / NTPC LIMITED
EOC, A-8A, Sector-24, Noida-201301 (U.P.)

Details of Source wise Fuel for Computation of Energy Charges

PART-4
FORM-15

Name of the Company :		NTPC Limited						
Name of the Power Station :		Rihand Super Thermal Power Station Stage-II						
S. No.	Month	Unit	Oct-20		Nov-20		Dec-20	
			Domestic	Imported	Domestic	Imported	Domestic	Imported
1	Opening Quantity of Coal/ Lignite	(MT)	-	-	2,24,800.00	-	5,83,400.00	-
2	Value of Stock	Rs	-	-	45,24,10,097.00	-	1,28,27,22,780.00	-
3	Quantity of Coal supplied by Coal Company*	(MT)	14,24,200.00	-	12,62,500.00	-	11,52,000.00	-
4	Adjustment (+/-) in quantity supplied made by Coal Company	(MT)	-	-	-	-	-	-
5	Coal supplied by Coal Company (1+2)	(MT)	14,24,200.00	-	12,62,500.00	-	11,52,000.00	-
6	Normative Transit & Handling Losses	(MT)	4,300.000	-	2,900.000	-	2,400.00	-
7	Net coal / Lignite Supplied (3-4)	(MT)	14,19,900.000	-	12,59,600.000	-	11,49,600.000	-
8	Amount charged by the Coal Company*	(Rs.)	2,66,58,32,773.00	-	2,34,31,78,883.00	-	2,19,65,93,399.00	-
9	Adjustment (+/-) in amount charged made by Coal Company	(Rs.)	6,51,79,008.00	-	37,90,86,848.00	-	31,01,08,449.00	-
10	Handling, Sampling and such other similar charges	(Rs.)	4,07,85,312.00	-	5,12,79,360.00	-	5,87,21,528.00	-
11	Total amount Charged (6+7)	(Rs.)	2,77,17,97,093.0	-	2,77,35,45,071.0	-	2,58,54,23,376.0	-
12	Transportation charges by rail, ship, road transport	(Rs.)	5,82,32,366.00	-	1,48,09,189.00	-	3,15,06,721.00	-
13	Adjustment (+/-) in amount charged made by Railways/ Transport Company	(Rs.)	-	-	-	-	-	-
14	Demurrage Charges, if any	(Rs.)	-	-	-	-	-	-
15	Cost of diesel in transporting coal through MGR system, if applicable	(Rs.)	2,72,62,513.00	-	2,27,73,599.00	-	2,18,24,463.00	-
16	Total Transportation Charges (9+10+11+12)	(Rs.)	8,54,94,899.00	-	3,75,82,768.00	-	5,31,31,184.00	-
17	Total amount Charged for coal supplied including Transportation (8+13+13A)	(Rs.)	2,85,72,91,992.0	-	2,81,11,27,839	-	2,81,95,54,560	-
18	Landed cost of coal (14)/15)	Rs./MT	2,012.41	-	2,198.59	-	2,251.14	-
19	Blending Ratio	%	100.00%	-	100.00%	-	100.00%	-
20	Weighted average cost of coal	Rs./MT	2181.22					
21	GCV of Domestic Coal of the opening stock as per bill of Coal Company	(kCal/Kg)	4385	-	4435	-	4667	-
22	GCV of Domestic Coal supplied as per bill Coal Company	(kCal/Kg)	4435	-	4708	-	4679	-
23	GCV of Imported Coal of the opening stock as per bill of Coal Company	(kCal/Kg)	-	-	-	-	-	-
24	GCV of Imported Coal supplied as per bill Coal Company	(kCal/Kg)	-	-	-	-	-	-
25	Weighted average GCV of coal/ Lignite as Billed	(kCal/Kg)	4435	-	4667	-	4675	-
26	GCV of Domestic Coal of opening stock as received at Station	(kCal/Kg)	3630	-	3817	-	4148	-
27	GCV of Domestic Coal supplied as received at Station	(kCal/Kg)	3817	-	4207	-	4151	-
28	GCV of Imported Coal of opening stock as received at Station	(kCal/Kg)	-	-	-	-	-	-
29	GCV of Imported Coal supplied as received at Station	(kCal/Kg)	-	-	-	-	-	-
30	Weighted average GCV of coal as Received	(kCal/Kg)	3817	-	4148	-	4150	-

Note- Break-up of coal receipt through different modes for computation of Normative Transit loss attached as Annexure-3.


(Petitioner)

परिमल पीयूष/PARIMAL PIYUSH
अपर महाप्रबन्धक (वाणिज्यिक)
Addl. General Manager (Commercial)
एन टी पी सी लिमिटेड / NTPC LIMITED
EOC, A-8A, Sector-24, Noida-201301 (U.P.)

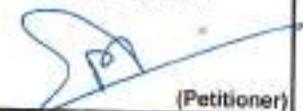
Details of Secondary Fuel for Computation of Energy Charges

PART-I
FORM- 15A

Name of the Company : **NTPC Limited**
Name of the Power Station : **Rihand Super Thermal Power Station Stage-II**

Sl.No.	Month	Unit	Oct-20		Nov-20		Dec-20	
			LDO	HFO	LDO	HFO	LDO	HFO
1	Opening Stock of Oil	KL	5,060.395		5,004.395		4,089.400	
2	Value of Opening Stock	Rs.	22,94,37,752		22,68,98,718		18,54,12,719	
3	Quantity of Oil supplied by Oil Company	KL					3,156.270	
4	Adjustment (+/-) in quantity supplied by Oil Company	KL						
5	Oil supplied by oil company (3+4)	KL						
6	Normative Transit & Handling Losses	KL	-	-	-	-	3,156.270	-
7	Net Oil Supplied (3-4)	KL						
8	Amount charged by the Oil Company*	(Rs)					3,156.270	-
9	Adjustment(+/-) in amount charged made by Oil Company	(Rs)					14,29,15,264.00	
10	Handling, Sampling & Such other charges	(Rs)						
11	Total amount charged (6+7)	(Rs)						
12	Transportation charges by rail / ship / road transport	(Rs)					14,29,15,264.00	
13	Adjustment (+/-) in amount charged made by Railways/Transport Company	(Rs)						
14	Demurrage Charges, if any	(Rs)						
15	Cost of Diesel in transporting Secondary Fuel through MGR system, if applicable	(Rs)						
16	Total transportation charges	(Rs)						
17	Total amount charged for the Oil supplied including transportation	(Rs.)						
18	Landed Cost of Oil	Rs/KL	45,339.89		45,339.89		14,29,15,264.00	
29	Weighted average GCV of Oil as fired	kCal/KL		9540		9540		9371

Note: In terms of the order of Hon'ble Supreme Court regarding ban on use of furnace oil, main secondary fuel at Rihand-II station is LDO w.e.f. 01.01.2019 and the same has been considered for calculation of Working Capital.

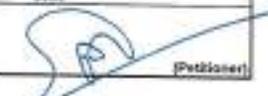

(Petitioner)

परिमल पीयूष/PARIMAL PIYUSH
अपर महाप्रबन्धक (वाणिज्यिक)
Addl. General Manager (Commercial)
एन टी पी सी लिमिटेड/NTPC LIMITED
EOC, A-8A, Sector-24, Noida-201301 (U.P.)

Details of Source-wise Fuel for Computation of Energy Charges

Name of the Company:		NTPC Limited									
Name of the Power Station:		Rohat Roper Thermal Power Station Stage-II									
S. No.	Month	Unit	Oct-21			Nov-21			Dec-21		
			Domestic	Imported	Biomass	Domestic	Imported	Biomass	Domestic	Imported	Biomass
1	Opening Quantity of Coal/Lignite	(MT)	18721.268	-	-	1,81,633.48	-	-	1,81,633.25	-	-
2	Value of Stock	(Rs.)	41,28,83,807	-	-	47,39,21,223	-	-	45,17,08,525	-	-
3	Quantity of Coal supplied by Coal Company	(MT)	18,97,711.840	-	-	11,83,204.180	-	-	12,79,343.05	-	-
4	Adjustment (+/-) in quantity supplied made by Coal Company	(MT)	-	-	-	-	-	-	-	-	-
5	Coal supplied by Coal Company (3+4)	(MT)	18,97,711.840	-	-	11,83,204.180	-	-	12,79,343.05	-	-
6	Normative Transit & Handling Losses	(MT)	2,195.420	-	-	2,308.410	-	-	2,784.03	-	-
7	Net coal / Lignite Supplied (5-6)	(MT)	10,86,516.420	-	-	11,50,897.770	-	-	10,75,558.98	-	-
8	Amount charged by the Coal Company	(Rs.)	2,10,83,02,583	-	-	2,20,97,37,913	-	-	2,44,74,86,576	-	-
9	Adjustment (+/-) in amount charged made by Coal Company	(Rs.)	58,84,01,668	-	-	33,65,67,888	-	-	66,84,58,332	-	-
10	Handling, Sampling and such other similar charges	(Rs.)	4,75,38,247.92	-	-	8,85,04,717	-	-	60,84,58,332	-	-
11	Total amount charged (8+9+10)	(Rs.)	2,74,32,81,868	-	-	2,98,69,00,548	-	-	3,17,75,42,357	-	-
12	Transportation charges by rail, ship, road transport	(Rs.)	-	-	-	-	-	-	78,33,317.00	-	-
13	Adjustment (+/-) in amount charged made by Railway/ Transport Company	(Rs.)	-	-	-	-	-	-	-	-	-
14	Demurrage Charges, if any	(Rs.)	-	-	-	-	-	-	-	-	-
15	Cost of diesel in transporting coal through MGR system, if applicable	(Rs.)	2,34,56,100.00	-	-	2,67,87,511.00	-	-	3,64,68,998.00	-	-
16	Total Transportation Charges (12-13+14+15)	(Rs.)	2,34,56,100.00	-	-	2,67,87,511.00	-	-	3,42,93,275.00	-	-
17	Total amount charged for coal supplied including Transportation (11+16)	(Rs.)	2,76,67,37,168	-	-	2,61,56,87,555	-	-	3,21,18,34,632	-	-
18	Landed cost of coal (2+17)(1+7)	(Rs./MT)	2,473.06	-	-	2,381.35	-	-	2,489.51	-	-
19	Bidding Ratio	%	100.00%	0.00%	0.00%	100.00%	0.00%	0.00%	100.00%	0.00%	0.00%
20	Weighted average cost of coal (including biomass)	(Rs./MT)	2473.06	0.00%	0.00%	2381.35	0.00%	0.00%	2489.51	0.00%	0.00%
21	GCV of Domestic Coal of the opening stock as per bill of Coal Company	(kCal/Kg)	4578			4991	2301.33		4748	2489.51	
22	GCV of Domestic Coal supplied as per bill of Coal Company	(kCal/Kg)	4558			4723			4865		
23	GCV of Imported Coal of the opening stock as per bill of Coal Company	(kCal/Kg)									
24	GCV of Imported Coal supplied as per bill of Coal Company	(kCal/Kg)									
25	Weighted average GCV of coal/Lignite as Billed (including Biomass)	(kCal/Kg)		4991			4748			4875	
26	GCV of Domestic Coal of opening stock as received at Station	(kCal/Kg)	3883			4272			4210		
27	GCV of Domestic Coal supplied as received at Station	(kCal/Kg)	4322			4207			4477		
28	GCV of Imported Coal of opening stock as received at Station	(kCal/Kg)									
29	GCV of Imported Coal supplied as received at Station	(kCal/Kg)									
30	Weighted average GCV of coal as Received (including biomass)	(kCal/Kg)		4272			4216			4429	

Note: Break-up of coal receipt through different modes for computation of Normative Transit loss attached as Annexure-3


(Petitioner)

परिमल पीयूष/PARIMAL PIYUSH
अपर महाप्रबन्धक (वाणिज्यिक)
Add. General Manager (Commercial)
एन टी पी सी लिमिटेड/NTPC LIMITED
EOC, A-8A, Sector-24, Noida-201301 (U.P.)

Details of Secondary Fuel for Computation of Energy Charges

PART-I
FORM-15A

Name of the Company : NTPC Limited
Name of the Power Station : Rihand Super Thermal Power Station Stage-II

Sl.No	Month	Unit	Oct-21		Nov-21		Dec-21	
			LDO	HFO	LDO	HFO	LDO	HFO
1	Opening Stock of Oil	KL	4,360.090	-	7,027.170	-	6,865.170	-
2	Value of Opening Stock	Rs.	22,02,87,492	-	40,75,86,271	-	39,81,90,030	-
3	Quantity of Oil supplied by Oil Company	KL	3,162.060	-	-	-	-	-
4	Adjustment (+/-) in quantity supplied made by Oil Company	KL	-	-	-	-	-	-
5	Oil supplied by oil company (3+4)	KL	3,162.060	-	-	-	-	-
6	Normative Transit & Handling Losses	KL	-	-	-	-	-	-
7	Net Oil Supplied (3-4)	KL	3,162.060	-	-	-	-	-
8	Amount charged by the Oil Company*	(Rs)	21,60,09,516.00	-	-	-	-	-
9	Adjustment(+/-) in amount charged made by Oil Company	(Rs)	-	-	-	-	-	-
10	Handling, Sampling & Such other charges	(Rs)	-	-	-	-	-	-
11	Total amount charged (8+7)	(Rs)	21,60,09,516.00	-	-	-	-	-
12	Transportation charges by rail / ship / road transport	(Rs)	-	-	-	-	-	-
13	Adjustment (+/-) in amount charged made by Railways/Transport Company	(Rs)	-	-	-	-	-	-
14	Demurrage Charges, if any	(Rs)	-	-	-	-	-	-
15	Cost of Diesel in transporting Secondary Fuel through MGR system, if applicable	(Rs)	-	-	-	-	-	-
16	Total transportation charges	(Rs)	-	-	-	-	-	-
17	Total amount charged for the Oil supplied including transportation	(Rs.)	21,60,09,516.00	-	-	-	-	-
18	Landed Cost of Oil	Rs/KL	58,001.48	-	58,001.48	-	58,001.48	-
19	Blending Ratio (Domestic/ Imported)	%	1.00	-	1.00	-	1.00	-
20	Weighted average cost of Oil	Rs/KL	58,001.48	-	58,001.48	-	58,001.48	-
21	GCV of Domestic Oil of the Opening Oil stock as per bill of Oil Company	kCal/kL	-	-	-	-	-	-
22	GCV of Domestic Oil supplied as per bill of Oil Company	kCal/kL	-	-	-	-	-	-
23	GCV of Imported Oil of the opening stock as per bill of Oil Company	kCal/kL	-	-	-	-	-	-
24	GCV of Imported Oil supplied as per bill of Oil Company	kCal/kL	-	-	-	-	-	-
25	Weighted average GCV of Oil/ Lignite as Billed	kCal/kL	-	-	-	-	-	-
26	GCV of Domestic Oil of the Opening Oil stock as received at Station	kCal/kL	-	-	-	-	-	-
27	GCV of Domestic Oil supplied as received at Station	kCal/kL	9,232.00	-	9,232.00	-	9,232.00	-
28	GCV of Imported Oil of the Opening Oil stock as received at Station	kCal/kL	-	-	-	-	-	-
29	GCV of Imported Oil supplied as received at Station	kCal/kL	-	-	-	-	-	-
30	Weighted average GCV of Oil as received	kCal/kL	9,232.00	-	9,232.00	-	9,232.00	-

Note: In terms of the order of Hon'ble Supreme Court regarding ban on use of furnace oil, main secondary fuel at Rihand-II station is LDO w.e.f 01.01.2019 and the same has been considered for calculation of Working Capital.


(Petitioner)

परिमल पीयूष/PARIMAL PIYUSH
अपर महाप्रबन्धक (वाणिज्यिक)
Addl. General Manager (Commercial)
एन टी सी लिमिटेड/NTPC LIMITED
EOC, A-8A, Sector-24, Noida-201301 (U.P.)

Details of Source wise Fuel for Computation of Energy Charges

Name of the Company :		NTPC Limited									PART-I	
Name of the Power Station :		Rihand Super Thermal Power Station Stage-II									FORM-15	
S. No.	Month	Unit	Oct-22			Nov-22			Dec-22			
			Domestic	Imported	Biomass	Domestic	Imported	Biomass	Domestic	Imported	Biomass	
1	Opening Quantity of Coal/Lignite	(MT)	6,35,569	-	-	6,69,142.39	-	-	6,27,711.48	-	-	
2	Value of Stock	(Rs.)	2,21,74,26,352	-	-	1,67,41,15,389	-	-	1,67,28,85,724	-	-	
3	Quantity of Coal supplied by Coal Company	(MT)	9,82,297,466	-	-	9,82,297,466	-	-	9,82,297,466	-	-	
4	Adjustment (+/-) in quantity supplied made by Coal Company	(MT)	-	-	-	-	-	-	-	-	-	
5	Coal supplied by Coal Company (3+4)	(MT)	9,82,297,466	-	-	9,82,297,466	-	-	9,82,297,466	-	-	
6	Normative Transit & Handling Charges	(MT)	1,964,690	-	-	1,964,690	-	-	1,964,690	-	-	
7	Net coal / Lignite Supplied (5-6)	(MT)	9,80,332,876	-	-	9,80,332,876	-	-	9,80,332,876	-	-	
8	Amount charged by the Coal Company	(Rs.)	1,95,19,35,106	-	-	1,95,19,35,106	-	-	1,95,19,35,106	-	-	
9	Adjustment (+/-) in amount charged made by Coal Company	(Rs.)	37,55,49,875	-	-	37,55,49,875	-	-	37,55,49,875	-	-	
10	Handling, Surtax and such other similar charges	(Rs.)	4,38,75,453.65	-	-	4,38,75,453.65	-	-	4,38,75,453.65	-	-	
11	Total amount charged (8+9+10)	(Rs.)	2,37,91,61,439	-	-	2,37,91,61,439	-	-	2,37,91,61,439	-	-	
12	Transportation charges by rail, ship, road transport	(Rs.)	-	-	-	-	-	-	-	-	-	
13	Adjustment (+/-) in amount charged made by Railways/ Transport Company	(Rs.)	-	-	-	-	-	-	-	-	-	
14	Demurrage Charges, if any	(Rs.)	-	-	-	-	-	-	-	-	-	
15	Cost of diesel in transporting coal through MGR system, if applicable	(Rs.)	2,67,29,361.00	-	-	2,67,29,361.00	-	-	2,67,29,361.00	-	-	
16	Total Transportation Charges (12-13+14+15)	(Rs.)	2,67,29,361.00	-	-	2,67,29,361.00	-	-	2,67,29,361.00	-	-	
17	Total amount charged for coal supplied including Transportation (11+16)	(Rs.)	2,40,58,90,779	-	-	2,40,58,90,779	-	-	2,40,58,90,779	-	-	
18	Loaded cost of coal (2+17+1+7)	(Rs./MT)	2,579.06	-	-	2,579.06	-	-	2,579.06	-	-	
19	Blending Ratio	%	100.00%	0.00%	0.00%	100.00%	0.00%	0.00%	100.00%	0.00%	0.00%	
20	Weighted average cost of coal (including biomass)	(Rs./MT)	2579.06	0.00%	0.00%	2579.06	0.00%	0.00%	2579.06	0.00%	0.00%	
21	GCV of Domestic Coal of the opening stock as per bill of Coal Company	(kCal/Kg)	4940	-	-	4940	-	-	4940	-	-	
22	GCV of Domestic Coal supplied as per bill of Coal Company	(kCal/Kg)	4886	-	-	4886	-	-	4886	-	-	
23	GCV of Imported Coal of the opening stock as per bill of Coal Company	(kCal/Kg)	-	-	-	-	-	-	-	-	-	
24	GCV of Imported Coal supplied as per bill of Coal Company	(kCal/Kg)	-	-	-	-	-	-	-	-	-	
25	Weighted average GCV of coal/Lignite as Billed (including biomass)	(kCal/Kg)	4940	-	-	4940	-	-	4940	-	-	
26	GCV of Domestic Coal of opening stock as received at Station	(kCal/Kg)	4431	-	-	4431	-	-	4431	-	-	
27	GCV of Domestic Coal supplied as received at Station	(kCal/Kg)	4209	-	-	4209	-	-	4209	-	-	
28	GCV of Imported Coal of opening stock as received at Station	(kCal/Kg)	-	-	-	-	-	-	-	-	-	
29	GCV of Imported Coal supplied as received at Station	(kCal/Kg)	-	-	-	-	-	-	-	-	-	
30	Weighted average GCV of coal as Received (including biomass)	(kCal/Kg)	4511	-	-	4511	-	-	4511	-	-	

Note: Break-up of coal receipt through different modes for computation of Normative Transit loss attached as Annexure-3

(Petitioner)

परिमल पीयूष / PARIMAL PIYUSH
 अपर महाप्रबन्धक (वाणिज्यिक)
 Addl. General Manager (Commercial)
 एन टी पी सी लिमिटेड / NTPC LIMITED
 EOC, A-8A, Sector-24, Noida-201301 (U.P.)

Details of Secondary Fuel for Computation of Energy Charges

**PART-I
FORM- 15A**

Name of the Company :		NTPC Limited						
Name of the Power Station :		Rihand Super Thermal Power Station Stage-II						
Sl.No	Month	Unit	Oct-21		Nov-21		Dec-21	
			LDO	HFO	LDO	HFO	LDO	HFO
1	Opening Stock of Oil	KL	5,770,920		4,863,920		4,481,920	
2	Value of Opening Stock	Rs.	45,72,64,443		38,53,97,405		35,51,29,280	
3	Quantity of Oil supplied by Oil Company	KL	1,068,000				3,035,630	
4	Adjustment (+/-) in quantity supplied made by Oil Company	KL						
5	Oil supplied by oil company (3+4)	KL					3,035,630	
6	Normative Transit & Handling Losses	KL						
7	Net Oil Supplied (3-4)	KL					3,035,630	
8	Amount charged by the Oil Company*	(Rs)					29,42,39,528.00	
9	Adjustment (+/-) in amount charged made by Oil Company	(Rs)						
10	Handling, Sampling & Such other charges	(Rs)						
11	Total amount charged (6+7)	(Rs)					29,42,39,528.00	
12	Transportation charges by rail / ship / road transport	(Rs)						
13	Adjustment (+/-) in amount charged made by Railways/Transport Company	(Rs)						
14	Demurrage Charges, if any	(Rs)						
15	Cost of Diesel in transporting Secondary Fuel through MGR system, if applicable	(Rs)						
16	Total transportation charges	(Rs)						
17	Total amount charged for the Oil supplied including transportation	(Rs.)					29,42,39,528.00	
18	Landed Cost of Oil	Rs/KL	79,235.97		79,235.98		86,380.38	
19	Blending Ratio (Domestic/ imported)	%	1.00		1.00		1.00	
20	Weighted average cost of Oil	Rs/KL	89,236.00		93,455.00		86,380.38	
21	GCV of Domestic Oil of the Opening Oil stock as per bill of Oil Company	kCal/KL						
22	GCV of Domestic Oil supplied as per bill of Oil Company	kCal/KL						
23	GCV of Imported Oil of the opening stock as per bill of Oil Company	kCal/KL						
24	GCV of Imported Oil supplied as per bill of Company	kCal/KL						
25	Weighted average GCV of Oil/ Lignite as Billed	kCal/KL						
26	GCV of Domestic Oil of the Opening Oil stock as received at Station	kCal/KL						
27	GCV of Domestic Oil supplied as received at Station	kCal/KL	9,362.00		9,362.00		9,302.00	
28	GCV of Imported Oil of the Opening Oil stock as received at Station	kCal/KL						
29	GCV of Imported Oil supplied as received at Station	kCal/KL						
30	Weighted average GCV of Oil as received	kCal/KL	9,362.00		9,362.00		9,302.00	

Note: In terms of the order of Hon'ble Supreme Court regarding ban on use of furnace oil, main secondary fuel at Rihand-II station is LDO w.e.f. 01.01.2019 and the same has been considered for calculation of Working Capital.



(Petitioner)

परिमल पीयूष/PARIMAL PIYUSH
अपर महाप्रबन्धक (वाणिज्यिक)
Addl. General Manager (Commercial)
एन टी पी सी लिमिटेड/NTPC LIMITED
EOC, A-8A, Sector-24, Noida-201301 (U.P.)

Computation of Energy Charges

Form-15B

ADDITIONAL FORM

Name of the Company	NTPC Limited
Name of the Power Station	Rihand Super Thermal Power Station Stage-II

Computation of Energy Charges

	2019-20	2020-21	2021-22	2022-23	2023-24
1 Rate of Energy Charge from Sec. Fuel Oil/Alternate Fuel (p/kWh) ^(EC) = $(Q_s) \times P_s$	2.945	2.648	2.266	2.900	4.110
2 Heat Contribution from SFD / Alternate Fuel (H_s) = $(Q_s) \times (GCV)_s$	4.895	4.804	4.742	4.616	4.671
3 Heat Contribution from coal (H_c) = $GHR \times H_c$	2385.11	2385.20	2385.25	2385.36	2385.33
4 Specific Primary Fuel Consumption (SPC) = $H_s / (GCV)_s$	0.582	0.582	0.603	0.585	0.501
5 Rate of Energy charge from Primary Fuel (p/kWh) $(REC)_s$	129.815	130.846	130.396	136.813	142.477
6 Rate of Energy charge $(REC)_{bus}$ (p/kWh) = $\frac{(REC)_s + (REC)_c}{(1 - \alpha_{bus})}$	132.843	133.578	132.746	139.800	146.678

	2019-20	2020-21	2021-22	2022-23	2023-24
No of Days in the period	366	365	365	365	366
No of Days in the year	366	365	365	365	366
Sp. Oil consumption	0.5	0.5	0.5	0.5	0.5
Auxiliary consumption %	6.25%	6.25%	6.25%	6.25%	6.25%
Heat Rate	2,390.00	2,390.00	2,390.00	2,390.00	2,390.00

Computation of Variable Charges

	2019-20	2020-21	2021-22	2022-23	2023-24
Variable Charge (Coal) p/kWh	129.896	130.928	130.479	136.899	142.560
Variable Charge (Oil) p/kWh	2.947	2.650	2.268	2.902	4.112
Total p/kWh	132.843	133.578	132.746	139.800	146.678

Price of fuel from Form-15/15A

	2019-20	2020-21	2021-22	2022-23	2023-24
Coal Cost (Rs./MT)	2228.61	2248.06	2161.19	2422.66	2409.13
Oil Cost (Rs./KL)	58903.64	52973.63	45328.92	58001.48	82194.72

Computation of Fuel Expenses for Calculation of IWC:

	2019-20	2020-21	2021-22	2022-23	2023-24
ESD in a year (MUs)	7461.73	7441.35	7441.35	7441.35	7461.73
ESD for 45 days (MUs)	815.490	815.490	815.490	815.490	815.490
Cost of coal for 45 Days (Rs. Lakh)	10592.87	10677.04	10940.35	11163.94	11026.10
Cost of oil for 2 months (Rs. Lakh)	306.50	328.70	281.27	359.90	511.42
Energy Expenses for 45 days (Rs. Lakh)	12187.34	12254.82	12178.46	12825.66	13456.64

	2019-20	2020-21	2021-22	2022-23	2023-24
Coal					
Wtd. Avg. Price of Coal (Rs./MT)	2228.61	2248.06	2161.19	2422.66	2409.13
Wtd. Avg. GCV of Coal as reported (kCal/Kg)	4179.67	4183.00	4036.33	4309.00	4118.33
Sec. Oil					
Wtd. Avg. Price of Secondary Fuel (Rs./KL)	58903.64	52973.63	45328.92	58001.48	82194.72
Wtd. Avg. GCV of Secondary Fuel (kCal/L)	9790.00	9607.67	9483.67	9232.00	9342.00


(Petitioner)

परिमल पीयूष/PARIMAL PIYUSH
अपर महाप्रबन्धक (वाणिज्यिक)
Addl. General Manager (Commercial)
एन टी पी सी लिमिटेड/NTPC LIMITED
EOC, A-8A, Sector-24, Noida-201301 (U.P.)

Details/ Information to be Submitted in respect of Capital Spares (2019-20)

Name of the Petitioner: NTPC Ltd.		NTPC Limited						
Name of the Generating Station:		Rihand Super Thermal Power Station Stage-II						
Date of Commercial Operation:		01-04-2006						
Sl. No.	Name of Spare	Value of the Asset	Claimed as a part of additional Capitalisation	Funded through Compensatory Allowance	Funded through Special Allowance (if Applicable)	Claimed as a part of stores and spares	Amount in Rs Lakh	Remarks
1	GV-8S,10611-8LD-BW-A216 WCC 2500-100MM	0.35	No	No	No	No		
2	C.S. GATE VALVE SIZE 100mm	0.27	No	No	No	No		
3	406 NB MAN.OPTD BUTTERFLY VALVE	0.40	No	No	No	No		
4	C.I.GATE VALVE SIZE 8200MM	0.26	No	No	No	No		
5	FLUIDOMAT.HFD-7-COMPLET.E ASSEMBLY	0.28	No	No	No	No		
6	COMP ASSY.FLUIDOMAT.COUPLING.SC-10	15.97	No	No	No	No		
7	COMP ASSY.FLUIDOMAT.COUPLING.SC-14	42.46	No	No	No	No		
8	COMP ASSY.BRFVENI.GEAR BOX.SC8504	5.00	No	No	No	No		
9	COMP UNIT.DAVID BROWN.GEAR BOX.B3-355	85.75	No	No	No	No		
10	COMPLETE ASSY.DAVID BROWN.GEAR BOX	8.70	No	No	No	No		
11	COMP ASSY.ELECON.GEAR BOX.NK-8CU200.80.1	49.79	No	No	No	No		
12	COMP ASSY.ELECON.GEAR BOX.SBN280.14.1	30.81	No	No	No	No		
13	COMP ASSY.ELECON.GEAR BOX.VK55-424.570.1	43.31	No	No	No	No		
14	COMP ASSY.PCT.GEAR BOX.SR 32.2(12.95.1)	27.99	No	No	No	No		
15	COMP ASSY.PREMIUM ENERGY.GEAR BOX.B252	35.55	No	No	No	No		
16	COMP ASSY.PREMIUM ENERGY.GEAR BOX.B3-355	3.50	No	No	No	No		
17	GEAR COUPLING ED8400 COMP.UNIT ELECON	4.42	No	No	No	No		
18	ELECON.BZWF-5600-COMP ASSY	1.49	No	No	No	No		
19	DH 600-2000-2-SJ-COMPLET.E CATRIDGE ASSY	11.22	No	No	No	No		
20	IMPELLER SHAFT.1860101.BHM-125	16.19	No	No	No	No		
21	566HLG-COMP ASSY	3.28	No	No	No	No		
22	COMPLETE PUMP ASSY., ST.4MD 80/205DMAKE	2.49	No	No	No	No		
23	COMPLETE CATRIDGE ASSEMBLY.TDBPS-AOP	37.92	No	No	No	No		
24	SIZE:280 WATER RING VACUUM PUMP ASSY	22.24	No	No	No	No		
25	COMPRESSOR COMPLETE TYPE-30	27.11	No	No	No	No		
26	4-C150-GV-HW-BW-WCB COMPLETE VALVE ASSY.	2.00	No	No	No	No		
27	4-C150-FV-BW-WCB COMP V/V ASSLY.	0.27	No	No	No	No		
28	BODY.H95/325&1.HOPKINSON	6.92	No	No	No	No		
29	FLUID DRIVE HYD CPLG.368CR24R.960RPM	11.58	No	No	No	No		
30	HP DOSING PUMP WITH MOTOR ASSY BHEL	4.89	No	No	No	No		
31	ECO COIL LOWER ASSY	531.48	No	No	No	No		
32	DOUBLE CKT 22 TUBE ECO COIL PAIR ASSY	560.91	No	No	No	No		
33	WALL BLOWER ASSY.	6.03	No	No	No	No		
34	ENTRAL TRUNNION SHAFT.MAIN PREHEATER	99.00	No	No	No	No		
35	GEAR BOX,TYPE-II,3 INPUT,DOWNSHAFT	41.85	No	No	No	No		
36	PIN RACK ASSY FOR SAPH 30.0 VIM 2000	5.75	No	No	No	No		
37	PIN RACK ASSY FOR PAPH-27.5 VIM 2000	4.32	No	No	No	No		
38	SECONDARY GEAR BOX	64.27	No	No	No	No		
39	OVERRUNNING CLUTCH FOR SAPH	1.65	No	No	No	No		
40	SHAFT&IMPELLER ASSY.05652001	309.05	No	No	No	No		
41	IMPELLER BLADE 0-55-216-00829 (0&+ BHEL	52.11	No	No	No	No		
42	MULTI PORT ASSY.614000011.03.01.G.BHEL	18.66	No	No	No	No		
43	BULL RING SEGMENTS ASSEMBLY.MILL.XRP1003	28.99	No	No	No	No		

परिमल पीयूष / PARIMAL PIYUSH
अपर महाप्रबंधक (वाणिज्यिक)
Addl. General Manager (Commercial)
एन टी पी सी लिमिटेड / NTPC LIMITED
EOC, A-8A, Sector-24, Noida-201301 (U.P.)

44	GRINDING BOLL FOR XRP 1003	80.29	No	No	No	No
45	MILL BOTTOM FOR XRP-1003 MILL S	4.56	No	No	No	No
46	BELT DRIVE REDUCER	71.37	No	No	No	No
47	BELT DRIVE REDUCER,SWM150V150R,500MW	7.72	No	No	No	No
48	UNITROL-6000 POWER SUPPLY QUINT	0.48	No	No	No	No
49	UNITROL-6000 COMM CTRL MEASU DEVCE	5.70	No	No	No	No
50	CONTROLLER 3BH10023784R2530,ABB	12.51	No	No	No	No
51	UNITROL-6000 FIRING UNIT	3.82	No	No	No	No
52	TOP/BOTTOM SHELL,R210(A0)175,NEI	8.86	No	No	No	No
53	TOP/BOTTOM SHELL,R210(A0)170&4.5,NEI	11.55	No	No	No	No
54	U-SEALING RING MACHINED,010501090007	3.91	No	No	No	No
55	JOURNAL BRG ASSY,D250X180,01160418000&0	44.90	No	No	No	No
56	EV SERVOMOTOR COMPLETE 0-11403-27000	16.61	No	No	No	No
57	ANGLE DRAIN VALVE,E930-2,ARI180/81	14.84	No	No	No	No
58	EV SERVOMOTOR COMPLETE 0-11401-27000	45.41	No	No	No	No
59	BEARING SHELL ASSY 91390101000	57.05	No	No	No	No
60	BEARING SHELL ASSY 9139120100300008	64.54	No	No	No	No
61	MAIN OIL PUMP IMPELLER PartNO. 3156377	14.28	No	No	No	No
62	COMPLETE HP GOVERNING V/V K1401-2	1.15	No	No	No	No
63	DIESEL GENERATOR,250KVA,GPW11-P11-250	16.61	No	No	No	No
64	ROTOR ASSY,M072191,JKK 48X114	63.71	No	No	No	No
65	PADDLE ASSY,2322016&3,FLSMIDTH,1125MTPH	13.01	No	No	No	No
66	HYD MOTOR,2322016&10,FLSMIDTH,1125TPH	11.35	No	No	No	No
67	1125MTPH TRAVEL DRIVE GEARED MOTOR	1.44	No	No	No	No
68	DRIVE UNIT ASSY,TRF,TE-13	1.72	No	No	No	No
69	LEFT HYD CYLINDER,HL0963/2&3,ELECON EPC	110.27	No	No	No	No
70	MAGNET ASSY,BD X14 010,OVBO10594	43.15	No	No	No	No
71	ASSLY OF FLUID COUPL FCU-17.75	8.81	No	No	No	No
72	COMP FLUID COUPLING FOR ASH SLURRY PUMP	10.14	No	No	No	No
73	200X250MM COMPLETE ASSEMBLY	9.67	No	No	No	No
74	PVC FILL PK,CF,11216X1829X305,THK-0.3MM	418.97	No	No	No	No
75	PVC FILL PK,CF,1869X1829X305,THK-0.3MM	40.39	No	No	No	No
76	VEHICLE PLATFORM TRUCK JOISTS,FW0FB 40	6.14	No	No	No	No
77	TORQUE CNVRTR ASSY,1951319001,BEML,8D355	24.64	No	No	No	No
78	TRACK SHOE ASSY,130C100268,BEML,DOZER	26.42	No	No	No	No
79	TRANSMISSION ASSY,130T01008,BEML,8D355	51.20	No	No	No	No
80	ENGINE ASSY,51Z0000022,BEML,8D355	52.48	No	No	No	No
81	SCREW COMPRESSOR	23.13	No	No	No	No
82	TURBOCHARGER ASSY,100B0193,DLW	50.78	No	No	No	No
83	CB SF6-11KV-3150A-ABB	1.17	No	No	No	No
84	3PH SCIM 90KW415V,1482RPM,280MTEFC	6.30	No	No	No	No
85	MOTOR,55KW,1475 RPM,ND290M,	1.22	No	No	No	No
86	SQ CQ MOTOR,415V,160KW,6P,V1,TEFC,315LX	4.53	No	No	No	No
87	MOTOR,SQ CAGE IND,415VAC,3PH,S1,315L,B3	5.00	No	No	No	No
88	MTR SQL 415V 200KW-4P-B3,TEFC,FR,315M	3.92	No	No	No	No
89	MOTOR,DC COP,220VDC,S1,AUS280M,FLG,IP55	6.40	No	No	No	No
90	MOTOR,SQ, SQ CAGE IND,3.3KV,D3158,B3	14.50	No	No	No	No
91	MOTOR,SQ, SQ CAGE IND,3.3KV,3PH,D355-9B	24.99	No	No	No	No
92	MOTOR,SQ, SQ CAGE IND,3.3KV,1LA,7713,83,P	63.60	No	No	No	No
93	LBB RELAY MCT1140 TYPE MCT1140F1AK1001A	0.08	No	No	No	No
94	NUMERICAL TRANSFORMER PROTECTION RELAY 1A	4.59	No	No	No	No
95	DISTANCE PROTECTION RELAY MICOM P142	3.09	No	No	No	No
96	RELY NUM220VDC-RET-630 ABB 2AANBXA	10.33	No	No	No	No

In order to meet the customers demand and maintain high machine availability at all times by the instant station, units/ equipment are taken under overhaul/ maintenance and inspected regularly for wear and tear. During such works, spares parts of equipment's which became damaged/ unserviceable are replaced/ consumed so that the machine continue to perform at expected efficiency on sustained basis. Further as per Regulation 35(6) of TR, 2019, capital spares are admissible separately as part of O&M expenses. Therefore, it is prayed that the capital spares consumed by the instant station during the period may please be allowed by Hon'ble Commission.

परिमल पीयूष/PARIMAL PIYUSH
अपर महाप्रबन्धक (वाणिज्यिक)
Addl. General Manager (Commercial)
एन टी पी सी लिमिटेड/NTPC LIMITED
EOC, A-8A, Sector-24, Noida-201301 (U.P.)

97	RELY NUM:220VDC REF-615,ABB-GNBA1BBN1XD	5.28	No	No	No	No
98	RELY NUM:220VDC REM-615,ABB-GNBA1BBN1XD	8.61	No	No	No	No
99	RELAY NUMBER GE MULTILEN F650	13.77	No	No	No	No
100	RELAY NUM GENERATOR PROT.5A,220VDC	95.27	No	No	No	No
101	BATTERY RECHLEAD ACID,220V,460AH	34.96	No	No	No	No
102	ANALYZER,0-280V,0-30MA,0.1MILLIHZ-10KHZ	22.30	No	No	No	No
103	PR/DP TRANSMTR -100-1900MMWC	0.23	No	No	No	No
104	PR/DP TRANSMTR 0 - 1900MMBAR	0.08	No	No	No	No
105	ABSOLUTE SHAFT & BRG VIBRATION MONITOR	0.10	No	No	No	No
106	DUAL SEISMIC VIBR.MONITOR. MAKE SHINKAWA	0.19	No	No	No	No
107	C&I PGO-10 KQ/CMBRD 1/2" NPTBK150MM	0.03	No	No	No	No
108	VALVE,SOL,HERION,2134809,1500,024,00	8.71	No	No	No	No
109	T/C, K-TYPE,HEAD TYPE,DUPLEX,6MMX7655MM	0.31	No	No	No	No
110	VALVE,SOL,24VDC,2432581,1302,024,00	11.23	No	No	No	No
111	IH CONVERTOR: DSG-807112, VOITH TURBO	16.47	No	No	No	No
112	PNEU ACTUATOR, 38/13", MAKE: MIL	0.86	No	No	No	No
113	ACTUATOR,HYD,ELECTRO,ADVANCE ACTUATOR	20.02	No	No	No	No
114	ANALOG INPUT MODULE AA1143-500K4A00	84.55	No	No	No	No
115	LED BASED LVS SYSTEM,MVL67155XQJA,BARCO	41.01	No	No	No	No
116	24V,DC-DC CONVERTER, MODEL- 200SI	0.35	No	No	No	No
117	MAX OPERATOR STATION	25.22	No	No	No	No
	Total (A)	4,168.21				
	Total for Riband-II station (B=A*2*500(3*2*500))	1,389.40				

(Petitioner)

परिमल पीयूष/PARIMAL PIYUSH
 अपर महाप्रबन्धक (वाणिज्यिक)
 Addl. General Manager (Commercial)
 एन टी सी लिमिटेड/NTPC LIMITED
 EOC, A-8A, Sector-24, Noida-201301 (U.P.)

Details/Information to be Submitted in respect of Capital Spares

PART-I
FORM-17

Name of the Petitioner:

NTPC Limited

Name of the Generating Station:

Rihand Super Thermal Power Station Stage-II

Sl. No.	Details of Capital Spares and Expenses in 2020-21		Claimed as a part of additional Capitalisation	Funded through Compensatory Allowance (If Applicable)	Funded through Special Allowance	Claimed as a part of stores and spares	Amount in Rs Lakhs	Remarks
	Name of Spare	Value of the Asset						
1	350 NB C.I. CHECK VALVE 0-10 KG/CM2	0.02	No	NA	No	No		
2	100 NB GATE VALVE,C1 BODY NP=1, FLANGED	0.09	No	NA	No	No		
3	C1 GLOBE VALVE 80 NB RISING SPINDLE TYPE	0.10	No	NA	No	No		
4	REGULATING V/V 65NB CCS WCB MO	5.31	No	NA	No	No		
5	200 NB C1 GATE VALVE	0.06	No	NA	No	No		
6	450 MM RISING SPINDLE TYPE C1 GATE V/V	0.03	No	NA	No	No		
7	C1 SWING CHECK VALVE 400 NB (NRV)	0.03	No	NA	No	No		
8	BEARING EM-29495	28.29	No	NA	No	No		
9	BEARING,RLR,SPHERICAL THRUST,294/750	96.80	No	NA	No	No		
10	FLUID COUPLING,CDR-480 COMP ASSY	3.03	No	NA	No	No		
11	FLUIDOMAT HFD-7,COMPLETE ASSEMBLY	0.31	No	NA	No	No		
12	FC,FLUIDOMAT HFD-8,COMP ASSY	0.84	No	NA	No	No		
13	FC,FLUIDOMAT HFD-8B,COMP ASSY	1.00	No	NA	No	No		
14	FC,FLUIDOMAT HFD-9,COMP ASSY	0.80	No	NA	No	No		
15	FLUID COUPLING MODEL SC11A-FLUIDOMAT	18.49	No	NA	No	No		
16	COMP UNIT,DAVID BROWN,GEAR BOX,B3-355	37.89	No	NA	No	No		
17	COMP ASSY,ELECON,GEAR BOX,KCN290	25.10	No	NA	No	No		
18	COMP ASSY,ELECON,GEAR BOX,SBN250,14.1	18.21	No	NA	No	No		
19	COMP ASSY,PCT,GEAR BOX,SR 32.3(12.93.1)	14.07	No	NA	No	No		
20	GB ASSY,R1R91,PETL,B3-315	3.00	No	NA	No	No		
21	COMP ASSY,PREMIUM ENERGY,GEAR BOX,B212	71.10	No	NA	No	No		
22	COMP ASSY,PREMIUM ENERGY,GEAR BOX,B3-400	3.50	No	NA	No	No		
23	ELECON,BZWE-2240,COMP ASSY	0.93	No	NA	No	No		
24	ELECON,BZWE-3000,COMP ASSY	2.20	No	NA	No	No		
25	COUPLING,ELECON,ED3700,COMPL ASSY	1.37	No	NA	No	No		
26	ELECON,ED6200,COMP ASSY	1.19	No	NA	No	No		
27	DIESEL ENG. DRIVEN CENTRIFUGAL PP SET	2.53	No	NA	No	No		
28	DH 600-2000-2-SJ,COMPLETE CARTRIDGE ASSY	22.43	No	NA	No	No		
29	PUMP ASSY,DH 540-1080-35	12.80	No	NA	No	No		
30	CARTRIDGE ASSY,DH 540-1080-35	20.93	No	NA	No	No		
31	COMPLETE VACUUM PUMP ASSLY W/O MOTOR	85.16	No	NA	No	No		
32	THRUST BEARING,MITCHELL,PUMP,EN640	15.65	No	NA	No	No		
33	IMPELLER,1560101,BHM-125	72.29	No	NA	No	No		
34	TRANSMISSION SHAFT,1840101,DHM-125	11.40	No	NA	No	No		
35	HEAD SHAFT,1850101,BHM-125	16.19	No	NA	No	No		
36	IMPELLER SHAFT,1860101,BHM-125	15.87	No	NA	No	No		
37	PUMP ASSEMBLY	6.83	No	NA	No	No		
38	COMPLETE ASSY,PV140RULIKIT1VPHS	23.72	No	NA	No	No		
39	SCREW PUMP ASSY,ROTO,RMAA 701 B2CD3N	5.49	No	NA	No	No		
40	PUMP ASSY,SAM TURBO,AR-300/750 AM	23.63	No	NA	No	No		
41	8A,300 IMPELLER	1.19	No	NA	No	No		
42	SIZE200 WATER RING VACUUM PUMP ASSY	23.58	No	NA	No	No		
43	SHAFT,PUMP,FK4E36	39.65	No	NA	No	No		
44	THRUST BRG ASSY,FK4E36	11.79	No	NA	No	No		
45	LP ELEMENT,1616630581,COMPRESSOR,ZR-355	45.42	No	NA	No	No		
46	ROTOR DRUM,1617503076,ATLAS COPCO,ZR-250	20.07	No	NA	No	No		


परिमल पीयूष/PARIMAL PIYUSH
 अवर महाप्रबन्धक (वाणिज्यिक)
 Addl. General Manager (Commercial)
 एन टी सी लिमिटेड/NTPC LIMITED
 EOC, A-8A, Sector-24, Noida-201301 (U.P.)

47	HP ELEMENT,1616580381,COMPRESSOR,ZR-300	43.72	No	NA	No	No
48	ZR SERIES MD 1000 DRIER ROTAR DRUM	13.46	No	NA	No	No
49	SECOND STAGE PISTON AND CYLINDER ASSY	2.53	No	NA	No	No
50	SCREW ELEMENT ASSY,46-001 880.00	18.56	No	NA	No	No
51	80NB-C-300-BW-MO/HW-COMP V/V ASSY HW1	2.10	No	NA	No	No
52	6-C300-GV-BW-HW/MO-WCB-COMP. VALVE ASSY	1.28	No	NA	No	No
53	COMPLETE VALVE ASSY,M279M20/W/WPC	39.42	No	NA	No	No
54	BODY,R178/06&1,HOPKINSON	9.63	No	NA	No	No
55	ANGLE DRAIN VLV ASSY,S10+1487+101	7.16	No	NA	No	No
56	HR/HRV INLET-ISOL V/V PART NO R034	14.93	No	NA	No	No
57	FCO COIL LOWER ASSY	531.48	No	NA	No	No
58	DOUBLE CKT-22 TUBE ECD COIL PAIR ASSY	560.91	No	NA	No	No
59	COMPLETE DRUM SAFETY VALVE 1740 WB	3.87	No	NA	No	No
60	BEARING RUNNER PLATE,4X5100MW	10.00	No	NA	No	No
61	SPEED REDUCER,TYPE-II,CC/W,SAPH-30	44.38	No	NA	No	No
62	SPEED REDUCER,PAPH,500MW,27.5VIM2000	34.25	No	NA	No	No
63	HYD ADJ DEVICE,0-55-215-01 109&04	24.21	No	NA	No	No
64	ADJUSTMENT ASSY,0-55-334-009600171	46.96	No	NA	No	No
65	GEAR BOX ASSY,BHEL,BOILER_XRP-1003	110.30	No	NA	No	No
66	SPINDLE&HEAD ASSY,01111120,HPGV	98.35	No	NA	No	No
67	HPSV STRAINER,R231M306&L/W/FIXING DOWELS	90.38	No	NA	No	No
68	TOP/BOTTOM SHELL,R210(AO)189&5.6,NEI	11.76	No	NA	No	No
69	JOURNAL BRG ASSY,D500X450,011814020000	79.87	No	NA	No	No
70	VALVE SPINDLE,11132036000/09,BHEL	12.60	No	NA	No	No
71	L.V. VALVE CONE	25.07	No	NA	No	No
72	IP KEEP RING ASSY,M265(A)40398/1 TO 8	159.74	No	NA	No	No
73	HPBP SPRAY VALVE E49S 10CM2 AREA	4.15	No	NA	No	No
74	DP REGULATOR VALVE,W90414901444,25NB	130.80	No	NA	No	No
75	CONTROL FLUID PUMP ALONG WITH MOTOR	91.37	No	NA	No	No
76	MAIN OIL PUMP IMPELLER PartNO. 3156377	14.28	No	NA	No	No
77	ROTA SIDE-HYD. CYLINDER	23.15	No	NA	No	No
78	DRIVE PULLEY	0.10	No	NA	No	No
79	1400 DRIVE PULLEY DXL800X1600SHAFT D200	7.75	No	NA	No	No
80	DRIVE AXLE WHEEL,F137820,ELECON EPC	8.14	No	NA	No	No
81	400NB PLATE V/V COMP ASSY IN SLURRY LINE	8.31	No	NA	No	No
82	PVC FILL PK CF (1216X1829X305)THK-0.3MM	158.39	No	NA	No	No
83	PVC FILL PK CF (869X1829X305)THK-0.3MM	7.25	No	NA	No	No
84	MAP10000:COMPLETE ASSY.	5.68	No	NA	No	No
85	TRACK SHOE ASSY,130CT00268,BEML DOZER	40.35	No	NA	No	No
86	ENGINE ASSY,5120000022,BEML,DOZER	53.53	No	NA	No	No
87	8 PORT 10/100 MBPS ETHERNET SWITCH	0.69	No	NA	No	No
88	ENGINE ASSY,5120000014,BEML DOZER,BD-155	53.57	No	NA	No	No
89	TRANSMISSION ASSY,125TM00029,BEML DOZER	47.53	No	NA	No	No
90	TRACK SHOE ASSY,125CT00286,BEML DOZER	19.41	No	NA	No	No
91	DELUGE VALVE ASSEMBLY COMPLETE- 150NB	0.86	No	NA	No	No
92	COMPLETE DELUGE VALVE ASSEMBLY 150MM	2.30	No	NA	No	No
93	COMPLETE ASSY KT-1150	392.18	No	NA	No	No
94	DOZER ENGINE,5120000014,B96 D170	53.53	No	NA	No	No
95	CIRCUIT BREAKER,SP6,3.3KV/220V,40KA,ABB	16.18	No	NA	No	No
96	CIRCUIT BREAKER,SP6,132KV,2000A,IP	19.82	No	NA	No	No
97	XFMR,POWER,11KV,2.3KV,3.25MVA,3PH,DYN11	28.91	No	NA	No	No
98	XFMR,CURR-OSKF-420,400KV,20VA,5	110.92	No	NA	No	No
99	NUMERICAL TRANSFORMER PROTECTION RELAY 1A	8.49	No	NA	No	No
100	BATTERY CHARGER- 3PH, 48V, 400 A	5.20	No	NA	No	No
101	BATTERY CHARGER- 3PH, 110V, 150 AMP	3.89	No	NA	No	No
102	ART ENERGY METER WITH CT/PT-1A/110V,220V	1.04	No	NA	No	No
103	CT TEST KIT	21.83	No	NA	No	No

In order to meet the customers demand and maintain high machine availability at all times by the instant station, units/ equipment are taken under overhaul/ maintenance and inspected regularly for wear and tear. During such works, spares parts of equipment's which became damaged/ unserviceable are replaced/ consumed so that the machine continue to perform at expected efficiency on sustained basis. Further as per Regulation 35(6) of TR 2019, capital spares are admissible separately as part of O&M expenses. Therefore, it is prayed that the capital spares consumed by the instant station during the period may please be allowed by Hon'ble Commission.

परिमल पीयूष/PARIMAL PIYUSH
अपर महाप्रबन्धक (वाणिज्यिक)
Addl. General Manager (Commercial)
एन टी पी सी लिमिटेड/NTPC LIMITED
EOC, A-8A, Sector-24, Noida-201301 (U.P.)

104	PR/DP TRANSMTR 0 - 1900MBAR	0.15	No	NA	No	No
105	RAPCON,BHEL-ESP ELECTRONIC CONTROLLER	2.75	No	NA	No	No
108	CONTROL PANEL ANNUNCIATOR	12.98	No	NA	No	No
107	ON-LINE ANALYSER FOR CO,CO2,SOX,NOX	79.20	No	NA	No	No
108	MOVING COIL 01142205000&65,11,70,TURBINE	25.37	No	NA	No	No
109	ETH CONVERTOR: DSG-B07112; VOITH TURBO	32.95	No	NA	No	No
110	SWITCH I.VL.RESISTIVE,14PORT	95.34	No	NA	No	No
111	CONTROLLER,STOCK,GRAVIMETRIC FEEDER,DT-9	467.28	No	NA	No	No
112	ON LINE SODIUM ANALYSER	16.99	No	NA	No	No
113	AUMA POS TX IWK1002 2WIRE 4-20 MA 24VDC	2.70	No	NA	No	No
114	ACTUATOR,ELE,PART-TURN,1 IRPM,AUMA	1.40	No	NA	No	No
115	ACTUATOR SA6E90GS125 WITH GEAR BOX	0.51	No	NA	No	No
116	ACTUATOR,HYD,ELECTRO,ADVANCE ACTUATOR	20.02	No	NA	No	No
117	ACTUATOR,PNEU,100NM,120 AN,ABB,F/BFP	17.05	No	NA	No	No
118	AKCAA-COLLINS TRANSMTR MDL: ED692295905A	0.51	No	NA	No	No
119	ANALOG INPUT MODULE AA1143-S00/K4A00	21.14	No	NA	No	No
120	DIGITAL INPUT 24 DC IOP330 ED692301330B	1.43	No	NA	No	No
121	DIGITAL O/P CARD,MAXDNA,ICP351,692301351A	0.57	No	NA	No	No
122	DRIVE CONTROL MODULE,ED 692305908A	12.92	No	NA	No	No
123	DRIVE CONTROL MODULE,ED692295908A,BHEL	12.92	No	NA	No	No
124	PROMAX SER DVR MOD,ED692295922A	23.51	No	NA	No	No
125	PROMAX TRIP POWER MODULE: ED692295903A	0.51	No	NA	No	No
126	PLC SYSTEM WITH ACCESSORIES	262.11	No	NA	No	No
127	CONTROL PROCESSOR: PCP270, MAKE: FOXBORO	79.63	No	NA	No	No
128	MAX OPERATOR STATION	37.84	No	NA	No	No
	Total	5,373.22	No	NA	No	No
	Total for Rihand-II station (B=A*1*500)(3*1*500)	1,791.07	No	NA	No	No

परिमल पीयूष/PARIMAL PIYUSH
 अपर महाप्रबन्धक (वणिज्यिक)
 Addl. General Manager (Commercial)
 एन टी पी सी लिमिटेड /NTPC LIMITED
 EOC, A-8A, Sector-24, Noida-201301 (U.P.)

Details information to be Submitted in respect of Capital Spares

PART-I
FORM-17

Name of the Petitioner:		NTPC Limited					
Name of the Generating Station:		Rihand Super Thermal Power Station Stage-II					
Sl. No.	Details of Capital Spares and Expenses in 2021-22		Claimed as a part of additional Capitalisation	Funded through Compensatory Allowance (If Applicable)	Funded through Special Allowance	Amount in Rs Lakhs Claimed as a part of stores and spares	Remarks
	Name of Spare	Value of the Asset					
1	GATE VLV SIZE-250MM NON RISING SPINDLE	0.93	No	NA	No	No	
2	BUTTERFLY VLV. SIZE-350 MM API-609,PN-10	0.98	No	NA	No	No	
3	GUIDE BRG (SP ROLLER BRG 23080)	0.96	No	NA	No	No	
4	BEARING ROLLER SPHERICAL 294/560 EM	77.72	No	NA	No	No	
5	BEARING RLR SPHERICAL THRUST 294/750	45.35	No	NA	No	No	
6	FLUID COUPLING CDR-480 COMP ASSY	6.06	No	NA	No	No	
7	COMP ASSY PEMBRIL COUPLING PST-530	10.14	No	NA	No	No	
8	COMP ASSY PEMBRIL COUPLING 23SCR24R	9.87	No	NA	No	No	
9	GB BONFIGLIOLI 313L2-25AF COMPL ASSY	6.09	No	NA	No	No	
10	GEAR BOX DAVID BROWN B2-200	60.63	No	NA	No	No	
11	COMP ASSY DAVID BROWN GEAR BOX B3-200	19.26	No	NA	No	No	
12	COMP ASSY DAVID BROWN GEAR BOX B3-225	45.74	No	NA	No	No	
13	COMPLETE ASSY DAVID BROWN GEAR BOX	17.40	No	NA	No	No	
14	COMP ASSY ELECON GEAR BOX SBN280, 14:1	23.77	No	NA	No	No	
15	COMP ASSY PCT GEAR BOX SR 32 2(12, 93 1)	9.32	No	NA	No	No	
16	PET B3-280 COMP GEAR BOX, RATIO-18.9/1	27.20	No	NA	No	No	
17	DH 600-2000-2-SJ COMPLETE CATRIDGE ASSY	11.22	No	NA	No	No	
18	CATRIDGE ASSY DH 540-1080-3S	22.48	No	NA	No	No	
19	THRUST BRG#79-WEIR BFP-PR PUMP FK4E36	5.56	No	NA	No	No	
20	SHAFT NUT, 10500015, PUMP	78.73	No	NA	No	No	
21	1800-MFB-VIS SUSP MAIN	1.95	No	NA	No	No	
22	ROTATING ASSY KBL 6UP4FB	2.83	No	NA	No	No	
23	MUFF COUPLING 3450101 BHM-130	42.19	No	NA	No	No	
24	SCREW PUMP ASSY ROTO, RMAA 701 R2CD3N	5.76	No	NA	No	No	
25	PUMP ASSY 10A 16 D	10.59	No	NA	No	No	
26	PUMP ASSY ZM II 53D/01	7.78	No	NA	No	No	
27	ROTOR DRUM 1617505173, ATLAS COPCO	31.58	No	NA	No	No	
28	HP STAGE&ELEMENT, 1616747281, ATLAS COPCO	54.73	No	NA	No	No	
29	LP STAGE&ELEMENT, 1616590481, ATLAS COPCO	64.69	No	NA	No	No	
30	3-C300-GV-BW-MO/HW-WCB COMP VALVE ASSY	0.60	No	NA	No	No	
31	3-C150-GV-HW-BW-WCB COMPLETE VALVE ASSY	3.10	No	NA	No	No	
32	FLUID DRIVE HYD CPLG 36SCR24R 960RPM	13.91	No	NA	No	No	
33	ECO INLET HDR DRAIN REG VV PART NO.E021	4.06	No	NA	No	No	
34	WALL BLOWER ASSY	4.02	No	NA	No	No	
35	DRUM EMERGENCY DRAIN B115, BHEL BOILER	8.34	No	NA	No	No	
36	ERV 1538VX-10W	6.39	No	NA	No	No	
37	SPEED REDUCER, 0-52-100-02056, BHEL	11.32	No	NA	No	No	
38	SPEED REDUCER, 0-52-100-02056, BHEL	11.32	No	NA	No	No	
39	FLUID COUPLING 12.75 FCU	1.29	No	NA	No	No	
40	GEAR BOX, SHANTHI, TYPE-IA, 3 INPUT, UPSHAFT	98.91	No	NA	No	No	
41	GEAR BOX, TYPE-II, 3 INPUT, DOWNSHAFT	63.70	No	NA	No	No	
42	OVERRUNNING CLUTCH ASSEMBLY FOR APH	2.04	No	NA	No	No	
43	SPEED REDUCER, TYPE-J, CCW, SAPH-30	41.85	No	NA	No	No	
44	SPEED REDUCER, PAPH 500MW 27.5VIM2000	66.55	No	NA	No	No	
45	HE SECTOR PLATE ASSEMBLY FOR PAPH	20.45	No	NA	No	No	
46	BARRING GEAR ASSY 45203 HOWDEN	59.31	No	NA	No	No	
47	ROTOR ASSY, 1.08.00(B)1, BOILER, 500MW	135.90	No	NA	No	No	
48	SERVO MOTOR, FD	28.13	No	NA	No	No	
49	HYD ADJ DEVICE, 0-55-215-011098/04	48.03	No	NA	No	No	
50	ROTOR ASSY, BOILER, 500MW	100.52	No	NA	No	No	

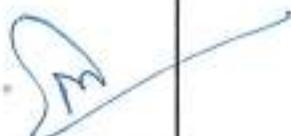
परिमल पीयूष/PARIMAL PIYUSH
अपर महाप्रबन्धक (वणिज्यिक)
Addl. General Manager (Commercial)
एन टी पी सी लिमिटेड/NTPC LIMITED
EOC, A-8A, Sector-24, Noida-201301 (U.P.)

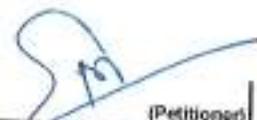
In order to meet the customers demand and maintain high machine availability at all times by the instant station, units/equipment are taken under overhaul/maintenance and inspected regularly for

51	ADJUSTMENT ASSY 0-55-334-009800171	46.96	No	NA	No	No
52	MULTI PORT ASSY 81400011 03 01 G BHEL	111.98	No	NA	No	No
53	GEAR BOX ASSY BHEL BOILER XRP-1003	110.30	No	NA	No	No
54	BELT DRIVE REDUCER, 5VW150V150R, 500MW	7.72	No	NA	No	No
55	RING 01050509000002	1.08	No	NA	No	No
56	RING 01050509000001	3.56	No	NA	No	No
57	FRONT BEARING 0250X180 DIRG01160418000-00	44.90	No	NA	No	No
58	DELTD PILOT HPCV 01140205100 ITEM 10	1.71	No	NA	No	No
59	CONT VV S.MTR: COMPLETE ASSY	46.36	No	NA	No	No
60	EV320-1 PRE CONTROL VALVE COMPLETE ASSY	0.56	No	NA	No	No
61	U-SEALING RING MACHINED, 0105010900005	9.50	No	NA	No	No
62	U-SEALING RING, 0105010900005, UNMACHINED	13.67	No	NA	No	No
63	STUD 0105020900005, BHEL	0.49	No	NA	No	No
64	RING 0105050900001, BHEL	14.66	No	NA	No	No
65	U-SEALING RING UNMACHINED 21051541000/2	6.33	No	NA	No	No
66	HPCV SERVOMOTOR COMPLETE 0-11402-41000	4.21	No	NA	No	No
67	SEAL HOUSING 0105062700006, BHEL	26.08	No	NA	No	No
68	SEALING RING ASSY, 0105062700007, BHEL	11.14	No	NA	No	No
69	SHAFT, AD-104673, BFP, FK-4E36	25.83	No	NA	No	No
70	THRUST BEARING, 1-30771-00092&1, K1401-2	6.47	No	NA	No	No
71	COMPLETE CARTRIDGE ASSY BHEL DRIGNO 2-42-	8.11	No	NA	No	No
72	ROTOR ASSY, MM204/2&38, ETK/15-54B	76.19	No	NA	No	No
73	CARRIAGE WHL ASSY F120130, PFT1C4H8M1, 4	9.15	No	NA	No	No
74	AXIAL PISTON PUMP R902577511, REXROTH	29.47	No	NA	No	No
75	1125MPH TRAVEL DRIVE GEARED MOTOR	1.84	No	NA	No	No
76	1400 NO PULLEY DXL 830X1800 SHAFT D125	1.78	No	NA	No	No
77	1500TPH HYDRAULIC LUFFING CYLINDER	78.82	No	NA	No	No
78	MAG SEPARATOR ASSY, ERIEZ, SE775 SC-1	53.10	No	NA	No	No
79	COMPLETE GEARBOX ASSEMBLY TYPE KAN 315	32.92	No	NA	No	No
80	PVC FILL PK:CF (1216X1829X305), THK-0.3MM	182.95	No	NA	No	No
81	PVC FILL PK:CF (869X1829X305), THK-0.3MM	25.30	No	NA	No	No
82	VEHICLE PLATFORM TRUCK, JOSTS, FWHFB 40	12.14	No	NA	No	No
83	TORQUE CNVRTR ASSY, 1951319001, BEML, B0355	6.09	No	NA	No	No
84	TRACK SHOE ASSY, 130CT00268, BEML, DOZER	21.75	No	NA	No	No
85	HYDRA CRANE 12 MT CAP.	25.84	No	NA	No	No
86	SCREW COMPRESSOR, 11 145 14 321 KBL	14.16	No	NA	No	No
87	CYLINDER HEAD FOR WDG3A LDCOS/10040062	1.94	No	NA	No	No
88	DLWSPR:ASSLY,CYL HEAD 251 PLUS	4.69	No	NA	No	No
89	ACB 2500A 3POLE ELECT OPRT STOR ENRG GE	1.23	No	NA	No	No
90	ACB 3200A 3P ELCT OPRT STORED ENRG GE	2.53	No	NA	No	No
91	C&S ACB 1800A, 3 POLES, 415V	1.85	No	NA	No	No
92	SENSOR, WAVE TRAP - 400KV, 1MH 3150A	19.65	No	NA	No	No
93	XFMR, POWER, 400KV, 21KV, 20MVA, DYN11, OFAF	631.90	No	NA	No	No
94	XFMR, CURR. OSKF-420, 400KV, 20VA, 5	6.43	No	NA	No	No
95	RELAY, NUMERIC/DIGITAL, 220VDC, SIEMENS	8.78	No	NA	No	No
96	RELAY, DISTURBANCE RECORDER, 220VDC, IDMT3	6.20	No	NA	No	No
97	BATTERY RECH, NI-CD, 1.2V, 515AH	128.00	No	NA	No	No
98	BATTERY RECH, NI-CD, 1.2V, 693AH	39.61	No	NA	No	No
99	CHARGER, BAT, 3PH, 220VDC, 1350A	18.21	No	NA	No	No
100	ABT ENERGY METER WITH CT/PT-1A/110V, 220V	2.06	No	NA	No	No
101	ANALYZER, 1.5-1000V, 5-500A, +/-0.1%	4.09	No	NA	No	No
102	CONTROL PANEL ANNUNCIATOR	12.98	No	NA	No	No
103	VALVE, SOL, 24VDC, 2432581 1302 024, 00	11.23	No	NA	No	No
104	MAXBOP PR. TRANSMITTER EJA430AEB54A62EC	0.63	No	NA	No	No
105	24V DC-DC CONVERTER, MODEL- 2005I	0.26	No	NA	No	No
106	PROCESSOR MODULE, CP451-10, YOKOGAWA, DC S	24.20	No	NA	No	No
	Grand Total	3653.06		NA	No	No
	Total for Riband-II station (B-A*1*500(3*1*500))	1,217.69				

wear and tear. During such works, spares parts of equipment's which became damaged/ unserviceable are replaced/ consumed so that the machine continue to perform at expected efficiency on sustained basis. Further as per Regulation 35(6) of TR 2019, capital spares are admissible separately as part of O&M expenses. Therefore, it is prayed that the capital spares consumed by the instant station during the period may please be allowed by Hon'ble Commission.

परिमल पीयूष/ PARIMAL PIYUSH
 अपर महाप्रबन्धक (वाणिज्यिक)
 Addl. General Manager (Commercial)
 एन टी पी सी लिमिटेड/ NTPC LIMITED
 EOC, A-8A, Sector-24, Noida-201301 (U.P.)





(Petitioner)

परिमल पीयूष/PARIMAL PIYUSH
अपर महाप्रबन्धक (वाणिज्यिक)
Addl. General Manager (Commercial)
एन टी पी सी लिमिटेड/NTPC LIMITED
EOC, A-8A, Sector-24, Noida-201301 (U.P.)

Details/Information to be Submitted in respect of Capital Spares

PART-I
FORM-17

Name of the Petitioner: NTPC Limited

Name of the Generating Station: Rihand Super Thermal Power Station Stage-II

Sl. No.	Details of Capital Spares and Expenses in 2022-23		Claimed as a part of additional Capitalisation	Funded through Compensatory Allowance	Amount in Rs Lakhs		Remarks
	Name of Spare	Value of the Asset			Funded through Special Allowance	Claimed as a part of stores and spares	
1	VALVE, GL. RISING SPINDLE, IS10605, BW, 65MM	40.24	No	NA	No	No	
2	BEARING, ROLLER, SPHERICAL, 29498-FMB	18.89	No	NA	No	No	
3	FLUID COUPLING CDR-480 COMP ASSY	3.03	No	NA	No	No	
4	FC FLUIDOMAT-HDF-7 COMP ASSY	0.95	No	NA	No	No	
5	COMP ASSY FLUIDOMAT COUPLING SC-10	15.59	No	NA	No	No	
6	COMP ASSY FLUIDOMAT COUPLING SC-14	20.00	No	NA	No	No	
7	COMPLETE ASSY DAVID BROWN GEAR BOX	17.40	No	NA	No	No	
8	COMP ASSY ELECON GEAR BOX, NK-KCU-225	14.60	No	NA	No	No	
9	COMP ASSY ELECON GEAR BOX, SBN250, 14.1	33.27	No	NA	No	No	
10	GEAR BOX ASSY LOUISE, GEAR BOX, FKJ, H620	73.55	No	NA	No	No	
11	COMP ASSY PCT GEAR BOX, SR 32.2(12.93.1)	46.59	No	NA	No	No	
12	COMP ASSY PREMIUM ENERGY GEAR BOX, B232	35.55	No	NA	No	No	
13	COMP ASSY PREMIUM ENERGY GEAR BOX, H1-225	8.99	No	NA	No	No	
14	PUMP ASSY, DH 540-1080-3S	43.19	No	NA	No	No	
15	THRUST BRG#78-WEIR BFP-PR, PUMP, FK4E36	5.56	No	NA	No	No	
16	BEARING, 1050002&69 PUMP	31.82	No	NA	No	No	
17	ROTATING ASSY FLOWMORE PUMP, F5826	9.58	No	NA	No	No	
18	MECHANICAL SEAL EAGLE BURGMANN PUMP	29.13	No	NA	No	No	
19	PUMP ASSY KAKATI, KVI-750	46.18	No	NA	No	No	
20	PUMP ASSY UP 200/38	8.21	No	NA	No	No	
21	COMPLETE PUMP ASSY, ST.4MD 80/205DMAKE	2.61	No	NA	No	No	
22	PUMP ASSY, BTU 17M	14.78	No	NA	No	No	
23	PUMP ASSY SAM TURBO AR-300/750 AM	24.30	No	NA	No	No	
24	PUMP ASSY SAM TURBO, 8A20B	10.15	No	NA	No	No	
25	PUMP ASSY, ZM II 530/01	7.78	No	NA	No	No	
26	FK4E36 DE BEARING JOURNAL	3.08	No	NA	No	No	
27	FK4E36 NDE JOURNAL BEARING	0.81	No	NA	No	No	
28	PUMP ASSY, SOC 250/350	27.10	No	NA	No	No	
29	DISPOSAL PUMP ASSY, WARMAN 14/12GAH	124.84	No	NA	No	No	
30	E18TC COMPLETE ASSY	14.70	No	NA	No	No	
31	2ND STAGE CYLINDER 2-01-4338, COMPRESSOR	16.30	No	NA	No	No	
32	SCREW ELEMENT ASSY, 46 001 880 00	49.41	No	NA	No	No	
33	COMPRESSOR ASSY, KPCL 2HA2TERT	45.52	No	NA	No	No	
34	KNIFE GATE VLV ASSY, 17198101, WEIR VALVES	19.62	No	NA	No	No	
35	KNIFE GATE VLV ASSY, A1-0-133-508350	25.64	No	NA	No	No	
36	COMPLETE VALVE ASSY, M278420VWPC	90.31	No	NA	No	No	
37	BODY, H95/325&1, HOPKINSON	6.92	No	NA	No	No	
38	ECC INLET HDR DRAIN-REG VIV PART NO. E021	4.06	No	NA	No	No	
39	SB PRV 100% MAIN LINE PART NO. SD24	6.47	No	NA	No	No	
40	WALL BLOWER ASSY	6.03	No	NA	No	No	
41	DRUM EMERGENCY DRAIN, B115, BHEL BOILER	4.17	No	NA	No	No	
42	COMPLETE DRUM SAFETY VALVE 1740 WB	10.44	No	NA	No	No	
43	DRUM SAFETY VALVE, 1740-VB	12.00	No	NA	No	No	
44	ERV, 1538VX-10W	34.80	No	NA	No	No	
45	ELECTRO RELIEF VALVE BHEL, 1525-VX-3	7.37	No	NA	No	No	
46	VALVE, CTRL, A217-WC6, CL2500, 3IN, VSC-VA4R	13.34	No	NA	No	No	
47	AXIAL SEAL SET, 2-52-054-03873, BHEL	0.36	No	NA	No	No	
48	BYPASS SEAL SET, 2-52-055-01151 REV +	0.93	No	NA	No	No	
49	RADIAL SEAL SET, 1-52-013-03181, BHEL	7.17	No	NA	No	No	
50	AXIAL SEAL PLATE, F, MAIN APH	6.70	No	NA	No	No	
51	BEARING SLEEVE, 84100800, HOWDEN	33.04	No	NA	No	No	
52	ROTOR ASSY, C-55-334-01380&24, BHEL	244.43	No	NA	No	No	

परिमल पीयूष/PARIMAL PIYUSH
अपर महाप्रबन्धक (वाणिज्यिक)
Addl. General Manager (Commercial)
एन टी पी सी लिमिटेड/NTPC LIMITED
EOC, A-8A, Sector-24, Noida-201301 (U.P.)

In order to meet the customers demand and maintain high machine availability at all times by the instant station, units/ equipment are taken under overhaul/ maintenance and inspected regularly for wear and tear. During such works, spares parts of equipment's which

53	HYD SERVO MOTOR BOILER,500MW	85.34	No	NA	No	No
54	BLADE SET,PAF 19110.6-2 1-00-100-21750&7	59.09	No	NA	No	No
55	WORM GEAR & SHAFT SET OF COAL MILL	117.99	No	NA	No	No
56	JOURNAL SHAFT ASSY,F&RP 1003 MILL	591.99	No	NA	No	No
57	BELT DRIVE REDUCER,SWM150V150R,500MW	24.74	No	NA	No	No
58	RING 01050609000002	1.06	No	NA	No	No
59	U-SEALING RING UNMACHINED,01050109000/3	32.75	No	NA	No	No
60	U-SEALING RING MACHINED,01050109000/5	5.90	No	NA	No	No
61	U-SEALING RING MACHINED,01050109000/7	13.13	No	NA	No	No
62	U-SEALING RING MACHINED,11051409000/5	19.66	No	NA	No	No
63	IP CONTROL VALVE ASSY,1113236000/00	200.17	No	NA	No	No
64	DP REGULATING VALVE	16.13	No	NA	No	No
65	AIR SIDE SEAL OIL PUMP SET AC,13ST52/54	5.37	No	NA	No	No
66	EMERGENCY GOV ASSY DRG 01162705000-0	2.62	No	NA	No	No
67	FOLLOW UP PISTON HYD AMP,01142905000&00	43.70	No	NA	No	No
68	GEAR BOX,B/W T08FP TURBINE & BOOSTER P/P	24.19	No	NA	No	No
69	DRIVE SHAFT ASSY,1 TO 11,PAHARPUR,HP-6.6	6.53	No	NA	No	No
70	BOTTOM CONSEP,ANION REGEN UNIT (ARI) CPU	81.09	No	NA	No	No
71	CENTRIFUGAL SEPARATOR OIL CLEANER	24.78	No	NA	No	No
72	PLATFORM,TRUCK MNT HYD AERIAL	40.00	No	NA	No	No
73	TRACK SHOE ASSY,130CT00268,BEML DOZER	21.75	No	NA	No	No
74	ENGINE ASSY,5120000014,BEML DOZER,BD-155	53.57	No	NA	No	No
75	DELUGE VALVE -100 NB	0.70	No	NA	No	No
76	DELUGE VALVE ASSEMBLY COMPLETE- 150NB	0.66	No	NA	No	No
77	DELUGE VALVE ASSEMBLY SIZE 100 NB	3.66	No	NA	No	No
78	DELUGE VALVE ASSEMBLY SIZE 80 NB	1.67	No	NA	No	No
79	COMPLETE DELUGE VALVE ASSEMBLY 150MM	0.77	No	NA	No	No
80	DLWSPR,ASSLY,CYL HEAD 251 PLUS	9.32	No	NA	No	No
81	CB SF6 11KV,3150A,ABB	4.78	No	NA	No	No
82	CIRCUIT BREAKER,SF6,400KV,4000A,3AT3-1	63.69	No	NA	No	No
83	MOTOR,SGL SQ CAGE IND 3.3KV,DC400F3,4P	20.58	No	NA	No	No
84	MOTOR,SGL SQ CAGE IND 3.3KV,DC450U900,4P	7.12	No	NA	No	No
85	XFMR,POWER,400KV,21KV,200MVA,DYN11,OF&F	1,892.72	No	NA	No	No
86	XFMR,CURR:OSKF,420,400KV,20VA,5	262.72	No	NA	No	No
87	XFMR,POT,CAPACITIVE VOLTAGE,400KV/110V	13.18	No	NA	No	No
88	CONTROL RELAY	2.14	No	NA	No	No
89	RELAY,NUMERIC/DIGITAL,5A,7UT,SIEMENS	15.08	No	NA	No	No
90	ABT ENERGY METER WITH CT/PT,1A/110V,22/0V	8.32	No	NA	No	No
91	3 PH POWER QUALITY ANALYZER WITH PRINTER	4.20	No	NA	No	No
92	COMPLETE ACTUATOR TYPE ASM 63	9.70	No	NA	No	No
93	ACTUATOR,HYD ASM250-10,CCI	27.14	No	NA	No	No
94	ACTUATOR,HYD SULZER ASM100-10	14.67	No	NA	No	No
95	CONTROLLER,STOCK,GRAVIMETRIC FEEDER,DT-9	22.25	No	NA	No	No
96	ACTUATOR,PNEU,A48FKZ,BLAKEBOROUGH	22.30	No	NA	No	No
97	ACTUATOR,PNEU,GS 700-100 RA,COPEB-VULCAN	13.38	No	NA	No	No
98	ACTUATOR,PNEU,GS 700-100 DA,COPEB-VULCAN	13.38	No	NA	No	No
99	ACTUATOR,PNEU,SD-700-160L-DA	31.80	No	NA	No	No
100	PNEU,ACTUATOR,MDL,38-41024,SIZE:15",MIL	0.57	No	NA	No	No
101	ANALYZER,WATER,SILICA,0-5000PPB	21.24	No	NA	No	No
102	ELECTRICAL ACTUATORS COMPLETE ACTUATOR	1.74	No	NA	No	No
103	FIELD CONTROL MODULE,AFV30D-S41451	199.89	No	NA	No	No
104	CHANNEL ISO,EXT,SOURCE DO MODULE:FBM242	1.20	No	NA	No	No
105	FIBER OPTIC PREPARATION TOOL KIT	2.67	No	NA	No	No
	Grand Total	5,543.51		NA	No	No
	Total for Rihand-II station (B=A*2*500(3*2*500))	1,847.84				

consumed so that the machine continue to perform at expected efficiency on sustained basis. Further as per Regulation 35(B) of TR 2010, capital spares are admissibly separately as part of O&M expenses. Therefore, it is prayed that the capital spares consumed by the instant station during the period may please be allowed by Hon'ble Commission.

परिमल पीयूष/PARIMAL PIYUSH
अपर महाप्रबन्धक (वाणिज्यिक)
Addl. General Manager (Commercial)
एन टी पी सी लिमिटेड/NTPC LIMITED
EOC, A-8A, Sector-24, Noida-201301 (U.P.)

(Petitioner)

Details/Information to be Submitted in respect of Capital Spares

PART-I
FORM-17

Name of the Petitioner: NTPC Limited

Name of the Generating Station: Rihand Super Thermal Power Station Stage-II

Sl. No.	Details of Capital Spares and Expenses in 2023-24	Value of the Asset	Claimed as a part of additional Capitalisation	Funded through Compensatory Allowance (If Applicable)	Funded through Special Allowance	Amount in Rs Lakhs Claimed as a part of stores and spares	Remarks
1	MOVING BLADE LP 3R DRG 01030741000-7	308.45	No	NA	No	No	
2	MOVING BLADE LP3L DRG 01030741000-3	308.45	No	NA	No	No	
3	THDF 115.500 MW GENERATOR ROTOR (BHEL)	3,953.00	No	NA	No	No	
4	DRUM SAFETY VALVE, 1740-WB	24.00	No	NA	No	No	
5	SH SPRAY BRANCH BLOCK VALVE, SD4	4.37	No	NA	No	No	
6	SUPER HEATER SPRAY CONTROL VALVE BHEL	29.68	No	NA	No	No	
7	1400 NO PULLEY DXL630X1600 SHAFT D150	2.26	No	NA	No	No	
8	DAVR.R2 SMP'S 90-260VAC, 220V-24V DC 10A	0.79	No	NA	No	No	
9	SHF3 SIZE: 162MM COMPLETE MECHANICAL SE	22.50	No	NA	No	No	
10	XFMR,CURR: OSKF-420 400KV, 20VA, 5	13.83	No	NA	No	No	
11	IN-MOTION WEIGH BRDG, 140 MT	63.72	No	NA	No	No	
12	COMP ASSY PCT GEAR BOX, SR 32 2(12.93:1)	9.32	No	NA	No	No	
13	BEARING PART NO 69, CLYDE UNION PUMP	31.82	No	NA	No	No	
14	SHAFT NUT, 10500015, PUMP	157.47	No	NA	No	No	
15	COMP ASSY FLUIDOMAT, COUPLING, SC-10	20.11	No	NA	No	No	
16	RELAY PANEL	7.08	No	NA	No	No	
17	TRANSMISSION ASSY, 130TMD1008 BEML, BD355	44.18	No	NA	No	No	
18	COMP ASSY FLUIDOMAT, COUPLING, SC-14	54.58	No	NA	No	No	
19	BUS CONTROLLER MODULE, FEM100, FOXBORO	0.48	No	NA	No	No	
20	CONTROL PROCESSOR, FCP270, MAKE: FOXBORO	0.71	No	NA	No	No	
21	COMP ASSY PEMBRIL, COUPLING, 23SCR24R	12.58	No	NA	No	No	
22	CYLINDER BARCOCK MOXEY, BM1250V1500	119.25	No	NA	No	No	
23	ROTOR DRUM, 1617585076, ATLAS COPCO, ZR-250	60.20	No	NA	No	No	
24	HP STAGE&ELEMENT, 1616747281, ATLAS COPCO	18.24	No	NA	No	No	
25	LP STAGE&ELEMENT, 1616590481, ATLAS COPCO	32.35	No	NA	No	No	
26	JOURNAL SHAFT ASSY F/XRP 1003 MILL	52.77	No	NA	No	No	
27	ROTOR ASSY M07219V1, EKK 48X114	66.90	No	NA	No	No	
28	SHAFT, 12.02.01.01, FL5MDTH	9.09	No	NA	No	No	
29	PINION+SHAFT ASSY, 05.03.03.23, FL5MDTH	9.89	No	NA	No	No	
30	ACB 1800A 3 POLE ELECT OPRTD GE MAKE	1.32	No	NA	No	No	
31	FAN BLADE ASSY 04-21-0043M/18 REV+	6.25	No	NA	No	No	
32	COMP ASSY PCT GEAR BOX, SR 32 2(12.93:1)	9.32	No	NA	No	No	
33	ENGINE ASSY, 5120000022, BEML, BD355	133.82	No	NA	No	No	
34	HOIST ELECTRIC OPER, 0.51-1TON, 5.01-10M	6.62	No	NA	No	No	
35	HOIST ELECTRIC OPER, 3.01-4TON, 55.01-80M	23.78	No	NA	No	No	
36	HOIST ELECTRIC OPER, 4.01-5TON, 85.01-70M	6.05	No	NA	No	No	
37	HOIST ELECTRIC OPER, 0.51-1TON, 20.01-25M	3.71	No	NA	No	No	
38	HOIST ELECTRIC OPER, 0.51-1TON, 10.01-15M	3.41	No	NA	No	No	
39	EL OP. HOIST-4.01-5.0T ELECT HOIST 5MT	9.06	No	NA	No	No	
40	EL OP. HOIST-4.01-5.0T LIFT, 10.01-15M	18.17	No	NA	No	No	
41	FAN BLADE ASSY 04-21-0043M/18 REV+	16.42	No	NA	No	No	
42	POWER SUPPLY UNIT FOR MASTER CLOCK SYS	0.48	No	NA	No	No	
43	PUMP ASSY, SAM TURBO, 8A20B	10.00	No	NA	No	No	
44	5/8EHLG, COMP ASSLY	3.98	No	NA	No	No	
45	CONTROL PROCESSOR, FCP270, MAKE: FOXBORO	0.54	No	NA	No	No	
46	COMP ASSY FLUIDOMAT, COUPLING, SC-11A	2.90	No	NA	No	No	
47	COMP ASSY FLUIDOMAT, COUPLING, SC-10	20.11	No	NA	No	No	
48	CONSEP BOTTOM DWFL/CPU/REGN001, DRIPLEX	84.96	No	NA	No	No	
49	BOTTOM CONSEP, ANION REGEN UNIT (ARU), CPU	63.54	No	NA	No	No	
50	TILTING PAD, 41778/127, HAYWARD TYLER	5.98	No	NA	No	No	

परिमल पीयूष/PARIMAL PIYUSH
अपर महाप्रबन्धक (वाणिज्यिक)
Addl. General Manager (Commercial)
एन टी पी सी लिमिटेड/NTPC LIMITED
EOC, A-6A, Sector-24, Noida-201301 (U.P.)



51	BEARING ASSY.05-2405 HOWDEN	88.50	No	NA	No	No
52	BEARING SLEEVE.64100600.HOWDEN	33.04	No	NA	No	No
53	VFD - 7.5KW, 415V, FOR RC FEEDER	2.60	No	NA	No	No
54	HEAD PULLEY ASSEMBLY(RCF)	1.29	No	NA	No	No
56	VEE BEE.250NB.DUPLEX.FILTER ASSY	40.36	No	NA	No	No
56	ELECON.ED-8400.COMP ASSY	4.51	No	NA	No	No
57	COMP PUMP ASSY.12A.198-08/TMCIP/2+	23.17	No	NA	No	No
58	COUPLING-ELECON.ED300.COMPL ASSY	1.37	No	NA	No	No
59	BUS CONTROLLER MODULE. FEM100, FOXBORO	0.48	No	NA	No	No
60	DISCRETE I/P MODULE.FBM217, MAKE.FOXBORO	0.58	No	NA	No	No
61	CONTROL PROCESSOR.FCP270, MAKE.FOXBORO	0.71	No	NA	No	No
62	DIGITAL O/P MODULE.FBM237, MAKE.FOXBORO	0.36	No	NA	No	No
63	COMP ASSY.FLUIDOMAT.COUPLING.SC-14	54.98	No	NA	No	No
64	ISOLATOR.420KV,2000A,HAPAM	138.91	No	NA	No	No
65	U-SEALING RING MACHINED.11051409000/5	18.66	No	NA	No	No
66	ARRNG OF JRNL BRG.D450X450,11181841000&0	74.37	No	NA	No	No
67	COMP ASSY.PREMIUM ENERGY GEAR BOX B232	24.54	No	NA	No	No
68	SERVOMOTOR.01323505000/00.BHEL CRH NRV	6.22	No	NA	No	No
69	FLUID DRIVE HYD CPLG.385CR24R.960RPM	15.72	No	NA	No	No
70	THDF.115.500 MW GENERATOR ROTOR (BHEL)	3,953.00	No	NA	No	No
71	MUFF COUPLING.3450101.BHM-130	95.14	No	NA	No	No
72	U-SEALING RING UNMACHINED.21051541000/2	4.27	No	NA	No	No
73	U-SEALING RING.01050105000/5 UNMACHINED	5.90	No	NA	No	No
74	U-SEALING RING MACHINED.01050109000/7	3.93	No	NA	No	No
75	U-SEALING RING.01050105000/33.MACHINED	8.12	No	NA	No	No
76	BEARING SEGMENT.3610101.BHM-125	25.81	No	NA	No	No
77	COMP ASSY.PREMIUM ENERGY GEAR BOX.B3-400	3.50	No	NA	No	No
78	PILOT VALVE ASSY.DRG.01230725000-09	0.78	No	NA	No	No
79	TRANSMISSION SHAFT.1840101.BHM-125	11.92	No	NA	No	No
80	IMPELLER SHAFT.1980101.BHM-125	16.60	No	NA	No	No
81	MOVING COIL.01142205000865.11.70.TURBINE	13.24	No	NA	No	No
82	B.5HFT.PP ASSY.SS-CFBM EDWARDS.SHR22500	130.88	No	NA	No	No
83	ROTOR.270/3.3KV/D355-9B/4P.MARATHON	11.59	No	NA	No	No
84	COUPLING BOLT.M84.DRG.11183541000-001	5.99	No	NA	No	No
85	OVERRUNNING CLUTCH ASSEMBLY FOR APH	3.07	No	NA	No	No
86	PUMP ASSY.UP.200/38	9.47	No	NA	No	No
87	ANALYZER.WATER PHOSPHATE.0.2-10PPM.4CH	25.96	No	NA	No	No
88	HYDRAULIC PUMP.R902217898.REXROTH	9.98	No	NA	No	No
89	TURBO SUPPLRCHARGER.10283479.LOCOMOTIVE	51.75	No	NA	No	No
90	CONT VLV.SERVOMOTOR.R222(A0/1177.NE)	71.32	No	NA	No	No
91	AIR MOTOR-SAPH-IPM400	3.36	No	NA	No	No
92	HP ELEMENT.1616580381.COMPRESSOR.ZR-300	22.05	No	NA	No	No
93	LP ELEMENT.1616630581.COMPRESSOR.ZR-355	92.48	No	NA	No	No
94	TSI SERVER	26.29	No	NA	No	No
95	SEALING RING MACHINED.01061227000&3.BHEL	18.15	No	NA	No	No
96	U-SEALING RING MACHINED.01050109000/3	33.97	No	NA	No	No
97	PUMP ASSY.DSM.80/36	6.83	No	NA	No	No
98	OFC TO ETHERNET MEDIA CONVERTOR STANDARD	0.05	No	NA	No	No
99	COMP ASSY.PCT.GEAR BOX.SR.32.2(12.93.1)	31.28	No	NA	No	No
100	HYDRAULIC PUMP.R902217898.REXROTH	10.78	No	NA	No	No
101	SHAFT.BHEL.SPEED REDUCER.R52290340003	10.51	No	NA	No	No
102	SHAFT.BHEL.SPEED REDUCER.R52290390003	7.86	No	NA	No	No
103	I/H CONVERTER.43971120.VOITH TURBO	8.24	No	NA	No	No
104	SHAFT BEARING ASSY.0-55-215-0110981.BHEL	15.46	No	NA	No	No
105	BELT DRIVE REDUCER.SWM150V150R.500MW	7.72	No	NA	No	No
106	BEARING HOUSING.0-55-335-00374.BHEL	49.17	No	NA	No	No
107	SEAL OIL PUMP.TUSHACO.T3552/04	7.63	No	NA	No	No
108	SHF2/135.COMP MECH SEAL ASSY	22.31	No	NA	No	No
109	ELECTRO RELIEF VALVE.BHEL.1526-VX-3	33.25	No	NA	No	No
110	HOIST H-02 CAP.2MT, LIFT.13M.223-22SH	3.60	No	NA	No	No

परिमल पीयूष/PARIMAL PIYUSH
अपर महाप्रबन्धक (वाणिज्यिक)
Addl. General Manager (Commercial)
एन टी पी सी लिमिटेड/NTPC LIMITED
EOC, A-8A, Sector-24, Noida-201301 (U.P.)

In order to meet the customers demand and maintain high machine availability at all times by the instant station, units/ equipment are taken under overhaul/ maintenance and inspected regularly for wear and tear. During such works, spares parts of equipment's which became damaged/ unserviceable are replaced/ consumed so that the machine continue to perform at expected efficiency on sustained basis. Further as per Regulation 35(6) of TR 2019, capital spares are admissible separately as part of O&M expenses. Therefore, it is prayed

111	DAVR TY DIODE BDG 12A, VRRM 400-800V	0.10	No	NA	No	No
112	DAVR TY CURT FLOW MONT. CARD	1.48	No	NA	No	No
113	DAVR R2 DIODE RECNY MODULE	0.14	No	NA	No	No
114	DISPOSAL PUMP ASSY WEIR, 14/12GAH	71.16	No	NA	No	No
115	CAGE FRAME GN30248114, TKK-48X114	33.32	No	NA	No	No
116	COMP ASSY ELECON, GEAR BOX KCN250	25.10	No	NA	No	No
117	HEAD SHAFT, 1850101, BHM-125	15.87	No	NA	No	No
118	IMPELLER SHAFT, 1860101, BHM-125	15.87	No	NA	No	No
119	FLEX GRID COUPLING RT/GR-113/0, BIBBY	11.09	No	NA	No	No
120	COMP ASSY ELECON, GEAR BOX, JU-400, 1:1	19.83	No	NA	No	No
121	PUMP ASSY EM12TC	7.25	No	NA	No	No
122	MULTI PORT ASSY, S14000011, 03, 01 G, BHEL	18.64	No	NA	No	No
123	HYDRAULIC AMPLIFIER ASSLY, 01142801000&00	22.00	No	NA	No	No
124	BATTERY RECH, NI-CD, 380V, 410AH	35.51	No	NA	No	No
125	RADIAL SEAL BHEL, 27.5 VIM 2150	9.10	No	NA	No	No
126	RADIAL SEALS SET, CW+CCW, 30 VIM 2000	16.72	No	NA	No	No
127	24V DC-DC CONVERTER, MODEL- 2005I	1.22	No	NA	No	No
128	DRUM SAFETY VALVE, 1740-WB	12.00	No	NA	No	No
129	PUMP ASSY, 2H 100 M1	10.29	No	NA	No	No
130	VEHICLE, PLATFORM TRUCK, JOSTS, FWHFB 40	29.62	No	NA	No	No
131	ANGLE DRN VV EXV101, 102-CRHV101-DN50/65	15.12	No	NA	No	No
132	ANGLE DRAIN VV-HRHV109, 110-DN25/40	2.40	No	NA	No	No
133	ANGLE DRN VV EXV101, 102-CRHV101-DN50/65	3.78	No	NA	No	No
134	ASSY, 088/010, VOITH COUPLING, R18KGS1	13.91	No	NA	No	No
135	VALVE GL, BW, 150MM CL, 2500	9.73	No	NA	No	No
136	TY PWR MODULE, CN9088209777, BHEL	8.03	No	NA	No	No
137	ROTOR, 1, 02&1, 01, PUMP, 2BE1 353 OZY 4	47.82	No	NA	No	No
138	COMPLETE SAFETY VV TYPE 1740WD	13.41	No	NA	No	No
139	SIZE200 WATER RING VACUUM PUMP ASSY	53.49	No	NA	No	No
140	TRANSMISSION SHAFT, 1840101, BHM-130	13.27	No	NA	No	No
141	RELAY, NUMERIC/DIGITAL, 220VDC, SIEMENS	9.54	No	NA	No	No
142	LV BSN+MTL PRT&GSKT, 1PH, 200MVA, 21/400KV	10.50	No	NA	No	No
143	PLATE STACK 21, DRESSER MASONELAN	54.14	No	NA	No	No
144	DAVR TY DC TDR DUL 0-80MV, 4-20MA, 220VAC	1.10	No	NA	No	No
145	DAVR R2 CT370AV1 MEM. CARD	0.47	No	NA	No	No
146	DAVR TY CURT FLOW MONT. CARD	1.48	No	NA	No	No
147	DAVR R2 DC (-)15V +15V, 4-20MAMP, 240VAC	0.55	No	NA	No	No
148	DAVR R2 SMPS 90-260VAC, 220V-24V DC 10A	0.79	No	NA	No	No
149	PUMP ASSY, SAM TURBO, AR-300/750 AM	24.85	No	NA	No	No
150	BATTERY RECH, NI-CD, 220V, 990AH	167.19	No	NA	No	No
151	BEARING PART NO 68, CLYDE UNION PUMP	15.59	No	NA	No	No
152	LP STAGE&ELEMENT, 1818590481, ATLAS COPCO	32.35	No	NA	No	No
153	GEAR COUPLING ED4500 COMP ASSY ELECON	2.17	No	NA	No	No
154	TRACK SHOE ASSY 130CT00265 BEML DOZER	58.34	No	NA	No	No
155	ONLINE DPAC MONITOR, FLUE GAS	13.45	No	NA	No	No
156	PUMP ASSY, 100400+TPS 3VD	6.06	No	NA	No	No
157	SHAFT BEARING ASSY, 0-55-215-01109&1, BHEL	15.40	No	NA	No	No
158	GEAR COUPLING NO ED 6200	1.16	No	NA	No	No
159	G.CPLG-ELECON-ED 4500 COMP ASSY	2.07	No	NA	No	No
160	CIRCUIT BREAKER, SF6, 420KV, 3150A, 50KA	34.62	No	NA	No	No
161	1400 NO PULLEY DXL830X1600 SHAFT D150	2.26	No	NA	No	No
162	COMPLETE VALVE ASSY, HS450/5, HOPKINSON	46.15	No	NA	No	No
163	1800 DRIVE DXL400X2000XSHAFT D80	0.52	No	NA	No	No
164	CARTRIDGE ASSY, BHEL, PUMP, FK&E36	153.31	No	NA	No	No
165	COMP ASSY ELECON GEAR BOX KBN280	30.99	No	NA	No	No
166	CIRCUIT BREAKER, SF6, 132KV, 1250A	5.87	No	NA	No	No
167	XFMR, CURR, 2000/1/1A, 400/420KV	21.80	No	NA	No	No
168	K1401-2 FRONT JOURNAL BEARING	5.88	No	NA	No	No
169	K1401-2 REAR JOURNAL BEARING	5.55	No	NA	No	No
170	COMP ASSY FLUIDOMAT COUPLING, SC-10	17.15	No	NA	No	No

that the capital spares consumed by the instant station during the period may please be allowed by Hon'ble Commission.

परिमल पीयूष/PARIMAL PIYUSH
 अपर महाप्रबन्धक (वाणिज्यिक)
 Addl. General Manager (Commercial)
 एन टी पी सी लिमिटेड/NTPC LIMITED
 EOC, A-8A, Sector-24, Noida-201301 (U.P.)

171	PUMP ASSY,EM12TC	7.25	No	NA	No	No
172	FLUID DRIVE HYD CPLG,36SCR24R,960RPM	13.91	No	NA	No	No
173	COMP ASSY,PREMIUM ENERGY,GEAR BOX,B3-355	51.04	No	NA	No	No
174	PLATE STACK,21,DRESSER MASONIELAN	32.87	No	NA	No	No
175	EDDY CURRENT CLUTCH,12440115,D,W	10.28	No	NA	No	No
176	ROTOR ASSY,PA FANAP2-30/12	257.76	No	NA	No	No
177	XFMR,POT,CAPACITIVE VOLTAGE,400KV/110V	13.18	No	NA	No	No
178	PUMP ASSY,9MD 100/250 D	5.78	No	NA	No	No
179	PUMP ASSY,7M II 530/01	8.08	No	NA	No	No
180	HOIST,ELECTRIC OPER,1.51-2TON,5.01-10M	10.08	No	NA	No	No
181	EL OP,HOIST-1.51-2.0T,LIFT 15.01-20M	11.08	No	NA	No	No
182	HOIST,ELECTRIC OPER,1.51-2TON,20.01-25M	3.85	No	NA	No	No
183	HOIST,ELECTRIC OPER,0.51-1TON,5M	3.28	No	NA	No	No
184	HOIST,ELECTRIC OPER,1.51-2TON,50.01-55M	8.85	No	NA	No	No
185	EL OP,HOIST-2.01-3.0T,LIFT 25.01-30M	14.71	No	NA	No	No
186	EL OP,HOIST-1.01-1.5T,ELECTRICAL HOIST	3.31	No	NA	No	No
187	HOIST,ELECTRIC OPER,3.01-4TON,5.01-10M	4.33	No	NA	No	No
188	HOIST,ELECTRIC OPER,0.51-1TON,50.01-55M	12.22	No	NA	No	No
189	FUR WALL,DESLAG BLOWER,LESS DRIVE UNIT	21.38	No	NA	No	No
190	DRUM SAFETY VALVE,1740-WB	24.00	No	NA	No	No
191	DRUM SAFETY VALVE ASSY,1750-WB	28.95	No	NA	No	No
192	ASSY,VOITH,COUPLING,R18KGS1	1,530.45	No	NA	No	No
193	HEAT EXCHANGER ASSY,AP9,APV,SR14-AP	443.88	No	NA	No	No
194	CARTRIDGE ASSY,FK4F38	478.47	No	NA	No	No
195	ONLINE OPAC MONITOR,FLUE GAS	13.45	No	NA	No	No
198	ANGLE DRAIN,VV-HRHV109,110-DN25/40	4.81	No	NA	No	No
197	SUPER HEATR SPRAY CONTRLVV(CAPITALISED)	7.49	No	NA	No	No
198	SH SPRAY BRANCH BLOCK VALVE,SD4	8.73	No	NA	No	No
199	PVC FILL PK,CF,(869X1829X305),THK-0.3MM	0.98	No	NA	No	No
200	PVC FILL PK,CF,(1216X1829X305),THK-0.3MM	7.44	No	NA	No	No
201	BATTERY RECH,NI-CD,220V,990AH	187.19	No	NA	No	No
202	SECTOR PLATE SET,0-52-041-00881,BHEL	28.25	No	NA	No	No
203	SECTOR PLATE SET,0-52-045-00885,BHEL	22.23	No	NA	No	No
204	NRV/SWING CHECK VALVE ASSY,BHEL,8IN	27.81	No	NA	No	No
205	ROTOR,1.02&1.01,PUMP,2BE1 353 OZY 4	95.65	No	NA	No	No
206	COMP ASSY,GREAVES,GEAR BOX,H1-200	19.18	No	NA	No	No
207	GEAR BOX ASLY,PREMIUM,H1-225,1.98:1	11.43	No	NA	No	No
208	COMP ASSY,PEMBRIL COUPLING,PST-530	13.27	No	NA	No	No
209	COMP ASSY,FLUIDCMAT,COUPLING,SC-10	40.22	No	NA	No	No
210	XFMR,POT,CAPACITIVE VOLTAGE,400KV/110V	28.90	No	NA	No	No
	Grand Total	16,065.06				
	Total for Rihand-II station (B=A*2*500(3*2*500))	5,355.02				

परिमल पीयूष (Petitioner)
अपर महाप्रबन्धक (वाणिज्यिक)
Addl. General Manager (Commercial)
एन टी पी सी लिमिटेड / NTPC LIMITED
EOC, A-8A, Sector-24, Noida-201301 (U.P.)

PART 1							
Non-Tariff Income							Form-18
Name of the Petitioner		NTPC Limited					
Name of the Generating Station		Rihand Super Thermal Power Station Stage-II					
(in Rs. Lakh)							
S. No.	Parameters	Existing 2018-19	2019-20	2020-21	2021-22	2022-23	2023-24
1	Income from rent of land or buildings	NA	37.91	44.10	37.39	53.10	52.83
2	Income from sale of scrap		64.59	243.08	187.74	352.04	263.23
Total			102.50	287.17	225.13	405.13	316.06

Note- Auditor Certificate in support of Non-Tariff Income is attached as **Annexure-4**.


 (Petitioner)

परिमल पीयूष/PARIMAL PIYUSH
 अपर महाप्रबन्धक (वाणिज्यिक)
 Addl. General Manager (Commercial)
 एन टी सी लिमिटेड/NTPC LIMITED
 EOC, A-8A, Sector-24, Noida-201301 (U.F)

PART 1

Form-19

Details of Water Charges

Name of the Petitioner	NTPC Limited
Name of the Generating Station	Rihand Super Thermal Power Station Stage-II

S. No.	Details of Water charges (excluding water cess)		Quantity allocated	Normative consumption at 100% PLF	Rate specified (as per govt. notification or agreement)	Spillage of water (in percentage)	Amount (in Rs. Lakh) Claimed (Annualized)
	Year*	Name of source and quantity	Unit- Cusec	Unit-m3			
1	2019-20	Rihand Reservoir	37.19	3,07,44,000	Pl. refer Form-19A.	Nil	466.24
2	2020-21			3,06,60,000		Nil	466.24
3	2021-22			3,06,60,000		Nil	466.24
4	2022-23			3,06,60,000		Nil	466.24
5	2023-24			3,07,44,000		Nil	477.83
* Additional Column							

(Petitioner)

परिमल पीयूष/PARIMAL PIOUS
 अपर महाप्रबन्धक (वाणिज्यिक)
 Addl. General Manager (Commercial)
 एन टी पी सी लिमिटेड/NTPC LIMITED
 EOC, A-8A, Sector-24, Noida-201301 (U.P.)

Details of Water Charges Computation

Name of the Company :	NTPC Limited					
Name of the Power Station :	Rihand Super Thermal Power Station Stage-II					
ITEM	Units	2019-20	2020-21	2021-22	2022-23	2023-24
Type of Cooling Tower	-	Induced Draft Cooling Tower				
Type of Cooling Water System	-	Closed Cycle				
Water Allocation/Contracted	CUSEC	37.19	37.19	37.19	37.19	37.19
Actual water Consumption	CUSEC	37.19	37.19	37.19	37.19	37.19
Rate of Water Charges	Paisa/kWh	295.54	295.54	295.54	295.54	325.10
Water Charges Paid	Rs. Lakhs	466.24	466.24	466.24	466.24	477.83
Total water Charges Paid	Rs. Lakhs	466.24	466.24	466.24	466.24	477.83

Record note of discussion of the meeting held on 03.04.1999 is attached as **Annexure-5** as supporting document for rate of water charges.



(Petitioner)

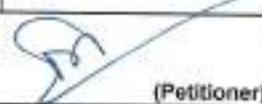
परिमल पीयूष/PARIMAL PIYUS
अपर महाप्रबन्धक (व्यावसायिक)
Addl. General Manager (Commercial)
एन टी पी सी लिमिटेड/NTPC LIMITED
EOC, A-8A, Sector-24, Noida-201301 (U.P.)

PART 1			
FORM- 20			
Details of Statutory Charges			
Name of the Petitioner	NTPC Limited		
Name of the Generating Station	Rihand Super Thermal Power Station Stage-II		
Particulars	Unit Rate	No of Units	Amount Claimed
Electricity Duty	NIL		
Water Cess			
 (Petitioner)			

परिमल पीयूष/PARIMAL PIYUSH
 अपर महाप्रबन्धक (प. वि. विभाग)
 Add: General Manager (Gen. Mgr.)
 एन टी पी सी लिमिटेड, NTPC LIMITED
 EOC, A-8A, Sector-24, Noida-201301 (U.R.)

Details of decapitalization during 2019-20

PART-I
FORM-I
Amount in Rs Lakhs

Name of the Petitioner		NTPC Limited						
Name of the Generating Station		Rihand Super Thermal Power Station Stage-II						
Station COD		01.04.2006						
For Financial Year		2019-20						
Rate of Depreciation	2005-06	2008-09	2011-12	2014-15	2017-18	2020-21	2023-24	
	3.6219%	3.6118%	5.254%	5.245%	5.242%	1.965%	2.041%	
	2006-07	2009-10	2012-13	2015-16	2018-19	2021-22		
	3.6118%	5.2526%	5.256%	5.252%	1.935%	2.005%		
	2007-08	2010-11	2013-14	2016-17	2019-20	2022-23		
	3.6118%	5.254%	5.256%	5.246%	1.949%	2.041%		
Decap of Capital Spares- Part of Capital Cost								
S.N	Name of the Asset	Nature of de-capitalization (whether claimed under exclusion or as additional capital expenditure)	Value of the Asset de-capitalised as per Note 2	Ind-AS Adjustment	Original Value of the Asset Capitalised, As per IGAAP	Year Put to use	Depreciation recovered till date of decapitalization	Whether earning RoE at the normal rate of weightage average rate of interest on loan
Decap of Spares - Part of Capital Cost								
1	Decap of Spares	Claimed as additional capitalization	10.64	23.84	34.47	2005-06	21.65	No
Subtotal- Decap of Capital Spares			10.64	23.84	34.47		21.65	
Decap of MBOAs - Part of Capital Cost								
2	Decap of Wagons	Claimed as additional capitalization	28.90	29.85	56.75	2005-06	36.90	No
3	Decap of Loco Pilot	Claimed as additional capitalization	323.97	359.80	683.78	2004-05	429.50	No
Decap of MBOAs - Part of Capital Cost			352.88	389.65	742.53		466.40	
Grand Total of Decap of assets			363.51	413.49	777.00		488.05	
								 (Petitioner)

परिमल पीयूष/PARIMAL PIYUSH
अपर महाप्रबन्धक (वाणिज्यिक)
Addl. General Manager (Commercial)
एन टी पी सी लिमिटेड/NTPC LIMITED
EOC, A-8A, Sector-24, Noida-201301 (U.P.)

Details of decapitalization during 2020-21							PART-I	
							FORM-I	
							Amount in Rs Lakhs	
Name of the Petitioner		NTPC Limited						
Name of the Generating Station		Rihand Super Thermal Power Station Stage-II						
Station COD		01-04-2008						
For Financial Year		2020-21						
Rate of Depreciation	2005-06	2008-09	2011-12	2014-15	2017-18	2020-21	2023-24	
	3.6219%	3.6118%	5.254%	5.249%	5.242%	1.965%	2.041%	
	2006-07	2009-10	2012-13	2015-16	2018-19	2021-22	-	
	3.6118%	5.2526%	5.256%	5.252%	1.935%	2.005%		
	2007-08	2010-11	2013-14	2016-17	2019-20	2022-23		
	3.6118%	5.254%	5.256%	5.246%	1.949%	2.041%		
Decap of Capital Spares- Part of Capital Cost								
S.N	Name of the Asset	Nature of de-capitalization (whether claimed under exclusion or as additional capital expenditure)	Value of the Asset de-capitalised as per Note 2	Incl-AS Adjustment	Original Value of the Asset Capitalised, As per IGAAP	Year Put to use	Depreciation recovered till date of decapitalization	Whether earning RoE at the normal rate of weightage average rate of interest on loan
A Decap of Spares: Part of capital cost								
1	Decap of Spares: Part of capital cost	Claimed as additional capital expenditure	259.34	349.72	609.06	2005-06	394.48	No
			22.53	53.31	75.84	2006-07	46.38	No
	Subtotal (A)		281.87	403.03	684.90		440.86	
B Decap of Spares: Not-Part of capital cost								
1	Decap of Spares: Not-Part of capital cost	Claimed under Exclusion	33.62	-	33.62	2016-17	Hon'ble CERC has allowed exclusion of capital spares vide para 59 of CERC Order dt. 22.03.2022 in petition no. 112 GT 2020.	NA
			2.53		2.53	2017-18	Hon'ble Commission may be please to allow the exclusion.	NA
	Subtotal (B)		36.14		36.14			
	Grand Total		318.02	403.03	721.06		440.86	


(Petitioner)

परिमल पीयूष/PARIMAL PIYUSH
अपर महाप्रबन्धक (वाणिज्यिक)
Addl. General Manager (Commercial)
एन टी पी सी लिमिटेड/NTPC LIMITED
EOC, A-8A, Sector-24, Noida-201301 (U.P.)

Details of decapitalization during 2021-22								PART-I
Name of the Petitioner		NTPC Limited						FORM-I
Name of the Generating Station		Rihand Super Thermal Power Station Stage-II						
Station COD		01-04-2006						
For Financial Year		2021-22						
Rate of Depreciation	2006-06	2008-09	2011-12	2014-15	2017-18	2020-21	2023-24	
	3.6219%	3.6118%	5.254%	5.245%	5.242%	1.965%	2.041%	
	2006-07	2009-10	2012-13	2015-16	2018-19	2021-22		
	3.6118%	5.2526%	5.256%	5.252%	1.936%	2.005%		
	2007-08	2010-11	2013-14	2016-17	2019-20	2022-23		
	3.6118%	5.254%	5.256%	5.246%	1.949%	2.041%		
Decap of Spares - Part of Capital Cost								
S.N	Name of the Asset	Nature of de-capitalization (whether claimed under exclusion or as additional capital expenditure)	Value of the Asset decapitalised as per IndAS	IndAS Adjustment	Value of the Asset decapitalised as per IGAAP	Year Put to use	Depreciation recovered till date of decapitalization	Whether earning RoE at the normal rate of weightage average rate of interest on loan
A Decap of Spares- Part of Capital Cost								
1	Decap of Spares	Claimed under Additional Capitalization	38.54	75.89	114.23	2005-06	76.25	No
			2.83	7.66	10.49	2006-07	6.62	No
	Sub-total (A)		41.37	83.55	124.72		82.88	
B Decap of MROAs - Part of Capital Cost								
1	Plant and Machinery	Claimed under Additional Capitalization	0.22	0.13	0.35	2007-08		No
2	EDP, WP machines & SATCOM equipment	Claimed under Additional Capitalization	0.16	1.50	1.66	2006-07	0.21	No
			3.47	29.33	32.80	2007-08	1.05	No
3	Communication equipment	Claimed under Additional Capitalization	19.65	17.42	37.07	2008-09	19.53	No
			-	1.44	1.44	2006-07	20.73	No
			-	1.15	1.15	2007-08	0.91	No
4	Software	Claimed under Additional Capitalization	-	0.41	0.41	2008-09	0.25	No
			-	13.37	13.37	2006-07	0.23	No
			-	32.05	32.05	2007-08	8.44	No
5	Other Office Equipment	Claimed under Additional Capitalization	-	1.89	1.89	2008-09	19.09	No
			1.30	1.63	2.92	2007-08	1.06	No
	Sub-total (B)		24.80	190.33	126.13		79.22	
C Decap of Spares - Not part of Capital Cost								
S.N	Name of the Asset	Nature of de-capitalization (whether claimed under exclusion or as additional capital expenditure)	Value of the Asset decapitalised as per IndAS	IndAS Adjustment	Value of the Asset decapitalised as per IGAAP	Year Put to use	Justification	
1	Decap of Spares	Claimed under Exclusion	16.69	3.14	19.84	2012-13	Capitalization of these assets was kept under exclusion and allowed by Hon'ble Commission vide para 47 of order dtd 07.12.2015 in Petition no 310/GT/2013. Accordingly, decap of these assets is kept under exclusion.	
3			5.33	-	5.33	2015-16		
4			11.16	-	11.16	2016-17	Capitalization of these assets was kept under exclusion and allowed by Hon'ble Commission vide para 52, 59, 67, 75 order dtd 22.03.2022 in Petition no 112/GT/2020. Accordingly, decap of these assets is kept under exclusion.	
5			82.00	-	82.00	2017-18		

पारिमल पीयूश/PARIMAL PIYUSH
 Addl. General Manager (Commercial)
 एन टी सी लिमिटेड/NTPC LIMITED
 EOC, A-8A, Sector-28, Noida, U.P.

6			33.27	-	33.27	2018-19		
7			258.95	-	258.95	2019-20	Since the capitalization of spares after cut-off date is not admissible after cut-off date, hence the same are kept under exclusion in respective years and consequently their decapitalization is also kept under exclusion.	
8			5.49	-	5.49	2020-21		
Sub-total (C)			410.89	3.14	414.03			
D Decap of MBOAs - Not part of Capital Cost								
1	Plant and Machinery	Claimed under Exclusion	0.34	0.13	0.47	2009-10	Capitalization of these assets was kept under exclusion and allowed by Hon'ble Commission vide para 49 of order dtd 07.12.2015 in Petition no 310/GT/2013. Accordingly, decap of these assets is kept under exclusion. Hon'ble Commission may be pleased to allow the same.	NA
2	EDP, WP machines & SATCOM equipment	Claimed under Exclusion	0.81	6.11	6.91	2009-10		
			10.96	62.56	73.52	2010-11		
			3.42	20.71	24.13	2011-12		
			12.52	10.96	23.08	2012-13		
3	Communication equipment	Claimed under Exclusion	5.00	3.47	8.52	2013-14		
			-	2.66	2.66	2009-10		
4	Software	Claimed under Exclusion	-	0.89	0.89	2009-10		
			-	1.09	1.09	2010-11		
5	Other Office Equipment	Claimed under Exclusion	5.65	2.91	8.56	2009-10		
			0.19	0.29	0.48	2010-11		
			0.83	0.33	1.16	2013-14		
Sub-total (D)			39.76	111.70	151.46			
E Decap of Overhauling Assets								
	Decap of Overhauling Assets	Claimed under Exclusion	6,553	6,553	-	2021-22	This Decapitalisation entry is on account of Change in Accounting Practice wherein decap during overhauling have been capitalised as per Ind AS with net amount under IGAAP as zero. The same is kept under exclusion. Hon'ble Commission may be pleased to allow the same under exclusion.	NA
Sub-total (E)			6,553	6,553	-			
Grand Total of Decap of assets			7,069.56	-4,264.21	815.35			162.10



(Petitioner)

परिमल पीयूष/PARIMAL PIYUSH
 अपर महाप्रबन्धक (वाणिज्यिक)
 Addl. General Manager (Commercial)
 एन टी पी सी लिमिटेड/NTPC LIMITED
 EOC, A-8A, Sector-24, Noida-201301 (U.P.)

Details of decapitalization during 2022-23							PART-4 FORM-1	
Name of the Petitioner		NTPC Limited						
Name of the Generating Station		Rihand Super Thermal Power Station Stage-II						
Station COD		01-04-2008						
For Financial Year		2022-23						
		2005-06	2006-09	2011-12	2014-15	2017-18	2020-21	Amount in Rs Lakh
	Rate of Depreciation	3.6219%	3.6118%	5.254%	5.246%	5.242%	1.965%	2023-24
		2006-07	2008-10	2012-13	2015-16	2018-19	2021-22	2.041%
		3.6118%	5.2526%	5.256%	5.252%	1.935%	2.006%	
		2007-08	2010-11	2013-14	2016-17	2019-20	2022-23	
		3.6118%	5.254%	5.256%	5.246%	1.949%	2.041%	
Decap of Spares - Part of Capital Cost								
S.N	Name of the Asset	Nature of de-capitalization (whether claimed under exclusion or as additional capital expenditure)	Value of the Asset decapitalised as per IndAS	IndAS Adjustment	Value of the Asset decapitalised as per IGAAP	Year Put to use	Depreciation recovered till date of decapitalization	Whether earning RoE at the normal rate of weightage average rate of interest on loan
A Decap of Spares- Part of Capital Cost								
1	Decap of Spares	Claimed under Additional Capitalization	10.85	33.74	44.60	2005-06	30.67	No
			4.78	14.79	19.56	2006-07	12.78	No
	Sub-total: (A)		15.64	48.54	64.17		43.43	
B Decap of MBOAs - Part of Capital Cost								
1	Plant and Machinery	Claimed under Additional Capitalization	99.73	257.33	357.06	2006-07	232.66	No
	Sub-total: (B)		99.73	257.33	357.06		232.66	
C Decap of Spares - Not part of Capital Cost								
S.N o.	Name of the Asset	Nature of de-capitalization (whether claimed under exclusion or as additional capital expenditure)	Value of the Asset decapitalised as per IndAS	IndAS Adjustment	Value of the Asset decapitalised as per IGAAP	Year Put to use	Justification	
1			7.08	-	7.08	2015-16	Capitalization of these assets was kept under exclusion and allowed by Hon'ble Commission vide para 52 of order dttd 22.03.2022 in Petition no 112/GT/2020. Accordingly, decap of these assets is kept under exclusion.	
2	Decap of Spares	Claimed under Exclusion	7.08	-	7.08	2017-18	Hon'ble Commission may be pleased to allow the same. Capitalization of these assets was kept under exclusion and allowed by Hon'ble Commission vide para 57 of order dttd 22.03.2022 in Petition no 112/GT/2020. Accordingly, decap of these assets is kept under exclusion.	NA
3			11.32	-	11.32	2020-21	Hon'ble Commission may be pleased to allow the same. Since the capitalization of spares after cut-off date is not admissible after cut-off date, hence the same are kept under exclusion in respective years and consequently their decapitalization is also kept under exclusion.	
	Sub-total: (C)		25.47	-	25.47			

परिमल पीयूष/PARIMAL PIYUSH
अपर महाप्रबन्धक (वाणिज्यिक)
Addl. General Manager (Commercial)
एन टी पी सी लिमिटेड/NTPC LIMITED
EOC, A-8A, Sector-24, Noida-201301 (U.P.)

D	Decap of Overhauling Assets	Claimed under Exclusion	1,243.82	-	1,243.82	-	2022-23	This Decapitalisation entry is on account of Change in Accounting Practice wherein decap during overhauling have been capitalised as per Ind AS with net amount under IGAAP as zero. The same is kept under exclusion. Hon'ble Commission may be pleased to allow the same under exclusion.	NA
	Sub-total: (D)		1,243.82		-1,243.82				
	Grand Total of Decap of assets		1,384.65		-937.96	446.70			276


(Petitioner)

परिमल पीयूष/PARIMAL PIYUSH
अपर महाप्रबन्धक (वाणिज्यिक)
Addl. General Manager (Commercial)
एन टी पी सी लिमिटेड/NTPC LIMITED
EOC, A-8A, Sector-24, Noida-201301 (U.P.)

Details of decapitalization during 2023-24								PART-I
Name of the Petitioner		NTPC Limited						FORM-I
Name of the Generating Station		Rihand Super Thermal Power Station Stage-II						
Station COD		01-04-2006						
For Financial Year		2023-24						
Rate of Depreciation	2005-06	2008-09	2011-12	2014-15	2017-18	2020-21	Amount in Rs Lakh	
	3.8219%	3.6118%	5.254%	5.245%	5.242%	2023-24		
	2006-07	2009-10	2012-13	2015-16	2018-19	1.965%	2.041%	
	3.6118%	5.2526%	5.256%	5.252%	1.935%	2021-22		
	2007-08	2010-11	2013-14	2016-17	2019-20	2.065%		
	3.6118%	5.254%	5.256%	5.246%	1.949%	2022-23		
						2.041%		
Decap of Spares - Part of Capital Cost								
S.N	Name of the Asset	Nature of de-capitalization (whether claimed under exclusion or as additional capital expenditure)	Value of the Asset decapitalised as per IndAS	IndAS Adjustment	Value of the Asset decapitalised as per IGAAP	Year Put to use	Depreciation recovered till date of decapitalization	Whether earning RoI at the normal rate of weightage average rate of interest on loan
A Decap of Spares- Part of Capital Cost								
1	Decap of Spares	Claimed under Additional Capitalization	101.42	316.82	418.25	2005-06	256.20	No
			36.46	121.80	158.26	2006-07	106.36	No
	Subtotal (A)		137.88	438.62	576.51		402.55	
B Decap of Spares - Not part of Capital Cost								
S.N	Name of the Asset	Nature of de-capitalization (whether claimed under exclusion or as additional capital expenditure)	Value of the Asset decapitalised as per IndAS	IndAS Adjustment	Value of the Asset decapitalised as per IGAAP	Year Put to use	Justification	
1	Decap of Spares	Claimed under Exclusion	13.54	-	13.54	2017-18	Capitalization of these assets was kept under exclusion and allowed by Hon'ble Commission vide para 52 of order dttd 22.03.2022 in Petition no 112/GT/2020. Accordingly, decap of these assets is kept under exclusion. Hon'ble Commission may be pleased to allow the same.	
2			36.06	-	36.06	2018-19	Capitalization of these assets was kept under exclusion and allowed by Hon'ble Commission vide para 67 of order dttd 22.03.2022 in Petition no 112/GT/2020. Accordingly, decap of these assets is kept under exclusion. Hon'ble Commission may be pleased to allow the same.	NA
3			64.55	-	64.55	2019-20	Since the capitalization of spares after cut-off date is not admissible after cut-off date, hence the same are kept under exclusion in respective years and consequently their decapitalization is also kept under exclusion.	
4			24.00	-	24.00	2020-21		
	Subtotal (B)		138.16	-	138.16			


परिमल प्रकाश / PARIMAL PRKASH
 अवर जनरल मैनेजर (कार्गो/नवकर)
 Addl. General Manager (Commercial)
एन टी सी लिमिटेड / NTPC LIMITED
 EOC, A-8A, Sector-24, Noida-201301 (U.P.)

D	Decap of Overhauling Assets	Claimed under Exclusion	1,182.63	-	1,182.63	-	2022-23	This Decapitalisation entry is on account of Change in Accounting Practice wherein decap during overhauling have been capitalised as per Ind AS with net amount under IGAAP as zero. The same is kept under exclusion. Hon'ble Commission may be pleased to allow the same under exclusion.	No
	Sub-total: (D)		1,182.63		-1,182.63				
	Grand Total		1,458.67		-744.01		714.66		402.65


 (Petitioner)

परिमल पीयूष/PARIMAL PIYUSH
 अपर महाप्रबन्धक (वाणिज्यिक)
 Addl. General Manager (Commercial)
 एन टी पी सी लिमिटेड/NTPC LIMITED
 EOC, A-8A, Sector-24, Noida-201301 (U.P.)

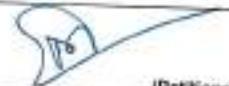
Summary of Gross Block reconciliation

Name of the Petitioner:		NTPC Limited				
Name of the Generating Station:		Rihand Super Thermal Power Station Stage-II				
COG:						
Sl No	Particular	2019-20	2020-21	2021-22	2022-23	2023-24
1	Closing Gross Block as per IND AS	8,05,790	8,20,449	8,27,078	8,50,117	8,95,147
2	Add: cumulative Ind AS Adjustment (breakup given below)	3,91,788.22	3,89,337.99	3,92,106.97	3,87,282.97	3,81,038.40
2.1	Adjustment of accumulated depreciation as on 1.4.2015	4,12,944	4,12,944	4,12,944	4,12,944	4,12,944
2.2	Less: Cumulative Gross block adjustment with regard to Acc. Dep for decapitalisation	7,229	8,314	9,484	11,490	13,911
2.3	Less: Cumulative capital overhauling/major inspection capitalised out of revenue	15,217	18,624	23,317	32,761	39,610
2.4	Add: Cumulative Decapitalisation of capital Overhauling	-	-	-	-	-
2.5	Less: spares capitalised out of inventory system circular 126	1,629	709	9,335	15,548	19,960
2.6	Less: spares capitalised out of inventory system circular 146	2,880	2,880	2,880	2,880	2,880
2.7	Less: Cumulative Capitalisation of PV of Future minimum lease obligation in Lease hold land	-	-	-	-	-
2.8	Less: Cumulative Unwinding expenses Capitalised	83	139	139	181	186
2.9	Add: Cumulative Vendor Discounting	126	149	151	164	164
2.10	Add: Borrowing cost adj. due to change in interest rate (BIR)	-	-	-	-	-
2.11	Add/less: Any other Adj. in PPE due to IND AS implementation	-382	-383	-384	-384	-384
2.12	Cumulative Capital spares Capitalised	2,880	2,880	2,880	2,880	2,880
3	Closing Gross Block as per IGAAP	11,86,094.18	12,06,796.64	12,16,793.31	12,47,399.97	12,77,079.93
4	Opening Gross Block as per IND AS	7,85,394	8,05,790	8,20,449	8,27,078	8,50,117
5	Add: cumulative Ind AS Adjustment (breakup given below)	3,98,079	3,91,788	3,88,308	3,85,107	3,87,283
5.1	Adjustment of accumulated depreciation as on 1.4.2015	4,12,944	4,12,944	4,12,944	4,12,944	4,12,944
5.2	Less Cumulative Gross block adjustment with regard to Acc. Dep for decapitalisation	6,643	7,229	8,314	9,484	11,490
5.3	Less: Cumulative capital overhauling/major inspection capitalised out of revenue	10,259	15,217	18,624	23,317	32,761
5.4	Add: Cumulative Decapitalisation of capital Overhauling	-	-	-	-	-
5.5	Less: spares capitalised out of inventory system circular 126	2,410	1,629	709	9,335	15,548
5.6	Less: spares capitalised out of inventory system circular 146	2,880	2,880	2,880	2,880	2,880
5.7	Less: Cumulative Capitalisation of PV of Future minimum lease obligation in Lease hold land	-	-	-	-	-
5.8	Less: Cumulative Unwinding expenses Capitalised	80	83	139	139	181
5.9	Add: Cumulative Vendor Discounting	87	126	149	151	164
5.10	Add: Cumulative Borrowing cost adj. due to change in interest rate (BIR)	-	-	-	-	-
5.11	Add/less: Any other Adj. in PPE due to IND AS implementation	-381	-382	-383	-384	-384
5.12	Cumulative Capital spares Capitalised	2,880	2,880	2,880	2,880	2,880
6	Opening Gross Block as per IGAAP	11,83,473.08	11,86,594.18	12,06,796.64	12,16,793.31	12,47,399.97
7	Total Additions as per books (2 + 3 - 6)	15,111.10	8,202.38	9,990.79	30,016.66	29,679.93
8A	Addition as per IGAAP corresponding to Rihand-I	5,201.89	1,357.96	2,722	22,960	13,222
8B	Addition as per IGAAP corresponding to Rihand-II	9,909.21	6,844.42	7,268.79	7,056.66	16,457.71
9	Net Additions pertaining to instant project/Unit/Stage	379.75	985.09	2,268.20	3,701.42	1,987.85
10	Less: Exclusions (Items not allowable / not claimed)	1,185.49	761	1,080	1,387	1,824
11	Net Additional Capital Expenditure Claimed (on accrual basis)	806.74	204.00	709.88	2,313.97	145.84
12	Less: Un-discharged Liabilities (as per IGAAP)	-75.38	64	-	83	79
13	Add: Discharges of un-discharged liabilities, corresponding to admitted assets/works (as per IGAAP)	66.65	405.37	-	11	-
14	Net Additional Capital Expenditure Claimed (on cash basis)	681.72	556.77	709.88	2,242.24	64.91

760
(Petitioner)

परिमल पीयूष / PARIMAL PIYUSH
आवर महाप्रबन्धक (व्यावसायिक)
Addl. General Manager (Commercial)
एन टी पी सी लिमिटेड / NTPC LIMITED
EOC, A-8A, Sector-24, Noida-201301 (U.P.)

Year wise Statement of Additional Capitalisation										PART-I FORM-K Amount in Rs. Lakh
Name of the Petitioner		NTPC Limited								
Name of the Generating Station		Rihand Super Thermal Power Station Stage-II								
Date of Commercial Operation		01-04-2006								
For Financial Year		2019-20								
Sl. No.	Head of Work /Equipment	Party Name	ACE Claimed (Actual for 2019-20)						Justification	
			Accrual basis as per Note-2 of BS	Ind AS Adj	Accrual basis as per IGAAP	Un-discharged Liability included in col. 4	Cash basis	IDC included in col. 3		
1	2	2A	3	3A	3B=3+3A	4	5 = (3B-4)	6	7	
B	Exclusions									
B.1	Capitalization of Capital Spares		1,185.49	-	1,185.49	9.67	1,175.82		Capitalization of spares beyond cut-off date is not admissible as per Tariff Regulations 2019 accordingly the capitalization of these spares are claimed under exclusion. Hon'ble Commission may be pleased to allow the same.	
B.2	IndAS Adjustment									
1	Overhauling		1,853.87	-1,853.87					This Capitalisation is on account of Change in Accounting Practice. Therefore, it is kept under exclusion. Hon'ble Commission may be pleased to allow the same under exclusion.	
	Total Exclusion (B)		3,039.36	-1,853.87	1,185.49	9.67	1,175.82			


(Petitioner)

परिमल पीयूष/PARIMAL PIYUSH
अपर महाप्रबन्धक (वाणिज्यिक)
Addl. General Manager (Commercial)
एन टी पी सी लिमिटेड/NTPC LIMITED
EOC, A-8A, Sector-24, Noida-201301 (U.P.)

Year wise Statement of Additional Capitalisation after COD									PART-I Form-K Amount in Rs. Lakh
Name of the Petitioner		NTPC Limited							
Name of the Generating Station		Rihand Super Thermal Power Station Stage-II							
Station COD		01-04-2006							
For Financial Year		2020-21							
Sl. No.	Head of Work /Equipment	Party Name	ACE Claimed (Actual for 2020-21)						Justification
			Accrual basis as per Note-2 of BS	IND AS Adj	Accrual basis as per IGAAP	Un-discharged Liability included in col. 3	Cash basis	IDC included in col. 3	
1	2	2A	3	3A	3B=3+3A	4	5=3B-4	6	7
B	Exclusions								
B.1	Capitalization of Capital Spares		894.87	0.38	895.24	91.12	804.13		Capitalization of spares beyond cut-off date is not admissible as per Tariff Regulations 2019 accordingly the capitalization of these spares are claimed under exclusion. Hon'ble Commission may be pleased to allow the same.
B.2	Decap of MBOA: Not Part of Capital Cost		0.00	0.00	0.00	0.00	0.00		
B.3	Decap of Spares: Not Part of Capital Cost		-36.14		-36.14		-36.14		Justification given in 'Form-I 20-21'
B.4	Ind AS adjustment								
B.4.1	Overhauling		1588.81	-1588.81	0.00	0.00	0.00		This Capitalisation is on account of Change in Accounting Practice. Therefore, it is kept under exclusion. Hon'ble Commission may be pleased to allow the same under exclusion.
B.4.2	Decap of overhauling Assets								
B.5	Reversal of Liabilities (ROL)		-120.23	0.00	-120.23	-120.23	0.00		Since, tariff is on cash basis, liability reversal is kept under exclusion.
B.6	Inter-Unit Transfer		22.22		22.22		22.22		
i.	Plant & Machinery (From Badarpur)		22.73		22.73		22.73		As per practice, the Hon'ble Commission is not considering the inter unit transfers for tariff, hence kept under exclusion. The present is IUT of permanent nature. Hon'ble Commission may be pleased to allow the same.
ii.	EDP, WP machines & SATCOM equipment (To Vindhysacahal)		-0.51		-0.51		-0.51		As per practice, the Hon'ble Commission is not considering the inter unit transfers for tariff, hence kept under exclusion. The present is IUT of temporary nature. Hon'ble Commission may be pleased to allow the same.
Total Exclusion Claimed (B)			2347.52	-1588.43	761.09	-29.11	790.20		

(Petitioner)

परिमल पीयूष/PARIMAL PIYUSH
 अपर महाप्रबन्धक (वाणिज्यिक)
 Addl. General Manager (Commercial)
 एन टी पी सी लिमिटेड/NTPC LIMITED
 EOC, A-8A, Sector-24, Noida-201301 (U.P.)

		Year wise Statement of Additional Capitalisation after COD							
Name of the Petitioner		NTPC Limited							
Name of the Generating Station		Rihand Super Thermal Power Station Stage-II							
Station COD		01-04-2006							
For Financial Year		2021-22							
Sl. No.	Head of Work (Equipment)	Party Name	ACE Claimed (Actual for 2021-22)						Justification *
			Accrual basis as per Note-2 of BS	IND AS Adj	Accrual basis as per IGAAP	Un-discharged Liability included in col. 3	Cash basis	IDC included in col. 3	
1	2	2A	3	3A	3B=3+3A	4	5=3B-4	6	7
B	Exclusions								
B.1	Items not claimed								
1	Combustion Modification for Nox Control								
1.1	Combustion Modification Package-Unit#3	BHARAT HEAVY ELECTRICALS LIMITED	759.49	-	759.49	669.93	89.57		This additional capitalization is on account of Revised Emission Standards. The Petitioner is claiming the tariff for this system as a separate stream in tariff through Appendix-IA with the present petition. Hence, this add-cap is kept under exclusion here.
1.2	Combustion Modification Package-Unit#4	BHARAT HEAVY ELECTRICALS LIMITED	759.49	-	759.49	-	759.49		
	Subtotal(B.1)		1,518.99	-	1,518.99	669.93	849.06		
B.2	Capitalization of Capital Spares		732.83	-	732.83	1.13	731.70		Capitalization of spares beyond cut-off date is not admissible as per Tariff Regulations 2019 accordingly the capitalization of these spares are claimed under exclusion. Hon'ble Commission may be pleased to allow the same.
B.3	Decap of MBOAs: Not Part of Capital Cost		-39.76	-111.70	-151.46	-	-151.46		Justification given in 'Form-I 21-22'
B.4	Decap of Spares: Not Part of Capital Cost		-416.89	-3.14	-414.03	-	-414.03		Justification given in 'Form-I 21-22'
B.5	Ind AS Adjustment								
1	Overhauling		3,087.95	-3,087.95	-	-	-		This Capitalisation is on account of Change in Accounting Practice. Therefore, it is kept under exclusion. Hon'ble Commission may be pleased to allow the same under exclusion.
2	Decap of OH Assets		-8,552.73	6,552.73	-	-	-		
	Subtotal(B.2)		-3,464.78	3,464.78	-	-	-		
	Total Exclusion Claimed (B)		-1,653.62	3,349.94	1,696.32	671.06	1,015.27		

(Petitioner)

परिमल पीयूष/PARIMAL PIYUSH
अपर महाप्रबन्धक (वाणिज्यिक)
Addl. General Manager (Commercial)
एन टी पी सी लिमिटेड/NTPC LIMITED
EOC, A-8A, Sector-24, Noida-201301 (U.P.)

		Year wise Statement of Additional Capitalisation after COD							Amount in Rs. Lakh
Name of the Petitioner		NTPC Limited							
Name of the Generating Station		Rihand Super Thermal Power Station Stage-II							
Station COD		01-04-2005							
For Financial Year		2022-23							
Sl. No.	Head of Work /Equipment	Party Name	ACE Claimed (Actual for 2022-23)					Justification	
			Accrual basis as per Note-2 of BS	IND AS Adj	Accrual basis as per IGAAP	Un-discharged Liability included in col. 3	Cash basis		IDC included in col. 3
1	2	2A	3	3A	3B=3+3A	4	5=3B-4	6	7
B	Exclusions								
B.1	Items not claimed								
1	Combustion Modification for Nox Control								
1.1	Combustion Modification Package-Uni(W3)	BHARAT HEAVY ELECTRICALS LIMITED	7.53	0.00	7.53	7.53	0.00	0.00	This additional capitalization is on account of Revised Emission Standards. The Petitioner is claiming the tariff for this system as a separate stream in tariff through Appendix IA with the present petition. Hence, this add-cap is kept under exclusion here.
1.2	Combustion Modification Package-Uni(W4)	BHARAT HEAVY ELECTRICALS LIMITED	7.53	0.00	7.53	7.53	0.00	0.00	
	Subtotal(B.1)		15.06	0.00	15.06	15.06	0.00	0.00	
B.2	Capitalization of Capital Spares		1307.87	0.00	1307.87	89.15	1308.72	0.00	Capitalization of spares beyond cut-off date is not admissible as per Tariff Regulations 2019 accordingly the capitalization of these spares are claimed under exclusion. Hon'ble Commission may be pleased to allow the same.
B.3	Decap of MBOAs: Not Part of Capital Cost		0.00	0.00	0.00	0.00	0.00	0.00	Justification given in 'Form-I 22-23'.
B.4	Decap of Spares: Not Part of Capital Cost		-25.47	0.00	-25.47	0.00	-25.47	0.00	Justification given in 'Form-I 22-23'.
B.5	Ind AS Adjustment								
1	Overhauling		9.78	-9.78	0.00	0.00	0.00	0.00	This Capitalisation is on account of Change in Accounting Practice. Therefore, it is kept under exclusion. Hon'ble Commission may be pleased to allow the same under exclusion.
2	Decap of OH Assets		-1243.82	1243.82	0.00	0.00	0.00	0.00	
	Subtotal(B.2)		-1234.05	1234.05	0.00	0.00	0.00	0.00	
	Total Exclusion Claimed (B)		153.41	1234.05	1387.46	104.21	1283.25	0.00	

परिमल पीयूष/PARIMAL PIYUSH
अपर महाप्रबन्धक (व्यावसायिक)
Add. General Manager (Commercial)
एन टी पी सी लिमिटेड/NTPC LIMITED
EOC, A-8A, Sector-24, Noida-201301 (U.P.)

(Petitioner)

Year wise Statement of Additional Capitalisation after COD									PART-I Form-K Amount in Rs. Lakh
Name of the Petitioner		NTPC Limited							
Name of the Generating Station		Rihand Super Thermal Power Station Stage-II							
Station COD		01-04-2006							
For Financial Year		2023-24							
Sl. No.	Head of Work /Equipment	Party Name	ACE Claimed (Actual for 2023-24)					Justification	
			Accrual basis as per Note-2 of BS	IND AS Adj	Accrual basis as per IGAAP	Un-discharge d Liability included in col. 3	Cash basis		IDC included in col. 3
1	2	2A	3	3A	3B=3+3A	4	5=3B-4	6	7
B	Exclusions								
B.1	Capitalization of Capital Spares		2072	0	2072	133	1938	0	Capitalization of spares beyond cut-off date is not admissible as per Tariff Regulations 2019 accordingly the capitalization of these spares are claimed under exclusion. Hon'ble Commission may be pleased to allow the same.
B.2	Decap of MBOAs: Not Part of Capital Cost		0	0	0	0	0	0	Justification given in 'Form-I 23-24'
B.3	Decap of Spares: Not Part of Capital Cost		-138	0	-138	0	-138	0	Justification given in 'Form-I 23-24'
B.4	Ind AS Adjustment								
1	Overhauling		4457	-4457	0	0	0	0	This Capitalisation is on account of Change in Accounting Practice. Therefore, it is kept under exclusion. Hon'ble Commission may be pleased to allow the same under exclusion.
2	Decap of OH Assets		-1183	1183	0	0	0	0	
	Subtotal(B.4)		3274	-3274	0	0	0	0	
B.5	Inter Unit Transfer		-110	0	-110	0	-110	0	As per practice, the Hon'ble Commission is not considering the inter unit transfers for tariff, hence kept under exclusion. The IUT is temporary in nature.
1	Plant and Machinery (To Vindhychal)		-109	0	-109	0	-109	0	Hon'ble Commission may be pleased to allow the same.
2	EDP, WP machines & SATCOM equipment (To WRHQ-II Raipur)		0	0	0	0	0	0	
	Total Exclusion Claimed (B)		5098	-3274	1824	133	1681	0	

परिमल पीयूष/PARIMAL PIYUSH
 अपर महाप्रबन्धक (वाणिज्यिक)
 Addl. General Manager (Commercial)
 एन टी पी सी लिमिटेड/NTPC LIMITED
 EOC, A-8A, Sector-24, Noida-201301 (U.P.)

(Petitioner)

Statement of Capital cost

Name of the Petitioner	NTPC Limited
Name of the Generating Station	Rihard Super Thermal Power Station Stage-II
COG	01-04-2006
For Financial Year	2019-24

Sl. No.	Particulars	2019-20			2020-21			2021-22			2022-23			2023-24		
		Accrual Basis	Un-discharged Liabilities	Cash Basis	Accrual Basis	Un-discharged Liabilities	Cash Basis	Accrual Basis	Un-discharged Liabilities	Cash Basis	Accrual Basis	Un-discharged Liabilities	Cash Basis	Accrual Basis	Un-discharged Liabilities	Cash Basis
A	a) Opening Gross Block Amount as per books	3,06,244.81	664.00	3,05,579.80	3,06,624.56	665.42	3,05,959.14	3,07,569.65	314.53	3,07,275.12	3,09,985.65	873.94	3,09,111.61	3,13,697.28	368.52	3,13,298.76
	b) Amount of IDC in A(a) above	1,255.32	-	-	1,255.32	-	-	1,255.32	-	-	1,255.32	-	-	1,255.32	-	-
	c) Amount of FC in A(a) above	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	d) Amount of FFRV in A(a) above	-5,960.29	-	-	-5,960.29	-	-	-5,960.29	-	-	-5,960.29	-	-	-5,960.29	-	-
	e) Amount of Hedging Cost in A(a) above	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
f) Amount of EDC in A(a) above	-	-	-	-	-	-	-	-	-	-	-	-	-5,960.29	-	-	
B	a) Addition in Gross Block Amount during the period (Direct purchase)	774.97	-85.70	840.67	-1,761.62	144.71	-1,906.33	-754.11	1.13	-754.24	4,084.20	167.04	3,897.16	2,222.29	158.03	2,664.26
	b) Amount of IDC in B(a) above	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	c) Amount of FC in B(a) above	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	d) Amount of FFRV in B(a) above	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	e) Amount of Hedging Cost in B(a) above	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
f) Amount of EDC in B(a) above	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
C	a) Addition in Gross Block Amount during the period (Transferred from CWIP)	381.78	-	381.78	3,447.75	-	3,447.75	-	-	3,296.73	63.92	-	63.92	460.22	54.38	405.85
	b) Amount of IDC in C(a) above	-	-	-	-	-	3,965.66	999.93	-	-	-	-	-	-	-	-
	c) Amount of FC in C(a) above	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	d) Amount of FFRV in C(a) above	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	e) Amount of Hedging Cost in C(a) above	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
f) Amount of EDC in C(a) above	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
D	a) Deduction in Gross Block Amount during the period	777.00	-	777.00	721.05	-	721.05	-	-	815.30	446.70	-	446.70	714.66	-	714.66
	b) Amount of IDC in D(a) above	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	c) Amount of FC in D(a) above	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	d) Amount of FFRV in D(a) above	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	e) Amount of Hedging Cost in D(a) above	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
f) Amount of EDC in D(a) above	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
E	a) Closing Gross Block Amount as per books	3,06,624.56	665.42	3,05,959.14	3,07,569.65	314.53	3,07,275.12	3,09,985.65	873.94	3,09,111.61	3,13,697.28	368.52	3,13,298.76	3,15,655.13	511.78	3,15,143.34
	b) Amount of IDC in E(a) above	1,255.32	-	-	1,255.32	-	-	1,255.32	-	-	1,255.32	-	-	1,255.32	-	-
	c) Amount of FC in E(a) above	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	d) Amount of FFRV in E(a) above	-5,960.29	-	-	-5,960.29	-	-	-5,960.29	-	-	-5,960.29	-	-	-5,960.29	-	-
	e) Amount of Hedging Cost in E(a) above	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
f) Amount of EDC in E(a) above	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
										0.00			0.00			
										0.00			0.00			

परिमल पियूष/PARIMAL PIYUSH
अपर महाप्रबन्धक (वाणिज्यिक)
Addl. General Manager (Commercial)
एन टी पी सी लिमिटेड/NTPC LIMITED
EOC, A-8A, Sector-24, Noida-201301 (U.P.)

(Petitioner)

Statement of Capital Works in Progress

Name of the Petitioner		NTPC Limited															
Name of the Generating Station		Rihand Super Thermal Power Station Stage-II															
COD		01-04-2006															
For Financial Year		2019-24															
Sl. No.	Particulars	2019-20			2020-21			2021-22			2022-23			2023-24			(Rs Lakh)
		Accrual Basis	Un-discharged Liabilities	Cash Basis	Accrual Basis	Un-discharge d Liabilities	Cash Basis	Accrual Basis	Un-discharge d Liabilities	Cash Basis	Accrual Basis	Un-discharge d Liabilities	Cash Basis	Accrual Basis	Un-discharged Liabilities	Cash Basis	
A	a) Opening CWIP as per books	378.60	134.04	244.56	768.65	190.19	573.46	10,865.29	4,891.26	5,974.04	26,226.90	8,824.12	16,402.78	31,958.64	9,656.98	22,301.66	
	b) Amount of IDC in A(a) above	18.65			34.07			99.13			185.86			406.99			
	c) Amount of FC in A(a) above																
	d) Amount of FERV in A(a) above																
	e) Amount of Hedging Cost in A(a) above																
	f) Amount of IEDC in A(a) above				36.64			158.23				268.98			396.41		
B	a) Addition in CWIP during the period	771.82	195.19	576.64	13,544.40	4,791.77	8,752.63	12,073.05	4,556.18	7,416.87	6,795.67	852.19	5,943.48	5,772.91	1,362.32	4,410.60	
	b) Amount of IDC in B(a) above	15.42			65.06			88.73			221.13			255.60			
	c) Amount of FC in B(a) above																
	d) Amount of FERV in B(a) above																
	e) Amount of Hedging Cost in B(a) above																
	f) Amount of IEDC in B(a) above	36.64			121.59			110.75				127.43			108.55		
C	a) Transferred to Gross Block Amount during the period	381.78		381.78	3,447.75		3,447.75	3,865.66	889.93	3,295.73	63.92		63.92	460.22	54.38	405.85	
	b) Amount of IDC in C(a) above																
	c) Amount of FC in C(a) above																
	d) Amount of FERV in C(a) above																
	e) Amount of Hedging Cost in C(a) above																
	f) Amount of IEDC in C(a) above																
D	a) Deletion in CWIP during the period																
	b) Amount of IDC in D(a) above							-6,254.21		-6,254.21							
	c) Amount of FC in D(a) above																
	d) Amount of FERV in D(a) above																
	e) Amount of Hedging Cost in D(a) above																
	f) Amount of IEDC in D(a) above																
E	a) Closing CWIP as per books	768.65	195.19	573.46	10,865.29	4,891.26	5,974.04	25,226.90	8,824.12	16,402.78	31,958.64	9,656.98	22,301.68	37,271.33	10,962.00	26,309.33	
	b) Amount of IDC in E(a) above	34.07			65.13			185.86			406.99			862.80			
	c) Amount of FC in E(a) above																
	d) Amount of FERV in E(a) above																
	e) Amount of Hedging Cost in E(a) above																
	f) Amount of IEDC in E(a) above	36.64			158.23			268.98				396.41			504.96		

परिमल पीयूष/PARIMAL PIYUSH
अपर महाप्रबन्धक (व्यावसायिक)
Addl. General Manager (Commercial)
एन टी पी सी लिमिटेड/NTPC LIMITED
EOC, A-8A, Sector-24, Noida-201301 (U.P.)


(Petitioner)

Calculation of Interest on Normative Loan

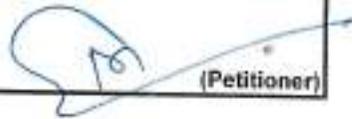
Name of the Company :

NTPC Limited

Name of the Power Station :

Rihand Super Thermal Power Station Stage-II

S. No.	Particulars		(Amount in Rs Lakh)					
			2018-19	2019-20	2020-21	2021-22	2022-23	2023-24
1	2		3	4	5		6	8
1	Gross Normative loan – Opening	A	2,06,593.37	2,07,286.40	2,06,823.20	2,07,212.24	2,07,709.15	2,09,278.72
2	Cumulative repayment of Normative loan up to previous year	B	1,92,685.49	1,98,250.19	2,03,507.61	2,07,212.24	2,07,709.15	2,09,278.72
3	Net Normative loan – Opening	C=A-B	13,907.88	9,036.21	3,315.59	-	-	-
4	Add: Increase due to addition during the year / period	D	869.33	32.64	584.72	671.81	1,856.65	448.99
5	Less: Decrease due to de-capitalisation during the year / period	E	176.30	543.90	479.43	174.90	294.86	403.55
6	Less: Decrease due to reversal during the year / period	F	-	-	-	-	-	-
7	Add: Increase due to discharges during the year / period	G	-	48.06	283.76	-	7.77	-
8	Normative Loan Closing	H=C+D-E-F+G	14600.90	8573.01	3704.83	496.91	1569.57	45.44
9	Repayment of Loan during the year	I	5719.18	5745.47	5786.66	5889.66	6059.77	6230.68
10	Repayment adjustment on account of decapitalization	J	154.49	488.05	440.86	162.10	276.09	402.55
11	Net Repayment of loan during the year	K=I-J	5,564.69	5,257.42	3,704.63	496.91	1,569.57	45.44
12	Net Normative loan - Closing	L=H-K	9,036.21	3,315.59	-	-	-	-
13	Average Normative loan	M=Average(C,L)	11,472.04	6,175.90	1,657.80	-	-	-
14	Weighted average rate of interest	N	8.027%	7.713%	7.713%	7.713%	7.713%	7.713%
15	Interest on Loan	O=MxN	920.82	476.37	127.87	0.00	0.00	0.00
15	Cumulative repayment of Normative loan at the end of the period	P=B+K	1,98,250.18	2,03,507.61	2,07,212.24	2,07,709.15	2,09,278.72	2,09,324.16


 (Petitioner)

परिमल पीयूष/PARIMAL PIYUSH
 अपर महाप्रबन्धक (वाणिज्यिक)
 Addl. General Manager (Commercial)
 एन टी पी सी लिमिटेड/NTPC LIMITED
 EOC, A-8A, Sector-24, Noida-201301 (U.P.)

Calculation of Interest on Working Capital

Name of the Company : NTPC Limited

Name of the Power Station : Rihand Super Thermal Power Station Stage-II

(Amount in Rs Lakh)

S. No.	Particulars	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24
1	2	3	4	5		6	8
1	Cost of Coal/Lignite	10,176.70	10592.87	10677.04	10640.35	11163.94	11626.10
2	Cost of Main Secondary Fuel Oil	330.80	366.50	328.70	281.27	359.90	511.42
3	Fuel Cost						
4	Liquid Fuel Stock						
5	O & M Expenses	1,743.93	2134.18	2257.74	2254.59	2398.94	2778.36
6	Maintenance Spares	4,185.44	5122.03	5418.59	5411.01	5757.45	6668.06
7	Receivables	22,473.01	18697.18	18899.93	18782.73	19700.75	21021.96
8	Total Working Capital	38909.88	36912.76	37582.00	37369.95	39380.98	42605.90
9	Rate of Interest	13.50%	12.05%	11.25%	10.50%	10.50%	12.00%
10	Interest on Working Capital	5252.83	4447.99	4227.97	3923.84	4135.00	5112.71



(Petitioner)

परिमल पीयूष/PARIMAL PIYUSH
अपर महाप्रबन्धक (वित्त प्रशासक)
Addl. General Manager (Financial)
एन टी पी सी लिमिटेड/NTPC LIMITED
EOC, A-8A, Sector-24, Noida-201301 (U.P.)

Bheed Super Thermal Power Station Stage II										Part-3	
Flow of Capital 1484885 Inr 01.04.2019										Form-3	
										Amount in Rs.	
Sl.	Name of the Party	Name of the work	Year of creation of liability capitalised in Gross Block	Un-discharged liabilities relating to GB 01.04.2019	Liability in additional capitalised to in for 2019-20	Contractors, ETV updation	Discharge during the year 2019-20		Total discharge	Un-discharged liabilities relating to GB 31.03.2020	
							by payment	by reversal			
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)=(5)-(8)	(11)=(6)+(7)-(10)	
Part Assets eligible for normal Dep. @											
1	BHARAT HEAVY ELECTRICALS LIMITED	SUPPLY OF MAIN PLANT TURKEY PACKAGE-RHAMD	2005-05, 2006-07 & 2007-08	0					0	0	
2	BHARAT HEAVY ELECTRICALS LIMITED	ERECTION OF MAIN PLANT TURKEY PACKAGE	2005-05, 2006-07 & 2007-08	0					0	0	
3	ION EXCHANGE(SHOLA)LIMITED	SUPPLY OF DEMINERALISATION PLANT PKG-RHAMD	2005-05, 2006-07 & 2007-08	0					0	0	
4	BRIDGE & ROOF CO (I) LTD.	SUPPLY OF PRE-TREATMENT PLANT	2005-05, 2006-07 & 2007-08	0					0	0	
5	BRIDGE & ROOF CO (I) LTD.	ERECTION OF PRE-TREATMENT PLANT	2005-05, 2006-07 & 2007-08	0					0	0	
6	BHARAT HEAVY ELECTRICALS LIMITED	SUPPLY COAL HANDLING PLANT(TURKEY)PACKAGE	2005-05 & 2006-07	0					0	0	
7	BHARAT HEAVY ELECTRICALS LIMITED	ERECTION COAL HANDLING PLANT(TURKEY)PACKAGE	2005-05, 2006-07 & 2007-08	0					0	0	
8	KARAYAN BANSAL MATHEW ASSOCIATES	CONSULTANCY PACKAGE FOR ARCHITECTURAL WORK	2005-06	0					0	0	
9	CROFTON GREAVES LTD	SUPPLY & COMMISSIONING OF SOO LINE EXCHANGE	2005-06	0					0	0	
10	LECO LTD	TURNING SWITCHGEAR	2006-09	0					0	0	
11	DEL ETV			7,20,17,489		-75,36,412			0	6,44,81,076	
Total Liabilities pertains to 04-09 period											
2	CHEMTRONICS INDUSTRIES	Air Quality Monitoring System	2008-10	0				0		0	
3	VINDHYA CONSTRUCTION	FT overhead line erection for MGR Station IV - AM,COE	2012-13	0					0	0	
4	VINDHYA CONSTRUCTION	FT overhead line erection for MGR Station IV - AM,COE	2013-14	0					0	0	
Total Liabilities of allowed items pertains to 09-14 period											
Total Liabilities of allowed items (04-14) period				7,20,17,489		-75,36,412		0	0	6,44,81,076	
5	DL Road Ltd	MANUALLY POWERED TUBE REWELLING-DL RCD	2009-10	0					0	0	
6	PRE-TECH	MULTIFUNCTION FAX, PRINTER, SCANNER	2010-11	0					0	0	
7	MEDIASTER TOOLS LTD	HYDRAULIC JACK 100MT	2011-12	0					0	0	
8	ANALYTICA EQUIPMENTS (I) PVT LTD	KAPL FISHER COULOMETRIC TITRATOR	2011-12	0					0	0	
9	HCL INFOSYSTEMS LTD	LASER PRINTER JET	2011-12	0					0	0	
10	SAMSUNG INDA ELECTRONICS PVT LTD	PLAIN PAPER FAX MACHINE LASER PRINTING	2011-12	0					0	0	
11	AMKETTE ANALYTICS LTD	ELECTRONIC ANALYTICAL BALANCE,CHEMISTRY	2011-12	0					0	0	
12	MDI DIGITECH PVT LTD	Pressure plate made by PASHY	2012-13	0					0	0	
13	TUSHROD PUMP PVT LTD	PROCUREMENT OF TURBOPUMP COMPLETE ASSEMBLY FOR STAGE-II	2012-13	0					0	0	
14	Smart Enterprises	11 ROTOR AGY TYPE BRK 6P31147-2-0-01	2013-14	0					0	0	
15	BHARAT HEAVY ELECTRIC	PRIMARY PROCESSOR MODULE - DELHI(MALINDO)CS-092	2013-14	0					0	0	
16	VOLTAMPTRANSFORMERS Co	TRANSFORMER 3.25MVA, 11/2.3KV ONAN-000100-092	2013-14	0					0	0	
17	RENEHE ENGINEERING PVT LTD	COMP VALVE WITHOUT ACTUATOR MM 11 MAL2-CS-092	2013-14	0					0	0	
18	PARAMOUNT INTERNATIONAL	SHRUG COMP ASSLY-CS-092	2013-14	0					0	0	
Total Liabilities of disallowed items pertains to 09-14 period				0					0	0	


 परिमल पीयूष / PARIMAL PIYUSH
 अपर महाप्रबन्धक (सांख्यिक) / Addl. General Manager (Commercial)
 एन टी पी सी लिमिटेड / NTPC LIMITED
 EOC, A-8A, Sector-24, Noida-201301 (U.P.)

Rajshahi Super Thermal Power Station Stage-II								Part-I		
Flow of Capital Liabilities from 01.04.2019								Form-5		
Slr.	Name of the Party	Name of the work	Year of invoice of liability registered in Gross Block	Undischarged liabilities relating to GB 01.04.2019	Liability in additional capitalisation for 2019-21	Contractors ETV application	Discharge during the year 2020-21		Total discharge	Undischarged liabilities relating to GB 31.03.2021
							By payment	By reversal		
(1)	(2)	(3)	(4)							
Per assets eligible for normal Rebate (A)										
1	BHARAT HEAVY ELECTRICALS LIMITED	SUPPLY OF MAIN PLANT TURNKEY PACKAGE, RHAND	2005-09, 2006-07 & 2007-08	0					0	0
2	BHARAT HEAVY ELECTRICALS LIMITED	ERECTION OF MAIN PLANT TURNKEY PACKAGE	2005-09, 2006-07 & 2007-08	0					0	0
3	ION EXCHANGE/INDIALMATED	SUPPLY OF DEMINERALISATION PLANT PKG. RHAND	2005-09, 2006-07 & 2007-08	0					0	0
4	BRIDGE & ROOF CO. (I) LTD.	SUPPLY OF PRE-TREATMENT PLANT	2005-09, 2006-07 & 2007-08	0					0	0
5	BRIDGE & ROOF CO. (I) LTD.	ERECTION OF PRE-TREATMENT PLANT	2005-09, 2006-07 & 2007-08	0					0	0
6	BHARAT HEAVY ELECTRICALS LIMITED	SUPPLY COAL HANDLING PLANT(TURNKEY)PACKAGE	2005-09 & 2006-07	0					0	0
7	BHARAT HEAVY ELECTRICALS LIMITED	ERECTION COAL HANDLING PLANT(TURNKEY)PACKAGE	2005-09 & 2006-07 & 2007-08	0					0	0
8	NARAYAN BANSAL MATHEW ASSOCIATES	CONSULTANCY PACKAGE FOR ARCHITECTURAL WORK	2005-09	0					0	0
9	GRIMPTON GRCAVES LTD.	SUPPLY & COMMISSIONING OF SOO LINE EXCHANGE	2005-09	0					0	0
10	JOYTI LTD.	TOWNSHIP SWITCHGEAR	2005-09	0					0	0
1	SHRI. DSV			6,44,81,079	0		4,85,37,979	1,28,22,938.00	6,26,66,017	1,19,21,069
Total Liabilities pertains to 00-09 period				6,44,81,079	0	0	4,85,37,979	1,28,22,938	6,26,66,017	1,19,21,069
3	CHEMTRONICS INDUSTRIES	Air Quality Monitoring System	2009-10	0			0	0	0	0
2	VINDHYA CONSTRUCTION	HT overhead line erection for MGR Station IV - AM, CE	2012-13	0					0	0
4	VINDHYA CONSTRUCTION	HT overhead line erection for MGR Station IV - AM, CE	2013-14	0					0	0
Total Liabilities of allowed items pertains to 09-14 period				0					0	0
Total liabilities of allowed items 00-14 period				6,44,81,079	0	0	4,85,37,979	1,28,22,938	6,26,66,017	1,19,21,069
5	D.L. Road Ltd	PNEUMATICALLY POWERED TUBE BEVELLING D.L. BICO	2008-10	0					0	0
6	PRE TECH	MULTIFUNCTION FAX, PRINTER, SCANNER	2010-11	0					0	0
7	MEKASTOR TOOLS LTD	HYDRAULIC JACK 100MT	2011-12	0					0	0
8	ANALYTICA EQUIPMENTS (I) PVT LTD	KARL FISHER COULOMETRIC DIBALDOR	2011-12	0					0	0
9	HIG. IMCO SYSTEMS LTD	LASER PRINTER JET	2011-12	0					0	0
10	SAWANG INDIA ELECTRONICS PVT LTD	PLAIN PAPER FAX MACHINE LASER PRINTING	2011-12	0					0	0
11	AMRETTA ANALYTICS LTD	ELECTRONIC ANALYTICAL BALANCE, CHEMISTRY	2011-12	0					0	0
12	EC QUETTERLOH PVT. LTD.	PROGRAMMED SLAY MASH for PPMH	2012-13	0					0	0
13	TUSHKOO PUMP PVT LTD	PROCUREMENT OF TOBOP LOP COMPLETE ASSEMBLY FOR STAGE-I	2012-13	0					0	0
14	Kavali Enterprises	11 ROTOR AGT TYPE SAK 48X1147 S.I.CS	2013-14	0					0	0
15	BHARAT HEAVY ELECTR. CO	PRIMARY PROCESSOR MODULE - OILHEAVY/DRAWN CS-ALG2	2013-14	0					0	0
16	VOLTAMP TRANSFORMERS DO	TRANSFORMER 1200VA, 110/38V 05000.000.000.000.2	2013-14	0					0	0
17	RENESE ENGINEERING PVT LTD	COMP VALVE WITHOUT ACTUATOR MAL 11 MAL12 CS-ALG2	2013-14	0					0	0
18	PARAMOUNT INTERNATIONAL	SERVO COMP ASSLY-CS-ALG2	2013-14	0					0	0
Total Liabilities of disallowed items pertains to 09-14 period				0					0	0

Handwritten signature

परिमल पीयूष/PARIMAL PIYUSH
 अवर महाप्रबन्धक (वाणिज्यिक)
 Addl. General Manager (Commercial)
 एन टी पी सी लिमिटेड/NTPC LIMITED
 EOC, A-8A, Sector-24, Noida-201301 (U.P.)

Bhind Super Thermal Power Station Stage-I								Part-C		
Flow of Capital Liabilities from 01.04.2018								Part-D		
Sr.	Name of the Party	Name of the work	Year of creation of liability capitalised in Gross Block	Undischarged liabilities relating to GO 01.04.2021	Liability in additional capitalisation for 2021-22	Contractors ERV updates	Discharge during the year 2021-22		Total discharge	Undischarged liabilities relating to GO 31.03.2022
							by payment	by reversal		
(1)	(2)	(3)	(4)							
For assets eligible for normal Reb. (A)										
1	SHARAT HEAVY ELECTRICALS LIMITED	SUPPLY OF MAIN PLANT TURNKEY PACKAGE-RHAND	2005-06 2006-07 & 2007-08	0					0	0
2	SHARAT HEAVY ELECTRICALS LIMITED	ERECTION OF MAIN PLANT TURNKEY PACKAGE	2005-06 2006-07 & 2007-08	0					0	0
3	ION EXCHANGE INDIA LIMITED	SUPPLY OF DEMINERALISATION PLANT PKG-RHAND	2005-06 2006-07 & 2007-08	0					0	0
4	BRIDGE & ROOF CO (I) LTD.	SUPPLY OF PRE-TREATMENT PLANT	2005-06 2006-07 & 2007-08	0					0	0
5	BRIDGE & ROOF CO (I) LTD.	ERECTION OF PRE-TREATMENT PLANT	2005-06 2006-07 & 2007-08	0					0	0
6	SHARAT HEAVY ELECTRICALS LIMITED	SUPPLY COAL HANDLING PLANT(TURNKEY)PACKAGE	2005-06 & 2006-07	0					0	0
7	SHARAT HEAVY ELECTRICALS LIMITED	ERECTION COAL HANDLING PLANT(TURNKEY)PACKAGE	2005-06 2006-07 & 2007-08	0					0	0
8	NARAYAN SANGAL MATHUR ASSOCIATES	CONSULTANCY PACKAGE FOR ARCHITECTURAL WORK	2005-06	0					0	0
9	CROMPTON GREAVES LTD	SUPPLY & COMMISSIONING OF SOG LINE EXCHANGE	2005-06	0					0	0
10	INDI LTD	TURNKEY SWITCHEGEAR	2006-06	0					0	0
1	IND. ERV			1,18,21,859					0	1,18,21,859
Total Liabilities pertains to 04-06 period				1,18,21,859	0	0			0	1,18,21,859
2	CHEMTRONIC INDUSTRIES	Air Cooled Modelling System	2006-10	0					0	0
3	VINDHYA CONSTRUCTION	HT overhead line erection for MGR Station IV - AM,GR	2012-13	0					0	0
4	VINDHYA CONSTRUCTION	HT overhead line erection for MGR Station IV - AM,GR	2013-14	0					0	0
Total Liabilities of allowed items pertains to 06-14 period				0					0	0
Total Liabilities of allowed items (04-14) period				1,18,21,859	0	0			0	1,18,21,859
5	D L RAO LM	PNEUMATICALLY POWERED TUBE REVOLVING-DL BLOCK	2009-10	0					0	0
6	PRE-TECH	MULTIFUNCTION FAX, PRINTER, SCANNER	2010-11	0					0	0
7	MEKASTER TOOLS LTD	HYDRAULIC JACK 300MT	2011-12	0					0	0
8	ANALYTICA EQUIPMENTS (I) PVT LTD	KARL FISHER COULOMETRIC TITRATOR	2011-12	0					0	0
9	ISL INFOSYSTEMS LTD	LASER PRINTER/JET	2011-12	0					0	0
10	SAMSUNG INDIA ELECTRONICS PVT LTD	PLAIN PAPER FAX MACHINE LASER PRINTING	2011-12	0					0	0
11	AMMETTE ANALYTICS LTD	ELECTRONIC ANALYTICAL BALANCE (CHEMISTRY)	2011-12	0					0	0
12	SEC QUARTERLY PVT LTD	Procurement of Air Motor for PAPS	2012-13	0					0	0
13	TUSHCO PUMP PVT LTD	PROCUREMENT OF TDSPP LOP COMPLETE ASSEMBLY FOR STAGE-II	2012-13	0					0	0
14	Basant Enterprises	11 MOTOR ASY TYPE ERK 4E7014/15-B-CG	2013-14	0					0	0
15	SHARAT HEAVY ELECTR O	PRIMARY PROCESSOR MODULE - CPU(MANTRA)VC3-032	2013-14	0					0	0
16	VOLTAMP TRANSFORMERS Co	TRANSFORMER 3.25MVA, 11/2.3KV ONAN 000501-0002	2013-14	0					0	0
17	REMERKE ENGINEERING PVT LTD	COMP VALVE WITHOUT ACTUATOR MW, 11 NAL12-C3-032	2013-14	0					0	0
18	PARAMOUNT INTERNATIONAL	SREHLG COMP ASSLY-CS-032	2013-14	0					0	0
Total Liabilities of the allowed items pertains to 20-14 period				0					0	0

परिमल पीयूष / PARIMAL PIYUSH
 अपर महाप्रबन्धक (वाणिज्यिक)
 Addl. General Manager (Commercial)
 एन टी पी सी लिमिटेड / NTPC LIMITED
 EOG, A-8A, Sector-24, Noida-201301 (U.P.)

Bharat Heavy Electricals Limited Flow of Capital liabilities from 01.04.2019								Part Form 3 Amount in Rs.	
Sr. Name of the Party	Name of the work	Year of creation of liability explained in Gross Block	Undischarged liabilities relating to GB 01.04.2022	liability in additional capitalisation for 2022-23	Contractors ERF settlement	Discharge during the year 2022-23		Total discharge	Undischarged liabilities relating to GB 31.03.2023
						by payment	by reversal		
(1)	(2)	(3)	(4)						
For assets eligible for normal RoC (A)									
1	BHARAT HEAVY ELECTRICALS LIMITED	SUPPLY OF MAIN PLANT TURNKEY PACKAGE RHAND	2005-06, 2006-07 & 2007-08	0				0	0
2	BHARAT HEAVY ELECTRICALS LIMITED	ERECTION OF MAIN PLANT TURNKEY PACKAGE	2005-06, 2006-07 & 2007-08	0				0	0
3	ION EXCHANGE INDIA LIMITED	SUPPLY OF DEMINERALISATION PLANT PWD RHAND	2005-06, 2006-07 & 2007-08	0				0	0
4	BRIDGE & ROOF CO (P) LTD.	SUPPLY OF PRE-TREATMENT PLANT	2005-06, 2006-07 & 2007-08	0				0	0
5	BRIDGE & ROOF CO (P) LTD.	ERECTION OF PRE-TREATMENT PLANT	2005-06, 2006-07 & 2007-08	0				0	0
6	BHARAT HEAVY ELECTRICALS LIMITED	SUPPLY COAL HANDLING PLANT TURNKEY PACKAGE	2005-06 & 2006-07	0				0	0
7	BHARAT HEAVY ELECTRICALS LIMITED	ERECTION COAL HANDLING PLANT TURNKEY PACKAGE	2005-06, 2006-07 & 2007-08	0				0	0
8	NAMTAN BANSAI MATHER ASSOCIATES	CONSULTANCY PACKAGE FOR ARCHITECTURAL WORK	2005-06	0				0	0
9	CROMPTON GREAVES LTD	SUPPLY & COMMISSIONING OF 500 LINE EXCHANGE	2005-06	0				0	0
10	LCOTI LTD	TOWNSHIP SWITCHGEAR	2005-06	0				0	0
11	SHL DIV			1,19,21,059				0	1,19,21,059
Total Liabilities pertains to 04-09 period					1,19,21,059			0	1,19,21,059
12	CHEMTRON INDUSTRIES	Air Quality Monitoring System	2009-10	0				0	0
13	VINDHYA CONSTRUCTION	HT overhead line erection for MGR Station IV - AMLCB	2012-13	0				0	0
14	VINDHYA CONSTRUCTION	HT overhead line erection for MGR Station IV - AMLCB	2013-14	0				0	0
Total Liabilities of allowed items pertains to 09-14 period					0			0	0
Total Liabilities of allowed items (04-14) period					1,19,21,059			0	1,19,21,059
15	DL Res Ltd	PRAGMATICALLY POWERED TUBE REVELL (W/O) RCC	2009-10	0				0	0
16	PRS TECH	MULTIFUNCTION FAX, PRINTER, SCANNER	2010-11	0				0	0
17	MEKATER TOOLS LTD	HYDRAULIC JACK 100 MT	2011-12	0				0	0
18	ANALYTICA EQUIPMENTS (P) PVT LTD	KAL-FISHER COULOMETRIC TITRATOR	2011-12	0				0	0
19	HCL INFO SYSTEMS LTD	LASER PRINTER JET	2011-12	0				0	0
20	SARANG INDIA ELECTRONICS PVT LTD	PLAIN PAPER FAX MACHINE LASER PRINTING	2011-12	0				0	0
21	ANKETTE ANALYTICS LTD	ELECTRONIC ANALYTICAL BALANCE (CHEMISTRY)	2011-12	0				0	0
22	IRC DUSTERLOH PVT LTD	Procurement of Air Motor for PAPH	2012-13	0				0	0
23	TUSHICO PUMP PVT LTD	PROCUREMENT OF TORFF LOP COMPLETE ASSEMBLY FOR STAGE-I	2012-13	0				0	0
24	Basant Enterprises	SI MOTOR ASY TYPE 6RK 40X11F-B-3-CE	2013-14	0				0	0
25	BHARAT HEAVY ELECTR D	PLASMA PROCESSOR MODULE - OPAF0000000001-05-002	2013-14	0				0	0
26	VOLTAMP TRANSFORMERS (P) LTD	TRANSFORMER 3.25MVA, 110.3KV ONAN/ONAN/ONAN/ONAN	2013-14	0				0	0
27	REVERE ENGINEERING PVT LTD	COMP VALVE WITH-OUT ACTUATOR MAL 11 MAL12-05-002	2013-14	0				0	0
28	PARMOUNT INTERNATIONAL	SWHEB COMP ASSLY-05-002	2013-14	0				0	0
Total Liabilities of disallowed items pertains to 09-14 period					0			0	0


परिमल पीयूष/PARIMAL PIYUSH
 अपर महाप्रबन्धक (व्यावसायिक)
 Addl. General Manager (Commercial)
 एन टी पी सी लिमिटेड / NTPC LIMITED
 EOC, A-8A, Sector-24, Noida-201301 (U.P.)

Bharat Heavy Electricals Limited Flow of Capital Subsidies from 01.04.2015								Part-I Form-B Amount in Rs.		
Sr.	Name of the Party	Name of the work	Year of creation of liability capitalised in Gross Block	Undischarged Subsidies relating to GD 01.04.2023	liability in additional capitalisation for 2023-24	Contractors ERY updation	Discharge during the year 2023-24		Total discharge	Undischarged liabilities relating to GD in 03.2024
							by payment	by reversal		
(i)	(ii)	(iii)	(iv)							
For assets eligible for normal Ref. (A)										
1	BHARAT HEAVY ELECTRICALS LIMITED	SUPPLY OF MAIN PLANT TURNKEY PACKAGE-RHIND	2005-06, 2006-07 & 2007-08	0	0				0	0
2	BHARAT HEAVY ELECTRICALS LIMITED	ERECTION OF MAIN PLANT TURNKEY PACKAGE	2005-06, 2006-07 & 2007-08	0	0				0	0
3	ION EXCHANGE(INDIA)LIMITED	SUPPLY OF DEMINERALISATION PLANT PKG-RHIND	2005-06, 2006-07 & 2007-08	0	0				0	0
4	BRIDGE & ROOF CO (I) LTD.	SUPPLY OF PRE-TREATMENT PLANT	2005-06, 2006-07 & 2007-08	0	0				0	0
5	BRIDGE & ROOF CO (I) LTD.	ERECTION OF PRE-TREATMENT PLANT	2005-06, 2006-07 & 2007-08	0	0				0	0
6	BHARAT HEAVY ELECTRICALS LIMITED	SUPPLY COAL HANDLING PLANT(TURNKEY)PACKAGE	2005-06 & 2006-07	0	0				0	0
7	BHARAT HEAVY ELECTRICALS LIMITED	ERECTION COAL HANDLING PLANT(TURNKEY)PACKAGE	2005-06, 2006-07 & 2007-08	0	0				0	0
8	NARAYAN BANSAL BATHUR ASSOCIATES	CONSULTANCY PACKAGE FOR ARCHITECTURAL WORK	2005-06	0	0				0	0
9	CROMPTON GREAVES LTD	SUPPLY & COMMISSIONING OF 900 LIME EXCHANGE	2005-06	0	0				0	0
10	YOTI LTD	TURNKEY SWITCHGEAR	2006-08	0	0				0	0
Total Liabilities pertains to 04-09 period				1,19,21,089	0				0	1,19,21,089
2	CHEMTRONICS INDUSTRIES	Air Quality Monitoring System	2009-10	0	0				0	1,19,21,089
3	VINDHYA CONSTRUCTION	HT overhead line erection for MGR Station II - A&B,OR	2012-13	0	0				0	0
4	VINDHYA CONSTRUCTION	HT overhead line erection for MGR Station II - A&B,OR	2013-14	0	0				0	0
Total Liabilities of allowed items pertains to 09-14 period				0	0				0	0
Total Liabilities of allowed items (04-14) period				1,19,21,089	0				0	1,19,21,089
5	D.L. Retail Ltd	PREMIAUTOMATICALLY POWERED TUBE SCREW (LUNG-3) I, RCCD	2009-10	0	0				0	0
6	PRE-TECH	MAIL TELEFUNCTION FAX, PRINTER, SCANNER	2010-11	0	0				0	0
7	MEKASTER TOOLS LTD	HYDRAULIC JACK 500MT	2011-12	0	0				0	0
8	ANALYTICA EQUIPMENTS (I) PVT LTD	HARL FISHER DOULONOMETRIC TITRATION	2011-12	0	0				0	0
9	HD. INFO SYSTEMS LTD	LASER PRINTER, JET	2011-12	0	0				0	0
10	SAVISHUMI INDIA ELECTRONICS PVT LTD	FLUOR PAPER FAX MACHINE LASER PRINTING	2011-12	0	0				0	0
11	AMGETTE ANALYTICS LTD	ELECTRONIC ANALYTICAL BALANCE (CHROMSTON)	2011-12	0	0				0	0
12	EC GASTROLCH PVT. LTD.	Procurement of Air Motor for PAPH	2012-13	0	0				0	0
13	TUSHCO PUMP PVT LTD	PROCUREMENT OF TCBPP LOP COMPLETE ASSEMBLY FOR STAGE II	2012-13	0	0				0	0
14	Baker Engineering	11 ROTOR ASY TYPE EKH 48"X114" S-B-CB	2013-14	0	0				0	0
15	BHARAT HEAVY ELECTR O	PRIMARY PROCESSOR MODULE - DPLUMEXONAL CS-002	2013-14	0	0				0	0
16	VOLTAMP TRANSFORMERS Da	TRANSFORMER 3.25MVA, 110/33KV DMSL-09.000-002	2013-14	0	0				0	0
17	RENEKE ENGINEERING PVT LTD	COMP VALVE WITH-OUT ACTUATOR MAL 11 MAL 12-CS-002	2013-14	0	0				0	0
18	PARAMOUNT INTERNATIONAL	MSHLC-COMP ASSEMBLY CS-002	2013-14	0	0				0	0
Total Liabilities of disallowed items pertains to 09-14 period				0	0				0	0

परिमल पीयूष / PARIMAL PIYUSH
 अपर महाप्रबन्धक (वाणिज्यिक)
 Addl. General Manager (Commercial)
 एन टी सी लिमिटेड / NTPC LIMITED,
 EOC, A-8A, Sector-24, Noida-201301 (U.P.)

Bharat Heavy Electricals Limited (BHEL) - Power Station Group II										Part-2
Flow of Capital Expenditure from 01.04.2018										Form-5
Sl. No.	Name of the Party	Name of the work	Year of creation of facility capitalised in Green Book	Undischarged liabilities relating to OB 31.03.2018	Liability in additional capitalisations for 2018-20	Contractors (CRV) update	Discharge during the year 2018-20		Total discharge	Undischarged liabilities relating to OB 31.03.2018
							By payment	By reversal		
18	BHARAT HEAVY ELECTRICALS LTD	Procurement of 418T-2 NEUTRAL BUSBAR STATION TRIP	2014-15	0	0	0	0	0	0	
20	PROGRESSIVE INFOTECH PVT LTD	Supply of Laptop Computer	2014-15	0	0	0	0	0	0	
21	QUICK WELL ENGINEERING ASSOCIATES	Procurement of Pneumatic Actuator for 5000 cable Reel for Ash Classifier	2014-15	0	0	0	0	0	0	
22	KSB ANTI VIBRATION SHAFT	Procurement of Motor for BCSLS 3KV 380KW	2014-15	0	0	0	0	0	0	
23	RAMASHANKAR PANDEY & CO	CONSTRUCTION OF CABINS ALONG MGR TRACK	2014-15	0	0	0	0	0	0	
2	SIEMENS LTD	NUMERICAL BASED DISTANCE PROT RELAY	2015-16	1,08,730	0	0	1,08,730	1,08,730	0	
3	GENVI COMMUNICATION	EXPANSION OF CAMPUS WIDE GPD NETWORK OF RHAND PHASE IV TRING SEAL STATION	2015-16	0	0	0	0	0	0	
3	ALLUSION CONTROLS PVT LTD	Procurement of WFO Drive	2015-17	5,58,000	0	0	5,58,000	5,58,000	0	
4	AA ENGINEERING LTD	Procurement of Grinding Roll Bull Ring Segment for XRP-1000 Coal	2017-18	0	0	0	0	0	0	
4	SIEMENS LTD	Supply, installation, Testing and commissioning of Numerical Based	2017-18	10,00,000	0	0	10,00,000	10,00,000	0	
6	BHARAT HEAVY ELECTRIC	Procurement of TCRFP Tubular Bearings	2017-18	0	0	0	0	0	0	
6	TECHNOLOGY PRODUCTS	Procurement of Formosa Thermal Paper	2017-18	0	0	0	0	0	0	
7	BHARAT HEAVY ELECTRICALS LIMITED	Procurement of Grinding Roll Bull Ring Segment for XRP-1000 Coal	2017-18	0	0	0	0	0	0	
8	LAXMI HYDRAULICS PVT LTD	Supply of Precision Energy Efficient (IE3) LT motors	2017-18	0	0	0	0	0	0	
8	GAHEJRE ENTERPRISES	Supply of 132V ACB controlled starter panels for XRP	2017-18	0	0	0	0	0	0	
10	SKF INDIA LTD.	Procurement of Support Bearing Guide Bearing	2017-18	0	0	0	0	0	0	
5	BURN STANDARD CO. LTD.	Procurement of Complete Clinker Gilder Assy, Complete Jet Pump	2017-18	1,08,978	0	0	0	0	1,08,978	
6	BURN STANDARD CO. LTD.	Procurement of Complete Clinker gilder Assy. for Stage-8	2017-18	1,88,133	0	0	0	0	1,88,133	
7	INDUSTRIAL TRADE LINKS	Procurement of Complete Gear Box Assembly for ADPH	2017-18	0	0	0	0	0	0	
7	BURN STANDARD CO. LTD.	67 57MM CLINKER GRINDER COMP ASSY	2018-19	30,181	0	0	0	0	30,181	
8	INDUSTRIAL TRADE LINKS	Procurement of Complete Gear Box Assembly for ADPh.	2018-19	83,320	0	0	0	0	83,320	
8	SAFT INDIA PVT LTD	Procurement of 28V/16-Cell battery bank for UPS Stage-2	2018-18	6,96,000	0	0	6,96,000	6,96,000	1,11,000	
10	MCNALLY BHARAT ENDS COMPANY	Procurement of Telescopic Gate for Stage 1 Silo.	2018-18	48,242	0	0	48,242	48,242	0	
11	SAFT INDIA PVT LTD	Procurement of 24V DCP & 60TD Battery Bank of Unit-2	2018-18	2,58,000	0	0	2,58,000	2,58,000	0	
Total Liabilities of disallowed/not claimed items pertaining to 18-19 period				1,85,718	0	0	1,85,718	1,85,718	0	
12	IONS ELEVATOR CO IND	Opn./Ment/Supply/ Erect & Comm Elevators	2018-18	0	0	0	1,85,730	1,85,730	0	
13	NEURECH ELEVATOR SYS	Opn./Ment/Supply/ Erect & Comm Elevators	2018-18	0	0	0	0	0	0	

परिमल पीयूष / PARIMAL PIYUSH
 अपर महाप्रबन्धक (वाणिज्यिक)
 Addl. General Manager (Commercial)
 एन टी पी सी लिमिटेड / NTPC LIMITED
 EOC, A-8A, Sector-24, Noida-201301 (U.P.)

Rised Super Thermal Power Station Stage-I Flow of Capital Liabilities from 01.04.2012								Part Form-D Amount in Rs.		
Slr	Name of the Party	Name of the work	Year of inception of liability captained in Green Book	Undischarged liabilities relating to GB 01.04.2022	Liability in additional capitalisation for 2022-21	Contractors BVI update	Discharge during the year 2022-21		Total discharge	Undischarged liabilities relating to GB 01.04.2021
							by payment	by reversal		
18	SHARAT HEAVY ELECTRICALS LTD	Procurement of IGBT NEUTRAL BUSHING STATION SWP	2014-15	0					0	0
20	PROGRESSIVE INFOTECH PVT LTD	Supply of Laptop Computer	2014-15	0					0	0
21	GURCH WELL ENGINEERING ASSOCIATES	Procurement of Pneumatic Actuator for Green gate (Robot Arm) Clamber	2014-15	0					0	0
22	KSB AKTIENGESELLSCHAFT	Procurement of Motor for BOWLING 3800KW	2014-15	0					0	0
23	KAMASHANKAR PANDEY & CO	CONSTRUCTION OF CABINS ALONG MGR TRACK	2014-15	0					0	0
2	SIEMENS LTD	NUMERICAL BASED DISTANCE PROT RELAY	2015-16	0					0	0
3	SEMNI COMMUNICATION	EXPANSION OF CAMPUS WIDE OFC NETWORK OF RIBAND PHASE IV BINA REALIZATION	2015-16	0					0	0
3	ALLUSION CONTROLS PVT.LTD	Procurement of VFD Drive	2016-17	0					0	0
4	AA ENGINEERING LTD	Procurement of Grinding Roll Ball Ring Segment for 20P-1200 Cell	2017-18	0					0	0
4	SIEMENS LTD	Supply, installation, Testing and commissioning of Numerical Based	2017-18	0					0	0
5	SHARAT HEAVY ELECTRI	Procurement of TDFP Turbine Bearings	2017-18	0					0	0
6	TECHNOLOGY PRODUCTS	Procurement of Portable Thermal Imager	2017-18	0					0	0
7	SHARAT HEAVY ELECTRICALS LIMITED	Procurement of Grinding Roll Ball Ring Segment for 20P-1200 Cell	2017-18	0					0	0
8	LARSEN HYDRAULICS PVT LTD	Supply of Pressure Energy Efficient GCDLT motor	2017-18	0					0	0
9	SAHJEE ENTERPRISES	Supply of 132kV AGE controlled water pumps for AWSS	2017-18	0					0	0
10	SKF INDIA LTD	Procurement of Support Bearing Guide Bearings	2017-18	0					0	0
5	BURN STANDARD CO. LTD.	Procurement of Complete Clank Crankier Assy. Complete Jet Pump	2017-18	1,08,970					0	1,08,970
6	BURN STANDARD CO. LTD.	Procurement of Complete Clank crankier Assy. for Stage-II	2017-18	1,06,133					0	1,06,133
7	INDUSTRIAL TRADE LINKS	Procurement of Complete Gear Box Assembly for ADPM	2017-18	0					0	0
7	BURN STANDARD CO. LTD.	97.5T/PAH/CLANKER GRINDER COMP.ASSY	2018-19	30,181					0	30,181
8	INDUSTRIAL TRADE LINKS	Procurement of Complete Gear Box Assembly for ADPM	2018-19	90,333					0	90,333
9	SAFT INDIA PVT LTD	Procurement of 80V Ni-Cd battery bank for UPS Stage-2	2018-19	1,11,000					0	1,11,000
10	MOMALLY SHARAT ENGG COMPANY	Procurement of Telescopic Clank for Stage II SWP	2018-19	0					0	0
11	SAFT INDIA PVT LTD	Procurement of 24V BOP & BGTG Battery Banks of Unit-3	2018-19	0					0	0
Total Liabilities of stakeholders closed down pertaining to 14-10 period										
12	OTIS ELEVATOR CO IND	Exp. Maint/Supply Elev & Concs Elevators	2015-16	0					0	0
13	NEUTRICH ELEVATOR SYS	Exp. Maint/Supply Elev & Concs Elevators	2015-16	0					0	0


 परिमल पीयूष/PARIMAL PIYUSH
 अपर महाप्रबन्धक (वाणिज्यिक)
 Addl. General Manager (Commercial)
 एन टी पी सी लिमिटेड/NTPC LIMITED
 EOC, A-8A, Sector-24, Noida-201301 (U.P.)

Rwind Power Thermal/Power Station Stage-I								Part-I		
Flow of Capital liabilities from 01.04.2019								Form 5		
Sr.	Name of the Party	Name of the work	Year of creation of liability capitalised in Gross Block	Undischarged liabilities relating to GDR 01.04.2021	Liability in additional capitalisation for 2021-22	Construction ERV update	Discharge during the year 2021-22		Total discharge	Undischarged liabilities relating to GDR 31.03.2022
							-by payment	-by reversal		
(1)	(2)	(3)	(4)							
19	BHARAT HEAVY ELECTRICALS LTD	Procurement of RT-2 NEUTRAL BUSHING STATION TRF	2014-15	0					0	0
20	PROGRESSIVE IMPROTECH PVT LTD	Supply of Laptop Computer	2014-15	0					0	0
21	QUICK WELL ENGINEERING ASSOCIATES	Procurement of Pneumatic Actuator for Sluiceway Robot Ash Clinker	2014-15	0					0	0
22	KSE AETICHGELLEDH-WPT	Procurement of Motor for SCW 2, 3KV, 200KW	2014-15	0					0	0
23	RAMASHANKAR PANDEY & CO	CONSTRUCTION OF CASING ALONG RICH TRACK	2014-15	0					0	0
2	SIEMENS LTD	NUMERICAL BASED DISTANCE PROT RELAY	2015-16	0					0	0
3	GEMINI COMMUNICATION	EXPANSION OF CAMPUS WIDE OFD NETWORK OF RAVIND PHASE IV RING REALIZATION	2015-16	0					0	0
3	ALLUSION CONTROLS PVT LTD	Procurement of VFD Drive	2015-17	0					0	0
4	AA ENGINEERING LTD	Procurement of Grinding Roll Bull Ring Segment for SRP-3003 Coal	2017-18	0					0	0
4	SIEMENS LTD	Supply, Installation, Testing and Commissioning of Numerical Based	2017-18	0					0	0
5	BHARAT HEAVY ELECTRI	Procurement of TDSPP Testbed	2017-18	0					0	0
6	TECHNOLOGY PRODUCTS	Procurement of Portable Thermal Tester	2017-18	0					0	0
7	BHARAT HEAVY ELECTRICALS LIMITED	Procurement of Grinding Roll Bull Ring Segment for SRP-3003 Coal	2017-18	0					0	0
8	LAXMI HYDRAULICS PVT LTD	Supply of Premium Energy Efficient (IE3) T motors	2017-18	0					0	0
9	SAHJEE ENTERPRISE	Supply of 132Kw ACB controlled starter panels for SWBS	2017-18	0					0	0
10	SAF INDIA LTD.	Procurement of Support Bearing Guide Bearing	2017-18	0					0	0
9	BURN STANDARD CO. LTD.	Procurement of Complete Clinker Grinder Assy, Complete Jet Pump	2017-18	1,35,378					0	1,35,378
6	BURN STANDARD CO. LTD.	Procurement of Complete Clinker grinder Assy. for Stage-I	2017-18	1,80,130			10,184	10,184	1,77,946	
7	INDUSTRIAL TRADE LINKS	Procurement of Complete Gear Box Assembly for ADPH	2017-18	0					0	0
7	BURN STANDARD CO. LTD.	67 STPM-CLINKER GRINDER COMP ASSY	2018-19	30,181					0	30,181
8	INDUSTRIAL TRADE LINKS	Procurement of Complete Gear Box Assembly for ADPH	2018-19	60,303			60,303	60,303	0	0
9	SAFT INDIA PVT LTD	Procurement of 80kV Ni-Cd battery bank for UPS Stage-2	2018-19	1,11,000			1,11,000	1,11,000	0	0
10	MACHALLY BHARAT ENGG COMPANY	Procurement of Telescope Drive for Stage II Silo	2018-19	0					0	0
11	SAFT INDIA PVT LTD	Procurement of 24V SOP & SGTG Battery Banks of Unit-3	2018-19	0					0	0
Total Liabilities of Disallowed/lost claim items pertaining to 14-19 period										
12	OTIS ELEVATOR CO IND	Dgn./Asst/Supply Elev & Concn Elevator	2015-16	0					0	0
13	MELTECH ELEVATOR SYS	Dgn./Asst/Supply Elev & Concn Elevator	2015-16	0					0	0


 परिमल पीयूष/PARIMAL PIYUSH
 अपर महाप्रबन्धक (वाणिज्यिक)
 Addl. General Manager (Commercial)
 एन टी पी सी लिमिटेड/NTPC LIMITED
 EOC, A-8A, Sector-24, Noida-201301 (U.P.)

Rihand Super Thermal Power Station Stage-II									Form	
List of Capital Liabilities from 01.04.2015									Form-2	
Sl. No.	Name of the Party	Nature of the work	Year of incurrence of liability capitalised in Gross Block	Undischarged liabilities relating to GB 01.04.2022	Liability in additional capitalisation for 2022-23	Contractors RTI updation	Discharge during the year 2022-23		Total discharge	Undischarged liabilities relating to GB 31.03.2023
							-By payment	-By reversal		
18	BHARAT HEAVY ELECTRICALS LTD	Procurement of DT-3 NEUTRAL BUSHING STATION TRP	2014-15	0					0	0
20	PROGRESSIVE INFOTECH PVT LTD	Supply of Laptop Computer	2014-15	0					0	0
21	QUICK WELL ENGINEERING ASSOCIATES	Procurement of Pneumatic Actuator for Electro-pneumatic Solenoid Valve	2014-15	0					0	0
22	KGS ARTISAN SELLERSHIP	Procurement of Motor for SCM 3 30V 3000W	2014-15	0					0	0
23	BAMASHANKAR PANDAY & CO	CONSTRUCTION OF CABINS ALONG MAIN TRUCK	2014-15	0					0	0
2	SIEMENS LTD	NUMERICAL BASED DISTANCE PROT RELAY	2015-16	0					0	0
3	COMEN COMMUNICATION	EXPANSION OF CAMPUS WIDE OPC NETWORK OF RIHANO PHASE IV RING REALIZATION	2015-16	0					0	0
5	ALLUSION CONTROLS PVT LTD	Procurement of VFD Drive	2016-17	0					0	0
4	AIA ENGINEERING LTD	Procurement of Grinding Roll Ball Ring Segment for XRP-1000 Coal	2017-18	0					0	0
4	SIEMENS LTD	Supply, installation, Testing and commissioning of Numerical Based	2017-18	0					0	0
5	BHARAT HEAVY ELECTRIC	Procurement of TDBSP Turbine Generator	2017-18	0					0	0
6	TECHNOLOGY PRODUCTS	Procurement of Portable Thermal Jacket	2017-18	0					0	0
7	BHARAT HEAVY ELECTRICALS LIMITED	Procurement of Grinding Roll Ball Ring Segment for XRP-1000 Coal	2017-18	0					0	0
8	LUXOR HYDRAULICS PVT LTD	Supply of Premium Energy Efficient VFD LT motor	2017-18	0					0	0
8	SAHJEE ENTERPRISES	Supply of 100Kw ACB controlled starter panels for ABBSS	2017-18	0					0	0
10	SNP INDIA LTD.	Procurement of Support Bearing Drive Rotor	2017-18	0					0	0
5	BURN STANDARD CO. LTD.	Procurement of Complete Clicker Ginder Assy. Complete Jet Pump	2017-18	1,08,078					0	1,08,078
6	BURN STANDARD CO. LTD.	Procurement of Complete Clicker ginder Assy. for Stage-4	2017-18	1,77,948					0	1,77,948
7	INDUSTRIAL TRADE LINKS	Procurement of Complete Gear Box Assembly for ADPH	2017-18	0					0	0
7	BURN STANDARD CO. LTD.	DT-5TRM-CLICKER GRINDER COMP. ASSY	2018-19	30,181					0	30,181
8	INDUSTRIAL TRADE LINKS	Procurement of Complete Gear Box Assembly for ADPH	2018-19	0					0	0
9	SAFTI INDIA PVT LTD	Procurement of 200V Ni-Cd battery bank for UPS Stage-2	2018-19	0					0	0
10	MONALLY BHARAT EMCO COMPANY	Procurement of Telescopic Choke for Stage II Silo	2018-19	0					0	0
11	SAFTI INDIA PVT LTD	Procurement of 24V 90P & 50TD Battery Banks of Unit-3	2018-19	0					0	0
Total Liabilities of above/under classed items pertaining to 18-19 period				0					0	0
12	DOTS ELEVATOR CO IND	Dgn. Assn/Supply/ Erect & Comm. Expenses	2015-16	0					0	0
13	NEUTECH ELEVATOR SYS	Dgn./Assn/Supply/ Erect & Comm. Expenses	2015-16	0					0	0

परिमल पीयूष/PARIMAL PIYUSH
 अपर महाप्रबन्धक (वाणिज्यिक)
 Addl. General Manager (Commercial)
 एन टी पी सी लिमिटेड/NTPC LIMITED
 EOC, A-8A, Sector-24, Noida-201301 (U.P.)

Rihand Super Thermal Power Station Stage-I									Part-I	
Flow of Capital Liabilities from 01.04.2018									Page-5	
Sr.	Name of the Party	Name of the work	Year of incurrence of liability registered in Green Book	Undischarged liabilities relating to GB 01.04.2023	Liability in additional capitalisation for 2023-24	Contractors ERY updation	Discharge during the year 2023-24		Total discharge	Undischarged liabilities relating to GB 31.03.2024
							by payment	by reversal		
(10)	(20)	(30)	(4)							
19	BHARAT HEAVY ELECTRICALS LTD	Procurement of BT-2 NEUTRAL BUSBAR STATION TRF	2016-15	0					0	0
20	PROGRESSIVE INFOTECH PVT LTD	Supply of Laptop Computer	2016-15	0					0	0
21	BUCK WELLS ENGINEERING ASSOCIATES	Procurement of Pneumatic Actuator for Sluice gate Bottom Ash Clinker	2016-15	0					0	0
22	KSB AKTENGESellschaft	Procurement of Motor for BSW 3.20V 3580W	2016-15	0					0	0
23	RAMDHANIKAR PANDAY & CO	CONSTRUCTION OF CABINS ALONG WGR TRACK	2016-16	0					0	0
2	SIEMENS LTD	NUMERICAL BASED DISTANCE PROT RELAY	2015-16	0					0	0
3	GERM COMMUNICATION	EXPANSION OF CAMPUS WIRE-Less NETWORK OF RIHAND PHASE-IV WNG-REALIZATION	2015-16	0					0	0
3	ALLUSION CONTROLS PVT LTD	Procurement of WFO Drive	2016-17	0					0	0
4	AA ENGINEERING LTD	Procurement of Grinding Roll Bull Ring Segment for ZRP-1003 Coal	2017-18	0					0	0
4	SIEMENS LTD	Supply Installation, Testing and commissioning of Numerical Based	2017-18	0					0	0
5	BHARAT HEAVY ELECTRS	Procurement of TDSPP Turbine Bearings	2017-18	0					0	0
5	TECHNOLOGY PRODUCTS	Procurement of Portable Thermal Weight	2017-18	0					0	0
7	BHARAT HEAVY ELECTRICALS LIMITED	Procurement of Grinding Roll Bull Ring Segment for ZRP-1003 Coal	2017-18	0					0	0
8	LAIMS HYDRAULICS PVT LTD	Supply of Protonix Energy Efficient (E.O.L) motor	2017-18	0					0	0
8	SANJEEV ENTERPRISES	Supply of 132Kw ACS controlled water pumps for SWS	2017-18	0					0	0
10	S&P NEMA LTD	Procurement of Support Bearing Guide bearing	2017-18	0					0	0
5	BURN STANDARD CO. LTD.	Procurement of Complete Clinker Grinder Area, Complete Jet Pump	2017-18	1,06,678					0	1,06,678
6	BURN STANDARD CO. LTD.	Procurement of Complete Clinker grinder Area for Stage-II	2017-18	1,77,949					0	1,77,949
7	INDUSTRIAL TRADE LINKS	Procurement of Complete Gear Box Assembly for ACPH	2017-18	0					0	0
7	BURN STANDARD CO. LTD.	GT STRAIN CLINKER GRINDER COMP.ASSY	2018-19	30,181					0	30,181
8	INDUSTRIAL TRADE LINKS	Procurement of Complete Gear Box Assembly for ACPH	2018-19	0					0	0
9	SAFT INDIA PVT LTD.	Procurement of 284V Ni-Cd battery bank for UPS Stage-2	2018-19	0					0	0
10	MCNALLY BHARAT ENGG COMPANY	Procurement of Telescopic Crane for Stage II Silo.	2018-19	0					0	0
11	SAFT INDIA PVT LTD.	Procurement of 2M BOP & GGTG Battery Banks of Unit-2	2018-19	0					0	0
Total Liabilities of the following kind being pertaining to 14-09 period										0
12	OTIS ELEVATOR CO IND	Dgn./Mast/Supply/Inst & Comm Elevation	2015-16	0					0	0
13	NEUTECH ELEVATOR SYS	Dgn./Mast/Supply/Inst & Comm Elevation	2015-16	0					0	0

परिमल पीयूष / PARIMAL PIYUSH
 अपर महाप्रबन्धक (वणिज्यिक)
 Addl. General Manager (Commercial)
 एन टी पी सी लिमिटेड / NTPC LIMITED
 EOC, A-8A, Sector-24, Noida-201301 (U.P.)

Part-I Form-9 Amount in Rs.										
Bharat Super Thermal Power Station, Stage-I Flow of Capital Liabilities from 01.04.2019										
Sr.	Name of the Party	Name of the work	Year of creation of liability capitalised in Gross Block	Undischarged liabilities relating to GB 01.04.2019	liability in additional capitalisations for 2019-20	Constructors ERV updates	Discharge during the year 2019-20		Total discharge	Undischarged liabilities relating to GB 31.03.2020
							By payment	By reversal		
(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)=(11)-(14)	(17)=(11)+(13)
14	ANALYSER INSTRUMENT	CEMS - Main Equipment Supply (Rihand) (not Capitalised)	2019-19	0					0	
12	FLUO ELECTRIC CO. L	OMM insurance under CEMS-FC-Rihand	2019-19	2,44,193			2,44,193		2,44,193	
13	SAGHEL INFRASTRUCTURES	2ND RAISING OF METHWASH DUNE LAGOON - I	2019-19	1,01,04,191			86,21,312		86,21,312	35,42,938
Total Liabilities of allowed/closed items pertaining to 14-19 period				1,04,28,334	0	0	2,44,193	0	2,44,193	35,42,938
14	MCNALLY BHARAT ENGG COMPANY	Procurement of Telescopic Crane for Stage II Site	2019-20	-	9,66,683				0	9,66,683
15	CG POWER AND INDUSTRIAL SOLUTIONS	Procurement of 132 KV Circuit Breakers - NTPC Rihand	2020-21							
18	HBL POWER SYSTEMS LTD	Procurement of 24V BOP and 5070 Subbay	2020-21							
17	COOLDECK INDUSTRIES PVT. LTD.	PROCUREMENT OF FILL PACK ASSEMBLY FOR COOLING TOWERS OF STAGE-2, BHAND	2020-21							
18	NET CASCADE AUTOMATION PVT LTD	UPGRADE OF EXISTING PLC SS-3E IN RUNNING OF FANUC SYSTEM INSTALLED AT	2020-21							
19	SENLOGIC AUTOMATION PVT LTD	SUPPLY INSTALLATION COMMISSIONING & CIVIL WORKS AND STAMPING OF	2020-21							
20	BHARAT HEAVY ELECTRICALS LIMITED	Ex-Works Supply of Main Equipment price for Corrosion Modification Package for Rihand STPS, Stage-I (2x500 MW) and Stage-II (2x500 MW)	2021-22							
21	GE T&D INDIA LTD-1006441	SCHOR. WAVE TRAP - 400KV, 1MH, 315KA ST-23	2021-22							
22	BHARAT HEAVY ELECTRICALS LTD	BLADES FOR POPAN AP120/10 ST-2	2021-22							
23	ELECON ENGINEERING CO LTD	PROCUREMENT OF ELECON MAKE GEAR BOX AND CRUSHER ROTOR ASSY OF CHP	2022-23							
24	VOITH TURBO PVT LTD	SUPPLY OF VOITH MAKE LH CONVERTER FOR TURBINE DRIVER BEP AT STAGE II	2022-23							

परिमल पीयूष/PARIMAL PIYUSH
 अपर महाप्रबन्धक (वाणिज्यिक)
 Addl. General Manager (Commercial)
 एन टी पी सी लिमिटेड/NTPC LIMITED
 EOC, A-BA, Sector-24, Noida-201801 (U.P.)

Rihand Super Thermal Power Station Stage-II								Part I		
Flow of Capital liabilities from 01.04.2015								Form-D		
Sr.	Name of the Party	Name of the work	Year of creation of liability captured in Gross Block	Undischarged liabilities relating to GB 01.04.2020	Liability in additional capitalisation for 2020-21	Contractors GRV violation	Discharge during the year 2020-21		Total discharge	Undischarged liabilities relating to GB 31.03.2021
							-by payment	-by reversal		
(1)	(2)	(3)	(4)							
14	ANALYSER INSTRUMENT	CMS - Main Equipment Supply Board/Inlet Contract	2015-16	0					0	0
12	FULI ELECTRIC CO.,L	OMM Insurance under CMS-FC-Board	2015-16	0					0	0
13	SACHEL INFRASTRUCTURES	2ND RAISING OF RATHINA ASH DYKE LAGOON - I	2018-19	35,62,838					0	35,62,838
Total Liabilities of all work/claims from pertaining to 14.09 period				35,62,838					0	35,62,838
14	MONALLY BHARAT ENDS COMPANY	Procurement of Telescopic Crane for Stage II 20c.	2019-20	8,06,683					0	8,06,683
15	CS POWER AND INDUSTRIAL SOLUTIONS	Procurement of 132 KV Circuit Breakers - NTPC Board	2009-21	0	Rs. 1,68,930				0	1,68,930
16	HRL POWER SYSTEMS LTD	Procurement of 24V DOP and 90TD battery	2020-21	0	Rs. 4,32,921				0	4,32,921
17	COOLDECK INDUSTRIES PVT. LTD.	PROCUREMENT OF FULL PACK ASSEMBLY FOR COOLING TOWERS OF STAGE-2, RHAND	2020-21	0	Rs. 94,96,575				0	94,96,575
16	IVET CASCADE AUTOMATION PVT LTD	UPGRADE OF EXISTING PLC 90-30 IN RUNNING GE PAKAC SYSTEM INSTALLED AT	2020-21	0	Rs. 11,16,650				0	11,16,650
18	SENLOGIC AUTOMATION PVT LTD	SUPPLY, INSTALLATION, COMMISSIONING & CIVIL WORKS, A.M.C. STARTING OF	2020-21	0	Rs. 42,49,900				0	42,49,900
20	BHARAT HEAVY ELECTRICALS LIMITED	2c-Works Supply of Misc Equipment like Air Compressor Modification Package for Rihand STPS, Stage-II (0-600 MW) and Stage-III (2x900 MW)	2021-22							
21	GE TRD INDIA LTD-1026441	SENSOR, WAVE TRAP - 400KV, 1MN, 315DA ST-03	2021-22							
22	BHARAT HEAVY ELECTRICALS LTD	BLADES FOR POPAN API-2619 ST-2	2021-22							
23	ELECON ENGINEERING CO LTD	PROCUREMENT OF ELECON MAKE GEAR BOX AND CRUSHER ROTOR ASSY OF 04c	2022-23							
24	VOITH TURBO PVT LTD	SUPPLY OF VOITH MAKE I/O CONVERTER FOR TURBINE DRIVEN REP AT STAGE-2	2022-23							

परिमल पीयूष / PARIMAL PIYUSH
 अपर महाप्रबन्धक (वाणिज्यिक)
 Addl. General Manager (Commercial)
 एन टी पी सी लिमिटेड / NTPC LIMITED
 ECC, A-8A, Sector-24, Noida-201301 (U.P.)

Bharat Super Thermal Power Station Stage-II								Part I		
Five of Capital liabilities from 01.03.2019								Form-5		
Sr.	Name of the Party	Name of the work	Year of creation of liability capitalised in Gross Block	Undischarged liabilities relating to GB 01.03.2021	Liability in additional capitalisation for 2021-22	Contractors ETV updation	Discharge during the year 2021-22		Total discharge	Undischarged liabilities relating to GB 31.03.2022
							-by payment	-by reversal		
(1)	(2)	(3)	(4)							
14	ANALYSOR INSTRUMENT	CEMS - New Equipment Supply Related Unit Capital	2015-19	0					0	0
12	PLU ELECTRIC CO. L	OMM Invenens under DIME-PC-Board	2015-19	0					0	0
13	BAGHEL INFRASTRUCTURES	2ND RAISING OF WITHIN ASH DYKE LAGOON - I	2018-19	35,62,830					0	35,62,830
Total Liabilities of above/declared items pertaining to 14-19 period				0					0	35,62,830
14	MEVALLY BHARAT ENGG COMPANY	Procurement of Telescopic Crane for Stage II Silo.	2019-20	9,90,000					0	9,90,000
15	CG POWER AND INDUSTRIAL SOLUTIONS	Procurement of 132 KV Gasol Breakers - NTPC Brand	2020-21	1,68,800					0	1,68,800
16	HBL POWER SYSTEMS LTD	Procurement of 2KV BOP and BGTG Induct	2020-21	4,52,901			4,52,901	4,52,901	0	0
17	COOLDECK INDUSTRIES PVT LTD	PROCUREMENT OF FILL PACK ASSEMBLY FOR COOLING TOWERS OF STAGE-2, RHAND	2020-21	94,90,575			94,90,575	94,90,575	0	0
18	NET CASCADE AUTOMATION PVT LTD	UPGRADE OF EXISTING PLC 30-30 IN RUNNING GE FANUC SYSTEM INSTALLED AT	2020-21	11,10,850					0	11,10,850
19	SONLOGIC AUTOMATION PVT LTD	SUPPLY, INSTALLATION, COMMISSIONING & CIVIL WORKS AMC, STATIONS OF	2020-21	42,40,000			20,00,000	20,00,000	22,40,000	0
20	BHARAT HEAVY ELECTRICALS LIMITED	Re-Works Supply of Main Equipment (incl for Condition Modification Package for Retired STPS, Stage-II (2x50 MW) and Stage-II (2x50 MW)	2021-22		6,69,60,572.38				0	6,69,60,572.38
21	DE TSD INDIA LTD-100044	SENSOR-WAVE TRAP - 400KV, 9ML/150A ST-23	2021-22		49,950.00				0	49,950.00
22	BHARAT HEAVY ELECTRICALS LTD	BLADES FOR FDMAN AP1-2016 91-2	2021-22		63,061.00				0	63,061.00
23	ELGON ENGINEERING CO LTD	PROCUREMENT OF ELECON MAKE BEAR BOX AND CRUSHER ROTOR 5521 OF CHP	2022-23							
24	VOITH TURBO PVT LTD	SUPPLY OF VOITH MAKE SH CONVERTER FOR TURBINE DRIVEN BFP AT STAGE II	2022-23							


 परिमल प्रियूष/PARIMAL PIYUSH
 अपर महाप्रबन्धक (वाणिज्यिक)
 Addl. General Manager (Commercial)
 एन टी पी सी लिमिटेड/NTPC LIMITED
 EOC, A-8A, Sector-24, Noida-201301 (U.P.)

Parimal Super Thermal Power Station Stage-I								Part I		
Flow of Capital liabilities from 01.04.2019								Form 5		
								Amount in Rs.		
Sl. No.	Name of the Party	Name of the work	Year of creation of liability capitalised in Gross Block	Undischarged liabilities relating to GB 31.03.2022	Liability in additional capitalisation for 2022-23	Contractors ERV updation	Discharge during the year 2022-23		Total discharge	Undischarged liabilities relating to GB 31.03.2022
							by payment	by reversal		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
14	ANALYSER INSTRUMENT	CEMS - Main Equipment Supply Riband (incl. Control)	2015-18	0					0	0
12	FUIJ ELECTRIC CO. L	CMM Insurance under CEMS-PC-Riband	2015-18	0					0	0
13	SACHEL INFRASTRUCTURES	DND RAISING OF MITHAN ADH (TYPE LAGGON - I)	2010-19	35,62,038					0	35,62,038
Total Liabilities of above/mentioned areas pertaining to 14-19 period				3					0	3
14	MCNALLY BHARAT ENCO COMPANY	Procurement of Telescopic Crane for Stage-I Site	2018-20	9,68,883					0	9,68,883
15	CO POWER AND INDUSTRIAL SOLUTIONS	Procurement of 132 KV Circuit Breakers - NTPC Riband	2020-21	1,68,900					0	1,68,900
16	HBL POWER SYSTEMS LTD	Procurement of 24V BOP and SGTG battery	2020-21	0					0	0
17	COOLDECK INDUSTRIES PVT. LTD.	PROCUREMENT OF PILL PACK ASSEMBLY FOR COOLING TOWERS OF STAGE-2, REHAND	2020-21	0					0	0
18	NET CASCADE AUTOMATION PVT LTD	UPGRADE OF EXISTING PLC 90-30 IN RUNNING OF PARVO SYSTEM INSTALLED AT	2020-21	11,10,850			11,10,850		11,10,850	0
19	SONLOGIC AUTOMATION PVT LTD	SUPPLY, INSTALLATION, COMMISSIONING & CIVIL WORKS AND STAMPING OF	2020-21	22,42,500			11,15,900		11,15,900	11,27,500
20	BHARAT HEAVY ELECTRICALS LIMITED	Ex-Works Supply of Main Equipment price for Conductor Modification Package for Riband STPS, Stage-I (2x150 MW and Stage-II (2x300 MW)	2021-22	6,99,92,572			0,49,57,268		6,49,57,268	20,35,307
21	GE TD INDIA LTD-1000441	SENSOR, WAVE TRAP - 80KV, 1MH 3150A ST-2/3	2021-22	49,950					0	49,950
22	BHARAT HEAVY ELECTRICALS LTD	BLADES FOR POPAN AP-20/18 ST-2	2021-22	63,961			63,961		63,961	0
23	ELECON ENGINEERING CO LTD	PROCUREMENT OF ELECON MAKE GEAR BOX AND CRUSHER ROTOR ASSY OF CHP	2022-23	0	78,80,307				0	78,80,307
24	VOITH TURBO PVT LTD	SUPPLY OF VOITH MAKE LH CONVERTER FOR TURBINE DRIVEN BEP AT STAGE-I	2022-23	0	5,748				0	5,748
				3,740,90					0	3,740,90

परिमल पीयूष/PARIMAL PIYUSH
 अपर महाप्रबन्धक (वाणिज्यिक)
 Addl. General Manager (Commercial)
 एन टी पी सी लिमिटेड/NTPC LIMITED
 EOC, A-8A, Sector-24, Noida-201301 (U.P.)

Rihand Super Thermal Power Station (Stage-I)								Part-I			
Flow of Capital liabilities from 01.06.2018								Part-II			
Sr.	Name of the Party	Name of the work	Year of creation of liability capitalised in Gross Block	Uncharged liabilities relating to CB 01.04.2023	Liability in additional capitalisation for 2023-24	Contractors ERV up-to-date	Discharge during the year 2023-24		Total discharge	Uncharged liabilities relating to CB 01.03.2024	
							by payment	by reversal			
11	01	02	19								
14	ANALYSER INSTRUMENT	CEMS - Main Equipment Supply Rihand 3rd Contract	2015-16	0							
12	FILR ELECTRIC CO., L	CAM Insurance under CEMS-FC Rihand	2015-16	0					0	0	
13	BADHEL INFRASTRUCTURES	2ND RAISING OF WITHHEW ASH DYKE (ASOON - I)	2018-19	35,62,839					0	0	
Total liabilities of allowed/loaded items pertaining to 14-19 period										0	35,62,839
14	MACNALLY BHARAT ENGG COMPANY	Procurement of Telescopic Crane for Stage 4 Site	2018-20	0	9,66,683				0	0	
15	CG POWER AND INDUSTRIAL SOLUTIONS	Procurement of 132 KV Circuit Breakers - NTPC Rihand	2020-21	1,68,668					0	9,66,683	
16	HBL POWER SYSTEMS LTD	Procurement of 24V BOP and BGTG battery	2020-21	0					0	1,68,668	
17	COOLDECK INDUSTRIES PVT. LTD.	PROCUREMENT OF FULL PACK ASSEMBLY FOR COOLING TOWERS OF STAGE-2, Rihand	2020-21	0					0	0	
18	NET CASCADE AUTOMATION PVT LTD	UPGRADE OF EXISTING PLC 80-33 BY RUNNING GE FANUC SYSTEM INSTALLED AT	2020-21	0					0	0	
19	RENLOGIC AUTOMATION PVT LTD	SUPPLY INSTALLATION COMMISSIONING & CIVIL WORKS, AMC, STARTING OF	2020-21	11,27,500					0	0	
20	BHARAT HEAVY ELECTRICALS LIMITED	Ex-Works Supply of Main Equipment price for Conduction Modification Package for Rihand STPC, Stage-I (9x 900 MW) and Stage- II (2x1000 MW)	2021-22	20,36,307					0	11,27,500	
21	GE TAD INDIA LTD-1800441	SENSOR WAVE TRAP - 480KV, 1BH, 3150A ST-2/2	2021-22	48,850					0	20,36,307	
22	BHARAT HEAVY ELECTRICALS LTD	BLADES FOR PDEAW AP120/16 ST-2	2021-22	0					0	48,850	
23	GURDON ENGINEERING CO LTD	PROCUREMENT OF ELECCON MAKE GEAR BOX AND CRUSHER ROTOR ASSY OF CHP	2022-23	78,88,307					0	0	
24	WORTH TURBO PVT LTD	SUPPLY OF WORTH MAKE IHI CONVERTER FOR TURBINE DRIVEN BFP AT STAGE-I	2022-23	3,748			78,80,307.48		78,80,307	0	
							3,748.00		3,748	0	

परिमल पीयूष/PARIMAL PIYUSH
 अपर महाप्रबन्धक (वाणिज्यिक)
 Addl. General Manager (Commercial)
 एन टी पी सी लिमिटेड/NTPC LIMITED
 EOC, A-8A, Sector-24, Noida-201301 (U.P.)

Reheat Super Thermal Power Station Stage-II										Part-I		
Flow of Capital Liabilities from 01.04.2019										Part-II		
										Amount in Rs.		
Sl. No.	Name of the Party	Name of the work	Year of creation of liability capitalised in Gross Block	Undischarged liabilities relating to GB 01.04.2019	Liability in additional capitalisations for 2019-20	Contractors/ERV utilisation	Discharge during the year 2019-20		Total discharge	Undischarged liabilities relating to GB 31.03.2020		
							By payment	By reversal				
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	
29	BHARAT HEAVY ELECTRICALS LIMITED	EO-Works Supply of Main Equipment price for Combustion Modification Package for Reheat STPS, Stage-II (2x500 MW) and Stage-III (2x600 MW)	2022-23									
20	SUCHRAJA MINDS & CONSTRUCTION LTD	2nd Raising of Mithan set Dyke Lagoon-I	2022-23									
25	National Prestige Construction Co	3rd Raising of Mithan Ash Dyke Lagoon - I at ReSTPP	2022-23									
28	BHARAT HEAVY ELECTRICALS LTD	COMPLETE ROTOR ASSY PA Fan AP2 2012	2022-23									
	BUDHARAJA MINDS & CONSTRUCTION LTD	2nd Raising of Mithan ash dyke lagoon I	2023-24									
	BHARAT HEAVY ELECTRICALS LIMITED	Upgradation against Obsolescence of IOM of M's SHEL with cyber security	2023-24									
	Bharat Heavy Electricals Ltd	Procurement of Capital spares of BMD PP (NTPC Reheat)	2023-24									
	ATLAS COPCO (INDIA) PRIVATE LTD	Supply of RC Capital Spares of Atlas Copco Compressors Stage II Modal	2023-24									
	Bharat Heavy Electricals Ltd	Supply of all Slides for PA Fan of Stage-2 at NTPC Reheat (Rote Contract)	2023-24									
	Bharat Heavy Electricals Ltd	SUPPLY OF CAPITAL SPARES FOR FANS -1,2,3,4- APH STAGE-II NTPC REHEAT	2023-24									
	Bharat Heavy Electricals Ltd	Supply of spares for PAFD Fans of Stage-2 (NTPC Reheat)	2023-24									
	THERMOSYSTEMS PVT LTD	Augmentation of fire detection and protection system for Reheat	2023-24									
	MAHWA UDYOG	PROCUREMENT OF BOTTOM CONSEP OF ARJUN VESSEL OF CEU OF STG-2 (1&2)-1	2023-24									
Total Liabilities of disallowance claimed items pertaining to 19-24 period												
Total (A)				8,64,96,388	9,86,683	-75,26,412	1,03,68,432	0	1,03,68,432	8,98,687	6,35,42,227	
Esp. items eligible for Bal. at Weighted Average Rate of Interest as per (B)												
Total (B)												

परिमल पीयूष / PARIMAL PIYUSH
 अपर महाप्रबन्धक (वाणिज्यिक)
 Addl. General Manager (Commercial)
 एन टी पी सी लिमिटेड / NTPC LIMITED
 EOC, A-8A, Sector-24, Noida-201301 (U.P.)

Sheet Super Thermal Power Station Stage-II Flow of Capital Expenditure from 01.04.2019										Part-I Form-2 Annexure to No.	
Sr.	Name of the Party	Name of the work	Year of incurrence of liability capitalised in Gross Block	Un-discharged liabilities relating to GB 01.04.2019	Liability in additional capitalisation for 2020-21	Contractors ERV updation	Discharge during the year 2020-21		Total discharge	Un-discharged liabilities relating to GB 31.03.2021	
							By payment	By reversal			
25	SHARAT HEAVY ELECTRICALS LIMITED	2nd Works Supply of Main Equipment price for Combustion Modification Package for Bharat STPS, Stage-II (2x500 MW and Stage-III (2x500 MW)	2022-23								
26	BUDHRAJ MINING & CONSTRUCTION LTD	2nd Raising of Millies with dyke lagoon	2022-23								
26	National Prestige Construction Co	2nd Raising of Millies Ash Dyke Lagoon - I at RB&TMP	2022-23								
26	SHARAT HEAVY ELECTRICALS LTD	COMPLETE ROTOR ASSY.PA FAN AP2 20*12	2022-23								
	BUDHRAJ MINING & CONSTRUCTION LTD	2nd Raising of Millies with dyke lagoon	2022-24								
	SHARAT HEAVY ELECTRICALS LIMITED	Upgradation against Obsolescence of M&I of NTPC with cyber security	2022-24								
	Bharat Heavy Electricals Ltd	Procurement of Capital spares of SMD PP (NTPC Bharat)	2023-24								
	ATLAS COPCO (INDIA) PRIVATE LTD	Supply of RC Capital Spares of Atlas Copco Compressors Stage II Model	2023-24								
	Bharat Heavy Electricals Ltd	Supply of spares for PA Fan of Stage-2 at NTPC Bharat (Rate Contract)	2023-24								
	Bharat Heavy Electricals Ltd	SUPPLY OF CAPITAL SPARES FOR FAN 2 (NTPC) AT STAGE-II NTPC BHARAT	2023-24								
	Bharat Heavy Electricals Ltd	Supply of spares for PA/FD Fans of Stage-2 (NTPC Bharat)	2023-24								
	THERMOSYSTEMS PVT LTD	Appraisal of fire detection and protection system for Bharat	2023-24								
	MAHMA LEYOG	PROCUREMENT OF BOTTOM COVER OF AIRCRU VESSEL OF CPU OF STG-2 (NTPC)	2024-24								
Total Liabilities of disallowed/retained items pertaining to 19-24 period											
				Total (A)	6,26,263	1,44,71,216			0	1,54,37,889	
For items eligible for Ref at Market/Average Rate of Interest on loan (B)					6,26,42,223	1,44,75,236	8	4,85,37,879	1,28,32,930	6,25,80,917	5,94,85,427
Total (B)											

परिमल पीयूष/PARIMAL PIYUSH
 अपर महाप्रबन्धक (व्यापारिक)
 Addl. General Manager (Commercial)
 एन टी पी सी लिमिटेड/NTPC LIMITED
 EOC, A-8A, Sector-24, Noida-201301 (U.P.)

Gross Total Thermal Power Station								Part I	
View of Capital Liabilities from 01.04.2019								Form-S	
Sr.	Name of the Party	Name of the work	Year of creation of liability capitalised in Gross Book	Undischarged liabilities relating to GB 01.04.2021	Liability in additional capitalisation for 2021-22	Contractors (BY) updation	Discharge during the year 2021-22		Undischarged liabilities relating to GB 31.03.2022
							By payment	By reversal	
(1)	(2)	(3)	(4)						
25	BHARAT HEAVY ELECTRICALS LIMITED	Ex-Works Supply of Main Equipment (price for Constructive Modification Package for Rihand STPS, Stage-I (2x500 MW) and Stage-II (2x500 MW).	2022-23						
26	BUCHRAJA MINING & CONSTRUCTION LTD	2nd Raising of Mithai ash dyke lagoon-II	2022-23						
26	National Roadge Construction Co	3rd Raising of Mithai Ash Dyke Lagoon - I at Rihand	2022-23						
26	BHARAT HEAVY ELECTRICALS LTD	COMPLETE ROTOR ASSY PA/PAN AP2 30Y12	2022-23						
	BUCHRAJA MINING & CONSTRUCTION LTD	2nd Raising of Mithai ash dyke lagoon-I	2023-24						
	BHARAT HEAVY ELECTRICALS LIMITED	Upgradeation against Obsolescence of H&B of MA B-4L with cyber security	2023-24						
	Bharat Heavy Electricals Ltd	Procurement of Capital spares of BMD-PP (NTPC Rihand)	2023-24						
	ATLAS COPCO (INDIA) PRIVATE LTD	Supply of RC Capital Spares of Atlas Copco Compressors Stage II Model	2023-24						
	Bharat Heavy Electricals Ltd	Supply of Blades for PA Fan of Stage-2 at NTPC Rihand (Plate Contact)	2023-24						
	Bharat Heavy Electricals Ltd	SUPPLY OF CAPITAL SPARES FOR FANS (A) & (B) APN STAGE II NTPC RIHAND	2023-24						
	Bharat Heavy Electricals Ltd	Supply of spares for PA/FD Fans of Stage-2 (NTPC Rihand)	2023-24						
	THERMO SYSTEMS PVT LTD	Augmentation of fire detection and protection system for Rihand	2023-24						
	MAHIMA UDYOG	PROCUREMENT OF BOTTOM CONCEPT OF AIRCRAFT VESSEL OF CPU OF STG-2 (A) & (B)	2023-24						
Total Liabilities of disallowed/claimd items pertaining to 19-24 period				1,54,37,889	6,71,08,583			0	44,87,833
Total (A)				3,14,89,422	6,71,85,563	0	1,11,64,583	0	1,11,64,583
For assets eligible for Net or Weighted Average Rate of Interest on loan (B)									
Total (B)									

परिमल पीयूष/PARIMAL PIYUSH
 अपर महाप्रबन्धक (सांख्यिक)
 Addl. General Manager (Commercial)
 एन टी पी सी लिमिटेड/NTPC LIMITED
 EOC, A-8A, Sector-24, Noida-201301 (U.P.)

Report Given Through Power Station Stage II Flow of Capital Liabilities from 01.04.2018										Part-I Form-5 Amount in Rs.
Sl. No.	Name of the Party	Name of the work	Year of creation of liability capitalised in Gross Block	Unsettled liabilities relating to GB 01.04.2022	Liability in additional capitalisation for 2022-23	Contractors DRV updation	Discharge during the year 2022-23		Total discharge	Unsettled liabilities relating to GB 31.03.2023
							by payment	by reversal		
25	BHARAT HEAVY ELECTRICALS LIMITED	In-Works Supply of Misc. Equipment (Price for Corrosion Mitigation Package for Rawast 8 TPS, Stage-II (2x50 MW) and Stage-III (2x300 MW)	2022-23	0						
26	BUDHRAJA MINING & CONSTRUCTION LTD	2nd Raising of Millstone ash dyke lagoons I	2022-23		19,95,770.62					19,95,771
26	Nalcoel Prestige Construction Co	2nd Raising of Millstone Ash Dyke Lagoons - I at RASTHY	2022-23		47,63,279.69					47,63,279
26	BHARAT HEAVY ELECTRICALS LTD	COMPLETE ROTOR ASBY/PA FAN AP2 25*12	2022-23		35,19,696.06					35,19,696
26	BUDHRAJA MINING & CONSTRUCTION LTD	2nd Raising of Millstone ash dyke lagoons I	2022-24		10,31,850.86					10,31,051
26	BHARAT HEAVY ELECTRICALS LIMITED	Upgradation against Obsolescence of HM of Mts BHCL with nylon elasticity	2022-24							
26	Bharat Heavy Electricals Ltd	Procurement of Capital spares of BMD-PP (NTPC Raward)	2023-24							
26	ATLAS COPCO (INDIA) PRIVATE LTD	Supply of RC Capital Spares of Atlas Copco Compressors Stage II Model	2023-24							
26	Bharat Heavy Electricals Ltd	Supply of Blades for PA Fan of Stage-2 at NTPC Raward (State Contract)	2023-24							
26	Bharat Heavy Electricals Ltd	SUPPLY OF CAPITAL SPARES FOR FANS -><- AP1 STAGE-II NTPC RAWARD	2023-24							
26	Bharat Heavy Electricals Ltd	Supply of spares for PARD Fans of Stage-2 (NTPC Raward)	2023-24							
26	THERMO SYSTEMS PVT LTD	Augmentation of fire detection and protection system for Raward	2023-24							
26	VARSHAM UDYOG	PROCUREMENT OF BOTTOM COVER OF AIRLOCK VESSEL OF CPU/DE/STG 2024-23	2023-24							
Total Liabilities of disallowed/claimed items pertaining to 18-24 period				44,87,833						
Total (A)				1,72,84,422	1,87,63,837	0	6,72,45,976	0	6,72,45,976	3,68,62,002
For assets eligible for Ref. at Marketed Average Rate of Interest on loan (B)										
Total (B)										

परिमल पीयूष/PARIMAL PIYUSH
अपर महाप्रबन्धक (वाणिज्यिक)
Addl. General Manager (Commercial)
एन टी सी लिमिटेड/NTPC LIMITED
EOC, A-8A, Sector-24, Noida-201301 (U.P.)

Rihand Super Thermal Power Station Stage-II										
Flow of Capital Liabilities from 01.04.2019										
Sr.	Name of the Party	Name of the work	Year of creation of liability registered in Gross Block	Undischarged liabilities relating to GB 01.04.2023	Liability in additional capitalisation for 2023-24	Contractors ERV stipulated	Discharge during the year 2023-24		Total discharge	Undischarged liabilities relating to GB 31.03.2024
							by payment	by reversal		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	
25	BHARAT HEAVY ELECTRICALS LIMITED	Ex-Works Supply of Main Equipment price for Combustion Modification Package for Rihand STPS, Stage-II (2x500 MW) and Stage-III (2x500 MW)	2022-23	15,05,771				0	15,05,771	
26	BUDHAJA MINING & CONSTRUCTION LTD	2nd Raising of Mishra ash dyke lagoon-II	2022-23	47,63,270				0	47,63,270	
20	National Privilege Construction Co.	2nd Raising of Mishra Ash Dyke Lagoon - I at Rihand	2022-23	25,19,690				0	25,19,690	
26	BHARAT HEAVY ELECTRICALS LTD	COMPLETE ROTOR ASSEMBLY FOR PAM AP2 2012	2022-23	10,31,051			10,31,050.90	10,31,051	0	
	BUDHAJA MINING & CONSTRUCTION LTD	2nd Raising of Mishra ash dyke lagoon-II	2023-24		24,24,474.44			0	24,24,474	
	BHARAT HEAVY ELECTRICALS LIMITED	Upgradation against Obsolescence of HMI of Mts SHCL with cyber security	2023-24		38,13,277.00			0	38,13,277	
	Bharat Heavy Electricals Ltd	Procurement of Capital spares of BMD PP (NTPC Rihand)	2023-24		33,22,594.00			0	33,22,594	
	ATLAS COPCO (INDIA) PRIVATE LTD	Supply of RC Capital Spares of Atlas Copco Compressors, Stage II Model	2023-24		85,82,889.00			0	85,82,889	
	Bharat Heavy Electricals Ltd	Supply of of Spares for PA Fan of Stage-2 at NTPC Rihand (Rate Contract)	2023-24		6,78,040.00			0	6,78,040	
	Bharat Heavy Electricals Ltd	SUPPLY OF CAPITAL SPARES FOR FANS (to-etc) APH STAGE II NTPC RIHAND.	2023-24		1,40,920.00			0	1,40,920	
	Bharat Heavy Electricals Ltd	Supply of spares for PAM2 Fans of Stage-2 (NTPC Rihand)	2023-24		1,16,236.00			0	1,16,237	
	THERMO SYSTEMS PVT LTD	Implementation of fire detection and suppression system for Rihand	2023-24		24,55,066.00			0	24,55,066	
	MARMA UDYOG	PROCUREMENT OF BOTTLICAL CONCEPT OF ARIYORU VERGEL OF CPU OF STG-2023-24	2023-24		5,06,000.00			0	5,06,000	
Total Liabilities of disallowed/lost claimed items pertaining to 19-24 period				0				0		
Total (A)				3,88,52,285	2,13,41,357	0	28,15,195	6,24,15,108	6,11,75,814	
For Loans eligible for Govt. or Weighted Average Rate of Interest on loans (B)										
Total (B)										


परिमल पीयूष/PARIMAL PIYUSH
 अपर महाप्रबन्धक (वाणिज्यिक)
 Addl. General Manager (Commercial)
 एन टी पी सी लिमिटेड/NTPC LIMITED
 EOC, A-BA, Sector-24, Noida-201301 (U.P.)

Summary of Gross Block reconciliation (2019-20)

Sr. No.	Particular	Rihand-I	Rihand-II	Rihand-III	TOTAL GROSS BLOCK (Rs)
1	Closing Gross Block as per Audited Balance Sheet 31.03.2020 (Ind-AS)	8,47,30,31,973	16,68,32,16,186	55,52,33,45,571	80,67,95,93,729
2	Opening Gross Block as per Audited Balance Sheet 01.04.2019 (Ind-AS)	7,62,35,89,943	16,41,85,05,564	54,49,73,21,325	78,53,94,16,832
3	Addition During the Year (1-2) (Ind-AS)	84,94,42,030	26,47,10,622	1,02,60,24,246	2,14,01,76,898
4	Ind-AS Adjustment	-32,92,82,886	-22,67,35,283	-7,30,49,003	-62,90,67,173
5	Addition During the Year (3+4) (IGAAP)	52,01,59,144	3,79,75,339	95,29,75,243	1,51,11,09,725

परिमल पीयूष / PARIMAL PIYUSH
 Addl. General Manager (Commercial)
 एन टी पी सी लिमिटेड / NTPC LIMITED
 EOC, A-8A, Sector-24, Noida-201301 (U.P.)

Year wise Statement of Additional Capitalisation

Name of the Petitioner	NTPC Limited
Name of the Generating Station	Rihand Super Thermal Power Station Stage-II
Date of Commercial Operation	01-04-2006
For Financial Year	2019-20

Sl. No.	Head of Work /Equipment	Party Name	ACE Claimed					Amount in Rs.	
			Accrual basis as per Note-2 of BS	Ind AS Adj	Accrual basis as per IGAAP	Un-discharged Liability included in col. 4	Cash basis	IDC included in col. 3	
1	2	2A	3	3A	3B=3+3A	4	5 = (3B-4)	6	
A	Claims								
A.1	Claimed/Allowed Items								
1	2nd Raising of Mithini Ash Dyke Lagoon – I	Baghel Infrastructures	30,84,731.19	-	30,84,731		30,84,731		
2	Main Plant Package	BHEL	3,18,600.00	-	3,18,600		3,18,600		
3	Upgradation of Control System of HVAC Vapour Absorbion System	Thermax Ltd.	12,59,500.00		12,59,500		12,59,500		
4	Main Plant Package (Package ERV)	BHEL	-75,36,412.14		-75,36,412	-75,36,412.14			
	Subtotal (A.1)		(28,73,580.95)	-	(28,73,580.95)	(75,36,412.14)	46,62,831.19		
A.2	Capitalization of MBOAs								
A.3	Decap of MBOAs: Part of Capital Cost		-3,52,87,926.82	-3,89,64,970.06	-7,42,52,897				
A.4	Decap of Spares: Part of Capital Cost		-10,63,518.28	-23,83,805.14	-34,47,323		-7,42,52,897		
	TOTAL Claim (A)		-3,92,25,026	-4,13,48,775	-8,05,73,801	-75,36,412	-7,30,37,389		
B	Exclusions								
B.1	Capitalization of Capital Spares		11,85,49,139.76	0	11,85,49,140	9,66,683.00	11,75,82,457		
B.2	IndAS Adjustment								
1	Overhauling		18,53,86,508	-18,53,86,508					
	Total Exclusion (B)		30,39,35,648	-18,53,86,508	11,85,49,140	9,66,683	11,75,82,457		
	Grand Total (A+B)		26,47,10,622	-22,67,35,283	3,79,75,339	-65,69,729	4,45,45,068		

(Petitioner)

परिमल पीयूष/PARIMAL PIYUSH
अपर महाप्रबन्धक (वाणिज्यिक)
Addl. General Manager (Commercial)
एन टी सी लिमिटेड/NTPC LIMITED
EOC, A-8A, Sector-24, Noida-201301 (U.P.)

Summary of Gross Block reconciliation (2020-21)

Sr. No.	Particular	Rihand-I	Rihand-II	Rihand-III	TOTAL GROSS BLOCK (Rs)
1	Closing Gross Block as per Audited Balance Sheet 31.03.2021 (Ind-AS)	8,89,78,85,445.95	16,97,51,52,367.09	56,17,18,17,079.44	82,04,48,54,892.48
2	Opening Gross Block as per Audited Balance Sheet 01.04.2020 (Ind-AS)	8,47,61,16,703.15	16,68,01,31,454.48	55,52,33,45,570.75	80,67,95,93,728.38
3	Addition During the Year (1-2) (Ind-AS)	42,17,68,743	29,50,20,913	64,84,71,509	1,36,52,61,164.10
4	Ind-AS Adjustment	-28,80,12,968	-19,85,11,841	-6,04,98,238	54,50,23,047.08
5	Addition During the Year (3+4) (IGAAP)	13,57,55,774.93	9,65,09,071.55	58,79,73,270.54	82,02,38,117.02

(Petitioner)

परिमल पीयूष/PARIMAL PIYUSH
अपर महाप्रबन्धक (वाणिज्यिक)
Addl. General Manager (Commercial)
एन टी पी सी लिमिटेड/NTPC LIMITED
EOC, A-8A, Sector-24, Noida-201301 (U.P.)

Name of the Petitioner: NTPC Limited
 Name of the Generating Station: Rihand Super Thermal Power Station Stage-II
 Station COD: 01-04-2006
 For Financial Year: 2020-21

Sl. No.	Head of Work /Equipment	Party Name	Amount in Rs.					
			Accrual basis as per Note-2 of BS	IND AS Adj	Accrual basis as per IGAAP	Un-discharged Liability included in col. 3	Cash basis	IDC included in col. 3
			3	3A	3B-3+3A	4	5=3B-4	6
A.1 Claimed/Allowed Items								
1	Augmentation of Railway Siding & MGR System S&T	MITES LTD	27,35,072	-	27,35,072	-	27,35,072	-
2	Upgradation of Coal Mill feeder	Schenck Process Solutions	4,62,93,746	4,34,274	4,67,28,020	-	4,67,28,020	-
3	Upgrade of Control System in Offsite areas	Net Cascade Automation Pvt. Ltd.	2,62,11,340	-	2,62,11,340	11,10,850	2,51,00,490	-
4	Installation of load cells below Silo	Senlogic Automation Pvt. Ltd.	1,32,16,000	-	1,32,16,000	42,49,000	89,67,000	-
Subtotal (A.1)			8,84,56,158	4,34,274	8,88,90,432	53,69,850	8,35,30,782	-
A.2	Capitalization of MBOAs	Various Parties	-	-	-	-	-	-
A.3	Decap of MBOAs: Part of Capital Cost		-	-	-	-	-	-
A.4	Decap of Spares: Part of Capital Cost		-2,81,87,268	-4,03,03,136	-6,84,90,394	-	-6,84,90,394	-
Total claim (A)			6,02,68,890	-3,98,68,862	2,04,00,038	53,69,850	1,50,40,388	-
B Exclusions								
B.1	Capitalization of Capital Spares		8,94,86,585	37,748	8,95,24,334	91,11,586	8,04,12,767	-
B.2	Decap of MBDA: Not Part of Capital Cost		-	-	-	-	-	-
B.3	Decap of Spares: Not Part of Capital Cost		-36,14,342	-	-36,14,342	-	-36,14,342	-
B.4	Ind AS adjustment		-	-	-	-	-	-
B.4.1	Overhauling		-	-	-	-	-	-
B.4.2	Decap of overhauling Assets		15,86,80,728	-15,86,80,728	-	-	-	-
B.5	Reversal of Liabilities (ROL)		-1,20,22,938	-	-1,20,22,938	-1,20,22,938	-	-
B.6	Inter-Unit Transfer		22,21,980	-	22,21,980	-	22,21,980	-
Total Exclusion Claimed (B)			23,47,52,013	-15,86,42,979	7,61,09,034	-29,11,372	7,90,20,406	-
Grand Total (A+B)			29,56,20,913	-19,85,11,841	9,65,09,072	24,48,278	9,40,80,783	-

परिमल प्रियुष/PARIMAL PRIYUSH
 अपर महाप्रबन्धक (सापेक्षिक)
 Addl. General Manager (Commercial)
 एन टी पी सी लिमिटेड/NTPC LIMITED
 EOC, A-8A, Sector-24, Noida-201301 (U.P.)
 (Petitioner)

					Part-I Form-III Additional Form
Summary of Gross Block reconciliation (2021-22)					
Sr. No.	Particular	ST-I	ST-II	ST-III	TOTAL GROSS BLOCK (Rs)
1	Closing Gross Block as per Audited Balance Sheet 31.03.2022 (Ind-AS)	6,87,05,42,295	40,46,95,42,664	1,68,00,60,208	49,02,01,45,167
2	Opening Gross Block as per Audited Balance Sheet 01.04.2021 (Ind-AS)	6,62,49,52,683	40,54,66,76,059	1,12,57,37,246	48,29,73,65,988
3	Addition During the Year (1-2) (Ind-AS)	24,55,89,612	- 7,71,33,395	55,43,22,962	72,27,79,179
4	Ind-AS Adjustment	2,65,97,002	31,67,53,445	48,78,69,765	83,12,20,212
5	Addition During the Year (3+4) (IGAAP)	27,21,86,615	23,96,20,050	1,04,21,92,727	1,55,39,99,391
					 (Petitioner)

परिमल पीयूष/PARIMAL PIYUSH
 अपर महाप्रबन्धक (वाणिज्यिक)
 Addl. General Manager (Commercial)
 एन टी पी सी लिमिटेड/NTPC LIMITED
 EOC, A-8A, Sector-24, Noida-201301 (U.P.)

Year wise Statement of Additional Capitalisation after COD								
Name of the Petitioner		NTPC Limited						
Name of the Generating Station		Rihand Super Thermal Power Station Stage-II						
Station COD		01-04-2006						
For Financial Year		2021-22						
								Amount in Rs.
ACE Claimed (Actual for 2021-22)								
Sl. No.	Head of Work /Equipment	Party Name	Accrual basis as per Note-2 of BS	IND AS Adj	Accrual basis as per IGAAP	Un-discharged Liability included in col. 3	Cash basis	IDC included in col. 3
1	2	2A	3	3A	3B=3+3A	4	5=3B-4	6
A	Claims							
A.1	Claimed/ Allowed Items							
1	Upgradation of HMI System	Bharat Heavy Electricals Limited	9,28,07,000	1,27,581	9,29,34,581		9,29,34,581	
3	Upgradation of Coal Mill feeder	Schenck Process Solutions	29,50,000		29,50,000		29,50,000	
4	Installation of load cells below Silo	Senlogic Automation Pvt. Ltd.	88,500		88,500		88,500	
	Subtotal (A.1)		9,58,45,500	1,27,581	9,59,73,081	-	9,59,73,081	-
A.2	Capitalization of MBOAs	Various Parties						
A.3	Decap of MBOAs: Part of Capital Cost		- 24,80,183	- 1,00,39,187	- 1,25,19,370		- 1,25,19,370	
A.4	Decap of Spares: Part of Capital Cost		- 41,37,090	- 83,34,909	- 1,24,72,029		- 1,24,72,029	
	Total claim (A)		8,92,28,228	- 1,82,40,565	7,09,87,662	-	7,09,87,662	-
B	Exclusions							
B.1	Items not claimed							
1	Combustion Modification for Nox Control							
1.1	Combustion Modification Package-Unit#3	BHARAT HEAVY ELECTRICALS LIMITED	7,59,49,419		7,59,49,419	6,69,92,572	89,56,847	
1.2	Combustion Modification Package-Unit#4	BHARAT HEAVY ELECTRICALS LIMITED	7,59,49,419		7,59,49,419		7,59,49,419	
	Subtotal(B.1)		15,18,98,839	-	15,18,98,839	6,69,92,572	8,49,06,266	-
B.2	Capitalization of Capital Spares		7,32,89,009		7,32,89,009	1,13,011	7,31,69,998	
B.3	Decap of MBOAs: Not Part of Capital Cost		- 39,78,241	- 1,11,69,916	- 1,51,48,157		- 1,51,48,157	
B.4	Decap of Spares: Not Part of Capital Cost		- 4,10,80,872	- 3,14,432	- 4,14,03,304		- 4,14,03,304	
B.5	Ind AS Adjustment							
1	Overhauling		30,87,95,109	- 30,87,95,109				
2	Decap of OH Assets		- 65,52,73,467	65,52,73,467				
	Subtotal(B.2)		- 34,64,78,358	34,64,78,358				
	Total Exclusion Claimed (B)		- 16,43,81,623	33,49,94,010	16,86,32,387	6,71,05,583	10,15,26,804	-
	Grand Total (A+B)		- 7,71,33,395	31,67,53,445	23,96,20,660	6,71,05,583	17,25,14,466	-

(Petitioner)

परिमल पीयूश/PARIMAL PIYUSH
अपर महाप्रबन्धक (वाणिज्यिक)
Addl. General Manager (Commercial)
एन टी पी सी लिमिटेड/NTPC LIMITED
EOC, A-8A, Sector-24, Noida-201301 (U.P.)

Summary of Gross Block reconciliation (2022-23)

Sr. No.	Particular	ST-I	ST-II	ST-III	TOTAL GROSS BLOCK (Rs)
1	Closing Gross Block as per Audited Balance Sheet 31.03.2023 (Ind-AS)	9,27,49,01,585	40,74,70,40,617	2,24,22,68,048	52,26,42,10,250
2	Opening Gross Block as per Audited Balance Sheet 01.04.2022 (Ind-AS)	6,87,28,57,941	40,46,94,54,164	1,67,78,33,062	49,02,01,45,167
3	Addition During the Year (1-2) (Ind-AS)	2,40,20,43,644	27,75,86,453	56,44,34,986	3,24,40,65,083
4	Ind-AS Adjustment	- 11,20,58,291	9,25,55,750	16,28,96,642	- 18,23,99,183
5	Addition During the Year (3+4) (IGAAP)	2,28,99,85,354	37,01,42,203	40,15,38,344	3,06,16,65,900


(Petitioner)

परिमल पीयूष/PARIMAL PIYUSH
अपर महाप्रबन्धक (वाणिज्यिक)
Addl. General Manager (Commercial)
एन टी पी सी लिमिटेड/NTPC LIMITED
EOC, A-8A, Sector-24, Noida-201301 (U.P.)

Year wise Statement of Additional Capitalisation after COD								
Name of the Petitioner		NTPC Limited						
Name of the Generating Station		Rihand Super Thermal Power Station Stage-II						
Station COD		01-04-2008						
For Financial Year		2022-23						
								Amount in Rs.
Sl. No.	Head of Work /Equipment	Party Name	ACE Claimed (Actual for 2022-23)					
			Accrual basis as per Note-2 of BS	IND AS Adj	Accrual basis as per IGAAP	Un-discharged Liability included in col. 3	Cash basis	IDC included in col. 3
1	2	2A	3	3A	3B=3+3A	4	5=3B-4	6
A. Claims								
A.1 Claimed/ Allowed Items								
1	2nd Raising of Mihari ash dyke lagoon-II	Budhraj Mining & Construction Ltd.	14,05,98,380.79	-	14,05,98,391	47,63,270.00	13,58,35,121	-
2	3rd raising of Mihari Ash Dyke-I	National Prestige Construction Co	12,84,16,211.04	- 2,62,098.72	12,81,54,112	35,19,690.00	12,46,34,422	-
3	Augmentation of Railway Siding & MGR System S&T	RITES LTD	5,30,569.59	-	5,30,570	-	5,30,570	-
4	Upgrade of HMI System	Bharat Heavy Electricals Limited	28,49,700.00	-	28,49,700	-	28,49,700	-
5	RTU Replacement	Power Grid Corporation of India Limited	13,74,111.04	-	13,74,112	-	13,74,112	-
Total (A1)			27,37,88,983	- 2,62,099	27,35,26,885	82,82,960	26,52,43,925	-
A.2 Capitalization of MBOAs								
A.3 Decap of MBOAs: Part of Capital Cost		Various Parties	12,497.00	-	12,497	-	12,497	-
A.4 Decap of Spares: Part of Capital Cost			- 88,72,523.90	- 2,57,33,060	- 3,57,05,584	-	- 3,57,05,584	-
Total claim (A)			26,22,45,294	- 3,08,48,756	23,13,96,539	82,82,960	22,31,13,579	-
B. Exclusions								
B.1 Items not claimed								
1	Combustion Modification for Nox Control							
1.1	Combustion Modification Package-Unit#3	OMMPP/ NTPC ELECTRICITY LIMITED	7,52,885	-	7,52,885	7,52,885	-	-
1.2	Combustion Modification Package-Unit#4	OMMPP/ NTPC ELECTRICITY LIMITED	7,52,885	-	7,52,885	7,52,885	-	-
Subtotal(B.1)			15,05,771	-	15,05,771	15,05,771	-	-
B.2 Capitalization of Capital Spares			13,97,86,793	0	13,97,86,793	89,15,106.41	13,08,71,686	-
B.3 Decap of MBOAs: Not Part of Capital Cost			-	-	-	-	-	-
B.4 Decap of Spares: Not Part of Capital Cost			- 25,46,899	-	- 25,46,899	-	- 25,46,899	-
B.5 Ind AS Adjustment								
1	Overhauling		9,77,725.00	- 9,77,725.00	-	-	-	-
2	Decap of OH Assets		- 12,43,82,230.37	12,43,82,230.37	-	-	-	-
Subtotal(B.2)			- 12,34,04,505	12,34,04,505	-	-	-	-
Total Exclusion Claimed (B)			1,53,41,159	12,34,04,505	13,87,45,664	1,04,26,577	12,83,19,087	-
Grand Total (A+B)			27,75,86,453	9,25,58,750	37,01,42,203	1,87,03,837	35,14,38,366	-

(Petitioner)

परिमल पीयूष/PARIMAL PIYUSH
अपर महाप्रबन्धक (वाणिज्यिक)
Addl. General Manager (Commercial)
एन टी पी सी लिमिटेड/NTPC LIMITED
EOC, A-8A, Sector-24, Noida-201301 (U.P.)

Summary of Gross Block reconciliation (2023-24)

Sr. No.	Particular	ST-I	ST-II	ST-III	TOTAL GROSS BLOCK (Rs)
1	Closing Gross Block as per Audited Balance Sheet 31.03.2024 (Ind-AS)	10,89,59,97,939	41,31,46,99,881	3,55,59,62,788	55,76,66,60,609
2	Opening Gross Block as per Audited Balance Sheet 01.04.2023 (Ind-AS)	9,27,49,01,585	40,74,70,40,617	2,24,22,68,048	52,26,42,10,250
3	Addition During the Year (1-2) (Ind-AS)	1,62,10,96,354	56,76,59,264	1,31,36,94,740	3,50,24,50,359
4	Ind-AS Adjustment	- 9,89,09,046	- 37,08,74,154	- 6,46,73,679	- 53,44,56,879
5	Addition During the Year (3+4) (IGAAP)	-11,79,23,204.92	- 37,08,74,154	- 6,46,73,680	- 55,34,71,040


(Petitioner)

परिमल पीयूष/PARIMAL PIYUSH
अपर महाप्रबन्धक (वाणिज्यिक)
Addl. General Manager (Commercial)
एन टी पी सी लिमिटेड/NTPC LIMITED
EOC, A-8A, Sector-24, Noida-201301 (U.P.)

		Year wise Statement of Additional Capitalisation after COD						Amount in Rs.	
Name of the Petitioner		NTPC Limited							
Name of the Generating Station		Rihand Super Thermal Power Station Stage-II							
Station COD		01-04-2006							
For Financial Year		2023-24							
Sl. No.	Head of Work /Equipment	Party Name	ACE Claimed (Actual for 2023-24)						
			Accrual basis as per Note-2 of BS	IND AS Adj	Accrual basis as per IGAAP	Un-discharged Liability included in col. 3	Cash basis	IDC included in col. 3	
1	2	2A	3	3A	3B=3+3A	4	5=3B-4	6	
A Claims									
A.1 Claimed Items									
1	2nd Raising of Mithari ash dyke lagoon-II	Budhega Mining & Construction Ltd.	1,04,27,274.95		1,04,27,275	24,24,474.44	80,02,800.51		
2	3rd raising of Mithari Ash Dyke-I	National Prestige Construction Co	4,431.55		4,432		4,431.55		
3	Upgradation of HMI System	Bharat Heavy Electricals Limited	3,55,95,089.87	3,87,012.53	3,59,82,102	30,13,277.00	3,29,68,825.40		
4	Augmentation of the Fire Detection and Protection System (CHP)	Thermosystems Pvt. Ltd.	2,52,72,731.31		2,52,72,731	24,55,060.09	2,28,17,671.31		
Subtotal (A.1)			7,12,98,528	3,87,013	7,16,86,540	78,92,811	6,37,93,729	-	
A.2	Capitalization of MBOAs	Various Parties	3,47,654.00	-	3,47,654.00		3,47,654.00	-	
A.3	Decap of MBOAs: Part of Capital Cost		-	-	-	-	-	-	
A.4	Decap of Spares: Part of Capital Cost		1,37,88,427.76	4,35,62,150.70	5,76,50,578.46		5,76,50,578.46		
Total claim (A)			8,78,68,764	4,34,75,134	1,43,83,616	78,92,811	64,93,804	-	
B Exclusions									
B.1	Capitalization of Capital Spares		20,71,89,362		20,71,89,362.37	1,33,48,446	19,38,40,916.57		
B.2	Decap of MBOAs: Not Part of Capital Cost		-	-	-	-	-	-	
B.3	Decap of Spares: Not Part of Capital Cost		1,38,15,647	0.00	1,38,15,646.66		1,38,15,646.66		
B.4 Ind AS Adjustment									
1	Overhauling		44,56,62,268.50	-44,56,62,268.50					
2	Decap of CH Assets		11,82,63,252.18	11,82,63,252.18					
Subtotal(B.4)			32,73,99,016	32,73,99,016					
B.5	Inter Unit Transfer		-1,09,72,221.96		-1,09,72,221.96		-1,09,72,221.96		
1	Plant and Machinery (To Vrindhyachal)		(1,09,24,763.54)		(1,09,24,763.54)		(1,09,24,763.54)		
2	EDP, WP machines & SATCOM equipment (To WRHQ-II Raipur)		(47,458.42)		47,458.42		47,458.42		
Total Exclusion Claimed (B)			50,98,90,510	32,73,99,016	18,24,61,494	1,33,48,446	16,90,53,046	-	
Grand Total (A+B)			8,78,68,764	4,34,75,134	1,43,83,616	78,92,811	64,93,804	-	

परिमल पीयूष/PARIMAL PIYUSH
 अपर महाप्रबन्धक (वणिज्यिक)
 Addl. General Manager (Commercial)
 एन टी पी सी लिमिटेड/NTPC LIMITED
 EOC, A-8A, Sector-24, Noida-201301 (U.P.)

(Petitioner)

Summary of Issue involved in the petition

**PART 1
FORM-T**

Name of the Company :		NTPC Limited
Name of the Power Station :		Rihand Super Thermal Power Station Stage-II
1	Petitioner:	NTPC Limited
2	Subject	Truing-up of Tariff for 2019-24 period

- 3** **Prayer:**
- Approve revised tariff of Rihand Super Thermal Power Station Stage-II (2 X 500 MW) for the tariff period 2019-24 as per provision of Regulation 13 of Tariff Regulations 2019.
 - Approve supplementary tariff for Rihand Super Thermal Power Station Stage-II (2x500MW) on installation of Emission Control System for controlling Nox emissions.
 - Allow the Petitioner to recover the additional O&M cost for ash transportation.
 - Allow the reimbursement of water charges, capital spares, and security expenses for the instant station, as claimed by the Petitioner.
 - Pass any other order as it may deem fit in the circumstances mentioned above.

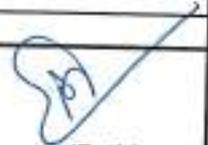
4 **Respondents**

Name of Respondents

- Uttar Pradesh Power Corp. Ltd. (UPPCL)
- Rajasthan Urja Vikas Nigam Limited (RUVNL)
- Tata Power Delhi Distribution Limited
- BSES Rajdhani Power Limited.
- BSES Yamuna Power Limited,
- Haryana Power Purchase Centre
- Haryana Power Purchase Centre
- Himachal Pradesh State Electricity Board Limited,
- Power Development Department
- Electricity Department of Chandigarh
- Uttarakhand Power Corporation Limited,

5 **Project Scope**

Capital Cost as on 01.04.2024 (Rs. Lakh)	299034.50				
Date of Station COD	01-04-2006				
Claim (Rs Lakh)	2019-20	2020-21	2021-22	2022-23	2023-24
AFC	52946.69	55017.83	55721.76	59975.36	68288.21
Capital Cost	295792.56	295739.59	296372.41	297848.47	299002.05
Initial spare	N/A				
NAPAF (Gen)	85%				
Any Specific					


(Petitioner)

परिमल पीयूष/PARIMAL PIYUSH
अपर महाप्रबन्धक (वाणिज्यिक)
Addl. General Manager (Commercial)
एन टी पी सी लिमिटेड/NTPC LIMITED
EOC, A-8A, Sector-24, Noida-201301 (U.P.)

**SUPPLEMENTARY TARIFF FILING FORMS
(THERMAL)**

**FOR DETERMINATION OF SUPPLEMENTARY TARIFF
OF**

Rihand Super Thermal Power Station Stage-II

(For ECS- DeNOx System for 2019-24 Period)

PART-I

APPENDIX-IA

परिमल पीयूष / PARIMAL PIYUSH
आपर नगरपालिका (व्यापारिक)
Add: General Manager (Commercial)
एन टी सी ली लिमिटेड / NTPC LIMITED
EOC, A-8A, Sector-24, Noida-201301 (U.P.)

Checklist of Main Tariff Forms and other information for supplementary tariff filing for Thermal Stations

Form No.	Title of Tariff Filing Forms (Thermal)	Tick
FORM- 1	Summary of Supplementary Tariff	✓
FORM -1 (I)	Statement showing claimed capital cost	✓
FORM -1 (II)	Statement showing Return on Equity	✓
FORM-2	Plant Characteristics	✓
FORM-3	Normative parameters considered for tariff computations	✓
FORM-3A	Statement showing O&M Expenses	✓
FORM-3B**	Statement of Special Allowance	NA
FORM- 4	Details of Foreign loans	NA
FORM- 4A	Details of Foreign Equity	NA
FORM-5	Abstract of Admitted Capital Cost for the existing Projects	NA
FORM- 6	Financial Package upto COD	NA
FORM- 7	Details of Project Specific Loans	NA
FORM- 8	Details of Allocation of corporate loans to various projects	NA
FORM-9A	Summary of Statement of Additional Capitalisation claimed during the period	✓
FORM-9	Statement of Additional Capitalisation after COD	✓
FORM- 10	Financing of Additional Capitalisation	NA
FORM- 11	Calculation of Depreciation on original project cost	✓
FORM- 12	Statement of Depreciation	✓
FORM- 13	Calculation of Weighted Average Rate of Interest on Actual Loans	✓
FORM- 14	Draw Down Schedule for Calculation of IDC & Financing Charges	NA
FORM- 15	Details of Fuel for Computation of Energy Charges	NA
FORM- OI	Computation of Supplementary Energy Charges	NA
FORM- 16	Details of Reagent for Computation of Energy Charge Rate	NA
FORM-17	Details of Capital Spares	NA
FORM- 18	Non-Tariff Income	NA
FORM-19	Details of Water Charges	NA
FORM-20	Details of Statutory Charges	NA

PART-I

List of Supporting Forms / documents for supplementary tariff filing for Thermal Stations

Form No.	Title of Tariff Filing Forms (Thermal)	Tick
FORM-A	Abstract of Capital Cost Estimates	NA
FORM-B	Break-up of Capital Cost for Coal/Lignite based projects	✓
FORM-C	Break-up of Capital Cost for Gas/Liquid fuel based Projects	NA
FORM-D	Break-up of Construction/Supply/Service packages	NA
FORM-E	Details of variables , parameters , optional package etc. for New Project	NA
FORM-F	Details of cost over run	NA
FORM-G	Details of time over run	NA
FORM -H	Statement of Additional Capitalisation during end of the useful life	NA
FORM -I	Details of Assets De-capitalised during the period	NA
FORM -J	Reconciliation of Capitalisation claimed vis-à-vis books of accounts	NA
FORM -K	Statement showing details of items/assets/works claimed under Exclusions	NA
FORM-L	Statement of Capital cost	✓
FORM-M	Statement of Capital Woks in Progress	✓
FORM-N	Calculation of Interest on Normative Loan	✓
FORM-O	Calculation of Interest on Working Capital	✓
FORM-OI	Additional Form	NA
FORM-P	Incidental Expenditure up to SCOD and up to Actual COD	NA
FORM-Q	Expenditure under different packages up to SCOD and up to Actual COD	NA
FORM-R	Actual cash expenditure	NA
FORM-S	Statement of Liability flow	✓
FORM-T	Summary of issues involved in the petition	✓

परिमल पीयूष/PARIMAL PIYUSH
 अपर भण्डारण अधिकारी (वाणिज्यिक)
 Addl. General Manager (Commercial)
 एन टी पी सी लिमिटेड /NTPC LIMITED
 EOC, A-8A, Sector-24, Noida-201301 (U.P.)

(Petitioner)

Summary of Supplementary Tariff (DeNOx System)

Name of the Petitioner: NTPC Ltd.

Name of the Generating Station: Rihand Super Thermal Power Station Stage-II

Amount in Rs. Lakhs

S. No.	Particulars	Unit	2021-22 (01.03.2022 to 31.3.2022)	2022-23	2023-24
1	2	3	4	5	6
1.1	Depreciation	Rs Lakh	44.83	61.98	79.13
1.2	Interest on Loan	Rs Lakh	45.70	60.70	72.79
1.3	Return on Equity	Rs Lakh	32.41	44.80	57.20
1.4	Interest on Working Capital	Rs Lakh	2.93	3.56	4.74
1.5	O&M Expenses	Rs Lakh	30.38	31.44	32.54
	Total	Rs Lakh	156.24	202.48	246.40

(Petitioner)

परिमल पीयूष/PARIMAL PIYUSH
अपर महाप्रबन्धक (वाणिज्यिक)
Addl. General Manager (Commercial)
एन टी पी सी लिमिटेड/NTPC LIMITED
EOC, A-8A, Sector-24, Noida-201301 (U.P.)

Name of the Petitioner: NTPC Ltd.
Name of the Generating Station: Rihand Super Thermal Power Station Stage-II

Amount in Rs. Lakhs

Statement showing claimed capital cost

S. No.	Particulars	2021-22 (01.03.2022 to 31.3.2022)	2022-23	2023-24
1	2	3	4	5
1	Opening Capital Cost	849.06	849.06	1498.64
2	Add: Addition during the year/period	-	-	-
3	Less: De-capitalisation during the year/period	-	-	-
4	Less: Reversal during the year / period	-	-	-
5	Add: Discharges during the year/ period	-	649.57	-
6	Closing Capital Cost	849.06	1498.64	1498.64
7	Average Capital Cost	849.06	1173.85	1498.64

Statement showing claimed capital cost eligible for RoE at SBI MCLR+350 basis points (A)

S. No.	Particulars	2021-22 (01.03.2022 to 31.3.2022)	2022-23	2023-24
1	2	3	4	5
	Capital Cost as on ODe of DeNOx system	849.06		
	Notional IDC	-		
	IEDC	-		
1	Opening Capital Cost	849.06	849.06	1,498.64
2	Add: Addition during the year / period	-	-	-
3	Less: De-capitalisation during the year / period			
4	Less: Reversal during the year / period			
5	Add: Discharges during the year / period	-	649.57	-
6	Closing Capital Cost	849.06	1498.64	1498.64
7	Average Capital Cost	849.06	1173.85	1498.64

(Petitioner)

परिमल पीयूष/PARIMAL PIYUSH
अपर महाप्रबन्धक (वाणिज्यिक)
Add. General Manager (Commercial)
एन टी पी सी लिमिटेड/NTPC LIMITED
EOC, A-BA, Sector-24, Noida-201301 (U.P.)

Name of the Petitioner: NTPC Ltd.
Name of the Generating Station: Rihand Super Thermal Power Station Stage-II

Statement showing Return on Equity at Normal Rate

Amount in Rs. Lakhs

S. No.	Particulars	2021-22 (01.03.2022 to 31.3.2022)	2022-23	2023-24
1	2	3	4	5
	Return on Equity			
1	Gross Opening Equity (Normal)	254.72	254.72	449.59
2	Less: Adjustment in Opening Equity			
3	Adjustment during the year			
4	Net Opening Equity (Normal)	254.72	254.72	449.59
5	Add: Increase in equity due to addition during the year / period	-	-	-
7	Less: Decrease due to De-capitalisation during the year / period	-	-	-
8	Less: Decrease due to reversal during the year / period	-	-	-
9	Add: Increase due to discharges during the year / period	-	194.87	-
10	Net closing Equity (Normal)	254.72	449.59	449.59
11	Average Equity (Normal)	254.72	352.15	449.59
12	Rate of ROE (%)	12.723%	12.723%	12.723%
13	Total ROE	32.41	44.80	57.20


(Petitioner)

परिमल पीयूष/PARIMAL PIYUSH
अपर महाप्रबन्धक (वाणिज्यिक)
Addl. General Manager (Commercial)
एन टी पी सी लिमिटेड/NTPC LIMITED
EOC, A-8A, Sector-24, Noida-201301 (U.P.)

Plant Characteristics

Name of the Petitioner	NTPC Ltd.	
Name of the Generating Station	Rihand Super Thermal Power Station Stage-II	
Unit(s)/Block(s)/Parameters	Unit-I	Unit-II
Installed Capacity (MW)	500	500
Environmental Regulation related features	Combustion Modification	
Reagent	NA	
Date of Operation for Tariff (ODe)	01-03-2022	01-03-2022
Auxiliary Energy Consumption for emission control system (Design) (kW)*	NA	
 (Petitioner)		

परिमल पीयूष/PARIMAL PIYUSH
 अपर महाप्रबन्धक (वाणिज्यिक)
 Addl. General Manager (Commercial)
 एन टी पी सी लिमिटेड/NTPC LIMITED
 EOC, A-8A, Sector-24, Noida-201301 (U.P.)

Normative parameters considered for supplementary tariff computations

Name of the Petitioner:		NTPC Ltd.			
Name of the Generating Station:		Rihand Super Thermal Power Station Stage-II			
(Year Ending March)					
Particulars	Unit	Existing 2018-19	2021-22 (01.03.2022 to 31.3.2022)	2022-23	2023-24
1	2	3	6	7	4
Base Rate of Return on Equity	%	NA	10.50%	10.50%	10.50%
Effective Tax Rate	%		17.472%	17.472%	17.472%
Target Availability					
In High Demand Season					
Peak Hours			85.00%	85.00%	85.00%
Off-Peak Hours			85.00%	85.00%	85.00%
In Low Demand Season(Off-Peak)					
Peak Hours			85.00%	85.00%	85.00%
Off-Peak Hours			85.00%	85.00%	85.00%
Auxiliary Energy Consumption	%		6.25	6.25	6.25
Auxiliary Energy Consumption for emission control system (Design)	%				
Rate of Interest on Working Capital	%		10.50	10.50	12.00
O&M Expenses	% of Capital Cost				2
Maintenance Spares for WC	% of O&M				20.00%
Receivables for WC	in Days				45
Units	Date from which tariff is claimed				
Unit-I	01-03-2022				
Unit-II	01-03-2022				

(Petitioner)

परिमल पीयूष/PARIMAL PIYUSH
अपर महाप्रबन्धक (वाणिज्यिक)
Addl. General Manager (Commercial)
एन टी पी सी लिमिटेड/NTPC LIMITED
EOC, A-8A, Sector-24, Noida-201301 (U.P.)

Part-I FORM-3A ADDITIONAL FORM				
Calculation of O&M Expenses				
Name of the Company :		NTPC Ltd.		
Name of the Power Station :		Rihand Super Thermal Power Station Stage-II		
Amount in Rs. Lakhs				
S.No	Particulars	2021-22 (01.03.2022 to 31.3.2022)	2022-23	2023-24
1	2	3	4	5
1	O&M expenses under Reg.35(1)(7)			
1a	Normative O&M expenses- ECS	30.38	31.44	32.54
	Total O&M Expenses	30.38	31.44	32.54
 (Petitioner)				

परिमल पीयूष/PARIMAL PIYUSI
 अपर महाप्रबन्धक (वाणिज्यिक)
 Addl. General Manager (Commercial)
 एन टी पी सी लिमिटेड/NTPC LIMITED
 EOC, A-8A, Sector-24, Noida-201301 (U.F)

PART-I
FORM- 9A
Additional Form

Year wise Statement of Additional Capitalisation after COD

Name of the Petitioner		NTPC Ltd.		
Name of the Generating Station		Rihand Super Thermal Power Station Stage-II		
For Financial Year		Summary		
		Amount in Rs Lakh		
Sl. No.	Head of Work /Equipment	ACE Claimed (Actual)		
		2021-22 (01.03.2022 to 31.3.2022)	2022-23	2023-24
1	2	3	3	4
1	Combustion Modification System Unit 1	-	-	-
2	Combustion Modification System Unit 2	-	-	-
Total Add Cap		-	-	-
5	Discharge of Liabilities	-	649.57	-
Total Add. Cap. Claimed including discharge of liabilities		-	649.57	-

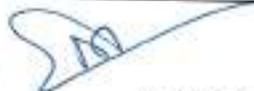

(Petitioner)

परिमल पीयूष/PARIMAL PIYUSH
अपर महाप्रबन्धक (वाणिज्यिक)
Addl. General Manager (Commercial)
एन टी पी सी लिमिटेड/NTPC LIMITED
EOC, A-8A, Sector-24, Noida-201301 (U.P.)

Year wise Statement of Additional Capitalisation after COD

Name of the Petitioner	NTPC Ltd.
Name of the Generating Station	Rihand Super Thermal Power Station Stage-II
For Financial Year	2021-22

Sl. No.	Head of Work /Equipment	ACE Claimed (Actual)				Regulations under which claimed	Justification	Admitted Cost by the Commission, if any
		Accrual basis as per IGAAP	Un-discharged Liability included in col. 3	Cash basis	IDC included in col. 3			
1	2	3	4	5= (3-4)	6	7	8	9
1	Combustion Modification System Unit 1							
2	Combustion Modification System Unit 2							
3	Discharge of liabilities							
	Total	-	-	-	-			



(Petitioner)

परिमल पीयूष/PARIMAL PIYUSH
अपर महाप्रबन्धक (वाणिज्यिक)
Addl. General Manager (Commercial)
एन टी पी सी लिमिटेड/NTPC LIMITED
EOC, A-8A, Sector-24, Noida-201301 (U.P.)

Year wise Statement of Additional Capitalisation after COD

Name of the Petitioner		NTPC Ltd.						
Name of the Generating Station		Rihand Super Thermal Power Station Stage-II						
For Financial Year		2022-23						
Sl. No.	Head of Work /Equipment	Accrual basis as per IGAAP	ACE Claimed (Actual)			Regulations under which claimed	Justification	Admitted Cost by the Commission, if any
			Un-discharged Liability included in col. 3	Cash basis	IDC included in col. 3			
1	2	3	4	5= (3-4)	6	7	8	9
1	Combustion Modification System Unit 1	15.06	15.06	-	0			
2	Combustion Modification System Unit 2							
3	Discharge of liabilities			649.57		25(1)(f)	Discharge of liabilities of works already admitted/ claimed. Hon'ble Commission may be pleased to allow the same	
	Total	15.06	15.06	649.57	-			

(Petitioner)

परिमल पीयूष/PARIMAL PIYUSH
अपर महाप्रबन्धक (वाणिज्यिक)
Addl. General Manager (Commercial)
एन टी पी सी लिमिटेड/NTPC LIMITED
EOC, A-8A, Sector-24, Noida-201301 (U.P.)

Year wise Statement of Additional Capitalisation after COD

Name of the Petitioner		NTPC Ltd.						
Name of the Generating Station		Rihand Super Thermal Power Station Stage-II						
For Financial Year		2023-24						
Sl. No.	Head of Work /Equipment	ACE Claimed (Actual)				Regulations under which claimed	Justification	Admitted Cost by the Commission, if any
		Accrual basis as per IGAAP	Un-discharged Liability included in col. 3	Cash basis	IDC included in col. 3			
1	2	3	4	5= (3-4)	6	7	8	9
1	Combustion Modification System Unit 1							
2	Combustion Modification System Unit 2							
3	Discharge of liabilities			-				
	Total	-	-	-	-			



(Petitioner)

परिमल पीयूष/PARIMAL PIYUSH
 अपर महाप्रबन्धक (वाणिज्यिक)
 Addl. General Manager (Commercial)
 एन टी पी सी लिमिटेड/NTPC LIMITED
 EOC, A-8A, Sector-24, Noida-201301 (U.P.)

Calculation of Depreciation										
Name of the Person		NTPC Limited								
Name of the Generating Station		Rihand Super Thermal Power Station Stage-II								
		2022				2023				Amount/ Rs Lakh
S.No.	Name of the Asset	Depreciation Rates as per CDR's Depreciation Rate Schedule	Gross Block as on 01.03.2022	Depreciation	Gross Block as on 01.04.2022	Depreciation	Gross Block as on 01.04.2023	Depreciation	Gross Block as on 01.04.2024	Depreciation
2	Plant & Machinery	5.25%	1,518.99	80.20	1,518.99	80.20	1,534.05	81.30	1,534.05	81.00
3	Cooling Towers & CW Systems	8.25%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	Air conditioning	5.25%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	Chimney	5.25%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	Main Plant Building	3.34%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	Ash Cycle/Disposal Area	5.25%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	S-Yard	5.25%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	Raw Water Reservoir	5.25%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10	MCR & Wagons	5.25%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	Locomotive	9.50%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12	Residential Building	3.34%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
13	Water Treatment Plant	5.25%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
14	Stores	5.25%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15	Furniture & Fixtures OFFICE	5.25%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
16	Office Equipment	5.25%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
17	Other MSDs / T&P	5.25%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
18	RDW, WP & GATCOM	15.00%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
19	Construction equipment	8.25%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
20	Temp. Constructions	100.00%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
20	Central Repair/Workshop	5.25%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
21	Road/Bridge	3.34%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22	Software	15.00%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
23	Water Supply Damages	5.25%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
24	5 km Scheme	5.25%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
25	Hospital Equipment	5.25%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
26	Venue	3.00%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total		1,518.99	80.20	1,518.99	80.20	1,534.05	81.30	1,534.05	81.30
	Weighted Average Rate of Depreciation (%)			5.2800%		5.2800%		5.2800%		5.2800%

परिमल पीयूष/PARIMAL PIYUSH
 अपर महाप्रबन्धक (वाणिज्यिक)
 Addl. General Manager (Commercial)
 एन टी पी सी लिमिटेड/NTPC LIMITED
 EOC, A-8A, Sector-24, Noida-201301 (U.P.)

Statement of Depreciation

Name of the Company :		NTPC Ltd.		
Name of the Power Station :		Rihand Super Thermal Power Station Stage-II (Amount in Rs Lakh)		
S. No.	Particulars	2021-22 (01.03.2022 to 31.3.2022)	2022-23	2023-24
1	2	4	5	6
1	Opening Capital Cost	849.06	849.06	1,498.64
2	Closing Capital Cost	849.06	1,498.64	1,498.64
3	Average Capital Cost	849.06	1,173.85	1,498.64
5	Rate of depreciation (%)	5.28%	5.28%	5.28%
6	Depreciable value	764.16	1,056.46	1,348.77
8	Remaining depreciable value	764.16	1,052.66	1,282.99
9	Depreciation (for the period)	3.81	61.98	79.13
10	Depreciation (annualised)	44.83	61.98	79.13
11	Cumulative depreciation at the end of the period	3.81	65.79	144.91
12	Less: Cumulative depreciation adjustment on account of undischarged liabilities deducted as on 01.04.2009	-	-	-
13	Add: Cumulative depreciation adjustment on account of liability Discharge	-	-	-
14	Less: Cumulative depreciation adjustment on account of de-capitalisation	-	-	-
12	Net Cumulative depreciation at the end of the period after adjustments	3.81	65.79	144.91

(Petitioner)

परिमल पीयूष/PARIMAL PIYUSH
अपर महाप्रबन्धक (वाणिज्यिक)
Addl. General Manager (Commercial)
एन टी पी सी लिमिटेड/NTPC LIMITED
EOC, A-8A, Sector-24, Noida-201301 (U.P.)

PART-I FORM-B						
Break-up of Capital Cost for New Coal/Lignite based projects						
Name of the Petitioner			NTPC Limited			
Name of the Generating Station			Rihand Super Thermal Power Station Stage-II			
(Amount in Rs. Lakh)						
Sl. No.	Break Down	As per Investment Approval	Capitalisation as on Unit-III DeNOx System Capitalization i.e. as on 1.3.2022 (cash basis)	Liabilities/ Provisions corresponding to (4)	Specific Reasons for Variation*	Anticipated expenditure upto cut-off date
(1)	(2)	(3)	(4)	(5)	(6)	(10)
1	Cost of Land & Site Development					
1.1	Land*					
	Total Land & Site Development	0.00	-	-		-
2	Plant & Equipment					
2.1	Combustion Modification Package		849.06	669.83		
	Total Plant & Equipment	-	849.06	669.83		-
2.6	Taxes & Duties					
	Total Capital cost excluding IDC & FC	0.00	849.06	669.83		-
8	IDC, FC, FERV & Hedging Cost					
8.1	Interest During Construction (IDC)		-	-		-
8.2	Financing Charges (FC)		-	-		-
8.3	Foreign Exchange Rate Variation (FERV)		-	-		-
8.4	Hedging Cost		-	-		-
	Total of IDC, FC, FERV & Hedging Cost	-	-	-		-
9	Working Capital Margin					
10	Capital cost including IDC, FC, FERV & Hedging Cost	-	849.06	669.83		-


(Petitioner)

परिमल पीयूष/PARIMAL PIYUSH
अपर महाप्रबन्धक (वाणिज्यिक)
Addl. General Manager (Commercial)
एन टी पी सी लिमिटेड/NTPC LIMITED
EOC, A-8A, Sector-24, Noida-201301 (U.P.)

Statement of Capital cost

Name of the Petitioner	NTPCLimited
Name of the Generating Station	Rihand Super Thermal Power Station Stage-II
COD	01-04-2008
For Financial Year	2021-24

Sl. No.	Particulars	01.03.2022-31.03.2022			01.04.2022-31.03.2023			01.04.2023-31.03.2024		
		Accrual Basis	Un-discharged Liabilities	Cash Basis	Accrual Basis	Un-discharged Liabilities	Cash Basis	Accrual Basis	Un-discharged Liabilities	Cash Basis
A	a) Opening Gross Block Amount as per books	1,518.99	669.93	849.06	1,518.99	669.93	849.06	1,534.05	35.41	1,498.64
	b) Amount of IDC in A(a) above	-	-	-	-	-	-	-	-	-
	c) Amount of FC in A(a) above	-	-	-	-	-	-	-	-	-
	d) Amount of FERV in A(a) above	-	-	-	-	-	-	-	-	-
	e) Amount of Hedging Cost in A(a) above	-	-	-	-	-	-	-	-	-
	f) Amount of IEDC in A(a) above	-	-	-	-	-	-	-	-	-
B	a) Addition in Gross Block Amount during the period (Direct purchases)	-	-	-	-	-	-	-	-	-
	b) Amount of IDC in B(a) above	-	-	-	-	-	-	-	-	-
	c) Amount of FC in B(a) above	-	-	-	-	-	-	-	-	-
	d) Amount of FERV in B(a) above	-	-	-	-	-	-	-	-	-
	e) Amount of Hedging Cost in B(a) above	-	-	-	-	-	-	-	-	-
	f) Amount of IEDC in B(a) above	-	-	-	-	-	-	-	-	-
C	a) Addition in Gross Block Amount during the period (Transferred from CWP)	-	-	-	15.06	15.06	-	-	-	-
	b) Amount of IDC in C(a) above	-	-	-	-	-	-	-	-	-
	c) Amount of FC in C(a) above	-	-	-	-	-	-	-	-	-
	d) Amount of FERV in C(a) above	-	-	-	-	-	-	-	-	-
	e) Amount of Hedging Cost in C(a) above	-	-	-	-	-	-	-	-	-
	f) Amount of IEDC in C(a) above	-	-	-	-	-	-	-	-	-
D	a) Deletion in Gross Block Amount during the period	-	-	-	-	-	-	-	-	-
	b) Amount of IDC in D(a) above	-	-	-	-	-	-	-	-	-
	c) Amount of FC in D(a) above	-	-	-	-	-	-	-	-	-
	d) Amount of FERV in D(a) above	-	-	-	-	-	-	-	-	-
	e) Amount of Hedging Cost in D(a) above	-	-	-	-	-	-	-	-	-
	f) Amount of IEDC in D(a) above	-	-	-	-	-	-	-	-	-
E	a) Closing Gross Block Amount as per books	1,518.99	669.93	849.06	1,534.05	35.41	1,498.64	1,534.05	35.41	1,498.64
	b) Amount of IDC in E(a) above	-	-	-	-	-	-	-	-	-
	c) Amount of FC in E(a) above	-	-	-	-	-	-	-	-	-
	d) Amount of FERV in E(a) above	-	-	-	-	-	-	-	-	-
	e) Amount of Hedging Cost in E(a) above	-	-	-	-	-	-	-	-	-
	f) Amount of IEDC in E(a) above	-	-	-	-	-	-	-	-	-

(Petitioner)

परिमल पीयूष/PARIMAL PIYUSH
अपर महाप्रबन्धक (वाणिज्यिक)
Addl. General Manager (Commercial)
एन टी पी सी लिमिटेड/NTPC LIMITED
EOC, A-8A, Sector-24, Noida-201301 (U.P.)

Statement of Capital Works in Progress

Name of the Petitioner		NTPC Limited								
Name of the Generating Station		Rihand Super Thermal Power Station Stage-II								
COD		01-04-2006								
For Financial Year		2021-24								
Sl. No.	Particulars	01.10.2022-31.03.2022			01.04.2022-31.03.2023			01.04.2023-31.03.2024		
		Accrual Basis	Un-discharged Liabilities	Cash Basis	Accrual Basis	Un-discharged Liabilities	Cash Basis	Accrual Basis	Un-discharged Liabilities	Cash Basis
A	a) Opening CWP as per books	-	-	-	-	-	-	-	-	-
	b) Amount of IDC in A(a) above	-	-	-	-	-	-	-	-	-
	c) Amount of FC in A(a) above	-	-	-	-	-	-	-	-	-
	d) Amount of FERV in A(a) above	-	-	-	-	-	-	-	-	-
	e) Amount of Hedging Cost in A(a) above	-	-	-	-	-	-	-	-	-
	f) Amount of IEDC in A(a) above	-	-	-	-	-	-	-	-	-
B	a) Addition in CWP during the period	-	-	-	15.06	-	15.06	-	-	-
	b) Amount of IDC in B(a) above	-	-	-	-	-	-	-	-	-
	c) Amount of FC in B(a) above	-	-	-	-	-	-	-	-	-
	d) Amount of FERV in B(a) above	-	-	-	-	-	-	-	-	-
	e) Amount of Hedging Cost in B(a) above	-	-	-	-	-	-	-	-	-
	f) Amount of IEDC in B(a) above	-	-	-	-	-	-	-	-	-
C	a) Transferred to Gross Block Amount during the period	-	-	-	15.06	-	15.06	-	-	-
	b) Amount of IDC in C(a) above	-	-	-	-	-	-	-	-	-
	c) Amount of FC in C(a) above	-	-	-	-	-	-	-	-	-
	d) Amount of FERV in C(a) above	-	-	-	-	-	-	-	-	-
	e) Amount of Hedging Cost in C(a) above	-	-	-	-	-	-	-	-	-
	f) Amount of IEDC in C(a) above	-	-	-	-	-	-	-	-	-
D	a) Deletion in CWP during the period	-	-	-	-	-	-	-	-	-
	b) Amount of IDC in D(a) above	-	-	-	-	-	-	-	-	-
	c) Amount of FC in D(a) above	-	-	-	-	-	-	-	-	-
	d) Amount of FERV in D(a) above	-	-	-	-	-	-	-	-	-
	e) Amount of Hedging Cost in D(a) above	-	-	-	-	-	-	-	-	-
	f) Amount of IEDC in D(a) above	-	-	-	-	-	-	-	-	-
E	a) Closing CWP as per books	-	-	-	-	-	-	-	-	-
	b) Amount of IDC in E(a) above	-	-	-	-	-	-	-	-	-
	c) Amount of FC in E(a) above	-	-	-	-	-	-	-	-	-
	d) Amount of FERV in E(a) above	-	-	-	-	-	-	-	-	-
	e) Amount of Hedging Cost in E(a) above	-	-	-	-	-	-	-	-	-
	f) Amount of IEDC in E(a) above	-	-	-	-	-	-	-	-	-

(Petitioner)

परिमल पीयूष/PARIMAL PIYUSH
अपर महाप्रबन्धक (व्यावसायिक)
Addl. General Manager (Commercial)
एन टी पी सी लिमिटेड/NTPC LIMITED
EOC, A-8A, Sector-24, Noida-201301 (U.P.)

Calculation of Interest on Normative Loan

Name of the Company :		NTPC Ltd.		
Name of the Power Station :		Rihand Super Thermal Power Station Stage-II		
(Amount in Rs Lakh)				
S. No.	Particulars	2021-22 (01.03.2022 to 31.3.2022)	2022-23	2023-24
1	2	4	5	6
1	Gross Normative loan – Opening	594.34	594.34	1,049.04
2	Cumulative repayment of Normative loan up to previous year	0.00	3.81	65.79
3	Net Normative loan – Opening	594.34	590.54	983.26
4	Add: Increase due to addition during the year / period	-	-	-
5	Less: Decrease due to de-capitalisation during the year / period	-	-	-
6	Less: Decrease due to reversal during the year / period	-	-	-
7	Add: Increase due to discharges during the year / period	-	454.70	-
8	Less: Repayment of Loan	3.81	61.98	79.13
9	Net Normative loan - Closing	590.54	983.26	904.13
10	Average Normative loan	592.44	788.90	943.69
11	Weighted average rate of interest	7.71%	7.71%	7.71%
12	Interest on Loan	45.70	60.70	72.79



(Petitioner)

परिमल पीयूष/PARIMAL PIYUSH
अपर महाप्रबन्धक (वाणिज्यिक)
Addl. General Manager (Commercial)
एन टी पी सी लिमिटेड/NTPC LIMITED
EOC, A-8A, Sector-24, Noida-201301 (U.P.)

Calculation of Interest on Working Capital

Name of the Company :		NTPC Ltd.			
Name of the Power Station :		Rihand Super Thermal Power Station Stage-II			
(Amount in Rs Lakh)					
S. No.	Particulars		2021-22 (01.03.2022 to 31.3.2022)	2022-23	2023-24
1	2		4	5	6
	No of days		365	365	366
1	Cost of Limestone/Reagent toward stock	20 days	-	-	-
2	Cost of Limestone/Reagent toward generation	30 days	-	-	-
3	Receivables	45 days	19.28	24.96	30.30
4	O & M Expenses	1 month	2.53	2.62	2.71
5	Maintenance Spares	@20%	6.08	6.29	6.51
6	Total Working Capital	Rs. Lakh	27.87	33.87	39.52
7	Rate of Interest	%	10.50%	10.50%	12.00%
8	Interest on Working Capital	Rs. Lakh	2.93	3.56	4.74
(Petitioner)					


परिमल पीयूष / PARIMAL PIYUSH
 अपर महाप्रबन्धक (वाणिज्यिक)
 Addl. General Manager (Commercial)
 एन टी सी लिमिटेड / NTPC LIMITED
 EOC, A-8A, Sector-24, Noida-201301 (U.P.)

Flow of Capital liabilities										Part-I
Name of the Generating Station										Figm-5
Rihand Super Thermal Power Station Stage-III										Amount in Rs.
Sr. No.	Name of the Party	Name of the work	Year of creation of liability capitalised in Gross Block	Undischarged liabilities relating to GB 01.04.2021	liability in additional capitalisation for 2021-22	Contractors ERV updation	Discharge during the year 2021-22		Total discharge	Undischarged liabilities relating to GB 31.03.2022
							By Payment	By Reversal		
(1)	(2)	(3)	(4)	(5)						
1	Bharat Heavy Electronics Limited	Combustion Modification Package	01.03.2022-31.03.2022	-	6,69,92,572	-	-	-	-	6,69,92,572
2	Bharat Heavy Electronics Limited	Combustion Modification Package	01.04.2022-31.03.2023	-	-	-	-	-	-	-
					6,69,92,572	-	-	-	-	6,69,92,572


(Positioner)

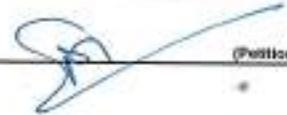
परिमल पीयूष/PARIMAL PIYUSH
अपर महाप्रबन्धक (वाणिज्यिक)
Addl. General Manager (Commercial)
एन टी पी सी लिमिटेड/NTPC LIMITED
EOC, A-8A, Sector-24, Noida-201301 (U.P.)

Part-I Form-8 Amount in Rs.										
Flow of Capital liabilities		Rihand Super Thermal Power Station Stage-I								
Name of the Generating Station										
Sr. No.	Name of the Party	Name of the work	Year of creation of liability capitalised in Gross Block	Undischarged liabilities relating to GB 01.04.2022	liability in additional capitalisation for 2022-23	Contractors ERV updation	Discharge during the year 2022-23		Total discharge	Undischarged liabilities relating to GB 31.03.2023
							By Payment	By Reversal		
(1)	(2)	(3)	(4)	(11)						
1	Bharat Heavy Electricals Limited	Combustion Modification Package	01.03.2022-31.03.2022	8,69,92,572	-	-	6,49,57,265	-	6,49,57,265	20,35,307
2	Bharat Heavy Electricals Limited	Combustion Modification Package	01.04.2022-31.03.2023	-	15,05,770	-	-	-	-	15,05,770
				8,69,92,572	15,05,770	-	6,49,57,265	-	6,49,57,265	35,41,078


(Petitioner)

परिमल पीयूष/PARIMAL PIYUSH
अपर महाप्रबन्धक (वाणिज्यिक)
Addl. General Manager (Commercial)
एन टी पी सी लिमिटेड/NTPC LIMITED
EOC, A-8A, Sector-24, Noida-201301 (U.P.)

Flow of Capital liabilities										Part-I
Name of the Generating Station										Form-S
Rihand Super Thermal Power Station Stage-II										Amount in Rs.
Sr. No.	Name of the Party	Name of the work	Year of creation of liability capitalised in Gross Block	Undischarged liabilities relating to GB 01.04.2023	liability in additional capitalisation for 2023-24	Contractors ETV updation	Discharge during the year 2023-24		Total discharge	Undischarged liabilities relating to GB 31.03.2024
							By Payment	By Reversal		
(1)	(2)	(3)	(4)	(11)						
1	Bharat Heavy Electricals Limited	Combustion Modification Package	01.03.2022-31.03.2022	20,35,307	-	-	-	-	-	20,35,307
2	Bharat Heavy Electricals Limited	Combustion Modification Package	01.04.2022-31.03.2023	15,05,770	-	-	-	-	-	15,05,770
				35,41,076	-	-	-	-	-	35,41,076



(Petitioner)

परिमल पीयूष/PARIMAL PIYUSH
 अपर महाप्रबन्धक (वाणिज्यिक)
 Addl. General Manager (Commercial)
 एन टी पी सी लिमिटेड/NTPC LIMITED
 EOC, A-BA, Sector-24, Noida-201301 (U.P.)

AUDITOR CERTIFICATE

Station:	Rihand Super Thermal Power Station	
Month:	Apr-2022 to Mar-2023	
S. No	Details	Amount (in Rs.)
1	Cumulative Ash transportation expenditure incurred (as per MOEF&CC Notification dt. 31.12.2021) including any adjustments in respect of any prior months. Such expenditure shall include liability, if any. (X)	1,181,027,313
2A	Opening balance of ash sale revenue as on 01.04.2022 (O)	0.00
2B	Cumulative Ash sale revenue / proceeds received including any adjustments in respect of any prior months. (Y)	549433
3	Cumulative Net Ash transportation expenses of Station (Z= X-Y-O)	1180477879
4	Billable Cumulative ash transportation expenses of Station (A = Z * F * 0.9)	1055607059

RHTPS-1

5.1	Billable Cumulative Ash transportation expenses of Commercial Stage (C = A * Cum SG Commercial stage / Cum SG station)	321,960,804
6.1	Cumulative Ash transportation expenses billed to beneficiary N	$B_N = \text{Cum SG}_{\text{beneficiary N}} / \text{Cum SG}_{\text{commercial stage}} * [C]$
	AJMER	8,223,236
	AVVNL-NSM	3,210,680
	BRPL	22,556,306
	HARYANA	21,207,093
	HPSEB	12,870,046
	JAIPUR	12,070,098
	JDVVNL-NSM	4,088,332
	JODHPUR	10,469,795
	JVVNL-NSM	4,712,319
	MP	1,246,847
	NCR NVVN COAL	15,927,799
	NDMC	375,681
	NDPL	10,181,169
	NVVN-BPDB	8,282,740
	PDD J&K	25,342,688
	PGRH	267,400
	PUNJAB	36,270,565
	UP	106,343,960
	UPPCL-NSM	1,830,345
	UTCHD	3,218,332
	UTTARAKHAND	13,265,375


 अधीन सहायक-प्रबन्ध (व्यापारिक)
 Adil, General Manager (Commercial)
 ए. टी. डी. लि. राबि/MPCL LIMITED

RHTPS-2		
5.1	Billable Cumulative Ash transportation expenses of Commercial Stage (C = A * Cum SG Commercial stage / Cum SG station)	378,967,176
6.1	Cumulative Ash transportation expenses billed to beneficiary N	$B_N = \text{Cum SG}_{\text{beneficiaryN}} / \text{Cum SG}_{\text{commercial stage}} * [C]$
	AJMER	10,162,833
	AVVNL-NSM	4,075,781
	BRPL	21,282,746
	BYPL	12,491,064
	HARYANA	21,770,752
	HPSEB	15,057,643
	JAIPUR	14,920,522
	JDVVNL-NSM	5,192,461
	JODHPUR	12,945,742
	JVVNL-NSM	5,983,547
	MP	1,534,583
	NCR NVVN COAL	20,303,425
	NDMC	483,762
	NDPL	15,063,382
	NVVN-BPDB	5,825,016
	PDD J&K	38,502,462
	PUNJAB	39,502,111
	UP	114,027,751
	UPPCL-NSM	2,356,044
	UTCHD	3,207,571
	UTTARAKHAND	14,277,981


 अणुप सहायक-मंडल (व्यापारिक)
 Addl. General Manager (Commercial)
 एन टी सी लिमिटेड/NTPC LIMITED

RHTPS-3		
5.1	Billable Cumulative Ash transportation expenses of Commercial Stage (C = A * Cum SG Commercial stage / Cum SG station)	354,679,079
6.1	Cumulative Ash transportation expenses billed to beneficiary N	$B_N = \text{Cum SG}_{\text{beneficiary N}} / \text{Cum SG}_{\text{commercial stage}} * [C]$
	AJMER	10,998,149
	AVVNL-NSM	4,234,702
	BRPL	28,133,412
	BYPL	19,568,814
	HARYANA	19,995,169
	HPSEB	13,023,390
	JAIPUR	16,156,595
	JDVVNL-NSM	5,396,453
	JODHPUR	14,014,337
	JVVNL-NSM	6,220,823
	MP	1,153,775
	NCR NVVN COAL	21,069,063
	NDMC	463,856
	PDD J&K	26,495,800
	PUNJAB	30,138,770
	UP	117,755,824
	UPPCL-NSM	2,457,583
	UTCHD	2,395,961
	UTTARAKHAND	15,006,608

For
Management (NTPC)

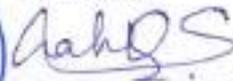


Thota Vinodh Kumar
General Manager (Finance)
Date: 25/05/2023



For
Diwanji and Associates

FRN : 100227



CMA Sweety Shah
(Partner)

M.No.: 45648

UDIN:2345648B2NYJMXOUYW



अध्यक्ष (अतिरिक्त)
Add. General Manager (Commercial)
एन टी पी लिमिटेड / NTPC LIMITED

AUDITOR CERTIFICATE

Station:	Rihand Super Thermal Power Station	
Month:	Apr-2023 to MAR 2024	
S. No	Details	Amount (in Rs.)
1	Cumulative Ash transportation expenditure incurred (as per MOEF&CC Notification dt 31.12.2021) including any adjustments in respect of any prior months. Such expenditure shall include liability, if any. (X)	2127718201
2A	Opening balance of ash sale revenue as on 01.04.2023 (O)	0.00
2B	Cumulative Ash sale revenue / proceeds received including any adjustments in respect of any prior months. (Y)	4409268
3	Cumulative Net Ash transportation expenses of Station (Z= X-Y-O)	2123308933
4	Billable Cumulative ash transportation expenses of Station (A = Z * F * 0.9)	1910978039
RHTPS-1		
5.1	Billable Cumulative Ash transportation expenses of Commercial Stage (C = A * Cum SG Commercial stage / Cum SG station)	65,42,54,581
6.1	Cumulative Ash transportation expenses billed to beneficiary N	$B_N = \text{Cum SG}_{\text{beneficiary N}} / \text{Cum SG}_{\text{Commercial stage}} * [C]$
	AJMER	1,76,59,772
	AVVNL-NSM	67,29,896
	BRPL	4,81,48,783
	GUJARAT	9,67,756
	HARYANA	4,38,70,272
	HPSEB	2,66,13,631
	JAIPUR	2,35,73,665
	JVVNL-NSM	82,19,908
	JODHPUR	2,15,63,789
	JVVNL-NSM	89,85,346
	MP	85,50,560
	NBPDCL - NTPC	54,416
	NCR NVVN COAL	3,18,15,339
	NOMC	1,37,432
	NDPL	2,07,80,128
	NVVN-BPOB	1,69,94,019
	PDD J&K	5,44,97,828
	PGRH	5,44,074
	PUNJAB	7,33,67,163
	SBPDCL - NTPC	63,878
	UP	20,13,19,748
	UPPCL-NSM	36,82,334
	UTCHD	80,37,959


 Addl. General Manager (Commercial)
 एन डी डी एनएस/NTPC LIMITED



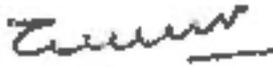
	UTTARAKHAND	3,01,06,885
RHTPS-2		
5.1	Billable Cumulative Ash transportation expenses of Commercial Stage (C = A * Cum SG Commercial stage / Cum SG station)	60,81,24,997
6.1	Cumulative Ash transportation expenses billed to beneficiary N	$B_N = \text{Cum SG}_{\text{beneficiary N}} / \text{Cum SG}_{\text{commercial stage}} * [C]$
	AJMER	1,70,33,916
	AVVNL-NSM	67,40,046
	BRPL	3,42,71,674
	BYPL	1,99,73,437
	GUJARAT	10,67,596
	HARYANA	3,55,50,694
	HPSEB	2,49,17,675
	JAIPUR	2,28,35,025
	JDVVNL-NSM	82,81,344
	JODHPUR	2,09,24,118
	JVVNL-NSM	90,37,010
	MP	57,62,383
	NBPDCL - NTPC	60,567
	NCR NVVN COAL	3,19,79,167
	NDMC	1,62,497
	NDPL	2,41,52,029
	NVVN-BPDB	94,08,256
	PDD J&K	6,51,24,543
	PUNJAB	6,30,13,641
	SBPDCL - NTPC	71,399
	UP	17,26,14,827
	UPPCL-NSM	37,01,294
	UTCHD	66,26,327
	UTTARAKHAND	2,49,15,632
RHTPS-3		
5.1	Billable Cumulative Ash transportation expenses of Commercial Stage (C = A * Cum SG Commercial stage / Cum SG station)	64,85,98,465
6.1	Cumulative Ash transportation expenses billed to beneficiary N	$B_b = \text{Cum SG}_{\text{beneficiary N}} / \text{Cum SG}_{\text{commercial stage}} * [C]$
	AJMER	2,11,14,953
	AVVNL-NSM	60,59,593
	BRPL	5,21,40,994
	BYPL	3,59,41,517
	GUJARAT	12,70,235
	HARYANA	3,78,55,257
	HPSEB	2,37,56,112


 Ashok Kumar (Commercial)
 Ashok Kumar (Commercial)
 Ashok Kumar (Commercial)



	JAI PUR	2,82,50,430
	JVVNL-NSM	98,80,398
	JODHPUR	2,58,65,803
	JVVNL-NSM	1,07,88,963
	MP	21,01,291
	NBPDCL - NTPC	69,143
	NCR NRVN COAL	3,81,87,408
	NDMC	1,84,491
	PDO J&K	5,19,48,373
	PUNJAB	5,54,97,034
	SBPDCL - NTPC	81,167
	UP	20,45,66,584
	UPPCL-NSM	44,19,841
	UTCHD	57,99,232.00
	UTTARAKHAND	3,08,19,646.00

For
Management (NTPC)



Thota Vinodh Kumar
General Manager (Finance)




अध्यक्ष (व्यवस्थापक)
Add. General Manager (Commercial)
एन टी सी लिमिटेड/NTPC LIMITED



S7-1200 and TIA portal software

- The S7-1200 is the successor of the S7-200. The S7-1200 is designed for and sold in the world-wide marketplace.
- The SIMATIC S7-200 products are declared phased-out products effective 10/01/2013. With their phase-out declaration, the products will still be available as new components for another year until 10/01/2014. After that, the products can be obtained as spare parts for an additional 9 years. For new applications, it is recommended to employ SIMATIC S7-1200 products with the configuration software STEP 7 Basic.
- The TIA portal with STEP 7 Basic programming (ordered separately from the hardware) is used for programming the S7-1200.
 - Provides LAD (Ladder diagram, FBD (Function Block Diagram), and SCL (Structured Control Language) programming editors.
 - STL (Statement List) programming is not supported.
 - Includes WinCC Basic for configuring HMI Basic panels.
 - No separate USB license stick is required. The software is automatically activated when installed.
- To move project files from one PC to another PC, use the Windows explorer and file compression to copy the project directory structure.

S7-1200 Agency approvals

- S7-1200 hardware has the necessary approvals for the US and European market.
- The S7-1200 has cFMus approval for hazardous locations:
The Factory Mutual Research (FM): Approval Standard Class Number 3600 and 3611
Approved for use in:
 - Class I, Division 2, Gas Group A, B, C, D, Temperature Class T3C, Ta = 60° C
 - Class I, Zone 2, IIC, Temperature Class T3, Ta = 60° C
- The S7-1200 hardware has cULus and CE approvals.


 अधिल जनरल मनेजर (कमर्शियल)
 Adil, General Manager (Commercial)
 एन टी सी लिमिटेड / NTPC LIMITED

MINISTRY OF ENVIRONMENT AND FORESTS
NOTIFICATION

New Delhi, the 3rd November, 2009

S.O. 2804(E).—WHEREAS, by notification of the Government of India in the Ministry of Environment and Forests number S.O. 763(E), dated the 14th September, 1999 (hereinafter referred to as the said notification) issued under sub-section (1), clause (v) of sub-section (2) of section 3 and section 5 of the Environment (Protection) Act, 1986 (29 of 1986), the Central Government, issued directions for restricting the excavation of top soil for manufacture of bricks and promoting the utilisation of fly ash in the manufacture of building materials and in construction activity within a specified radius of one hundred kilometers from coal or lignite based thermal power plants;

AND WHEREAS, the term “fly ash” means and includes all categories or groups of coal or lignite ash generated at the thermal power plant and collected by Electrostatic Precipitator (ESP) or bag filters or other similar suitable equipments; bottom ash is the ash collected separately at the bottom of the boiler; pond ash is the mixture of ESP Fly ash and bottom ash, but, for the purpose of this notification, the term “fly ash” means and includes all ash generated such as Electrostatic Precipitator (ESP) ash, dry fly ash, bottom ash, pond ash and mound ash as the objective is to utilise all the ashes;

AND WHEREAS, there is a need for restricting the excavation of top soil for manufacture of bricks and for other works which involve use of top soil and promoting utilisation of fly ash produced by coal or lignite based thermal power plants including captive power plants and co-generation plants in the manufacture of building materials and construction activity;

AND WHEREAS, it was observed that there was a gradual increase in the use of fly ash in the manufacture of fly ash bricks or products from about 1.5 million tonne in 2002-2003 to 3.19 million tonne in 2006-2007 which needs to be further encouraged for achieving the ultimate objective of conservation of top soil and minimise environmental pollution caused due to fly ash;

53


आर. ए. शर्मा (व्यवस्थापक)
AND General Manager (Commercial)
एन. टी. सी. लिमिटेड./NTPC LIMITED

AND WHEREAS, it is observed that construction agencies are yet to achieve their targets of utilization of fly ash based products even after the 31st August, 2007, the date prescribed for 100% utilisation of fly ash based products in the said notification of 1999 and it is also observed that many thermal power stations or plants are also yet to achieve the targets drawn up in their action plans;

AND WHEREAS, the representations of the brick kiln owners were considered with regard to transporting of fly ash over a long distance and also the logistics involved including the energy cost;

AND, WHEREAS, the issue has been examined by the Government of India in the Ministry of Environment and Forests;

AND WHEREAS, the Central Government is of the opinion that the said notification should be amended;

AND WHEREAS, clause (a) of sub-rule (3) of rule 5 of the Environment (Protection) Rules, 1986 provides that whenever the Central Government considers that prohibition or restrictions of any industry or carrying on any processes or operation in any area should be imposed, it shall give notice of its intention to do so;

AND WHEREAS, a draft of amendment to the Government of India, Ministry of Environment and Forests notification no. S.O.763 (E), dated the 14th September, 1999 duly amended vide notification No. S.O. 979 (E), dated the 27th August, 2003 (hereinafter referred to as the said notification) which the Central Government proposes to make under subsection (1) clause (v) of sub-section (2) of section 3 of the Environment (Protection) Act, 1986 (29 of 1986) read with clause (d) of sub-rule (3) of rule 5 of the Environment (Protection) Rules, 1986, were published in the Gazette of India, Extraordinary, Part II, Section 3, Sub-section (ii) dated the 6th November, 2008 vide S.O. 2623 (E), inviting objections and suggestions from all persons likely to be affected thereby before the expiry of sixty days from the date on which copies of the Gazette containing the said draft amendments were made available to the public.

AND WHEREAS, copies of the said Gazette were made available to the public on the day of 6th November 2008;

54


 अधीन प्रशासक (व्यापारिक)
 Add. General Manager (Commercial)
 एन सी ई आर सी लिमिटेड

AND WHEREAS, the objections and suggestions received from various persons or agencies likely to be affected thereby in respect of the said draft notification have been duly considered by the Central Government in the Ministry of Environment and Forests;

Now, therefore, in exercise of the powers conferred by sub-section (1) and clause (v) of sub-section (2) of section 3 of the Environment (Protection) Act, 1986 (29 of 1986) read with clause (d) of sub-rule (3) of rule 5 of the Environment (Protection) Rules, 1986, the Central Government hereby makes the following amendments to the said notification, namely: -

AMENDMENTS

1. Throughout the said notification, save as otherwise expressly provided and unless the context otherwise requires, for the word "ash" wherever it occurs, the words "fly ash" shall be substituted.

2. In the said notification, in paragraph 1,—

(a) for sub-paragraph (1), the following shall be substituted, namely:-

"(i) use of fly ash based products in construction activities";

(b) for sub-paragraphs (1A) and (1B), the following sub-paragraphs shall respectively be substituted, namely:-

"(1A) Every construction agency engaged in the construction of buildings within a radius of hundred kilometers from a coal or lignite based thermal power plant shall use only fly ash based products for construction, such as: cement or concrete, fly ash bricks or blocks or tiles or clay fly ash bricks, blocks or tiles or cement fly ash bricks or bricks or blocks or similar products or a combination or aggregate of them, in every construction project.

(1B) The provisions of sub-paragraph (1A) shall be applicable to all construction agencies of Central or State or Local Government and private or public sector and it shall be the responsibility of the agencies either undertaking construction or approving the design or both to ensure compliance of the provisions of sub-paragraph (1A) and to submit annual returns to the concerned State Pollution Control Board or Pollution Control Committee, as applicable";

(c) after sub-paragraph (1B), the following sub-paragraph shall be inserted, namely:—

55


 Adil Gansani (Commercial)
 Adl. General Manager (Commercial)
 P. O. @ AIRTEL/NTPC LIMITED

“(1C) Minimum fly ash content for building materials or products to qualify as “fly ash based products” category shall be as given in the Table I below:

Table I

Serial Number	Building Materials or Products	Minimum % of fly ash by weight
(1)	(2)	(3)
1.	Fly ash bricks, blocks, tiles, etc. made with fly ash, lime, gypsum, sand, stone dust etc. (without clay).	50% of total input materials
2.	Paving blocks, paving tiles, checker tiles, mosaic tiles, roofing sheets, pre-cast elements, etc. wherein cement is used as binder.	Usage of PPC (IS-1489: Part-1) or PSC (IS-455) or 15% of OPC (IS-269/8112/12269) content.
3.	Cement.	15% of total raw materials
4.	Clay based building materials such as bricks, blocks, tiles, etc.	25% of total raw materials.
5.	Concrete, mortar and plaster.	Usage of PPC (IS-1489: Part-1) or PSC (IS-455) or 15% of OPC (IS-269/8112/12269) content.

(d) in sub-paragraph (2), for the brackets and number “(1)”, the brackets, number and letter “(1C)” shall be substituted and the number of sub-paragraph (2) shall be substituted by 1(D);

(e) in paragraph (2A), the paragraph 1(A) shall be substituted by 1(A) and 1(B) and the amended paragraph 2(A) is to be numbered as 1(E);

(f) for sub-paragraphs (3) and (3A), the following sub-paragraphs shall respectively be substituted, namely:—

“(3) In case of non-availability of fly ash from thermal power plants in sufficient quantities as certified by the said power plants, within 100 km of the site, the stipulation under sub-paragraph (1A) shall be suitably modified (waived or relaxed) by the concerned State Government or Union territory Government level monitoring committee mentioned elsewhere in this notification.

(3A) A decision on the application for manufacture of fly ash bricks, blocks and tiles and similar other fly ash based products shall be taken within thirty days from the date of receipt of the application by the concerned State Pollution Control Board or Pollution Control Committee.”;

(g) sub-paragraphs (3B), (3C) and (3D) shall be omitted;

3975 G1/09-4

56

h) for sub-paragraphs (4) and (5), the following sub-paragraphs shall be substituted, namely:-

“(4) Each coal or lignite based thermal power plant shall constitute a dispute settlement committee which shall include the General Manager of the thermal power plant and a representative of the relevant Construction and fly ash Brick Manufacturing Industry Association or Body, as the case may be and such a Committee shall ensure unhindered loading and transport of fly ash in an environmentally sound manner without any undue loss of time. Any unresolved dispute shall be dealt with by the concerned State or Union territory Government level monitoring committee mentioned elsewhere in this notification.

(5) No agency, person or organization shall, within a radius of hundred kilometers of a thermal power plant undertake construction or approve design for construction of roads or flyover embankments with top soil; the guidelines or specifications issued by the Indian Road Congress (IRC) as contained in IRC specification No. SP: 58 of 2001 as amended from time to time, regarding use of fly ash shall be followed and any deviation from this direction can only be agreed to on technical reasons if the same is approved by Chief Engineer (Design) or Engineer-in-Chief of the concerned agency or organisation or on production of a certificate of “fly ash not available” from the thermal power plant(s) (TPPs) located within hundred kilometers of the site of construction and this certificate shall be provided by the TPP within two working days from the date of receipt of a request for fly ash, if fly ash is not available”;

(i) in sub-paragraph (6), for the words “Voids created due to soil borrow area shall be filled up with ash with proper compaction and covered with topsoil kept separately as above and this would be done as an integral part of embankment project within the time schedule of the project”, the words “Voids created at soil borrow area shall be filled up with fly ash with proper compaction and covered with topsoil kept separately as above and this would be done as an integral part of embankment project” shall be substituted;

(j) for sub-paragraph (7), the following sub-paragraphs shall be substituted, namely:—

“(7) No agency, person or organisation shall within a radius of hundred kilometers of a coal or lignite based thermal power plant undertake or approve or allow reclamation and compaction of low-lying areas with soil; only fly ash shall be used for compaction and reclamation and they shall also ensure that such reclamation and compaction is done in accordance with the specifications and guidelines laid down by the authorities mentioned in sub-paragraph (1) of paragraph 3.

57


 Ashok Kumar
 Ashok Kumar (Commercial)
 Ashok Kumar (Commercial)

(8)(i) No person or agency shall within fifty kilometers (by road) from coal or lignite based thermal power plants, undertake or approve stowing of mine without using at least 25% of fly ash on weight to weight basis, of the total stowing materials used and this shall be done under the guidance of the Director General of Mines Safety (DGMS);

Provided that such thermal power stations shall facilitate the availability of required quality and quantity of fly ash as may be decided by the expert committee referred in sub-paragraph (10) for this purpose.

(ii) No person or agency shall within fifty kilometers (by road) from coal or lignite based thermal power plants, undertake or approve without using at least 25% of fly ash on volume to volume basis of the total materials used for external dump of overburden and same percentage in upper benches of back filling of opencast mines and this shall be done under the guidance of the Director General of Mines Safety (DGMS);

Provided that such thermal power stations shall facilitate the availability of required quality and quantity of fly ash as may be decided by the expert committee referred in sub-paragraph (10) for this purpose.

(9) The provisions contained in clauses (i) and (ii) of sub-paragraph (8) shall be applicable to all mine agencies under Government, public and private sector and to mines of all minerals or metals or items and it shall be the responsibility of agencies either undertaking or approving the external dump of overburden, backfilling or stowing of mine or all these activities to ensure compliance of provisions contained in clauses (i) and (ii) of sub-paragraph (8) and to submit annual returns to the concerned State Pollution Control Board or Pollution Control Committee as applicable.

(10) The Ministry of Coal for this purpose shall constitute an expert committee comprising of representatives from Fly Ash Unit, Department of Science and Technology, Ministry of Science and Technology, Director General of Mines Safety (DGMS), Central Mine Planning and Design Institute Limited (CMPDIL), Ministry of Environment and Forests, Ministry of Power, Ministry of Mines and the Central Institute of Mining and Fuel Research (CIMFR), Dhanbad; the Committee shall also guide and advise the back filling or stowing in accordance with the provisions contained in sub-paragraphs (8) (i), 8 (ii) and (9), and specifications and guidelines laid down by the concerned authorities as mentioned in sub-paragraph (1) of paragraph 3.

58

(11) The concerned State Government or Union territory Government shall be the enforcing and monitoring authority for ensuring compliance of the provisions of sub-paragraphs (8) (i) and (8) (ii);

3. in the said notification, ~~of~~ paragraph 2,—

(a) for sub-paragraphs (1), (2) and (3), the following sub-paragraphs shall be substituted, namely:—

(1) All coal or lignite based thermal power stations would be free to sell fly ash to the user agencies subject to the following conditions, namely:—

(i) the pond ash should be made available free of any charge on "as is where is basis" to manufacturers of bricks, blocks or tiles including clay fly ash product manufacturing unit(s), farmers, the Central and the State road construction agencies, Public Works Department, and to agencies engaged in backfilling or stowing of mines.

(ii) at least 20% of dry ESP fly ash shall be made available free of charge to units manufacturing fly ash or clay-fly ash bricks, blocks and tiles on a priority basis over other users and if the demand from such agencies falls short of 20% of quantity, the balance quantity can be sold or disposed of by the power station as may be possible.

Provided that the fly ash obtained from the thermal power station should be utilized only for the purpose for which it was obtained from the thermal power station or plant failing which no fly ash shall be made available to the defaulting users.

(2) All coal and, or lignite based thermal power stations and, or expansion units in operation before the date of this notification are to achieve the target of fly ash utilization as per the Table II given below:

Table II

Serial Number	Percentage Utilization of Fly Ash	Target Date
(1)	(2)	(3)
1.	At least 50% of fly ash generation	One year from the date of issue of this notification.
2.	At least 60% of fly ash generation	Two years from the date of issue of this notification.
3.	At least 75% of fly ash generation	Three years from the date of issue of this notification.

59

4.	At least 90% of fly ash generation	Four years from the date of issue of this notification.
5.	100% fly ash generation	Five years from the date of issue of this notification.

The unutilised fly ash in relation to the target during a year, if any, shall be utilized within next two years in addition to the targets stipulated for those years and the balance unutilized fly ash accumulated during first five years (the difference between the generation and the utilization target) shall be utilized progressively over next five years in addition to 100% utilization of current generation of fly ash.

(3) New coal and, or lignite based thermal power stations and, or expansion units commissioned after this notification to achieve the target of fly ash utilization as per Table III given below:

Table III

Serial Number	Fly ash utilization level	Target date
(1)	(2)	(3)
1.	At least 50% of fly ash generation	One year from the date of commissioning.
2.	At least 70% of fly ash generation	Two years from the date of commissioning.
3.	90% of fly ash generation	Three years from the date of commissioning.
4.	100% of fly ash generation	Four years from the date of commissioning.

The unutilised fly ash in relation to the target during a year, if any, shall be utilized within next two years in addition to the targets stipulated for these years and the balance unutilized fly ash accumulated during first four years (the difference between the generation and utilization target) shall be utilized progressively over next five years in addition to 100% utilization of current generation of fly ash.”;

(b) in sub-paragraph (4), for the words “six months”, the words “four months” shall be substituted;

(c) for sub-paragraph (6), the following sub-paragraphs shall be substituted, namely:—

“(6) The amount collected from sale of fly ash and fly ash based products by coal and/or lignite based thermal power stations or their subsidiary or sister concern unit, as applicable should be kept in a separate account head and shall be utilized only for development of infrastructure or facilities, promotion and facilitation activities for use of fly ash until 100 percent

60


 Anil Kumar (Signature)
 Add. General Manager (Commercial)
 एन. सी. ई. लिमिटेड/ NCE Limited

fly ash utilization level is achieved; thereafter as long as 100% fly ash utilization levels are maintained, the thermal power station would be free to utilize the amount collected for other development programmes also and in case, there is a reduction in the fly ash utilization levels in the subsequent year(s), the use of financial return from fly ash shall get restricted to development of infrastructure or facilities and promotion or facilitation activities for fly ash utilization until 100 percent fly ash utilisation level is again achieved and maintained.

(7) Annual implementation report (for the period 1st April to 31st March) providing information about the compliance of provisions in this notification shall be submitted by the 30th day of April, every year to the Central Pollution Control Board, concerned State Pollution Control Board or Committee and the concerned Regional Office of the Ministry of Environment and Forests by the coal or lignite based thermal power plants, and also be made a part of the annual report of the thermal power plant as well as thermal power plant wise information be provided in the annual report of thermal power producing agency owning more than one thermal power plant”;

4. in the said notification, in paragraph 3,—

(a) in sub-paragraph (2), for the words “schedules of specifications and construction applications, including appropriate standards and codes of practice, within a period of four months from the publication of this notification”, the words “tender documents, schedules of specifications and construction applications including appropriate standards and codes of practice within a period of four months from the publication of this notification” shall be substituted;

(b) for sub-paragraph (2A), the following sub-paragraph shall be substituted, namely:—

“(2A) Building construction agencies both in public and private shall prescribe the use of fly ash and fly ash-based products in their respective tender documents, schedules of specifications and construction applications, including appropriate standards and codes of practice and make provisions for the use of fly ash and fly ash based bricks, blocks or tiles or aggregates of them in the schedule of approved materials and rates within a period of four months from the publication of this notification.”;

(c) for sub-paragraphs (2B) and (3), the following sub-paragraphs shall be substituted, namely:—

61

"(2B) All agencies undertaking construction of roads or fly over bridges and reclamation and compaction of low lying areas, including Department of Road Transport and Highways (DORTH), National Highways Authority of India (NHAI), Central Public Works Department (CPWD), State Public Works Departments and other State Government Agencies, shall within a period of four months from the publication of this notification-

- (a) make provisions in their tender documents, schedules of approved materials and rates as well as technical documents for implementation of this notification, including those relating to soil borrow area or pit as per sub-paragraph (6) of paragraph 1; and
 - (b) make necessary specifications or guidelines for road or fly over embankments that are not covered by the specifications laid down by the Indian Road Congress (IRC).
- (3) All local authorities shall specify in their respective tender documents, building bye-laws and regulations, the use of fly ash and fly ash-based products and construction techniques in building materials, roads embankments or for any usage with immediate effect.
- (4) The Central Electricity Authority and other approving agencies may permit the land area for emergency ash pond or fly ash storage area up to 50 hectares for a 500 MW unit, based on 45% ash content coal, or in the same proportion for units in other capacities taking into account the ash content in coal or lignite to be used.
- (5) All Financial institutions and agencies which fund construction activities shall include a clause in their loan or grant document for compliance of the provisions of this notification.
- (6) A Monitoring committee shall be constituted by the Central Government with Members from Ministry of Coal, Ministry of Mines, Ministry of Power, Central Pollution Control Board, Central Electricity Authority, Head Fly Ash Unit of Department of Science and Technology and Building Material Technology Promotion Council to monitor the implementation of the provisions of the notification and submit its recommendations or observations at least once in every six months to the Secretary, Ministry of Environment and Forests. Concerned Advisor or Joint Secretary in the Ministry of Environment and Forests will be the convener of this committee.

62


 ADD. General Manager (Commercial)
 एन. ई. सी. लिमिटेड / N.E.S. LIMITED

(7) For the purpose of monitoring the implementation of the provisions of this notification the State Governments or Union territory Government shall constitute a Monitoring Committee within three months from the date of issue of this notification under the Chairmanship of Secretary, Department of Environment with representatives from Department of Power, Department of Mining, Road and Building Construction Department and State Pollution Control Board and this Committee would deal with any unresolved issue by Dispute Settlement Committee as prescribed in sub-paragraph (4) of paragraph 1, in addition to monitoring and facilitating implementation of this notification at the respective State Government or Union territory level and this Committee would also be empowered to suitably modify (waive or relax) the stipulation under sub-paragraph (1) in case of non-availability of fly ash in sufficient quantities from thermal power plant as certified by the said power plants and the Committee will meet at least once in every quarter.

[F. No. 9-8/2005-HSMD]

G. V. SUBRAHMANYAM, Scientist 'G'

Foot Note :—The principal notification was published in the Gazette of India, Part II, Section 3, Sub-section (ii) vide notification number S.O. 763(E), dated the 14th September, 1999 and was amended vide notification number S. O. 979(E), dated the 27th August, 2003.

- (10) संबद्ध प्राधिकारी सभी सरकारी स्कीमों या कार्यक्रमों में, उदाहरणार्थ महात्मा गांधी राष्ट्रीय ग्रामीण रोजगार गारंटी अधिनियम, 2005 (मनरेगा), स्वच्छ भारत अभियान, शहरी और ग्रामीण आवासन स्कीम, जहां संनिर्मित क्षेत्र एक हजार वर्ग फुट से अधिक है और अवसंरचना संबंधी संनिर्माण में, जिसके अंतर्गत अभिहित औद्योगिक संपदाओं या पार्कों या विशेष आर्थिक जोनों में भवन निर्माण भी है, ऐश आधारित ईंटों या उत्पादों के आसपास उपयोग को सुनिश्चित करेंगे।
- (11) कृषि मंत्रालय कृषि क्रियाकलापों में ऐश के मृदा अनुकूलक के रूप में उपयोग का संवर्धन करने पर विचार कर सकेगा।”
5. सभी संबद्ध प्राधिकारियों द्वारा उपरोक्त उपबंधों का अनुपालन करने की समयावधि 31 दिसंबर, 2017 है। कोयला या लिम्नाइट आधारित तापीय विद्युत संयंत्र, उनके द्वारा उत्पादित फ्लाई ऐश के 100 प्रतिशत उपयोग के अतिरिक्त उपरोक्त उपबंधों का अनुपालन 31 दिसंबर, 2017 से पूर्व करेंगे।

[फा. सं. 9-8/2005-एचएसएमडी]

विश्वनाथ सिन्हा, संयुक्त सचिव

टिप्पण:- मूल अधिसूचना भारत के राजपत्र, असाधारण, भाग II, खंड 3, उप-खंड (ii) में अधिसूचना सं. फा.आ. 763(अ), तारीख 14 सितंबर, 1999 द्वारा प्रकाशित की गई थी और इसमें पश्चातवर्ती संशोधन अधिसूचना सं. फा.आ. 979(अ), तारीख 27 अगस्त, 2003 और फा.आ. 2804(अ), तारीख 3 नवंबर, 2009 द्वारा किए गए थे।

MINISTRY OF ENVIRONMENT, FORESTS AND CLIMATE CHANGE
NOTIFICATION

New Delhi, the 25th January, 2016

S.O. 254(E).—Whereas a draft of certain amendments to the Government of India in the Ministry of Environment, Forests and Climate Change number S.O. 763(E), dated the 14th September, 1999 (hereinafter referred to as the said notification) which the Central Government proposes to make under sub-section (1) and clause (v) of sub-section (2) of section 3 of the Environment (Protection) Act, 1986 (29 of 1986) read with clause (d) of sub-rule (3) of rule 5 of the Environment (Protection) Rules, 1986, was published in the Gazette of India, Extraordinary, Part II, section 3, Sub-section (ii), vide S.O. 1396(E), dated the 25th May, 2015 inviting objections and suggestions from all persons likely to be affected thereby before the expiry of sixty days from the date on which copies of the Gazette containing the said draft amendments were made available to the public.

And, whereas copies of the said Gazette were made available to the public on 25th May, 2015;

And, whereas all the objections and suggestions received from all persons likely to be affected thereby in respect of the said draft notification have been duly considered by the Central Government;

Now, therefore, in exercise of the powers conferred by sub-section (1) and clause (v) of sub-section (2) of section 3 of the Environment (Protection) Act, 1986 (29 of 1986) read with clause (d) of sub-rule (3) of rule 5 of the Environment (Protection) Rules, 1986, the Central Government hereby makes the following amendments to the said notification, namely:—

1. In the said notification, in paragraph 1,-
 - (a) in sub-paragraph 1(A), for the words “hundred kilometers”, the words “three hundred kilometers” shall be substituted;
 - (b) in sub-paragraph (3), for the figures and letters “100 km”, the words “three hundred kilometers” shall be substituted;
 - (c) in sub-paragraph (5), for the words “hundred Kilometers”, the words “three hundred Kilometers” shall be substituted;
 - (d) in sub-paragraph (7), for the words “hundred Kilometers”, the words “three hundred Kilometers” shall be substituted.

64


अपर महासंचालक (व्यापारिक)
Add. General Manager (Commercial)
एन टी सी लिमिटेड/NTPC LIMITED

2. In the said notification, in paragraph 2:-**(a) after sub-paragraph (1), the following proviso shall be inserted, namely:-**

“provided further that the restriction to provide 20 % of dry ESP fly ash free of cost shall not apply to those thermal power plants which are able to utilise 100 % fly ash in the prescribed manner.”

(b) after sub-paragraph (7), the following sub-paragraphs shall be inserted, namely:-

“(8) Every coal or lignite based thermal power plants (including captive and or co-generating stations) shall, within three months from the date of notification, upload on their website the details of stock of each type of ash available with them and thereafter shall update the stock position at least once a Month.

(9) Every coal or lignite based thermal power plants shall install dedicated dry ash silos having separate access roads so as to ease the delivery of fly ash.

(10) The cost of transportation of ash for road construction projects or for manufacturing of ash based products or use as soil conditioner in agriculture activity within a radius of hundred kilometers from a coal or lignite based thermal power plant shall be borne by such coal or lignite based thermal power plant and the cost of transportation beyond the radius of hundred kilometers and up to three hundred kilometers shall be shared equally between the user and the coal or lignite based thermal power plant.

(11) The coal or lignite based thermal power plants shall promote, adopt and set up (financial and other associated infrastructure) the ash based product manufacturing facilities within their premises or in the vicinity of their premises so as to reduce the transportation of ash.

(12) The coal or lignite based thermal power plants in the vicinity of the cities shall promote, support and assist in setting up of ash based product manufacturing units so as to meet the requirements of bricks and other building construction materials and also to reduce the transportation.

(13) To ensure that the contractor of road construction utilizes the ash in the road, the Authority concerned for road construction shall link the payment of contractor with the certification of ash supply from the thermal power plants.

(14) The coal or lignite based thermal power plants shall within a radius of three hundred kilometers bear the entire cost of transportation of ash to the site of road construction projects under Pradhan Mantri Gramin Sadak Yojna and asset creation programmes of the Government involving construction of buildings, road, dams and embankments”.

3. In the said notification, in paragraph 2, sub-paragraph (2A) be read as sub-paragraph (15) and at the end of the said sub-paragraph, the following sub-paragraph shall be added, namely:-

“and the coal or lignite based thermal power plants located in coastal districts shall support, assist or directly engage into construction of shore line protection measures.”

4. In the said notification, in paragraph 3, after sub-paragraph (7), the following shall be inserted, namely:-

“(8) It shall be the responsibility of all State Authorities approving various construction projects to ensure that Memorandum of Understanding or any other arrangement for using fly ash or fly ash based products is made between the thermal power plants and the construction agency or contractors.

(9) The State Authorities shall amend Building Bye Laws of the cities having population One million or more so as to ensure the mandatory use of ash based bricks keeping in view the specifications necessary as per technical requirements for load bearing structures.

(10) The concerned Authority shall ensure mandatory use of ash based bricks or products in all Government Scheme or programmes e.g. Mahatma Gandhi National Rural Employment Guarantee Act, 2005 (MNREGA), SWACHH BHARAT ABIYAN, Urban and Rural Housing Scheme, where built up area is more than 1000 square feet and in infrastructure construction including buildings in designated industrial Estates or Parks or Special Economic Zone.

65


 अधीन महासंचालक (व्यापारिक)
 Add. General Manager (Commercial)
 एन सी ई डी एनपीए/निएसीए

(11) The Ministry of Agriculture may consider the promotion of ash utilisation in agriculture as soil conditioner."

5. **The time period to comply with the above provisions by all concerned authorities is 31st December, 2017. The coal or lignite based thermal power plants shall comply with the above provision in addition to 100 % utilization of fly ash generated by them before 31st December, 2017.**

[F. No. 9-8/2005-HSMD]

BISHWANATH SINHA, Jt. Secy.

Note:- The principal notification was published in the Gazette of India, Extraordinary, Part II, section 3, Sub-section (ii) *vide* notification S.O. 763(E), dated the 14th September, 1999 and was subsequently amended *vide* notification S.O. 979(E), dated the 27th August, 2003 and S.O. 2804(E), dated the 3rd November, 2009.


अध्यक्ष (आवक) (अतिरिक्त)
Add. General Manager (Commercial)
एन टी सी लिमिटेड/NTPC LIMITED

Fwd: Minutes of meeting of Joint Committee (JC) held on 18th April, 2019 under the Chairmanship of Shri Ritesh Kumar Singh, Joint Secretary to discuss action plan to achieve 100% fly ash utilization by the Thermal Power Plants-reg.

From : Prabhat Kumar Sinha <pkosinha01@ntpc.co.in> Thu, Jun 13, 2019 01:07 PM
Subject : Fwd: Minutes of meeting of Joint Committee (JC) held on 18th April, 2019 under the Chairmanship of Shri Ritesh Kumar Singh, Joint Secretary to discuss action plan to achieve 100% fly ash utilization by the Thermal Power Plants-reg. 1 attachment
To : aksrivastava03@ntpc.co.in, rkkhandekar@ntpc.co.in

सादर,
 प्रभात कुमार सिन्हा
 कार्यकारी निदेशक (Safety, AU,EMG)
 NTPC Ltd

Begin forwarded message:

From: Aditya Narayan Singh <aditya.narayan@nic.in>
Date: 12 June 2019 at 4:37:44 PM IST
To: pawan.kalarwal@gov.in, dirtech.moc@nic.in, gdranf@iitr.ernet.in, ccb.cpcb@nic.in, nazim.cpcb@nic.in, cpwd_ddg@nic.in, b.k.nayak@ospcb.org, sudiptomondal.cea@gov.in, pkosinha01@ntpc.co.in
Cc: riteshkumar.singh@nic.in, m.gangeya@gov.in
Subject: Minutes of meeting of Joint Committee (JC) held on 18th April, 2019 under the Chairmanship of Shri Ritesh Kumar Singh, Joint Secretary to discuss action plan to achieve 100% fly ash utilization by the Thermal Power Plants-reg.

-----Email received from [External domain] from Internet. Actual Sender:--
 prvs=059aed21f=aditya.narayan@nic.in-----

No. HSM 11/3/2018

Government of India

Ministry of Environment, Forest and Climate Change

(HSM Division)



67

SA
 अधर सहायक (समितिगत)
 Adh. General Manager (Committee)
 ए सी ई सी लिमिटेड, NTPC LIMITED

Indira Paryavaran Bhawan

Jorbagh Road

New Delhi- 110 003

Date: 12th June, 2019

Subject: Minutes of meeting of Joint Committee (JC) held on 18th April, 2019 under the Chairmanship of Shri Ritesh Kumar Singh, Joint Secretary to discuss action plan to achieve 100% fly ash utilization by the Thermal Power Plants-reg.

I am directed to forward herewith the minutes of meeting of Joint Committee (JC) held on 18th April, 2019 under the Chairmanship of Shri Ritesh Kumar Singh, Joint Secretary to discuss action plan to achieve 100% fly ash utilization by the Thermal Power Plants.

(A. N. Singh)

Scientist 'E'/Addl. Director

Encl: as above.

To:

1. Shri Pawan Kr. Kalarwal, Director, Ministry of Power, Shram Shakti Bhawan Rafi Marg, New Delhi-110001 (pawan.kalarwal@gov.in; Phone : 23710271; 23711316)
2. Shri Peeyush Kumar, Director, Ministry of Coal, Shastri Bhawan, New Delhi (dirtech.moc@nic.in; Phone 011-23384884)
3. Dr. G.D. Ransinchung R.N., Associate Professor, Transportation Engineering Group, Civil Engineering Department, Indian Institute of Technology, Roorkee (gdranfce@iitr.ernet.in)
4. The Member Secretary, Central Pollution Control Board, Parivesh Bhawan, East Arjun Nagar, Delhi-110032. (ccb.cpcb@nic.in; Phone 22307233)
5. Shri Nazimuddin, Scientist 'E', CPCB, Parivesh Bhawan, East Arjun Nagar, Delhi-110032. (nazim.cpcb@nic.in)
6. Shri Harish Kumar, DDG, CPWD, Ministry of Housing and Urban Affairs, Nirman Bhawan, Maulana Azad Road, New Delhi-110011. (cpwd_ddg@nic.in; Phone No. : 23062377).

68

68

अध्यक्ष, पर्यावरण संरक्षण (व्यवस्थापक)
Addl. General Manager (Commercial)
एन डी सी लिमिटेड/NTPC LIMITED

7. Shri Ajay Kumar Sabharwall, GM, National Highways Authority of India, G 5&6, Sector-10, Dwarka, New Delhi - 110 075 (25074100 & 25074200)

8. Shri B K Nayak, Sr. Env. Scientist, Odisha State Pollution Control Board.
(b.k.nayak@ospcb.org)

9. Shri Sudipto Mondal, Dy. Director, TCD Div. , CEA(sudiptomondal.cea@gov.in)

10. Shri Bhagaban Bhattacharya, Asst. Director, TCD Div. , CEA (tcd.cea@gov.in)

11. The Executive Director, National Thermal Power Corporation, Noida.

Copy to:

i) PS to Joint Secretary (HSMD)

ii) PS to Director (HSMD)

 **Final minutes Joint Committee Fly Ash.pdf**
519 KB

69

Minutes of 2nd meeting of Joint Committee (JC) under the Chairmanship of Shri Ritesh Kumar Singh, Joint Secretary, (MoEF&CC) held on 17th and 18th July 2019 to discuss action plan to achieve 100% fly ash utilization by the Thermal Power Plants(TPPs).

The 2nd meeting of the Joint Committee (JC) to discuss action plan to achieve 100% fly ash utilization by the Thermal Power Plants was held in the Ministry of Environment, Forest and Climate Change (MoEF&CC) on 17th and 18th July 2019 under the Chairmanship of Shri Ritesh Kumar Singh, Joint Secretary. The list of participants of the meeting is placed at Annexure I. Representative from Ministry of Coal and Dr. G.D. Ransinchung R.N., Associate Professor, Transportation Engineering Group, Civil Engineering Department, Indian Institute of Technology, Roorkee could not attend the meeting due to unavoidable circumstances.

2.0 At the outset of the meeting, after a round of introduction by the members of the Expert Committee and the representatives of TPPs, the Chair welcomed all the participants and elucidated on the mandate of 100% fly ash utilization generated by thermal power plants. The Chair requested Sh. Manoj Kumar Gangeya, Director (HSMD) to further brief the agenda. Director (HSMD) apprised about the NGT orders dated 20.11.2018 and 12.03.2019. He also added that the previous meeting of Joint Committee was held on 18th April, 2019, wherein a period of 1 year to achieve 100 % utilization was agreed upon for non-compliant plants having fly ash utilization more than 85% and a period of maximum 2 years may be given to achieve 100 % fly ash utilization for non-compliant TPPs having fly ash utilization below 85%.

3.0 The Committee asked the representatives of TPPs to share their concerns while achieving the said target of 100% fly ash. The Committee also informed that remotely located as well as clustered TPPs should identify abandoned coal mines for fly ash backfilling and share the list with Task Force of Ministry of Power for obtaining the approval of Ministry of Coal. The CPCB has also formulated guidelines for mines backfilling in an environmentally sound manner. It was also informed that expenses incurred in fly ash disposal may be recovered from power tariff. Accordingly, CEA communicated that TPPs should submit their requests directly to CERC for reimbursement of expenses towards fly ash disposal. Further, the Thermal Power Plants were requested to give presentation on the action plan as well time frame to achieve 100% fly ash utilization. The presentations and discussions are summarized below:

1. TANGEDCO Thermal Power Plants

TANGEDCO informed that total 5 thermal power plants located at North Chennai – I (3x 120 MW & 630 MW), North Chennai –II (2x 600 MW), Mettur – I (4x210 MW), Mettur – II (1x600 MW) and Tuticorin (5 x210 MW) are operational. Their fly ash utilization was in the range of 39% -66% during previous FY 17-18 and FY

70


Addl. General Manager (Commercial)
Tamil Nadu Electricity Corporation Limited

18-19. The Committee noted that they have submitted the action plan for only one quarter instead of four quarters. However, the Committee decided that TPPs should submit revised quarterly action plan for 100 % utilization of fly ash by FY 20-21 including bottom ash within a week time.

2. Sasan Ultra Mega Power Project

Power generating capacity of Sasan Ultra Mega Power Project is 3960 MW (6 x 660 MW). During FY 17-18 and FY18- 19, fly ash utilization was in the range of 24% - 30 %. Now, Sasan Ultra Mega Power Project has submitted quarterly action plan to achieve 70 % fly ash utilization by 2019-20 and 100% utilization by FY 20-21.

3. Uttar Pradesh Rajya Vidyut Utpadan Nigarh (UPRVUN)

Uttar Pradesh Rajya Vidyut Utpadan Nigarh (UPRVUN) is operating four TPPs at Anpara (2630 MW), Obra (1000 MW), Harduanganj (610 MW) and Parochha. They informed that fly ash utilization was less than 15 % in Anpara and Obraa TPPs during 2017-18 and 2018-19. Whereas fly ash utilization was around 90 % in Harduanganj and around 87 % in Parichha. The Committee noted that they have submitted action plan for only one quarter instead of four quarters. However, the Committee decided that the TPP should submit revised quarterly action plan for 85 % utilization of fly ash by FY 19-20 and 100 % fly ash utilization by FY 20-21 within a week time.

4. APCPL – Indira Gandhi Super Thermal Power Project

Power generating capacity of APCPL – Indira Gandhi Super Thermal Power Project is 1500 MW. Fly ash utilization was 69.93 % during FY 17-18 and 103.4 % during FY 18-19. They informed that APCPL has achieved 100 % fly utilization in the FY 18-19. They have also submitted quarterly action plan to achieve 100 % fly ash utilization for the FY 19-20.

5. Jhabua Power Ltd.

Power generation capacity of Jhabua Power Ltd. is 600 MW. Fly ash utilization was 67 % during FY 17-18 and 70 % during FY 18-19. The Committee noted that they have submitted the quarter wise action plan for 81.38 % fly ash utilization instead of 100 %. They have also submitted quarterly action plan to achieve 80 % fly ash utilization in FY 19-20 and 100 % fly ash utilization in FY 20-21.

6. NTECL

Power generation capacity of NTECL. is 1500 MW. Fly ash utilization was 64 % during FY17-18 and 67 % during FY 18-19. They informed that they will achieve 81 % fly ash utilization by FY 19-20 and 100 % fly ash utilization will be achieved by

FY 20-21.

7. Odisha Power Generation Corporation Ltd. (OPGC)

Power generation capacity of OPGC. is 420 MW. Fly ash utilization was 55 % during year 2017-18 and 33 % during 2018-19. The Committee noted that they have submitted the quarter wise action plan for 60 % fly ash utilization instead of 100 % in the year 2019-20. They informed that they will achieve 100 % utilization in the year 2023-24. However, the Committee decided that the TPP should submit revised quarterly action plan for 85 % utilization of fly ash by FY 19-20 and 100 % fly ash utilization by FY 20-21.

8. West Bengal Power Development Corporation Limited

West Bengal Power Development Corporation Limited (WBPDCCL) is operating Thermal Power Plants at Sagardighi (1600 MW) and Bakreswar (5x 120 MW). They informed that fly ash utilization by the Bakreswar Thermal Power Station was 99.38 % in 2017-18 and 116.98 % in 2018-19. However, fly ash utilization by Sagardighi Thermal Power Plant was 65.54 % in 2017-18 and 93 % in 2018-19. The Committee noted that there is improvement in fly ash utilization and also Sagardighi Thermal Power Plant has submitted fly ash utilization action for 75 % in 2019-20 and 96 % in 2020-21. However, the Committee decided that the TPP should submit revised quarterly action plan for 85 % utilization of fly ash including bottom ash by FY 19-20 and 100 % fly ash utilization by FY 20-21.

9. O P Jindal Super Thermal Power Plant Stage-I (Jindal Power Limited)

Jindal Power Limited is operating O P Jindal Super Thermal Power Plant TPP Stage – I (1000 MW) and TPP Stage – II (2400 MW). Fly ash utilization of both TPPs Stage – I and II was 75 % in 2017-18 and 102 % in 2018-19. They have also submitted action plan for achieving 100 % fly ash utilization in 2019-20.

10. Damodar Valley Corporation (DVC)

DVC is operating 5 thermal power plants namely, Bokaro Thermal Power Station (BTPS; 710 MW), Durgapur Thermal Power Station (DTPS; 210 MW), Durgapur Steel Power Station (DSTPS; 1000 MW), Koderma thermal power Station (KTPS; 1000 MW), Raghunathpur thermal power Station (RTPS; 1200 MW). Fly ash utilization by BTPS was 82.20 % in 2017-18 and 36.12 % 2018-19. Fly ash utilization by DTPS was 4.5 % in 2017-18 and 8.5 % 2018-19. Fly ash utilization by DSTPS was 76 % in 2017-18 and 76 % in 2018-19. Fly ash utilization by KTPS was 71.69 % in 2017-18 and 98 % in 2018-19. Fly ash utilization by RTPS was 2.5 % in 2017-18 and 9.7 % in 2018-19. They have submitted quarter wise action plan for 100 fly ash utilization by BTPS for 2019-20; 97 % fly ash utilization by KTPS; 86 % fly ash utilization by DTPS and 28 % fly ash utilization by RTPS. Therefore, the

3

72

Addl. General Manager (Commercial)
एन डी डी सी लिमिटेड / NDC LIMITED

14. Bajaj Energy Limited (BEPL)

Bajaj Energy Limited (BEPL) has 5 TPPs with total power generation capacity of 450 MW at Barkhera, Khambra Khera, Kunarki, Maqsoodapur and Utraila, UP. Fly ash utilization by all 5 TPPs was 99 % in 2017-18 and 100 % in 2018-19 respectively. They have also submitted action plan for achieving 100 % fly ash utilization in 2019-20.

15. Kanti Bijlee Utpadan Nigam

Power generation capacity of the TPP is 610 MW. They informed that percentage fly ash utilization by the TPP was 34 % and 40 % in 2017-18 and 2018-19. Now, they have submitted quarterly action plan for 72 % fly ash utilization in 2019-20 and 100% in 2020-21.

16. Andhra Pradesh Power Development Corporation Limited (APPDCL)

APPDCL is operating Sri Damodaran Sanjeevaiah Thermal Power Station with capacity of 1500 MW. This unit has achieved 75 % and 65 % fly ash utilization in 2017-18 and 2018-19 respectively. They informed that fly ash is being used in nearby brick industry, clicker manufacturing, export. They have submitted quarter wise action plan for 70 % fly ash utilization for 2019-20. However, the Committee decided that TPP should submit revised quarterly action plan for 85 % utilization of fly ash including bottom ash by FY 19-20 and 100 % fly ash utilization by FY 20-21.

17. Gujarat State Electricity Corporation Limited (GSECL)

Gujarat State Electricity Corporation Limited (GSECL) is operating 2 TPPs namely Ukai (1100 MW) and Wanakbori Thermal Power Plant (147 MW). Ukai TPS has achieved 75 % and 82 % in 2017-18 and 2018-19 respectively. Wanakbori Thermal Power Plant has achieved 84 % and 60 % fly ash utilization in 2017-18 and 2018-19 respectively. GSECL has submitted quarter wise action plan for Ukai to achieve 85 % in 2019-20 and 100 % in 2020-21. Wanakbori TPP will achieve 100 % fly ash utilization in FY 19-20.

18. HPGCL (Rajiv Gandhi Thermal Power Plant)

Power generation capacity of the TPP is 1200 MW. They informed that percentage fly ash utilization by the TPP was 84.8 % and 60 % in 2017-18 and 2018-19. They informed that there is no cement plant nearby the TPP and also not receive any response from NHAI for fly ash utilization. But they have planned to utilize their fly ash for brick manufacturing, clinker manufacturing etc. Now, they have submitted

74




Addl. General Manager (Commercial)
NTPC Limited

quarterly action plan to achieve 100 % fly ash utilization in 2019-20.

19.MSPGCL (Bhusawal Thermal Power Station)

Power generation capacity of the TPP is 1210 MW. They informed that percentage fly utilization by the TPP was 85 % and 95 % in 2017-18 and 2018-19. Bhusawal Thermal Power Station has submitted action plan to achieve 95% for 2019-20. However, the Committee decided that TPP should submit revised quarterly action plan for 100 % utilization of fly ash including bottom ash by FY 19-20.

20.Rosa Power Supply Co. Ltd.

Power generation capacity of Rosa Power Supply Co. Ltd. is 1200 MW. They informed that percentage fly utilization by the TPP was 76 % and 100 % in 2017-18 and 2018-19 respectively. They informed that Rosa Power Supply Co. Ltd. has achieved 100 % fly ash utilization in 2018-19 and they will also achieve 100 % fly ash utilization in 2019-20.

21.Spectrum Coal & power Ltd.

Power generation capacity of the TPP is 100 MW. They informed that percentage fly utilization by the TPP was 86 % and 77 % in 2017-18 and 2018-19 respectively. Now, they have submitted quarterly action plan to achieve 100 % fly ash utilization by 2019-20.

22.Maruti Clean Coal and Power Ltd.

Power generation capacity of the TPP is 300 MW. They informed that percentage fly utilization by the TPP was 93 % and 100 % in 2017-18 and 2018-19 respectively. They are using fly ash in road project. Now, they have submitted quarterly action plan to achieve 100 % fly ash utilization by 2019-20.

23.ACB India Limited

Power generation capacity of the TPP is 270 MW. They informed that percentage fly utilization by the TPP was 100 % in 2017-18 and 2018-19. Now, they have submitted quarterly action plan to achieve 100 % fly ash utilization by 2019-20.

24.TRN Energy Pvt. Ltd.

Power generation capacity of the TPP is 600 MW. They informed that percentage fly utilization by the TPP was 76 % and 92 % in 2017-18 and 2018-19 respectively. They informed that there is no cement manufacturing unit within radius of 100 km from TPP and also no response has been received from NHAI regarding utilization

75




Asst. General Manager (Commercial)
एन सी ई लिमिटेड/NTPC LIMITED

of fly ash in road project. Now, they have also submitted quarter wise action plan for 2019-20 to achieve 93 % fly ash utilisation. However, the Committee decided that TPP should submit revised quarterly action plan for 100 % utilization of fly ash including bottom ash by FY 19-20.

25. Jindal Steel & Power Ltd.

Jindal Steel & Power Ltd. is operating 3 TPPs namely Thermal Captive Power Dongamahua, Chattisgarh (576 MW), Captive Power Plant, Raigarh (134 MW) and Captive Power Plant, Angul (810 MW). They informed that fly ash utilization by TPP Dongamahua and Raigarh was 100% in 2017-18 and 2018-19. Representative of TPP informed that they are utilizing fly ash in their working mines successfully. CPCB praised their efforts and informed that DGMS approved the backfilling in operation mines. The Committee suggested them to share their experience with the Committee as well as other TPPs. But fly ash utilization by TPP Angul was 98 % and 97 % in 2017-18 and 2018-19 respectively. Now, they have submitted quarterly action plan to achieve 100 % fly ash utilization by 2019-20.

26. R K M Powergen Pvt. Ltd.

Power generation capacity of the TPP is 1440 MW. They informed through e-mail that fly ash utilization was 90 % in year 2017-18 and 2018-19. Now, they have submitted quarterly action plan to achieve 100 % fly ash utilization by 2019-20.

27. KSK Mahanadi Power Company Limited, Village Nariyara, Janjgir Champa District, Chhattisgarh

KSK Mahanadi Power Company Limited has total installed capacity of 3600 MW (1800 MW operational and 1800 MW under construction). Unit III and Unit IV have achieved 100 % fly ash utilization in 2017-18 and 2018-19. However, Unit – II has achieved 50 % fly ash utilization in 2017-18 and 70 % in 2018-19. It was informed that unit II has started commercial operation on 26.08.2018. They have informed that Unit – III and Unit- IV will achieve 100 % fly ash utilization in 2019-20. The Committee noted that they have not submitted action plan for Unit II to achieve 100 % fly ash utilization. Therefore, the Committee suggested that the TPP should submit quarterly action plan for Unit II to achieve 85 % utilization of fly ash including bottom ash by FY 19-20 and 100 % fly ash utilization by 20-21.

28. Andhra Pradesh Power Generation Corporation (APGENCO)

APGENCO is operating 1650 MW Rayalaseem Thermal Power Project. Fly ash utilization by the TPP was 74 % and 84 % in 2017-18 and 2018-19 respectively.

76




Asst. General Manager (Commercial)
एन सी पी लिमिटेड / NTPC LIMITED

Now, they have also submitted quarter wise action plan for 2019-20 to achieve 90 % fly ash utilisation. However, the Committee suggested that the TPP should submit quarterly action plan for 90 % utilization of fly ash including bottom ash by FY 19-20 and 100 % fly ash utilization by FY 20-21.

29.Sai Wardha Power Generation Ltd.

Power generation capacity of the TPP is 540 MW. Fly ash utilization by the TPP was 96 % and 91 % in 2017-18 and 2018-19 respectively. They informed that the said TPP will not be operational during 2019-20.

30.Tata Power Corporation (Jharkhand)

The Committee noted that Tata Power Corporation has submitted their action plan to achieve 100 % fly ash utilization in the 1st meeting of the Joint Committee.

4.0 The Committee noted that many Thermal Power Plants have not attended the meeting of Joint Committee. Therefore, it was decided that TPPs which have not attended the said meeting and also not submitted the action plan to achieve 100 % fly ash utilization by 2020-21 of their TPPs should be communicated to submit the action plan to achieve 100 % fly ash utilisation by FY 2020-21 urgently.

(Action: CPCB, MoEF&CC & TPPs)

5.0 In the meeting of Joint Committee held on 18.04.2019, wherein it was decided that "CPCB would come out with the mechanism to determine the quantum of penalty based on (per Ton or percentage basis) to be paid for violation. Accordingly, CPCB has submitted a draft proposal for determining environmental compensation (EC). The draft proposal will be discussed in the meeting of Joint Committee and based on the recommendations, the Ministry will take necessary decision on the matter.

6.0 In the meeting of Joint Committee held on 18.04.2019, the Committee suggested NTPC to submit revised action plan for 100 % fly ash utilization for their category 'B' Thermal Power Stations namely, Mouda, Kudgi, Bongaigaon, Farakka and Barh as well as Category 'C' Thermal Power Stations namely Singrauli, Rihan, Vindychal, Kahalgaon, Talchar-K, Korba and Sipat. Accordingly, for category B TPPs, NTPC has submitted action plan to achieve 100 % fly ash utilization by 2020-21 and for Category 'C' TPPs by 2021-22. **Therefore, the Committee decided that NTPC should submit revised quarterly action plan for Category 'C' TPPs to achieve 85 % utilization of fly ash including bottom ash by FY 19-20 and 100 % fly ash utilization by FY 20-21.**

The meeting ended with vote of thanks to the Chair.

77

 8


अध्यक्ष, नदी निकासी (पर्यावरण)
Asst. General Manager (Commercial)
एन टी सी लिमिटेड / NTPC LIMITED

....XXX....

78

 9

List of Participants

A. Joint Committee

1. Shri Manoj Kumar Gangeya, Director, HSMD, Ministry of Environment, Forest and Climate Change
2. Sh Nazimuddin, Scientist 'E', CPCB (17.07.2019)
3. Sh. A N Singh, Scientist 'E', MoEF&CC
4. Dr. P.K.Prusty, Chief Environment Scientist SPCB, Odisha (17 & 18.07.2019)
5. Shri S K Paliwal, Scientist 'D', CPCB (18.07.2019)
6. Shri Bhanu Joshi, Section Officer MoP (17 & 18.07.2019)
7. Shri Bhagaban Bhattacharya, TCD, CEA(17 & 18.07.2019)
8. Sri Vijender Singh, TCD, CEA(17 & 18.07.2019)

B Thermal Power Plants (17.07.2019)

1. Shri Jaswal Singh, AE, PTPP Parichha Jhansi
2. Shri N.K. Maurya, EE, PTPP
3. Shri Mohammed Rashid, EE, PTPP, Anpara
4. Shri Ravi Prakash Yadav, EE, PTPP, Anpara
5. Shri Rajeev Kumar, EE, Obra TPS
6. Shri Jabar Singh, SE Civil HTPS Harduaganj Aligarh
7. Shri Diwakar Swaroop, S.E (E&S) UPRVUNL, Lucknow
8. Shri P. S. U. Nair, AGM (EMR), NTECL, Chennai
9. Shri D. Sarkar, CEO, NTECL, Chennai
10. Shri T. Narayan, C&I Civil TSGENCO
11. Shri G.Srinivasa Rao
12. Shri G. Raysen
13. Shri S. Sangamnerkar
14. Shri Anoop kumar
15. Shri D. Mohan Raj, TANGEDCO (Tamil Nadu)
16. Shri M. M. Maha Lakshmi, Asst. Exe. Engineer/ Civil TANGEDCO (Tamil Nadu)
17. Shri Md. Eyasin, Chief Engineer – I DVC
18. Shri Arritava roy Chowdhury, Chief Engineer – I (EM&PL)
19. Shri R. K. Chander, APCPL, Jhajjar
20. Shri J.Ramarao
21. Shri Araun Krishna
22. Dr. Lokesh Singhal, Bajaj Energy
23. Shri Balbir Singh, Advisor Power, LPGCL
24. Dr. J. K. Soni, JSPL
25. Shri Yogesh Kumar, JSPL
26. Shri Rajan Ananad, JSPL

79

 10


अध्यक्ष, राष्ट्रीय पर्यावरण आयोग (राज्य/राज्य)
Addl. General Manager (Commercial)
एन. टी. ई. लिमिटेड./NTPC LIMITED

27. Shri B Govinda Rao
28. Shri Dipak Nath Kanti, NTPC
29. Shri V.K.Pandey, Sr. Manager(EMG) KBUNL, Muzaffarpur
30. Shri Bejaya Kumar Mishra, Sr. General Manager, OPGC Ltd.
31. Shri Umakanth Pahi, General Manager (BHS) Ib Thermal Power Station, OPGC Ltd.,
32. Shri Rupa Charan Padhy, VP HNPCL
33. Shri Abhijit Nandi, TPP, WBPDCR DGM, Env. & Safety
34. Shri Jnanendra Narayan Mondal, SM (Env) & IC, Corporate Office, WBPDCR
35. Shri Ashok Kumar Mondal, Dy. General Manager (E&S)
36. Shri R. Balasubramanian, Company Secretary, KPCL
37. Shri Bhuvanesh G.D, AEE, KPCL
38. S.N.Sharma, KPCL
39. Bijan Mishra, Sr. VP- Reliance Power

(18.07.2019)

40. Shri M. V. R. N Acharyulu, Sr. Deputy General Manager KSK Mahanadi Power Limited
41. Shri Nilesh kumar B. Shinde, JE, Bhusawal, MSPGCL
42. Dr. J.K.Soni (EVP), Jindal Steel & Power Ltd.
43. Shri Yogesh Sindhu (Manager), Jindal Steel & Power Ltd.
44. Er. Tinku Goyal, Asst. Executive HPGCL, Hisar
45. Shri Shanti Das Bhattacharje, Head (Chemical & Environment) Tata Power Jamshedpur
46. Shri D. M. Patel, Exc. Engr. (Ash Handling Plant) GSECL, UkaiTPS, Gujarat
47. Shri S.S.Passi, S.E., Wanokbori TPS GSKCL, Wanokbori Gujarat.
48. Shri A. B. Jaiswal, E.E (Env.) GSECL, Corporate Office, Vadodara
49. Shri H. J. Patel, DE (Fly ash Cell) GSECL, Corporate Office, Vadodara
50. Shri Bijan kumar Mishra, Sr. VP- Reliance Power
51. Shri R. Raju EE/Tech/RTPP
52. Ch. Krishna Prasa, DYEE/APPDCL
53. Shri C. P. Malik, COO, TRNEPL, Rajgarh
54. Shri Vijay Gupta, COO-ACB+ MCCC
55. Shri Tushar Ahlawat, Environment Department, ACB India Ltd.

80

 11



ಭಾರತ ಹೆವಿ ಎಲೆಕ್ಟ್ರಿಕಲ್ಸ್ ಲಿಮಿಟೆಡ್
 भारत हेवी इलेक्ट्रिकल्स लिमिटेड

Bharat Heavy Electricals Limited

(A Government of India Undertaking)

ELECTRONICS DIVISION

P.B.No 2606, Mysore Road, Bangalore - 560 026

Annexure-2C/1

PHONE : 080-26998281

MOBILE : 9845696568

E-MAIL : prakashdevadas@bhel.in

Ref: GM-NTPC/404/CE-HMI-02

Dated 21/09/2022

Sub: Recommendation for HMI Upgrade

The Windows XP/ Windows 7 based workstation hardware and Microsoft Operating System available at sites (projects listed in annexure-1) is out of mainstream support from OEM and Microsoft respectively. Also the support for Symantec Antivirus version 10.0 has been withdrawn by the OEM and no more security updates / virus definitions are available for that version. Hence the HMIs-maxStations are prone to vulnerabilities which can tamper the operation of plant.

HMI Upgrade for the projects mentioned in Annexure-1 is proposed due to various obsolescence in the DCS components as detailed below.

DCS Component		Existing version / model / Specification	Obsolescence
Workstation / Engineering server / Historian server	Hardware	Workstation: Intel Core 2 Duo processor, 1GB RAM, 146 GB SAS disk, 10 Mbps Ethernet port. Server: Intel Xeon dual core processor, 2 GB RAM, 3x76GB HDD, 10 Mbps Ethernet port.	Lower Processor cores and speed, lower HDD capacity and RAM requirements incompatible for latest software requirements; Lower network bandwidth of 10Mbps restricting communication speed capability of latest DCS components and attributing to latency.
	Operating System	Windows 7 SP1 / Windows XP / Windows Server 2008 R2	Operating Systems were declared End of Support by the OEM- Microsoft as mentioned below: Windows XP - April' 2014 Windows 7 - Jan' 2020 Windows Server 2008 R2 - Jan' 2020
	maxDNA software	maxDNA 4.2.1 / 4.5 / 4.5.1 / 6.0.x	These versions are not compatible with latest Operating Systems; more improved version of maxDNA- release 7.x is available suiting the latest OS.
	Antivirus Software	Symantec 10.x / Symantec 11.x / Symantec 12.x	Declared obsolete by the OEM- Broadcom and no longer updates or virus definitions are available.


 ಅಧೀನ ನಿರ್ದೇಶಕರು (ವಾಣಿಜ್ಯಿಕ)
 Addl. General Manager (Commercial)
 ಇಂಜಿನಿಯರಿಂಗ್ ವಿಭಾಗ, NTPC ಲಿಮಿಟೆಡ್



ಭಾರತ್ ಹೆವಿ ಎಲೆಕ್ಟ್ರಿಕಲ್ಸ್ ಲಿಮಿಟೆಡ್
भारत हेवी इलेक्ट्रिकल्स लिमिटेड
Bharat Heavy Electricals Limited

(A Government of India Undertaking)
ELECTRONICS DIVISION

P.B.No 2606, Mysore Road, Bangalore - 560 026

PHONE : 080-26998281

MOBILE : 9845696568

E-MAIL : prakashdevadas@bhel.in

Network	Switch	10 Mbps backbone	Lower network bandwidth of 10Mbps restricting communication speed capability of latest DCS components.
	Network Hardening settings	No validated Network hardening settings	Not suitable for latest network requirements with hardening features.

Prakash D
AGM (CE-Engg-I)

Annexure-1 List of upgrade projects

Sl No	Project Name
1	Barauni_Stage-2
2	Bongaigaon_Stage-1
3	Dadri-Thermal_Stage-1
4	Dadri-Thermal_Stage-2
5	Darlipalli_Stage-1
6	Farakka_Stage-2
7	Farakka_Stage-3
8	Gadarwara_Stage-1
9	KoldamHydro
10	Korba_Stage-1
11	Korba_Stage-3
12	Mauda_Stage-1
13	Mauda_Stage-2
14	NorthKaranpura_Stage-1
15	Rihand_Stage-2
16	Rihand_Stage-3
17	Simhadri_Stage-2
18	TANDA_Stage-1
19	TANDA_Stage-2
20	Unchahar_Stage-4
21	Vindhyachal_Stage-4
22	Vindhyachal_Stage-5
23	BRBCL Stage-I
24	Jhajjar Stage-I
25	KBUNL Stage-I
26	KBUNL Stage-II
27	NPGCL Stage-I
28	NSPCL Bhilai Stage-I
29	NTECL Stage-I



भारत सरकार
Government of India
विद्युत मंत्रालय
Ministry of Power
केन्द्रीय विद्युत प्राधिकरण
Central Electricity Authority
सूचना प्रौद्योगिकी एवं साइबर सुरक्षा प्रभाग
Information Technology & Cyber Security Division

विषय : CEA (Cyber Security in Power Sector) Guidelines, 2021.

CEA is mandated to prepare 'Guidelines on Cyber Security' in Power Sector under the provision of regulation (10) of the Central Electricity Authority (Technical Standards for Connectivity to the Grid) (Amendment) Regulations, 2019. Guidelines on Cyber Security in Power Sector incorporating the cardinal principles has been prepared by CEA. In compliance to the provision of the above regulation, CEA (Cyber Security in Power Sector) Guidelines, 2021 are issued for compliance by all entities listed in the clause 2.3 (Applicability of the Guidelines) of the guidelines.

Encl: Guidelines on Cyber Security


07/10/21
(V.K. Mishra)
Secretary CEA

CEA (Cyber Security in Power Sector) Guidelines, 2021

1.0 Background

- 1.1 Cyber intrusion attempts and Cyber-attacks in any critical sector are carried out with a malicious intent. In Power Sector it's either to compromise the Power Supply System or to render the grid operation in-secure. Any such compromise, may result in mal-operations of equipments, equipment damages or even in a cascading grid brownout/blackout. The much hyped air gap myth between IT and OT Systems now stands shattered. The artificial air gap created by deploying firewalls between any IT and OT System can be jumped by any insider or an outsider through social engineering. Cyber-attacks are staged through tactics & techniques of Initial Access, Execution, Persistence, Privilege Escalation, Defence Evasion, Command and Control, Exfiltration. After gaining the entry inside the system through privilege escalation, the control of IT network and operations of OT systems can be taken over even remotely by any cyber adversary. The gain of sensitive operational data through such intrusions may help the Nation/State sponsored or non-sponsored adversaries and cyber attackers to design more sinister and advanced cyber-attacks.
- 1.2 Government of India has set up the Indian Computer Emergency Response Team (CERT-In) for Early Warning and Response to cyber security incidents and to have collaboration at National and International level for information sharing on mitigation of cyber threats. CERT-In regularly issues advisories on safeguarding computer systems and publishes Security Guidelines which are widely circulated for compliances. All Central Government Ministries/ Departments and State/Union Territory Governments have been advised to conduct cyber security audit of their entire Cyber Infrastructure including websites at regular interval through CERT-In empanelled Auditors so as to identify gaps and appropriate corrective actions to be taken in cyber security practices. CERT-In extends supports to enable Responsible Entity in conducting cyber security mock drills and in assessment of their preparation to withstand cyber-attacks. The Responsible Entity must submit Reports of Cyber Audit of cyber security controls, architecture, vulnerability management, network security and periodic cyber security drills to sectoral CERT as well as CERT-In. Team of experts shall review these reports and shortcomings if any in the compliances shall be flagged by them. CERT-In on regular basis also conducts workshops and training programs to enhance Cyber awareness of all Stakeholders.
- 1.3 Ministry of Power has created 6(six) sectoral CERTs namely Thermal, Hydro, Transmission, Grid Operation, RE and Distribution for ensuring cyber security in Indian Power Sector. Each Sectoral CERT has prepared their sub-sector specific model Cyber Crisis Management Plan(C-CMP) for countering cyber-attacks and cyber terrorism. Each Sectoral CERT has circulated their model C-CMPs for preparation and implementation of organization specific C-CMP by each of their Constituent Utility.
- 1.4 All Responsible Entities, Service Providers, Equipment Suppliers/Vendors and Consultants engaged in Power Sector are equally responsible for ensuring cyber security of the Indian Power Supply System. They are to act timely upon each threat intelligence,

advisories and other inputs received from authenticated sources, for continuous improvement in their cyber security posture.

- 1.5 In the current Indian scenario though many cyber security directives and guidelines exists, but none of them are power sector specific. Ministry of Power has directed CEA to prepare Regulation on Cyber Security in Power Sector. And as an interim measures CEA has been directed to issue Guideline on Cyber Security in Power Sector, under the provision of Regulation 10 on Cyber Security in the “Central Electricity Authority (Technical Standards for Connectivity to the Grid) (Amendment) Regulations, 2019”.
- 1.6 The Guidelines on Cyber Security, in the form of Articles written below, requires mandatory Compliance by all Responsible Entities. The Guidelines shall come into effect from the date of issue by Central Electricity Authority, New Delhi.
- 2.0 Hereby the Guidelines on Cyber Security are drawn in the form of Articles for compliance by the Requester as well as User under the following provision of Regulation 10 on Cyber Security, in the “Central Electricity Authority (Technical Standards for Connectivity to the Grid) (Amendment) Regulations, 2019”.

“The requester and the user shall comply with cyber security guidelines issued by the Central Government, from time to time, and the technical standards for communication system in Power Sector laid down by the Authority.”

2.1 **Objective of issuing Guideline:**

- a) Creating cyber security awareness
- b) Creating a secure cyber ecosystem,
- c) Creating a cyber-assurance framework,
- d) Strengthening the regulatory framework,
- e) Creating mechanisms for security threat early warning, vulnerability management and response to security threats,
- f) Securing remote operations and services,
- g) Protection and resilience of critical information infrastructure,
- h) Reducing cyber supply chain risks,
- i) Encouraging use of open standards,
- j) Promotion of research and development in cyber security,
- k) Human resource development in the domain of Cyber Security,
- l) Developing effective public private partnerships,
- m) Information sharing and cooperation
- n) Operationalization of the National Cyber Security Policy

2.2 Within the text of these Articles, ‘**Responsible Entity**’ shall mean all:

- a) Transmission Utilities as well as Transmission Licensees,
- b) Load despatch centres (State, Regional and National),
- c) Generation utilities (Hydro, Thermal, Nuclear, RE),
- d) Distribution Utilities
- e) Generation Aggregators,
- f) Trading Exchanges,
- g) Regional Power Committees, and
- h) Regulatory Commissions.

2.3 Applicability:

All Responsible Entities as well as System Integrators, Equipment Manufacturers, Suppliers/Vendors, Service Providers, IT Hardware and Software OEMs engaged in the Indian Power Supply System.

2.4 Scope:

2.4.1 Control Systems for System Operation and Operation Management.

- a) Grid Control and Management Systems,
- b) Power Plant Control Systems,
- c) Central Systems used to monitor and control of distributed generation and loads e.g. virtual power plants, storage management, central control rooms for hydroelectric plants, photovoltaic/wind power installations,
- d) Systems for fault management and work force management,
- e) Metering and measurement management systems,
- f) Data archiving systems,
- g) Parameterisation, configuration and programming systems,
- h) Supporting systems required for operation of the above mentioned systems,

2.4.2 Communication System.

- a) Routers switches and firewalls,
- b) Communication technology-related network components,
- c) Wireless digital systems.
- d) Control Centre to Control Centre Communications for data exchange on ICCP. (IEC 61850/60850-5/TASE.2/)

2.4.3 Secondary, Automation and Tele control technologies

- a) Control and Automation components,
- b) Control and field devices,
- c) Tele control devices,
- d) Programmable logic controllers / Remote Terminal Units, including digital sensor and actuators elements,
- e) Protection devices,
- f) Safety components,
- g) Digital measurement and metering installations,
- h) Synchronisation devices,
- i) Excitation Systems,

3.0 Definition of Terms:

1. **Access Management:** shall mean set of policies and procedures of the Responsible Entity for allowing Personnel, devices and IoT to securely perform a broad range of operational, maintenance, and asset management tasks either on site or remotely as laid down in Clause 5.2.5 of IS 16335.
2. **Accreditation:** shall mean the process of verifying that an organisation is capable of conducting the tests and assessments against a product/process that are required to be certified.

3. **Accreditation Body:** shall mean an organisation that has been accredited to verify the credentials and capabilities of the organisations that wish to become a certification body.
4. **Act:** shall mean the Information Technology Act, 2000 (21 of 2000)
5. **Asset:** shall mean anything that has value to the organization.
6. **Certification:** shall mean the process of verifying that a product has been manufactured in conformance with a set of predefined standards and/or regulations by an organisation, that is accredited to conduct the certification process
7. **Certification Body:** shall mean an organisation that has been accredited by an accreditation body to certify products / process against a certification scheme.
8. **Certification Scheme:** shall mean the processes, paperwork, tools, and documentation that define how a product or manufacturer is certified
9. **Chief Information Security Officer:** shall means the designated employee of Senior management level directly reporting to Managing Director/Chief Executive Officer/Secretary of the Responsible Entity, having knowledge of Information Security and related issues, responsible for cyber security efforts and initiatives including planning, developing, maintaining, reviewing and implementation of Information Security Policies
10. **Critical Assets:** shall mean the facilities, systems and equipment which, if destroyed, degraded or otherwise declared unavailable, would affect the reliability or operability of the Power Supply System.
11. **Critical System:** shall mean cyber assets essential to the reliable operation of critical asset. Critical System consists of those cyber assets that have at least one of the following characteristics:
 - a) The cyber asset uses a routable protocol to communicate outside the electronic security perimeter.
 - b) The cyber asset uses a routable protocol within a control centre.
 - c) The cyber asset is dial-up accessible.
12. **Critical Information Infrastructure:** shall mean Critical Information Infrastructure as defined in explanation of sub-section (1) of Section 70 of the Act.
13. **Cyber Assets:** shall mean the programmable electronic devices, including the hardware, software and data in those devices that are connected over a network, such as LAN, WAN and HAN.
14. **Cyber Crisis Management Plan:** shall mean a framework for dealing with cyber related incidents for a coordinated, multi-disciplinary and broad-based approach for rapid identification, information exchange, swift response and remedial actions to mitigate and recover from malicious cyber related incidents impacting critical processes.
15. **Cyber Security Breach:** shall mean any cyber incident or cyber security violation that results in unauthorized or illegitimate access or use by a person as well as an entity, of data, applications, services, networks and/or devices through bypass of the underlying cyber security protocols, policies and mechanisms resulting in the compromise of the confidentiality, integrity or availability of data/information maintained in a computer resource or cyber asset.
16. **Cyber Security Incident:** shall mean any real or suspected adverse cyber security event that violates, explicitly or implicitly, cyber security policy of Responsible Entity resulting in unauthorized access, denial of service or disruption, unauthorized use of computer resource for processing or storage of information or changes to data or information

without authorization, leading to harm to the power grid or its critical sub-sectoral elements Generation, Transmission and Distribution.

17. **Cyber Security Policy:** shall mean documented set of business rules and processes for protecting information, computer resources, networks, devices, Industrial Control Systems and other OT resources.
18. **Electronic Security Perimeter:** shall mean the logical border surrounding a network to which the Cyber Systems of Power Supply System are connected using a routable protocol.
19. **Information Security Division:** shall mean a division accountable for cyber security and protection of the Critical System of the Responsible Entity.
20. **Protected System:** shall mean any computer, computer system or computer network of the Responsible Entity notified under section 70 of the Act, in the official gazette by appropriate Government.
21. **Security Architecture:** shall mean a framework and guidance to implement and operate a system using the appropriate security controls with the goal to maintain the system's quality attributes like confidentiality, integrity, availability, accountability and assurance.
22. **Vulnerability:** shall mean intrinsic properties of something resulting in susceptibility to a risk source that can lead to an event with a consequence
23. **Vulnerability Assessment:** shall mean a process of identifying and quantifying vulnerabilities

4.0 Standards

Reference	Description
ISO/IEC 15408	Common Criteria Certification Standard
ISO/IEC 17011	General requirements for accreditation bodies accrediting conformity assessment bodies
ISO/IEC 17025	General requirements for the competence of testing and calibration laboratories
ISO/IEC 21827	Systems Security Engineering - Capability Maturity Model (SSE-CMM)
ISO/IEC 24748-1	Systems and software engineering — Life cycle management — Part 1: Guidelines for life cycle management.
ISO 27001/2	Information Security Management
ISO/ IEC 27019	Information technology — Security techniques — Information Security controls for the energy utility industry
ISO/IEC 61508	Functional Safety of Electrical / Electronic / Programmable Electronic Safety-related Systems
IEC 61850	Communication networks and systems for power utility automation
IEC 62351	Standards for Securing Power System Communications
IEC 62443	Cyber Security for Industrial Control Systems
IS 16335	Power Control Systems – Security Requirements.

5.0 Abbreviations

Abbreviations	Description
a) BES	Bulk Electric System

b)	CDAC	Centre for Development of Advanced Computing
c)	CEA	Central Electricity Authority
d)	CERC	Central Electricity Regulatory Commission
e)	CERT	Computer Emergency Response Team
f)	CERT-In	Indian Computer Emergency Response Team
g)	CII	Critical Information Infrastructure
h)	CISO	Chief Information Security Officer
i)	CSK	Cyber Swachhta Kendra
j)	COTS	Commercial off-the Shelf
k)	ESP	Electronic Security perimeter
l)	ICS	Industrial Control Systems
m)	ICT	Information and Communications Technology
n)	IEC	International Electro Technical Commission
o)	ISAC	Information Sharing and Analysis Centre
p)	ISD	Information Security Division
q)	ISO	International Organization for Standardization
r)	ISMS	Information Security Management System
s)	IT	Information Technology
t)	FAT	Factory Acceptance Test
u)	NABL	National Accreditation Board for Testing and Calibration Laboratories
v)	NCIIPC	National Critical Information Infrastructure Protection Centre
w)	NLDC	National Load Dispatch Centre
x)	NPTI	National Power Training Institute
y)	NSCS	National Security Council Secretariat
z)	OEM	Original Equipment Manufacturer
aa)	OT	Operational Technology
bb)	RLDC	Regional Load Dispatch Centres
cc)	SAT	Site Acceptance Test
dd)	SERC	State Electricity Regulatory Commission
ee)	SCADA	Supervisory Control and Data Acquisition Systems
ff)	SIEM	Security Information and Event Management
gg)	SLA	Service Level Agreement
hh)	SLDC	State Load Dispatch Centre
ii)	QCI	Quality Council of India

CEA (Cyber Security in Power Sector) Guidelines, 2021

Article 1. Cyber Security Policy.

a. Cardinal Principles: The Responsible entity will strictly adhere to following cardinal principles while framing cyber security policy:

- i. There is hard isolation of their OT Systems from any internet facing IT system.
 - ii. May keep only one of their IT systems with internet facing at any of their site/location if required which is isolated from all OT zones and kept in a separate room under the security and control of CISO.
 - iii. Downloading/Uploading of any data/information from their internet facing IT system is done only through an identifiable whitelisted device followed by scanning of both for any vulnerability/malware as per the SOP laid down and for all such activities digital logs are maintained and retained under the custody of CISO for at least 6 months. The log shall be readily to carry out the forensic analysis if asked by investigation agency.
 - iv. List of whitelisted IP addresses for each firewall is maintained by CISO and each firewall is configured for allowing communication with the whitelisted IP addresses only.
 - v. Communication between OT equipment/systems is done through the secure channel preferably of POWERTEL through the fibre optic cable. Security configuration of the communication channel is also to be ensured.
 - vi. All ICT based equipment/system deployed in infrastructure/system mandatorily CII are sourced from the list of the “Trusted Sources” as and when drawn by MoP/CEA.
- b. The Responsible Entity shall be ISO/IEC 27001 certified (including sector specific controls as per ISO/IEC 27019).
 - c. The Responsible Entity shall have a Cyber Security Policy drawn upon the guidelines issued by NCIIPC.
 - d. The Responsible Entity shall ensure annual review of their Cyber Security Policy by subject matter expert and changes shall be made therein only after obtaining the due approval from Board of Directors.
 - e. The process of Access Management for all Cyber Assets owned or under control of the Responsible Entity shall be detailed in the Cyber Security Policy.
 - f. The Cyber Security Policy shall leverage state-of-art cyber security technologies and relevant processes at multiple layers to mitigate the cyber security risks.
 - g. The Responsible Entity shall be solely responsible to get Cyber Security Policy implemented through its Information Security Division (ISD).
 - h. The CISO shall record the reason(s) for exemption required, if any, in case, unable to comply with any of the provision(s) of the Cyber Security Policy. Any exception shall be allowed only after an approval of provisions of compensatory control(s) to mitigate residual cyber security risks.

- i. The CISO shall record the exemptions sought in statement of applicability controls, while getting the ISO 27001 certified. All exemptions and its justification need to be in conformance with Cyber Security Policy of the Responsible Entity.
- j. The Responsible Entity shall allocate sufficient Annual budget for enhancing cyber security posture, enhanced year over year.
- k. The Responsible Entity shall work in collaboration with other Industry Stakeholders as well as Academia to promote R&D activity in the domain of cyber security.
- l. The Responsible Entity shall ensure that cyber security issues are taken up as agenda items in their Board meetings once in every three months.

Article 2 Appointment of CISO.

- a) The Responsible Entity shall mandatorily appoint a CISO and shall confirm to qualification, if any, **laid** by Quality Council of India (QCI). In absence, the work of CISO shall be looked upon by Alternate CISO. In case qualification for appointment of Alternate CISO has been relaxed for reasons recorded thereof, Alternate CISO has to mandatorily acquire the minimum required cyber security skill sets within six months from the date of his appointment.
- b) The Responsible Entity shall regularly update details of CISO and Alternate CISO, with the Sectoral CERT, as well as on ISAC-Power Portal.
- c) Roles and Responsibility of CISOs shall be as laid by CERT-In and ring-fenced to ensure cyber security of the Cyber Assets of the Responsible Entity.

Article 3: Identification of Critical Information Infrastructure (CII).

- a) The Responsible Entity shall submit to NCIIPC through Sectoral CERT, details of Cyber Assets which uses a routable protocol to communicate outside the Electronic Security Perimeter drawn by the Responsible Entity or a routable protocol within a control centre and dial-up accessible Cyber Assets, within 30 days from the date of their commissioning in the System.
- b) The Responsible Entity shall submit details of Critical Business Processes and underlying information infrastructure along with mapped impact and Risk Profile to NCIIPC and shall get their CIIs identified in consultation with NCIIPC. The process of the notification/declaration by Appropriate Government shall follow thereafter.
- c) The Responsible Entity shall review their declared/notified CIIs at least once a year to examine changes if any in the functional dependencies, protocols and technologies or upon any change in security architecture. The Responsible Entity shall review their declared/notified CIIs once in every 6 months, in case if NCIIPC has directed them to constitute an Information Security Steering Committee.
- d) The Responsible Entity shall ensure that all cyber assets of their identified/notified CIIs are recorded in the asset register and considered for risk assessment as well as for finalization of controls in statement of applicability.

Article 4. Electronic Security Perimeter

- a) The Responsible Entity shall identify and document the Electronic Security Perimeter(s) and all Access Points to the perimeter(s).

- b) The Responsible Entity shall follow procedure of identifying “Electronic Security Perimeter” in case of distributed and/or hybrid information infrastructure, as per IEC 62443 / IS16335 (as amended from time to time).
- c) The Responsible Entity shall ensure that every Critical System resides within an Electronic Security Perimeter.
- d) The Responsible Entity shall perform a cyber-Vulnerability Assessment of each electronic Access Points to the Electronic Security Perimeter(s) at least once in every 6 (six) months and/or after any change in Security Architecture.
- e) The Responsible Entity shall ensure that all critical, high and medium vulnerabilities identified as a result of cyber Vulnerability Assessment shall be closed and verified for the effective closure.

Article 5. Cyber Security Requirements

- a) The Responsible Entity shall have an Information Security Division (ISD), headed by CISO.
- b) The Responsible Entity shall ensure that the ISD must be functional on 24x7x365 basis and is manned by sufficient numbers of Engineers having valid certificate of successful completion of course on cyber security of Power Sector from the Training Institutes designated by CEA.
- c) The Responsible Entity shall ensure that ISD
 - 1) has on-boarded Cyber Swachhta Kendra(CSK) of CERT-In, if they have public IPs.
 - 2) has timely acted upon the advisories, guidelines and directive of NCIIPC, CSK, CERT-In and Sectoral CERTs,
 - 3) has deployed an Intrusion Detection System and Intrusion Prevention System capable of identifying behavioural anomaly in both IT as well as OT Systems.
 - 4) shares reports on incident response and targeted malware samples with CERT-In,
 - 5) updates the firmware/software with the digitally signed OEM validated patches only.
 - 6) enables only those ports and services that are required for normal operations. In case of any emergency the procedure as laid in Access management be followed.
 - 7) maintains firewall logs for the last 6 months duration. Firewall logs shall be analysed and all critical and high severity comments shall be addressed for effective closure.
 - 8) retains document of FAT, SAT test results and report/ certificate of cyber tests carried out for compliance of Government Orders and Cyber Security Audit.*
 - 9) maintains all cyber logs and cyber forensic records of any incident for at least** 90 days.

* FAT, SAT must include comprehensive cyber security tests of the component/equipment/system to be delivered/delivered at site.

** 90 days from date of the commissioning of the system/recovery from any incident, whichever is later.
- d) The Responsible Entity shall routinely audit and test security properties of the Critical System and must act upon, in case if any new vulnerabilities is identified through testing or by the equipment manufacturer.

- e) The Responsible Entity shall design a secure architecture for control system appropriate for their process control environment*.
- f) All State Load Dispatch Centres(SLDCs) shall comply with the directions issued by the National Load Dispatch Centre(NLDC) as well as Regional Load Dispatch Centres(RLDCs) U/s 29 (1) of the Electricity Act, 2003 to ensure stability and cyber security of grid operation and achieve efficiency in the grid operation. In case of any non-compliance, the Head of SLDC shall be responsible and shall be liable for Penalty as per the provision of CERC/SERC.

*There are so many different types of systems in existence and so many possible solutions, it is important that the selection process ensures that the level of protection is commensurate with the business risk and the Responsible Entity shall not rely on one single security measure for its defence. (Reference IEC/TR62351-10 Edition 1.0 2012-10 *Power systems management and associated information exchange –Data and communications security – Part 10: Security architecture guidelines*).

Article 6 Cyber Risk Assessment and Mitigation Plan

- a) The Responsible Entity shall document in their Cyber Security Policy a Cyber Risk Assessment and Mitigation Plans drawn upon the best practises being followed in the Power Sector, and the same shall be approved by Board of Directors.
- b) The Cyber Risk Assessment and Mitigation Plans shall clearly define the matrix for assessing the cyber risk of both IT and OT environment and risk acceptance criteria.
- c) The Cyber Risk Assessment Plan shall be capable to demonstrate that repeated cyber security risk assessment delivers consistent, valid and comparable results.
- d) The review of cyber risk assessment shall be carried out at least once in a Quarter. The actionable of risk treatment and mitigation shall be tracked in this review for their effectiveness.
- e) The CISO shall be responsible for implementation and regular review, on the basis of internal and external feedbacks, of the Cyber Risk Assessment and Mitigation Plans.

Article 7 Phasing out of Legacy System

- a) As the life cycle of the Power System Equipment/System is longer than that of IT Systems deployed therein, the Responsible Entity shall ensure that all IT technologies in the Power System Equipment/System should have the ability to be upgraded.
- b) The Responsible Entity shall ensure that the Information Security Division shall draw the list of all communicable equipments/systems nearing end life or are left without support from OEM. Thereafter CISO shall identify equipment/systems to be phased out from the list drawn, firm up their replacement plan and put up the replacement plan for approval before the Board of Directors.
- c) The CISO shall ensure that till equipments/systems nearing end life or left without support from OEM are not replaced, their cyber security is hardened and ensured through additional controls provisioned in consultation with the OEM or alternate Supplier(s)*.
*e.g. Use of CDAC developed AppSamvid and whitelisting of applications installed may be explored across all legacy systems.
- d) The Responsible Entity shall document in their Cyber Security Policy a Standard Operating Procedure for safe and secure disposal of outlived or legacy devices.

Article 8. Cyber Security Training.

- a) The Responsible Entity shall establish, document, implement, and maintain an annual cyber security training program for personnel having authorized cyber or authorized physical access (unescorted or escorted) to their Critical Systems.
- b) The Responsible Entity shall review annually their cyber security training program and shall update it whenever necessary. Annual Review shall record evaluation of the effectiveness of the trainings held.
- c) The Responsible Entity shall ensure that Cyber Security training program designed for their IT as well as OT O&M Personnel must include following topics and as per their functional requirements and security concerns additional topics shall be added:
 - 1) User authentication and authorization.
 - 2) Cyber Security and Protection mechanisms of IT/OT/ICS Systems.
 - 3) Introduction to various standards i.e. ISO/IEC:15408, ISO/IEC:24748-1, ISO: 27001, ISO: 27002, ISO 27019, IS 16335, IEC/ISO:62443.
 - 4) Training on implementation of ISO/IEC 27001 and awareness on IEC 62443.
 - 5) Vulnerability Assessment in the Critical System.
 - 6) Monitoring and preserving of electronic logs of access of Critical Assets.
 - 7) Detecting cyber-attacks on SCADA and ICS systems
 - 8) The handling of Critical System during cyber crisis.
 - 9) Action plans and procedures to recover or re-establish normal functioning of Critical Assets and access thereto following a Cyber Security Incident.
 - 10) Hands on SCADA operation at any of the Regional Load Dispatch Centre.
 - 11) Handling of risks involved in the procurement of COTS Products.
- d) All Personnel engaged in O&M of IT & OT Systems shall mandatorily undergo courses on cyber security of Power Sector from any of the training institute designated by CEA, immediately within 90 days from the notification of CEA Guidelines on Cyber Security in Power Sector.
- e) The Responsible Entity shall ensure that none of their newly hired or the current Personnel have access to the Critical System, prior to the satisfactory completion of cyber security training programme from the Training Institutes designated in India, except in specified circumstances such as cyber crisis or an emergency.
- f) NPTI in consultation with CEA shall identify and design domain specific courses on Cyber Security for different target groups. The “Governing Board for PSO Training and Certification” shall approve the content, duration etc of these courses and shall review it Annually. NPTI shall conduct these courses at all of their branches on regular basis and shall maintain the list of the Participants successfully completing the course.

Article 9 Cyber Supply Chain Risk Management

- a) The Responsible Entity shall ensure that, as and when Ministry of Power, Government of India notifies the Model Contractual Clauses on cyber security, these clauses are included in their every Bid invited for procurement of any ICT based components/equipments/System to be used for Power System.
- b) The Responsible Entity shall ensure that all the Communicable Intelligent Equipments and the Service Level Agreements (SLAs) for their Critical Systems shall be sourced from the list of the “Trusted Sources” as and when drawn by MoP/CEA.

- c) The Responsible Entity shall ensure that, in case, for the any Communicable Intelligent Devices, if no Trusted Source has been identified, then the successful bidder in compliance with the provisions made in MoP order dated 2.7.2020 and any other relevant MoP order has got the product cyber tested for any kind of embedded malware/Trojan/cyber threat and for adherence to Indian Standards at the designated lab.
- d) The Responsible Entity shall ensure that the essential cyber security tests are carried out successfully during FAT, SAT as detailed in **Annexure A**. The equipment/System besides for functionality shall also be tested in the factory for vulnerabilities, design flaws, parts being counterfeit or tainted, so as to minimize problems during on-site-testing and installation. Cyber Security Conformance Testing are to be carried out in the designated Lab as listed in **Annexure-I of MoP Order No. 12/13/2020-T&R dt. 8th June, 2021(Order at Annexure-B)**.
- e) The Responsible Entity shall ensure that the Equipment/System supplied by the successful bidder shall accompany with a certificate^{\$, #} obtained by OEM from a certification body accredited to assess devices and process for conformances to IEC 62443-4 standards during design and manufacture. The Responsible Entity shall accept the certificate submitted along with the supplied Equipment/System only if it's in line with the Testing Protocol as notified by Ministry of Power, Government of India, from time to time.
- f) The Responsible Entity in compliance to the requirement of Article 9(e) shall also accept, till the setting up of an adequate certification facility in the India, a digitally signed self-declaration of conformance to the IEC 62443-4 standards during design and manufacture of the equipment/system, if submitted by the OEM.
- g) The Responsible Entity shall dispose all unserviceable or obsolete Communicable Intelligent Devices as per the procedure laid in their Cyber Risk Assessment and Mitigation Plans which shall be in line with the prevailing best practices.

\$ The National & International certification may be specified in the tender for critical systems/sub-systems being procured by the Responsible Entity.

Certification Schemes:

Embedded Device Security Assurance Certification is for an individual product,
System Security Assurance Certification is for a set of products in a system (possibly from different vendors)

Security Development Lifecycle Assurance Certification is for the development processes that a manufacturer uses for developing products.

Article 10 Cyber Security Incident Report and Response Plan

- a) The CISO of the Responsible Entity shall report in the formats prescribed by CERT-In, all Cyber Security Incidents, classified as reportable events.
- b) Root cause analysis for all reportable events shall be carried out and corrective action taken, so as to ensure that any re-occurrence of such event can be managed with ease.
- c) The Responsible Entity shall mandatorily define in their Cyber Security Policy, criteria(s) identified on the basis of impact analysis, for declaring the occurrence of

Cyber Security Incident(s) as a Cyber Crisis in the System owned or controlled by them.

- d) The Responsible Entity shall mandatorily designate an Officer along with his/her standby by name and designation and empower them to declare an occurrence of the incident(s) as “Cyber Crisis”. The contact details of these Officers shall be updated in the C-CMP within 15 days of changes if any due to transfer or superannuation etc.
- e) The CISO shall ensure that during any Cyber Security Incident, ISD monitors and minutely records every details of cyber security events and incidents in both IT as well as the OT System owned or controlled by the Responsible Entity.
- f) The CISO shall ensure that each cyber incident is handled strictly as per Cyber Security Incident Response Plan detailed in the latest C-CMP approved by the Board of Directors.
- g) The Responsible Entity shall ensure that the efficacy of the Cyber Security Incident Response Plan is tested annually through mock drill(s) carried out, if feasible, as simulation exercise(s) or as table top exercise(s) with wider participation of their employees, in consultation with CERT-In and sectoral CERT. In case if any shortcoming is observed in the Cyber Security Incident Response Plan suitable changes shall be made in it.
- h) The Responsible Entity shall ensure that the CISO compiles details of incident detection, incident handling, learnings from each incident and damage claims made if any and shall report to CERT-In as well as upload information on ISAC-Power Portal.

Article 11 Cyber Crisis Management Plan(C-CMP)

- a) The Responsible Entity shall prepare a Cyber Crisis Management Plan and submit to their sectoral-CERT for review with intimation to Ministry of Power/CISO-MoP. Responsible Entity shall update their C-CMP on the basis of comments made by sectoral-CERT and then submit for vetting to CERT-In. The C-CMP shall be updated once again to include the observations made by CERT-In before seeking approval of Board of Directors for implementation of C-CMP.
- b) The Responsible Entity shall ensure that the C-CMP is reviewed at least annually. The CISO shall ensure that all changes are made in C-CMP only with the due approval of Board of Directors and the changes made in C-CMP have been communicated through a verifiable means to all the concerned Personnel of the Responsible Entity.
- c) The CISOs shall be the custodian of all the cyber security related documents including Cyber Crisis Management Plan, Risk Treatment Plan, Statement of Applicability of controls, and compliance to regulator’s requirement.
- d) The CISO shall be accountable for ensuring enforcement of C-CMP by Information Security Division of the Responsible Entity, during a cyber-crisis, as and when declared by the designated Officer. (refer Article 10(d))

Article 12: Sabotage Reporting%

- a) The Responsible Entity shall incorporate procedure for identifying and reporting of sabotage in their Cyber Security Policy within 30 days from issue of the Guidelines, or grant of licence under the appropriate legal provisions to the Responsible Entity.
- b) The CISO shall be held liable for non-reporting of identified sabotage(s) as per procedure laid for identifying and reporting of sabotage in the Cyber Security Policy of the Responsible Entity.

- c) The CISO shall prepare a detailed report on disturbances or unusual occurrences, identified, suspected or determined to be caused by sabotage in the Critical System of the Responsible Entity, and shall submit the report to the Sectoral CERT as well as to CERT-In within 24 hours of its occurrence.
- d) The CISO shall submit to NCIIPC within 24 hours of occurrence the report on every sabotage classified as cyber incidents(s) on "Protected System".
- e) The CISO upon occurrence on every sabotage shall take custody of all log records as well as digital forensic records of affected Cyber Assets, Intrusion Detection System, Intrusion Protection System, SIEM and shall preserve them for at least 90 days and shall make them available as and when called upon for investigation by the concerned Agencies.

%Disturbances or unusual occurrences, suspected or determined to be caused by sabotage.

Sabotage e.g. can be a forced intrusion in un-manned/manned facility and taking control of operation of Critical System through a communicating device.

Article 13 Security and Testing of Cyber Assets

- a) The Responsible Entity shall ensure security of all in-service phase as well as standby Cyber Assets through regular firmware/Software updates and patching, Vulnerability management, Penetration testing (of combined installations), securing configuration, supplementing security controls. CISO shall maintain details of update version of each firmware and software and their certification if received from OEMs.
- b) The Responsible Entity shall carry out regularly Vulnerability Assessment of all Cyber Assets owned or under their control. If a Cyber Asset is found vulnerable to any exploits or upon any patch updates or major configuration changes, then further Penetration Testing may be carried out offline or in a suitably configured laboratory test-bed to determine other vulnerabilities that may have not been identified so far.
- c) The Responsible Entity shall specify security requirement and evaluation criteria during each phase of their procurement Process.
- d) The Responsible Entity shall ensure that all Cyber Assets being procured shall conform to the type tests as mentioned in the specification for type testing listed in the bid document. Type test reports of tests conducted in NABL accredited Labs or internationally accredited labs (with in last 5 years from the date of bid opening) shall be mandated to be submitted along with bid. In case, the submitted Type Test reports are not as per specification, the re-tests shall be conducted without any cost implication to the Responsible Entity.
- e) The Responsible Entity shall ensure that all Communicable devices are tested for communication protocol as per the ISO/IEC/IS standards listed in **MoP Order No. 12/13/2020-T&R dated 8th June, 2021(Annexure-B).**
- f) The Responsible Entity shall ensure that all Critical Systems designed with Open Source Software are adequately cyber secured.
- g) The Responsible Entity as a best practise upon any incidence of Cyber Security Breach shall carry out cyber security tests at any lab designated for cyber testing by Ministry of Power. These tests shall be similar to Pre Commissioning Security Test and those essential for carrying out Post Incident Forensics Analysis.

Article 14 Cyber Security Audit

- a) The Responsible Entity shall implement Information Security Management System (ISMS) covering all its Critical Systems.
- b) The Responsible Entity shall through a CERT-In Empanelled Cyber Security OT Auditor shall get their IT as well as OT System audited at least once in every 6 (six) months and shall close all critical and high vulnerabilities within a period of one month and medium as well as low non-conformity before the next audit. Effective closure of all non-conformities shall be verified during the next audit.
- c) The Cyber Security Audit shall be as per ISO/IEC 27001 along with sector specific standard ISO/IEC 27019, IS 16335 and other guidelines issued by appropriate Authority if any. These mentioned standards shall be current with all amendments if any and in case if any standard is superseded, the new standard shall be applicable. CISO shall ensure immediate closure of non-conformance, based on the criticality and by means all non-conformances are to be closed before the next audit.
- d) The Responsible Entity shall ensure that CISO has all the required systems and documents in place, as mandated by NSCS for base line cyber security audit.

FAT & SAT

1. During FAT stage, the customer has to verify all types test reports / certificates including Communication protocol and security conformance tests of the devices offered for FAT.
2. FAT of SCADA involves testing as a whole system in the integrated scale down set up. For SCADA, Indian standard IS 15953: 2011 “SCADA System for Power System Applications” provides definition and guidelines for the specification, performance analysis and application of SCADA systems for use in electrical utilities (for transmission & Distribution) including guidance on Tests and inspections.
3. The SAT will be done at customer site as per the SAT document mutually agreed by buyer and supplier. For SAT also, guidance from IS 15953: 2011 need to be applied.
4. IEC 61850-10-3 Communication Networks and Systems For Power Utility Automation- Functional testing of IEC 61850 systems (in draft stage - CDTR) covers testing of applications within substations covering
 - a. A methodical approach to the verification and validation of a substation solution
 - b. The use of IEC 61850 resources for testing in Edition 2.1
 - c. Recommended testing practices for different use cases
 - d. Definition of the process for testing of IEC 61850 based devices and systems using communications instead of hard wired system interfaces (ex. GOOSE and SV instead of hardwired interfaces)
 - e. Use cases related to protection and control functions verification and testing.

This standard may be used as a guidelines for FAT & SAT for Substation Automation System (SAS) based on IEC 61850.

Annexure - B

Annexure – 1

List of designated laboratories for cyber security conformance testing

Table -A. Field Equipment /Operational Technology (OT)

Sl. No.	Equipment	Communication Protocol Conformance Standards	Protocol Security Conformance Standards	Designated Laboratories
1	Remote Terminal Units (RTUs) & PLCs with IEC communications protocols	IEC 60870-5 -101 / IEC 60870-5 -104 (Test Details Annexure 2)	IEC 60870-5- 7 Security extension & IEC 62351 series (specifically IEC 62351-100 parts 1 & 3) (Test Details Annexure-2	Central Power Research Institute (CPRI), Prof Sir C V Raman Road, Sadashivanagar P O, Bengaluru – 560080, Karnataka
2	Intelligent Electronic Equipment / Numerical Protection Relays / Bay Control Units / Bay Protection Units, Gateways, Transformer Tap controller/ changer, etc. with IEC 61850 communication protocol	IEC 61850 – 5 to IEC 61850 – 10 (Test Details Annexure 2)		CPRI
3	Smart meters with IEC 62056 communication protocols	IEC 62056 series / DLMS & IS 15959 series and IS 16444 series (Test details Annexure 2)	IEC 62056 series / DLMS & IS 15959 series and IS 16444 series (Test Details Annexure 2)	1. CPRI 2. Electrical Research and Development Association (ERDA), ERDA Road, GIDC, Makarpura, Vadodara - 390 010 Gujarat 3. Yadav Measurements Pvt. Ltd. (YMPL) 373-375, RIICO Bhamashah Industrial Area Kaladwas 313003 Udaipur – Rajasthan

Information Technology (IT) Equipment (Main / Backup / Disaster recovery (DR) Control Centre / Substation control centre IT equipment)

All IT products procured /supplied shall have a valid Certificate of Common Criteria as per ISO/IEC 15408 issued by signatories of the Common Criteria Recognition Agreement (CCRA) (www.commoncriteriaportal.org).

Import/procurement/supplied from vendors sourcing from prior reference countries, the Certificate for Common Criteria shall be from Government Laboratories in India according to the IC3S scheme operated by Ministry of Electronics and Information Technology, which is a signatory to CCRA.

<https://www.commoncriteria-india.gov.in/>

Details of tests for various identified products**Remote Terminal Units (RTUs) (Sl. No. 1 of Table – A of Annexure – 1)****Test protocol:**

Utilities / manufacturers will submit the sample along with all the required technical documentation for taking up testing to the designated laboratory.

Reference standards

- 1) IEC 60870-5-101 & IEC 60870-5-104 as applicable
- 2) IEC 60870-5-7 Telecontrol equipment and systems - Part 5-7: Transmission protocols - Security extensions to IEC 60870-5-101 and IEC 60870-5-104 protocols (applying IEC 62351)
- 3) IEC 62351-100-1 & IEC 62351-100-3 and other cross referenced standards.

Test cases**Extract from standard (IEC 62351-100-1)**

The conformance test cases are divided into four clauses:

- Clause 5: Verification of configuration parameters. This clause contains the configuration parameters affecting the message contents and/or the protocol behaviour.
- Clause 6: Verification of communication. The goal of this clause is to verify that Device Under Test (DUT) is able to implement the security extension messages as described in IEC TS 60870-5-7.
- Clause 7: Verification of procedures. The goal of this clause is to verify that DUT is able to execute the security extension procedures as described in IEC TS 62351-5.
- Clause 8: Test result chart. This clause contains the results of the test cases listed in Clauses 6 and 7 for each supported value of the configuration parameters listed in Clause 5.

The test cases are organized in tables. They are numbered; their numbering syntax is: Subclause number (where the Table is located) + test case number.

In the column ‘reference’ each test case has a direct reference to IEC TS 62351-5 or IEC TS 60870-5-7 where the clause under test is defined.

Test cases are mandatory depending on the description in the column ‘Required’. The following situations are possible:

M= Mandatory test case. The test is referencing a clause that is mandatory in IEC TS 62351-5 or IEC TS 60870-5-7.

Protocol Information Conformance Statement (PICS) x, x = Mandatory test case if the functionality is enabled in the PICS (by marking the applicable check box), with a reference to the section number of the PICS (x.x).

Conformance testing of security extension procedures

The security extension procedures can be summarized as follows:

- User management
- Update key maintenance
- Session key maintenance
- Challenge/Reply authentication
- Aggressive Mode authentication

Extract from standard (IEC 62351-100-3)

IEC 62351-3 defines the requirements related to the authentication/encryption protocol, procedures and methods to be implemented at TCP/IP (transport) level.

The conformance test cases are divided into three clauses:

- Clause 5: Verification of configuration parameters. This clause contains the parameters specified by the standards referencing IEC 62351-3 (see IEC 62351-3:2014/AMD1:2018, Clause 7) and affecting the protocol behaviour.
- Clause 6: Verification of IEC 62351-3 requirements. The goal of this clause is to verify that DUT is conformant to the requirements of the IEC 62351-3.
- Clause 7: Test result chart. This clause contains the results of the test cases listed in Clause 6 for each supported value of the configuration parameters listed in Clause 5.

The test cases are organized in tables. They are numbered, their numbering syntax is: Subclause number (where the table is located) + test case number.

In the column ‘Reference’ each test case has a direct reference to IEC 62351-3 where the clause under test is defined. PICS or Protocol Implementation eXtra Information for Testing (PIXIT) could be found in the “Reference” column for some test cases whenever the execution of the test case shall take into account specific parameter values declared in the PICS or PIXIT of the DUT.

Test cases are mandatory depending on the description in the column ‘Required’. The following situations are possible:

M = Mandatory test case. The test is referencing to a clause that is mandatory in IEC 62351-3.

PICS

or

PIXIT = Mandatory test case if the functionality is enabled in the PICS or PIXIT by marking the applicable check box or declaring the applicable value.

Intelligent Electronic Devices (IEDs) (Sl. No. 2 of Table – A of Annexure – 1)

Utilities / manufacturers will submit the sample along with all the required technical documentation for taking up testing to the designated laboratory.

Reference standards

IEC 61850 series

Specifically IEC 61850-5, IEC 61850-6, IEC 61850-7, IEC 61850-8, IEC 61850-9 and IEC 61850-10

Test cases

Communication protocol conformance as per IEC 61850 -10. This part of standard defines methods and abstract test cases for conformance testing of client, server and sampled values devices used in power utility automation systems, the methods and abstract test cases for conformance testing of engineering tools used in power utility automation systems, and the metrics to be measured within devices according to the requirements defined in IEC 61850-5. Further this part of standard specifies standard techniques for testing of conformance of client, server and sampled value devices and engineering tools, as well as specific measurement techniques to be applied when declaring performance parameters. The use of these techniques will enhance the ability of the system integrator to integrate IEDs easily, operate IEDs correctly, and support the applications as intended.

Smart Meters (Sl. No. 3 of Table – A of Annexure – 1)

Utilities / manufacturers will submit the sample along with all the required technical documentation for taking up testing to the designated laboratory.

IEC 62056 series of standards (Electricity metering data exchange – The DLMS/COSEM suite) specifies details of communication protocol requirements, conformance testing and security requirements. The Part 5-3 (DLMS/COSEM application layer) specifies the DLMS/COSEM application layer in terms of structure, services and protocols for DLMS/COSEM clients and servers, and defines rules to specify the DLMS/COSEM communication profiles. It defines services for establishing and releasing application associations, and data communication services for accessing the methods and attributes of COSEM interface objects, defined in IEC 62056-6-2 using either logical name (LN) or short name (SN) referencing.

Clause 5 and sub clauses specifies security requirements. It cover security concepts, Identification and authentication, Cryptographic algorithms, Cryptographic keys – overview, Key used with symmetric key algorithms, Keys used with public key algorithms and Applying cryptographic protection.

Note: All above referred standards shall be latest with amendments if any at the time of submission of sample(s) for testing.

Testing Criteria

1) Supply from Trusted Sources

The sample size shall be as specified by CEA as per the approved criteria for Trusted Vendors

2) Supply from other than trusted vendors

The sample size shall be shall be 5% of the supply lot / ordered quantity (minimum one). The manufacturer shall submit request to the Nodal agency along with vendor's / manufacturer's certifications for supply chain management system practices and secure product development process implementations based on any one or more of standards ISO / IEC 27036, ISO / IEC 20243, IEC 62443 for verification.

After scrutiny of vendor's / manufacturer's certifications the supplier / utilities shall be asked to submit product to the designated laboratory for communication and cyber security conformance testing.

The supply lot shall stand rejected on failure to comply with the test requirements.

3) Supply from prior reference countries

The utility shall obtain prior permission from the Government of India for importing the product / system from prior reference countries.

The sample size shall be shall be 10 % of the supply lot / ordered quantity (minimum one). The manufacturer shall submit request to the Nodal agency along with vendor's / manufacturer's certifications for supply chain management system practices and secure product development process implementations based on any one or more of standards ISO / IEC 27036, ISO / IEC 20243, IEC 62443 for verification.

After scrutiny of vendor's / manufacturer's certifications the supplier / utilities shall be asked to submit product to the designated Government / Government controlled Autonomous laboratory for type tests (Annexure – 4) and communication & cyber security conformance testing.

The supply lot shall stand rejected on failure to comply with the test requirements.

Type Tests

Products imported from prior reference countries shall also undergo type testing as per following standards in addition to communication protocol and security conformance testing at the designated Government / Government controlled Autonomous laboratory:

Type test standards for RTUs

1. IEC 60870-1-2:1989 Telecontrol equipment and systems. Part 1: General considerations. Section Two: Guide for specifications.
2. IEC 60870-2-1:1995 Telecontrol equipment and systems - Part 2: Operating conditions - Section 1: Power supply and electromagnetic compatibility.
3. EC 60870-2-2:1996 Telecontrol equipment and systems - Part 2: Operating conditions -Section 2: Environmental conditions (climatic, mechanical and other non-electrical influences).
4. IEC 60870-3:1989 Telecontrol equipment and systems. Part 3: Interfaces (electrical characteristics)

Type test standard for IEDs / Numerical Protection Relays / Bay controls units

1. IEC 61850-3: 2013, Ed. 2 Communication networks and systems for power utility automation – Part 3: General requirements.

Type test standards for Smart meters

1. IS 16444: 2015 AC static direct connected watthour smart meter class 1 and 2 – Specification.
2. IS 16444 Part 2: 2017 AC static transformer operated watthour and var - Hour smart meters, class 0.2 S, 0.5 S and 1.0 S: Part 2 specification transformer operated smart meters.

Note:

1. All above referred standards shall be latest with amendments if any at the time of submission of sample(s) for testing.
2. Type tests generally covers functionality, environmental, mechanical, EMI/ EMC and electrical safety related tests.

No. 20(3)/2022-CERT-In
Government of India
Ministry of Electronics and Information Technology (MeitY)
Indian Computer Emergency Response Team (CERT-In)

Electronics Niketan,
6 CGO Complex,
New Delhi-110003

Dated: 28 April, 2022

Subject: Directions under sub-section (6) of section 70B of the Information Technology Act, 2000 relating to information security practices, procedure, prevention, response and reporting of cyber incidents for Safe & Trusted Internet.

Whereas, the Central Government in terms of the provisions of sub-section (1) of section 70B of Information Technology (IT) Act, 2000 (IT Act, 2000) has appointed “Indian Computer Emergency Response Team (CERT-In)” vide notification dated 27th October 2009 published in the official Gazette and as per provisions of sub-section (4) of section 70B of IT Act, 2000 The Indian Computer Emergency Response Team shall serve as the national agency for performing the following functions in the area of cyber security:-

- a) collection, analysis and dissemination of information on cyber incidents;
- b) forecast and alerts of cyber security incidents;
- c) emergency measures for handling cyber security incidents;
- d) coordination of cyber incidents response activities;
- e) issue guidelines, advisories, vulnerability notes and whitepapers relating to information security practices, procedures, prevention, response and reporting of cyber incidents;
- f) such other functions relating to cyber security as may be prescribed.

And whereas, “The Information Technology (The Indian Computer Emergency Response Team and Manner of performing functions and duties) Rules, 2013” were notified and published vide notification dated 16.01.2014 by the Central Government in exercise of the powers conferred by clause (zf) of sub-section (2) of section 87 read with sub-section (5) of section 70B of the IT Act, 2000.

And whereas, as per provisions of sub-section (6) of section 70B of the IT Act, 2000, CERT-In is empowered and competent to call for information and give directions to the service providers, intermediaries, data centres, body corporate and any other person for carrying out the activities enshrined in sub-section (4) of section 70B of the IT Act, 2000.

And whereas, various instances of cyber incidents and cyber security incidents have been and continue to be reported from time to time and in order to coordinate response activities as well as emergency measures with respect to cyber security incidents, the requisite information is either sometime not found available or readily not available with service providers/data centres/body corporate and the said primary information is essential to carry out the analysis, investigation and coordination as per the process of law.

And whereas, it is considered expedient in the interest of the sovereignty or integrity of India, defence of India, security of the state, friendly relations with foreign states or public order or for preventing incitement to the commission of any cognizable offence using computer resource or for handling of any cyber incident, that following directions are issued to augment and strengthen the cyber security in the country:

- (i) All service providers, intermediaries, data centres, body corporate and Government organisations shall connect to the Network Time Protocol (NTP) Server of National Informatics Centre (NIC) or National Physical Laboratory (NPL) or with NTP servers traceable to these NTP servers, for synchronisation of all their ICT systems clocks. Entities having ICT infrastructure spanning multiple geographies may also use accurate and standard time source other than NPL and NIC, however it is to be ensured that their time source shall not deviate from NPL and NIC.
- (ii) Any service provider, intermediary, data centre, body corporate and Government organisation shall mandatorily report cyber incidents as mentioned in Annexure I to CERT-In within 6 hours of noticing such incidents or being brought to notice about such incidents. The incidents can be reported to CERT-In via email (incident@cert-in.org.in), Phone (1800-11-4949) and Fax (1800-11-6969). The details regarding methods and formats of reporting cyber security incidents is also published on the website of CERT-In www.cert-in.org.in and will be updated from time to time.

- (iii) When required by order/direction of CERT-In, for the purposes of cyber incident response, protective and preventive actions related to cyber incidents, the service provider/intermediary/data centre/body corporate is mandated to take action or provide information or any such assistance to CERT-In, which may contribute towards cyber security mitigation actions and enhanced cyber security situational awareness. The order / direction may include the format of the information that is required (up to and including near real-time), and a specified timeframe in which it is required, which should be adhered to and compliance provided to CERT-In, else it would be treated as non-compliance of this direction. The service providers, intermediaries, data centres, body corporate and Government organisations shall designate a Point of Contact to interface with CERT-In. The Information relating to a Point of Contact shall be sent to CERT-In in the format specified at Annexure II and shall be updated from time to time. All communications from CERT-In seeking information and providing directions for compliance shall be sent to the said Point of Contact.
- (iv) All service providers, intermediaries, data centres, body corporate and Government organisations shall mandatorily enable logs of all their ICT systems and maintain them securely for a rolling period of 180 days and the same shall be maintained within the Indian jurisdiction. These should be provided to CERT-In along with reporting of any incident or when ordered / directed by CERT-In.
- (v) Data Centres, Virtual Private Server (VPS) providers, Cloud Service providers and Virtual Private Network Service (VPN Service) providers, shall be required to register the following accurate information which must be maintained by them for a period of 5 years or longer duration as mandated by the law after any cancellation or withdrawal of the registration as the case may be:
- a. Validated names of subscribers/customers hiring the services
 - b. Period of hire including dates
 - c. IPs allotted to / being used by the members
 - d. Email address and IP address and time stamp used at the time of registration / on-boarding
 - e. Purpose for hiring services
 - f. Validated address and contact numbers
 - g. Ownership pattern of the subscribers / customers hiring services

- (vi) The virtual asset service providers, virtual asset exchange providers and custodian wallet providers (as defined by Ministry of Finance from time to time) shall mandatorily maintain all information obtained as part of Know Your Customer (KYC) and records of financial transactions for a period of five years so as to ensure cyber security in the area of payments and financial markets for citizens while protecting their data, fundamental rights and economic freedom in view of the growth of virtual assets.

For the purpose of KYC, the Reserve Bank of India (RBI) Directions 2016 / Securities and Exchange Board of India (SEBI) circular dated April 24, 2020 / Department of Telecom (DoT) notice September 21, 2021 mandated procedures as amended from time to time may be referred to as per Annexure III.

With respect to transaction records, accurate information shall be maintained in such a way that individual transaction can be reconstructed along with the relevant elements comprising of, but not limited to, information relating to the identification of the relevant parties including IP addresses along with timestamps and time zones, transaction ID, the public keys (or equivalent identifiers), addresses or accounts involved (or equivalent identifiers), the nature and date of the transaction, and the amount transferred.

And whereas, the meaning to the terms ‘cyber incident’ or ‘cyber security incident’ or ‘computer resource’ or other terms may be ascribed as defined in the IT Act, 2000 or “The Information Technology (The Indian Computer Emergency Response Team and Manner of performing functions and duties) Rules, 2013” as the case may be.

And whereas, in case of any incident, the above-referred entities must furnish the details as called for by CERT-In. The failure to furnish the information or non-compliance with the ibid. directions, may invite punitive action under sub-section (7) of the section 70B of the IT Act, 2000 and other laws as applicable.

This direction will become effective after 60 days from the date on which it is issued.

Types of cyber security incidents mandatorily to be reported by service providers, intermediaries, data centres, body corporate and Government organisations to CERT-In:

[Refer Rule 12(1)(a) of The Information Technology (The Indian Computer Emergency Response Team and Manner of Performing Functions and Duties) Rules, 2013]

- i. Targeted scanning/probing of critical networks/systems
- ii. Compromise of critical systems/information
- iii. Unauthorised access of IT systems/data
- iv. Defacement of website or intrusion into a website and unauthorised changes such as inserting malicious code, links to external websites etc.
- v. Malicious code attacks such as spreading of virus/worm/Trojan/Bots/Spyware/Ransomware/Cryptominers
- vi. Attack on servers such as Database, Mail and DNS and network devices such as Routers
- vii. Identity Theft, spoofing and phishing attacks
- viii. Denial of Service (DoS) and Distributed Denial of Service (DDoS) attacks
- ix. Attacks on Critical infrastructure, SCADA and operational technology systems and Wireless networks
- x. Attacks on Application such as E-Governance, E-Commerce etc.
- xi. Data Breach
- xii. Data Leak
- xiii. Attacks on Internet of Things (IoT) devices and associated systems, networks, software, servers
- xiv. Attacks or incident affecting Digital Payment systems
- xv. Attacks through Malicious mobile Apps
- xvi. Fake mobile Apps
- xvii. Unauthorised access to social media accounts
- xviii. Attacks or malicious/ suspicious activities affecting Cloud computing systems/servers/software/applications
- xix. Attacks or malicious/suspicious activities affecting systems/ servers/ networks/ software/ applications related to Big Data, Block chain, virtual assets, virtual asset exchanges, custodian wallets, Robotics, 3D and 4D Printing, additive manufacturing, Drones

xx. Attacks or malicious/ suspicious activities affecting systems/ servers/software/ applications related to Artificial Intelligence and Machine Learning

The incidents can be reported to CERT-In via email (incident@cert-in.org.in), Phone (1800-11-4949) and Fax (1800-11-6969). The details regarding methods and formats of reporting cyber security incidents is also published on the website of CERT-In www.cert-in.org.in and will be updated from time to time.

Annexure II

Format for providing Point of Contact (PoC) information by Service providers, intermediaries, data centres, body corporate and Government organisations to CERT-In

The Information relating to the Point of Contact shall be sent to CERT-In via email (info@cert-in.org.in) in the format specified below and shall be updated from time to time:

Name	
Designation	
Organisation Name	
Office Address	
Email ID	
Mobile No.	
Office Phone	
Office Fax	

Annexure III

KYC Requirements

For the purpose of KYC, any of following Officially Valid Document (OVD) as a measure of identification procedure prescribed by the Reserve Bank of India (Know Your Customer (KYC)) Directions, 2016 / Securities and Exchange Board of India Clarification on Know Your Client (KYC) Process and Use of Technology for KYC vide Circular SEBI/HO/MIRSD/DOP/CIR/P/2020/73 dated April 24, 2020 / The Department of Telecom File No: 800-12/2021- AS.II dated September 21, 2021 on Self-KYC (S-KYC) as an alternate process for issuing of new mobile connections to Local and Outstation category customers, shall be used and maintained:

- a. The passport,
- b. The driving license,
- c. Proof of possession of Aadhaar number,
- d. The Voter's Identity Card issued by the Election Commission of India,
- e. Job card issued by NREGA duly signed by an officer of the State Government and
- f. Letter issued by the National Population Register containing details of name and address.
- g. Validated phone number
- h. Trading account number and details, Bank account number and bank details

For the purpose of KYC for business entities (B2B), documents mentioned in the Customer Due Diligence (CDD) process prescribed in Reserve Bank of India Master Direction - Know Your Customer (KYC) Direction, 2016 as updated from time to time shall be used and maintained.

Windows XP

Windows XP follows the [Fixed](#) Lifecycle Policy.

This applies to the following editions: Home, Professional, Professional for Embedded Systems, Professional x64, Starter

Important

Support for this product has ended. See migration guidance below.

Support dates are shown in the Pacific Time Zone (PT) - Redmond, WA, USA.

Support Dates

[Expand table](#)

Listing	Start Date	Mainstream End Date	Extended End Date
Windows XP	Dec 31, 2001	Apr 14, 2009	Apr 8, 2014

Releases

[Expand table](#)

Version	Start Date	End Date
Service Pack 3	Apr 21, 2008	Apr 8, 2014
Service Pack 2	Sep 17, 2004	Jul 13, 2010
Service Pack 1a	Feb 3, 2003	Oct 10, 2006
Service Pack 1	Aug 30, 2002	Oct 10, 2006



केन्द्रीय विद्युत विनियामक आयोग
CENTRAL ELECTRICITY REGULATORY COMMISSION



नई दिल्ली
NEW DELHI

./Petition No.: 319/RC/2018

/Coram:

. के. पुजारी,	/Shri P. K. Pujari, Chairperson
डॉ. एम. के. अय्यर,	/ Dr. M.K. Iyer, Member
आई. एस. झा,	/ Sh. I.S. Jha, Member

आद दिनांक /Date of Order: 28th of August, 2019

IN THE MATTER OF

Automatic Generation Control (AGC) implementation in India

AND

IN THE MATTER OF

National Load Despatch Centre
Power System Operation Corporation Ltd.
(A Government of India Enterprise) B-9,
Qutab Institutional Area, Katwaria Sarai
New Delhi-110016

...Petitioner

VERSUS

1. NTPC Limited,
Plot No A-8A,
Sector-24, Noida,
Uttar Pradesh, India- 201301
2. NHPC Limited,
N.H.P.C Office Complex,
Sector-33, Faridabad – 121003, Haryana

3. Central Transmission Utility,
Saudamini, Plot No. 2,
Sector-29, Gurgaon-122 001 (Haryana)
4. SJVN, Shakti Sadan,
SJVN Corporate Office Complex, Shanan-171006
5. THDC INDIA LIMITED, Corporate Office,
Rishikesh, Pragatipuram, By Pass Road,
Rishikesh – 249201, Utrakhand
6. Aravali Power Company Private Ltd.,
Indira Gandhi Super Thermal Power Station (IGSTPS),
Jharli, District Jhajjar, Haryana-124141
7. N T E C L Vallur Thermal Power Project,
P.O.: Vellivoyal Chavadi,
Ponneri Taluk, Tiruvallur Dist, Chennai- 600 103
8. NLC India Limited,
Block - 1, Neyveli - 607 801,
Cuddalore District, Tamilnadu
9. NTPC-SAIL Power Company Limited –
Corporate Centre, 4th Floor, Nbcc Tower,
15 Bhikaiji Cama Place, New Delhi, Delhi – 110066
10. Coastal Gujarat Power Ltd,
Tata Power Co. Ltd., Backbay Rec Station,
148, Lt. Gen. J.Bhonsle Marg,
Nariman Point, Mumbai 400 021
11. Sasan Power Limited,
Reliance Centre, Near Prabhat Colony,
Off Western Express Highway,
Santacruz East, Mumbai – 400055, Mumbai
12. Ratnagiri Gas and Power Pvt. Ltd.,
Registered Office, NTPC Bhawan,
Core-7, SCOPE Complex,
7, Institutional Area, Lodi Road,
New Delhi-110003, India
13. North Eastern Electric Power Corporation Ltd,
Brookland Compound, Lower New Colony,
Shillong-793003, Meghalaya, India.

14. ONGC Tripura Power Company Ltd.
6th Floor, A Wing, IFCI Towers, 61,
Nehru Place, New Delhi – 110019
15. Bharatiya Rail Bijlee Company Ltd.
Nabinagar, Khera Police Station
Dist.-Aurangabad, Bihar-824303

Northern Region

16. Delhi Transco Limited,
33kV, Sub Station Building,
Minto Road, New Delhi -110002.
17. Haryana Vidyut Prasaran Nigam Limited,
XEN/LD & PC, SLDC Complex,
Sewah Panipat -132103.
18. Himachal Pradesh State Electricity Board,
HP Load Despatch Society,
SLDC complex, Totu,
Shimla -171011.
19. Jammu & Kashmir Power Development Department,
SLDC Building,
220 kV Grid Station Narwal,
Jammu -180007.
20. Punjab State Transmission Corporation Limited,
Ablowal, Patiala, SLDC Building,
Near 220KV Grid Substation,
PSTCL, Ablowal,
Patiala -147001
21. Rajasthan Rajya Vidyut Prasaran Nigam Limited,
State Load Despatch Centre,
Rajasthan Rajya Vidyut Prasaran Nigam Limited,
Ajmer Road, Heerapura,
Jaipur -302024
22. Uttar Pradesh Power Transmission Corporation Limited,
Power System, 5th Floor,
Shakti Bhawan, 14 Ashok Marg,
Lucknow -226001
23. Power Transmission Corporation of Uttarakhand Limited,
400 KV Substation,
Veerbhadra, Rishikesh -249202

24. General Manager,
Singrauli Super Thermal Power Station,
Shakti Nagar, UP-231222
25. General Manager,
Singrauli Solar PV Power Project,
Shakti Nagar, UP-231222
26. General Manager,
Singrauli Small Hydro Power Project,
Shakti Nagar, UP-231222
27. General Manager,
Rihand Super Thermal Power Station-I,
Rihand Nagar, UP-231223
28. General Manager,
Rihand Super Thermal Power Station-II,
Rihand Nagar, UP-231223
29. General Manager,
Rihand Super Thermal Power Station-III,
NTPC Rihand, Dist-Sonbhadra,
UP - 231223
30. General Manager,
Dadri, National Capital Power Project,
Dadri Dhaulana Road,
Distt. Gautam Buddh Nagar,
UP-201008
31. General Manager,
Dadri – Stage - II,
National Capital Power Project,
Dadri Dhaulana Road,
Distt. Gautam Buddh Nagar,
UP-201008
32. General Manager,
Firoz Gandhi Unchahar Thermal Power Project-I,
Unchahar, Distt. Rai bareilly,
UP
33. General Manager,
Firoz Gandhi Unchahar Thermal Power Project-II,
Unchahar, Distt. Raibareilly,
UP

34. General Manager,
Firoz Gandhi Unchahar Thermal Power Project-III,
Unchahar, Distt. Raibareilly,
UP
35. General Manager,
Firoz Gandhi Unchahar Thermal Power Project-IV,
P.O. Unchahar, Dist. : Raibareilly (U.P.) Pin-229406
36. General Manager,
Firoz Gandhi Unchahar Solar PV Power Project,
Unchahar, Distt. Raibareilly, UP
37. General Manager,
Dadri Gas Power Project,
Dhaulana Road, Distt.
Gautam Buddh Nagar,
UP-201008
38. General Manager,
Dadri Solar PV Power Project,
Dhaulana Road, Distt.
Gautam Buddh Nagar,
UP-201008
39. General Manager,
Auraiya Gas Power Project(Gas Fired, RLNG Fired, Liquid Fired),
Dibiyapur, Distt Etawah,
UP-206244
40. General Manager,
Anta Gas Power Project (Gas Fired, RLNG Fired, Liquid Fired),
Distt. Baran,
Rajasthan-325209
41. General Manager, Koldam HPP, NTPC,
Post- Barman, Dist- Bilaspur,
Himachal Pradesh 174013
42. Station Director,
Narora Atomic Power Station,
Narora, Distt. Bulandshahar,
UP-202389
43. Station Director,
Rajasthan Atomic Power Station-B,
Anu Shakti Vihar, Kota,
Rajasthan-323303

44. Station Director,
Rajasthan Atomic Power Station-C, (RAPS-5&6)
PO-Anushakti, Kota,
Rajasthan-323304
45. General Manager,
Bairasiul Hydro Electric Project,
NHPC Ltd., Surangini,
Distt. Chamba, HP-176317
46. General Manager,
Salal Hydro Electric Project,
NHPC Ltd,
Jyotipuram, Distt. Udhampur,
J&K-182312
47. General Manager,
Tanakpur Hydro Electric Project,
NHPC Ltd.,
Banbassa, Distt. Champawa,
Uttarakhand-262310
48. General Manager,
Chamera-I Hydro Electric Project,
NHPC Ltd.,
Khairi, Distt.
Chamba, HP-176310
49. General Manager,
Uri Hydro Electric Project,
NHPC Ltd.,
Mohra, Distt. Baramulla,
J&K-193122
50. General Manager,
Chamera-II Hydro Electric Project,
NHPC Ltd.,
Karian, Distt. Chamba,
HP-176310
51. General Manager,
Chamera-III Hydro Electric Project,
NHPC Ltd., Dharwala, Distt.- Chamba,
HP-176311
52. General Manager,
Dhauliganga Hydro Electric Project,
NHPC Ltd., Tapovan, Dharchula, Pithoragarh,
Uttarakhand-262545

53. General Manager,
Dulhasti Hydro Electric Project,
NHPC Ltd.,
Chenab Nagar, Distt. Kishtwar,
J&K-182206
54. General Manager,
Uri 2 Hydro Electric Project, NHPC Ltd.,
Nowpora, Distt. Baramulla, J&K-193123
55. General Manager,
Parbati HE Project Stage-III Behali,
P.O- Larji Kullu 175122 Himachal Pradesh
56. Chief Engineer,
Sewa-II Power Station,
NHPC Ltd. Mashke, post Bag no-2,
P.O-Khari, Dist: Kathua, Jammu and Kashmir -176325
57. The Chief Engineer (Electrical),
Kishanganga HEP,
Office cum Residential colony, Kralpora,
Distt: Bandipora, Jammu and Kashmir-193502
58. Chief Engineer (Elect.),
Parbati-II HEP, Electrical & Mechanical complex,
Sainj, Distt. Kullu, Himachal Pradesh -175134
59. General Manager,
Naptha Jhakhri HEP,
Satluj Jal Vidyut Nigam Ltd. Power Project,
Jhakri, Rampur, Distt. Shimla, HP-172201
60. General Manager,
Rampur HEP,
Satluj Jal Vidyut Nigam Ltd. Power Project,
Jhakri, Rampur, Distt. Shimla, HP-172201
61. General Manager,
Tehri Hydro Development Corporation Ltd.,
Pragatipuram, Rishikesh,
Uttarakhand-249201
62. General Manager,
Koteshwar HEP, THDCIL, Koteshwerpuram,
Post Office- Pokhari Tehri Garwal, Uttarakhand - 249146

63. Director (Power Regulation),
Bhakra Power House, SLDC Complex,
66 KV Substation, Industrial Area Phase-I,
Madhya Marg, BBMB Chandigarh
64. General Manager, ADHPL,
Village- Prini, PO -Jagat Sukh,
Tehsil - Manali, Distt- Kullu (H.P) India.
65. General Manager,
Indra Gandhi Super Thermal Power Project,
PO -Jharli, Tahsil Matanhail, Dist – Jhajjar, (Haryana)-124125
66. General Manager,
Karcham Wangtoo HEP,
Himachal Baspa Power Company Limited,
Sholtu Colony, PO- Tapti, Dist-Kinnaur, -172104 (HP)
67. Director,
Malana - II Everest Power Pvt. Ltd,
Hall-A/ First Floor Plot No-143-144,
Udyog Vihar, Phase -4, Gurgaon, Haryana 122015
68. Company Secretary,
Shree Cement Thermal Power Project Bangurnagar,
Beawar , Dist Ajmer, Rajasthan -305901
69. Company Secretary,
Greenco Budhil HPS Ltd,
Plot No. 1367 Road No- 45,
Jubilee Hills, Hyderabad- 500033
70. Project General Manager,
Himachal Sorang Power Limited, D-7,
Lane-I, Sector-I, New Shimla, Shimla, H.P.-171009.
71. General Manager,
Sainj HEP, HPPCL, Larji,
Distric - Kullu, Himachal Pradesh, 175122

Western Region

72. MSLDC,
Airoli, Navi Mumbai, Airoli,
Thane - Belapur Road, Navi Mumbai-400708.
73. State Load Despatch Centre,
MPPTCL, Jabalpur,
O/o Chief Engineer (SLDC), MPPTCL, Nayagaon, Jabalpur

74. SLDC Gotri Vadodara,
Gujarat, 132kV Gotri s/s compound,
Opposite Kalpvrux Complex,
Gotri Road,
Vadodara
75. Chhattisgarh State Load Despatch Centre,
C.E(LD), State Load Despatch Centre,
CSPTCL, Daganiya-HQ,
Raipur, Chhattisgarh
76. General Manager, Korba STPS STG (I& II),
National Thermal Power Corporation,
P.O. Vikas Bhavan, Jamnipali,
Korba(Distt.),
Chhattisgarh- 495 450.
77. General Manager,
Korba STPS STG (III),
National Thermal Power Corporation,
P.O. Vikas Bhavan, Jamnipali,
Korba(Dist),
Chhattisgarh- 495 450.
78. General Manager,
STAGE-I, Vindhyachal STPS,
National Thermal Power Corporation of India Ltd,
P.O Vindhyanagar, Sidhi(Dist),
Madhya Pradesh – 486 885
79. General Manager,
STAGE-II, Vindhyachal STPS,
National Thermal Power Corporation of India Ltd,
P.O Vindhyanagar, Sidhi(Dist),
Madhya Pradesh – 486 885
80. General Manager,
STAGE-III, Vindhyachal STPS,
National Thermal Power Corporation of India Ltd,
P.O Vindhyanagar, Sidhi(Dist),
Madhya Pradesh – 486 885
81. General Manager,
STAGE-IV, Vindhyachal STPS,
National Thermal Power Corporation of India Ltd,
P.O Vindhyanagar, Sidhi(Distt.),
Madhya Pradesh – 486 885

82. General Manager,
Kawas Gas Power Project,
National Thermal Power Corporation of India Ltd,
P.O. Aditya Nagar,
Surat- 394 516
83. General Manager,
Gandhar Gas Power Project,
National Thermal Power Corporation of India Ltd,
P.O. NTPC Township, Bharuch(Distt.),
Gujarat- 392 215
84. General Manager,
SIPAT TPS Stg-I,
National Thermal Power Corporation of India Ltd,
SIPAT, Chhattisgarh.
85. General Manager,
SIPAT TPS Stg-II,
National Thermal Power Corporation of India Ltd,
SIPAT, Chhattisgarh.
86. General Manager,
Mouda STPP,
NTPC Ltd,
Mouda Ramtek Road,
P.O.Mouda, Nagpur (Dist),
Maharashtra
87. General Manager ,
2 X 135 MW Kasaipali Thermal Power Project,
ACB (India) Ltd.
District - Korba
Chhattisgarh Chakabura 495445
88. General Manager,
Bharat Aluminium Co. Ltd,
Captive Power plant-II,
BALCO Nagar Chhattisgarh, Korba 495 684
89. Executive Director,
Costal Gujarat Power Ltd,
Tunda Vandh Road, Tunda Village, Mundra,
Gujarat Kutch 370435
90. Executive Director,
DB Power,
Village - Baradarha, Post - Kanwali,
Dist - Janjgir, Champa, Chhattisgarh Baradarha 495695

91. Executive Director,
Jindal Power Ltd. Stg-I,
OP Jindal STPP, PO-Tamnar,
Gjarghoda Tehsil,
Chhattisgarh District - Raigarh, 496107
92. Executive Director,
Jindal Power Ltd. Stg-II,
OP Jindal STPP,
PO-Tamnar,
Gjarghoda Tehsil,
Chhattisgarh District - Raigarh, 496107
93. Executive Director,
Plot No Z-9,
Dahej SEZ Area (Eastern side),
Dahej, Taluka-Vagra, Gujarat Dist-Bharuch, 392130
94. Executive Director,
EMCO Power Ltd,
Plot No B-1, Mohabala MIDC Growth Center
Post Tehsil - Warora, Dist Chandrapur-Maharashtra 442907
95. Executive Director,
ESSAR POWER MP LTD.
Village Bandhora,
Post Karsualal, Tehsil Mada,
Distt. Singrauli, Madhya Pradesh-486886
96. General Manager,
GMR CHHATTISGARH ENERGY LTD
Skip House, 25/1, Museum Road
Karnataka Bangalore 560025
97. Managing Director,
Jaypee Nigri Super Thermal Power Project,
Nigri District, Madhya Pradesh
Singrauli 486668
98. Executive Director,
DCPP, OP Jindal STPP,
PO-Tamnar, Gjarghoda Tehsil,
Chhattisgarh District - Raigarh, 496107
99. Station Director,
Nuclear Power Corporation of India ltd,
Kakrapara Atomic Power Station,
PO - via Vyara, Gujarat Dist - Surat 395651

100. Station Director,
Tarapur Atomic Power Station 1&2,
Nuclear Power Corporation of India Ltd,
P.O. TAPP, Thane(Dist),
Maharashtra- 401 504
101. Station Director,
Tarapur Atomic Power Station 3&4,
Nuclear Power Corporation of India Ltd,
P.O. TAPP, Thane (Distt.),
Maharashtra- 401 504
102. Managing Director,
Korba West Power Co. Ltd.,
Village – Chhote Bhandar,
P.O. - Bade Bhnadar,
Tehsil - Pussore,
District - Raigarh,
Chhattisgarh Raigarh 496100
103. Managing Director,
KSK Mahanadhi,
8-2-293/82/A/431/A, Road No 22 Jubilee Hills
Andhra Pradesh Hyderabad 500033
104. General Manager,
LANCO Power Ltd,
Plot No - 397, Phase -III, Udyog Vihar, Haryana
Gurgaon 122016
105. General Manager,
NTPC-SAIL Power Company Private Ltd,
Puranena Village, Chhattisgarh Dist - Durg,
Bhilai 490021
106. General Manager,
Ratnagiri Gas & Power Pvt Ltd,
2nd Floor, Block-2, IGL Complex,
Sector-126, Expressway, Uttar Pradesh
Noida 201304
107. Managing Director,
Sasan Power Ltd,
DAKC, I Block, 2nd Floor, North Wing,
Thane Belapur Road, Koparkhairana Maharashtra
New Mumbai 400710

108. Managing Director,
Vandana Vidyut Bhavan,
M. G. Road
Chhattisgarh Raipur 492001
109. Managing Director,
RAPP Transmission Company Limited,
Mira Corporate Suites,
1&2 Ishwar Nagar,
Okhla crossing,
Mathura road,
New Delhi, 110065
110. General Manager,
LARA,
National Thermal Power Corporation of India Ltd,
Chappora, PO-Pussora,
Raigarh, Chhattisgarh.
111. General Manager,
Solapur,
National Thermal Power Corporation of India Ltd,
Western Region HQ,
Samruddhi Venture Park,
2nd Floor, MIDC Marol,
Andheri East, Mumbai,
Maharashtra.

Eastern Region

112. State Load Despatch Center,
GRIDCO Colony
PO-Mancheswar Railway Colony,
BBSR Bhubaneshwar -751070
113. State Load Despatch Center,
Jharkhand State Electricity Board (JSEB)
Kushai Colony, Doranda,
Ranchi-834002
114. SLDC-BSEB,
Patna, Bihar State Electricity Board,
Vidyut Bhawan, Jawaharlal Nehru Marg,
Patna-800021
115. SLDC-W.Bengal,
P.O. Danesh Seikh Lane,
Andul Road
Howrah – 711109

116. Damodar Valley Corporation,
DVC Tower,
VIP Road, Kolkata,
WB 700054
117. Energy and Power Deptt.,
Govt. of Sikkim
Kazi Road,
Gangtok 737 201
118. General Manager,
Farakka Super Thermal Power Plant-I&II,
NTPC Ltd.,
Farakka, WB 742236
119. General Manager,
Farakka Super Thermal Power Plant-III,
NTPC Ltd.,
Farakka, WB 742236
120. General Manager,
Kahalgaon Super Thermal Power Plant-I NTPC Ltd,
Bhagalpur Bihar 813214
121. General Manager,
Kahalgaon Super Thermal Power Plant-II NTPC Ltd,
Bhagalpur Bihar 813214
122. Executive Director,
Talcher Super Thermal Power Stn-I NTPC Ltd,
Nayapalli, Odisha 751012
123. Addl. General Manager,
National Thermal Power Corporation Limited,
BARH Thermal Power Station, Patna, Bihar 803213
124. GM(O&M),
Kanti Bijlee Utpadan Nigam Limited
Muzaffarpur Thermal Power Station Bihar Muzaffarpur 843130.
125. The General Manager(O&M),
Bharatiya Rail Bijlee Company Ltd.
Nabinagar,Khera Police Station Dist.-Aurangabad, Bihar-824303
126. General Manager (O&M),
Darlipali Super Thermal Power Project NTPC Ltd.
Odisha Darlipali,Sundergarh 770072.(upcoming)

127. Chairman, Damodar Valley Corporation
DVC Tower, VIP Road West Bengal Kolkata 700054
(Not an ISGS but have many generating units)
128. Chief Engineer (Elect),
Teesta V HEP,
NHPC,
Singtam, East Sikkim 737134
129. Chief Engineer,
Rangit Hydro Electric Project NHPC,
P.O. Rangit Nagar
South Sikkim 737111
130. CEO,
Maithon Power Limited
MA-5 Gogna Colony,
P.O: Maithon, Dhanbad,
Jharkhand 828027
131. DGM (Electrical), Adhunik Power & Natural Resource Limited
Village: Padampur, PS: Kandra Tata-Seraikela Road,
Jharkhand 832105
132. GM (Power Sales & Regulatory),
GMR Kamalanga Energy Ltd,
Plot No.-29, Satyanagar,
Bhubaneswar, Odissa-751007
133. Head Power & Sales,
Jindal India Thermal Power Ltd.,
Plot No.12,Local Shopping Complex,
Sector-B1,Vasant Kunj, New Delhi- 110070
134. Advisor(Power),
Ind-Barath Energy Utkal Ltd ,
Sahajbahal, PO CgarpaliBarpali,
Dist - Jharsuguda, Odisha , Pin – 768211
135. GM(C & RA),
Odisha Power Generation Corporation Ltd.,
Zone-A, 7th Floor, Fortuna Towers,
Chandrashekharpur, Odisha Bhubaneswar 751023. (Upcoming)
136. Sr. Vice President(O&M),
Teesta Urja Ltd.(Teesta -III HEP)
Vijaya Building, 2nd Floor, 17 Barakhamba Road
New Delhi New Delhi 110001

137. Asst. General Manager ,
DANS ENERGY PVT. LTD.
5th Floor, DLF Building No. 8,
Tower C, DLF Cyber City, Phase – II,
Gurgaon- 122002, Haryana
138. Chairman,
GATI Infrastructure Ltd,
268, UdyogVihar,
Phase-IV, Gurgaon,
Haryana 122001
139. President –Technical,
Shiga Energy Private Ltd.
5th Floor, DLF Building No.8,
Tower C, Phase-II, Haryana Gurgaon 122002
140. VP (Commercial),
Sneha Kinetic Power Project Private Ltd
1366, Road no. 45, Jubilee Hills
Telangana Hyderabad 500033

Southern Region

141. Andhra Pradesh State Load Dispatch Centre,
Room No. 611, 6th Floor, A Block APTRANSCO,
Vidyut Soudha, Khairatabad
142. State Load Despatch Centre,
KPTCL, 28, Race course Cross Road,
Bangalore -560009
143. State Load Despatch Centre, Kalamassery,
Executive Engineer O/o Chief Engineer, (Transmission),
System Operation, Kalamassery-683503
144. System Control Centre,
Electricity Department, Puducherry,
137, Nethaji Subhash Chandra Bose Salai,
Electricity Department-605001
145. TANTRANSCO, SLDC, MLDC
Block, 144 Anna Salai, Chennai-600002
146. Telangana SLDC, Chief Engineer,
Room No 611 A Block,
SLDC of the State of Telangana (TSSLDC),
TSTRANSCO, Vidyut Soudha,
Khairtabad, Hyderabad-500082

147. General Manager,
National Thermal Power Corporation Ltd.,
SR Headquarters II & V Floors,
MCH Complex,
R.P. Road, Secunderabad-500 003,
148. General Manager,
National Thermal Power Corporation Ltd.,
SR Headquarters II & V Floors,
MCH Complex,
R.P.Road, Secunderabad-500 003,
149. General Manager,
Neyveli Lignite Corporation Ltd.,
Corporate Office, Block-01,
P.O. Neyveli, PIN: 607 801,
Cuddalore Distt., Tamil Nadu State.
150. The Deputy General Manager,
Neyveli Lignite Corporation Ltd.,
Corporate Office, Block-01,
P.O. Neyveli, PIN: 607 801,
Cuddalore Dist., Tamil Nadu State.
151. The Deputy General Manager,
Neyveli Lignite Corporation Ltd.,
Corporate Office, Block-01,
P.O.Neyveli, PIN: 607 801,
Cuddalore Dist., Tamil Nadu State.
152. The Deputy General Manager,
Neyveli Lignite Corporation Ltd.,
Corporate Office, Block-01,
P.O.Neyveli, PIN: 607 801,
Cuddalore Dist., Tamil Nadu State.
153. The Station Director,
Madras Atomic Power Station,
Nuclear Power Corpn. Of India Ltd.,
Kalpakkam – 603 102, Tamil Nadu State
154. The Deputy General Manager,
Kaiga Generating Station,
Nuclear Power Corpn. of India Ltd.,
P.O.Kaiga, Via Karwar,
Karnataka - 581400 , Karnataka State.

155. The Station Director,
Kudankulam Nuclear Power Project, Unit -1
Nuclear Power Corporation of India Ltd.,
P.O. Kudankulam, Radhapuram Taluk Tirunelveli District,
Tamil Nadu - 627 106
156. The Station Director,
Kudankulam Nuclear Power Project, Unit -2
Nuclear Power Corporation of India Ltd.,
P.O. Kudankulam, Radhapuram Taluk Tirunelveli District,
Tamil Nadu - 627 106
157. The Chief Operating Officer,
LANCO- Kondapalli Power Ltd., Stage-II
Plot No.4, Software Units Layout,
Hitech City, Madhapur,
Hyderabad-500 081. Andhra Pradesh State
158. The Chief Operating Officer,
LANCO- Kondapalli Power Ltd., Stage-III
Plot No.4, Software Units Layout,
Hitech City, Madhapur,
Hyderabad-500 081. Andhra Pradesh State
159. General Manager (O&M),
NTPC Tamilnadu Energy Company Ltd.,
Vallur Thermal Power Project,
Vellivoyalchavadi P.O.,
Ponneri Taluk, Tiruvallur Dist.,
Chennai – 600103, Tamil Nadu State.
160. Sr. Vice President,
Meenakshi Energy Pvt. Ltd.,
Meenakshi, Plot No: 119,
Road No: 10, Jubilee Hills,
Hyderabad-500 033.
161. The Chief Executive Officer,
NLC Tamil nadu Limited,
2*500, MW JV Thermal Power Project,
Harbour Estate,
Tuticorin, PIN: 628004, Tamil Nadu State.
162. Thermal Power Tech Corporation India Limited,
SPSR Nellore, 6-3-1090,
A-Block, 5th Floor, TSR Towers,
Raj Bhavan Road, Somajiguda,
Hyderabad, 5000082.

163. Sr. Vice President,
Meenakshi Energy Pvt. Ltd.,
Meenakshi, Plot No: 119,
Road No: 10, Jubilee Hills,
Hyderabad-500 033.
164. The General Manager (Projects),
Simhapuri Energy Pvt. Ltd.,
Madhucon Greenlands, 6-3-866/2,
3rd Floor, Begumpet,
Hyderabad-500016.
165. Managing Director,
Coastal Energen Pvt. Ltd,
7th Floor, Buhari Towers,
4 ,Moores Road,
Chennai, PIN: 600006, Tamil Nadu State
166. The Chief Commercial Officer (CCO)
SEMBCORP Energy India Ltd.,
6-3-1090, A-Block, 5th Floor,
T.S.R Towers, Raj Bhavan Road,
Somajiguda, Hyderabad 500082, Telangana
167. Senior General Manager,
IL & FS Tamilnadu Power Company limited,
C. Pudhupettai post,
Parangipettai (via), Chidambaram(tk.),
Cuddalore-608502, Tamil Nadu.
168. General Manager,
Sembcorp Gayatri Power Ltd.,
TP Gudur Mandal,
Nellore-524344, Andhra Pradesh.

North Eastern Region

169. State Load Despatch Centre,
Agartala, 79 Tilla, Kunjaban, Agartala,
Tripura (West)
170. Department of Power,
Government of Nagaland, SLDC Nagaland,
Electricity Colony,
Full Nagarjan Dimapur, Nagaland
171. Mizoram State Load Despatch Centre,
Tuikhuahtlang, Aizawl -796001

172. State Load Despatch Centre,
Assam, SLDC, AEGCL,
Near 132kv Grid Sub Station,
Kahilipara, Guwahati
173. General Manager,
Doyang HEP, NEEPCO,
Wokha, Nagaland
174. General Manager,
Ranganadi HEP, NEEPCO,
P.O. Ranganadi Proj. Dist. Subansiri,
Ar. Pradesh-791121
175. General Manager,
AGBPP, NEEPCO,
Kathalguri, Tinsukia, Assam
176. General Manager,
AGTPP, NEEPCO,
Ramchandranagar, Agartala, Tripura
177. General Manager,
KHANDONG HEP, NEEPCO,
Umrangsoo, N.C.Hills, Assam
178. General Manager,
KOPI LI HEP, NEEPCO,
Umrangsoo, N.C.Hills, Assam
179. General Manager,
KOPI LI-2 HEP, NEEPCO,
Umrangsoo, N.C.Hills, Assam
180. Chief Engineer,
NHPC
Loktak HEP Leimatak-795124, Manipur
181. Ranganadi HEP (NEEPCO)
Ranganadi HEP, NEEPCO Ltd.,
Yazali, Dist. Lower Subansiri,
Andhra Pradesh-791119
182. Managing Director,
ONGC Tripura Power Company Ltd,
6th Floor, A Wing, IFCI Tower-61,
Nehru Place, New Delhi, 110019

183. General Manager,
Bongaigaon TPP, NTPC Ltd.,
P.O.-Salakati, Kokrajhar Dist.
Assam-783369
184. Kameng HEP (NEEPCO),
EMG, Kameng HEP, NEEPCO, Kimi,
P.O.- Bhalukpong, Post Box-2, West Kameng
Dist., Arunachal Pradesh, PIN – 790114
185. Pare HEP (NEEPCO),
Pare HEP, NEEPCO Ltd, Sopo,
P.O- Doimukh, Dist- Papumpare,
Arunachal Pradesh, PIN – 791112
186. State Load Despatch Centre,
Agartala, 79 tilla, Kunjaban,
Agartala, Tripura (West)
187. Department of Power,
Government of Nagalnd,
SLDC Nagaland, Electricity Colony,
Full Nagarjan Dimapur, Nagaland.
188. Mizoram State Load Despatch Centre,
Tuikhuahtlang, Aizawl -796001
189. State Load Despatch Centre,
Assam, SLDC, AEGCL,
Near 132kv Grid Sub Station,
Kahilipara, Guwahati

...Respondents

190. Member Secretary,
Northern Regional Power Committee
18-A, Shaheed Jeet Singh Sasanwal Marg,
Katwaria Sarai,
New Delhi-110 016
191. Member Secretary,
Southern Regional Power Committee
29, Race Course Cross Road,
Bangalore-560 009.
192. Member Secretary,
Eastern Regional Power Committee
14, Golf Club Road,
Kolkata-700 033

193. Member Secretary,
Western Regional Power Committee
F-3, MIDC Area,
Andheri (East),
Mumbai-400 093
194. Member Secretary,
North Eastern Regional Power Committee
NERPC Complex,
Dong Parmaw,
Lapalang,
Shillong-6
195. Chief Engineer (Grid Management),
Central Electricity Authority Sewa Bhawan,
R.K.Puram,
New Delhi-110 022.
196. Chief Engineer
(National Power Committee),
Central Electricity Authority,
18-A, Shaheed Jeet Singh Sasanwal Marg,
Katwaria Sarai, New Delhi-110 016

...Proforma Respondents

Parties Present: Shri S.R. Narasimhan, NLDC
Shri N. Nallarasana, NLDC
Shri Phanisankar Chilakuri, NLDC

ORDER

The Petitioner, National Load Dispatch Centre (NLDC) is the system operator at the national level and has made the following prayers:

- a) *Direct all ISGS stations whose tariff is regulated / determined by CERC to install equipment as per the requirement mentioned in the Petition at the unit control rooms for transferring the required data for AGC by 30th June 2019.*
- b) *Direct all ISGS stations whose tariff is regulated / determined by CERC to ensure communication from nearest wide band node to the RTU in the unit control room by 30th June 2019.*
- c) *Direct Central Transmission Utility (CTU) to ensure communication availability*

from NLDC/RLDCs to nearest wide band node/switchyard for the generating stations in a redundant and alternate path ensuring route diversity and dual communication by 30th June 2019.

- d) Decide the mark up price for secondary regulation service through AGC.*
- e) Allow NLDC/RLDCs to test, tune and operate the AGC system for providing the signals to the power plants as and when they comply with the directions above.*
- f) Allow any variation in the generation during testing phase to be settled under DSM.*
- g) Allow NLDC/RLDCs to put all the Phase-I plants under continuous operation on AGC before 31st December 2019.*
- h) Direct Phase-II plants in the detailed modus operandi to provide infrastructure at RTU/internal communication.*
- i) Road map for implementation of AGC at RLDCs in future may be accepted.*
- j) Pass any other orders as this Commission may deem fit and proper under the given facts and circumstances.*

SUBMISSIONS OF THE PETITIONER

2. The Petitioner has submitted that vide Order dated 13.10.2015 in petition no 11/SM/2015, the Commission gave the roadmap for ‘Operationalization of Generation Reserves in the Country’. The Order mandated that each region should maintain primary, secondary and tertiary reserves. The objective of the Order was to introduce ‘Spinning Reserves’ in the country, which is one of the important components for ensuring grid security, quality and reliability by achieving adequacy of supply and maintaining load-generation balance. All generating stations that are regional entities were directed to ‘must plan’ operationalization of Automatic Generation Control (AGC) along with reliable telemetry and communication by 01.04.2017. The Commission noted that this would entail a one-time expense for the generators to install requisite software and firmware, which could be compensated for and that the communication infrastructure must be planned by the Central Transmission Utility (CTU) and developed in parallel, in a cost-effective manner.

3. The Commission directed the Petitioner to upload the detailed modus operandi on ‘Operationalization of Spinning Reserves’ on NLDC website and seek comments from the

stakeholders by 11.08.2017 and file the comments received from stakeholders within two weeks thereafter. Accordingly, the report was also uploaded on the NLDC website.

4. The Petitioner has submitted that the detailed implementation plan was also discussed in the National Power Committee (NPC) meeting held at Indore on 08.09.2017. An agenda on 'secondary frequency control' was sent to NPC for discussion in the respective Regional Power Committees (RPC). The Expert Group constituted (in May 2017) by the Commission to review and suggest measures for bringing power system operation closer to National Reference Frequency, recommended that the frequency control continuum as given in their report may be adopted and included as part of the Grid Code (hereinafter referred to as 'IEGC') through an amendment to Central Electricity Regulatory Commission (Indian Electricity Grid Code) Regulations, 2010. Further, it was recommended that AGC must be implemented throughout the country at the earliest in line with the Commission's recommendation of treating a region as a balancing area and that the Performance Metrics for AGC payments may be introduced once sufficient experience is gained through the pilot project (carried out at Dadri generating station of NTPC). AGC at the intra-State level, particularly for large states, was to be implemented in line with directions by the Appropriate Commission(s).

5. The Petitioner has submitted that the Commission in its order dated 06.12.2017 in Petition No. 79/RC/2017 approved the Commissioning of the AGC Pilot Project between NLDC and NTPC Dadri Stage-II and various developments in the AGC Pilot were acknowledged by the Commission. Vide the above order, the Commission also directed that similar pilot projects may be replicated by NLDC, in at least one other regional grid of the country. Dadri Stage-II was successfully taken under remote as a part of AGC pilot project from NLDC from 1225 Hrs. of 04.01.2018 and is under continuous operation. Further, data is being submitted by NLDC to NRPC in the agreed format on a weekly basis.

6. The Petitioner has submitted that Karnataka Power Transmission Corporation Limited (KPTCL) together with (United States Agency for International Development (USAID) has proposed AGC pilot project on Varahi and Sharavathi Hydro Power Plants. On 10.02.2018, SRLDC, USAID and NLDC visited NP Kunta solar park in Andhra Pradesh for understanding the feasibility of AGC implementation. USAID agreed to take the AGC implementation at NP Kunta Solar power project under 'Greening the Grid' (GtG)-RISE

project. The matter was also discussed in the 33rd meeting of SRPC held on 17.02.2018 at Puducherry. A workshop was organised by USAID and NLDC on 15.05.2018 at Andhra Pradesh SLDC, Vijayawada to explain the basic architecture of the AGC project and the proposed project at NP Kunta to stakeholders.

7. On 18.05.2018, Letter of Award was issued by NTPC Simhadri to M/S Siemens for the supply, testing and commissioning of software and hardware and implementation of the AGC pilot project at NTPC-Simhadri. AGC on Barh (Eastern Region), Bongaigaon (North Eastern Region) and Mauda (Western Region) are power plants of NTPC under contracting phase of implementation.

8. The Petitioner has submitted that it has started up-gradation of SCADA from October 2017. AGC set up is envisaged to be capable of sending and receiving AGC signals to all Regional Entity generating stations to start with for the first time in India. The RLDCs' SCADA/EMS system was recently upgraded before AGC was notified through the Commission's Order. Hence, considering a region as a balancing area, AGC is being implemented through NLDC, which is a unique experiment as five (5) AGCs are being operated from a single control center at NLDC. Further, as a next step, discussion could start on the roadmap to progressively shift AGC control to RLDCs over the next 3-5 years. At the intra-regional level, discussion at RPC level is on for introducing AGC at least in the few intra-State generators in RE-rich States.

9. The Petitioner has submitted that the CERC (Communication System for inter-State transmission of electricity) Regulations, 2017 has provided detailed roles and responsibilities of various organizations with respect to communication. NLDC was given the responsibility for preparation and issuance of guidelines with the approval of the Commission on the interfacing requirements in respect of terminal equipment, RTUs, SCADA, PMUs, Automatic Generation Control (AGC), Automatic Meter Reading (AMR), Advanced Metering Infrastructure (AMI), etc. and for data communication to the respective control centres. The Generic Technical Specifications for AGC connecting equipment that has to be procured by the power plants were prepared by the Petitioner based on the experience of the AGC pilot project (at Dadri) for full scale implementation of AGC. Generating stations have to install AGC connecting equipment at the unit control rooms for transferring the required set of data for AGC.

10. The Petitioner has submitted that Regional Secondary Reserves quantum, mandated by the Commission are given as below:

Secondary Reserves quantum needed in MW (Region wise)	
NR	800
ER	660
WR	800
SR	1000
NER	363
Total	3623

11. The Petitioner has suggested that the detailed implementation plan pan-India for AGC implementation is proposed in the following manner:

Phase-I

(a) Inter-State Generating Stations (ISGS) generators, whose tariff is regulated/ adopted by the Commission, are proposed to be made capable of participating in ‘Secondary Control’ since the tariff for these generators is already available and there are fewer communication issues. This is also because in case of these generating stations, Ancillary Services/ AGC Pilot Project Framework is available for settlement (without the refund of fixed charges as mentioned in the Half Yearly Feedback on Ancillary Services and CERC Order on AGC Pilot Project) and, therefore, its implementation is expected to be dispute free. However, limiting AGC implementation to only these generating stations may not be sufficient to ensure availability of the full quantum of reserves as mandated by the Commission.

Phase-II

(b) All Regional Entity generating stations scheduled by RLDCs (over and above the Phase-I power stations mentioned above) can be made capable of participating in secondary control. However, Declared Capability (DC) at present is not taken from these generating stations by RLDCs. Some Independent Power Producers (IPP) have part Power Purchase Agreements with discoms/ traders while part capacity is untied, and power is sold under merchant contracts. Tariff for these generators has to be

decided and agreed upon *a priori* for secondary control participation of these generators. DC and Schedule have to be obtained from these generators similar to Central Sector generating stations for reserve estimation. Many of these regional entity generating stations operate in the day-ahead energy market and the day-ahead prices may have a significant role in respect of these generating stations as far as availability to the grid at any instant is concerned. Low prices in the Day-Ahead Market (DAM) on a sustained basis may lead to many of these units remaining off the grid. The following, inter-alia, may be the requirements for the Regional entity generating stations equipped under Secondary Control:

- The generating stations shall bear the cost of secondary control hardware at the generating station end including the cost of the fibre optic cable from the generating station control room to the nearest communication node.
- Share DC and Schedule like ISGS generators on day ahead basis and subsequent revisions with RLDCs.
- Payment for energy and incentive will be as decided by the Commission.
- The generating stations shall have working control systems for turbine, boiler and governor. Governor response plots/ graphs of past incidents have to be submitted to concerned RLDC.
- Existing wide band communication node to be established within a radius below 30-40 km from the plant to communicate with the nearest RLDC. Distance need not be a binding limitation and the connectivity of the generating station with the communication node can be seen on case to case basis based on merit.

12. The Petitioner has submitted that Primary, secondary and tertiary generation reserves are required for frequency control and ensuring reliable operation of the grid, particularly under high Renewable Energy (RE) penetration. Primary control provision has been existing in the IEGC but its enforcement has been an issue that has been highlighted before the Commission. Secondary control had been absent in the system so far while tertiary frequency control was introduced only in April 2016 through the Central Electricity Regulatory Commission (Reserves Regulation Ancillary Services) Regulations, 2016 (or for short, RRAS Regulations). Through Order dated 16th July 2018 in Petition No. 07/SM/2018, Fast Response Ancillary Services or FRAS was ordered by the Commission for central sector hydro stations and is under implementation phase.

13. The Petitioner has submitted that the following issues become important when one looks at the entire continuum of frequency control:

- i. Ensuring accurate load forecasting and Renewable Energy (RE) forecasting: This is the first step towards reliability as generating units need to get committed based on the forecasts. Starting from Discom level, the forecasts need to be aggregated for the State at SLDCs level, at RLDCs for the regional level and at NLDC for the All-India level.
- ii. Evaluating Area Control Error (ACE) of each control area: Bias may be taken as equal to Frequency Response Characteristics (FRC) of the State in past ten events. For ACE, high quality measurement of line flows and frequency at 10 seconds or better periodicity at LDCs is a must. Further, seamless transfer of schedule data from off-line systems to SCADA must be ensured. RLDCs are already bringing forth the non-availability of real time data in the RPC forums and this needs to be addressed promptly.
- iii. Primary Response: The SLDCs must also monitor the primary response from the generating units within the State and report to the respective SERCs as directed by CERC vide its order dated 31st July 2017 in Petition No. 84/MP/2015.
- iv. Measurements: For AGC, high quality measurements are needed for inter-regional tie lines and generating stations under AGC. As stated above, periodic monitoring of the data quality needs to be done at the RPC forums and chronic problems of non-availability of data are addressed promptly so that real time operation is smooth.
- v. Fiber Optic Communication: Fiber optic communication from Regional Entity generating station to nearest CTU node and from there on to RLDCs/ NLDC is a must and it could be closely monitored through the RPC forums. This is required irrespective of whether we have a regulated system of secondary reserves procurement or a market based one.
- vi. Participation: ACE is allocated to the generating stations under AGC based on the selected participation factor mode in the AGC software. The participation of each generating station will be calculated by the AGC software based on the weightage assigned to different attributes of the plant and the grid. Spinning reserve availability, ramp rate and variable cost of the generating station are the important attributes that are typically considered. In case of inter-/ intra-regional transmission constraints during

outages, certain plants may not be able to participate in AGC till normalization of transmission system.

14. The Petitioner has submitted that ‘Spinning Reserves’ viz. DC on bar minus schedules available in real time in ISGS is currently used for rescheduling/ tertiary reserves by States, tertiary frequency control through Reserves Regulation Ancillary Services and now being envisaged for secondary control through AGC. It is also available for primary control though the IEGC clearly specifies that the schedules should not exceed capacity on bar less Normative Auxiliary Consumption. This ensures that even if the power plant is fully scheduled, the overload capacity and margins in auxiliary consumption is able to provide primary response.

15. The Petitioner has submitted that after the forecast of load and RE generation, the scheduling of conventional generation resources by the States assumes importance. Here, apart from scheduling, the States also need to indicate the amount of hot spinning reserves it is holding. The reserves could be held either within the State or at the ISGS where the State has a share but it should be replenished whenever there is a contingency such as a generating unit tripping within the State. Unless such a mechanism is in place, the secondary control would not work as all the reserves would get depleted quickly. DC on bar less the schedules equals the hot spinning reserves. It was observed that hot spinning reserve gets depleted daily during the morning and evening peak hours when States requisition their full entitlement. Under this situation, the State utilities ought to have reserves elsewhere within the State.

16. The Petitioner has submitted that on 06.09.2018, the Commission has issued a discussion paper on ‘*Redesigning Ancillary Services Mechanism in India*’ and comments were invited from stakeholders. The Petitioner is of the view that the physical infrastructure in terms of communication and suitable hardware/ software at the power plants is sine qua non for secondary control through AGC irrespective of whether the same is regulated or market-based. The only variable is the quantum of secondary reserves required on day to day basis.

PROCEEDINGS DURING HEARING

17. The Petition was admitted on 25.10.2018. During the hearing on 31.1.2019, the

Petitioner submitted that the present petition has been filed for implementation of AGC in India.

18. The Petitioner further submitted that the Commission in its Order dated 06.12.2017 in Petition No. 79/RC/2017 approved the commissioning of AGC pilot project between NLDC and NTPC Dadri Stage-II and the Commission also directed that similar pilot projects may be replicated by NLDC, in at least one other regional grid of the country. Accordingly, one plant in each region has been identified and AGC has also been commissioned in Simhadri and Mauda generating station.

19. The Petitioner requested the Commission to direct ISGS to install the equipment in power plants for accepting signals from NLDC. After hearing, the Commission directed the Petitioner to furnish the Minutes of Meeting held with RPCs wherein RPCs have given their consent to the AGC pilot project. The Commission further directed the Petitioner to submit the feedback report on the operation of AGC at NTPC Dadri Stage-II along with the summary of findings of this pilot project.

20. The Petitioner has complied with the directions and submitted the minutes of the special meetings on AGC pilot project which were held with all RPCs. The Petitioner has also submitted the feedback report before the Commission on 15th February 2019, highlighting the learning from the pilot project. Several learning including those on the implementation aspects, communication protocols, generator regulation and load following capabilities, metering, monitoring, visualisation, accounting etc. were gathered via pilot project and explained in the feedback report. The Pilot projects have also provided capacity building in the field of AGC which will be useful during implementation of secondary control on a large scale.

ANALYSIS & DECISION

21. We have heard the Learned Counsels for the Petitioner and have carefully perused the records.

22. The Commission is of the view that the most important responsibility of the Power System operators is to maintain reliability of the Power System by maintenance of Load -

Generation balance. For a large complex grid such as the Indian grid, primary, secondary and tertiary frequency controls are must-have tools to ensure reliability. With the objective of ensuring grid security, quality and reliability, the Commission vide Order dated 13.10.2015 in Petition no 11/SM/2015 had laid down a roadmap for '*Operationalization of Generation Reserves in the Country*'. It was envisaged that apart from the primary reserve at the national level, secondary reserve should be maintained by each region and tertiary reserve by each State. All the generating stations that are regional entities were directed to plan to operationalize AGC along with reliable telemetry and communication by 01.04.2017. The NLDC was directed to submit a detailed procedure to operationalize reserves in the country vide Order dated 13.10.2015.

23. The Commission notes that an 'outline procedure' was submitted by NLDC vide letter dated 15.12.2015 in which it was proposed to take up a pilot project with one of the NTPC plants in a region based on which further activities could be taken up. On 05.02.2016, NLDC was advised to submit the draft detailed procedure and implementation plan for operationalization of Reserves within three months of implementation of Ancillary Services Regulations. After various brainstorming sessions and meetings, NLDC submitted the detailed procedure on Operationalization of Spinning Reserves on 14.07.2017 and recommended that secondary control should be added as an Ancillary Service.

24. The Commission observes that the 'National Electricity Policy' also mandates that adequate reserves may be maintained to ensure secure grid operation. The Commission is of the view that collective efforts of the stakeholders in implementation of the AGC are a step forward and will go a long way in development of the secondary reserves in the country leading to stable frequency operation and grid security and reliability.

25. The Commission observes that the feedback on implementation of AGC submitted by NLDC highlights the need for enhancing adequacy of reserves in the country. It has been stated that valuable experience has been gained in terms of implementation aspects, communication protocols, generator regulation and load following capabilities, cyber security etc. which is useful during implementation of secondary control on a large scale. The Petitioner has submitted that from the interactions with national and international experts on power systems and experience with Ancillary Services till date, the general understanding was that different solutions as a package like load and Renewable Energy (RE) generation

forecast, proper portfolio management by the States, primary response from the generators, secondary control in the form of AGC, Ancillary Service products in different timeframes etc. are needed for stable frequency operation of the power system. No unique solution existed. NLDC report emphasised that a bad or no forecast of load/ RE generation and poor portfolio management by the State utilities would lead to heavy deviations from schedule and grid indiscipline exhausting all reserves in the system and making the system insecure. AGC effectiveness would have to be seen in this overall context. It was further highlighted in the feedback report that deployment of two-three plants under AGC with 200 MW-300 MW reserve might not be sufficient for a grid size like that of India. The Commission observes that the Expert Group on 'National Reference Frequency' in its report submitted to the Commission in November 2017 recommended that AGC must be implemented throughout the country at the earliest and Performance Metrics for such AGC payments may be introduced once sufficient experience is gained through the pilot project.

26. The Petitioner has suggested that implementation of AGC be undertaken in Phases. Under Phase-I, ISGS generators, whose tariff is regulated/ adopted by the Commission, are proposed to be made capable of participating in 'Secondary Control'. Dadri Stage-II NTPC in Northern Region was the first AGC pilot project of the country which was approved by the Commission vide Order in Petition No.79/RC/2017 on 06.12.2017 and is in continuous operation from 1225 Hrs. of 04.01.2018. The Commission also directed that similar pilot projects may be replicated by NLDC, in at least one other regional grid of the country. Accordingly, four more AGC pilot projects have been/are being implemented viz. Simhadri Stage-II in Southern Region, Mauda Stage-II in Western Region, Barh Stage-II in Eastern Region and Bongaigaon in North-Eastern Region.

27. The Commission observes that there is one-time expense involved for the generators to install requisite software and firmware. The Commission has been informed that the implementation cost i.e. placing of order for the equipment and integration cost of the four AGC pilot projects which have been commissioned viz. Dadri Stage-II NTPC in Northern Region Simhadri Stage-II in Southern Region, Mauda Stage-II in Western Region and Barh Stage-II in Eastern Region, is in the range of Rs. 30.00 lakhs to Rs. 50 lakhs per generating station. The Commission accepts the Petitioner's proposition that the cost of such equipment at generating stations for AGC implementation is not significant and ideally all ISGS stations should be AGC enabled. The Commission notes that majority of the thermal stations

regulated by the Commission have station capacity of 200 MW and above and the AGC support is mainly expected from these facilities apart from the hydro generating stations other than Run-of-River projects. It will therefore be prudent, also from the point of view of cost effectiveness to ensure that the thermal generating stations with installed capacity of 200 MW and above and all hydro stations with capacity exceeding 25 MW necessarily have the capability to provide AGC support. Further, the Commission is of the view that with due regard to the nature of the Run-of-River Hydro projects it may not be advisable to mandate such plants to provide AGC support, as this might lead to spillage/ under-utilization of water, which should be avoided. Accordingly, the Commission directs all thermal Inter State Generating Stations (ISGS) that are regional entities with installed capacity of 200 MW and above and all hydro stations with capacity exceeding 25 MW excluding the Run-of-River Hydro Projects irrespective of size of the generating station and whose tariff is determined or adopted by the Commission, to install the required software and firmware for implementation of AGC at the unit control rooms for transferring the required set of data for AGC. These regional entity generators may approach the Commission under relevant regulations and provisions of PPA for compensation of this one-time cost. The Commission also directs the Central Transmission Utility and the NLDC to commission the required communication system in parallel.

28. Once the aforesaid generating stations are AGC enabled, NLDC/ RLDCs shall be allowed to test, tune and operate the AGC system for providing the signals to the power plants. With this decision to make the ISGS stations AGC compliant, the Commission is of the view that any other pilot beyond the five pilots already initiated by NLDC, may not be needed.

29. As regards compensation for AGC support and deviation charges, it is clarified that the framework in this regard as stipulated in the Commission's Order in Petition no. 79/RC/2017 dated 06.12.2017 shall apply to the five pilot projects as also to other ISGS as and when they are AGC enabled. This arrangement shall remain in place till further Orders or till relevant regulations inter-alia on compensation for AGC services are framed by the Commission.

30. The Commission has noted the suggestions of the Petitioner for covering under Phase-II, other regional entity generators (other than those whose tariff is determined or adopted by

the Commission). The Commission is of the view that decision on this issue cannot be taken in the present petition. It needs wider consideration.

31. The Commission observes that NLDC in its report on implementation of RRAS, has recommended moving towards market-based procurement of ancillary service for a more robust design. The relevant excerpt is reproduced below:

“Once the scope of present implementation of ancillary services is enlarged from the regulated generation stations at inter-state level to include state-level generators also, a critical mass would be achieved. Moreover as more and more generators start participating in regulation services, closer monitoring of the performance of generating stations would also be needed. The implementation would also be more robust by design and subsequently, based on the experience gained, market based procurement of ancillary services could also be thought of.”

32. The Commission is of the view that the experience gained under RRAS underlines the need for a calibrated approach to transform the extant administered Ancillary Services mechanism to a market-based mechanism with the objective of increasing the ambit of potential providers of such services at efficient costs and enhanced reliability of the grid. The Staff Paper on *‘Redesigning Ancillary Services Mechanism in India’* issued by staff of the Commission on 06.09.2018 has highlighted that the physical infrastructure in terms of communication and suitable hardware/ software at the power plants is sine qua non for secondary control through AGC irrespective of the fact whether the same is regulated or market-based. The only variable is the quantum of secondary reserves required on day to day basis.

33. The Commission observes that given the changes in technology, generation mix and increasing decentralized generation, and locational ancillary requirements, long term bilateral contracts for ancillary support should be avoided. Same resource can provide multiple flexibility services. For example, a generator that can provide fast tertiary response can also provide slow tertiary response. An arrangement which bundles multiple flexibility services has some advantages – by allowing such generators to utilize their capabilities to serve various system requirements thereby reducing the cost of providing individual services. Accordingly, the Commission directs the staff of the Commission to initiate a comprehensive review of Ancillary services framework based on these principles, and present to the Commission for suitable decision.

ix. All new thermal ISGS stations with installed capacity of 200 MW and above and hydro stations having capacity exceeding 25 MW excluding the Run-of-River Hydro Projects irrespective of size of the generating station and whose tariff is determined or adopted by CERC shall mandatorily have the capability to provide AGC support.

35. With the above directions, Petition No. 319/RC/2018 stands disposed of.

Sd/-
आई. एस.

Sd/-
एम. के.

Sd/-
. के.

2.8 Agenda for 1% advance for material supplied for repairing of OPGW networks installed under ULDC NR Project (Agenda by HVPNL)

2.8.1 Representative of HVPNL stated that OPGW has been laid under ULDC Projects on the following HVPNL lines:

- 220KV Narwana - Safidon - PTPS.
- 220KV Nunamajra - Bahadurgarh.
- 220KV PTPS Sewah Ckt- I & II.

2.8.2 He further stated that, PGCIL has demanded 1% advance for repairing of OPGW networks installed under ULDC NR Project from all constituent of NR. However, the reconciliation statement of material procured earlier against 1% advance taken from constituents was not provided by PGCIL.

2.8.3 Representative of POWERGRID stated that they would return 1% advance to the constituents.

2.9 Requirement of PDH Equipment for replacement of Nokia Equipment under Reliable Communication Scheme (Agenda by POWERGRID)

2.9.1 Representative of POWERGRID stated that they were implementing OPGW installation on new transmission lines along with replacement of ULDC Phase-I OPGW and communication Equipment under Reliable Communication Scheme. Requirement of PDH was removed from all the locations citing upgradation of RTUs to 104 protocol & using of VOIP phones. Requirement of PDH equipment alongwith required nos. of channels (Voice and Data channel for replacement of Nokia), if any under this scheme may be intimated to POWERGRID on priority, so that requirement can be freezed. Till date, only UPPTCL has conveyed their requirement and BoQ for the same has been approved and supply will be commenced within 3-4 months.

2.9.2 Representative of Rajasthan and Punjab assured to intimate requirement, if any, by 30th November, 2019.

2.10 Communication availability from NLDC/ RLDCs to the nearest wide band node/ switchyard for the generating stations under AGC as per CERC order 319/RC/2018 dated 28th August 2019

Representative of POSOCO stated that CERC, in the matter of Automatic Generation Control (AGC) implementation in India, has issued the direction that all thermal ISGS stations with installed capacity of 200 MW & above and all hydro stations having capacity exceeding 25 MW excluding the Run-of-River Hydro Projects irrespective of size of the generating station and whose tariff is determined or adopted by CERC, to install equipment at the unit control rooms

for transferring the required data for AGC as per the requirement to be notified by the National Load Despatch Centre (NLDC).

He further stated that in the Order, CERC directed the Central Transmission Utility (CTU) to commission communication facility from NLDC/ RLDCs to the nearest wide band node/ switchyard for the generating stations in a redundant and alternate path ensuring route diversity and dual communication. The list of plants identified for AGC operation by NLDC as per CERC Order was attached as Annexure-1 of the agenda.

Relevant extracts from the CERC Order 319/RC are given as below:

...The Central Transmission Utility (CTU) is directed to have communication availability from NLDC/ RLDCs to the nearest wide band node/ switchyard for the generating stations in a redundant and alternate path ensuring route diversity and dual communication.

...The expenditure as a result of compliance of the above directions may be claimed as per relevant regulations or provisions of the PPA.

Considering the importance of communication links being used for automatic controls, same common points may not be used along the path to ensure near 100% availability. Also, in line with the CERC Order, all the power plants are supposed to take necessary action for arranging the communication (through redundant and alternate paths) from the existing nearest wideband communication node to the unit control room through two fibre optic cables, in coordination with Central Transmission Utility (CTU).

He informed that ISGS stations whose tariff is determined or adopted by CERC should be AGC-enabled before 28th February 2020 as per the Order of the Hon'ble Commission.

He stated that on 27th September 2019, nominated nodal officers from CTU discussed the detailed action plan regarding the communication to AGC power plants at NLDC, New Delhi. Two Ethernet ports would be made available from existing SDH node available near generating station, wherever spare ports are available. In case of constraint, upgradation of equipment / cards as required shall be considered while working out requirement for AGC communication connectivity. RLDCs/NLDC will coordinate with concerned generating station for connectivity of Ethernet port to RTU at generating station for AGC application.

He further state that in some cases, requirement of usage of STU network for AGC connectivity is expected. The same shall be brought out by CTU. RLDCs/NLDC shall facilitate necessary coordination between STU & CTU for providing fibres, equipment, if required.

Representative of CTU stated that out of 30 stations in NR only diversity is available only in 4 stations namely, Naptha Jhakri HEP, Dehar HEP, Rampur

HEP and Bhakra Right HEP. He further stated that network upgradation required for rest 26 stations 14 of them would be covered under ongoing various schemes, however it would be difficult to complete all locations by 28th February, 2020. He added that there are 5 links of PTCUL need to be used.

Member Secretary, NRPC stated that since representative of PTCUL was not present a separate meeting would be called between PTCUL, CTU, NRLDC, NLDC and NRPC Sectt.. He further stated that single path is available for all 30 stations except Parbati-III which is likely to come by 31st December, 2019.

Representative of POWERGRID informed that presently ULDC communication is not available from Anta GPP and data is coming through telecom facility.

Sub-committee advised POWERGRID to plan for remaining redundant connectivities at remaining stations.

2.11 Fibre cut between Kishenpur-New Wanpoh (Agenda by NRLDC)

2.11.1 Representative of NRLDC stated that there was a fiber cut between Kishnepur-Wanpoh since January 2019 due to which PMU data from Wagoora, Wanpoh and Uri was not available at NRLDC. It was mentioned that data from these stations is critical for monitoring of Kashmir Valley.

2.11.2 He informed that the matter was also discussed during 15th TeST Meeting, POWERGRID intimated that unprecedented ice deposition on OPGW in Kashmir valley has led to the breakage of the same and data from alternate route has been restored. However alternate arrangements are yet to be made.

2.11.3 Representative of POWERGRID informed that tower strengthening work was in progress and OPGW work was expected to be completed by March 2020. He added that alternate channel for PMU data would be provided within 15 days.

2.12 Upgradation of STM-16 to STM-64 Communication Equipment (Agenda by POWERGRID)

2.12.1 Representative of POWERGRID stated that during 14th TeST sub-committee meeting, NRLDC requested to explore the possibility of upgradation of communication equipment from STM-16 capacity to STM-64 or adopt other latest technology to cater additional requirement for future projects including RTU/SAS data reporting on 104 protocol, new PMUs under WAMS System, AGC Project, establishment of inter-regional control centres of SCADA/ PDC, upgradation of NLDC and establishment of REMC control centres and backup control centre at Kolkata for WAMS system and other new schemes. In this regard, POWERGRID have examined the possibility and 17 Equipment needs to be upgraded from STM 16 to 64 for Tejas make Communication Equipment,

**CENTRAL ELECTRICITY AUTHORITY
NOTIFICATION**

New Delhi, the 23rd December, 2022

CEA-TH-17/1/2021-TETD Division.—Whereas the draft of the Central Electricity Authority (Technical Standards for Construction of Electrical Plants and Electric Lines) Regulations, 2022 was published in six newspaper dailies, as required by sub-section (3) of section 177 of the Electricity Act, 2003 (36 of 2003) read with sub-rule (2) of rule 3 of the Electricity (Procedure for Previous Publication) Rules, 2005, inviting objections and suggestions from all persons likely to be affected thereby, before the expiry of the period of forty-seven days, from the date on which the copies of the newspaper containing the said draft regulations were made available to the public;

And whereas copies of the said newspapers containing the public notices and the said draft regulations on the website of the Central Electricity Authority were made available to the public on the 30th December, 2021;

And whereas the objections and suggestions received from the public on the said draft regulations were considered by the Central Electricity Authority;

Now, therefore, in exercise of the powers conferred by clause (e) of sub-section (2) of section 177 of the Electricity Act, 2003 (36 of 2003) read with clause (b) of section 73 of the said Act, the Central Electricity Authority hereby makes the following regulations, namely: -

CHAPTER I

- 1. Short title, commencement and applicability.** - (1) These regulations may be called the Central Electricity Authority (Technical Standards for Construction of Electrical Plants and Electric Lines) Regulations, 2022.
 - (2) Applicability. - These regulations shall apply to generating companies, transmission licensees, distribution licensees, Central Transmission Utility, State Transmission Utilities.
 - (3) They shall come into force on the date of their publication in the Official Gazette.
- 2. Definitions-** (1) In these regulations, unless the context otherwise requires,
 - (a) “Act” means the Electricity Act, 2003;
 - (b) “Authority” means the Central Electricity Authority established under sub-section (2) of Section 70 of the Act;
 - (c) “Automatic voltage regulator” means a continuously acting automatic excitation control system to regulate a generating unit terminal Voltage;
 - (d) “Autotransformer” means a power transformer in which at least two windings have common section;
 - (e) “Base load operation” means operation at maximum continuous rating or its high fraction;
 - (f) “Basic insulation level” means reference voltage level expressed in peak voltage with standard 1.2/50 μ s lightning impulse wave. Apparatus shall be capable of withstanding test wave of basic insulation level or higher;
 - (g) “Black start” means the startup of a generating unit or gas turbine or internal combustion engine based generating set without use of external power following grid failure;
 - (h) “Boiler maximum continuous rating” means the maximum steam output, the steam generator can deliver continuously at rated parameters;
 - (i) “Break time” means interval of time between the beginning of the opening of a switching device and the end of the arcing;
 - (j) “Cold start”, in relation to steam turbine, means start up after a shutdown period exceeding seventy two hours (turbine metal temperatures below approximately forty percent of their full load values);
 - (k) “Combined cycle gas turbine module” means gas turbine generators, associated heat recovery steam generators and steam turbine generator;
 - (l) “Control load”, in relation to coal or lignite based thermal generating units, means the lowest load at which the rated steam temperature can be maintained under auto control system;
 - (m) “Design head” means the net head at which peak efficiency of hydraulic turbine is attained while operating at rated output;
 - (n) “Generator transformer” means power transformer required to step up generator voltage to connected bus voltage;
 - (o) “Gross head” means the difference in elevation between the water levels of upstream reservoir and the center line of the turbine runner in case of Pelton turbine and tail race water level at the exit end of the

draft tube in case of Francis and Kaplan turbine;

- (p) “Gross Station Heat Rate” or “Station Heat Rate” means the heat energy input in kCal required to generate one kWh of electrical energy at generator terminals of a thermal generating station.
- (q) “Gross turbine cycle heat rate”, in relation to coal or lignite based thermal generating station, means the external heat energy input to the turbine cycle required to generate one kWh of electrical energy at generator terminals;
- (r) “High heat value” means the heat produced by complete combustion of one kilogram of solid fuel or liquid fuel or one standard cubic metre of gaseous fuel as determined as per relevant Indian Standard;
- (s) “Highest system voltage” means the highest root mean square line to line value of voltage which can be sustained under normal operating conditions at any time and at any point in the system. It excludes temporary voltage variation due to fault conditions and the sudden disconnection of the large load;
- (t) “Hot start”, in relation to steam turbine, means start up after a shut down period of less than ten hours (turbine metal temperatures approximately eighty percent of their full load values);
- (u) “House load” means the unit is operating in isolation to the grid and generating electric power to cater to its own auxiliaries;
- (v) “Impedance earthed neutral system” means a system whose neutral point is earthed through impedances to limit earth fault currents;
- (w) “Impulse” means a unidirectional wave of voltage or current which, without appreciable oscillations, rises rapidly to a maximum value and falls, usually less rapidly, to zero with small, if any, loops of opposite polarity. The parameters which define a voltage or current impulse are polarity, peak value, front time, and time to half value on the tail;
- (x) “Impulse withstand voltage” means peak value of the standard impulse voltage wave which the insulation of an equipment is designed to withstand under specified test conditions;
- (y) “Insulation co-ordination” means the selection of the dielectric strength of equipment in relation to the voltages which can appear on the system for which the equipment is intended and taking into account the characteristics of the available protective devices;
- (z) “Isolated neutral system” means a system where the neutral point is not intentionally connected to earth, except for high impedance connections for protection or measurement purposes;
- (za) “Maximum continuous rating”, -
- (i) in relation to coal or lignite based thermal generating units, means maximum continuous output at the generator terminals (net of any external excitation power) as guaranteed by the manufacturer at the rated parameters;
- (ii) in relation to combined cycle gas turbine module, means the sum of maximum continuous output of the Gas Turbine Generator and Steam Turbine Generator measured at the generator terminals (net of any external excitation power) as guaranteed by the manufacturer for design fuel and corresponding to site conditions;
- (iii) in relation to Internal Combustion engine based generating sets, means maximum continuous output at the generator terminals (net of any external excitation power) as guaranteed by the manufacturer for design fuel and corresponding to site conditions;
- (zb) “Maximum net head” means the net head resulting from the difference in elevations between the maximum head water level and the center line of turbine runner for vertical Pelton turbine and tailrace water level for vertical Francis turbine with one unit operating at no load speed corresponding to turbine discharge of approximately five percent of the rated flow. Under this condition, the hydraulic losses are negligible and may be disregarded;
- (zc) “Mesh voltage” means the maximum touch voltage within a mesh of a ground grid;
- (zd) “Minimum net head” means the net head resulting from the difference in elevation between the minimum head water level or the minimum draw down level and the center line of turbine runner for vertical Pelton turbine and the maximum tail water level for vertical reaction turbine;
- (ze) “Minimum tail water level” for a hydro station means the water level in the discharge chamber in case of Pelton turbine and tail race at the exit end of the draft tube in case of Francis and Kaplan turbines corresponding to a discharge required to run one machine at no load;
- (zf) “Motor control centre” means the switchgear which contains modules for electric supply to motor and associated load like heaters, actuators, control transformers etc. and their control;
- (zg) “Net head” means the gross head less all hydraulic losses, including draft tube exit losses, wherever

- applicable and excluding those pertaining to the turbine;
- (zh) “Overhead line” means any electric line which is placed above the ground and in the open air, but does not include live rails of traction system;
- (zi) “Owner” means the company or body corporate or association or body of individuals, whether incorporated or not or artificial juridical person who owns or operates or maintains Electrical Plants or Electric Lines or both;
- (zj) “Power system stabilizer” means controlling equipment which receives input signals of speed, frequency and power to control the excitation via the voltage regulator for damping power oscillations of a synchronous machine;
- (zk) “Performance coal” means the coal of quality for which steam-generator performance is guaranteed by the manufacturer;
- (zl) “Power transformer” means a transformer that transfers electric energy in any part of the circuit between the generator and the distribution primary circuits;
- (zm) “Pump turbine” means a hydraulic turbine having a runner capable of running in one direction in generating mode and reverse direction in pumping mode;
- (zn) “Pumped storage plant” means a system of generating electricity in which the electricity is generated during the peak hours by using water that has been pumped into upper reservoir during off-peak hours from the lower reservoir;
- (zo) “Runaway speed” means the speed attained by the hydraulic turbine at full gate opening while operating at maximum head conditions when the generator is disconnected from the system and the governor is in-operative;
- (zp) “Solidly earthed neutral system” means a system whose neutral point is earthed directly;
- (zq) “Specific speed” defined in metric kW, in relation to hydraulic turbine, means the speed in rotations per minute at which a given hydraulic turbine would rotate, if reduced homologically in size, so that it would develop one metric horse power under one meter of net head;
- (zr) “Station” means either the Thermal Generating Station or Hydro-electric Generating Station depending upon the context;
- (zs) “Station transformer” means power transformer required to step down the grid voltage to cater to the starting and shut down of generating unit load and station load during running;
- (zt) “Step potential” means the maximum value of potential difference possible of being shunted by a human body between accessible points on the ground separated by distance of one pace which may be assumed to be one metre;
- (zu) “Sub-critical unit”, in relation to coal or lignite based thermal generating unit, means a unit designed for main steam pressure less than the critical pressure (225.56 kg/cm²);
- (zv) “Super-critical unit”, in relation to coal or lignite based thermal generating unit, means a unit designed for main steam pressure more than the critical pressure (225.56 kg/cm²);
- (zw) “Surge arrester” means a protective device for limiting surge voltages on equipment by diverting surge current and returning the device to its original status and is able to repeat these functions as specified;
- (zx) “Switchyard” means a sub-station associated with a generating station for transforming electricity for further transmission;
- (zy) “Synchronous condenser mode” refers to that condition of the synchronous machine coupled to the turbine when it is running only with mechanical load and supplying leading or lagging reactive power;
- (zz) “Thermal generating station” means the ‘generating station’ as defined in clause (30) of section 2 of the Act for generating electricity using fossil fuels such as coal, lignite, gas, liquid fuel or combination of these as its primary source of energy;
- (zza) “Touch potential” means the potential difference between the object touched and the ground point just below the person touching the object when ground currents are flowing;
- (zzb) “Transformer” means a static electric device consisting of a winding, or two or more coupled windings, with or without a magnetic core, for introducing mutual coupling between electric circuits to transfer power by electromagnetic induction between circuits at the same frequency, usually with changed values of voltage and current;

- (zzc) “Transients” means over voltage or over current phenomena prevailing in an electrical system for a short period of the order of a fraction of a second or a few seconds not exceeding five seconds;
- (zzd) “Turbine setting”, in relation to hydro-electric generating station, means the elevation of runner center line with respect to maximum tail water level for vertical Pelton turbine installation and the elevation with respect to minimum tail water level for Francis or Kaplan turbine installation;
- (zze) “Unit auxiliary transformer” means the transformer meant for catering the loads connected to unit buses corresponding to auxiliaries required for respective Boiler, Turbine and Generator;
- (zzf) “Unit”,-
- (i) in relation to a coal or lignite based thermal generating station, means steam generator with interconnected steam turbine-generator and auxiliaries, operated as one single set or system to generate electric power;
- (ii) in relation to a hydro- electric generating station, means generator with interconnected turbine and auxiliaries, operated as one single set or system to generate electric power.
- (zzg) “Ultra super-critical unit” in relation to coal or lignite based thermal generating unit means a supercritical unit with steam temperature of 600/600⁰C or higher at turbine inlet;
- (zzh) “Warm start”, in relation to steam turbine, means start up after a shutdown period between ten hours and seventy two hours (turbine metal temperatures between approximately forty percent and eighty percent of their full load values).
- (2) words and expressions used herein and not defined but defined in the Act shall have the meanings respectively assigned to them in the Act.

- 3. General requirements.—** (1) The Electrical Plants and Electric Lines shall be suitable for full range of ambient and other environmental conditions as prevailing at site.
- (2) The various parts or components or assemblies of equipment and systems shall be of proven materials with well established physical and chemical properties appropriate to the service as intended.
- (3) All equipment and systems installed shall comply with the provisions of statutes, regulations and safety codes, as applicable.
- (4) The Electrical Plants and Electric Lines shall be designed to comply with requirements stipulated in other Central Electricity Authority Regulations as well, framed under the Electricity Act 2003.
- (5) (a) The design, construction and testing of all equipment, facilities, components and systems shall be in accordance with latest version of relevant standards and codes issued by Bureau of Indian Standards or reputed international standards *viz.* International Electrotechnical Commission Standards/ American Society of Mechanical Engineers Standards/ Deutsches Institut für Normung Standards or equivalent and codes. However, in the event of any conflict between the requirements of the international standards or codes and the requirements of the Bureau of Indian standards or codes, the later shall prevail.
- (b) For standardization of Test Protocols in Power Sector, Central Electricity Authority “Guidelines for the Type Tests for major equipment of Power Sector” shall be followed.
- (6) All materials, components and equipment shall be tested at all stages of procurement, manufacturing, erection, commissioning as per comprehensive Quality Assurance Programme to be agreed mutually between the Owner and the equipment supplier and which shall comply to the Central Electricity Authority “Guidelines for Model Quality Assurance Plan (MQAP) for major equipment of Power Sector”.
- (7) The International System or Metre-Kilogram-Second system of units shall be used for design, drawings, diagrams, instruments etc.
- (8) The owner shall retain in good condition and make available for lifetime at the site following documents (the owner shall also keep the records updated as per modifications done in the system from time to time):
- (a) as-built drawings including, but not limited to the civil, mechanical, electrical, instrumentation and architectural works;
- (b) copies of the project design memorandum, technical description, data sheets, operating manuals and manufacturer’s warranties for all major items or equipment or both;
- (c) copies of the results of all tests performed as per contract and;
- (d) technical documents relating to the design, engineering and construction of the electrical plant or electric line or both.
- (9) (a) The Owner shall implement information technology based system for effective project monitoring so

as to facilitate timely execution of the projects of capacity equal to or higher than capacity indicated below.—

- | | | | |
|-------|-------------------------------------|---|-------------------|
| (i) | Thermal generating station | : | 250 MW; |
| (ii) | Hydro generating station | : | 100 MW; |
| (iii) | Transmission lines and sub-stations | : | 220 kV and above. |

- (b) The system shall be web based and shall have connectivity with major suppliers/contractors and shall also have provision for connection to centralized project monitoring system of the Authority and in compliance with all applicable codes, standards, guidelines, cyber security codes and guidelines and safety requirements in force.

CHAPTER II

TECHNICAL STANDARDS FOR CONSTRUCTION OF THERMAL GENERATING STATIONS

4. Technical Standards for construction of Thermal Generating Stations are covered in following four parts namely:-

- | | | |
|-----|----------|---|
| (a) | Part- A: | Common to all types of Thermal Generating Stations; |
| (b) | Part- B: | Coal or lignite based Thermal Generating Stations; |
| (c) | Part- C: | Gas Turbine based Thermal Generating Stations; and |
| (d) | Part- D: | Internal Combustion Engine based Thermal Generating Stations. |

PART- A

COMMON TO ALL TYPES OF THERMAL GENERATING STATIONS

5. **General Technical Requirements-** (1) The coal, lignite and gas based thermal generating stations shall be designed to give life of not less than twenty five years. Internal Combustion engine based Stations shall be designed for life not less than fifteen years.
- (2) The Station shall comply with all applicable environmental stipulations of Ministry of Environment, Forests and Climate Change in regard to ambient air quality, gaseous emissions, liquid effluent discharges, solid waste disposal, Noise level and any other stipulation of the Central Pollution Control Board and State Pollution Control Board in this regard.
- (3) **Noise level.—**
- (a) Noise level at the Station boundary shall not exceed the ambient air quality standard in respect of noise as notified by Ministry of Environment, Forest and Climate Change and any other stipulation of the Central Pollution Control Board and State Pollution Control Board in this regard.
- (b) noise level for the continuously operating equipment shall not be more than 85 dBA at a distance of one metre and at a height of 1.5 metre from any equipment except for the following:—
- | | |
|-------|--|
| (i) | turbine- Generator and Pulverizers – 90 dBA |
| (ii) | safety valves and associated vent pipes, High Pressure/Low Pressure Bypass Valve, Soot blowers or Wall blowers, Regulating drain valves – 115 dBA |
| (iii) | Internal Combustion engine based generating sets of capacity upto one MVA. They shall meet the stipulations of Ministry of Environment, Forest and Climate Change on “Noise limit for generator sets run with diesel”. For other than one mega volt ampere capacity, it shall be provided with acoustic enclosure or by treating the room acoustically in line with Ministry of Environment, Forest and Climate Change stipulations: |
- Provided that for short term exposure, noise levels shall not exceed the limits as stipulated in the Occupational Safety and Health Administration Standard.
- (c) equipment or machines shall be provided with acoustic enclosure or acoustic treated building, wherever required so as not to exceed the permissible noise limits.
- (4) Areas where a potential flammable atmosphere exist shall be classified in accordance with the provisions of latest version of relevant Indian Standard.

Provided that to the extent practicable, equipment requiring operator’s attention and electrical equipment shall not be installed in hazardous areas.

- (5) All the equipment and surfaces (excluding coal or lignite mills, pulverized fuel pipes, lube oil piping and electrical equipment) having skin temperature more than 60°C shall be provided with required insulation along with cladding.

Provided that the insulating materials, accessories and protective covering shall be non-

sulphurous, incombustible, low chloride content, chemically rot proof, non-hygroscopic and shall withstand continuously and without deterioration the maximum temperature to which they can be subjected as per duty conditions.

Provided further that the insulation or finishing materials containing asbestos in any form shall not be used.

(6) Auxiliaries involving large power consumption such as motor driven boiler feed pumps, induced draft fans (radial type) shall be provided with variable frequency drive or hydraulic coupling to optimize power consumption.

6. Site Selection and Layout Considerations.—

- (1) **Site selection.**— The following criteria shall be considered for selection of site for thermal generating stations;
- availability of adequate land for the Station;
 - avoidance of proximity to geological faults, high flood zone of rivers or the high tide zones of sea or backwaters;
 - siting criteria prescribed by Ministry of Environment, Forest and Climate Change;
 - availability of required water;
 - feasibility of rail, road or other linkages for transportation of fuel and equipment to the site;
 - feasibility of power evacuation.
- (2) **Layout considerations.**— The following minimum layout requirements shall be complied with as may be applicable for coal or lignite or gas turbine based Stations:
- the layout of the Station shall be compact so as to optimise use of land, materials and minimize system losses.
 - adequate provision shall be made in regard to space and access in order to carry out the maintenance of various equipment.
 - adequate maintenance facilities shall be provided, as required, for assembly, disassembly and handling during maintenance of various equipment.
 - due consideration shall be given for the wind direction while deciding on the relative location of the following: —
 - cooling tower and switchyard to minimize the moisture drift towards the switchyard;
 - chimney and ash disposal area with respect to township and adjoining habitation areas (applicable for coal or lignite based generating stations).
 - (i) adequate space shall be provided for unloading and maintenance purposes in Turbine- Generator area;
 - requisite lay down area shall be provided for each unit on Turbine- Generator floor and same shall be approachable with electric overhead travelling crane;
 - in case of coal or lignite based generating stations, two transverse bays shall be provided in Turbine- Generator area at ground level for unloading and maintenance purposes and for Stations with multiple units, adequate space shall be provided to meet the requirement for simultaneous maintenance of two units.
 - coal or lignite mill-bunker bay shall preferably be located either on sides or rear of the steam generator to avoid the dust nuisance and in case bunker bay is located adjacent to Turbine- Generator area, suitable isolation arrangement (pressurization or air curtains) shall be provided to avoid entry of coal or lignite dust in Turbine- Generator area.
 - adequate fire escape staircases shall be provided in Turbine- Generator building with fire doors at each landing.
 - for coal or lignite based generating stations, interconnecting walkways between Turbine- Generator building and steam generator shall be provided at Turbine- Generator operating floor level and at deaerator floor level:

Provided that walkways at various levels shall also be provided for interconnection between steam generator and mill-bunker bay.

- minimum one staircase, for each unit or module, and minimum one elevator shall be provided in the Turbine- Generator building and in addition, at least the following elevators shall also be provided for coal or lignite based generating stations .—

flow at turbine inlet under valves wide open condition [including overload valves (High Pressure stage by pass), if provided] plus continuous steam requirement for auxiliary systems of the unit (e.g. fuel oil heating, etc.) when unit is operating above control load and the steam generator shall be capable to give boiler maximum continuous rating output for the worst fuel quality stipulated.

(5) All parts of the steam generator including pressure parts, vessels, piping, valves including safety valves and fittings shall meet the requirements of Indian Boiler Regulations.

(6) All start up vents shall be provided with two valves in series - one motorized isolating and other motorized regulating type.

(7) If indigenous coal is proposed as main fuel, its typical characteristics (high abrasive ash, slow burning, high ash resistivity, etc.) shall be given due consideration while designing the steam generator and auxiliaries.

(8) Pressure withstand capability of the furnace shall correspond to minimum ± 660 mmwc at sixty seven percent yield strength or maximum expected pressure/draft of fans, whichever is higher.

(9) Maximum average gas velocity, when using indigenous coal, in any zone of furnace, superheater, reheater, economizer shall be ten m/sec to prevent erosion of pressure parts and maximum local velocity can be upto twelve m/s.

(10) For pulverized coal or lignite based steam-generators, fuel oil firing system shall be provided for start-up and low load flame stabilization and light diesel oil or heavy fuel oil or both shall be used for fuel oil firing system.

(11) Pulverised fuel combustion based steam generator shall not require oil support above forty percent boiler maximum continuous rating load:

Provided that fluidized bed combustion based steam-generator shall be designed such that oil support is not needed beyond twenty five percent boiler maximum continuous rating load.

(12) The pulverized fuel system shall meet the following requirements namely:—

- (a) design of pulverized fuel system shall comply with requirements of National Fire Protection Association ;
- (b) coal or lignite preparation system for pulverized fuel system shall have sufficient spare milling capacity (e.g. at least one spare mill when using worst coal corresponding to maximum continuous rating in case of medium speed mills);
- (c) coal supply to the mills shall be from the individual coal bunkers having storage capacity of about ten hours for the unit operation at maximum continuous rating;
- (d) the coal fineness achieved from the pulverisers shall be at least 70% thru 200 mesh (75 microns) and 98% thru 50 mesh (300 microns) at rated capacity of the pulveriser, with an input coal size up to 50 mm.

(13) To maintain balance draft conditions in the furnace over the entire load range while burning the stipulated range of fuel, 2x60% forced draft fans and 2x60% induced draft fans shall be provided.

(14) Suitable air pre-heating system shall be provided for recovery of useful heat from the exhaust flue gases:

Provided that steam coil air pre-heater may also be provided for maintaining air temperature within safe limits to prevent acid corrosion during start up or very low ambient air temperature conditions.

(15) The soot blowing system shall be provided for the waterwall, superheater, reheater, economizer and air preheater.

(16) The dust collecting system (electro-static precipitator, bag filter etc.) shall be provided for removing suspended particulate matter from the flue gases to meet the statutory stipulation as per environmental clearances and electro-static precipitator shall comply with following requirements namely:—

- (a) electro-static precipitator shall be able to meet the stipulated suspended particulate matter emission requirement even when one electric field in each pass of the electro-static precipitator is out of service while firing stipulated worst fuel with unit operation at maximum continuous rating;
- (b) electro-static precipitator shall be provided with effective ash evacuation system having controls for ash temperature and monitoring of ash level in the hopper.
- (c) each hopper shall have a storage capacity of minimum of eight hours with unit operation at maximum continuous rating and the hopper valley angle to the horizontal shall be minimum sixty degrees;
- (d) specific weight of ash may be considered not more than 650 kg/m³ for determining hopper

storage capacity and not less than 1350 kg/m³ for electro-static precipitator structural design;

- (e) pressure withstand capability of the electro-static precipitator casing shall correspond to minimum ± 660 mmwc at 67% yield strength and flue gas temperature of 200⁰C.

9. **Steam Turbine and Auxiliaries.**— (1) The steam turbine shall comply with latest versions of relevant International Electrotechnical Commission standards or equivalent.

(2) The gross turbine cycle heat rate as guaranteed by the equipment manufacturer shall not exceed the following values:

Table 1

Unit rating (MW)	Heat rate* (kcal/ kWh) at 100% maximum continuous rating with motor driven boiler feed pump	Heat rate* (kcal/ kWh) at 100% maximum continuous rating with turbine driven boiler feed pump
50 MW to less than 100 MW**	2280	-
100 MW to less than 200 MW**	2000	-
200 MW to less than 250 MW**	1970	-
250 MW to less than 500 MW**	1955	-
500 MW and above**	1895	1935
Supercritical units	1770	1830
Ultra Supercritical units	1725	1790

Note: — * corresponding to reference conditions of 33°C cooling water temperature and 0% de-mineralised water make up.

** sub-critical units.

(3) The steam turbine shall be of tandem or cross compound construction, reheat, condensing type with number of uncontrolled extractions as optimized for regenerative feed heating.

(4) The steam flow through steam turbine under valves wide open condition shall correspond to one hundred five percent of steam flow corresponding to maximum continuous rating output and the turbine output under valves wide open condition shall be minimum one hundred five percent of maximum continuous rating output.

(5) A self-contained lubricating oil system shall be provided for each steam turbine-generator:

Provided that one main oil pump shall be provided which may be either directly driven by turbine shaft or by an alternating current motor with a minimum of one alternating current motor driven auxiliary oil pump as standby for the main oil pump:

Provided further that provision shall also be made for one direct current motor driven emergency oil pump for meeting lubricating oil requirement during non-availability of alternating current motor driven pump.

(6) Suitable mechanism shall be provided to ensure lubrication and prevent damage to bearings of steam turbine-generator during starting or turning gear operation:

Provided that in case jacking oil system is provided to supply high pressure oil to bearings of steam turbine-generator to lift the rotor during starting or turning gear operation, the same shall be with 2x100% jacking oil pumps (one alternating current driven and one direct current driven).

Provided further that hand barring gear shall be provided for manually rotating the turbine in an emergency.

(7) The oil used for turbine governing (control) shall be supplied either from the lubricating oil system or from a separate control oil system and in case of separate control oil system, the pumps provided shall be of 2x100% capacity:

Provided that fire resistant fluid shall be used in control fluid system for all hydraulically operated valves or servo motor of turbine stop and control valves.

(8) Each steam turbine shall be provided with one main oil tank of capacity five to eight oil changes per hour (at normal operating level) and oil purification system of adequate capacity and in addition, the station shall be provided with central turbine oil storage and purification system consisting of one pure oil tank, one dirty oil tank and oil purification unit.

- (9) The steam turbine shall be provided with electronically controlled electro-hydraulic governing system:
 Provided that the steam turbines of rating higher than two hundred mega watt shall be provided with back up governing system of mechanical hydraulic or electro- hydraulic type.
- (10) The turbine shall be provided with protective devices as per relevant International Electrotechnical Commission or equivalent, including the following namely: —
- separately actuated over-speed trip device;
 - emergency hand trip devices to facilitate manual tripping of the turbine locally and from control room.
- (11) Turbine vibrations shall be minimized and shall be within limits as per latest version of relevant standards of International Organisation for Standardisation.
- (12) Non-return valves shall be provided in the steam extraction lines as required for protection from overspeed that may result from sudden load throw off or turbine trip.
- (13) Hydraulic or pneumatic or diesel generator operated device shall be provided for rapid reduction of vacuum in condenser to bring turbine rotor to rest as quickly as possible under emergency conditions.
- (14) The start-up and drainage system shall comply with relevant American National Standards Institute or American Society of Mechanical Engineers Standard or equivalent regarding prevention of water damage to steam turbines.
- (15) For steam turbines of rating higher than hundred mega watt, turbine by-pass system of capacity not less than sixty percent of boiler maximum continuous rating steam flow shall be provided for fast hot and warm start ups of unit, dumping steam in condenser during sudden turbine trip (without tripping the steam generator), unit house load operation etc.
- (16) Condensate polishing system shall be provided in the steam turbine cycle for the following namely:-
- units with rated pressure of about 170 kg/cm² and above at turbine inlet;
 - units with once- through steam generators;
 - units using sea water for condenser cooling.
- (17) Suitable feed water regenerative system consisting of low pressure heaters, deaerator and high pressure heaters shall be provided for optimized cycle efficiency:
 Provided that feed water heaters and deaerator shall be designed in accordance with the American Society of Mechanical Engineers boiler and pressure vessels codes and Heat Exchanger Institute Standards or equivalent.
- (18) Steam condenser shall meet the following requirements namely:—
- the design, manufacturing and testing of condenser shall be as per Heat Exchanger Institute Standards or equivalent;
 - condenser tubes shall be of stainless steel except in case of units using sea water for cooling in which case condenser tubes shall be of titanium;
 - on load condenser tube cleaning system shall be provided for regular cleaning of condenser tubes:
 Provided that debris filter shall also be provided at condenser inlet for sea water application;
 - vacuum pumps or steam ejectors shall be provided as per Heat Exchanger Institute Standards or equivalent for evacuating air steam mixture and non-condensable gases from the condenser.
- (19) 3x50% or 2x100% condensate extraction pumps as per Hydraulic Institute Standards design shall be provided for each unit.
- (20) The unit shall be provided with boiler feed pumps of adequate capacity to give rated output and the design shall meet the requirements of Hydraulic Institute Standards or equivalent:
 Provided that the following configurations may be adopted subject to compliance of Indian Boiler Regulations:
- Large Size Units (500 MW & above)
 2x50% or 1x100% turbine driven boiler feed pump plus one number motor driven boiler feed pump of adequate capacity for start-up of the unit.
 or
 2X50% motor driven boiler feed pumps.
 - Small Size Units (<500MW)

3x50% or 2x100% motor driven boiler feed pumps.

10. Electrical System.—

(1) General requirements—

- (a) for the purpose of design of electrical equipment and systems, an ambient temperature of 50⁰C and relative humidity of 95% shall be considered and the equipment shall be suitable for operation in a highly polluted environment:

Provided that for equipment installed in air conditioned areas, design ambient temperature shall be 35⁰ C;

- (b) the telecommunication system shall be based on optical fibre or power line carrier communication or both:

Provided that Owner's telecommunication equipment provided to transmit the required data of the Station to the procurer of electricity, Regional or State Load Despatch Centre and Transmission Company shall have matching equipment and compatible communication protocol with the receiving end.

(2) Generator—

- (a) the generator shall comply with relevant Indian Standard or International Electrotechnical Commission standard;
- (b) the efficiency of generator shall be more than 98% at rated load;
- (c) insulation shall be thermal class F for stator and rotor winding as per relevant International Electrotechnical Commission with temperature rise limited corresponding to thermal class B insulation;
- (d) generator shall be either hydrogen cooled or hydrogen and water cooled or air cooled type:

Provided that the hydrogen cooled generator shall be capable of delivering at least two third of its rated output with one hydrogen gas cooler out of service;

- (e) resistance temperature detectors or thermocouples shall be provided at suitable locations for monitoring the temperatures of stator core, stator windings and bearings:

Provided that suitable arrangements shall also be made for monitoring the temperature of the rotor winding in case static excitation system is provided;

- (f) for hydrogen cooled generators, hydrogen gas system shall be provided with driers (if applicable) of 2x100% duty to maintain dryness of hydrogen inside the machine:

Provided that suitable system shall be provided to prevent condensation during long shut down:

Provided further that the system shall have the provision of on-line dew point measurement as well as gas analyser;

- (g) for water cooled stator winding, stator water cooling system shall be closed loop type with 2x100% AC motor driven circulating water pumps, 2x100% de-mineralised water heat exchangers, 2x100% filters, one mixed bed de-mineraliser and one alkalizer unit (as applicable);
- (h) in case of hydrogen cooled machines, the seal oil system provided shall be equipped with 2x100% AC motor driven pumps and 1x100% DC motor driven pump and the system shall be provided with coolers and filters having 2x100% duty:

Provided that any other proven system as per Original Equipment Manufacturer's practice or recommendations shall also be acceptable subject to acceptance of the owner;

(i) Excitation System—

- (i) suitable generator excitation system as well as automatic voltage regulator shall be provided with the generator as per Central Electricity Authority (Technical Standards for Connectivity to the Grid) Regulations, 2007, as amended from time to time:

Provided that power system stabilizer shall be provided in automatic voltage regulator as per Central Electricity Authority (Technical Standards for Connectivity to the Grid) Regulations, 2007, as amended from time to time;

- (ii) the rated current of the excitation system shall be at least 110% of the machine excitation current at the rated output of the machine and the rated voltage shall be at least 110% of the machine excitation voltage;

- (iii) (a) automatic voltage regulator shall have 2x100% auto channels and automatic changeover:

Provided that in the event of failure of auto channels, manual control shall be possible;

- (b) in case of static excitation system, power thyristor converter shall be fully controlled three phase, full wave bridge type with fast and high ceiling performance. The converter shall have 'N+2' redundancy where N is the number of bridges required to deliver rated excitation current and 'N+1' number of bridges shall deliver the ceiling voltage or current;
- (c) in case of brushless excitation system, rectifier assembly shall be provided with either complete bridge as redundant or at least one redundant parallel branch in each of the six arms of the bridge.

(j) Instrument Transformers. —

(i) Current transformers—

The type and accuracy of current transformers for protection purposes shall comply with relevant Indian Standard or International Electrotechnical Commission Standards:

Provided that current transformers for metering shall also comply with Central Electricity Authority (Installation and Operation of Meters) Regulations, 2006 as amended from time to time;

(ii) Voltage transformers—

The type and accuracy of Voltage transformers for protection purposes shall comply with relevant Indian Standard or International Electrotechnical Commission Standards:

Provided that voltage transformers for metering shall also comply with Central Electricity Authority (Installation and Operation of Meters) Regulations, 2006 as amended from time to time.

(3) **Power transformers.—**

- (a) the power transformers (generator transformer, unit auxiliary transformers, station transformers) shall comply with latest versions of relevant Indian Standard or International Electrotechnical Commission Standards;

(b) the generator transformer shall be.—

- (i) provided to step up generating voltage for connection to the grid:

Provided that it shall also be used to provide start-up power from the grid in case circuit breaker is provided between the generator and generator-transformer in generator circuit breaker scheme;

- (ii) filled with oil and cooling shall be of oil forced air forced or oil directed air forced type:

Provided that alternate cooling arrangement *viz.* oil natural air forced, or oil natural air natural may also be adopted depending upon unit size;

- (iii) provided with two or more cooling radiator banks with suitable number of standby fans and oil pumps:

Provided that the total capacity of coolers for each transformer shall be minimum one hundred twenty percent of actual requirements.

(c) the unit auxiliary transformer shall be. —

- (i) used to meet the unit load requirement during normal running of the unit:

Provided that in case of generator circuit breaker scheme, it shall provide power requirement of the unit auxiliaries and station auxiliaries during start-up and normal running of the unit;

- (ii) filled with oil and cooling shall be of oil natural air forced or oil natural air natural type:

Provided that oil forced air forced or oil directed air forced cooling are also acceptable depending upon transformer size;

- (iii) provided with two or more cooling radiator banks with suitable number of standby fans and oil pumps:

Provided that the total capacity of coolers for each transformer shall be minimum one hundred twenty percent of actual requirements.

(d) the station transformer(s) shall be.—

- (i) used to cater the start-up power requirement, station auxiliary load requirement during normal

operation of the unit(s) and unit load in case of outage of Unit Auxiliary Transformer:

Provided that in case of generator circuit breaker scheme, station transformer may not be required;

(ii) filled with oil and cooling shall be of oil natural air forced or oil natural air natural type:

Provided that alternate cooling arrangement *viz.* oil natural air forced, or oil natural air natural are also acceptable depending upon unit size;

(iii) provided with two or more cooling radiator banks with suitable number of standby fans and oil pumps:

Provided that the total capacity of coolers for each transformer shall be minimum 120% of actual requirements.

(e) the insulation levels for the transformer windings and bushings shall be as per Table 10 under Regulation 45;

(f) dynamic short circuit withstand test shall be conducted on one unit of each type and rating of transformers, to validate the design and quality, unless such test has been successfully conducted as per Indian Standard 2026 part 5 within last ten years on transformer of similar design. Criteria for similar design shall be as per Annexure J of Central Electricity Authority's "Standard Specifications and Technical Parameters for Transformers and Reactors (66kV and above)";

(g) mobile centrifuging plant of adequate capacity shall be provided for purifying the transformer oil with provision of on-line testing instruments and annunciating panel.

(4) **High tension switchgear.—**

(a) High tension switchgear- vacuum type of circuit breakers shall be provided for high tension switchgear (11/6.6/3.3 kV) which shall be of draw out type, re-strike free:

Provided that the same shall be applicable for 33kV voltage level also in case used;

(b) the protective relays shall be of numerical type with self monitoring, diagnostic features and communication facility;

(c) the switchgear shall be designed for suitable fault withstanding capability.

(5) **Low tension switchgear.—**

(a) air break type of circuit breakers shall be provided for Low Tension switchgear (415 V) which shall be of draw out type, trip free, stored energy operated and with electrical anti-pumping features;

(b) the protective relays shall be of numerical type with self monitoring, diagnostic features and communication facility;

(c) the switchgear shall be designed for suitable fault withstanding capability.

(6) **Busducts.—**

(a) the busducts shall be of standard size as per relevant Indian Standard and designed to carry maximum continuous current under normal site conditions without exceeding temperature rise limits;

(b) (i) the generator busducts shall be phase segregated or isolated phase type.

Provided that the busduct rated more than 3150 Amp and upto 6000 Amp shall be isolated phase type:

Provided further that the busduct rated more than 6000 Amp shall be continuous isolated phase type;

(ii) a hot air blowing system or air pressurization system shall be provided to prevent moisture deposition in case of isolated phase busducts while space heaters may be provided in case of other busducts.

(c) (i) surge arresters and voltage transformers connected to generator busducts shall be located in separate cubicles for each of the three phases:

Provided that voltage transformers shall be accommodated in draw-out type compartments in phase-isolated manner in a cubicle;

(ii) The surge arresters and voltage transformers cubicles shall comply with relevant Indian Standard or International Electrotechnical Commission Standards;

(d) the High Tension busduct (11/6.6/3.3 kV) shall be segregated phase type and Low Tension busduct

(415V) shall be non-segregated phase or sandwich type;

- (e) The bus assembly shall be designed mechanically to withstand rated continuous current as well as the specified short-circuit current without damage or permanent deformation of any part of the bus structure.

(7) **Power supply system.—**

- (a) all auxiliaries dedicated to the unit shall be fed from the unit bus connected to Unit Auxiliary Transformer:

Provided that during start -up and shut - down of the unit, the unit auxiliaries shall be supplied power from the station bus connected to station transformer:

Provided further that in case of generator circuit breaker scheme, the same shall be provided by the unit bus;

- (b) all the loads pertaining to balance of plant facilities shall be fed from station bus connected to Station transformer.

Provided that station bus shall also be capable of supplying power to largest unit in the Station during start-up and shut-down:

Provided further that in case of generator circuit breaker scheme, the loads pertaining to balance of plant facilities shall be fed from the unit bus or any other common system bus;

- (c) (i) power supplies, buses, switchgears, interlocks and standby supply systems for station and unit auxiliaries shall be designed in such a way that the equipment connected are not endangered under all operating conditions:

Provided that transformer voltage ratios, type of tap changers and tap ranges, impedances and tolerances thereon shall be so optimized that the auxiliary system voltages under various grid and loading conditions are always within permissible limits and equipment are not subjected to unacceptable voltages during operation and starting of motors.

- (ii) the vector groups of the generator transformers, unit auxiliary transformers and station transformers shall be so selected that the paralleling at 11/ 6.6/ 3.3kV buses shall be possible:

Provided that the vector group of auxiliary transformers shall have identical vector groups;

- (d) in thermal power stations with unit sizes greater than one hundred mega watt, automatic bus transfer system (consisting of fast, slow, etc. transfer in auto mode) shall be provided to minimise time for transfer from unit to station buses at 11/ 6.6 kV levels:

Provided that bus transfer scheme shall also have manual mode to initiate transfer including live changeover through synchronization:

Provided further that the 11/6.6/3.3 kV switchgear buses for balance of plant facilities shall be provided with auto-closure facility to changeover supply from one source to another:

Provided also that critical 415 V switchgear buses shall also have auto-closure facility to changeover supply from one source to another;

- (e) auxiliary transformers, as required, shall be provided to meet the demand at various voltage levels of auxiliary power systems, with the criteria that each switchgear, motor control centre, distribution board shall be fed by 2x100% transformers or feeders.

Provided that the auxiliary transformers shall be designed to carry the maximum expected load:

Provided further that the Low Voltage auxiliary transformers shall be energy efficient as per relevant Indian Standard:1180.

(8) **Neutral earthing.—** The earthing of neutral of various systems shall be as follows:—

- | | | | |
|-----|--|---|--|
| (a) | Generator star point | : | Through dry type distribution transformer with secondary loaded with a resistor. |
| (b) | Generator transformer, Station transformer – high voltage winding star point | : | Solidly earthed. |
| (c) | 33kV,11kV, 6.6kV or 3.3 kV system | : | Through a resistance in case of star connected windings;
or
Through artificial transformer with its secondary loaded |

- with resistor in case of delta connected windings.
- (d) 415 V system : Solidly earthed.
- (e) DC system : Unearthed.

(9) Earthing system.—

- (a) the earthing system shall be designed for a life expectancy of at least forty years and for maximum system fault current or 40 kA for 1.0 sec, whichever is higher;
- (b) the minimum rate of corrosion of steel used for earthing conductor shall be considered as 0.12 mm per year while determining the conductor size;
- (c) grounding and lightning protection for the entire Station shall be provided in accordance with relevant Indian Standard or Institute of Electrical and Electronics Engineers Standards.

(10) Protection system.—

- (a) fully graded protection system with requisite speed, sensitivity and selectivity shall be provided for the entire station and shall be designed to avoid mal-operation due to stray voltages:

Provided that the generator, generator transformer, unit auxiliary transformer shall be provided with protection systems connected to two independent channels or groups, such that one channel or group shall always be available for any type of fault in the generator and these transformers;

- (b) the electrical protection functions for generator, generator transformer, unit auxiliary transformer and station transformer shall be provided in accordance with but not limited to the list given in

SCHEDULE-I.

- (11) Synchronization.—** Automatic as well as manual facility along with check synchronizing and guard relay features shall be provided for closing of generator transformer or generator circuit breaker for synchronization of generator with the grid:

Provided that High Tension auxiliary buses shall also be provided with manual synchronizing facility.

(12) Power and control cables, and cabling.—

- (a) (i) power and control cables shall be flame retardant low smoke type with fire survival cables to be provided for certain essential auxiliaries;
- (ii) cables to be directly buried shall be essentially armoured type;
- (iii) flame retardant low smoke cables and fire survival cables shall meet test requirements as per relevant American Society of Testing and Materials, International Electrotechnical Commission, Institute of Electrical and Electronics Engineers and Swedish Standards;
- (iv) derating factors for site ambient and ground temperatures, grouping and soil resistivity shall be considered while determining the size of cables.
- (b) (i) cable installation shall be carried out as per relevant IS and other applicable standards;
- (ii) power cables and control cables shall be laid on separate tiers. The laying of different voltage grade cables shall be on different tiers according to the voltage grade of the cables with higher voltage grade cables in topmost tier and control cables in bottommost tier;
- (iii) all cables associated with one unit shall preferably be segregated from cables of other units;
- (iv) cable routes for one set of auxiliaries of same unit shall be segregated from the other set.

(13) Standby power supply system .—

- (a) automatic mains failure reliable standby power supply system shall be installed for feeding emergency loads in the event of failure of Station supply;
- (b) one such supply system shall be provided for each unit of two hundred mega watt and above:
- Provided that, in addition, there shall be one common standby such supply system of same rating to serve a block of two unit;
- (c) station with a single unit of two hundred mega watt or higher rating shall be provided with two no. such supply system of full design capacity.

(14) Direct current system.—

- (i) standard voltage levels of the Direct Current system shall be two hundred twenty volts, forty eight

volts and twenty four volts for control and protection of various equipment:

Provided that 110V DC or 125V DC may be provided for off-site areas and for Gas Turbine as applicable;

- (ii) two sets of batteries, each catering to 100% load, shall be provided for each Direct Current system with one float -cum- boost charger for each set of battery.

(15) Illumination system.—

- (i) adequate illumination shall be provided in accordance with relevant Indian Standard:

Provided that emergency AC and DC illumination shall also be provided at important places;

- (ii) energy conservation measures shall be adopted while designing the lighting system.

(16) Motors.—

- (a) AC motors shall be squirrel cage induction type suitable for direct on-line starting and shall comply with relevant Indian Standard:

Provided that the crane duty motors may be slip ring or squirrel cage induction type.

- (b) Direct current motors shall be shunt wound type.

- (c) all motors shall be either totally enclosed fan cooled or totally enclosed tube ventilated or closed air circuit air cooled or closed air water cooled type.

- (d) temperature rise shall be limited to 70⁰ C by resistance method for both class B and class F insulation.

- (e) the degree of protection of all the motors shall be IP (ingress protection) 55:

Provided that outdoor motors shall be provided with suitable canopies;

Provided further that enclosures of the motors located in hazardous areas shall be flame proof type conforming to relevant Indian Standard.

- (f) all Low Tension motors shall be of minimum high efficiency (IE2) class as per relevant Indian Standard.

11. Control and Instrumentation System.—

(1) General.—

- (a) Control and Instrumentation system provided for the Station shall be consistent with modern power station practices and in compliance with all applicable codes, standards, guidelines, cyber security codes and guidelines and safety requirements in force.

- (b) The complete thermal, mechanical and electrical functions of the unit shall be remotely controlled from the central control room and those of balance of plant facilities shall be controlled from respective local control room during normal as well as emergency conditions:

Provided that the number of control areas shall be kept to the minimum with a view to optimizing manpower requirement.

- (c) All standby auxiliaries shall be designed to start automatically as quickly as possible on failure of running auxiliaries as per process requirement.

(2) Control system for steam generator and turbine generator.—

- (a) The state of art microprocessor based distributed digital control, monitoring and information system shall be provided for monitoring and control of steam generator, turbine- generator and auxiliaries and shall include monitoring and information, sequential control for drives, closed loop control for regulating drives, interlocking and protection, historical data storage, alarm annunciation system, sequence of events recording system etc.:

Provided that the distributed digital control, monitoring and information system shall be independent for each unit.

- (b) (i) Control systems integral to steam generator and turbine- generator shall be implemented as part of distributed digital control, monitoring and information system:

Provided that the turbine protection system and electro- hydraulic governing system may be implemented as per standard practice of turbine manufacturer.

- (ii) Control systems integral to steam generator shall include furnace safeguard supervisory system (comprising burner management system, master fuel trip, mills automation etc.) which shall comply with latest version of National Fire Protection Association code:

Provided that the master fuel trip system shall comply with requirements of relevant

National Fire Protection Association or Verband der Elektrotechnik, Elektronik und Informationstechnik (Germany) codes.

(iii) Control systems integral to turbine- generator shall include turbine protection system, electro-hydraulic governing system, turbine stress control system, turbine supervisory system, automatic turbine run up system and automatic on load turbine testing system.

(c) Man machine interface system configured around latest state-of- art redundant workstations with open architecture shall be provided to operate the unit under all operating conditions:

Provided that the minimum number of hardwired devices shall also be provided for safe shutdown of unit as a back-up:

Provided further that a large video screens shall also be provided in the control room.

(d) Distributed Digital Control, Monitoring and Information System shall be provided with 100% redundancy for processors, control and input or output bus as well as network components.

(e) (i) All input modules for control, interlocking and protection shall be provided with redundancy;

(ii) Output modules for all High Tension drives and critical Low Tension drives shall also be provided with redundancy;

(iii) Redundant inputs and outputs shall be connected to different respective input and output cards of Distributed Digital Control, Monitoring and Information System i.e. triple redundant inputs shall be connected to three separate input cards;

(iv) The logics for redundant drives shall not be in the same processor.

(f) The design of the control systems and related equipment shall adhere to the principle of 'fail safe operation' wherever the safety of personnel and plant equipment is involved, where 'Fail safe operation' signifies that the loss of signal, loss of power or failure of any component shall not cause a hazardous condition:

Provided that it shall also be ensured that occurrence of false trips is minimized:

Provided further that no single failure either of component or power source of Distributed Digital Control, Monitoring and Information System shall cause loss of generation.

(g) The control system shall include on-line self-surveillance, monitoring and diagnostic facility providing the details of each fault at the Man Machine Interface system.

(h) It shall be possible to remove and replace various modules (like any input module, output module, interface module, etc.) on-line from its slot for maintenance purpose without switching off power supply to the corresponding rack and without jeopardizing safety of the Station equipment and personnel.

(i) (i) The historical data storage and retrieval system shall store and process system data for future analysis:

Provided that the data shall be transferable to removable storage media for long-term storage (at least two years) and retrieval.

(ii) The binary data to be stored shall include status of Sequence of Events (1 milli-second resolution), alarm and other binary inputs:

Provided that all the important analog data shall be stored at one second interval.

(iii) Selected logs viz. start-up log, trip analysis log shall also be stored.

(j) Master and slave clock system shall be provided to ensure uniform timing in all the control systems across the entire plant.

(k) All coal or lignite fired units of size two hundred fifty mega watt and above shall be provided with on-line efficiency monitoring and optimization system to maximize the operational efficiency.

(3) **Control system for balance of plant.**— Programmable Logic Controller based or Distributed Digital Control, Monitoring and Information System based control system with independent Man Machine Interface system shall be provided for all the balance of plant facilities like coal or lignite handling plant, ash handling plant, cooling water system, water treatment plant etc.:

Provided that the Programmable Logic Controllers shall be latest state of the art system with redundant processors:

Provided further that for minor balance of plant systems, the control systems can also be relay based.

(4) **Local Area Network .—** A redundant industrial grade station-wide Local Area Network shall be

provided for information exchange between Distributed Digital Control, Monitoring and Information System of each generating unit, Programmable Logic Controllers for balance of plant as well as gateway for connecting to the other off-line services of the Station (computerized inventory management, maintenance management systems etc.).

- (5) **Communication system.**—An effective communication system shall be provided to facilitate quick communication among the operating personnel at various locations of the power station.
- (6) **Measuring instruments and systems.**—
- (a) Instruments such as transmitters, thermocouples, resistance temperature detectors, local gauges, flow elements, transducers shall be provided as required for comprehensive monitoring of various parameters of the Station locally as well as in control room(s) through Distributed Digital Control, Monitoring and Information System.
- (b) Microprocessor based vibration monitoring and analysis system shall be provided for monitoring and analysis of vibration of critical rotating equipment (i.e. turbine- generator, boiler feed pumps, induced draft or forced draft or primary air fans etc.).
- (c) On line flue gas analysis instruments including sulphur-di-oxide (SO₂), nitrogen oxides (NO_x), oxygen, carbon mono-oxide (CO) and dust emission monitoring systems shall be provided.
- (d) The triple sensors shall be provided for critical binary and analog inputs required for protection of steam generator and steam turbine as well as for critical control loops (e.g. furnace draft, drum level, condenser vacuum):
- Provided that redundant sensors shall be provided for other important applications.
- (e) All electrical instruments and devices like switches, transmitters, controllers, analyzers, solenoid valves which are located in the hazardous locations like hydrogen generation plant shall be provided with explosion proof enclosure suitable for hazardous areas as per National Fire Protection Association or National Electrical Code.
- (7) **Power supply system.**— Independent, redundant and reliable 230 V or 110 V AC through uninterrupted power supply system (UPS) and/or DC power supply at standard voltage levels (e.g. 220V/ 48V/ 24V) shall be used for control and instrumentation systems.
- (8) **Control valves.**— The control valves and accessories shall be designed, constructed and tested as per Indian Boiler Regulations, American Society of Mechanical Engineers code for power cycle piping and American Society of Mechanical Engineers boiler and pressure vessel code or equivalent.
- (9) **Steam and water analysis system.**— An on-line sampling and analysis system shall be provided, as per the recommendation of manufacturers of steam-generator and steam turbine, for continuously monitoring the quality of condensate, feed water, steam etc.

12. Balance of Plant.—

- (1) **Coal or lignite handling system.**— The arrangement for transportation of coal or lignite from supply source to the Station may be by rail or other captive systems such as merry go round, belt conveyor system, ropeway system etc. and the system shall comply with the following requirements:
- (a) The coal or lignite handling plant capacity shall be such as to meet the day's fuel requirement by its operation in fourteen hours:
- Provided that a day's fuel requirement shall be worked out at 100% Boiler Maximum Continuous Rating using worst coal or lignite plus a margin of ten percent.
- (b) The coal or lignite handling plant shall be provided with 100% standby streams with each stream to be provided with 2x75% or 3x50% paddle feeders (in case of track hoppers) or apron feeders (in case of wagon tippler) and 2x50% crushers with belt feeders:
- Provided that single set of coal or lignite conveyers from the stockyard to the bunkers shall not cater to more than three units.
- (c) In case of rail based transportation, marshalling yard for handling of wagons and unloading system shall be designed to facilitate return of empty wagons within the time prescribed by the Indian Railways under the worst seasonal conditions.
- (d) Provision of proper dust suppression facility shall be made for coal at various locations i.e. receiving point, stockyard and discharge points of conveyors to avoid dust nuisance and spontaneous fire.
- (e) The provision for measurement of weight of coal or lignite shall be made through weighbridges at the receiving point:

Provided that the weight of coal or lignite fed to individual units shall also be measured

through belt-weighers.

- (f) Magnetic separator system for removal of ferrous materials and detectors for non-ferrous materials shall be provided on the conveyor system.
- (g) Arrangement shall be made for sampling of coal or lignite, and associated instruments/ equipment shall be provided to monitor quality of coal or lignite on as- received basis as well as on as- fired basis before the bunkers.
- (2) **Fuel oil system .—**
- (a) The capacity of fuel oil storage facilities shall be adequate for the requirement of fuel oil for at least thirty days' operation of the Station.
- (b) Suitable heating arrangement shall be made for heating the heavy fuel oil by steam to maintain its flowability.
- (c) The aspects regarding proper storage and handling of fuel oil shall be as per statutory requirements of Chief Controller of Explosives.
- (d) Suitable measuring and recording facilities shall be provided for quantum of fuel oil received and used.
- (3) **Ash handling system.—**
- (a) (i) Ash management plan for utilization and disposal of fly ash as well as bottom ash shall be formulated in accordance with Ministry of Environment, Forest and Climate Change requirements and any other stipulation of the Central Pollution Control Board and State Pollution Control Board in this regard.
- (ii) Ash pond management shall be judiciously planned to optimize the land use and facilitate utilisation of pond ash:
- Provided that it shall also conform to Ministry of Environment, Forest and Climate Change requirements and any other stipulation of the Central Pollution Control Board and State Pollution Control Board in this regard.
- (b) For Pulverised Fuel Based Steam Generator.—
- (i) Arrangement shall be provided for extraction of 100% of fly ash produced and its transportation to silos in dry form.
- (ii) Dry fly ash storage silos of adequate capacity (about 16 hours of ash generation with unit operation at maximum continuous rating) to collect dry fly ash shall be provided in a separate area near the Station boundary with provision for independent access.
- (iii) In addition to fly ash disposal in dry form, the provision may also be made for disposal through wet slurry system or high concentration slurry system:
- Provided that in case of wet slurry system, suitable ash water recirculation system shall be provided to recycle and reuse water.
- (iv) Furnace bottom ash alongwith economizer ash shall be extracted and disposed in wet, semi-wet or dry form.
- (v) The design requirements of ash handling system for pulverised fuel based steam generators shall be as indicated in the **SCHEDULE-II**.
- (c) For Fluidized Bed Steam Generator.—
- (i) Dry fly ash extraction, transportation and storage system shall meet the requirements as stipulated above for pulverized fuel based system.
- (ii) In addition to fly ash disposal in dry form, the provision may also be made for disposal through wet slurry system or high concentration slurry system:
- Provided that in case of wet slurry system, suitable ash water recirculation system shall be provided to recycle and reuse water.
- (iii) Furnace bottom ash shall be extracted in dry form by means of drag link chain conveyor and further disposed in wet, semi-wet or dry form.
- (iv) The design requirements of ash handling system for fluidized bed steam generators shall be as indicated in **SCHEDULE-II**.
- (4) **Station water system.—**
- (a) Station Water Scheme.—

- (i) The station water scheme shall be designed to meet the total clarified water requirement of the Station consisting of cooling tower make up (for non-coastal stations), de-mineralised water, service water, potable water and miscellaneous requirements.
- (ii) For coastal Stations, sea water shall be used for cooling of condenser and secondary cooling of plate heat exchangers, and clarified (non-saline) water shall be used for de-mineralisation system, service water, potable water and miscellaneous requirements:

Provided that in case non-saline water is not available, sea water shall be used for production of non-saline water through desalination plant:

Provided further that de-silting arrangement and travelling water screens shall be provided at the sea water intake.

- (iii) Raw water for production of clarified water shall be drawn from identified source of water and supplied to the Station site by raw water pumps with adequate standby provision and 2x50% or 1x100% capacity pipeline:

Provided that provision for de-silting (if required) and travelling water screens shall be made at the raw water intake point:

Provided further that adequate storage of raw water shall be provided at the Station site considering the period of non-availability of input water from the source.

(b) Pre-treatment System.—

The raw water shall be treated in pre-treatment plant to produce clarified water for meeting the requirement of clarified water of the Station:

Provided that adequate provisions for raw water chlorination, chemical dosing and sludge handling shall also be made.

(c) Cooling Water System.—

- (i) The cooling water system for condenser and secondary cooling system for Station equipment shall be clarified water based and shall be of closed cycle type using cooling towers:

Provided that Air Cooled Condensers can also be used based on site specific conditions:

Provided further that for coastal Stations using sea water, once through cooling system shall be used which shall conform to Ministry of Environment, Forest and Climate Change requirements of temperature rise requirements of temperature rise and any other stipulation of the Central Pollution Control Board and State Pollution Control Board in this regard.

- (ii)(a) The cooling tower shall be of mechanical induced draft type or natural draft type depending upon site specific techno-economics.

(b) The design wet bulb temperature of the cooling tower shall correspond to the ambient wet bulb temperature which is not exceeded for more than five percent of the time during four summer months in an average year.

- (c) Adequate recirculation allowance shall be considered for arriving at design wet bulb temperature for induced draft cooling tower.

- (iii) The design of Circulating Water pump house shall be based on sump model studies and hydraulic transient analysis shall be carried out for Circulating Water piping system.

- (iv) (a) Circulating Water pumps shall be provided on unit basis for supply of cooling water.

Provided that the standby pump(s) may be on unit basis or common to the Station.

- (b) The Circulating Water pumps shall normally be of vertical wet pit type or Concrete volute type or Metallic volute type.

- (v) Chemicals such as chlorine, acid, anti-scalant, biocide shall be dosed in the Circulating Water system for improving quality of circulating water and reducing its scaling and corrosive tendency.

(d) De-mineralisation System.—

- (i) (a) The capacity of de-mineralised plant shall be based on the requirement of de-mineralised water for heat cycle make-up, equipment cooling system make-up, regeneration of de-mineralised plant and condensate polishing plant, if envisaged.

- (b) The de-mineralised plant shall be designed to produce the daily requirement of de-

mineralised water of the Station in twenty hours of operation of the de-mineralised plant.

(c) Adequate redundancy shall be provided in the number of de-mineralising streams.

(ii) The demineralized water shall be stored in minimum two nos. de-mineralised water storage tanks of total storage capacity equal to twenty four hour Station requirement.

(e) Waste Water Treatment System.—

The waste water generated at various locations shall be segregated at the source of generation according to its type:

Provided that similar type of waste water shall be collected at one point and suitably treated for reuse in the plant:

Provided further that the treatment of plant waste water shall be in accordance with the statutory requirements.

(5) **Fire detection, alarm and protection system.—**

(i) A comprehensive fire detection, alarm as well as fire protection system shall be installed for the Station in conformity with relevant Indian Standard.

(ii) Automatic fire detection and alarm system shall be intelligent and addressable type and shall be provided to facilitate detection of fire at the incipient stage and give warning to the firefighting staff.

(iii) Major equipment to be used for fire detection and protection system shall be in accordance with relevant Indian Standard or Underwriters Laboratories, USA or Factory Mutuals, USA or Loss Prevention Certification Board, United Kingdom or VDS (Germany).

(iv) Dedicated fire water storage and pumping facilities of adequate capacities shall be provided for the fire fighting system as per Tariff Advisory Committee guidelines:

Provided that the main fire water pumps shall be electrically driven and standby pumps shall be diesel engine driven.

(v) Necessary hydrant system, complying with Tariff Advisory Committee guidelines, shall be provided at various locations to cover the entire Station.

(vi) All major and minor fire risks in the Station shall be protected against fire by suitable automatic fire protection systems:

Provided that the following systems shall be generally adopted for various fire risks:

(a) Each transformer and reactor shall be provided as per Central Electricity Authority (Measures relating to Safety and Electric Supply) Regulations, 2010 or any successor or subsequent Regulations in this regard.

(b) Automatic high velocity water spray system as per IS 15325, shall be provided for the following areas namely: -

(ba) Lubricating oil systems including storage tanks, purifier units, coolers, turbine oil canal pipelines;

(bb) Generator seal oil system tanks, coolers;

(bc) Steam generator burner fronts.

(c) Steam turbine bearing housing and air pre-heater shall be provided with manually actuated high velocity water spray system.

(d) Automatic medium velocity water spray system, complying with Tariff Advisory Committee guidelines, shall be provided for the areas relating to:

(da) Cable galleries, cable vaults, cable spreader rooms, cable risers, cable shafts etc.;

(db) Coal conveyors, transfer points, crusher houses etc.;

(dc) Fuel oil pumping stations;

(dd) Light Diesel Oil and day oil tanks;

(de) Reliable standby power supply system building.

(e) Automatic foam system shall be provided for fuel oil storage tanks as per National Fire Protection Association guidelines.

(f) Automatic inert gas flooding system, comprising of 2x100% inert gas cylinder batteries conforming to National Fire Protection Association, shall be provided for Unit control rooms, control equipment rooms and area above false ceiling of these rooms.

- (vii) Portable fire extinguisher as per Tariff Advisory Committee guidelines shall be provided for each room/area of power station in addition to fixed fire protection system to extinguish fire in its early phase to prevent its spread.
- (viii) Fire station and fire tenders along with trained staff shall be provided for the Station.
- (ix) Passive fire protection measures such as fire barriers for cable galleries and shafts etc., fire retardant coatings, fire resistant penetration sealing for all openings in floors, ceilings, walls etc., fire proof doors etc. shall be provided to prevent spreading and for containment of fire.
- (6) **Compressed air system.—**
- (a) Compressed air system comprising of instrument air and service air shall be provided to cater to the requirement for operation of various pneumatically operated drives and general purpose cleaning and maintenance services:
- Provided that air dryers shall be provided for instrument air to achieve desired dryness.
- (b) At least one number air compressor shall be provided as standby.
- (7) **Ventilation and air-conditioning system.—**
- (a) Suitable ventilation and air-conditioning system shall be provided to achieve proper working environment in the Station.
- (b) (i) Central control room, local control rooms and service building for Operation and Maintenance personnel shall be air conditioned:
- Provided that the air- conditioned areas shall be maintained at about 25°C and 50 % relative humidity for comfort conditions.
- (ii) Water chilling unit shall be of 2x100% or 3x50% capacity and condensing units shall be of 2x100% capacity:
- Provided that the package type air-conditioners shall have 2x100% capacity or 3x50% capacity equipment:
- Provided further that for window air conditioners and split air conditioners, if used for small control rooms, at least one unit shall be kept as standby.
- (c) The type of ventilation systems to be provided, excluding for air conditioned areas shall be as under:—
- (i) All floors of TG building, switchgear: Evaporating cooling system rooms and cable gallery
- (ii) Other buildings: Mechanical ventilation system
- (8) **Mill rejects system.—**The mill rejects system shall be provided to collect reject from coal mills in case of vertical mills:
- Provided that the system shall be of mechanized type i.e. drag chain conveyor or pneumatically pressurized conveying system:
- Provided further that the system shall consist of collection of rejects from each coal mill and transport to silos for final disposal.
- (9) **Electric overhead travelling crane .—**
- (a) The Electric Overhead Travelling cranes shall be provided for maintenance of Turbine Generator cycle equipment and Circulating Water pumps:
- Provided that these shall comply with the requirements of latest versions of relevant Indian Standard:
- Provided further that the crane capacity shall be taken as five percent more than the single heaviest equipment to be lifted by the crane.
- (b) Two Electric Overhead Travelling cranes may be provided for maintenance of Turbine Generator cycle equipment in case more than two steam turbine generators are housed in the Turbine Generator hall.
- (10) **Laboratories.—** The Station shall be provided with following laboratories namely:-
- (a) Electrical laboratory with necessary equipment and instruments for testing and maintenance of electrical equipment;
- (b) Control and Instrumentation laboratory with necessary equipment and instruments for testing, calibration and maintenance of control and instrumentation systems;
- (c) Chemical laboratories with necessary equipment, instruments and reagents for chemical analysis in

water treatment plant, steam and water analysis and analysis of coal, ash and flue gas.

- 13. Civil Works.—** The design philosophy of civil works shall be based on techno-economics of various options for the construction techniques.

(1) **Geo-technical investigations.—** Geo-technical investigations required for elastic assessment of foundation geology shall be carried out during investigation stage prior to taking up construction activity:

Provided that the geo-technical investigations shall include determination of the sub soil type, ground water table etc., based on which, the type of foundation system, the bearing capacity, the pile parameters, requirement of soil stabilization or compaction etc., shall be established.

(2) **Site levelling.—** (a) The formation level of the Station shall be kept minimum 1.0 m above the high flood level of the site.

(b) It is preferable to keep the entire Station at the same level:

Provided that to keep the leveling cost to minimum, different levels may be adopted for various blocks:

Provided further that the optimization of excavation and filling quantities may be done while fixing the levels of different blocks.

(3) **Foundations.—**

(a) Open foundations or pile foundations or a combination of the two keeping in view the lightly or heavily loaded foundations may be suitably adopted:

Provided that in certain cases, ground improvement and stabilization methods may also be considered.

(b) The foundations for turbines, boiler feed pumps and other rotating equipment shall be suitably designed and the amplitude of vibrations shall be within the limits recommended by the equipment supplier:

Provided that to optimize the foundation system of rotating equipment, 3-D finite element analysis may also be carried out:

Provided further that the following loads shall be considered for the design of foundations, as applicable:

- (i) load of equipment;
- (ii) load of other accessories;
- (iii) dead load of foundation structure;
- (iv) vacuum load;
- (v) unbalance forces;
- (vi) loss of blade force;
- (vii) short circuit force;
- (viii) temperature forces;
- (ix) torque loads;
- (x) frictional and other longitudinal forces;
- (xi) live loads; and
- (xii) wind and seismic loads.

(4) **Turbine Generator and other buildings.—**

(a) All buildings shall be designed as Reinforced Cement Concrete or steel framed super structures with masonry or steel cladding:

Provided that the Turbine Generator building shall have structural steel framework for super structure with metal cladding on exterior face:

Provided further that other buildings may have Reinforced Cement Concrete or steel framework with masonry cladding of minimum one masonry unit thickness on exterior face.

(b) The design of steel structures shall be as per provisions of latest version of relevant Indian Standard:.

Provided that composite construction with steel supporting structures and Reinforced Cement Concrete floors may be adopted for the Turbine Generator and other buildings considering the size, loadings and requirements of construction schedule.

(5) **Structure system.—**

(a) Turbine Generator building shall preferably be moment resisting structure in transverse direction and

braced in longitudinal direction:

Provided that mill and bunker building shall be provided with moment resisting frame in the transverse direction and braced in longitudinal direction.

- (b) The structures shall be designed considering worst load combination of dead loads, superimposed dead loads, imposed loads, design earthquake loads, wind loads etc.:

Provided that the superimposed dead loads shall include the loads due to equipment and associated auxiliaries and accessories, duct loads as well as crane loads with impact etc.:

Provided further that seismic forces shall be considered as per site specific seismic parameters.

(6) Architectural requirements.—

- (a) Overall architectural character of Station building should be in harmony with natural character of environment, climatic conditions and local landscape:

Provided that the interior design should be given due consideration.

- (b) The finishing works shall meet the requirements of aesthetics, durability and functional aspects:

Provided that adequate glazing shall be provided for natural light:

Provided further that adequate ventilation shall be provided in all the buildings.

(7) Chimney. —

- (a) Chimney may be single flue unitized or multi-flue for two or more units.
 (b) The height of chimney shall be decided based on Ministry of Environment, Forest and Climate Change guidelines and any other stipulation of the Central Pollution Control Board and State Pollution Control Board in this regard.
 (c) Provision of chimney shall also be got cleared by Airport Authority of India.
 (d) The size of flue liner shall be decided based on the exit velocity and temperature of flue gases:

Provided that the flues or flue liners shall be of material appropriate as per flue gas condition and provided with suitable thermal insulation:

Provided further that the portion of flue liner above chimney shall be of acid resisting bricks protected by Reinforced Cement Concrete minishell.

- (e) Chimney windshield shall be of Reinforced Cement Concrete construction:

Provided that chimney shall have internal platforms and internal ladder:

Provided further that the top external portion of windshield shall be provided with alternate bands of red and white colour to meet aviation safety requirements.

- (f) Chimney shall be provided with liner test port for continuous emission monitoring, lightning protection and grounding system, aviation obstruction lighting and an elevator.
 (g) Wind tunnel testing for chimney shall be carried out to optimize the design.
 (h) The windshield shall be designed for vertical loading, wind loading, cross wind loading, seismic loading, circumferential wind loading and thermal gradients across the shell.

(8) Corrosion protection.— Steel structures may be provided with epoxy or polyurethane based painting systems:

Provided that suitable measures shall be provided against corrosion for Stations located in coastal areas:

Provided further that use of special cements, corrosion resistant steel, protective coatings for both concrete and steel are some of the options which can be considered in such conditions.

(9) Roads and drainage.— The entire area within the Station boundary shall be well connected with a network of roads and drainage system:

Provided that the drains in the Station area shall be designed for maximum rainfall intensity of fifty years frequency.

(10) Safety provisions.— The safety provisions shall be in conformity with the provisions laid down by National Building Code and other international codes.

PART- C

GAS TURBINE BASED THERMAL GENERATING STATIONS

- 14. Operating Capabilities.—**(1) The gas turbine shall be installed along with heat recovery steam generator and steam turbine except where intended to be used for emergency, black start or only for peaking duty.
 (2) Combined cycle gas turbine module, comprising of gas turbine generator and steam turbine generator,

shall give its maximum continuous rating output at the specified site conditions and the design fuel.

(3) The combined cycle gas turbine module shall be capable of base load operation. However, these shall also be capable of load cycling and two-shift operation.

(4) The generating unit and its auxiliaries shall be suitable for continuous operation without any restriction within a frequency range, voltage range and combined variation of voltage – frequency as specified in the latest Central Electricity Authority (Technical Standards for Connectivity to the Grid) Regulations and its Amendments."

(5) The design of the equipment and control system shall be suitable for operation of the Combined cycle gas turbine module in automatic load frequency control.

(6) Grid connected Gas turbine rating (International Organization for Standardization) upto one hundred mega watt shall be provided with black start facility.

(7) The gross heat rate of combined cycle gas turbine module as guaranteed by the equipment manufacturer shall not exceed the following values:

Table 2

Gas Turbine rating (ISO)	Gross Heat Rate of CCGT module (on HHV basis) in kcal/kWh at ISO conditions with natural gas as fuel at 100% load
20 MW to 30 MW	2250
> 30 MW to 200 MW	1825
> 200 MW	1700

15. Gas Turbine and Auxiliaries.— (1) The gas turbine and auxiliaries shall comply with latest versions of applicable codes of International Organization for Standardization or American Society of Mechanical Engineers.

(2) The gas turbine compressor shall have a stable aerodynamic characteristic throughout its operating regime:

Provided that the operating point in the entire frequency range of 47.5 to 51.5 Hz shall be sufficiently away from surge line so that it is stable at all conditions of load, ambient temperature and blade fouling.

(3) The compressor shall be provided with variable type inlet guide vanes to meet start up and shutdown requirements, improved part load performance in combined cycle mode of operation and exhaust gas temperature control over a wide range.

(4) Combustion chamber arrangement shall be such as to allow maintenance without dismantling of compressor or turbine section and with minimum dismantling of piping and electrical connections.

(5) NOx control shall be either through dry low NOx combustor or through steam or water injection and shall be able to achieve the NOx level limits stipulated by pollution control authorities.

(6) Combustion system shall be provided with flame detection system for monitoring and protection.

(7) Gas turbine shall be provided with self contained lubrication oil system and control oil system with adequate redundancy for pumps and coolers.

(8) Gas turbine shall be provided with an air intake filtration system along with on-line cleaning system to deliver filtered air of acceptable quality to the gas turbine.

(9) Gas turbine generating unit shall be controlled by an electro-hydraulic governing system with 100% back up:

Provided that all necessary protective devices required for safe operation shall be provided:

Provided further that control system of the gas turbine shall include necessary features to check healthiness of protective devices.

(10) The gas turbine shall be capable of withstanding momentary speed rises upto the over-speed trip limit under transient conditions.

(11) Gas turbines envisaged for dual fuel operation (natural gas as primary fuel and liquid fuel as back-up fuel) shall be capable of on-load fuel changeover from natural gas to liquid fuel and vice-versa automatically or with manual initiation.

(12) All piping, valves and fittings downstream of liquid fuel delivery system and NOx water injection system shall be made of stainless steel of suitable grade to avoid corrosion so as to prevent entry of rust into the combustion chamber and mal-operation of stop/ control valves.

(13) Each gas turbine shall be provided with on-line fuel flow metering device to monitor fuel consumption.

(14) Gaseous fuel conditioning system.—

- (a) Fuel gas conditioning system of the plant shall be designed to provide required quantity of clean, dry gas at required pressure, temperature and quality suitable for the gas turbine.
- (b) The temperature of the gas delivered to the gas turbine shall be at least 200C higher than hydrate forming temperature or gas dew point whichever is higher.
- (c) A chromatograph and analyzer shall be provided for determining the composition and heating value of the fuel gas.
- (d) Design of fuel gas system shall be as per the provisions of the latest version of relevant American National Standards Institute Standards or equivalent.
- (e) The gas leak detection and protection system shall necessarily be provided for enclosed areas.

(15) Liquid fuel storage and conditioning system.—

- (a) Liquid fuel storage capacity shall be provided corresponding to fifteen days requirement, if liquid fuel is used as the primary fuel.
- (b) Liquid fuel storage area shall be at least 90 meters away from the gas turbine.
- (c) Liquid fuel unloading, storage and forwarding system shall be designed to comply with all applicable statutory requirements.

16. Heat Recovery Steam Generator and Auxiliaries.—

- (1) Heat Recovery Steam Generator shall be suitable for outdoor installation and shall be constructed to form a gas tight envelope to prevent gas leakage.
- (2) Heat Recovery Steam Generator shall comply with Indian Boiler Regulation requirements.
- (3) Gas turbine exhaust plenum shall be designed for proper gas velocity and temperature distribution and effective pressure recovery:

Provided that the exhaust system design shall take into account very rapid start-up and shutdown rate of the gas turbine.

- (4) Arrangement for mandatory purging of gas turbine exhaust system and Heat Recovery Steam Generator shall be provided in order to eliminate chances of explosion (puffing) for combined cycle plants envisaged for operation on liquid fuel firing.
- (5) The design of Heat Recovery Steam Generator shall be based on finned tube heat transfer banks of superheaters, evaporators, economisers etc.

Provided that the fin density shall not be higher than 200 fins/m.

- (6) The design of Heat Recovery Steam Generator shall be suitable for direct on line starting along with the gas turbine.
- (7) The Heat Recovery Steam Generator shall be designed for single pressure/two pressure/three pressure steam generation based on gas turbine rating and techno-economics.
- (8) In the event of loss of feed water, it shall be possible to continue Heat Recovery Steam Generator operation for a short duration till the mode of operation of gas turbine is changed to open cycle or gas turbine is tripped and coasted down.
- (9) The gas temperature at Heat Recovery Steam Generator exit, the temperature of condensate entering condensate pre-heater and temperature of feed water entering economiser shall be such as to avoid acid dew point corrosion.

17. Steam Turbine and Auxiliaries.— Steam turbine shall be single or multi pressure, condensing type complying with relevant IEC Standards or equivalent:

Provided that other requirements stipulated for coal or lignite based thermal generating stations in Part-B of this Chapter in respect of steam turbine and auxiliaries shall be complied with, as applicable.

18. Electrical System.— Electrical Systems shall meet the requirements stipulated for coal or lignite based thermal generating stations in Part-B of this Chapter in respect of Electrical System, as applicable:

Provided that in case of smaller size of generators, the neutral may be earthed through resistance or voltage transformer.

19. Control and Instrumentation System.— Control and Instrumentation Systems shall meet the requirements stipulated for coal or lignite based thermal generating stations in Part-B of this Chapter in respect of Control and Instrumentation System, as applicable.**20. Station Water System.—** Station water system which includes clarified water system, cooling water system,

de-mineralisation system, service water system, potable water system, waste water treatment system shall meet the requirements as stipulated in Part B of this Chapter in respect of Station Water System, as applicable.

21. **Fire Detection, Alarm and Protection System.**—Fire detection, alarm and protection system shall meet the requirements as stipulated for coal or lignite based thermal generating stations in Part B of this Chapter in respect of fire detection, alarm and protection system, as applicable.
22. **Civil Works.**— Civil works shall meet the requirements as stipulated for coal or lignite based thermal generating stations in Part B of this Chapter in respect of civil works, as applicable:

Provided that the stack shall be of steel construction and its height shall meet the requirements of Ministry of Environment, Forest and Climate Change and any other stipulation of the Central Pollution Control Board and State Pollution Control Board in this regard.

PART D

INTERNAL COMBUSTION (IC) ENGINE BASED THERMAL GENERATING STATIONS

23. **General.**— (1) The IC engine based thermal generating stations shall comprise of generating sets (Gen- sets) and associated facilities and these shall use liquid fuel *viz.* heavy fuel oil, diesel, bio oil or natural gas or a combination of gas and liquid fuel.
- (2) The IC engine based thermal generating stations shall be suitable for indoor installations either on pads or on reinforced concrete foundations and smaller IC engine based generating sets (Gen- sets) may be skid mounted.
- (3) All the facilities required for receiving and feeding the inputs such as fuel, lubricants, water, air etc. and the control panel and synchronizing panel shall be provided.
24. **Operating Capabilities of IC Engine based Generating Sets (Gen- sets).**— (1) The Gen- sets shall be capable of base load operation:

Provided that these shall also be capable of load cycling and single shift or two-shift operation.

- (2) The IC engine and all rotating auxiliaries shall be suitable for continuous operation within the frequency range of 47.5 Hz to 51.5 Hz.
- (3) For grid connected generating stations, design of the equipment and control system shall be suitable for operation of the Gen- set in automatic load frequency control.
- (4) The Gen- set shall have auto start, auto loading, auto stop features and capable of parallel operation in the power distribution system with synchronizing facilities.
- (5) The gross heat rate of Gen- set as guaranteed by the manufacturer shall not exceed the following values namely:-

- (a) **Diesel engine based Gen- sets (four stroke)**

Table 3

Gen- Set Rating	Gross Heat Rate (on HHV basis) in kcal/kWh at 100% load
100 kW to 1 MW	2350
>1 MW to 3 MW	2250
> 3 MW to 10 MW	2200
>10 MW	2150

- (b) **Diesel engine based Gen- sets (two stroke)**

Table 4

Gen- Set Rating	Gross Heat Rate (on HHV basis) in kcal/kWh at 100% load
3 MW to 10 MW	2000
> 10 MW	1950

- (c) **Gas engine based Gen- sets**

Table 5

Gen- Set Rating	Gross Heat Rate (on HHV basis) in kcal/kWh at 100% load
>1 MW to 3 MW	2400
> 3 MW to 5 MW	2300
>5 MW	2150

- 25. IC Engine and Auxiliaries .—** (1) The IC engine and auxiliaries shall comply with latest versions of applicable IS/ ISO/ BS (British Standard) or equivalent codes.
- (2) Turbo charger, if applicable, shall be of robust construction, suitable of being driven by engine exhaust:
Provided that it shall draw air through air filter and have adequate capacity to suit engine requirements.
- (3) The IC engine shall be capable of satisfactorily driving the generator at 10% over load at rated speed for one hour in any period of twelve hours of continuous running for applications other than base load operation.
- (4) The IC engine shall be provided with suitable self-starting device.
- (5) The IC engine shall be provided with an air intake filtration system to deliver filtered air of quality suitable for the engine.
- (6) An engine driven or a separate AC motor driven booster pump shall be provided to deliver the fuel oil from the supply tank through the filters:
Provided that, if required, an AC motor driven fuel oil priming pump shall also be provided to keep the high-pressure system primed for remote and quick starting at any instant.
- (7) The IC engine shall be cooled by radiators (engine mounted or remote type) or by heat exchangers using cooling tower:
Provided that in case of remote radiators, low speed axial fans shall be provided to keep the noise level well within acceptable limits.
- (8) (a) The IC engine shall be provided with micro-processor based control system.
(b) The governor shall be electronic type complying with latest version of relevant IS:
Provided that an over speed trip mechanism shall be provided to automatically shut off fuel in case the set reaches above 10% of rated speed.
(c) An engine mounted emergency stop push button shall be provided to stop the engine during emergencies.
- (9) Lubricating oil system for IC engine shall be of self contained type or a common lubricating oil system may be provided for two or more IC engines.
- (10) Crankcase gases shall be piped outside the engine room so that oil fumes do not accumulate on the engine and radiator.
- (11) The IC engine shall be furnished with exhaust system comprising of efficient silencers, chimney etc.
- (12) NO_x level, stack height and noise level shall comply with the guidelines laid down by Ministry of Environment, Forest and Climate Change and any other stipulation of the Central Pollution Control Board and State Pollution Control Board in this regard.
- 26. Liquid Fuel Storage and Conditioning System.—** (1) Liquid fuel storage capacity shall be provided corresponding to fifteen days requirement.
- (2) Liquid fuel unloading, storage and forwarding system shall be designed to comply with all applicable statutory requirements.
- (3) Each IC engine or a group of IC engines installed at one location shall be provided with on-line fuel flow metering device to monitor fuel consumption.
- 27. Electrical System.—** Electrical requirements stipulated in Part B of this Chapter shall be complied with for switchgear, transformers, cables, protections etc. as applicable:
Provided that in case of smaller size of generators, the neutral may be earthed through resistance or voltage transformer.
- 28. Control and Instrumentation System.—** Control and Instrumentation Systems shall meet the requirements stipulated for coal or lignite based thermal generating stations in Part B of this Chapter in respect of Control and Instrumentation System, as applicable.
- 29. Station Water System.—** Station water system shall meet the requirements as stipulated for coal or lignite based thermal generating stations in Part B of this Chapter in respect of Station Water System, as applicable.
- 30. Fire Detection, Alarm and Protection System.—** Fire detection, alarm and protection system shall meet the

requirements as stipulated for coal or lignite based thermal generating stations in Part B of this Chapter in respect of fire detection, alarm and protection system, as applicable.

- 31. Civil Works.—** Civil works shall meet the requirements as stipulated for coal or lignite based thermal generating stations in Part B of this Chapter in respect of civil works, as applicable:

Provided that the stack shall be of steel construction and its height shall meet the requirements of Ministry of Environment, Forest and Climate Change and any other stipulation of the Central Pollution Control Board and State Pollution Control Board in this regard.

CHAPTER-III

TECHNICAL STANDARDS FOR CONSTRUCTION OF HYDRO-ELECTRIC GENERATING STATIONS

32. Preliminary.—

- (a) This Chapter stipulates the minimum technical requirements for construction of Hydro-Electric Generating Stations for various types of schemes i.e. Run- of-river scheme, Storage scheme, Pumped Storage scheme, Canal head scheme etc. with installed capacity of twenty five mega watt and above. The regulations herein shall also be applicable for construction for life extension purpose in the existing generating stations, wherever feasible.
- (b) For Hydro-electric generating stations having installed capacity less than twenty five mega watt, the stipulations as appropriate, shall apply.

33. General Requirements.—

- (1) While designing hydro-electric projects, the life of the civil works shall not be less than one hundred years, while that of main electro-mechanical generating equipment i.e. turbine, generator, transformers, auxiliaries, etc. installed shall not be less than forty years with regular inspection and required maintenance.
- (2) The station shall be designed for unconstrained operation within the range of maximum net head and minimum net head, specified silt conditions wherever applicable and full range of ambient and other environmental conditions.
- (3) The dimensions of the power house, turbine setting, speed rise, pressure rise, run-away speed, etc. shall be governed by the limits specified in relevant Indian Standards.
- (4) (a) The chemical analysis of water and silt data including the petrographic and petrofabric analysis shall be taken into consideration while designing the turbine, main inlet valve and other auxiliary equipment susceptible to abrasive effects of silt.
- (b) Suitable materials, protective coatings and painting shall be provided to resist silt abrasion wherever required as per the site conditions.
- (5) The generating units of rated capacity fifty mega watt and higher shall be capable of operation in synchronous condenser mode, wherever feasible.
- (6) (a) The operation of the unit shall be smooth and quiet.
- (b) The noise level shall not be more than 90 dBA at a distance of 1 metre from any equipment when operating near rated output.

34. Layout Considerations.—

- (1) General layout of the station shall be developed considering the proper utilization of space, functional requirements, future extensions and considering requirements of space during construction stage.
- (2) Maintenance facilities shall be provided as required for assembly, disassembly and handling during maintenance of all important equipment and auxiliaries.
- (3) (a) Fire escape staircases and galleries shall be provided in main station building and Cavern.
- (b) Each equipment room shall be provided with alternate exits to be used in case of fire or accidents, as per requirements of the Factory Act and other statutory requirements.
- (4) (a) Adequate provisions in layout shall be made for protection of power house against flooding.
- (b) The required provisions for protection against flooding are given in Regulation 42.

35. Operating Capability of the Generating Unit.—

- (1) The unit shall be capable of giving the rated output continuously as specified by the manufacturer at the rated design head and rated discharge and shall be capable of operating between the minimum and maximum head specified by the purchaser and ambient temperature at site as specified.
- (2) The maximum continuous overload capacity up to 110% of rated capacity of the unit at the generator terminals during the high head conditions or high discharge conditions or both as guaranteed by the

manufacturer shall be based on hydraulic parameters of the stations.

(3) The generating unit and its auxiliaries shall be suitable for continuous operation without any restriction within a frequency range, voltage range and combined variation of voltage – frequency as specified in latest Central Electricity Authority (Technical Standards for Connectivity to the Grid) Regulations and its Amendments.

(4) (a) Provision shall be made for starting the machine in auto mode up to synchronization by a single command and loading of the unit to full load quickly.

(b) The design of the equipment and control system shall permit participation of the unit in automatic frequency control mode.

(5) The unit and all its associated auxiliaries shall be designed for trouble free operation up to maximum rating of the unit for the complete range of operation for active power and reactive power output.

(6) The unit and its auxiliaries shall be designed to operate for the silt levels and its characteristics specified for the project, based on the historical water inflow data of the river.

(7) The redundancy in the unit auxiliaries and station equipment shall be provided so that the generating unit continues to operate even in the event of outage of a part of the auxiliary system.

(8) The station shall be equipped with facilities for black start of one generating unit at a time in the event of grid black out conditions. However, for stations with variable speed machines, the facility of black start shall be provided wherever feasible.

36. Hydraulic Turbines and Auxiliaries.—

(1) The hydraulic turbine shall comply with latest versions of relevant Indian Standards or International Electrotechnical Commission standards.

(2) (a) Turbine shall have smooth and quiet operation.

(b) The vibrations, pressure pulsations and power fluctuations shall be within the limits specified in relevant standards.

(c) The amplitude of the vibrations at the shaft shall not exceed the limits specified in relevant National Electrical Manufacturers Association or International Organization for Standardization standards.

(3) (a) The type and rotational speed of the turbine shall be selected considering the range of head, specific speed, head variation etc.

(b) In case two different types of turbines are found suitable for the range of head envisaged (overlapping zone of net head) at a particular site, the selection of turbine shall be based on the techno economic considerations taking into account the aspects such as head variation, civil costs, part load operation, operation and maintenance, efficiency etc.

(4) (a) The rated speed resulting in even number of pair of poles shall be preferred.

(b) In case of high silt content, at least one step lower synchronous speed shall be selected.

(5) (a) Before the manufacturing of the prototype turbine is taken up, homologous scale model of the prototype turbine shall be made, if not already available, and tested by manufacturer's Laboratory or NABL or APLAC or ILAC accredited independent third party to demonstrate that the prototype turbine will meet the guaranteed performance in respect of efficiency, output, smooth operation, pressure pulsations and other guarantees as stipulated in the technical specifications.

(b) For power station size up to one hundred mega watt and Unit size up to fifty mega watt, Computational Fluid Dynamics can be used to demonstrate that the prototype turbine will meet the guaranteed performance in respect of efficiency, output, smooth operation, pressure pulsations and other guarantees.

(6) (a) The weighted average efficiency shall be computed based on the efficiencies at various outputs.

(b) The weightage factors shall be selected corresponding to the average duration or period (in percentage) in a year, for which the units are expected to be operated at different outputs.

(c) The weighted average efficiency obtainable shall not be less than 93% for Francis, 92% for Kaplan and Bulb turbines and 91% for Pelton and Deriaz and Propeller turbines.

(d) The peak efficiency at rated conditions shall be higher than 94% for Francis, 93% for Kaplan and Bulb and 91.5% for Pelton, Deriaz and Propeller turbines.

(e) The weighted average efficiency of the turbine shall be determined after the installation and commissioning of the generating units on the basis of field acceptance tests on one of the units as per relevant Indian Standards or International Electrotechnical Commission standards. All the necessary

arrangements for Field Acceptance Tests shall be provided during Power House Construction.

- (7) The minimum load for continuous operation for various types of turbines shall be as per **SCHEDULE-III**.
- (8) The pressure rise and speed rise of turbine shall be within the range specified by relevant Indian standards.
- (9) (a) The turbine shall be designed to withstand runaway speed for fifteen minutes with cooling water on and intact without causing any residual detrimental effect on future operation of the machine.
 (b) However, critical speed of the machine shall be around 25% higher than maximum runaway speed.
- (10) Provision of runner removal from bottom for maintenance shall be made, wherever feasible. However, for pumped storage plants, either side removal at turbine pit or top removal from stator bore of runner shall also be acceptable.
- (11) (a) The setting of reaction turbine, i.e. centre line of runner, with reference to minimum tail water level shall be governed by cavitation consideration.
 (b) Based on the calculations, the centre line of the runner may work out to be either above or below the minimum tail water level.
 (c) Pelton turbine shall be installed with its centre line at a height of minimum one runner pitch diameter above the maximum tail water level or as per the recommendations of the manufacturer.
- (12) (a) Special care shall be taken to select the material of the underwater parts.
 (b) The materials selected for runner, guide vanes, stay ring, runner chamber, upper draft tube cone, etc. shall have high wear resistance, corrosion and cavitation resistance.
 (c) Besides, the use of the material having good weldability shall be considered so that parts can be fabricated and the eroded parts can be repaired easily at site.
- (13) As most of the rivers in the Himalayan region carry high silt which erodes the runner and under water parts of a turbine at a comparatively faster rate, appropriate protective coatings shall be provided for these parts of a turbine in order to minimize silt erosion, wherever necessary and feasible.
- (14) The guide vanes, runner, discharge ring and other hydraulic passages shall be designed for a life of 8000 operating hours against excessive pitting caused by cavitation.
- (15) (a) The pump turbine shall be capable of giving output higher than the rated output while operating in the turbine mode.
 (b) The pump turbine shall be hydraulically designed giving preference to its operation in "Pumping Mode" so that optimum efficiencies are obtained in both turbine and pump mode.
- (16) The centre line of a pump turbine shall be fixed corresponding to pumping operation.
- (17) Each penstock or hydro turbine shall have online water flow measurement system for unit size higher than one hundred mega watt. Penstock or Hydro Turbine meant for E-flow irrespective of size (mega watt) shall have online water flow measurement system.

37. Governing System.—

- (1) (a) Microprocessor based digital governing system shall be used for regulating the flow of water to the turbines for the control of active power (mega watt) thus providing the requisite speed or frequency control and load control.
 (b) The speed sensing device shall be provided with the requisite redundancy.
 (c) The performance requirements of the governing system shall be governed by relevant Indian Standards or International Electrotechnical Commission standards.
- (2) (a) High pressure oil system shall be provided for each turbine for the operation of wicket gates or nozzle and deflector servomotors through governors and for the control of main inlet valve.
 (b) Piston type accumulator integrated with nitrogen bottles shall be used for pressures higher than 60 kg/cm².
- (3) (a) Separate oil pressure systems shall be used for the control of turbine and the control of main inlet valve.
 (b) Online oil filtration unit shall be used with servo valve based governing system.
- (4) (a) The sizes of various components of oil sump tank and pressure receiver shall be calculated as per the relevant Indian Standards or American Society of Mechanical Engineers standards.
 (b) The oil volume below its machine shutdown level shall be sufficient to perform three full operations of the servomotor viz. Close-Open-Close with oil pumps being out of operation for control of Turbine and one open operation of main inlet valve.

- (c) The size of the accumulator shall be such that it shall be possible to operate the Penstock protection valve two times *viz.* Close-Open from minimum normal oil pressure without the operation of governor oil pumps and without dry nitrogen admission/Compressed air admission.

38. Main Inlet and Penstock Protection Valve.—

- (1) The main inlet valve of either butterfly or spherical type shall be provided depending on head conditions.
- (2) The spherical and butterfly valves shall comply with the requirements of latest versions of relevant Indian Standards or International Electrotechnical Commission standards.
- (3) The valves shall have service seal on downstream side and maintenance seal on upstream side.
- (4) (a) The opening and closing of spherical or butterfly valves shall normally be done under balanced water condition.
(b) Suitable number of air release valves and anti-vacuum valves shall be provided at the appropriate location on the downstream side to allow the air trapped in the Penstock to escape when it is filled with water through the bypass valves and for supplying or admitting the air when the valve is suddenly closed.
- (5) The main inlet valve (butterfly or spherical valve) shall be provided for emergency closure in case of any eventuality including turbine speed increasing to runaway speed with counter weight only.
- (6) (a) The Penstock Protection Valve shall be provided after the surge shaft as a second line of defence in the projects having the length of Head Race Tunnel 5000 m or more.
(b) The valve shall be designed for penstock rupture condition.
- (7) The Penstock Protection Valve shall be provided with counter-weight for closing. Additional feature of oil assistance closing as back up shall also be provided for emergency closure.
- (8) As far as possible, Main Inlet and Protection valve shall be provided and wherever it is not possible to provide such valves, ring gates or quick closing type intake gates shall be provided.

39. Mechanical Auxiliaries.—

(1) Electric overhead travelling cranes.—

- (a) (i) The Electric overhead travelling cranes shall comply with the requirements and standards of latest versions of relevant Indian Standards or International Electrotechnical Commission standards.
(ii) The span of the crane shall be fixed in such a way that the travel and lift of the main and auxiliary hooks of the crane as well as the hook limits shall be adequate for the assembly and disassembly of the main equipment in the power house.
(iii) The lift above the service bay (upper limit) shall be adequate to hoist and carry the rotor of the generator and to assemble and disassemble the transformer.
(iv) The lift below the service bay (lower limit) shall be fixed in such a way as necessary for assembly and disassembly of the turbine.
- (b) (i) The crane capacity shall be kept as 5% more than the maximum weight to be lifted inclusive of the weight of the lifting arrangements.
(ii) If the maximum weight to be lifted is more than 300 Tonnes, two cranes each of equal capacity shall be deployed to lift the heaviest package in tandem operation.
- (c) The provision of variable voltage variable frequency drive for various crane motions for the purpose of precise speed control shall normally be made for crane. Additionally, provision of radio remote control shall be made for cranes having capacity 100 Tonnes and above.
- (d) (i) The radio remote control equipment, wherever provided shall conform to all applicable Government rules and regulations.
(ii) The frequency of operation shall be in the requisite frequency band as per relevant standards.
- (e) A monorail of adequate capacity can be provided for handling smaller packages, equipment and sub-assemblies and shall have larger reach than main crane.

(2) Cooling water system.—

- (a) (i) The cooling water requirements of generator air coolers, shaft seal, turbine and generator bearings of each unit and generator transformer shall be met either by pumping the water drawn from the tail pool or draft tube or providing a penstock tapping for the same.
(ii) The penstock tapping shall not be considered in case of high head installations i.e. where the penstock pressure is more than 10 kg/cm².
(iii) If the penstock pressure is up to 10 kg/cm², a suitable pressure reducer depending on the

requirement of net cooling water pressure (usually 3 to 5 kg/cm²) shall be provided.

(iv) However, as far as possible the penstock tapping for cooling water requirement shall be avoided.

(b) In the projects where rivers have silt laden water, closed circuit cooling water system shall be provided.

(3) Dewatering and drainage system.—

(a) (i) Submersible type of dewatering pumps shall be provided to pump out the water trapped between the penstock gate or main inlet valve and draft tube gate in case of Francis and Kaplan turbines to the dewatering sump when maintenance on the turbine of any unit is required to be carried out.

(ii) The capacity of the pump shall be chosen in such a way that a single unit can be dewatered up to draft tube gate within six hours of operation without raising the level in the sump with the main pump in operation. In addition, standby pump of capacity 50% of the main pump shall also be provided.

(b) (i) All the drainage water within the power house shall be collected inside the drainage sump constructed near the dewatering sump.

(ii) The drainage water shall be allowed to flow out to the tail race above the maximum flood water level using pumps, if required.

(c) (i) The drainage and dewatering sumps shall be inter-connected by means of gate valve and non-return valve, which allows the flow of water from the drainage sump to the dewatering sump only.

(ii) The spindle of the gate valve shall be extended up to the turbine floor so that it is possible to operate it from the turbine floor.

(d) (i) A suitable pressure hatch shall be provided to prevent any flow of water from dewatering sump into the power house.

(ii) Drainage sump shall not have any pressure hatch.

(4) Ventilation and Air-conditioning system.—

(a) A ventilation and air-conditioning system shall be provided to achieve proper working conditions inside the power house complex, to serve the purposes such as prevention of temperature stratification, removal of contaminated air, removal of waste heat from equipment as well as to provide fresh air necessary for human comfort with regard to temperature, humidity, and oxygen content, and to extract or force out smoke and other toxic gases during fire.

(b) (i) Ventilation system for circulation of natural air and exhaust shall be provided as a minimum requirement.

(ii) Cooling of air, wherever required, may be provided by evaporating, water cooled cooling tubes or chiller units.

(c) (i) The control room, offices, reception, conference room etc. shall be air-conditioned.

(ii) The conditioned air shall be about 25⁰C at around 50% relative humidity for comfort conditions.

(iii) A choice of installation out of three different types of installations i.e. window or split type, package type or centralized air conditioning plants shall be made on the basis of the required tonnage and suitability of the installation at that particular location.

(5) High pressure and low pressure compressed air system.—

(a) The Nitrogen (N₂) system having Piston type accumulator shall be provided for pressure more than 60 kg/cm². The high pressure compressed air can also be opted for lesser pressure requirement of turbine governing system and main inlet valve, where the pressure of HP air compressor shall be 1.1 times the working pressure.

(b) Low-pressure compressed air system shall be provided to meet requirements such as inflatable rubber seal of shaft glands, operation of pneumatic tools, cleaning, generator braking and jacking, boosting pressure in the fire protection hydro-pneumatic tank, pneumatic detection line for the operation of deluge valve provided for the generator transformer, etc.

(c) A separate compressed air system, wherever required, shall be provided to supply the compressed air for depressing the water level in the draft tube below the runner to run the machine in synchronous condenser operation mode and pump mode.

(6) Power House lift.—

(a) The lift and its associated equipment shall comply with the requirements of latest versions of relevant Indian Standard.

- (b) A minimum of one lift shall be provided in the power house besides two sets of staircases for the movement of persons or goods.

(7) Oil handling and purification system.—

- (a) (i) The insulating oil required in the generator transformers for the hydro station shall conform to relevant IS.
 (ii) The type of turbine oil used as a working fluid in speed regulation system and as a lubricant and a coolant for thrust and guide bearings shall be as per the recommendations of the equipment manufacturer. The oil type shall be same for bearing and governor.
- (b) The oil handling system for each grade of oil shall incorporate two tanks (one for pure oil and another for used oil), associated piping and control equipment.
- (c) (i) The oil handling facilities shall be located within the power house or in an isolated building outdoors.
 (ii) To convey the oil to the turbines, generators and transformers, suitable oil pipes shall be laid within the power house.
 (iii) Portable type pumps and purifiers and standard oil drums may also be used for hydro-electric stations of installed capacity up to one hundred mega watt.

(8) Fire fighting system.—

- (a) General.—
- (i) The state of the art fire detection, alarm and protection system shall be provided for the station. The fire protection system as well as hydrant system shall be designed complying with the guidelines of National Fire Protection Association.
- (ii) All major and minor fire risks in the Station such as transformers, cable galleries or shafts, control rooms etc. shall be protected against the fire by suitable automatic fire protection systems. The state of the art automatic fire detection and alarm system shall be provided to facilitate detection of fire at the incipient stage and warning to firefighting staff.
- (iii) Portable and mobile fire extinguishers shall be provided to extinguish fire in the initial stage to prevent its spread.
- (b) Each Transformer and Reactor shall be provided as per Central Electricity Authority (Measures relating to Safety and Electric Supply) Regulations, 2010 or any successor/subsequent Regulations in this regard.
- (c) The provision shall be made for water sprinkler system for oil plant rooms, especially in an underground power house. In addition, provision shall also be made for fire hose cabinets and hydrants inside the power house as well as for the transformer area. The water supply for the permanent fire protection installation should be based on the largest fixed fire suppression system demand plus the maximum hose stream demand of not less than 1890 L/min for a two hour duration. Two nos. of fire pumps, each capable of pumping water to fill the overhead water tank in six to eight hours time shall be provided.

- (9) Equipment for Mechanical Workshop.—** Mechanical Workshop equipment shall be provided for essential maintenance work and onsite repairs in line with specific project requirements.

40. Electrical System.—

(1) General requirements.—

- (a) For the purpose of design of equipment or systems, an ambient temperature up to 40⁰C as applicable to station site and relative humidity of 95% shall be considered.
- (b) The overall system shall be designed considering maximum voltage and combined variation of voltage and frequency as specified in latest Central Electricity Authority (Technical Standards for Connectivity to the Grid) Regulations and its Amendments.
- (c) (i) The telecommunication system shall be based on optical fibre or power line carrier communication or both.
 (ii) Owner's telecommunication equipment provided to transmit the required data of the station to the procurer of electricity, Regional and State Load Despatch Centre and Transmission Company, shall have matching equipment and compatible communication protocol with the receiving end.

(2) Generator or Motor-Generator.—

- (a) General —

- (i) The generator shall comply with the requirements of the latest versions of Indian Standards or International Electrotechnical Commission standards.
- (ii) Insulation shall be of thermal class F for the stator and the rotor windings with temperature rises at maximum guaranteed continuous output limited to that of thermal class B as per relevant Indian Standards or International Electrotechnical Commission standards.
- (iii) The generator shall be capable of safely withstanding the maximum stresses during normal operation, run-away speed conditions, two phase and three phase short circuit conditions, single phase earth fault, 180 degree and 120 degree out of phase synchronization, magnetic unbalance with 50% of the poles short circuited within the speed of range of 1.3 times the rated speed, brake application etc.
- (iv) (a) The construction of the generator shall be such that the rotor poles and stator coils can be handled out or in without removal of the rotor and without disturbing the upper bearing bracket wherever feasible. However, this may not be applicable to variable speed machines.
(b) The rotor poles shall be interchangeable.
- (v) The output of motor generator shall match with the input required for pumping operation in the operating head range.
- (vi) (i) The generator rated speed shall match the rated speed of the turbine or the pump-turbine.
(ii) A rated speed resulting in even number of pair of poles shall be preferred.
- (vii) The current flowing in stator slot shall be limited to 3250 - 6500 Amperes with current through individual coil being limited to approximately 3250 Amperes.
- (viii) The power factor and the requirements of reactive power capability shall be specified as per requirement of latest Central Electricity Authority (Technical Standards for Connectivity to the Grid) Regulations and its Amendments.
- (ix) Metal oxide surge arresters of suitable rating shall be provided for surge protection of generators.
- (x) (i) Resistance temperature detectors or any other type of temperature sensors at suitable locations, for temperature monitoring of stator core, stator winding and bearings, shall be provided.
(ii) Suitable arrangement for rotor winding temperature monitoring shall also be provided.
- (xi) The inertia of the machine shall be as per the transient stability studies required for the interconnected electrical power system to limit speed rise, pressure rise in waterway and negative pressure in Draft Tube and shall not have such a value which will cause the machine natural frequency to be in resonance with the expected frequency of draft-tube hydraulic surges. A margin of approximately 25% shall be provided for this.
- (xii) Weighted average efficiency based on the computed efficiencies at various outputs for which the generator is expected to operate shall be more than 98% for machine greater than 30 MVA.
- (xiii) Wherever required, dynamic braking shall be provided for generators in addition to mechanical brakes.
- (xiv) Synchronous or asynchronous type generators shall be considered for Pumped Storage Plants with fixed or variable speed drives as per relevant Indian Standards or International Electrotechnical Commission.
- (b) Bearing Arrangements —
- (i) The prudent practice and recommendation of manufacturers shall be considered while deciding the bearing arrangement.
- (ii) (a) Combined thrust and upper guide bearing mounted on a top bearing bracket above the rotor and lower guide bearing below the rotor shall be used for small diameter, long core, high speed machines. For medium to high capacity machines having low speed, combined thrust and guide bearing mounted on a separate bearing bracket located below the rotor and an upper guide bearing installed above the rotor on a separate, light weight bracket mounted on the top of the stator frame shall be provided.
(b) The arrangement of combined thrust and guide bearing mounted on a separate bearing bracket located below the rotor shall be used for low to medium capacity machines having low speed.
- (iii) The horizontal mounted hydro-electric machines shall be provided with the journal type bearings. The number of journal bearings shall vary depending upon the machine output, speed, diameter, core length, etc.

- (iv) The limiting temperature of the thrust bearing metal of hydro-electric machines shall be 80⁰C. The guide bearing temperature limit shall be 70⁰C.
- (c) Fire Protection System for Generator —
- (a) Either water based or CO₂ type of fire suppression system shall be provided.
- (b) A water based system shall be adopted in underground power stations because release of CO₂ gas in an underground installation shall be hazardous.
- (d) Generator Bus duct —
- (i) (a) The generator bus duct shall comply with the requirements of the latest versions of relevant Indian Standards or International Electrotechnical Commission standards.
- (b) Generator bus duct shall be segregated or isolated phase type.
- (c) Bus duct rated more than 3150 Amperes shall be isolated phase type. The isolated phase ducts shall be preferred over the segregated phase bus ducts.
- (d) Generator Bus duct rated more than 6000 Amperes shall be continuous isolated phase type.
- (e) A hot air blowing system or air pressurization system can be provided to prevent moisture deposition in case of isolated phase ducts while space heaters may be provided in case of other bus ducts.
- (ii) The bus duct shall be designed to carry maximum continuous current under normal site conditions without exceeding temperature rise limits. Based on these requirements standard size of bus duct as per relevant Indian Standards or International Electrotechnical Commission standards shall be used.
- (iii) The bus assembly shall be designed to mechanically withstand a rated continuous current as well as the specified short-circuit current without damage or permanent deformation of any part of the bus structure.
- (iv) The surge arrester and voltage transformer cubicle shall meet the requirements of relevant Indian Standards or International Electrotechnical Commission standards.
- (v) The generator circuit breaker, as per relevant Indian Standards or International Electrotechnical Commission, shall be provided for Pumped Storage schemes.
- (e) Generator Neutral Grounding Terminal Equipment —
- (i) (a) Generator neutral grounding equipment shall be designed taking into account the maximum permissible operating voltage of the generator, voltage rise on load throw off (subsequent to detection of earth fault) field suppression time, ferro-resonance, etc.
- (b) System earthing shall be such that it shall be possible to provide earth fault protection with proper discrimination i.e. in order to identify that the protection provided is able to identify it as an earth fault.
- (ii) All large hydro-electric machines having a wye-connected stator winding with the neutral brought out of the machine housing shall be grounded via a high-resistance circuit consisting of a single-phase grounding transformer connected between the generator neutral and ground having a standard high voltage rating equal to the maximum machine phase to phase terminal voltage.
- (f) Instrument Transformers —
- (i) The current transformers shall be window type fitted around the bus conductors for meeting the protection and measuring requirements.
- (ii) The voltage transformers shall be located in separate cubicle for each of the three phases and mounted in withdrawable cabinets.
- (iii) The surge diverters or the surge capacitors shall be provided in the same cubicle as that of the voltage transformers with suitable barriers.
- (g) Machine Condition Monitoring Systems —
- The following monitoring equipment or systems for prediction of abnormality and preventive action shall be provided namely:-
- (i) Air Gap Monitoring- In order to provide high degree of dimensional stability, online air gap monitoring system shall be provided. A uniform air gap under all the conditions of operation below a tolerance of $\pm 10\%$ shall be maintained.
- (ii) Vibration monitoring- The vibration of bearing and rotor shaft while the units are running shall be monitored by using on-line vibration monitoring equipment for replicating the forces acting on the

rotor and bearings.

(iii) Partial discharge monitoring system- Online partial discharge monitoring system shall be provided for the generating units rated for one hundred mega watt and above.

(3) Excitation system.—

(i) Fixed Speed Machine.—

- (a) (i) Static high initial response rectifier excitation system shall be used. Static rectifier excitation system shall obtain the necessary electrical power directly from the terminals of the generator.
- (ii) The system shall consist of a power transformer, thyristor control element, electronic regulator and de-excitation unit.
- (b) The capacity of the excitation system shall be adequate to supply continuously 1.1 times the excitation current and voltage required by the generator at its maximum continuous output and 100% rated voltage and also for supplying twice the excitation current required by the machine at its maximum continuous output and 110% rated voltage for a duration of one minute.
- (c) The excitation system while operating at its maximum output, terminal voltage, power factor and speed shall be capable of changing from rated field voltage to ninety percent of ceiling voltage within 25 milliseconds for a sustained drop in generator terminal voltage of five percent.
- (d) (i) The number of bridges shall be such that one bridge is always available as redundant. With the failure of two bridges it shall be possible to continue operation at reduced load.
- (ii) The rectifier peak inverse voltage rating shall not be less than four times the maximum Root Mean Square voltage of the input.
- (e) All the performance requirements of the automatic voltage regulation, power system stabilizer shall be in accordance with relevant IEEE standards or latest Central Electricity Authority (Technical Standards for Connectivity to the Grid) Regulations and Central Electricity Authority (Grid Standards) Regulations and their Amendments.

(ii) Variable Speed Machine (with Synchronous and Asynchronous Operation) .—

- (a) For Pump Storage Plants, AC excitation system shall be provided for asynchronous machines and Static Frequency Converter system for synchronous machines.
- (b) The sizing of Excitation Transformers shall be decided based on excitation requirement of Generator. Sufficient redundancy of converters shall also be ensured.
- (c) The variable speed electronic equipment will be adequate for starting purposes. There will be no need for additional starting equipment.
- (d) The synchronous machines shall comply with clauses (b), (c) and (e) of sub-clause (3)(i) of regulation 40.
- (e) The asynchronous machines shall comply with the latest Central Electricity Authority (Technical Standards for Connectivity to the Grid) Regulations and their amendments on various aspects including rated output delivery in frequency range of 49.5 Hz to 50.5 Hz, voltage range of + 5 % and power factor of 0.95 (lag) to 0.95 (lead), remain connected to grid as per the specified voltage-time curve or table during fault or low voltage conditions and high voltage conditions, and active-reactive power control. It shall also comply to the latest clause 40 (3) (i) (e) of these regulations.

(4) Generator step-up transformers.—

- (a) The generator transformers shall comply with the requirements of the latest versions of the relevant Indian Standards or International Electrotechnical Commission standards.
- (b) (i) Water cooled transformers wherever feasible, shall be preferred and the type of cooling shall be generally oil forced water forced or oil directed water forced.
- (ii) In case, provision of water cooling is not feasible, oil forced air forced or oil directed air forced type generator transformers shall be provided.
- (c) (i) Selection of single phase or three phase transformers for hydro power stations shall be governed by the transportation limitations and shall be finalised considering the status of load carrying capacities of bridges, culverts etc. en-route.
- (ii) In case of single phase transformers, one no. transformer shall be kept as spare for power plants having three and more generating units.
- (d) Generator Transformers shall be suitable for continuous operation at rated MVA on any tap with voltage variation in accordance with relevant Indian Standards or International Electrotechnical

imposed.

(d) The electrical protective relays for unit auxiliary and station auxiliary supply system shall be of numerical type with self-monitoring and diagnostic features.

(6) DC supply system.—

- (a) The DC supply systems for hydro power stations shall comprise of batteries, battery chargers and DC distribution boards. The standard voltage rating for the DC system shall be 220 V. Suitable converters may be used for other desired voltage levels.
- (b) The battery shall have sufficient capacity to meet unit and station loads in addition to 3 hours of uninterrupted emergency illumination requirement. Further, DC requirement for Control and Instrumentation purpose shall be as per clause 41(2) (k).
- (c) DC system shall comprise of two DC battery sets (both battery sets of full capacity) each with one float cum boost charger.
- (d) The float cum boost battery charger as well as its automatic regulator shall be of static type. It shall have a facility of both auto as well as manual control in both the float and boost modes.
- (e) DC distribution boards shall be designed to supply the various station loads like normal continuous load, emergency lighting load, excitation current for field flashing of generators and indicating lamp loads.
- (f) The DC batteries, battery chargers, and DC distribution board shall be placed at a floor higher than that of machine hall in underground power house and not below the machine hall floor in surface power house.

(7) Neutral earthing.— The earthing of neutral of various systems shall be as follows:

- (a) General transformer, : Solidly earthed.
Station transformer – HV
Winding star point
- (b) 11 KV, 6.6kV or 3.3 kV : Through a suitable resistance in case of star or zig-zag connected windings; or
Through artificial transformer with its secondary loaded with suitable resistor in case of delta-delta connected windings.
- (c) 415 V system : Solidly earthed.
- (d) DC system : Unearthed

(8) Grounding System.—

- (a) The grounding system shall be designed for a life expectancy of at least fifty years, for maximum fault current of the system. MS flats or rods shall generally be used as main ground mat. The touch and step potentials shall be maintained within acceptable limits as per relevant Institute of Electrical and Electronics Engineers or Indian Standards or International Electrotechnical Commission standards.
- (b) Grounding and lightning protection for the entire power station and other areas or buildings shall be provided in accordance with relevant Indian Standards or Institute of Electrical and Electronics Engineers standards.
- (c) Separate distinct grounding systems, if feasible, shall be provided for power house, switchyard and remote structures such as control buildings, communication buildings, spillway gate structures, storage buildings, etc. and other civil or hydraulic structures and inter-connected, if required.
- (d) Special attention shall be made for grounding of high voltage Gas Insulated Switchgear equipment, computer networks and communication equipment as per the manufacturer's recommendations.
- (e) All equipment shall be grounded at two points for reliability.
- (f) Provision at appropriate locations shall be kept for measurement of grounding resistance at regular intervals.

(9) Illumination.—

- (a) (i) The illumination shall be provided as per relevant Indian Standards. Apart from normal AC illumination system, emergency AC and DC illumination at strategic locations shall also be provided.
(ii) DC illumination shall be provided to enable safe movement of personnel and access to important control points during an emergency.
- (b)(i) Energy conservation measures shall be adopted, while designing the lighting system. Light Emitting Diode based luminaires, Sodium vapour (high pressure) or other more efficient latest technology

lighting fixtures shall be provided for outdoor lighting of areas such as switchyards, spillways and dams, parking areas etc.

- (ii) Automatic switching via photo electric cells can be adopted for outdoor lighting to optimize power consumption.
- (c) Metal halide fixtures shall be used for certain indoor areas such as erection bay, generator hall, machine hall, turbine pit and other high bay areas where proper colour rendition is needed and long-life is essential.
- (d) Light Emitting Diode lamps shall be used for battery powered emergency lights.
- (10) (i) **EHV or HV or LV power cables, busducts and control cables.**— Cables shall be fire retardant low smoke low halogen type. Directly buried cables shall be essentially armoured type.
- (ii) Cables shall be derated for the site ambient and ground temperatures, grouping and soil resistivity as per relevant Indian Standards. Wherever feasible or practical, HV or LV bus duct shall be used for interconnection.

(11) Cable trenches and cable racks.—

- (i) A comprehensive procedure for segregation or separation of cables of different types and voltages shall be adopted for cable installation.
- (ii) For laying of cables in a power house, a broad based system involving cable gallery, tunnels, trenches, cable racks, shafts etc. shall be provided.
- (iii) In outdoor switchyards, a cable trench system shall be provided.
- (iv) The main considerations shall be:
 - (a) Segregation and proper spacing shall be maintained;
 - (b) Control, auxiliary low voltage (up to 1.1 kV) power and medium voltage (above 1.1 kV and up to 66 kV) power cables shall be laid in separate trays/tiers preferably;
 - (c) Proper attention shall be given to ventilation and heat dissipation aspects particularly in case of HV cables.

(12) Electrical protection system.—

- (a) (i) Fully graded protection system with requisite speed, sensitivity and selectivity shall be provided for the entire station.
- (ii) Protection relays shall be configured in such a way that digital input points shall not pick up due to stray voltages.
- (b) Protective relays shall be used to detect electrical faults, to activate the alarms and disconnect or shut down the faulted apparatus to provide for safety of personnel, equipment and system.
- (c) Electrical faults shall be detected by the protective relays arranged in overlapping zones of protection.
- (d) (i) All generating units shall have standard protection system to protect the units not only from faults within the units and within the Station but also from faults in sub-stations and transmission lines.
- (ii) For the generating units with a rating of more than one hundred mega watt, protection system shall be configured into two independent sets of protection (Group A and B) acting on two independent sets of trip coil fed from independent DC supplies, using separate sets of instrument transformers, and segregated cables of current transformers and voltage transformers.
- (iii) The main protection relays for the generators, motors, transformers and the transmission lines shall generally be of numerical type.
- (e) All relays used shall be suitable for operation with CTs secondary rated for one ampere or five amperes as per relevant Indian Standards or International Electrotechnical Commission or Institute of Electrical and Electronics Engineers standards.
- (f) The protections to be provided for the generating units as a minimum shall be as per **SCHEDULE-IV**, except for variable speed units which will have specialized protection functions.
- (g) Relevant Indian Standards or International Electrotechnical Commission or Institute of Electrical and Electronics Engineers standards shall be applied for protection of generators, transformers and motors.

(13) Motors.—

- (a) The AC Motors shall be squirrel cage or slip ring induction motors suitable for direct on line starting while crane duty motors shall be squirrel cage type induction motors with variable voltage and variable frequency drive as applicable.
- (b) DC Motors shall be shunt wound. Temperature rise for air cooled motors shall be limited to 70⁰ C by resistance method for both class B and F insulation.
- (c) All motors shall be either totally enclosed fan cooled or totally enclosed tube ventilated.

(14) Reliable Power Supply System.—

- (a) The provision of Reliable Power Supply System shall be made to meet the requirement of emergency power supply for essential station services and black starting of the unit considering the starting up of one generating unit at a time during black start condition.
- (b) In the event of station service power disruption and for standby supply during grid black out condition, it shall be ensured that the essential auxiliaries of all the units are fed from Reliable Power Supply System and non-essential loads are automatically tripped.

41. Control, Protection and Instrumentation.—

(1) General.—The control and instrumentation system provided for the Station shall be consistent with modern power station practices and in compliance with all applicable codes, standards, Cyber security regulations or codes or guidelines and safety requirements.

(2) Control and protection system.—

- (a) (i) Unit and station control system shall be microprocessor or computer based distributed digital control system interconnected through fibre optic cables or copper cables (for distances less than hundred meters) having hundred percent redundancy.
- (ii) Each generating unit shall have independent programmable logic controller with requisite redundancies. The control of each unit from the unit control board shall be independent of each other.
- (b) The following control, operation and monitoring points shall be provided for the generating units namely:-
 - (i) Manual control of individual equipment from control cubicle/control boxes located near the equipment;
 - (ii) Manual and automatic control from unit control board located near the unit at machine hall;
 - (iii) Automatic operation from station control centre located in the power house control room;
 - (iv) Provision shall be made for automatic operation of plant from remote Centre. It shall be compatible with the station control Centre and shall ensure transfer of data or communication signals.
- (c) The control system shall be divided in the following groups with independent controls namely:-
 - (i) Generating unit controls;
 - (ii) Common controls (for control of common auxiliaries);
 - (iii) Switchyard controls;
 - (iv) Dam gate controls (wherever applicable);
 - (v) Auxiliary Power Supply control

Provided that controls in (i) to (v) can be suitably merged on case-to-case basis depending upon the extent of control required and the space availability.

Provided further that the above groups shall be interconnected and also controlled from the control room through computerised control system and the type of interconnection with remote equipment shall be through a reliable communication mode.
- (d) The following modes of unit start and stop controls shall be provided namely:-
 - (i) Automatic start and stop;
 - (ii) Auto-inactive;
 - (iii) Step by step starting

- (e) As a backup to the microprocessor based controls, a relay based back up shutdown may also be provided for parallel shutdown in case of emergency or protection master trip relay operation.
- (f) A centralised control centre for the control of complete power station shall be installed in power house control room. Computer based human machine interface shall be installed with operator control stations having video display units, key board, printers, etc. for the operation of power station. For complete overview of complete station, a passive mimic board of interconnected large video screen shall be provided in the control room.
- (g) The emergency stop push button for each unit for unit shut down shall be provided in the control room. The emergency push button shall be hard wired from unit control board.
- (h) An automatic synchronizer with double channel design having frequency and voltage matching including one set of synchronizing equipment for manual synchronizing shall be provided in each UCB. A common manual synchronizing set shall be provided for smaller sets.
- (i) Provisions for the historical storage/long term storage and retrieval of data shall be made.
- (j) The computerized control system shall be compatible as per relevant IS or IEC standards for communication with protection panel, Load Despatch Centre and other PLCs.
- (k) Independent and reliable 230 V AC UPS with 30 minutes backup with requisite redundancy shall be provided for the computerized control system equipment location in control room and DC power supply system shall be provided with minimum of 2 hours battery backup for controllers, input and output cards, control network for equipment local control, Unit Control Boards, Station Control Centre, Switchyard Controls, Dam Gate Controls as applicable and controls for common auxiliaries.

(3) **Instrumentation.—**

- (a) Instruments such as transmitters, RTDs or other types of sensors, gauges, flow elements, transducers etc., shall be provided for comprehensive monitoring of various parameters.
- (b) Microprocessor based vibration monitoring and analysis system shall be provided for crucial rotating equipment.

42. Provisions Required for Protection of Power House against Flooding.—

- (a) Following provisions shall be made for protection of Power House against flooding namely:-
Suitable number of submersible pumps with provision for automatic starting by means of level switches shall be provided at main inlet valve floor, in addition to drainage and dewatering pumps as per Regulation 39(3);
- (b) The control panels for dewatering and drainage pumps shall be located at a floor higher than that of turbine floor;
- (c) Suitable float switches shall be provided in power house building to give closing signal to the MIV in the event of inundation of power house due to any reason including penstock rupture or leakage in penstock or for some other reasons;
- (d) The station service transformers and station service boards shall be located at higher level;
- (e) The excitation cubicles, unit control panels, unit protection panels etc. shall be located in the machine hall to the extent possible;
- (f) The DC batteries, battery chargers and DC distribution boards shall be placed at a floor higher than that of machine hall;
- (g) Provision of individual hoisting mechanism for draft tube gates of each unit may be considered for quick closing. The draft tube gates shall be capable of closing under unbalanced condition of water pressure;
- (h) Elevation of pipe for central air admission shall always be above maximum flood level. Central admission system shall be provided for air in runner area of Francis turbines;
- (i) During Construction, the storage of Electro-mechanical equipment shall be made at elevation higher than Flood level;
- (j) During construction, appropriate measures shall be taken to avoid flooding of Power house from Penstock, Tail race or other construction adits;
- (k) As far as possible, the switchyard shall be constructed above the maximum flood level and wherever

required, flood protection walls shall also be provided. The switchyard shall be designed to withstand earthquake as per relevant Indian Standards;

- (l) There should be regular maintenance (including mock drill of opening and closing) of Penstock Protection Valve and the intake gates at regular intervals to ensure they are in proper working conditions so as to prevent flooding;
- (m) Sufficient measures should be taken to prevent ingress of water inside power plant in case of flood like conditions. This may include provision of alternate channels for guiding flood water into river bypassing the power plant.

Chapter IV

PART-A

SUBSTATIONS AND SWITCHYARDS (66 kV AND ABOVE)

43. General. —

- (1) The transmission system shall be planned and designed in accordance with Central Electricity Authority's "Manual on Transmission Planning Criteria".

Provided that the minimum rated short time withstand current of the equipment in substation or switchyard of following voltage level shall be as per Table 6 below.

Table 6

Voltage level	Rated short time withstand current
66 kV	31.5 kA (for 1 sec.)
110 kV or 132 kV	40 kA (for 1 sec.)
220 kV or 230 kV	50 kA (for 1 sec.)
400 kV	63 kA (for 1 sec.)
765 kV	50 kA (for 1 sec.)

(2) If the fault level at a sub-station exceeds or is likely to exceed the permissible fault level with the addition of more generators and termination of new transmission lines, adequate measures to limit the fault level like sectionalization/ splitting of the sub-station bus or installation of series reactors on the line/ bus or installation of Fault Current Limiter on line/bus/transformer/ reactor at the respective sub-stations shall be resorted to. Appropriate measures shall be taken to address the impact of the addition of the series reactors or Fault Current Limiter on existing system based on power system studies/dynamic simulations.

(3) The sub-station or switchyard shall be designed and constructed to give a life of not less than thirty-five years.

(4) The sub-station or switchyard shall have IS-61850 based Substation Automation System or Supervisory Control and Data Acquisition system and Energy Management System and Substation Automation System or Supervisory Control and Data Acquisition Gateway shall be capable of communicating with Load Dispatch Centre, backup Load Dispatch Centre and Central Control Centre.

44. Design Considerations for Sub-stations and Switchyards. —

(1) The sub-station or switchyard shall be Air-Insulated Sub-station or Gas Insulated Sub-station or hybrid substation or combination thereof. The factors to be taken into account for designing sub-stations shall be as under namely:—

- (a) The substation shall be designed for seismic requirement of the site as per relevant IS;
- (b) Land area required shall be considered based on the present requirement and the planned future expansion;
- (c) The shunt capacitors, shunt reactors (bus reactors or switched or non-switched type line reactors), Controlled Shunt Reactors, Static Volt Ampere Reactive Compensators, Static Compensators, Static Synchronous Series Compensator, Static condenser, Fixed Series Capacitor, Thyristor Controlled Series Capacitor, Phase Shift Transformer, or other Flexible Alternating Current Transmission System devices are the power compensating devices, which shall be based on power system studies;
- (d) The selection of switching schemes shall be based upon requirements for operational flexibility, system security, reliability, availability, criticality of load, maintainability and cost;
- (e) For new substation, in any particular diameter of one and half breaker switching scheme, two transformers of same voltage ratio or two reactors or a double circuit line shall not be connected and as far

as possible, incoming and outgoing feeders shall be in the same diameter, so as to make direct connection in case of outage of intermediate substation.

(2) Air Insulated Sub-stations —

- (a) The switching schemes as per Table 7 shall be adopted at different voltage levels in Air Insulated Sub-stations.

Table 7

Voltage level	Switching Scheme
66 kV or 110 kV or 132kV	Main and transfer bus scheme or Double bus scheme
220 kV or 230 kV	Double main and transfer bus scheme or Double bus scheme or Main & transfer bus scheme
400 kV or 765 kV or 1150 kV	One and half breaker scheme

- (b) In case of Air Insulated Sub-stations, for bus-bars tubular aluminium pipe or flexible stranded conductor shall be considered taking into account the power flow requirements, corona effect and ambient conditions.
- (c) Outdoor air insulated sub-station or switchyard shall be shielded against direct lightning stroke by provision of overhead shield wire or earthwire or spikes (masts) or a combination thereof.

(3) Gas Insulated Sub- stations —

- (a) Gas Insulated Sub- station shall be constructed in seismic prone areas, coastal areas, high altitude areas, very heavily polluted areas and for locations where space is major constraint.
- (b) The switching schemes as per Table 8 shall be adopted at different voltage levels for outdoor, indoor or underground Gas Insulated Sub- station :

Table 8

Voltage level	Switching Scheme
66 kV	Single bus scheme or Main and transfer bus scheme or Double bus scheme
110 kV or 132 kV or 220kV or 230kV	Main and transfer bus scheme or Double bus scheme
400 kV or 765kV	Double bus scheme or One and half breaker scheme

- (c) Gas Insulated Sub- station enclosure shall be non-magnetic type and for 400kV and higher voltage levels, it shall be isolated phase type..
- (d) The arrangement of gas sections or compartments shall be such as to facilitate future extension on either end without any drilling, cutting or welding on existing equipment from any manufacturer and without the necessity of moving or dislocating the existing switchgear bays.
- (e) The layout of Gas Insulated Bus Ducts shall be for easy accessibility & maintenance and the length of bus bars, bus ducts, isolator sections shall be optimized considering effects of fast transient voltage due to isolator operations.
- (f) A crane of suitable capacity shall be installed in Gas Insulated Sub- station building for movement of single largest module during installation and subsequent maintenance.

(4) Hybrid sub-station.—

- (a) The bus-bars shall be air insulated type and switchgear shall have some or all functional units enclosed in SF₆ gas insulated housing.
- (b) The switching schemes as per Table 7 shall be adopted at different voltage levels.

- (5) The Air Insulated Substation or Gas Insulated Substation with complete digitalization shall have (a) digitalization at process level by introducing process bus architecture and merging unit for conventional/non-conventional Instrument Transformers, (b) digitalization at station level with Ethernet based communication on IEC-61850 protocol, (c) fibre optic cable links, (d) interface between process level and station level through Intelligent Electronic Devices at bay level and (e) security against cyber attack.

(6) Mobile Substations . —

- (a) Wherever required, the vehicle mounted mobile substation comprising of trailer, incoming and outgoing high voltage and low voltage gas insulated or hybrid switchgears, power transformer, and associated connectors etc. shall be considered for putting into immediate service to resume power supply in short time in case of emergency or disaster.
- (b) The mobile substation shall comply with provisions of Central Electricity Authority Regulations and Bureau of Indian Standards' Codes.

(7) Grounding . –

- (a) The grounding system shall be designed as per IEEE 80 for expected life of the substation maintaining the touch and step potential within acceptable limits throughout the life.
- (b) Special consideration shall be given for Gas Insulated Sub- station earthing design to handle high frequency transients.
- (c) If earth enhancement compound or material is considered for effective grounding in high soil resistivity area, the same shall be environmental friendly.
- (d) Condition assessment of earthing mat, earthing pits, earth rod, surface layer material, and associated connections shall be carried out periodically to ensure effectiveness of grounding system and necessary steps shall be taken to mitigate the deficiency, if any.

45. System design parameters. –

- (1) The system design parameters of sub-station and switchyard equipment, except transformer and reactor, for installations at altitude upto 1000 m above Mean Sea Level shall be as given below in Table 9.

Table 9

	66 kV	110 kV	132 kV	220kV/230 kV	400 kV	765 kV	1150 kV
Highest system voltage (kV)	72.5	123	145	245	420	800	1200
Rated frequency	50Hz						
No. of phases	3						
Rated insulation level							
(i) Minimum Lightning impulse withstand voltage (1.2/50 micro sec.) (kV _{peak})	325	550	650	1050	1425	2100	2400
(ii) Minimum Switching impulse withstand voltage (250/ 2500 micro sec.) dry and wet (kV _{peak})(phase to earth)	NA	NA	NA	NA	1050	1550 (1425 for GIS)	1800
(iii) Minimum One minute power frequency withstand voltage dry (kV _{rms})	140	230	275	460	630 (650 for GIS)	830 (960 for GIS)	1200
Minimum corona extinction voltage (kV _{rms} phase to earth)	NA	NA	NA	NA	320	508	762
Maximum Radio Interference Voltage for any frequency between 0.5 MHZ to 2.0 MHZ in all positions (micro volts)	NA	NA	500 (at 92 kV rms)	1000 (at 156 kV rms)	1000 (at 266 kV rms)	2500 (at 508 kV rms)	2500 (at 762 kV rms)
System neutral earthing	Effectively earthed						

- (2) The insulation level for windings and bushings of the transformer and reactor and GIS bushings, for installations at an altitude upto 1000 m above Mean Sea Level, shall be as per Table 10 below.

Table 10

Highest voltage for equipment	Windings			Bushings		
	Rated power frequency withstand voltage (kV_{rms})	Rated switching impulse withstand voltage (kV_{peak}) (phase to earth)	Rated lightning impulse withstand voltage (kV_{peak})	Rated power frequency withstand voltage (kV_{rms})	Rated switching impulse withstand voltage (kV_{peak}) (phase to earth)	Rated lightning impulse withstand voltage (kV_{peak})
1200 kV	NA	1800	2250	1320	1950	2550
800 kV	NA	1550	1950	970 960 (GIS)	1550	2100
420 kV	570	1050	1300	695 650 (GIS)	1050	1425
245 kV	395	750	950	505 460 (GIS)	850	1050
145 kV	275	540	650	305	NA	650
123 kV	230	460	550	255	NA	550
72.5 kV	140	NA	325	155	NA	325
52 kV	95	NA	250	105	NA	250
36 kV	70	NA	170	77	NA	170
24 kV	50	NA	125	55	NA	125
17.5 kV	38	NA	95	42	NA	95
12 kV	28	NA	75	30	NA	75

(3) For installations at altitudes higher than 1000 m above Mean Sea Level, altitude correction factor on the applicable parameters such as rated insulation level, temperature rise limit, clearances and arcing distance for external insulation at the service location shall be applied as per methodology specified in relevant standards.

46. Salient Technical particulars of major equipments. —

(1) Power Transformers. —

- Power transformer shall be designed, manufactured, tested and commissioned as per Central Electricity Authority's "Standard Specifications and Technical Parameters for Transformers and reactors (66kV and above)".
- At existing sub-stations, the impedance, vector groups, OLTC connection and range etc. of a new transformer shall be matched with that of the existing transformer, if parallel operation is desired.
- In case single phase transformers are provided, minimum one single phase transformer of each rating shall be provided as spare for the entire substation or switchyard
- Dynamic short circuit withstand test shall be conducted on one unit of each type and rating of transformers, to validate the design and quality, unless such test has been successfully conducted as per IS 2026 part-5 within last ten years on transformer of similar design. Criteria for similar design shall be as per Annexure-J of Central Electricity Authority's "Standard Specifications and Technical Parameters for Transformers and Reactors (66kV and above)".
- Soak Pit and Oil collecting pit:
 - An oil soak pit shall be designed & provided below each oil filled transformer or reactor to accommodate at least 150% of total quantity of oil contained in the transformer or reactor with minimum 300 mm thick layer of gravels or pebbles of approximately 40 mm size (spread over a steel iron grating or trans rack) providing free space below the grating.
 - Alternatively, an oil soak pit shall be provided below each transformer or reactor, to accommodate one-third of total quantity of oil contained in the transformer or reactor with minimum 300 mm thick layer of gravels or pebbles of approximately 40 mm size (spread over a steel iron grating or trans rack) providing free space below the grating provided a common remote oil collecting pit of capacity at least equal to oil quantity in the largest size transformer or reactor is provided for a group of

transformers or reactors and bottom of the soak pit below the transformer or reactor shall be connected to the common remote oil collecting pit with drain pipe of minimum 150 mm diameter with suitable slope for fast draining of oil or water through gravity from soak pit to the common remote oil collecting pit.

(iii) Every soak pit below a transformer or reactor shall be designed to contain oil dropping from any part of the transformer or reactor.

(iv) The common remote oil collecting pit and soak pit (when remote oil collecting pit is not provided) shall be provided with automatic pumping facility, to always keep the pit empty and available for an emergency.

(f) The disposal of transformer oil shall be carried out in an environmental friendly manner.

(2) Shunt Reactor and Neutral Grounding Reactor . —

(a) Shunt Reactor and Neutral Grounding Reactor shall be designed, manufactured, tested and commissioned as per Central Electricity Authority's "Standard Specifications and Technical Parameters for Transformers and Reactors (66kV and above).

(b) Wherever required, the neutral of the line shunt reactors shall be grounded through adequately rated Neutral Grounding Reactors to facilitate single phase auto-reclosure.

(c) Wherever line reactor is proposed to be used as Bus reactor also, suitable arrangement shall be provided to bypass the Neutral Grounding Reactor.

(d) The Neutral Grounding Reactor used for 765 kV and 400 kV line shunt reactors, shall be protected by means of 145 kV surge arresters of suitable rating.

(e) The Neutral Grounding Reactor used with 220 kV and 132 kV line shunt reactors, shall be protected by means of 36 kV surge arresters of suitable rating.

(f) The neutral of bus reactor shall be solidly grounded.

(g) In case single phase shunt reactors are provided, then minimum one single phase unit of each rating shall be provided as spare for entire substation or . switchyard.

(h) Soak pit and oil collecting pit as per clause (e) of sub-regulation (1) of regulation 46 for oil filled reactor and NGR shall be provided.

(3) Shunt Capacitors. —

(a) Capacitor banks shall not be provided at voltages higher than 132 kV.

(b) The redundancy in the number of Capacitor units shall be provided to avoid reduction in reactive compensation due to failure of the Capacitor units

(4) Circuit Breaker. —

(a) The circuit breaker shall be of class M2 with regard to mechanical endurance.

(b) The circuit breakers of 220kV and above voltage class shall be suitable for single phase and three phase auto-reclosing and circuit breakers of 132kV and below voltage class shall be suitable for three-phase auto-reclosing. Provided that, wherever frequent line to ground faults are encountered on 132 kV lines, Circuit breakers of 132kV class shall be suitable for single phase auto- reclosing.

(c) Each circuit breaker shall be provided with two numbers of trip coils fed through two separate DC supply feeders for greater reliability.

(d) The circuit breaker shall have the provision for local manual trip, which shall be at a position easily accessible to the operating person.

(e) The circuit breakers of 220 kV and above voltage class shall have a trip circuit supervision relay for both trip coils, DC supervision relays and lockout relay.

(f) Maximum Rated break time for circuit breakers of different voltage classes shall be as given in Table 11 below:

Table 11

Voltage Class	Rated break time
1150 kV	40 ms
765 kV	40 ms
400 kV	40 ms
220 kV/ 230 kV	60 ms

132 kV/ 110 kV	60 ms
66 kV	100 ms

- (g) The circuit breakers of 400 kV voltage class for lines of length more than 200 km and of 765 kV voltage class shall be provided with Pre Insertion Resistors or Controlled Switching Devices for controlling switching over voltage.
- (h) Controlled Switching Devices shall be used for minimizing switching transients and inrush currents in transformers and reactors of 400kV and above voltage class.
- Provided that, this requirement is not applicable for generator transformer.
- (i) Due attention shall be given to the operating time and mechanical scatter of Circuit Breakers and grid condition at the point of interconnection while going for use of Controlled Switching Devices.
- (j) The Controlled Switching Device shall be used only during intentional energization or de-energization of associated Circuit Breaker and shall remain bypassed otherwise including during fault tripping.
- (5) Disconnector and Earthing Switch. —
- (a) Earthing switches shall be provided at appropriate locations to facilitate earthing of outgoing transmission lines to enable maintenance.
- (b) The main blades and earth blades shall be interlocked with both electrical and mechanical means, which shall be fail-safe.
- (c) The disconnectors shall be of M2 class and suitable for Bus Transfer Current Switching duty.
- (d) The disconnectors shall be suitable for local electrical and manual and remote electrical (from control room) operation.
- (e) Earthing switches used in lines for 110 kV and higher voltages shall be suitable for induced current switching duty of Class B.
- (f) Earthing switches shall be suitable for local electrical and manual operation and only local operation is recommended for earth switches.
- (g) In case of GIS installations, high speed earthing switches shall be provided for grounding purpose at overhead line terminations and cable terminations and shall have rated fault making capability.
- (6) Current Transformer. —
- (a) The rated currents and ratio, the number of secondary cores, accuracy class, burden, secondary winding resistance, knee point voltage, and excitation current shall be in accordance with the requirements of the protection and metering system.
- (b) The rated burden of cores shall be closer to the maximum burden requirement of metering and protection system for better sensitivity and accuracy and shall not exceed 20 VA.
- (c) Instrument Security Factor shall be less than five for Current Transformers upto 400 kV voltage class and less than ten for Current Transformers of 765 kV and 1150 kV voltage class.
- (d) The accuracy class for metering core shall be equal to or better than the accuracy class of the meter specified in the Central Electricity Authority (Installation and Operation of Meters) Regulations, 2006.
- (e) In case of digital substations, Non-Conventional Current Transformers or conventional Current Transformers with merging units that are interfaced with the process bus and station bus architecture shall be used.
- (7) Voltage Transformer. —
- (a) The number of secondary cores, accuracy class and burden shall be in accordance with the requirements of the protection and metering system.
- (b) The rated burden of Voltage Transformer cores shall be closer to the maximum burden requirement of metering and protection system for better sensitivity and accuracy and it shall not exceed 50VA.
- (c) The accuracy class for metering core shall be equal to or better than the accuracy class of the meter specified in the Central Electricity Authority (Installation and Operation of Meters) Regulations, 2006.
- (d) Wherever Power Line Carrier Communication is provided, Capacitor Voltage Transformer complying with relevant standards shall be used as the same are suitable for carrier coupling and the capacitance of Capacitor Voltage Transformer shall be decided depending on Power Line Carrier Communication requirements.
- (e) In case of digital substations, Non-Conventional Voltage Transformers or conventional Voltage Transformers with merging units that are interfaced with the process bus and station bus architecture shall be used.

- (f) Gas insulated voltage transformers, if used, shall be electromagnetic type.
- (8) Surge Arrester. —
- (a) Station class (i.e. Station Low duty, Station Medium duty and Station High Duty), gapless metal oxide (ZnO) type surge arresters shall comply to relevant standards.
- (b) The rated voltage, continuous operating voltage, energy handling capability, nominal discharge current and other characteristics of a surge arrester shall be chosen in accordance with power system requirements.
- (c) Surge arresters shall be provided at locations decided in accordance with insulation coordination studies.
- (d) Air Insulated Substation Surge Arresters shall be fitted with pressure relief devices and diverting ports or fitted with prefabricated weep spots (in case of polymer housing) suitable for preventing damage of housing .
- (e) A leakage current monitor with surge counter shall be provided with each surge arrester.
- (9) Line Trap. —
- (a) Line trap complying with the relevant Indian Standards shall be used in lines with Power Line Carrier Communication system.
- (b) Line trap shall consist of a main coil in the form of an inductor, a tuning device and a protective device and in conjunction with a coupling capacitor/ Capacitor Voltage Transformer, it shall form a parallel resonant circuit.
- (c) The tuning device shall be so arranged as to permit replacement without removing the line trap.
- (d) The tuning as well as protective device shall be so designed that neither significant alteration in the line trap blocking requirements or protective function nor physical damage shall result from either temperature rise or the magnetic field of the main coil at rated continuous current or rated short time current.
- (10) Insulators. —
- (a) The minimum specific creepage distances of insulators shall be as per Table 12 below:

Table 12

Pollution level	Specific Creepage distance
Very light	20 mm/kV (corresponding to the line to line highest system voltage)
Light and medium	25 mm/kV (corresponding to the line to line highest system voltage)
Heavy and very heavy pollution areas and areas upto 50 km from sea shore	31 mm/kV (corresponding to the line to line highest system voltage)

47. Sub- station and switchyard support facilities. —**(1) Alternating Current and Direct Current Supply. —**

- (a) Alternating Current and Direct Current supplies shall be provided as per requirements given in Central Electricity Authority (Technical Standards for Connectivity to the Grid) Regulations, 2007 and for computation of capacity of battery for Direct Current supply in attended sub- station or switchyard, in general, the minimum durations assumed shall be as per Table 13 below:

Table 13

Steady and continuous load	3 hours
Emergency lighting loads	1 hour

Provided that communication equipment at substations shall be provided with battery backup as per requirement of Central Electricity Authority (Technical Standards for Communication System in Power System Operation) Regulations 2020.

- (b) Alternating Current and Direct Current supply system shall be so designed as to meet the requirement of present as well as planned future bays of the sub- station.
- (c) For 132 kV and above substations Direct Current system shall comprise of two sets of Direct Current battery each with separate float cum boost charger with auto changeover. Substations below 132 kV shall be provided with one set of battery and charger.
- (d) The voltage rating for the Direct Current system for control and protection for 66 kV and 132 kV

substations shall be 110 V or 220 V DC and for 220 kV and above substations it shall be 220 V DC.

(2) Lighting. —

- (a) Adequate indoor and outdoor lighting including street lighting shall be provided for the sub- station and switchyard.
- (b) Adequate normal and emergency AC and DC lighting shall also be provided in the control room and other identified locations of the sub- station or switchyard.
- (c) Energy conservation measures and energy efficient lighting devices shall be adopted, while designing the lighting system.
- (d) Average illumination levels shall be maintained as per relevant standard.

(3) Control Room and Kiosk. —

- (a) Sub-station or switchyard control room and/or bay kiosks shall be provided to house the control and relay panels, bay control units, Intelligent Electronic Devices, protection relays, Substation Automation System, Supervisory Control & Data Acquisition System, Power Line Carrier Communication equipment, Optical Line Terminal Equipment, telemetry equipment and recording equipment, AC and DC distribution boards, DC batteries etc.
- (b) Air conditioning with humidity control feature shall be provided in the control room as a functional requirement depending upon site environmental condition.

(4) Power and Control Cables. —

- (a) Cables shall be Flame Retardant Low Smoke and Halogen type as per relevant Indian Standards.
- (b) For laying of cables a broad based system involving cable galleries, trenches, cable racks, shafts, cable sealing system etc. shall be provided.
- (c) In outdoor switchyards, a cable trench system shall be provided and a comprehensive philosophy of segregation and proper spacing between cables shall be maintained.
- (d) Power cables and control cables shall be laid on separate tiers.
- (e) The laying of different voltage grade cables shall be on different tiers according to the voltage grade of the cables with higher voltage grade cables in topmost tier and control cables in bottommost tier.
- (f) The cable trench shall be properly sloped so as to drain freely any water which may enter the trench and suitable arrangement shall be provided to drain out excess water.

(5) Oil Evacuating, Filtering, Storing, Testing and Filling Apparatus. —

To monitor the quality of the oil for satisfactory performance of transformers and shunt reactors, and for periodical maintenance, necessary arrangement shall be made for oil evacuating, filtering, storing, testing and filling.

(6) Gas Filling, Evacuation, Filtering, Drying & Recycling Plant. —

Gas filling, evacuation, filtering, drying and recycling plant with adequate storage capacity shall be provided at a sub- station or switchyard or for a cluster of sub-stations and switchyards along with trolley for filling in or evacuation of gas from circuit breaker or gas insulated switchgear and to monitor the purity, moisture content, decomposition product etc. of the gas.

48. Protection and control. —

(1) Protective Relaying System. —

- (a) Selective, sensitive, fast, graded and reliable protection system shall be provided for transmission lines, transformers, reactors, and bus bars so as to automatically isolate the faulty element minimizing the damage in the event of fault or abnormal condition.
- (b) All major protection relays shall be of numerical type and communication protocol shall be as per IS-61850.

(2) Grouping of Protection. —

- (a) The protection circuits and relays shall be electrically and physically segregated into two groups each being independent and capable of providing uninterrupted protection even in the event of one of the protection group fails or taken out for maintenance.
- (b) Interconnection between these two groups shall not generally be attempted. However, such interconnection shall be kept to the bare minimum, if found absolutely necessary.

(3) The protections required in respect of transmission lines, transformers, reactors and bus bars is indicated in

SCHEDULE-V.

- (4) Disturbance Recorders, Event Loggers and Time Synchronization Equipment. —
- Each line or transformer or reactor or any other bay shall be provided with facility for disturbance recording, event logging and Time Synchronizing Equipment.
 - Each line shall be provided with facility for distance to fault locator.
 - All Disturbance Recording system shall have minimum recording time of 3 seconds (0.5 seconds for pre-fault and 2.5 seconds for post fault).
 - Time Synchronizing Equipment complete with antenna, all cables and processing equipment shall be provided to receive synchronizing pulse through Global Positioning System or Indian Regional Navigation Satellite System Navic compatible for synchronization of event logger, disturbance recorder, Phasor Measurement Units, and Supervisory Control and Data Acquisition System or Substation Automation System.
- (5) Optical Ground Wire and Power Line Carrier Communication. —
- Optical Ground Wire along with necessary terminal equipment shall be provided on transmission lines of voltage rating of 110 kV and above for speech transmission, line protection, and data channels.
 - The primary path for tele-protection shall be on point-to-point Optical Ground Wire and alternative path shall be either on Power Line Carrier Communication or predefined physically diversified Optical Ground Wire paths.
 - For reliable communication below 110 kV level the Central Electricity Authority (Technical Standards for Communication System in Power System Operation) Regulations, 2020 shall be used.
 - The protection system for 400kV and higher voltage transmission line and the line compensating equipment shall have one hundred percent back up communication channels i.e. two channels for tele-protection in addition to one channel for speech plus data for each direction:
Provided that, for 220 kV, 132 kV, 110 kV and 66 kV lines, the channel for speech plus data can also be used for tele-protection.
 - The generating company and the transmission licensee or transmission licensees at both end of substation or switchyard shall coordinate with each other and ensure the compatibility of Optical Ground Wire and Power Line Carrier Communication equipment at their respective ends.
- (6) Phasor Measurement Units . —
- Synchrophasor measurement using Phasor Measurement Units along with fibre optic connectivity, Global Positioning System Receiver and communication equipment shall be provided for monitoring the entire interconnected grid on real time basis at substations of 400 kV and above voltage level, switchyard of generating stations at 220 kV and above voltage level, Alternating Current side of converter bays of High Voltage Direct Current stations and pooling point of renewable energy generating stations of fifty mega watt and more and Battery Energy Storage System of fifty mega watt and more.
 - Phasor Measurement Units shall comply with IS 60255-118-1-2018.
 - The dispersedly located Phasor Measurement Units shall communicate with Phasor Data Concentrators installed at certain strategic locations at State, Regional and National level.

49. Salient Technical Particulars/ Requirements of High Voltage Direct Current Terminals Stations. —

- The provisions given at Regulations 43, 44, 45, 46, 47, and 48 shall also be applicable for the Alternating Current equipment installed in the High Voltage Direct Current terminal station to be developed for bulk power transfer over long distances or asynchronous connections (back to back) between areas operating with different frequency regimes.
- The High Voltage Direct Current station shall be designed and constructed to give a life of not less than thirty-five years.
- The interfacing with the Direct Current line (overhead or cable), existing Alternating Current network, Telecommunication network, and Load dispatch center shall be properly planned and designed.
- The ratio of fault level in MVA at any of the convertor station (for conventional current source type), to the power flow on the High Voltage Direct Current bipole shall not be less than three under any of the load-generation scenarios.
- Technical details of High Voltage Direct Current terminals or stations for Line Commuted Converter based technology and Voltage Source Converter based technology are given in **SCHEDULE-VI**.

PART – B
SUB- STATIONS (33/11 kV, 33/22kV AND 22/11kV)

50. System Parameters. -

- (1) The system shall conform to the design parameters indicated in Table 14 below:

Table 14

Parameter	33 kV	22 kV	11kV
Nominal system voltage (kV)	33	22	11
Highest system voltage (kV)	36	24	12
Frequency (Hz)	50	50	50
Lightning impulse withstand voltage (kV _{peak})	170	125	75
Power frequency withstand voltage (dry) (kV _{rms})	70	50	28

(2) System earthing shall be as per Central Electricity Authority (Measures relating to Safety and Electricity Supply) Regulations, 2010 or any successor or subsequent Regulations in this regard.

51. General Consideration for 33/11 kV, 33/22 kV and 22/11 kV Sub-stations and Switching Stations. -

- (1) The sub-station shall be indoor or outdoor or underground type depending upon the site requirement.
- (2) The sub-station shall be either air insulated or gas insulated or hybrid, as the case may be:
Provided that in coastal areas substation shall be GIS.
- (3) The 33/ 11 kV or 33/ 22 kV or 22/ 11 kV sub-stations shall have adequate capacity to cater to load growth for at least five years.
- (4) The maximum capacity of 33/11 kV or 33/22 kV or 22/11 kV sub-station shall be 100MVA, 75 MVA and 75MVA respectively.
- (5) To meet N-1 contingency, each 33/ 11 kV or 33/ 22 kV or 22/ 11 kV sub-station shall normally have :
- (a) two or more transformers and
(b) two incoming feeders from two different sources.
- (6) In case both (the 33 kV or 22 kV) incoming feeders to the sub-station are from the same source (sub-station), each feeder shall supply independent sections of the 33/ 11 kV or 33/ 22 kV or 22/ 11 kV sub-station, the two sections being isolated from each other by bus sectionalizer or isolators.
- (7) All sub-stations shall have independent circuit breaker control of 33 kV or 22 kV incoming feeders, transformers and 22 kV or 11 kV outgoing feeders.
- (8) All the incoming feeders feeding the sub-stations shall have independent circuit breaker at source end.
- (9) The incoming and outgoing feeders shall be on multi circuit towers to minimize the Right of Way requirement.
- (10) The layout of the sub- station itself shall be such that the fire shall not spread from one to other equipment and areas as far as possible.
- (11) While selecting equipment for the sub-station de-rating due to increase in altitude and for cables due to death of burial in the ground shall be given due consideration as per the altitude/depth of burial at the site.

52. Selection of Site. - The selection of the site of the sub-station shall be done on the basis of the following namely:-

- (a) The site shall take into consideration the capacity and location of the feeding grid sub-station, load in the area, spatial load forecast, demographic factors, the existing network configuration, etc. and the economic, and environmental considerations;
- (b) The site shall be near the load center;
- (c) The site shall be such that it is convenient for terminating extra high voltage or high voltage lines or cables;
- (d) The site shall not be in a low-lying area to avoid flooding during the rains;
- (e) The site shall be easily approachable in all the seasons;
- (f) The site for air-insulated sub-station shall be away from garbage dumping ground to avoid vulture faults;
- (g) The land shall be reasonably levelled and shall not have any open drain or nallah or road crossing it.

- 53. Switching Arrangements.** - (1) Switching arrangements shall ensure operational flexibility, system safety and reliability.
- (2) Single bus, single bus with bus sectionalizer, main and transfer bus, double bus or mesh arrangement shall be adopted as per requirement.
- 54. System Configuration.** - The system configuration shall be radial, ring or combination of both as per requirements namely:-
- (1) The radial configuration shall be minimized to improve reliability;
- (2) In densely loaded city centers, and for essential services and installations, the system shall be of ring configuration.
- 55. Power Transformers.** - (1) The transformers shall comply with the relevant IS.
- (2) The 33/ 11 kV or 33/ 22 kV or 22/ 11 kV transformers shall have delta star or delta-zigzag winding connection.
- (3) At existing sub-stations, the percentage impedance, vector groups, on load tap changer connection and range of the new transformer shall match with that of the existing transformer.
- (4) The type and place of installation of transformer shall be as per Central Electricity Authority (Measures relating to Safety and Electric Supply) Regulations, 2010 or any successor or subsequent Regulations in this regard.
- (5) Transformers shall withstand, without injurious heating, combined voltage and frequency fluctuations which produce the over fluxing conditions as: 125% for 1 minute, 140% for five seconds and 150% for one second.
- (6) Each transformer shall be provided with gas and oil actuated Bucholz relay fitted with alarm (local and remote) and trip contacts, if applicable.
- (7) (a) A transformer with off-circuit tap changer shall have taps ranging from (+) 5% to (-) 10% in steps of 2.5% each on the higher voltage winding for variation in the voltage.
- (b) The tap changing switch shall be located in such a way that it can be operated from ground level.
- (c) The switch handle will be provided with a locking arrangement along-with tap position indication, for locking the switch.
- (8) (a) On load tap changing device shall be provided with transformers of 3.15 MVA and higher rating for better voltage control by manual and automatic means.
- (b) A transformer with on-load tap changer shall have taps ranging from (+) 5% to (-) 15% in steps of 1.25% each on 33 kV or 22 kV winding for voltage variation.
- (9) All electrical safety requirements, clearances and ventilation shall be as per Central Electricity Authority (Measures relating to Safety and Electric Supply) Regulations, 2010 or any successor or subsequent Regulations in this regard.
- (10) (a) For indoor installation, the room shall be well ventilated for escape of heated air.
- (b) air inlets shall be provided near the floor and outlets near the ceiling.
- (11) A transformer shall be physically checked and tested for its electrical and mechanical performance characteristics as per relevant IS before commissioning.
- (12) Transformer Health Monitoring system shall also be provided for monitoring the health of power transformers.
- (13) A transformer shall be provided with two separate body earthing terminals which in turn shall be connected to two separate earth points, besides neutral earthing terminal.
- 56. Bus-bars.** - (1) Bus-bars shall be of Rigid type or Strain type.
- (2) Bus-bar shall be able to carry the expected maximum load current continuously without exceeding the temperature rise limit as per relevant IS.
- (3) The capacity of a bus-bar shall also be checked for maximum temperature rise of the conductor under short circuit conditions.
- (4) The bus-bar connections and insulator supports shall be mechanically strong and bus-bars shall be supported so as to withstand the stresses generated by vibrations and short circuits.
- (5) Aluminium or Copper used for bus-bars shall conform to relevant IS.
- 57. Structures.** - (1) Structures shall be provided for. -
- (a) Incoming and outgoing gantries and/or cable supports and terminations;

- (b) Circuit breakers, isolators, fuses, insulators, CTs and PTs (potential transformers);
- (c) Bus-bars and insulators.

(2) Switchyard structures shall be made of fabricated steel, reinforced cement concrete or pre-stressed concrete, rail or rolled steel joist depending on technical and economic considerations.

(3) The structures shall be able to withstand tension of conductors and load of the equipment and accessories without guys or stays.

(4) The steel structures shall be hot dip galvanised or painted:

(5) In highly polluted and corrosive atmospheric conditions galvanised structures with paint shall be used.

(6) Adequate muffing above the ground level shall be provided to avoid water accumulation near the structures.

58. Insulators. - (1) The insulators shall comply with relevant IS.

(2) The station design shall be such that number of insulators is minimum but at the same time reliability of supply is ensured.

(3) Suitable means shall be provided to accommodate conductor expansion and contraction and there shall not be any undue stress on any part or equipment due to temperature change.

(4) The minimum creepage distances for different pollution levels shall be as per Regulation 43.

(5) The post insulators shall be of pedestal type or Solid Core Station type.

(6) In the areas where problem of insulator pollution is expected (such as near sea or thermal power station, railway station, industrial area, etc.) special insulators *viz.* semi conducting glazed porcelain or polymer insulators with higher leakage resistance and creepage distance shall be used to minimize the flashover.

(7) The special coating like Room Temperature Vulcanized coating may also be used on the insulators in polluted areas as per requirement.

59. Circuit Breakers. - (1) Circuit breakers shall comply with the relevant IS and shall be SF₆ or vacuum type.

(2) The rated voltage of the circuit breakers shall be as per highest system voltage.

(3) Rated short time current rating of 33 kV circuit breakers shall not be less than 25 kA for one second and for 22 kV or 11 kV CBs shall not be less than 16 kA for one second.

(4) The operating mechanism of circuit breakers shall be motor operated spring charged type or magnetic actuator type.

(5) The circuit breaker shall be provided with anti-pumping and trip free features.

(6) The indoor circuit breakers shall be metal clad, either fixed type or draw out type.

(7) The rated rupturing capacity of the circuit breaker to be installed at any new sub-station shall be at least 25% higher than the calculated maximum fault level at the bus to take care of the increase in short circuit levels as the system grows.

60. Isolators and Earthing Switches. - (1) The isolators shall be as per capacity of substation and shall comply with relevant IS.

(2) The operating mechanism for the isolators and the controlling circuit breaker shall be interlocked so that the isolators cannot be opened unless the corresponding breakers are in open position.

(3) Earthing switches shall be provided at various locations to facilitate maintenance.

(4) Main blades and earth blades of earthing switches shall be interlocked, both electrically and mechanically.

(5) Earthing switches shall be motor operated as well as suitable for manual operation and only local operation is recommended for earth switches.

61. Control and Relay Panels. - (1) The control and relay panels shall conform to relevant IS.

(2) The panel shall be provided with:

(a) Numerical over current and earth fault relays conforming to relevant IS.

(b) Measuring instruments such as ammeter, voltmeter and energy meter for 33 kV, 22 kV and 11 kV systems.

(c) Mimic diagrams or Bay control unit (BCU).

(d) Annunciation, alarms and trip facilities.

62. Surge Arrestor. - (1) Distribution class, gapless metal oxide (ZnO) type surge arresters conforming to

relevant IS shall be provided on the buses, high voltage and low voltage sides of all transformers and on the incoming terminations of 33/ 22 kV lines.

(2) The surge arrester which responds to over-voltages without any time delay shall be installed for protection of 33 kV, 22 kV and 11 kV switchgear, transformers, associated equipment and 33 kV, 22 kV and 11kV lines.

(3) Surge arresters shall be single-phase units suitable for outdoor duty.

(4) The rated voltage of surge arresters shall be 30 kV, 20kV, 9 kV and nominal discharge current rating shall be 10 kA, 7.5kA and 5 kA for use on 33 kV, 22 kV and 11 kV systems respectively.

(5) Surge arresters for transformers shall be mounted as near the transformers as possible and the star point shall be connected to the independent earthing point.

63. Instrument Transformers (Current and Voltage Transformers) -

(1) Current transformers (CTs) -

(a) Current transformers shall comply with relevant IS.

(b) The rated current and ratio, the number of secondary cores (protection and/or metering), accuracy class, burden, secondary winding resistance, knee point voltage, instrument security factor and excitation current shall be as per the requirements of the protection and metering system.

(c) The selection of CT secondary current (5A or 1A) shall be based on the CT burden and knee point voltage.

(d) The CT may be oil filled or resin type for outdoor use and shall normally be cast resin type for indoor use.

(e) The accuracy class for metering core shall be as per the Central Electricity Authority (Installation and Operation of Meters) Regulations, 2006.

(2) Voltage transformers (VTs) -

(a) Voltage transformers shall conform to relevant IS.

(b) The number of secondary cores (protection or metering), accuracy class and burden shall be as per the requirements of the protection system.

(c) Voltage transformers shall be of inductive type or capacitor type.

(d) The voltage transformers shall be oil filled or cast resin type for outdoor use:

Provided that the indoor voltage transformers shall be cast resin type.

(e) Multiple earthing of voltage transformers shall be avoided under any circumstances.

(f) The accuracy class for metering core shall be as per the Central Electricity Authority (Installation and Operation of Meters) Regulations, 2006.

64. Control Room. - (1) Control room shall be provided to house the control and relay panels and all other indoor equipment, and measuring, monitoring and recording system required for control and operation of the sub-station.

(2) Adequate space shall be provided for the operation and maintenance staff.

(3) Provision of space for future expansion shall also be kept.

65. Earthing Arrangement. - Earthing shall be carried out in accordance with relevant IS and Central Electricity Authority (Measures relating to Safety and Electric Supply) Regulations, 2010 or any successor or subsequent Regulations in this regard.

66. Reactive Power Compensation. - (1) Capacitors, residual voltage transformers and neutral current transformers shall be as per relevant IS.

(2) Shunt capacitors shall be connected on secondary side of 33/11 kV, 33/22 kV or 22/11kV transformers if found necessary based on network studies conducted

(3) Where un-switched (fixed) capacitors are provided, the rating shall be chosen so as to prevent over compensation during off peak periods.

(4) Each capacitor unit shall be provided with a built-in discharge resistor of adequate rating to discharge the residual voltage as per relevant IS.

(5) The capacitors shall be fixed firmly to the supporting structure to make them immovable.

(6) Where the sub-station is feeding loads which have high harmonic levels, suitable harmonic filters shall be installed.

(7) In cases of sub-stations loaded with highly fluctuating loads like arc furnaces etc., flickers and voltage

regulation problems may be overcome by installation of static var compensators (SVCs) or STATCOM.

- 67. Power and Control Cables.** - (1) Cables shall be as per relevant IS.
- (2) Cable laying shall be done complying with requirements of relevant IS including manufacturer's recommendation.
- (3) The cables shall be segregated by running in separate trenches or on separate racks, with the highest voltage class cables laid at the highest racks or tiers.
- (4) Cables shall not be laid directly on the trench floor.
- (5) The cable trenches shall be properly sloped so as to drain freely any water which may enter.
- (6) Care shall be taken in sub-station design to permit easy entry of cables into switchgear and convenience of handling afterwards.
- (7) Segregation of AC and DC control cables and power cables shall be done.
- (8) Sufficient extra length of cable shall be provided for repair of faults in terminations inside the switchgear.
- (9) The relevant drawings of cable sizes, routes and termination details of control cables in the panels shall be available at work site and shall be preserved for future use and reference in the sub-station.
- (10) All cable ends shall be suitably labelled to facilitate easy identification.
- (11) Power Cables:
- (a) Power cables shall be cross linked poly ethylene (XLPE) insulated, poly vinyl chloride sheathed type;
- (b) Cables shall be flame retardant low smoke and low halogen type or flame retardant low smoke zero halogen type;
- (c) Cables shall be de-rated for the site's ambient and ground temperature, grouping and soil resistivity as per IS;
- (d) Proper attention shall be given to ventilation or heat dissipation aspects particularly in case of HV cables.
- (12) Control Cables. -
- (a) The control cables shall be of copper;
- (b) Separate control cables shall be used for each CT and VT;
- (c) Ferrules used on ends of control cables shall match with the details shown in the relevant termination drawings;
- (d) Adequate number of spare cores shall be included in all control cables.
- 68. Telecommunication System.**- A dedicated and reliable telecommunication system as per Central Electricity Authority (Technical Standards for Communication System in Power System Operations) Regulations, 2020 as amended from time to time. The Communication System will comply to Central Electricity Authority (Cyber Security in Power Sector) Guidelines, 2021.
- 69. Automation System.** - Supervisory control and data acquisition system and Data acquisition system shall be provided in the sub-stations, associated feeders and distribution transformers for improving the operational flexibility, minimizing restoration time of power supply and preventing overloading of lines and transformers in real time mode.
- 70. Sub-station Support Facilities.** - (1) **DC supply arrangement-** The battery charger, battery and load shall be connected in parallel and work as a system.
- (a) **Battery.** -
- (i) The 24V, 30V, 48V, 110V, 220V DC batteries shall be stationary lead acid or nickel cadmium or lithium-ion type;
- (ii) The capacity and discharge rate of the batteries shall be as per the requirement;
- (iii) The batteries shall conform to relevant IS;
- (iv) A separate room for Substation Batteries shall be provided with ventilation and exhaust fan for taking out fume gases and provision of remote monitoring of sub-station batteries and exhaust fan shall also be made.
- (b) **Battery charger.** -
- (a) The battery chargers shall be automatic float cum booster type;
- (b) The battery charger shall be capable of continuous operation at the rated load in float charging mode;
- (c) The charger in boost charging mode shall be capable of boost charging the associated DC battery at the

desired rate;

(2) **Auxiliary power supply transformer.** - An auxiliary power supply transformer capable of meeting the auxiliary and lighting loads of the sub-station shall be provided..

(3) **Oil and SF₆ evacuating, filtering, testing and filling apparatus.** - Oil and SF₆ filling, evacuation, filtering and testing plants with adequate storage facilities along with requisite operation and maintenance tools and plants shall be provided for a cluster of sub- stations as per requirement.

71. Fencing and Approach Arrangement. – (1) Fencing or boundary wall shall be provided around the sub-station as per Central Electricity Authority (Measures relating to Safety and Electric Supply) Regulations, 2010 or any successor or subsequent Regulations in this regard.

(2) A metalled approach road to transport the equipment shall be provided leading from the main road.

72. Lighting System - In addition to the energy efficient lighting system provided for catering to the normal AC lighting load, emergency lighting operated on the DC system shall be provided in strategic locations viz. control room, battery room, passages etc.:

Provided that it shall be ensured to provide separate DC battery bank for emergency lighting in the substation and Sub Station's main battery bank used for protection system is not used for emergency lighting to avoid the draining of the main battery bank.

73. Fire Fighting System. – (1) The fire fighting system at Sub stations shall be as per Central Electricity Authority (Measures relating to Safety and Electric Supply) Regulations, 2010 or any successor or subsequent Regulations in this regard .

(2) Fire extinguisher used in the fire fighting system shall conform to relevant Indian Standards.

PART-C

DISTRIBUTION SUB-STATIONS (DSS)

74. General- (1) The system shall conform to the design parameters indicated in Table 15 below. -

Table 15

Parameter	33 kV	22 kV	11kV	0.415 kV
Nominal system voltage (kV)	33	22	11	0.415
Highest system voltage (kV)	36	24	12	0.450
Frequency (Hz)	50	50	50	50
Lightning impulse withstand voltage (kV _{peak})	170	125	75	-
Power frequency withstand voltage (dry) (kV _{rms})	70	50	28	3

(2) System earthing shall be as per Central Electricity Authority (Measures relating to Safety and Electric Supply) Regulations, 2010 or any successor or subsequent Regulations in this regard.

(3) For consumers supplied at voltage not exceeding 650 V (except mines and oil fields), the nominal r.m.s. value of Voltage at the point of commencement of supply of electricity, shall be as follows namely:-

(i) Single Phase 230 Volts between phase and neutral;

(ii) Three Phase 400 Volts between phases.

Explanation. - For the purpose of sub-regulation 74(3), the expression “point of commencement of supply of electricity” shall mean the point at the outgoing terminal of meter installed at the consumer premises.

(4) The Distribution sub- stations shall normally be located near load center.

(5) The DSS can be installed indoor or outdoor or underground as per site requirement.

(6) The DSS with dry type transformer can be used for rooftop installation provided that the building is suitable for bearing the load and adequate fencing or isolation arrangement is ensured.

(7) The DSS can be conventional, package type, completely self protected (CSP) type.

(8) DSS may be installed vertical type (DT on ground with RMU and LT switches above DT on another platform or vice versa).

(9) The capacity of DSS shall be as per the load requirement keeping in view the future load growth for at least five years.

(10) In the selection of the equipment for the distribution substation de-rating due to increase in altitude and

for cables due to depth of burial shall be given due consideration as per the altitude or depth of burial at the site.

- 75. Distribution Transformers.** – (1) The transformer shall conform to relevant IS and shall be ISI marked.
- (2) The transformer can be oil filled, or dry type depending on requirements and shall be as per Central Electricity Authority (Measures relating to Safety and Electric Supply) Regulations, 2010 or any successor or subsequent Regulations in this regard.
- (3) The maximum losses for dry transformers shall not be more than the values specified in latest Energy Conservation Building Code of Bureau of Energy Efficiency till Indian Standards for dry type transformer are published.
- (4) In coastal areas, Distribution Transformer shall be indoor or package type or plinth-mounted.
- 76. Transformer Mounting Structure.** – (1) The mounting of transformers shall be as per relevant Indian Standards.
- (2) The structures shall be provided with. -
- (a) anti-climbing devices and
- (b) danger board.
- (3) (a) The plinth shall be. –
- (i) higher than the surroundings.
- (ii) made of Concrete or Metal (properly earthed) or fire resistant fibre glass of adequate strength to withstand the load:
- (b) the plinth can be pre-fabricated also.
- (c) the plinth foundation shall be of concrete.
- (4) Plinth mounted distribution sub-stations shall be adequately protected by fencing so as to prevent access to the equipment by unauthorized persons, animals and shall be provided with standard danger boards.
- 77. Surge Arresters.** – (1) Surge arrester conforming to relevant IS shall normally be installed on the high voltage side of the transformer connected to overhead lines:
- Provided that surge arrester shall also be provided on the low voltage side in areas of high isoceraunic activity.
- (2) Surge arresters of rating 9 kV on 11 kV, 20 kV on 22 kV and 30 kV on 33 kV outdoor type shall be used for diverting the lightning surges to earth.
- 78. LT Distribution Box-** (1) LT distribution box consisting of breaker and fuse cutouts and fittings conforming to relevant IS shall be provided from where distribution feeders shall be taken out.
- (2) The size of the box shall be suitable for accommodating moulded case circuit breaker, fuse cutouts, cable connectors, bus-bars etc.
- (3) The distribution box shall be mounted at a height of minimum 1.5 metres for pole mounted distribution transformers while the feeder pillar box can be installed at ground level, with adequate clearance:
- Provided that for single phase transformer, the distribution box can also be directly mounted on the body of transformer.
- 79. Protection System.** - The protection system of transformers shall be as per Central Electricity Authority (Measures relating to Safety and Electric Supply) Regulations, 2010 or any successor or subsequent Regulations in this regard.
- (1) **33/ 0.4 kV DSS and 22/ 0.4 kV DSS -**
- (a) Suitable high rupturing capacity cartridge fuse or moulded case circuit breakers or miniature circuit breakers or air circuit break switch shall be provided on low voltage side.
- (b) The high voltage side of these transformers shall be protected by circuit breakers or drop out fuses.
- (2) **11/ 0.4 kV DSS -**
- (a) Suitable high rupturing capacity cartridge fuses or moulded case circuit breakers or miniature circuit breakers or air break switch shall be provided on low voltage side for transformers of 100 kVA and above: Provided that the high voltage side of these transformers shall be protected by drop out expulsion type fuses or circuit breakers.

(b) Horn gap fuse with air break switch shall be provided on high voltage side and switch fuse unit or wire fuse on low voltage side shall be provided for transformers below 100 kVA.

- 80. Earthing-** Earthing shall be provided for the DSS complying with relevant Indian Standards and Central Electricity Authority (Measures relating to Safety and Electric Supply) Regulations, 2010 or any successor or subsequent Regulations in this regard.
- 81. LT Cables.** - (1) IS compliant XLPE cables shall be used for connecting LT supply from transformer bushings to the LT circuit breaker in the distribution box and for taking out outgoing feeders from the fuse units to the overhead lines.
- (2) The LT cables may be armoured or unarmoured for transformers rated less than 100 kVA and shall be armoured for transformers of 100 kVA and higher ratings.
- (3) The cables shall be properly clamped to the support without damaging the insulation.
- (4) A loop arrangement shall be made at the connecting end and laying of cables shall be in such a way that rain water does not enter.
- 82. Meters.** - The installation of meters shall be in conformance to the Central Electricity Authority (Installation and Operation of Meters) Regulations, 2006.
- 83. Reactive Compensation.** - (1) Where the power factor is low, reactive compensation shall be provided on the distribution transformers by fixed or automatic switched type capacitors of adequate rating.
- (2) In case of fixed capacitors it shall be ensured that the rating of the capacitors is such as to prevent over compensation during off peak period.
- (3) In cases where loads fluctuate very fast or there is large intraday reactive variation, a suitable dynamic compensation like thyristor switched capacitors shall be considered.
- (4) In loads which are rich in harmonics, suitable harmonics filters or de-tuned filter banks shall be considered.

Chapter V

PART-A

ELECTRIC LINES (66 kV AND ABOVE)

84. General.—

- (1) The transmission system planning shall be in accordance with Central Electricity Authority's "Manual on Transmission Planning Criteria".
- (2) The transmission line shall be designed and constructed to give a life of not less than thirty five years.
- (3) Overhead transmission lines shall be planned, designed and constructed at least in double circuit configuration.

Provided that for 765 kV lines single circuit configuration can be used with the approval of the National Committee on Transmission.

(4) Right-of-way for transmission lines of different voltage levels (with specific conductor type and configuration, design span and string arrangement) traversing through normal terrain or route without constraint, forest area, urban area, populated area and approach section near substation shall be as per **SCHEDULE-VII**.

(5) For transmission lines in areas where Right-of-way constraint is encountered, appropriate technology options such as use of steel pole structure, narrow based lattice towers, multi-circuit and multi-voltage towers, lattice or steel pole structure with one side stringing, XLPE cable or Gas Insulated Line, compact towers with insulated cross arm, and Voltage Source Converter based HVDC transmission on overhead line or underground cable shall be adopted.

(6) Steel pole structure, Multi-circuit (more than two circuits) or multi-circuit and multi-voltage towers for overhead lines upto and including 400 kV voltage level shall be considered in the urban areas, approach section of substation or switchyard and as an alternative to number of parallel lines passing through forest, eco-sensitive zone, wildlife sanctuary for effective use of available corridor.

(7) Routing of a transmission line shall avoid large habitations, densely populated areas, protected or reserved forest or National Parks or Wild Life Sanctuaries, the habitant zones of Great Indian Bustard and other protected species, civil or military airfields and aircraft landing approaches.

(8) The names of owners of the land falling under RoW of the transmission line shall be recorded after carrying out the check survey at the time of execution.

(9) The Transmission Service Provider or Transmission licensee shall arrange consents and approvals from

Power and Telecommunication Co-ordination Committee and the concerned authorities for environmental and forest, mining, civil aviation, road, river, rail, canal and power line crossings.

85. Design and Construction of Transmission Lines.—

(1) Electrical Design Parameters of the Transmission Lines

- (a) The design parameters of the transmission lines for altitude upto 1000 m above mean sea level shall be as indicated in Table 16 below:

Table 16

Parameter	66 kV AC	110 kV AC	132 kV AC	220 kV/230 kV AC	±320 kV HVDC	400 kV AC	765 kV AC	±500 kV HVDC	±800 kV HVDC	1150 kV AC
Nominal voltage (kV)	66	110	132	220/ 230	320	400	765	500	800	1150
Highest system voltage (kV)	72.5	123	145	245	336	420	800	525	840	1200
Rated Insulation Level (minimum)										
(i)Lightning impulse withstand voltage (1.2/50 micro sec)(kV _{peak})	325	550	650	1050	1425	1550	2400	1800	2250	2400
(ii)Power frequency withstand voltage under dry condition (kV _{rms})	140	230	275	460	NA	680	830	NA	NA	1200
(iii)Switching surge withstand voltage under wet condition (kV _{peak})	NA	NA	NA	NA	1050	1050	1550	1000	1850	1800
Minimum corona extinction voltage under dry condition (kV _{rms} phase to earth)	NA	NA	NA	156	350	320	508	550	880	762
Maximum radio interference voltage under dry condition (micro volts)	NA	NA	NA	1000 (at 156 kV rms)	22 kV/cm conductor surface gradient	1000 (at 320 kV rms)	1000 (at 508 kV rms)	22 kV/cm conductor or surface gradient	22 kV/cm conductor or surface gradient	1000 (at 762 kV rms)

- (b) For installations at altitudes higher than 1000 m above Mean Sea Level, altitude correction factor on the applicable parameters such as rated insulation level, clearances and arcing distance for external insulation at the service location shall be applied as per methodology specified in relevant standards.

- (c) The phase conductors of AC transmission lines shall be transposed in approximately three equal parts, wherever the length of the line is more than 100 km.

(2) Conductor.—

- (a) Minimum two conductors per phase for 400 kV AC; four conductors per phase for ± 500 kV HVDC and 765 kV single circuit AC; six conductors per phase for 765 kV Double Circuit AC and ± 800 kV HVDC; and eight conductors per phase for 1200 kV AC shall be used to meet the corona and Radio Interference requirement.
- (b) The conductors shall be Aluminum Conductor Steel Reinforced or All Aluminum Alloy Conductor or Aluminium Alloy Conductor Steel Reinforced or High Conductivity Aluminium Alloy stranded conductors or High Performance conductors or High Temperature and Low Sag conforming to relevant Indian or international standards.

(3) Earthwire.—

- (a) The earthwire of appropriate size to cater to predicted and design fault currents and lightning shall be used.
- (b) Single earthwire shall be used for transmission lines up to 220 kV and two earthwires shall be used for transmission lines of 400 kV and higher voltage classes.
- (c) The earthwire used in 66 kV voltage class lines shall be Optical Ground Wire or galvanized stranded steel or Aluminium Alloy Conductor Steel Reinforced type.
- (d) The earthwire used in 110 kV and above voltage class lines shall be Optical Ground Wire.
Provided that in case of 400kV and above voltage class lines, at least one out of two earthwires shall be Optical Ground Wire and second earthwire shall be either of galvanized stranded steel or Aluminium Alloy Conductor Steel Reinforced conductor type.

(4) Towers.—

- (a) The towers shall be self-supporting lattice steel structure or steel pole structure or structure with insulated cross arms or guyed tower and shall be fully galvanized.
- (b) All electrical clearances shall be as per relevant standard and Central Electricity Authority (Measures relating to Safety and Electric Supply) Regulations, 2010 or any successor or subsequent Regulations in this regard.
- (c) The pole, towers, and towers with insulated cross-arms shall be designed considering design loading criteria and conditions as per relevant IS.
- (d) Wind Zone considered for wind loading shall be as per wind map given in National Building Code till the relevant Indian Standard is revised.
- (e) For design of transmission line structures in eastern coast and Gujarat coast upto 60 km from sea coast, importance factor for cyclonic region i.e. K4 factor of 1.3 shall be considered to take care of cyclonic wind condition.
- (f) For the transmission lines to be laid within 50 km of the border of the two wind zones specified in the Wind Map, towers shall be designed for the higher of the two wind zones.
- (g) Reliability level as per Table-17 shall be considered for design of towers and steel pole structures of following transmission lines:

Table-17

66 kV to 400 kV Transmission lines with one or two circuits and one or two conductors per phase	Reliability level 1 corresponding to 50 years return period
66 kV to 400 kV Transmission lines with more than 2 circuits; 400 kV Transmission lines with more than two conductors per phase; Above 400 kV transmission lines	Reliability level 2 corresponding to 150 years return period
Special towers or Pole ; Tall River crossing towers or Pole; Multicircuit towers or Pole whose full scale prototype can not be tested due to limitation of testing facility	Reliability level 3 corresponding to 500 years return period

- (h) The prototype of towers or poles shall be tested as per relevant Indian Standards. However, it shall not be mandatory to test prototype of tall river crossing towers or poles and other special towers or poles designed for reliability level 3 (500 year return period).
- (i) Drag coefficient for calculation of wind load on tower as per Table 18 shall be considered for design of tower:

Table 18

Solidity Ratio	Drag coefficient
Upto 0.05	3.6
0.1	3.4
0.2	2.9
0.3	2.5
0.4	2.2
0.5 and above	2.0

- (j) Delta configuration towers shall not be used for 765 kV single circuit line.
- (k) For towers in snow bound areas, steel sections shall conform to Grade C of IS 2062.
- (l) The fabricated tower or pole parts and stubs of transmission lines passing upto 20 km from through coastal / creek regions shall have following minimum mass and thickness of zinc coating (Table 19):

Table-19

	Minimum mass of zinc coating (gram/sq m)	Average coating thickness of zinc coating (micron)
For plates and sections below 5 mm	610	87
For plates and sections of 5 mm and above	900	127

- (m) The danger plates, number plates, phase plates, circuit plates, anti-climbing devices, bird guards, day or night visual aids and markers for denoting transmission line or structures as per requirements of Directorate of Flight Safety or International Civil Aviation Organization and the bird diverters, wherever required, shall be provided.
- (n) Spike type Bird guards on the Upper (tie members) and Lower main members and also on Plan bracings in the barrel of the tower at all the cross arm levels to prevent birds from making nests.
- (o) Each tower shall be earthed such that tower footing impedance does not exceed 10 ohms.
- (p) Pipe type or Counterpoise type earthing or multiple earthing or use of environmental friendly earth enhancement material shall be used for earthing of towers to achieve specified tower footing impedance. If still, specified tower footing impedance is not achieved, line surge arresters shall be used on phase conductors connected to that tower to reduce back flashover.
- (q) Additional earthing shall be provided on towers after every seven to eight km distance for direct earthing of shield wires.
- (5) Foundations.—
- (a) The type of foundation for towers shall be decided based on geotechnical investigation of the soil properties and shall be designed and laid as per relevant Indian Standards.
- (b) Pile type foundation shall be used for towers located in river or creek bed or on bank of river having scourable strata or in areas where river flow or change in river course is anticipated, based on detailed soil investigation, maximum flood discharge of the river during past twenty years, maximum velocity of water, highest flood level, scour depth and anticipated change in course of river based on river morphology data of at least past twenty years to ensure availability and reliability of the transmission line.
- (6) Insulators, Insulator Strings and Hardware Fittings.—
- (a) In a transmission line, for a particular Site Pollution Severity class, minimum specific creepage distance (corresponding to the line to line highest system voltage) shall be as specified in Table 20.

Table 20

Site Pollution Severity (SPS) class (As per IS 16683:Part-I:2018)	Specific Creepage Distance (in mm/kV)
Very Light or Light or Medium	20
Heavy	25
Very Heavy	31

- (b) The silicone content in composite silicone rubber insulator shall be minimum 30% by weight and RTV silicone coating, if used on any insulator, shall be in accordance with IS 11310.
- (c) Number of insulators, insulator profile, profile parameters and dimensions shall be selected based on electrical system parameters and site specific factors like altitude above mean sea level, expected environmental and pollution conditions complying with relevant IS or IEC standards.
- (d) For river crossings or power line crossings (66kV or above), railways or road crossings (express way, national highway and state highway) minimum two sets of long rod insulators or two sets of disc insulator strings per phase per circuit shall be used.
- (e) Electro-mechanical strength of insulator shall be selected such that:
- (i). under 100% design wind loading conditions, the load on insulator string shall not exceed 70 % of its electro-mechanical strength;
- (ii). under everyday temperature and nil wind conditions, the load on insulator string shall not exceed 25% of its electro-mechanical strength.
- (f) Grading or Corona ring shall be provided with Composite silicone rubber insulators for 132 kV and above voltage class lines and with porcelain or glass insulators for 400 kV and above voltage class lines to control high concentration of electric field.

(7) Accessories for Conductor and Earthwire.—

The accessories required for the conductor and earthwire viz. mid-span compression joints, repair sleeve, T-connector, flexible copper or aluminium bond, vibration dampers, spacer or spacer-dampers, earthwire clamps etc. shall be used as suitable for type and size of conductor and earthwire used for the transmission line.

(8) Crossing by a transmission line.—

- (a) For crossing of power line of 400 kV or above voltage class, large angle towers of deviation angle of 30-60 degree and designed for dead end condition, with required body extension, shall be used on either sides of the power line.
- (b) For crossing of power line of 110 kV, 132 kV, 220 kV and 230 kV voltage class, the tension towers with required body extension shall be used on either sides of the power line and the crossing of power lines of 66 kV class shall be done with any type of towers (suspension or tension) with required body extension.

- (9) The Route of transmission line (66 kV and above voltage level) shall be clearly identified as normal sections without constraint, sections through forest area, and sections through urban areas or populated area or approach section near substations and normal design span for various voltage level transmission lines be as indicated in the Table 21 below shall be adopted.

Table 21

Voltage (kV)	Normal design span (m)		
	Normal route without constraint	Forest area	Urban area / Populated area / approach section near substation
± 800 kV HVDC ±500 kV HVDC 1200 kV AC	400		
765 kV / 400 kV AC	400	300	250
230 kV/ 220 kV AC	325 to 350	250	200
132 kV	320	200	150
110 kV AC	305	200	150
66 kV AC	250	150	100

Provided that reduced design span for pole or narrow base structure may be considered based on techno-economic analysis.

- (10) Cables and Gas Insulated Lines.— In the stretches where the construction of an overhead transmission line is not possible due to space constraints or right of way problems, XLPE cable or Gas Insulated Lines conforming to relevant IS or IEC standard, and rated for power flow requirement shall be considered for transmission of power based on techno-economic analysis.

- 86. Condition Assessment of Towers and earthing system.**— (1) Utilities shall assess the condition of structure of towers, conductors, earthwire, all associated accessories, foundation and earthing system periodically using modern techniques and diagnostic tools and shall take appropriate action, wherever abnormality is noticed.
- (2) For condition assessment of conductors, clamps, connectors, insulators etc., provision for on- line or off- line diagnostic tools and equipment shall be made.
- (3) On- line tools shall include thermo-vision camera for detection of hot spots, corona camera and live line punctured insulator detector.
- (4) Off- line tools shall include insulation resistance measuring instrument, contact resistance measuring instrument and tower footing impedance measuring tool.
- (5) The on line (as in built feature of Numerical relay) and off-line fault locator shall be used for locating the transmission line faults.
- (6) Patrolling of the lines shall be carried out on half yearly basis for smooth and trouble free operation of line and activities like replacement of missing members or bolts, coping of chimney to avoid rusting of stubs, identifying rusted members, missing earthing connections etc.
- (7) During patrolling, if any unauthorised construction/use/storage under and around the towers is observed, local administrative authority shall be immediately informed for assistance and necessary action.
- (8) Frequency of patrolling of transmission lines shall be increased for the vulnerable tower locations (thunder prone, cyclonic prone area) and in theft prone areas. Members or nuts or bolts, if found missing during patrolling, shall be replaced to avoid failure of towers.
- (9) The nuts and bolts of section above bottom cross arm level shall be rechecked and re-tightened after five years of commissioning of the transmission line and every ten years of service thereafter.
- (10) Condition of earthing shall be checked after ten years of commissioning of transmission line and every five years of service thereafter and corrective action, if required may be taken.

87. Use of Helicopter and UAV.—

For survey, erection of towers, stringing of conductors/earthwire and patrolling of transmission line in difficult and inaccessible terrains and in other areas if techno-economically viable, use of helicopter or Unmanned Aerial Vehicle shall be considered:

Provided required clearance from Director General Civil Aviation or any other competent authority shall be obtained before taking up such activity.

88. Use of GIS platform.—

Transmission system asset mapping, route alignment and optimization of route of new transmission line for transmission projects shall be carried out on Bhuvan Indian Geo platform of National Remote Sensing Centre.

PART- B

ELECTRIC LINES (33 KV AND BELOW)

- 89. General.**— (1) The lines shall be constructed keeping in view the prime factors of safety as well as electrical and mechanical design considerations.
- (2) The Owner who is connecting his new installation has to abide by the Central Electricity Authority (Technical Standards for Connectivity to the Grid) Regulations, 2007 and Central Electricity Authority (Technical Standards for Connectivity of the Distributed Generation Resources) Regulations, 2013.
- (3) The Owner shall arrange all required consents/approvals including civil aviation, road, river, rail, canal, power line crossings and environmental and forest clearances etc. from the concerned authorities.
- (4) The Owner in accordance with the requirements of construction shall arrange right of way and way leave clearance:
- Provided that compensation for right of way and way leaves shall be given as per applicable law, rules and regulations, guidelines/directives of local administrative/revenue authorities.
- (5) The RoW width for urban areas:
- (a) 33kV overhead lines for different types of structures, commonly used ACSR conductor (with maximum operating temperature of 85 degree) and normal design span
- (b) 33kV lines with covered conductor mounted on pole type structure shall be as indicated below:

Conductor	Structure Type	Design Span (in m)	String Type	RoW (in m)
Commonly used ACSR Bare conductor	Lattice type/ Steel pole	250	"I" String/Suspension	15 meter
			Tension	
		150	"I" String/Suspension	12 meter
			Tension	
	Concrete Pole/Rail Pole/H Pole/ Steel Pole	100	Pin Insulator	9 meter
60		Pin Insulator	8 meter	
Covered	Pole	100		6 meter

90. Electrical Design Parameters of the Electric Lines.— (1) The electrical design parameters of the electric lines for altitude upto 1000 m above MSL shall be as indicated in Table 22 below:

Table 22

Parameter	33 kV	22 kV	11 kV	0.415 kV
Nominal system voltage (kV)	33	22	11	0.415
Highest system voltage (kV)	36	24	12	0.450
Frequency (Hz)	50	50	50	50
Lightning impulse withstand voltage (kV _{peak})	170	125	75	-
Power frequency withstand voltage (kV _{rms}) in dry condition	75	50	28	3

(2) For the electric lines at altitudes higher than 1000 m above MSL, basic insulation level (BIL), impulse withstand voltage requirements shall be kept higher than those indicated in Table 22 as per relevant standards and practices.

(3) System Earthing shall be as per Central Electricity Authority (Measures relating to Safety and Electric Supply) Regulations, 2010 or any successor or subsequent Regulations in this regard.

91. Design and Construction of Electric Lines and Associated Equipment.— (1) The design and construction of the electric lines shall comply with the relevant IS.

(2) The system shall be constructed so as to ensure:

- voltage conditions are within permissible levels;
- improvement of reliability and security of power supply;
- improvement in quality of supply;
- adequate capacity for load growth at least for next five years.

(3) Independent feeders shall be provided for essential loads such as water works, hospitals, defence, railways, airports and other sensitive installations and for selected consumers on request.

(4) Separate rural feeders for feeding irrigation load and domestic load shall be provided.

(5) Multi-circuit multi-voltage lines shall be adopted by the owner as per requirement.

(6) Extension of existing lines shall be carried out after ensuring that the limits of voltage variations on the lines are not exceeded.

(7) The reliability and security of supply shall be improved by use of sectionalizers, auto re-closers, ring main units and fault passage indicators as per techno economic considerations.

92. Routing of Overhead Electric Lines.— (1) The route of the electric line shall be as short as possible.

(2) The routing of an electric line shall normally be avoided through following areas:

- Protected and reserved forest:

Provided that in case it is not possible to completely avoid the forests or areas having large

trees, keeping in view the overall economy, the route shall be aligned in such a way that cutting of trees is minimized.

- (b) National Parks and Wild Life Sanctuaries.
 - (c) Restricted areas such as civil and military airfields and care shall be taken to avoid aircraft landing approaches.
 - (d) Educational institutions, large habitations and densely populated areas.
 - (e) Rough and difficult country side, and natural obstructions, fruit gardens, lakes, rivers etc.
 - (f) The electric line shall normally not cross over cremation grounds and shall be far off from slaughterhouses and garbage dumping grounds to prevent interruptions by bird hits.
- (3) The electric line shall be close to a road for approach during construction and ease of maintenance.
- (4) Angle points in the route shall be minimized.
- (5) Railway and road crossings shall be minimum on the line route and in case it is not possible to avoid the same, the crossings at right angles shall be preferred but the crossing shall not be less than 60 degrees in any case.

93. Supports (Poles and Towers) .— (1) Supports shall conform to relevant IS.

- (2) The supports shall be poles or narrow based lattice towers with fully galvanised structure as per site requirement.
- (3) (a) The poles shall be pre-cast concrete pole, pre-stressed cement concrete pole, rolled steel joist, rail pole, spun pole, H-beam or steel tubular pole as required;
- (b) PCC and PSCC poles shall not be used at cut-points and as end poles;
- (c) In coastal areas, higher strength poles like rail poles or spun poles shall be used.
- (4) Erection of poles shall be carried out in accordance with the provisions of relevant IS.
- (5) In hilly areas appropriate snow or ice loading shall be considered for design of poles and towers.
- (6) For locations involving long spans or higher clearances on account of crossing of power or communication lines or a railway line, specially designed poles/lattice towers or underground cable shall be used as per requirement.
- (7) Double pole structure shall be used as per site conditions ensuring safe operation of lines
- (8) The height of the pole above the ground level, length of pole below ground and working load shall be decided taking into consideration wind zone, terrain, topography, and the statutory clearances required.

94. Line Span.— (1) The span shall be within the range specified by relevant IS.

- (2) Line span shall be decided taking into consideration topography, wind pressure, type of support, conductor configuration and ultimate tensile strength of conductor.
- (3) Uniform span shall be maintained as far as possible between consecutive pole structures.
- (4) While constructing a line, if a road crossing occurs at mid span, then a pole shall be placed on one side of the road so as to avoid mid span at the road crossing.
- (5) While crossing another power line, the lower voltage line shall be underneath:
- Provided that the lower line shall normally not cross at mid span of the upper line.
- (6) While placing poles on high ground, shorter poles can be used while maintaining proper ground clearance at the middle of the span.
- (7) Poles shall normally not be placed along the edges or cuts or embankments of creeks and streams.
- (8) At all the places where the new line crosses over roads or another existing line, adequately earthed guard wire mesh below the line shall be provided to avoid the conductor of the new line falling over the areas below, in case of any break:

Provided that in cases where the line passes below an existing line, the guard wire mesh shall be provided above the new line under construction.

95. Maximum stresses and factors of safety.— The permissible stresses and minimum factor of safety shall be as per Central Electricity Authority (Measures relating to Safety and Electric Supply) Regulations, 2010 or any successor or subsequent Regulations in this regard.

96. Stay Arrangements.— (1) Galvanized iron stay wires and stay rods of adequate size and minimum tensile strength complying with relevant IS shall be used.

- (2) The stays shall be provided at:

- (a) angle locations;
- (b) dead end locations;
- (c) tee off points;
- (d) steep gradient locations;
- (e) cut-points;
- (f) along the straight run at minimum two locations in one km.
- (3) For double pole structure, four stays along the line, two in each direction and two stays along the bisection of the angle of deviation or as required depending on the angle of deviation shall be provided.
- (4) When two or more stays are provided on the same pole, each stay shall be grouted entirely separate from the other.
- (5) The angle between the pole and stay wire shall be about forty five degrees and in no case it shall be less than thirty degrees.
- (6) Stays shall be anchored either by providing base plates, angle iron or rail.
- (7) Stay wires shall be connected to the pole with IS complaint Porcelain Guy Strain Insulator
- (8) The insulator shall be inserted in the stay wire at a height of minimum 3 m vertically above the ground level.
- 97. Protective Guard, Anti Climbing Devices and Danger Plates.—** Protective Guard, anti-climbing devices and danger plates shall be provided in accordance with Central Electricity Authority (Measures relating to Safety and Electric Supply) Regulations, 2010 or any successor or subsequent Regulations in this regard.
- 98. Insulators, Insulator Strings and Hardware Fittings.—** (1) Insulators and its fittings shall conform to relevant IS.—
- (a) pin insulators shall be used on lines up to 33 kV voltage level as per requirement;
- (b) shackle insulators, using strap type fittings or U-clamp fittings, shall be used in lines below 650 volts;
- (c) suspension and Tension insulator strings with disc insulators or long rod insulators offering equivalent performance shall be used on 33 kV or 22 kV or 11 kV lines:
- Provided that the number of insulators and creepage distance shall be selected based on electrical system parameters taking into account altitude of site, expected environmental and pollution conditions etc;
- (d) for critical locations with high pollution level, anti-fog type insulators or polymer insulators may be used for better performance;
- (2) Insulator and insulator string rating shall be selected such that.—
- (a) under 100% design wind loading conditions, the load on insulator string shall not exceed 70% of its mechanical strength;
- (b) under everyday temperature and no wind/snow conditions, the load on the insulator string shall not exceed 25% of its mechanical strength;
- (3) The insulation shall be designed to avoid excessive concentration of electrical stresses in any section or across leakage surfaces.
- 99. Cross-Arms.—** (1) cross-arms and the clamps shall be hot dipped galvanised conforming to relevant IS.
- (2) Welding at site should be avoided as far as possible, in case welding becomes necessary, the joint shall be covered with cold galvanising paint.
- 100. Conductor.—** (1) The size of the conductor shall depend upon the voltage regulation, factor of safety, power to be transmitted, length of line, line voltage and mechanical strength desired.
- (2) Aluminium Conductor Steel Reinforced (ACSR) or equivalent All Aluminium Alloy Conductors (AAAC), All Aluminium Conductor (AAC), Aluminium Alloy Conductor Steel Reinforced (AACSR) or HTLS conductors along with requisite accessories shall comply with relevant IS.
- (3) The configuration of conductors on the line can be triangular, horizontal or vertical depending upon the voltage level of the lines, terrain, right of way and clearances to be maintained:
- Provided that in case clearance from a building is difficult to secure, vertical arrangements of the conductor shall be adopted.
- (4) Suitable insulating paint shall preferably be provided on bare conductors in coastal areas to prevent corrosion as well as in power theft prone areas.

- 101. LT Spacers.**—To avoid clashing and accidental mutual touching of bare overhead conductors on LT lines, spacers of adequate dielectric strength, which can be either spiral or composite shall be provided in between conductors at appropriate locations in different spans (particularly for lines having longer spans or lines having large sags encountering high winds).
- 102. Cables.**— (1) Underground cables or aerial bunched cables or covered conductor of adequate rating conforming to relevant Standards can also be used for supplying power.
 (2) In coastal areas underground cables shall be used.
 (3) PVC cables shall not be used in systems other than LT system.
 (4) Aerial bunched cables or insulated cables or covered conductor shall be used in the congested, theft and accident-prone areas.
 (5) Underground Cables shall normally be laid in trenches as per the relevant standards and utility practices:
 Provided that direct burying of underground cables shall not be adopted except where cables enter and take off from a trench:
 Provided further that cables may be laid in pipes or cables with co-extruded pipes may also be laid, though trenchless method as per the site requirement.
 (6) The underground cables shall be segregated by running in separate trenches or on separate racks or in separate pipes.
 (7) Cable trenches or pipes shall not be run through oil rooms and these shall be properly sloped so as to drain freely any water, which may enter.
 (8) Cables shall not be laid directly on trench floor.
- 103. Service Line.**— (1) The service line shall be provided with insulated conductor, armoured cable or underground cable.
 (2) The service line shall have adequate margin to take care of load growth for at least five years.
 (3) Over-head service connection shall be provided either through independent service connection or through LV box.
 (4) No tapping of service line shall be permitted for supplying power to any other consumer.
 (5) Feeder pillar-box shall be used for providing underground service connection through cable to more than three or four consumers.
 (6) The meters for the consumer connections shall be provided in accordance with the Central Electricity Authority (Installation and Operation of Meters) Regulations, 2006.
- 104. Surge Arrester.**— (1) Surge Arrester shall be as per relevant IS.
 (2) The surge arresters shall be placed at the terminal points of the lines and also at the junction points of cables and bare overhead conductor lines.
 (3) For 33 kV, 22 kV and 11 kV lines, surge arresters having rated voltage of $30\text{ kV}_{\text{rms}}$, $20\text{ kV}_{\text{rms}}$ and 9 kV_{rms} and discharge current rating of 10 kA, 7.5 kA and 5 kA, complying with relevant IS, shall be used respectively.
- 105. Earthing.**— Earthing shall be as per relevant IS and Central Electricity Authority (Measures relating to Safety and Electric Supply) Regulations, 2010 or any successor or subsequent Regulations in this regard.
- 106. Protection of 33 kV, 22 kV, 11 kV and LT System.**— (1) The protection scheme shall be finalized by the Owner based on prudent utility practice.
 (2) An earth leakage protective device shall be provided at consumer premises as per requirement of Central Electricity Authority (Measures relating to Safety and Electric Supply) Regulations, 2010 or any successor or subsequent Regulations in this regard.
- 107. Repeal and Saving.**—
 (1) The Central Electricity Authority (Technical Standards for Construction of Electrical Plants and Electric Lines) Regulations, 2010 is hereby repealed.
 (2) Notwithstanding such repeal, anything done or purported to have been done under the repealed regulations shall be deemed to have been done or purported to have been done under the relevant provisions of these regulations.
- 108. Relaxation of Regulations-** The Authority may, by order and for reasons to be recorded in writing, relax any of provisions of these regulations in respect of the matters referred to the Authority on case to case basis.

SCHEDULE- I

[See sub-regulation (10) of regulation 10]

**List of Electrical Protection Functions for Thermal
Generating Units****1. Generator**

Sl. No.	Protection Function	Remarks
(a)	Generator differential protection (87G)	
(b)	100% stator earth fault protection (64G)	For units of 100 MW and above.
(c)	95% stator earth fault protection (64G1)	For units less than 100 MW.
(d)	Standby stator earth fault protection (64G2)	
(e)	Inter-turn fault protection (87TG)	Applicable where split winding in Stator is provided and if six terminals are available.
(f)	Loss of field protection (40G)	To be duplicated for units of 500 MW and above.
(g)	Negative phase sequence current protection (46G)	
(h)	Low-forward power and Reverse power interlock for steam turbine generator (37/ 32G)	Preferably 3-phase power relays shall be provided. Both the relays shall be duplicated for units of 500 MW and above.
(i)	Rotor earth fault protection - two stages (64F1/F2)	
(j)	Definite time over-voltage protection (59G)	
(k)	Generator under frequency protection (81G)	
(l)	Over-fluxing protection for generator (99G)	To be provided for units of 500 MW and above in duplicate.
(m)	Overload protection for generator (51G)	
(n)	Back- up impedance protection, 3 pole (21G)	
(o)	Overheating (winding and/ or bearing) (49G)	Alarm only.
(p)	Instantaneous and time delayed over current protection on high voltage side of excitation transformer (51)	
(q)	Generator pole slipping protection (98G)	
(r)	Accidental back energisation protection (50GDM)	
(s)	Generator circuit breaker failure protection (50ZGCB)	To be provided for GCB scheme only.

Note: In case digital multifunctional generator protection system is provided, the protection systems for generator shall be duplicated for units of one hundred mega watt and above. Each MGPS shall preferably be provided with individual inputs from CTs and VTs and connected to the independent set of hand-reset trip relays, such that one set is always available in case of testing and mal-operation of the other set. If the MGPS does not include any protection mentioned in the table above, separate discrete protection shall be provided for the same. The MGPS shall preferably have continuous self-monitoring and testing facilities.

2. Generator Transformer

Sl. No.	Protection Function	Remarks
(a)	Overall differential protection (87OA)	
(b)	Generator transformer differential protection (87GT) for single phase bank	
(c)	Restricted earth fault protection for generator transformer (87NGT)	
(d)	Over head line connection differential protection (87L)	For 3 single phase banks, if 87L

		includes HV winding, separate 87NGT is not mandatory.
(e)	Back- up earth fault protection on generator transformer HV neutral (51NGT)	
(f)	Over-fluxing protection for generator transformer (99GT)	To be duplicated for units of 500 MW and above.
(g)	Back- up non-directional over-current protection in all phases on HV side of generator transformer (51GT)	
(h)	Generator transformer oil temperature indicator (OTI) trip (49Q) and winding temperature indicator (WTI) trip (49T)	
(i)	Generator transformer Buchholz (63), Pressure relief valve (PRV)/ other mechanical protections	
(j)	Pole discrepancy protection of generator transformer breaker (162)	To be provided, if single pole breakers are used.
(k)	Breaker failure protection of generator transformer breaker (50Z)	
(l)	Start-up earth fault protection for LV and HV winding of generator transformer and UATs (64T)	To be provided for GCB scheme only.

3. Unit Auxiliary Transformer(s)

Sl. No.	Protection Function
(a)	Differential protection (87UAT)
(b)	LV back-up earth fault protection (51NUAT)
(c)	LV restricted earth fault (87NUAT)
(d)	Back-up over-current protection (51UAT)
(e)	OTI(49Q) and WTI (49T) trip
(f)	Buchholz (63), PRV/ other mechanical protections

4. Station- Transformer(s)

Sl. No.	Protection Function
(a)	Differential current protection (87)
(b)	Restricted earth fault protection for LV winding (87NLV)
(c)	Restricted earth fault protection for HV winding (87NHV)
(d)	Back-up over-current protection on HV side (51)
(e)	Back-up earth-fault protection (51N)
(f)	Over-fluxing protection (99)
(g)	Buchholz protection (63)
(h)	Winding temperature high (49T)
(i)	Oil temperature high (49Q)
(j)	Pressure relief valve trip (PRV)
(k)	Breaker failure protection (50Z)

SCHEDULE-II

[See sub-regulation (3) of regulation 12]

Design Requirements for Ash Handling System

A. Design Requirements for Ash Handling System of Pulverised Fuel Steam Generators

1. The capacity of ash handling systems, as a percentage of maximum ash generated corresponding to firing of worst coal or lignite at boiler maximum continuous rating, shall not be less than the following:

- (a) Fly ash system
- (i) ESP fly ash and chimney ash : 90%
- (ii) Air preheater ash : 5%
- (b) Bottom ash system
- (i) Furnace bottom ash : 25%
- (ii) Economiser ash : 5%
2. Ash removal rate shall meet the following criteria:
- (a) Fly ash system : 8 hour collection in 6 hours
- (b) Bottom ash system : intermittently once or twice in a shift for jet pump system;
: Continuous for submerged scrapper conveyer system and dry system.
3. Ash handling system shall have the provision for following standby arrangement:
- (a) Bottom ash system - 100% standby for jet pumps or 100% standby for submerged scrapper conveyor (SSC) or Dry Bottom Ash Handling System with metallic chain conveyor.
- (b) Fly ash system - 100% standby for vacuum pumps, collector tanks, wetting heads;
- 100% standby blowers for intermediate and storage silos;
- 50% standby for air compressors to be used for transporting ash.
- (c) Ash slurry disposal - One pump stream as operating standby and one pump stream as maintenance standby for wet slurry system;
- One standby stream for high concentration slurry system.

B. Design Requirements for Ash Handling System of Fluidised Bed Steam Generators

1. The capacity of ash handling systems, as a percentage of maximum ash generated corresponding to firing of worst coal or lignite at boiler maximum continuous rating, shall not be less than the following:
- (a) Fly ash system
- (i) ESP fly ash and chimney ash : 80%
- (ii) Air preheater ash : 5%
- (b) Bottom ash system
- (i) Furnace bottom ash : 30- 40%
- (ii) Economiser ash : 5%
2. Ash removal rate shall meet the following criteria:
- (a) Fly ash system : 8 hour collection in 6 hours
- (b) Bottom ash system : Continuous
3. Ash handling system shall have the provision for following standby arrangement:
- (a) Bottom ash system - 100% standby for drag link chain conveyor
- (b) Fly ash system - 100% standby for vacuum pumps, collector tanks, wetting heads;

- (c) Ash slurry disposal
- 100% standby blowers for intermediate and storage silos;
 - 50% standby for air compressors to be used for transporting ash.
 - One pump stream as operating standby and one pump stream as maintenance standby for wet slurry system;
 - One standby stream for high concentration slurry system.

SCHEDULE-III

[See sub-regulation (7) of regulation 36]

The minimum Load for Continuous Operation for Various Types of Hydraulic Turbines

Sl. No.	Type of turbine	Minimum load for continuous operation (percent)
(a)	Pelton or Kaplan or Bulb	30
(b)	Deriaz	40
(c)	Francis	50
(d)	Propeller	85

SCHEDULE-IV

[See clause(f) of sub-regulation (12) of regulation 40]

Minimum Protections to be provided for Hydro- electric Generating Units

1. Generator

Sl. No.	Protection functions	Size of generating unit		
		Small (<10 MVA)	Medium (10-100 MVA)	Large (> 100 MVA)
(a)	Differential (87G)	Y	Y	Y
(b)	95 % stator earth fault (64G1)	Y	Y	Y
(c)	100 % stator earth fault (64G2)	N	Y	Y
(d)	Backup impedance (21G)	N	Y	Y
(e)	Voltage controlled over current (51)	Y	N	N
(f)	Negative phase sequence (46G)	Y	Y	Y
(g)	Loss of excitation (40G)	Y	Y	Y
(h)	Reverse power (37/32G)	Y	Y	Y
(i)	Pole slipping (98G)	N	N	Y
(j)	Stator overload (49S)	Y	Y	Y
(k)	Over voltage (59G)	Y	Y	Y
(l)	Under frequency (81G)	Y	Y	Y
(m)	Dead machine (27/50G)	N	N	Y
(n)	Rotor earth fault (64R)	Y	Y	Y

Note: Y- Required; N- Not required.

2. Excitation Transformer

Sl. No.	Protection functions	Size of generating unit		
		Small (< 10 MVA)	Medium (10-100 MVA)	Large (> 100 MVA)
(a)	Restricted earth fault (64)	Y	Y	Y
(b)	Instantaneous and IDMT over current (50/51)	Y	Y	Y
(c)	Winding temperature (49)	Y	Y	Y

Note: Y- Required.

3. Generator Transformer

- Generator transformer differential protection (87T)
- Restricted earth fault protection (64GT)
- IDMT over current protection (51)
- Neutral grounding back-up earth fault protection (51NGT)
- Over head line connection differential protection (87L)
- Overfluxing protection (99GT)
- Monitoring of Insulation of low voltage bushing (59T)
- Buchholtz relay (63)
- Winding temperature protection (49T)
- Oil temperature protection (49)
- Pressure relief valve (PRV)

4. Generator and Generator Transformer

- Overall differential protection (87OA)
- Breaker Failure Protection (50Z)

5. Unit Auxiliary Transformer

- Restricted earth fault protection (64)
- Instantaneous and IDMT over current protection on high voltage winding (50/51)
- Neutral grounding back-up E/F protection (51NGT)
- Winding temperature protection (49T)

6. Station Auxiliary Transformer

- Restricted earth fault protection (64)
- Instantaneous and IDMT over current protection on high voltage winding (50/51)
- Neutral grounding back-up earth fault protection (51NGT)
- Winding temperature protection (49T)

SCHEDULE-V

[See sub-regulation (3) of regulation 48]

Protection Details of Transmission Lines, Transformers, Reactors and Bus Bars**1. Transmission Line Protection**

No.	Protection	765 kV	400 kV	220 kV/230 kV	132 kV/110 kV/ 66 kV
(a)	Main I- Distance protection*	Y	Y	Y	Y (for 132 kV/110 kV) Y/N (for 66 kV)
(b)	Main II- Distance protection* or directional comparison protection or phase segregated line	Y	Y	Y/N 'N' if Directional IDMT over	N

	differential protection			current and earth fault back up protection is provided otherwise 'Y'	
(c)	Directional inverse definite minimum time (IDMT) type earth fault relay	Y	Y	'Y' if both Main-I & Main-II are distance protections otherwise 'N'	N
(d)	Directional IDMT over current and earth fault back up protection	N	N	'Y' if Main-II is not provided otherwise 'N'	Y
(e)	Two stage over voltage protection	Y	Y	Y/N	Y/N
(f)	Auto reclosing#	Y (Single phase and three phase)	Y (Single phase and three phase)	Y (Single phase and three phase)	Y/N (three phase)

***For short line (less than 10 km) or cable or combination of overhead line and cable, line differential protection shall be used with built-in backup distance protection.**

For cable or combination of overhead line and cable, autoreclosing shall not be provided.

Note: (1) Y- Required; N- Not required; Y/N- Optional.

(2) Transmission lines with distance protection shall, in general, have carrier aided or fibre optic based inter-tripping or blocking feature.

(3) Separate cores of current transformer and voltage transformer shall be used for Main-I and Main-II.

2. Transformer Protection

Sl. No.	Protection	765 kV	400 kV	230 kV/220kV/ 132 kV/110 kV	66 kV
(a)	Differential protection	Y	Y	Y	Y
(b)	Over fluxing protection	Y	Y	Y	N
(c)	Restricted earth fault (REF) protection	Y	Y	Y	Y
(d)	Backup directional over current and earth fault protection (HV and LV side) or impedance protection	Y	Y	Y	Y
(e)	Buchholz, WTI and OTI (for 1 MVA and above), MOG with low oil level alarm, OSR for OLTC, PRD, SA on both primary and secondary sides of transformers located outdoors and connected to over head lines	Y	Y	Y	Y
(f)	Tertiary winding protection	Y	Y	Y	N

Note: (1) Y- Required; N- Not required.

(2) WTI- winding temperature indicator; OTI- oil temperature *indicator; OLTC- on load tap changer; PRD- pressure relieve device; OSR- oil surge relay; MOG- magnetic oil gauge; SA- surge arrester.

3. Reactor Protection

Sl. No.	Protection	765 kV	220kV /400 kV
(a)	Differential protection	Y	Y
(b)	REF protection	Y	Y
(c)	Reactor backup protection (impedance type or definite time over current (O/C) and earth fault (E/F) protection)	Y	Y
(d)	Buchholz, WTI, OTI, MOG with low oil level alarm, SA (if required)	Y	Y

Note: (1) Y- Required.

(2) WTI- winding temperature indicator; OTI- oil temperature indicator; MOG- magnetic oil gauge; SA- surge arrester.

4. Bus Bar Protection and Local Breaker Backup Protection (breaker failure protection)

Bus bar protection and local breaker backup protection shall be provided in 220 kV and higher voltage interconnecting sub- stations as well as in all generating station switchyards. Duplication of bus bar protection shall be done for all main buses of 400kV and above voltage class. The bus bar protection scheme shall be centralized or distributed type and have provision for planned future expansion. .

SCHEDULE-VI

(See regulation 49)

PART-A

Technical Details of Classical HVDC Terminals/ Stations

1. **General:** The conventional Thyristor (Gate Turn On device) based HVDC converter technology or Line Commuted Converter technology or Current Source Converter technology shall be used for back to back and long distance bulk power HVDC transmission system. Gate Turn Off devices / other better devices capable of handling similar or higher quantum of power may also be considered.
2. **Design Consideration:** (a) The converter configuration and rating for HVDC installation shall be based on following considerations:
 - (i) The amount of power to be transmitted
 - (ii) The transmission distance
 - (iii) Staging consideration of the project
 - (iv) Location of converter station
 - (v) The amount of power to be transmitted at the different stages of the project
 - (vi) Reliability and availability requirements
 - (vii) Loss evaluation
 - (viii) Size and weight of the Converter transformers for transport
 - (ix) Electrical characteristics of sending and receiving end power system to which HVDC transmission system is connected

Note: The DC power rating shall include nominal, reverse, forward and overload power levels, specific loading cycle and weightage factor to calculate load losses.

- (b) Electric design of HVDC transmission lines shall take into account the following considerations:
 - (i) Corona performance (Corona loss, Radio Interference, Audible Noise, Electric field and ion current in the vicinity of the line)
 - (ii) Air Characteristic
 - (iii) Insulator performance
- (c) The minimum conductor height above Ground level shall be selected mainly on the basis of ensuring human safety, Ground level electric field and ion current density level. The corona loss with I^2R losses

in the conductors shall be considered for economic choice of the optimum conductor bundle in transmission line.

3. System Data: The following environmental, AC & DC system information, shall be considered:

- (a) Environmental information:
 - (i) Ambient temperature
 - (ii) Humidity, rain fall intensity
 - (iii) Geographical co-ordinates
 - (iv) Isokeraunic level
 - (v) Wind velocity
 - (vi) Seismic Level
 - (vii) Altitude above sea level
 - (viii) Pollution level
 - (ix) Soil Properties
 - (x) Solar radiation
 - (xi) Snow/ice data
- (b) AC System information:
 - (i) Short Circuit Ratio and Minimum & Maximum Short Circuit Current:
 - (ii) System voltage and frequency
 - (iii) Harmonic impedance characteristics
 - (iv) System Voltage distortion
 - (v) System Grounding
 - (vi) Torsional mode frequencies (Sub-synchronous Resonance)
 - (vii) AC system topology
 - (viii) AC system equivalent
 - (ix) MVAR exchange with AC system
 - (x) Data pertaining to generators in the vicinity
- (c) HVDC line or Cable:
 - I. In case of overhead lines, the detail information shall include
 - (i) Line length
 - (ii) Conductor type
 - (iii) Conductor configuration
 - (iv) Rated DC Voltage
 - (v) Impulse withstand levels
 - (vi) Tower configuration for the Pole conductors & Dedicated Metallic Return conductor or earth electrode
 - (vii) Tower footing impedance
 - (viii) Earth electrode station (if applicable)
 - II. In case of Cable, the detail information shall include
 - (i) Cable length
 - (ii) Cable size and insulation
 - (iii) Rated and maximum DC voltage
 - (iv) Current rating
 - (v) Capacitance and resistance at rated load
 - (vi) Impulse withstand levels

4. System Performance:

The HVDC system shall be designed to meet all performance requirements and shall be compatible to existing system. The HVDC system shall not cause instability to the AC existing Network and shall not adversely affect other nearby HVDC Systems as well as Generating Units. This shall be verified by stability, multi infeed and Sub Synchronous

Resonance studies.

5. System Studies- HVDC control parameters and equipment shall be selected by carrying out the following studies at different stages of the project and after project completion on major changes in the network or operating condition around the HVDC:

- (a) Main circuit parameters;
- (b) Short circuit studies;
- (c) Insulation co-ordination;
- (d) AC, DC and Power Line Carrier filter design, rating and performance;
- (e) Reactive power studies, switching arrangement & logic;
- (f) Temporary overvoltage;
- (g) Transient overvoltage, surge arrester stress;
- (h) Runback and run up studies;
- (i) Sub- synchronous resonance studies
- (j) AC breaker Transient Recovery Voltage and rate of rise of recovery voltage studies;
- (k) Overload study;
- (l) AC equivalent study;
- (m) DC Commutation switch requirements;
- (n) Load flow, stability, modulation and frequency controller design study;
- (o) Dynamic over voltage study;
- (p) Electrical interference study;
- (q) Reliability and availability study;
- (r) Audible noise study;
- (s) Loss calculation;
- (t) Dynamic performance study;
- (u) Studies for deciding operational logics or sequences;
- (v) Design of electrode line and its impact on dc equipment;
- (w) Commutation failure and recovery study;
- (x) Real Time Simulator based studies;
- (y) HVDC control and protection coordination study;
- (z) AC/ DC system interaction.
- (aa) Multi-infeed studies, if applicable

6. Insulation co-ordination

- (a) HVDC System shall be suitably protected against Impulses and disturbances external and internal to the system such as switching impulses, lighting impulses, dynamic over voltages and load rejection. The insulation of all equipment shall be properly protected and coordinated with surge arresters and/or surge capacitors. Insulation coordination shall be done keeping in mind the minimum electrical clearances, safety clearances and maintenance clearances as per Switching Impulse Withstand Level. Insulation coordination shall be done as per relevant IS/IEC Standards. Insulation levels of oil filled equipment shall be less than other equipment considering its cost.
- (b) The insulation of the equipment and protection levels of Surge Arresters connected to the converter ac bus bars of the converter stations at both rectifiers and inverter shall be coordinated with the insulation and surge arrester characteristics of the connected ac systems to which the converter stations are to be connected without exceeding the discharge duty of these arresters.
- (c) Overvoltages caused by Bipole link HVDC transmission shall be controlled to 1.4 p.u or below. Events caused by other equipment in the A.C. network shall be controlled within the limits of the capability of the deblocked converter. In case the converter is tripped, and not possible to restart within seconds, filter tripping shall be allowed to limit overvoltages.
- (d) The tripping action for lines shall be initiated if the over voltage exceeds 1.1 p.u. for 5 seconds and if 1.5 p.u. voltage persists for more than 100 milliseconds. The HVDC over voltage strategy shall be co-ordinated with such setting.

- (e) The ratio of impulse withstand voltage to impulse protective level shall be in line with IEC-60071-5.
- (f) The minimum insulation levels for 800 kV shall be as follows:

HV Transformer LIWL/SIWL (kV)	Smoothing reactor LIWL/SIWL (kV)	Thyristor Valve Structure LIWL/SIWL (kV)	DC Busbar LIWL/SIWL (kV)
1800/1600	1800/1600	1800/1600	1900/1600

LIWL- Lightning Impulse Withstand Level;

SIWL- Switching Impulse Withstand Level

7. Radio Interference (RI), Acoustic Noise (AN) and DC field

- (a) All the necessary precautions shall be made during HVDC design to ensure that there shall be no mal-operation, damage or danger to any equipment, system or personnel due to electromagnetic or electrostatic interference effects. The converter terminal(s) shall neither damage nor cause mal-operation of the DC control and protection system or the DC tele-control system.
- (b) All the necessary precautions shall be taken in the form of noise suppression techniques, shielding and filtering devices to prevent harmful interference, which may be generated by the converter terminals, with the Power line carrier systems, Radio communication systems, Television systems, VHF, UHF & microwave radio systems.
- (c) The noise generated by HVDC System shall also be limited by noise reducing measures, if necessary. Noise shall be less than 45 dBA in control room and office areas, 70 dBA at the station boundary and 70 – 90 dBA at various HVDC equipment areas.

8. Dynamic Performance:

- (a) The purpose of dynamic performance design is to determine the control parameters for HVDC system and to ensure that the HVDC system shall have smooth, stable and fast operation for both steady state and transient conditions without adversely affecting the connected AC grid.
- (b) The HVDC system shall recover to 90% of the pre-fault dc power transfer level consistently within 120 ms from the instant of fault clearing, without subsequent commutation failure or sustained oscillation for all inverter ac system fault conditions. For all rectifiers ac system fault conditions, the recovery time, to 90% pre- fault power level, shall be within 100 ms from the instant of fault clearing.
- (c) HVDC shall continue operation at reduced power if conditions get outside the voltage, frequency and short circuit capacity ranges specified in system data as much as possible with its inherent capability.

9. Main Circuit Design-

The purpose of Main Circuit design is mainly to determine the operating characteristics and rating of thyristor valves and converter transformers (MVA, tap changer range etc.) It also forms the input for AC Filter and Reactive compensation design. The main circuit arrangement and circuit shall depend on type of HVDC system, Power Transmission requirements, DC Voltage Levels, connected AC voltage levels, Reactive Power requirements and AC & DC Harmonic requirements. The system shall meet various harmonic performance parameters on both AC Side and DC side.

10. HVDC Station Equipment-

The function blocks of converter station are Converter area (converter valves, converter transformer, Smoothing Reactor), DC yard (DC filters, DCCT, DCVD, PLC filters of DC side, DC pole arresters, Disconnectors and ground switches), AC filter yard, AC yard and auxiliaries. A typical LCC based HVDC station shall consist of the following main equipment:

- (a) Thyristor valves and its accessories e.g. damping and grading circuits, converter cooling system, etc.;
- (b) Converter transformers;
- (c) Smoothing reactors (If required);
- (d) DC filters*;
- (e) AC filters (Harmonic filters and PLC filters) and shunt compensation;
- (f) Control and protection of AC and DC side;
- (g) Electrical and mechanical auxiliaries;
- (h) Earth electrode station* / Dedicated Metallic Return (DMR) *;
- (i) AC switchyard equipment;
- (j) DC switchyard equipment*;

- (k) AC & DC Surge arresters;
- (l) AC & DC Measuring instruments;
- (m) Communication system between converter stations (OPGW/ PLCC).
- (n) DC wall bushings
- (o) AC wall bushings (if applicable)
- (p) Auxiliary Power System

* Not applicable for back to back schemes.

11. Converter Station AC Yard, Transformer yard and valve hall

- (a) **AC commutating bus equipment-** The AC circuit breakers, disconnectors, instrument transformers and other switchyard equipment shall be similar to that of the equipment specified under Regulation 46. The bus rating shall be adopted according to the calculation considering single bus outage. The switching duties of the AC circuit breakers will be decided based on transient over voltage study, insulation co-ordination, AC filters and protection studies.
- (b) **Dynamic over voltage limiter devices-** Converters connected to relatively weak AC systems may cause Dynamic Over Voltages during load rejection / disturbance. The Dynamic Over Voltage limiter shall consist of parallel arrester elements connected phase to phase or phase to ground and designed to absorb the desired amount of energy during a system disturbance. The Dynamic Over Voltage limiter shall be coordinated with recovery of DC system following a disturbance. The requirements of surge arresters shall be based on the insulation co-ordination study in line with relevant standards. The arresters used shall be metal oxide type conforming to relevant standard. For control of Dynamic Over Voltage, use of STATCOM, SVC and high power gapless arresters shall be evaluated.
- (c) **AC harmonic filters and shunt compensation**
 - (i) The HVDC converter generates harmonics during the Conversion process and AC harmonic filters shall be used to limit ac voltage distortion due to harmonics to acceptable levels and also to meet the reactive power exchange requirements based on the studies carried out.
 - (ii) The AC harmonic filters shall be switched in and out by circuit breakers. Based on the studies, the reactive power requirement for the terminal and bank or sub-bank size shall be determined such that reactive power exchange with the AC bus shall remain within specified limits. Suitable redundancy shall be provided in the sub-bank filters to avoid reduction of transmission capacity of the station due to outage of any particular sub-bank for maintenance.
 - (iii) The main filter equipment namely capacitors, reactors and resistors shall comply with the requirements of following IEC
 - (A) Capacitors : IEC 60871;
 - (B) Reactors : IEC 60076-6;
 - (C) Resistors : IEC 62001/As per owner's specification
 - (D) .Dynamic compensation: If required, dynamic compensation in the form of static compensator (STATCOM), static var compensator (SVC), thyristor controlled series capacitor (TCSC) etc. shall be used to improve stability during AC system transient faults. The requirement of dynamic compensation and the rating shall be derived from the studies. .
 - (iv) Shunt Reactor Banks: Shunt reactors of suitable size shall be provided to meet reactive power exchange requirements derived from the studies. The shunt reactor shall be oil filled and must be switched in or out by a circuit breaker. The shunt reactor shall conform to relevant standard. The shunt reactor shall be covered under automatic switching under the reactive power control strategy.
 - (v) **AC filter Design:** The Total Harmonic Distortion (V_{thd}) of AC filter, as defined below, shall not exceed 2%.

$$V_{THD} = \sqrt{\sum_{n=2}^{n=40} \frac{V_n^2}{V_1^2}} \times 100$$

'1' refers to fundamental frequency (50 Hz)

'n' refers to the harmonic of nth order (corresponding frequency is 50 x n Hz)

Additional requirements as per relevant IEC shall also be fulfilled. In all Modes of operation, except

the reduced dc line voltage modes, the performance requirement shall be met up to rated power with one larger size filter sub-bank and one characteristic harmonic sub-bank(largest) being out of service. All filter banks, sub-banks and branches shall be rated such that the remaining filter components are not overloaded and there is no restriction on the operating power level for any operating conditions with one filter bank outage for power level up to 1.0pu.

(d) **Power line carrier (PLC) filtering-** PLC filters shall be installed close to converter transformers to mitigate high frequency harmonic currents generated during thyristor switching.

(e) **Converter transformers:**

- (i) The converter transformers shall be single phase/ three phase two winding or three winding units which shall be decided by size and transportation limitations. The transformers shall comply with the requirements of relevant standards. The maximum flux density in any part of the core and yoke at the rated MVA, voltage and frequency shall be such that under 10% continuous over voltage condition it does not exceed 1.9 Tesla. The Converter transformer shall be capable of withstanding minimum DC current of 10A per single phase transformer entering through the neutral.
- (ii) The insulation level for the transformer AC (line side) windings and bushings shall be as given at Regulation 45 and insulation levels of the valve side windings shall be determined in accordance with studies. The impedance of the transformer shall be determined as in accordance with studies and variations in impedance shall be as per the requirement of relevant standards.
- (iii) Converter transformers shall be equipped with on load tap changer (OLTC) and metal oxide varistor (MOV) devices shall be provided between tap leads of the OLTC. The OLTC tap steps shall be determined in accordance with the operating strategy of both the converters. The OLTC shall be designed for a minimum 2,50,000 operations without repair or change of any part including oil. The OLTC shall be designed for a contact life of minimum 6,00,000 operations.
- (iv) The requirements of soak pits and firewalls shall be in line with Regulation 46.
- (v) Minimum one No. (single phase or three phase, as applicable) spare Converter transformers of each type and rating per station shall be provided.

(f) **Thyristor valves**

- (i) The thyristor valve assembly shall be designed and tested as per relevant IEC/IS.
- (ii) The thyristor valve modules, used for converting AC to DC or vice versa, shall be complete with associated electronic firing system; protection, monitoring & damping system, auxiliaries and cooling system. Twelve pulse scheme shall be used.
- (iii) One / Two twelve pulse valve group in series or parallel combination shall be used depending on the power rating and other requirement of specific project.
- (iv) In case of two series converter configuration, a bypass switch shall be provided to bypass any faulty converter and use the remaining series converter at lower DC voltage.
- (v) The thyristor valves shall be water cooled, air insulated and indoor type. The valves shall be either suspended type or floor mounted type depending upon the operating DC voltage and seismic requirements. The Double or Quadruple valve design shall be used depending on voltage level. Requisite redundancy shall be kept through a provision of suitable number of spare thyristor in valve modules.
- (vi) The thyristor valve cooling system shall use de-ionized water circulated in a closed cycle. The cooling unit shall comprise of a de-ionizer, expansion vessel, conductivity, flow and temperature sensors, mechanical filters, etc. Adequate redundancies shall be provided. Necessary control and monitoring including tripping of the HVDC system in case of cooling system failure shall be provided.
- (vii) The valves shall be placed in the valve hall which shall have a positive pressure over atmospheric pressure and humidity control feature. The pressurization will be maintained by ventilation system.

12. Converter Station DC Yard

- (a) The DC yard shall comprise of equipment such as HVDC bushings, smoothing reactors, DC filters, DC current and voltage measuring instruments and switchgear, surge arrester, insulators, clamps and connectors.
- (b) The creepage distance for DC yard and other areas shall be maintained as indicated below:

Insulator type	Under light and Medium pollution	Under heavy and very heavy pollution
Indoor porcelain or composite insulators for valve hall (other than valves) and indoor smoothing reactor area	20 mm/kV	
Thyristor Valves	14 mm/kV	
Indoor DC yard (other than smoothing reactor)	30 mm/kV	
Outdoor porcelain insulators or bushings with RTV coating	50 mm/kV	60 mm/kV
Outdoor composite insulators or bushings	50 mm/kV	

Note:- Creepage distances less than 50 mm/kV but not less than 45mm/kV can be accepted for outdoor silicone rubber bushings due to manufacturing limitations and for HVDC equipment's requiring necessary internal/ external insulation co-ordination. However, creepage distance less than 50 mm/ kV and flash distance less than 12 mm/ kV shall not be acceptable for outdoor jointed bushing.

The base voltage applicable for calculation of valve arrester creepage distance shall be

$$U_{creepage} = \left(\sqrt{\frac{1}{3} + \frac{\sqrt{3}}{8\pi}} \right) * CCOV$$

- (c) **DC wall bushing-** DC wall bushings, used for electrical connection between the equipment inside the valve hall and the outdoor DC yard shall be of polymer housing as per relevant standards. All bushings inside the valve hall including HVDC wall bushing shall be dry type / SF6 gas filled or combination of both.
- (d) **Smoothing Reactor-** The smoothing reactor shall be of air core type. The reactors shall comply with relevant standards and shall have successfully passed DC tests as per their application. The smoothing reactor shall be divided between pole and neutral for DC voltage above 500kV. Each converter station shall be provided with one spare coil of smoothing reactor.

For the design of smoothing reactor, the **Si factor** has to be within the limits (0.22 < Si < 1) where Si factor is defined as

$$Si = U_{dn} / L_d * I_{dn}$$

U_{dn} = Nominal HVDC Voltage level per pole

I_{dn} = Nominal HVDC Current

L_d = Total DC side inductance = $L_{dr} + 3.5 L_{tr}$ where L_{dr} - Smoothing Reactor inductance

L_{tr} - Converter transformer inductance

The smoothing reactor shall be designed for Class H for inter turn insulation as per IEC 60085, however, the maximum allowed hot-spot temperature rise shall be limited to one class lower i.e Class F insulation.

- (e) **DC Voltage and Current Measuring Devices-** The DC voltage **measuring** equipment shall be installed at each pole. The DC measuring equipment at pole and neutral bus shall be suitably located based on the control philosophy and different protection zones such that complete pole and neutral equipment are protected.
- (f) **DC Filters-** DC harmonic filters shall be provided in DC yard to limit harmonic voltages present on the DC lines (pole lines and electrode lines / DMR line). The DC Filters shall consist of Blocking Filter, Low order filters, Harmonic Filters and High Frequency Filters as per the requirement of project specific studies. The main filter equipment like capacitors, reactors and resistors shall comply with the requirements of relevant IS/IEC standards/ CIGRE documents. A series blocking filter shall be provided, if required based on system studies, at each converter of the inverter station. A parallel low order (2nd Harmonic) DC Filter shall be provided across each converter of the station.
- (g) **DC Filter Design-** The individual harmonic current (I_n) at any harmonic shall not exceed the value which could cause mal-operation of the HVDC system control and protection equipment supplied.

The maximum equivalent disturbing current (I_{eq}), without any filter outage, for balanced bipolar and monopolar mode with metallic return or Dedicated Metallic Return (DMR) modes of operation shall

be as follows:

Operating Mode	I _{eq}
Balanced bipolar operation	1500 mA
Monopolar mode with metallic or DMR mode	2200 mA

The DC filter components shall be adequately rated to allow unrestricted operation of the HVDC system in all operating modes and for all power levels upto 1 p.u with any possible combination of filter branches connected.

The rating of the dc filter components shall be based on the assumption that the per pole harmonic voltage is individually maximized at each harmonic for any particular operating mode, and the filter component currents due to the harmonic voltages at the terminals shall be assumed to add as RSS (Root sum squared) at each harmonic.

Blocking filter reactor shall be designed for Class H for inter turn insulation as per IEC 60085, however, the maximum allowed hot-spot temperature rise shall be limited to one class lower i.e Class F insulation. The AC/DC/PLC/RI reactor shall be designed for Class F insulation as per IEC 60085, however, the maximum allowed hot-spot temperature rise shall be limited to one class lower i.e. Class B insulation.

(h) **Surge Arresters**

Surge arresters shall be gapless Metal Oxide arresters and shall be designed, and tested as per relevant IS/ IEC. The arresters shall be designed to absorb the desired amount of energy during a system disturbance and shall be coordinated with recovery of DC system following a disturbance as applicable.

The HVDC main arresters typically found in a HVDC System are as follows:

- (i) Valve Arrester
- (ii) Bridge Arrester (6 pulse/12 pulse)
- (iii) DC Line Arrester
- (iv) DC Neutral and DC Filter Arrester
- (v) Converter Transformer and AC Filter Bus Arrester
- (vi) Electrode line arrester / DMR line arresters
- (vii) Smoothing Reactor Arrester
- (viii) DC Neutral Switch Arresters

13. Control and Protection System

(a) **Control System:**

- (i) The control system shall have redundancy with hot standby.
- (ii) DC converter terminals shall be either manned by operator or controlled by remote operation of SCADA system. The control system hierarchy shall be as follows:
 - (A) Station/Bipole Control
 - (B) Pole/ Converter Control
 - (C) Valve control
- (iii) The HVDC Bipole shall have control features including but not limited to the following:
 - (A) Reactive power controller
 - (B) Current and power controller
 - (C) Frequency controller
 - (D) Power modulator, pole power compensation The modulator shall have feature which shall provide positive damping of ac network oscillations over the range of frequencies considered during system studies.
 - (E) Sub Synchronous Resonance (SSR) Damping Controller (if required)

All necessary studies shall be carried out to ensure that the DC system shall not excite the mechanical, electromechanical or other natural frequencies of the nearby region generators and turbines under any operating mode. It shall be demonstrated by studies (simulation as well as field test) that the nearby generators shall not be adversely affected by the HVDC system, particularly with regard to Sub Synchronous Oscillation (SSO) / Sub Synchronous Resonance (SSR) and

harmonic injection and self-excitation. Sub Synchronous Damping (SSD) Controller shall be provided for converter Stations near Generating stations.

- (A) Load frequency controller (LFC)
- (B) Current margin controller
- (C) Excessive reactive power consumption controller
- (D) AC system stability function, such as power swing damping function.
- (E) Run back / Run up controller with provision to be linked to SPS of System Operator

- (iv) The pole control, converter control, and valve control modules shall also be provided.
- (v) The control shall be designed to give fast stable and proper response to normal control actions as well as during disturbances such as AC & DC faults.

(b) **Protection System**

- (i) HVDC system protection shall consist of two parts:

- (A) AC side protection:

AC side protection function shall cover the zone for converter transformer, AC filters, shunt capacitors, shunt reactors, and busbars. These protections shall generally follow the same philosophy as in a typical substation i.e. detection of fault by relay and tripping of circuit breaker.

- (B) DC side protection:

DC side protection shall cover the zones consisting of the valve hall, DC switchyard including smoothing reactor and DC filters, DC line, DMR line / electrode line and ground electrode. The protection equipment shall be designed to be fail safe and shall ensure high security to avoid mal-operation/ unwanted shutdown due to protection equipment failures.

- (ii) Following a DC Line fault, the HVDC System shall have the facility to restart, one or more times, the faulted pole at a variable pre-selected DC voltage level(s), not below 80% of the nominal voltage rating. The dc transmission system shall be capable of recovery in a controlled and stable manner without commutation failures during recovery following ac and dc system faults. The post fault power order shall be equal to the pre-fault power order unless AC/ DC systems dictate otherwise

- (iii) Protection system shall have two redundant systems with following protections.

- (A) Converter differential protection;
- (B) DC over current protection;
- (C) DC differential protection;
- (D) AC conductor ground fault protection;
- (E) Commutation failure protection;
- (F) DC filter protection[#];
- (G) DC smoothing reactor protection;
- (H) DC line ground fault protection with restarts[#];
- (I) DC line differential protection[#];
- (J) DC under voltage/ over voltage protection;
- (K) Ground Return mode / Dedicated Metallic Return (DMR) protection[#]
- (L) AC filter protections
- (M) Electrode line monitoring and protection[#]
- (N) Thyristor Failure Monitoring

not applicable for back to back schemes

- (iv) DC online fault locators shall be provided to monitor the entire DC line length and give location of the fault with good accuracy in the range of ± 1000 meters
- (c) Software based controls and protection shall be used to permit flexibility in effecting modifications. Protection and controls shall be duplicated for reliability. The control & protection shall provide fast controllability of the HVDC system. Operation of the HVDC bipole system shall be possible in the following modes:

- (i)Balanced/ unbalanced bipolar operation;
 - (ii)Monopolar operation with pole metallic return:
 - (iii)Monopolar operation with ground return / with Dedicated Metallic Return (DMR) mode;
 - (iv)Reduced voltage operation;
 - (v)Power reversal mode.
- (d) The 'Sequence of events' recorder, transient fault recorder, on-line DC Line fault locator, GPS system, visual display system, operator control protection and monitoring system shall be a part of the HVDC system.
- 14. Telecommunication-** For smooth operation of the HVDC system, communication network with high reliability and availability shall be provided for transmission of control and protection signals between the two or more (in case of multi-terminal DC) HVDC terminals. There shall be main and back up communication link. The main communication link shall be through OPGW and back up communication link shall be either through OPGW or PLCC.
- 15. Valve Hall:** The valve hall shall mainly contain thyristor valves, its associated structure, & cooling and arresters. No oil filled equipment shall be present inside the valve hall. In case the turret of converter transformers (having oil) is protruding inside the valve hall, suitable fire barrier matching with adjacent valve hall wall fire rating shall be provided. The valve halls shall be provided with interference screening. In addition, the control cable and cable termination rooms shall be suitably screened to minimize radio interference. Two nos. scissor lift for erection and maintenance of valve modules shall be provided per station. Proper cable sealing shall be provided for cable entry into valve hall and control room to avoid entry of water and moisture. Necessary measures shall be taken to take care of high frequency noise emission from valves.
- 16. Valve Hall Ventilation:** Suitable ventilation systems and filters with adequate redundancy shall be provided in the valve hall. The valve hall shall be kept at a positive pressure under all conditions.
- 17. Grounding & Safety**
- (a) The design of the grounding system shall be based on relevant IS/ IEEE.
 - (b) In order to prevent adverse effect (overheating due to induced circulating current) of magnetic field of air core reactors, special care shall be taken such that no closed loops are formed by the earthing conductors and in reinforcement bars of the foundation. Air core reactor manufacturer's guidelines shall be followed.
 - (c) The electrical safety clearances for the dc side shall not be less than the clearances applicable for an ac switchyard at the equivalent BIL level.
 - (d) The total electric field excluding space charge at ground level shall be as prescribed in relevant standards.
 - (e) Fencing and electrical & mechanical key interlocking arrangements shall be provided for valve halls, smoothing reactor area, AC and DC filter areas, DC LFL Capacitor Area and for equipment mounted directly on ground without suitable height of steel structure.
- 18. Dedicated Metallic Return (DMR) / Earth Electrode**
- The current return path of a bipolar configuration shall be either via a Dedicated Metallic Return (DMR) conductor or via earth return using earth electrodes at both converter terminals. DMR mode shall be preferred if it is difficult to identify a suitable site for earth electrode station.
- If earth electrodes are to be used the following requirements shall also be considered:
- (a) The earth electrode station shall be connected to the terminal by means of an overhead transmission line. The earth electrode shall be located at a minimum distance of approximately 25 km (radial distance) away from the converter station. It shall be designed to operate continuously at nominal load and overload as per the requirement. The electrodes shall be designed for both types of operation, anodic and cathodic.
 - (b) The thorough soil investigation shall be carried out for shallow and deep resistivity, thermal conductivity and moisture content etc. at the proposed location.
 - (c) The earth electrode station shall have sub-electrodes. The maximum current density at the sub-electrode surface, i.e. the boundary between backfill (coke) and soil shall not exceed 0.5 A/m² in clay soils. The number of sub-electrodes shall be determined considering that 30% of the sub-electrodes are not available. The amp hour rating for earth electrode shall be selected based on the study for duration of earth electrode current and the service life of the earth electrode station.
 - (d) The earth electrode station shall not affect the nearby electrical installation, buried metallic pipelines, oil & gas pipelines, and railway lines etc.

- (e) Each ground electrode shall have a resistance of less than or equal to 0.3 ohm (both working as an anode and cathode) at maximum design ambient temperature.
- (f) Touch voltage (V_t)- The touch voltage between any grounded metallic object in the electrode station (including the connection to the overhead electrode line) and any point in the soil which can be touched by a person simultaneously shall not exceed 40 V when the electrode is operating at the maximum overload rating.
- (g) Step Voltage (V_s)- The step voltage at ground level above the ground electrode when the electrode is operating at the temporary over-load rating shall not exceed (V_s) = $5.0 + 0.03 \rho_s$, where ρ_s is the local surface resistivity in ohm-m.
- (h) The above values of resistance: touch and step voltages would depend on the actual geophysical characteristics of the soil at the place where the electrode station is located. Suitable mitigation measures shall have to be adopted in case the site has high resistivity.
- (i) In addition, following interference effects shall be considered:
- Corrosion of buried metallic structure and foundations
 - DC Current in power lines, especially via power transformer neutrals (risk of saturation of transformers).
 - DC current in telephone circuits.
 - Effect on the cathodic protection of the buried metallic pipe lines.
- 19. Cables:** Fibre optic cables conforming to IEC – 60793 shall be used to transmit the signals to and from various equipments and panels located in the AC/DC switchyards, Valve Halls, control rooms, valve cooling rooms, etc.
- 20. Auxiliary Power Supply System:** The auxiliary power supply system shall have the following:
- Highly reliable duplicated supply sources from two separate sources,—with automatic change-over facilities.
 - Completely separated secondary distribution (415 V) systems for the auxiliaries of each converter.
 - Duplicated supply by two different 415 V power sources to essential loads (e.g., cooling pumps, fans, heat exchangers, etc).
 - Provision of reliable or standby power supply system to meet essential and emergency loads and which starts-up automatically in case of loss of all the normal and stand-by supply sources. One reliable or standby power supply system per converter shall be provided at all the converter stations.
 - Parallel operation between station service transformers shall not be permitted at any voltage level in order to limit fault currents, prevent back feed into the AC bus and to ensure independence of supply sources. Also parallel operation shall not be permitted between transformers and the reliable or standby power supply system.
 - Suitable protection on all primary MV and LV supply connections
 - All auxiliaries shall give rated output at voltage variation of $\pm 10\%$ and frequency variation of -5% to $+3\%$.
 - The station services DC system shall cater to the following:
 - DC loads of HVAC and HVDC switchyards, auxiliary services control, valve and pole control, protection circuits, communication system loads, etc.
 - An indispensable minimum lighting load shall be connected to the station DC system.
 - The 220VDC supply system(s) per converter shall consist of at least two independent DC systems; each system consisting of one charger, one battery bank and one distribution panel.
 - A 48 V DC system consisting of two battery sets, two Battery chargers and two distribution boards shall also be supplied for communication panels (wherever supplied).
- 21. Fire Detection, Alarm and Protection system:** A comprehensive fire detection, alarm and protection system as per Central Electricity Authority (Measures relating to Safety and Electric Supply) Regulations, 2010 or any successor or subsequent Regulations shall be provided. Valve Hall shall have Air aspiration system (fast and early smoke detection system) Suitable Infra-Red (IR) detector to detect the flashover inside the Valve Hall shall also be provided. The Valve hall wall shall be suitable for minimum 3 hour fire rating.
- 22. Testing and trial Operation:** All equipment / component including Thyristor valves, Converter Transformers, smoothing reactors, EHV DC Transformer bushings and wall bushings shall be subjected to Type tests, Routine tests, Factory Acceptance Test (FAT), Site Acceptance Test (SAT) as per relevant IS /

IEC/ IEEE as applicable. The SAT shall consist of sub-system & system tests and shall be carried out after installation of equipment at site. The subsystem tests cover the major sub-system like valve cooling, AC&DC filters, HVDC converter, auxiliary systems, communication etc. After completion of sub-system tests, system tests covering power transmission tests, transient & dynamic control tests, measurement of electric field and RFI etc. shall be conducted. After completion of all system tests, final trial operation of the HVDC System shall be carried out for uninterrupted continuous period of normal operation of not less than 10 days during which the converter equipment shall be fully operational.

23. Performance Guarantee:

(a) The power Transmission Capacity:

The rated power transmission capacity shall be defined and guaranteed at inverter end of AC yard and rated transmission voltage shall be defined at the rectifier end. The reverse Power transmission capacity shall also be indicated.

(b) HVDC System losses:

The Guaranteed losses of HVDC transmission shall include the no load loss and equivalent load loss. The equivalent load loss is the sum of load losses at specific loadings multiplied by weightage factors as per expected loading cycle. The Guaranteed losses shall be verified as per IEC 61803. No load loss shall be guaranteed corresponding to converter transformer set at principal tap with nominal AC system voltage and nominal frequency at 40⁰ C ambient temperature.

(c) The system shall meet various harmonic performance parameters on both AC Side and DC side.

(d) HVDC Reliability and Availability:

1	Overall Energy availability of HVDC scheme (a) Overall Performance (b) Excluding transformer failure	Not less than 97% Not less than 98%
2	Forced Energy Unavailability (FEU)	Not more than 0.6%
3	Schedule Energy Unavailability (SEU)	Not more than 1%
4	Single Pole outage per pole per station per year	Not more than 8 (with average outage duration of 7.5 hours)
5	Bipole outage per station per year	Not more than 0.2 (with average outage duration of 8 hours)

24. Applicable Standards:

All equipment and material shall be designed, manufactured, tested and commissioned in accordance with latest Indian Standards / IEC or IEEE standards, / CIGRE guidelines and the Acts, Rules, Laws and Regulations of India. Some of them are as follows:

- (a) IEC 60633 - Terminology for High-Voltage Direct Current (HVDC) transmission
- (b) IEC 60700 (1-2) - Thyristor valves for High Voltage Direct Current (HVDC) power transmission
- (c) IEC 60919 (1-3) - Performance of High-Voltage Direct Current (HVDC) systems with line-commutated converters
- (d) IEC 61803 - Determination of power losses in High-Voltage Direct Current (HVDC) converter stations with line-commutated converters
- (e) IEC-61975 - High-Voltage Direct Current (HVDC) installations - System tests
- (f) IEC-62001 (1-4) - High-Voltage Direct Current (HVDC) systems - Guidance to the specification and design evaluation of AC filters
- (g) IEC 65700 – Bushings for DC Applications
- (h) IEC 60071 (1- 5) – Insulation Coordination
- (i) CIGRE report 33/14-05: “Application guide for metal oxide arresters without gaps for HVDC converter stations”
- (j) IEC 61378 - Converter transformers
- (k) IEC – 60076-6 Power transformers - Part 6: Reactors
- (l) IEC 60871-(1-4) Shunt capacitors for a.c. power systems having a rated voltage above 1000 V
- (m) IEC 60747-6 - Semiconductor devices - Part 6: Discrete devices – Thyristors
- (n) CIGRE- TB 136 1999 SC 14 TF 14.01.04 Fire aspects of HVDC thyristor valves and valve halls.

- (o) PWI/TR 115-6 Ed. 1.0 -Guidelines for the system design of HVDC project
- (p) IEC/TS 63014 Ed. 1.0 -High voltage direct current (HVDC) power transmission - System requirements for dc-side equipment - Part 1: Line-Commutated Converters
- (q) IEC/TR 63065 Ed. 1.0 - Guidelines for operation and maintenance of HVDC converter station
- (r) IEC/TR 62978 Ed. 1.0 -Guidelines on Asset Management for HVDC Installations
- (s) IEC/IEEE:60076-57-129 – Transformer for HVDC applications
- (t) IEC60099-9-Part -9, Surge Arresters – Metal Oxide Surge Arresters without gaps for HVDC converter stations

Part-B

Technical Details of Voltage Source Converter (VSC) based HVDC Terminals/Stations

1. **General:** The VSC based HVDC system shall use Insulated Gate Bipolar Transistor (IGBT) technology and shall be considered primarily for the following without concerns about the available Short Circuit Ratio:
 - (a) Point to point transmission scheme (overhead / cable)
 - (b) Back to Back transmission scheme
 - (c) Parallel operation with LCC HVDC system
 - (d) Multi-terminal system
 - (e) Supplying load in isolated areas
2. **Design Consideration:** The following minimum technical information shall be required for VSC based HVDC installation:
 - (a) The amount of active power to be transmitted
 - (b) The reactive power requirement at each terminal for dynamic support of AC network
 - (c) The transmission distance and type of DC transmission line (cable or overhead line or a combination thereof)
 - (d) Length of overhead line, length of cable as applicable
 - (e) DC transmission voltage
 - (f) Reliability and availability requirement
 - (g) Size and weight of the Converter transformers for transport
 - (h) Power system characteristics of sending and receiving end system to which VSC transmission system is connected, including all the parallel transmission system, if any
 - (i) Steady State performance requirements
 - (j) Dynamic performance requirements, including control and monitoring facilities
 - (k) Transient performance
 - (l) The converter configuration like Symmetrical Monopole or Bi-Pole with DMR or Bi-Pole with Ground return etc.
3. **System Data:** The following environmental, AC & DC system information, shall be considered:
 - (a) Environmental information:
 - (i) Ambient temperature
 - (ii) Humidity, rain fall intensity
 - (iii) Geographical co-ordinates
 - (iv) Isokeraunic level
 - (v) Wind velocity
 - (vi) Seismic Level
 - (vii) Altitude above sea level
 - (viii) Pollution level
 - (ix) Soil Properties
 - (x) Solar radiation
 - (xi) Snow/ice data
 - (b) AC System information:

- (i) Short Circuit Ratio and Minimum & Maximum Short Circuit Current:
 - (ii) System voltage and frequency
 - (iii) Harmonic impedance characteristics
 - (iv) System Voltage distortion
 - (v) System Grounding
 - (vi) Torsional mode frequencies (Sub-synchronous Resonance)
 - (vii) AC system topology
 - (viii) AC system equivalent
 - (ix) MVAR exchange with AC system
 - (x) Data pertaining to generators in the vicinity
 - (xi) Frequency variation range
 - (xii) System voltage unbalance
- (c) HVDC line / Cable:
- I. In case of overhead lines, the detail information shall include
 - (i) Line length
 - (ii) Conductor type
 - (iii) Conductor configuration
 - (iv) Rated DC Voltage
 - (v) Impulse withstand levels
 - (vi) Tower configuration for the Pole conductors & Dedicated Metallic Return (DMR) conductor or earth electrode
 - (vii) Tower footing impedance
 - (viii) Earth electrode station (if applicable)
 - II. In case of Cable, the detail information shall include
 - (i) Cable length
 - (ii) Cable size and insulation
 - (iii) Rated and maximum DC voltage
 - (iv) Current rating
 - (v) Capacitance and resistance at rated load
 - (vi) Impulse withstand levels
- 4. System Studies:** HVDC control parameters and equipment shall be designed by carrying out the following studies at different stages of the project:
- a) Design Studies
 - (i) Main Circuit Parameter
 - (ii) AC Over-Voltage [DOV, Temporary Over Voltage and Transient Over Voltage]
 - (iii) DC Over-voltage
 - (iv) Low Frequency Characteristics
 - (v) High Frequency Characteristics
 - (vi) Transient Stresses
 - (vii) External Insulation and Clearances
 - (viii) Insulation co-ordination
 - (ix) AC Circuit Breaker Requirements
 - (x) Equipment design studies
 - (xi) Station Earthing
 - (xii) Lightning Protection
 - b) Performance Studies
 - (i) Losses
 - (ii) Electrical Interference

- (iii) Electric and Magnetic Fields
- (iv) Reliability, Availability and Maintainability
- (v) Audible Noise
- c) Network Studies
 - (i) Stability, Modulation and Frequency Control
 - (ii) AC System Equivalents
 - (iii) Sub-Synchronous Torsional Interaction
 - (iv) Black start islanded operation studies

5. HVDC Station Equipment- A typical HVDC station shall consist of the following main equipment:

- (a) VSC valves and associated equipment & cooling system
- (b) Interface transformers;
- (c) Converter reactors;
- (d) DC reactors*;
- (e) Phase reactor*
- (f) DC filters*;
- (g) AC filters*;
- (h) Radio frequency interference filters*
- (i) Valve side harmonic filters*
- (j) Control and protection of AC and DC side;
- (k) Electrical and mechanical auxiliaries;
- (l) Earth electrode station*;
- (m) AC switchyard equipment;
- (n) DC switchyard equipment;
- (o) AC and DC Surge arresters;
- (p) AC and DC Measuring instruments;
- (q) Communication system between converter stations (OPGW/ PLCC).
- (r) Wall bushings (AC and DC side)
- (s) Insertion resistors
- (t) High Impedance Grounding of Symmetrical Monopoles

* if applicable

6. Converter Station AC Yard, Transformer yard and Valve Hall

- (a) **AC bus equipment-** The AC circuit breakers, disconnectors, instrument transformers and other switchyard equipment shall be similar to that of the equipment specified under Regulation 46. The bus rating shall be adopted according to the calculation considering single bus outage. The switching duties of the AC circuit breakers will be decided based on transient over voltage study, insulation co-ordination, AC filters (if applicable) and protection studies.
- (b) **Insertion resistors-** Insertion resistors shall be used to limit inrush currents during energization of the converter. They shall be located on the primary or converter side of the interface transformer. After the energization process is completed the resistor shall be bypassed by a disconnector or bypass switch.
- (c) **AC harmonic filters (If required)**
 - (i) State-of-the-art Voltage-Sourced Converters (VSC) in modular multi-level converter (MMC) topologies generate nearly no or only a small amount of harmonics. The need of ac harmonic filters shall be evaluated based on study results. Suitable redundancy shall be provided in the filters to avoid reduction of transmission capacity of the station due to outage of any particular sub-bank for maintenance.
 - (ii) If filters are required, the main filter equipment namely capacitors, reactors and resistors shall comply with the requirements of following IEC or or Equivalent IS as follows:
 - Capacitors : IEC 60871;
 - Reactors : IEC 60076-6;

Resistors : IEC 62001/ As per owner's specification.

- (d) If study results confirm the need for power line carrier (PLC) filtering, PLC filters shall be installed close to interface transformers to mitigate high frequency harmonic currents generated during IGBT switching.

(e) **Interface transformers**

- (i) The interface transformers shall be single phase units. For smaller HVDC ratings (e.g. back-to-back schemes) three phase transformers can be used. The transformers shall comply with the requirements of relevant standards. The maximum flux density in any part of the core and yoke at the rated MVA, voltage and frequency shall be such that under 10% continuous over voltage condition it does not exceed 1.9 Tesla.
- (ii) The insulation level for the transformer AC (line side) windings and bushings shall be as given at Regulation 45 and insulation levels of the valve side windings shall be determined in accordance with studies. The impedance of the transformer shall be determined in accordance with studies and variations in impedance shall be as per requirements of relevant standards.
- (iii) Interface transformers shall be equipped with On Load Tap Changer (OLTC) mechanism, Metal Oxide Varistor (MOV) devices (if applicable) shall be provided between tap leads of the OLTC. The OLTC tap steps shall be determined in accordance with the operating strategy of the converters.
- (iv) The requirements of soak pits and firewalls shall be in line with Regulation 46

(f) **VSC valves**

- (i) The IGBT valves shall be complete with associated auxiliaries and cooling system. The VSC valves shall be tested as per IEC 62501. Adequate redundant devices shall be provided to enable continued operation in case of failure of an individual component. Advanced converter topologies shall be used to reduce losses of VSC based HVDC converters.
- (ii) The VSC valves shall be water cooled, air insulated and indoor type. The valves shall be either suspended type or floor mounted type depending upon the operating DC voltage and seismic requirements.
- (iii) The VSC valve cooling system shall use de-ionized water circulated in a closed cycle. The cooling unit shall comprise of a de-ionizer, expansion vessel, conductivity, flow and temperature sensors, mechanical filters, etc. Adequate redundancies shall be provided. Necessary control and monitoring including tripping of the HVDC system in case of cooling system failure shall be provided. In case of Sub-Zero Temperature prevailing at site, suitable method e.g. use of anti-freezing medium etc. shall be adopted.
- (iv) The valves shall be placed in the valve hall which shall have a positive pressure over atmospheric pressure and humidity control through HV AC system.

7. Converter Station DC Yard

- (a) The DC yard shall comprise of equipment such as HVDC bushings, DC reactors, DC filters (if applicable), DC current and voltage measuring instruments and switchgear.
- (b) The creepage distance for DC yard and other areas shall be maintained as indicated below:

Insulator type	Under light and medium pollution	Under heavy and very heavy pollution
Indoor porcelain or composite insulators for valve hall (other than valves) and indoor smoothing reactor area (if applicable)	20 mm/kV	20 mm/kV
IGBT Valves	14mm/kV	14mm/kV
Indoor DC yard (other than smoothing reactor)	NA	30 mm/kV
Outdoor porcelain insulators or bushings with RTV coating	50 mm/kV	60 mm/kV
Outdoor composite insulators or bushings	50 mm/kV	50 mm/kV

Note:

- (i): RTV silicone coating shall be in accordance with IS 11310.

(ii): The above values of creepage distance are applicable for an altitude upto 1000m above sea level. For altitude above 1000m above sea level, necessary altitude correction factor as per relevant IS/IEC shall be considered.

- (c) **DC wall bushing** -DC wall bushings, used for electrical connection between the equipment inside the valve hall and the outdoor DC yard shall be of polymer housing as per relevant standards.
- (d) **DC Reactors** - The DC reactors (if used) shall be of air core type. The reactors shall generally comply with relevant standards and shall also have been subjected to DC tests as per their application.
- (e) **DC Voltage and Current Measuring Devices**- The DC voltage measuring equipment shall be installed at each pole. The DC measuring equipment at pole and neutral bus shall be suitably located based on the control philosophy and different protection zones such that complete pole and neutral equipment are protected.
- (f) **DC Filters**- If required DC harmonic filters shall be provided in DC yard to limit harmonic voltages present on the DC lines (pole lines and electrode lines).

8. Control and Protection

(a) Control

(i) DC converter terminals shall be either manned by operator or controlled by remote Operation of SCADA system. The control system hierarchy shall be as follows:

- (A) Station/ Bipole* Control (*only for bipolar arrangements, functionality offered as part of station control also acceptable);
- (B) Converter /Pole Control;
- (C) MMC control;

(ii) The HVDC converter shall have control features including but not limited to the following:

- (D) Active power control
- (E) Reactive power control;
- (F) AC Voltage control
- (G) DC Voltage control
- (H) Frequency controller (if applicable);
- (I) Power modulation control (if applicable);
- (J) Runback and run-up functions (if applicable);
- (K) Power Oscillation Damping (POD)
- (L) Sub synchronous torsional interaction damping control (if applicable);

(b) Protection

(i) The protection equipment shall be designed to be fail-safe and shall ensure high security to avoid mal-operation/ unwanted shutdown due to protection equipment failures.

(ii) HVDC system protection shall consist of following protection zones:

- (A) AC System Protection zone
- (B) Converter or Interface Transformer Protection Zone
- (C) Secondary Busbar Protection Zone
- (D) Converter Protection Zone
- (E) DC Busbar Protection Zone
- (F) DC line & cable Protection Zone

(iii) Protection system shall have two redundant systems including the following protections.

- (A) AC over- and under-voltage protection
- (B) Over- and under-frequency protection
- (C) AC busbar differential protection;
- (D) Insertion resistor overload protection
- (E) AC overcurrent protection
- (F) Converter overcurrent protection
- (G) Converter overload protection

- (H) Converter module differential protection
- (I) Converter current differential protection
- (J) DC voltage imbalance protection
- (K) DC busbar differential protection
- (L) DC link differential protection
- (M) DC over- and under-voltage protection
- (N) Electrode line monitoring and protection (if applicable)
- (O) DC filter protection (if applicable)
- (P) AC filter protection (if applicable)
- (Q) AC connection Harmonic protection
- (R) Phase current unbalance
- (S) Protection. Block Failure or Repetitive Blocking failure protection
- (T) Converter arm harmonic protection
- (U) DC Line + cable Overcurrent Protection
- (V) DC Line + cable harmonic protection

- (c) Software based controls and protection shall be used to permit flexibility in effecting modifications. Protection and controls shall be duplicated for reliability. Protection shall be provided by numerical relays to suit the requirement of the HVDC system.
- (d) For bipolar schemes the following operation modes shall be possible:
 - (i) Balanced/unbalanced bipolar operation;
 - (ii) Monopolar operation with metallic return;
 - (iii) Monopolar operation with ground return / DMR
- (e) The 'Sequence of events' recorder, transient fault recorder, on-line DC Line fault locator, GPS system, visual display system, operator control protection and monitoring system shall be a part of the HVDC system.

9. Telecommunication- For smooth operation of the HVDC system, communication network with high reliability and availability shall be provided for transmission of control and protection signals between the two or more (in case of multi-terminal DC) HVDC terminals. There shall be main and back up communication link. The main communication link shall be through OPGW and back up communication link shall be either through OPGW or PLCC.

10. Grounding & Safety

- (a) The design of the grounding system shall be based on relevant IS/ IEEE.
- (b) In order to prevent adverse effect (overheating due to induced circulating current) of magnetic field of air core reactors, special care shall be taken such that no closed loops are formed by the earthing conductors and in reinforcement bars of the foundation. Air core reactor manufacturer's guidelines shall be followed.
- (c) The electrical safety clearances for the dc side shall not be less than the clearances applicable for an ac switchyard at the equivalent BIL level.
- (d) The total electric field excluding space charge at ground level shall be as prescribed in relevant standards.
- (e) Fencing and electrical & mechanical key interlocking arrangements shall be provided for valve halls, smoothing reactor area, AC and DC filter areas, DC LFL Capacitor Area and for equipment mounted directly on ground without suitable height of steel structure.

11. Dedicated Metallic Return (DMR) or Earth Electrode –The current return path of a bipolar configuration shall be either via a Dedicated Metallic Return (DMR) conductor or via earth return using earth electrodes at both converter terminals. DMR mode shall be preferred if it is difficult to identify a suitable site for earth electrode station. If earth electrodes are to be used the following requirements shall also be considered:

- (a) The earth electrode station shall be connected to the terminal by means of an overhead transmission line or underground cable. The earth electrode shall be located at a minimum distance of approximately 25 km (radial distance) away from the converter station. It shall be designed to operate continuously at full load as per the requirement. The electrodes shall be designed for both types of operation, anodic and

cathodic.

- (b) The thorough soil investigation shall be carried out for shallow & deep resistivity, thermal conductivity and moisture content etc. at the proposed location.
- (c) The earth electrode station shall have sub-electrodes. The maximum current density at the sub-electrode surface, i.e. the boundary between backfill (coke) and soil shall not exceed 0.5 A/m² in clay soils. The number of sub-electrodes shall be determined considering that 30% of the sub-electrodes are not available. The amp hour rating for earth electrode shall be selected based on the study for duration of earth electrode current and the service life of the earth electrode station.
- (d) The earth electrode station shall not affect the nearby electrical installation, buried metallic pipelines, oil & gas pipelines, and railway lines etc.
- (e) Each ground electrode shall have a resistance of less than or equal to 0.3 ohm (both working as an anode and cathode) at maximum design ambient temperature.
- (f) Touch voltage (V_t)- The touch voltage between any grounded metallic object in the electrode station (including the connection to the overhead electrode line) and any point in the soil which can be touched by a person simultaneously shall not exceed 40 V when the electrode is operating at continuous loading.
- (g) Step Voltage (V_s)- The step voltage at ground level above the ground electrode when the electrode is operating at the temporary over-load rating shall not exceed (V_s) = 5.0 + 0.03 ρ_s, where ρ_s is the local surface resistivity in ohm-m.
- (h) The above values of resistance: touch and step voltages would depend on the actual geophysical characteristics of the soil at the place where the electrode station is located. Suitable mitigation measures shall have to be adopted in case the site has high resistivity.
- (i) In addition, following interference effects shall be considered.
 - (i) Corrosion of buried metallic structure of foundations
 - (ii) DC Current in power lines, especially via power transformer neutrals (risk of saturation of transformers).
 - (iii) DC current in telephone circuits.
 - (iv) Effect on the cathodic protection of the buried metallic pipe lines.

12. Cables: Fibre optic cables conforming to IEC – 60793 shall be used to transmit the signals to and from various equipments and panels located in the AC/DC switchyards, Valve Halls, control rooms, valve cooling rooms, etc.

13. Auxiliary Power Supply System: The auxiliary power supply system shall have the following:

- (a) Highly reliable duplicated supply sources from two separate sources,–with automatic change-over facilities.
- (b) Completely separated secondary distribution (415 V) systems for the auxiliaries of each converter.
- (c) Duplicated supply by two different 415 V power sources to essential loads (e.g., cooling pumps, fans, heat exchangers, etc.).
- (d) Provision of reliable or standby power supply system to meet essential and emergency loads and which starts-up automatically in case of loss of all the normal and stand-by supply sources. One reliable or standby power supply system per converter shall be provided at all the converter stations.
- (e) Parallel operation between station service transformers shall not be permitted at any voltage level in order to limit fault currents, prevent back feed into the AC bus and to ensure independence of supply sources. Also parallel operation shall not be permitted between transformers and the reliable or standby power supply system.
- (f) Suitable protection on all primary MV and LV supply connections
- (g) All auxiliaries shall give rated output at voltage variation of ±10% and frequency variation of -5% to +3%.
- (h) The station services DC system shall cater to the following:
 - (i) DC loads of HVAC and HVDC switchyards, auxiliary services control, valve and pole control, protection circuits, communication system loads, etc.
 - (ii) An indispensable minimum lighting load shall be connected to the station DC system.
- (i) The 220VDC supply system(s) per converter shall consist of at least two independent DC systems; each system consisting of one charger, one battery bank and one distribution panel.

- (j) A 48 V DC system consisting of two battery sets, two Battery chargers and two distribution boards shall also be supplied for communication panels (wherever supplied).

14. Fire Detection, Alarm and Protection system: A comprehensive fire detection, alarm and protection system as per Central Electricity Authority (Measures relating to Safety and Electric Supply) Regulations, 2010 or any successor or subsequent Regulations shall be provided. Valve Hall shall have Air aspiration system (fast and early smoke detection system). Suitable Infra-Red (IR) detector to detect the flashover inside the Valve Hall shall also be provided. The Valve hall wall shall be suitable for minimum 3 hour fire rating.

15. Testing and trial Operation: All equipment / component including Thyristor valves, Converter Transformers, smoothing reactors, EHV DC Transformer bushings and wall bushings shall be subjected to Type tests, Routine tests, Factory Acceptance Test (FAT), Site Acceptance Test (SAT) as per relevant IS / IEC/ IEEE as applicable. The SAT shall consist of sub-system & system tests and shall be carried out after installation of equipment at site. The subsystem tests cover the major sub-system like valve cooling, AC&DC filters, HVDC converter, auxiliary systems, communication etc. After completion of sub-system tests, system tests covering power transmission tests, transient & dynamic control tests, measurement of electric field and RFI etc. shall be conducted. After completion of all system tests, final trial operation of the HVDC System shall be carried out for uninterrupted continuous period of normal operation of not less than 10 days during which the converter equipment shall be fully operational.

16. Performance Guarantee:

- (a) The power Transmission Capacity:

The rated power transmission capacity shall be defined and guaranteed at inverter end of AC yard and rated transmission voltage shall be defined at the rectifier end. The reverse Power transmission capacity shall also be indicated.

- (b) HVDC System losses:

The Guaranteed losses of HVDC transmission shall include the no load loss and equivalent load loss. The equivalent load loss is the sum of load losses at specific loadings multiplied by weightage factors as per expected loading cycle. The Guaranteed losses shall be verified as per IEC 62751-1 & IEC 62751-2. No load loss shall be guaranteed corresponding to converter transformer set at principal tap with nominal AC system voltage and nominal frequency at 40^o C ambient temperature.

- (c) The system shall meet various harmonic performance parameters on both AC Side and DC side.

- (d) HVDC Reliability and Availability:

1	Overall Energy availability of HVDC scheme (c) Overall Performance (d) Excluding transformer failure	Not less than 97% Not less than 98%
2	Forced Energy Unavailability (FEU)	Not more than 0.6%
3	Schedule Energy Unavailability (SEU)	Not more than 1%
4	Single Pole outage per pole per station per year	Not more than 8 (with average outage duration of 7.5 hours)
5	Bipole outage per station per year	Not more than 0.2 (with average outage duration of 8 hours)

17. Applicable Standards: All equipment and material shall be designed, manufactured, tested and commissioned in accordance with latest Indian Standards / IEC standards, IEEE / CIGRE guidelines and the Acts, Rules, Laws and Regulations of India. Some of them are for guidance purpose as follows:

- (a) IEC 60633 - Terminology for High-Voltage Direct Current (HVDC) transmission
 (b) IEC 62747 - Terminology for Voltage Source Converters for high-voltage direct current (HVDC) transmission
 (c) IEC 62751 - Power losses in voltage sourced converter (VSC) valves for high-voltage direct current (HVDC) systems - Part 2: General Requirement
 (d) IEC 62751 - Power losses in voltage sourced converter (VSC) valves for high-voltage direct current (HVDC) systems - Part 2: Modular multilevel converters

- (e) IEC 62543 - High Voltage Direct Current (HVDC) Power transmission using Voltage Source Converters (VSC)
- (f) IEC 62501 - Voltage sourced converter (VSC) valves for high-voltage direct current (HVDC) power transmission - Electrical testing
- (g) IEC 60747-9 - Semiconductor devices - Part 9: Discrete devices – Insulated-Gate Bipolar Transistors (IGBTs)
- (h) IEC 61378 (2-3) - Converter transformers
- (i) IEC 60076-6 - Power transformers - Part 6: Reactors
- (j) IEC 60071 (1- 5) – Insulation Coordination

SCHEDULE-VII

(See sub-regulation (4) of regulation 84)

Right-of-way (ROW) for normal route, forest area, urban area, populated area and approach section near substation

<i>Voltage level</i>	<i>Configuration</i>	<i>Conductor type</i>	<i>Terrain</i>	<i>Design Span</i>	<i>String Type</i>	<i>RoW width in m (for compensation purpose)</i>
765kV D/C	Vertical	ACSR ZEBRA	Normal route without constraint	400	"I" String	67
					"V" String	
					Tension	
			Forest	300	"V" String	56
					Tension	
					Tension	
Urban area / populated area / approach section near substation	250	"V" String	54			
		Tension				
		Tension				
765kV S/C	Vertical /Delta	ACSR BERSIMIS	Normal route without constraint	400	"I" String	64
					"V" String	
					Tension	
			Forest	300	"V" String	54
					Tension	
					Tension	
Urban area / populated area / approach section near substation	250	"V" String	52			
		Tension				
		Tension				
765kV S/C	Horizontal	ACSR BERSIMIS	Normal route without constraint	400	"I" String	74
					"V" String	
					Tension	
			Forest	300	"V" String	65
					Tension	
					Tension	
Urban area / populated area /	250	"V" String	62			
		Tension				
		Tension				

			approach section near substation		Tension	
±800kV HVDC	Horizontal	ACSR Lapwing	Normal route without constraint/Forest/ Urban	400	"V" String	69
±500kV HVDC	Horizontal	ACSR Lapwing	Normal route without constraint/Forest/ Urban	400	"V" String	52
400kV D/C	Vertical	ACSR MOOSE	Normal route without constraint	400	"I" String	46
					"V" String	
					Tension	
400kV S/C	Horizontal/ Vertical	ACSR MOOSE	Normal route without constraint	400	"I" String	52
					"V" String	
					Tension	
400kV D/C	Vertical	ACSR MOOSE	Forest	300	"V" String	40
					Tension	
					Urban area / populated area / approach section near substation	
Tension						
400kV S/C	Horizontal/ Vertical	ACSR MOOSE	Normal route without constraint	400	"I" String	52
					"V" String	
					Tension	
400kV D/C	Vertical	ACSR MOOSE	Forest	300	"V" String	47
					Tension	
					Urban area / populated area / approach section near substation	
Tension						
1200kV	Horizontal	ACSR Moose	Normal route without constraint/Forest/ Urban	400	"V" String	89
220kV D/C	Vertical	ACSR ZEBRA	Normal route without constraint	350	"I" String	32
					"V" String	
					Tension	
220kV D/C	Vertical	ACSR ZEBRA	Forest	300	"V" String	28
					Tension	
					Urban area / populated area / approach section near substation	
Tension						
132kV D/C	Vertical	ACSR PANTHER	Normal route without constraint	320	"I" String	25

					"V" String Tension	
			Forest	200	"V" String Tension	21
			Urban area / populated area / approach section near substation	150	"V" String Tension	19
			Normal route without constraint	305	"I" String "V" String Tension	22
110 kV D/C		ACSR PANTHER	Forest	200	"V" String Tension	19
			Urban area / populated area / approach section near substation	150	"V" String Tension	17
66kV	Vertical	ACSR PANTHER	Normal route without constraint	250	"I" String "V" String Tension	18
			Forest	150	"V" String Tension	14
			Urban area / populated area / approach section near substation	100	"V" String	13

Note: D/c : double circuit; S/c: single circuit

RAKESH GOYAL, Secy.

[ADVT.-III/4/Exty./518/2022-23]

Note: The principal regulations were published in the Gazette of India, Extraordinary, Part III, Section 4, vide notification No. CEA/TETD/MP/R/01/2010, dated the 20th August, 2010.

RIHAND- I, II & III (RECEIPT OF COAL THROUGH DIFFERENT MODES)

	Oct-18			Nov-18			Dec-18		
	MGR 0.2%	Rail 0.8%	Total	MGR 0.2%	Rail 0.8%	Total	MGR 0.2%	Rail 0.8%	Total
Quantity of Coal	936754.29	167037.60	1103791.89	923676.36	102428.39	1026104.75	989155.90	176539.69	1165695.59
Normative shortage	1873.51	1336.30	3209.81	1847.35	819.43	2666.78	1978.31	1412.32	3390.63
Net Qty Receipt	934880.78	165701.30	1100582.08	921829.01	101608.96	1023437.97	987177.59	175127.37	1162304.96
	Oct-19			Nov-19			Dec-19		
	MGR 0.2%	Rail 0.8%	Total	MGR 0.2%	Rail 0.8%	Total	MGR 0.2%	Rail 0.8%	Total
Quantity of Coal	1210425.34	170848.90	1381274.24	1245966.77	65632.98	1311599.75	1073881.84	0.00	1073881.84
Normative shortage	2420.85	1366.79	3787.64	2491.93	525.06	3017.00	2147.76	0.00	2147.76
Net Qty Receipt	1208004.49	169482.11	1377486.60	1243474.84	65107.92	1308582.75	1071734.08	0.00	1071734.08
	Oct-20			Nov-20			Dec-20		
	MGR 0.2%	Rail 0.8%	Total	MGR 0.2%	Rail 0.8%	Total	MGR 0.2%	Rail 0.8%	Total
Quantity of Coal	1174817.92	249363.89	1424181.81	1197975.32	64507.32	1262482.64	1128144.82	23895.29	1152040.11
Normative shortage	2349.64	1994.91	4344.55	2395.95	516.06	2912.01	2256.29	191.16	2447.45
Net Qty Receipt	1172468.28	247368.98	1419837.26	1195579.37	63991.26	1259570.63	1125888.53	23704.13	1149592.66
	Oct-21			Nov-21			Dec-21		
	MGR 0.2%	Rail 0.8%	Total	MGR 0.2%	Rail 0.8%	Total	MGR 0.2%	Rail 0.8%	Total
Quantity of Coal	1097711.64	0.00	1097711.64	1153204.18	0.00	1153204.18	1240458.04	37885.02	1278343.06
Normative shortage	2195.42	0.00	2195.42	2306.41	0.00	2306.41	2480.92	303.08	2784.00
Net Qty Receipt	1095516.22	0.00	1095516.22	1150897.77	0.00	1150897.77	1237977.12	37581.94	1275559.06
	Oct-22			Nov-22			Dec-22		
	MGR 0.2%	Rail 0.8%	Total	MGR 0.2%	Rail 0.8%	Total	MGR 0.2%	Rail 0.8%	Total
Quantity of Coal	982297.46	0.00	982297.46	1217064.32	0.00	1217064.32	1118452.96	0.00	1118452.96
Normative shortage	1964.59	0.00	1964.59	2434.13	0.00	2434.13	2236.91	0.00	2236.91
Net Qty Receipt	980332.87	0.00	980332.87	1214630.19	0.00	1214630.19	1116216.05	0.00	1116216.05

Non- Tariff Income to be shared with Beneficiary for the year 2020-21

Amount in ₹

S.No.	Station Name	Net Non- Tariff Income to be considered for Sharing	Non- tariff Income to be shared (50%)
1	Singrauli Super Thermal Power Station	9,25,15,000	4,62,57,500
2	Rihand Superthermal Power Project- Stage 1	5,74,34,400	2,87,17,200
3	Rihand Superthermal Power Project- Stage 2	5,74,34,400	2,87,17,200
4	Rihand Superthermal Power Project- Stage 3	5,74,34,400	2,87,17,200
5	Unchahar Super Thermal Power Project- Stage 1	1,34,20,003	67,10,001
6	Unchahar Super Thermal Power Project- Stage 2	1,34,20,003	67,10,001
7	Unchahar Super Thermal Power Project- Stage 3	67,10,001	33,55,001
8	Unchahar Super Thermal Power Project- Stage 4	1,59,76,194	79,88,097
9	Tanda Thermal Power Project- Stage 1	43,01,840	21,50,920
10	Tanda Thermal Power Project- Stage 2	64,52,760	32,26,380
11	National Capital Dadri thermal- Stage 1	3,40,87,292	1,70,43,646
12	National Capital Dadri thermal- Stage 2	3,97,68,508	1,98,84,254
13	Auraiya Gas Power Project	64,19,200	32,09,600
14	Anta Gas Power Project	34,76,400	17,38,200
15	Dadri Gas Power Project	11,87,800	5,93,900
16	Faridabad Gas Power Project	21,35,800	10,67,900
17	Korba Super Thermal Power Project- Stage 1 & 2	9,14,44,015	4,57,22,008
18	Korba Super Thermal Power Project- Stage 3	2,17,72,385	1,08,86,192
19	Vindhyachal Super Thermal Power Project- Stage 1	4,76,95,182	2,38,47,591
20	Vindhyachal Super Thermal Power Project- Stage 2	3,78,53,319	1,89,26,660
21	Vindhyachal Super Thermal Power Project- Stage 3	3,78,53,319	1,89,26,660
22	Vindhyachal Super Thermal Power Project- Stage 4	3,78,53,319	1,89,26,660
23	Vindhyachal Super Thermal Power Project- Stage 5	1,89,26,660	94,63,330
24	Sipat Super Thermal Power Project- Stage 2	79,70,872	39,85,436
25	Sipat Super Thermal Power Project- Stage 1	1,57,82,328	78,91,164
26	Kawasgas Power Project	49,60,400	24,80,200
27	Gandhargas Power Project	31,29,800	15,64,900
28	Farakka Super Thermal Power Project- Stage 1 & 2	5,80,53,638	2,90,26,819
29	Farakka Super Thermal Power Project- Stage 3	1,81,41,762	90,70,881
30	Kahalgaoon Super Thermal Power- Stage 1	96,95,036	48,47,518
31	Kahalgaoon Super Thermal Power Station- Stage 2	1,73,12,564	86,56,282
32	Talcher Super Thermal Power Project- Stage 1	1,40,80,467	70,40,233
33	Talcher Super Thermal Power Project- Stage 2	2,81,60,933	1,40,80,467
34	Talcher Tps	70,69,200	35,34,600
35	Barh Thermal Power Plant- Stage 2	1,61,00,800	80,50,400
36	Ramagundam Super Thermal Power- Stage 1 & 2	6,03,47,700	3,01,73,850
37	Ramagundam Super Thermal Power- Stage 3	1,43,68,500	71,84,250
38	Simhadri Thermal Power Project- Stage 1	3,93,80,400	1,96,90,200
39	Simhadri Thermal Power Project- Stage 2	3,93,80,400	1,96,90,200
40	Koldam Hydro Project	10,93,200	5,46,600
41	Bongaigaon	1,37,83,200	68,91,600
42	Mauda	1,18,21,638	59,10,819
43	Mauda- Stage 2	1,56,04,562	78,02,281
44	Solapur STPP	1,36,52,400	68,26,200
45	Kudgi STPP	60,87,800	30,43,900
46	Lara STPP	62,24,800	31,12,400
47	Gadarwara Super Th Power Plant	1,07,29,600	53,64,800
48	Darlipalli	55,00,200	27,50,100
49	Khargone	78,86,800	39,43,400
50	Barauni Thermal Power Station- Stage 1	16,91,800	8,45,900
51	Barauni Thermal Power Station- Stage 2	38,45,000	19,22,500
	Total	1,15,74,28,000	57,87,14,000

For Management (NTPC)

Thota Vinod Kumar

Thota Vinod Kumar
AGM (Finance Commercial)

For R.M. Bansal
Cost Accountants
FRN- 000022

R.M. Bansal
R.M. Bansal
(Partner)
M.No. 3323

UDIN2105323 ZZ1SR7VKJW7
Date_03-12-21

अर्थ प्रशासक (वित्त/व्यापार)
Asst. General Manager (Finance/Commercial)
एन. टी. सी. लिमिटेड, NTPC Limited

NTPC Ltd.

Non-Tariff income to be shared with Beneficiary for the year 2021-22

S.No.	Station Name	Amount in ₹	
		Net Non-Tariff Income to be considered for Sharing	Non-tariff Income to be shared (50%)
1	Singrauli Super Thermal Power Station	11,18,44,600	5,59,22,300
2	Rihand Superthermal Power Project- Stage 1	4,50,25,800	2,25,12,900
3	Rihand Superthermal Power Project- Stage 2	4,50,25,600	2,25,12,800
4	Rihand Superthermal Power Project- Stage 3	4,50,25,600	2,25,12,800
5	Unchahar Super Thermal Power Project- Stage 1	1,92,11,400	96,05,700
6	Unchahar Super Thermal Power Project- Stage 2	1,92,11,600	96,05,800
7	Unchahar Super Thermal Power Project- Stage 3	96,05,800	48,02,900
8	Unchahar Super Thermal Power Project- Stage 4	2,28,71,000	1,14,35,500
9	Tanda Thermal Power Project- Stage 1	84,17,000	42,08,500
10	Tanda Thermal Power Project- Stage 2	2,21,03,400	1,10,51,700
11	National Capital Dadri thermal- Stage 1	57,01,200	28,50,600
12	National Capital Dadri thermal- Stage 2	2,55,13,400	1,27,56,700
13	Auraiya Gas Power Project	61,54,800	30,77,400
14	Anta Gas Power Project	68,72,400	34,36,200
15	Dadri Gas Power Project	11,55,400	5,77,700
16	Feridabad Gas Power Project	29,18,400	14,59,200
17	Korba Super Thermal Power Project- Stage 1 & 2	11,87,75,200	5,93,87,600
18	Korba Super Thermal Power Project- Stage 3	2,82,79,800	1,41,39,900
19	Vindhyachal Super Thermal Power Project- Stage 1	4,54,69,000	2,27,34,500
20	Vindhyachal Super Thermal Power Project- Stage 2	3,60,86,600	1,80,43,300
21	Vindhyachal Super Thermal Power Project- Stage 3	3,60,86,600	1,80,43,300
22	Vindhyachal Super Thermal Power Project- Stage 4	3,60,86,600	1,80,43,300
23	Vindhyachal Super Thermal Power Project- Stage 5	1,80,43,200	90,21,600
24	Sipat Super Thermal Power Project- Stage 2	1,40,72,800	70,36,400
25	Sipat Super Thermal Power Project- Stage 1	2,78,64,400	1,39,32,200
26	Kawasgas Power Project	47,13,800	23,56,900
27	Gandhargas Power Project	77,01,000	38,50,500
28	Farakka Super Thermal Power Project- Stage 1 & 2	3,28,32,600	1,64,16,300
29	Farakka Super Thermal Power Project- Stage 3	1,02,60,200	51,30,100
30	Kahalgaoon Super Thermal Power- Stage 1	2,10,90,600	1,05,45,300
31	Kahalgaoon Super Thermal Power Station- Stage 2	3,76,62,000	1,88,31,000
32	Talcher Super Thermal Power Project- Stage 1	2,79,63,800	1,39,81,900
33	Talcher Super Thermal Power Project- Stage 2	5,59,27,400	2,79,63,700
34	Barh Thermal Power Plant- Stage 1	72,95,000	36,47,500
35	Barh Thermal Power Plant- Stage 2	3,80,38,600	1,90,19,300
36	Ramagundam Super Thermal Power- Stage 1 & 2	9,06,49,400	4,53,24,700
37	Ramagundam Super Thermal Power- Stage 3	2,15,83,200	1,07,91,600
38	Simhadri Thermal Power Project- Stage 1	3,46,84,000	1,73,42,000
39	Simhadri Thermal Power Project- Stage 2	3,46,84,000	1,73,42,000
40	Koldam Hydro Project	27,14,600	13,57,300
41	Bongaigaon	66,83,200	33,41,600
42	Mauda	98,34,200	49,17,100
43	Mauda- Stage 2	1,29,81,000	64,90,500
44	Solapur STPP	2,45,76,400	1,22,88,200
45	Kudgi STPP	73,77,800	36,88,900
46	Lara STPP	1,40,40,000	70,20,000
47	Gadarwara Super Th Power Plant	1,03,03,000	51,51,500
48	Darlipalli	2,38,38,000	1,19,19,000
49	Khargone	1,06,69,800	53,34,900
50	Barauni Thermal Power Station- Stage 1	56,17,800	28,08,900
51	Barauni Thermal Power Station- Stage 2	1,80,49,800	90,24,900
	Total	1,32,91,92,800	66,45,96,400

For
Management (NTPC)

Thota Vinod Kumar

Thota Vinod Kumar
GM (Finance Commercial)



For R.M. Bansal
Cost Accountants
FRN 000022

R.M. Bansal
Shri R.M. Bansal
(Partner)
Membership No. 3323

UDIN 2203323ZZDHSWQF2CL

Date - 07-06-22

NTPC Ltd.

Non-Tariff Income to be shared with Beneficiary for the year 2023-23

Amount in ₹

S.No.	Station Name	Net Non-Tariff Income to be considered for Sharing	Non-tariff Income to be shared (50%)
1	Singrauli Super Thermal Power Station	4,37,94,600	2,18,97,300
2	Rihand Superthermal Power Project- Stage 1	8,10,26,600	4,05,13,300
3	Rihand Superthermal Power Project- Stage 2	8,10,26,400	4,05,13,200
4	Rihand Superthermal Power Project- Stage 3	8,10,26,400	4,05,13,200
5	Udchahar Super Thermal Power Project- Stage 1	56,58,600	28,29,300
6	Udchahar Super Thermal Power Project- Stage 2	56,58,600	28,29,300
7	Udchahar Super Thermal Power Project- Stage 3	28,29,400	14,14,700
8	Udchahar Super Thermal Power Project- Stage 4	67,36,400	33,68,200
9	Tanda Thermal Power Project- Stage 1	41,25,200	20,62,600
10	Tanda Thermal Power Project- Stage 2	1,23,75,800	61,87,900
11	National Capital Dadri thermal- Stage 1	14,31,94,600	7,15,97,300
12	National Capital Dadri thermal- Stage 2	16,70,60,400	8,35,30,200
13	Aaralya Gas Power Project	32,34,200	16,17,100
14	Arta Gas Power Project	56,49,000	28,24,500
15	Dadri Gas Power Project	9,89,800	4,94,900
16	Paridabad Gas Power Project	25,66,400	12,83,200
17	Korba Super Thermal Power Project- Stage 1 & 2	9,95,17,600	4,97,58,800
18	Korba Super Thermal Power Project- Stage 3	2,26,94,600	1,13,47,300
19	Vindhyachal Super Thermal Power Project- Stage 1	4,18,19,600	2,09,09,800
20	Vindhyachal Super Thermal Power Project- Stage 2	3,31,90,400	1,65,95,200
21	Vindhyachal Super Thermal Power Project- Stage 3	3,31,90,400	1,65,95,200
22	Vindhyachal Super Thermal Power Project- Stage 4	3,31,90,400	1,65,95,200
23	Vindhyachal Super Thermal Power Project- Stage 5	1,65,95,200	82,97,600
24	Sipat Super Thermal Power Project- Stage 2	6,76,15,400	3,38,07,700
25	Sipat Super Thermal Power Project- Stage 1	13,18,78,600	6,59,39,300
26	Kawagas Power Project	43,10,200	21,55,100
27	Gandhargas Power Project	11,38,000	5,69,000
28	Parakka Super Thermal Power Project- Stage 1 & 2	3,78,23,800	1,89,11,900
29	Parakka Super Thermal Power Project- Stage 3	1,18,20,000	59,10,000
30	Kahalgau Super Thermal Power- Stage 1	3,91,41,600	1,95,70,800
31	Kahalgau Super Thermal Power Station- Stage 2	6,98,95,800	3,49,47,900
32	Talcher Super Thermal Power Project- Stage 1	8,41,67,200	4,20,83,600
33	Talcher Super Thermal Power Project- Stage 2	16,83,34,400	8,41,67,200
34	Bath Thermal Power Plant- Stage 1	63,50,600	31,75,300
35	Bath Thermal Power Plant- Stage 2	1,37,01,200	68,50,600
36	Ramagundam Super Thermal Power- Stage 1 & 2	8,37,34,400	4,18,67,200
37	Ramagundam Super Thermal Power- Stage 3	1,98,36,800	99,18,400
38	Simhadri Thermal Power Project- Stage 1	1,64,28,600	82,14,300
39	Simhadri Thermal Power Project- Stage 2	1,64,28,600	82,14,300
40	Koldam Hydro Project	10,94,800	5,47,400
41	Bonggaon	1,22,73,000	61,36,500
42	Mouda	1,06,96,800	1,03,48,400
43	Mouda- Stage 2	1,73,18,800	1,36,59,800
44	Solapur STPP	1,50,01,400	75,00,700
45	Rudgi STPP	1,40,90,000	70,45,000
46	Lars STPP	1,38,88,600	1,14,44,300
47	Gadawara Super Th Power Plant	1,19,91,000	1,09,85,500
48	Daripalli	59,85,100	29,92,600
49	Khargone	27,03,000	13,51,500
50	Borauni Thermal Power Station- Stage 1	16,87,100	8,43,600
51	Borauni Thermal Power Station- Stage 2	26,69,400	13,34,700
52	Nabinagar Super Thermal Power Station- Stage 1	5,90,19,400	2,95,09,700
53	Muzaffargarh TPS (Kanti)- Stage 2	28,39,600	14,19,800
		1,91,71,18,600	95,85,59,000

For
Management (NTPC)

[Signature]

Thota Vinod Kumar
GM (Finance Commercial)

For R.J. Goel & Co.,
Cost Accountants



UDIN: 23142562256BF0HJSM

NTPC Limited

Non-tariff income to be shared with beneficiaries for the year 2023-24

S. DHAL & CO.
COST ACCOUNTANTS

Sl No.	Station Name	Net Non-tariff income to be considered for sharing	Non-tariff income to be shared (50%)
1	Setsraadi Super Thermal Power Station	25,64,04,400	12,82,02,200
2	Rihand Superthermal Power Project- Stage 1	6,32,12,600	3,16,06,300
3	Rihand Superthermal Power Project- Stage 2	6,32,12,800	3,16,06,400
4	Rihand Superthermal Power Project- Stage 3	6,32,12,600	3,16,06,300
5	Unchahar Super Thermal Power Project- Stage 1	1,13,29,000	56,64,500
6	Unchahar Super Thermal Power Project- Stage 2	1,13,29,000	56,64,500
7	Unchahar Super Thermal Power Project- Stage 3	56,64,600	28,32,300
8	Unchahar Super Thermal Power Project- Stage 4	1,34,87,000	67,43,500
9	Tanda Thermal Power Project- Stage 1	1,13,91,500	56,96,800
10	Tanda Thermal Power Project- Stage 2	3,41,80,600	1,70,90,300
11	National Capital Dabri thermal- Stage 1	8,80,64,800	4,40,32,400
12	National Capital Dabri thermal- Stage 2	10,17,92,600	5,08,96,300
13	Aumya Gas Power Project	15,60,600	7,80,300
14	Arza Gas Power Project	15,59,000	7,79,500
15	Dabri Gas Power Project	6,11,400	3,05,700
16	Fardabad Gas Power Project	54,37,200	27,18,600
17	Korba Super Thermal Power Project- Stage 1 & 2	16,04,42,400	8,02,21,200
18	Korba Super Thermal Power Project- Stage 3	3,82,00,600	1,91,00,300
19	Vindhyachal Super Thermal Power Project- Stage 1	1,11,80,800	55,90,400
20	Vindhyachal Super Thermal Power Project- Stage 2	2,63,34,000	1,31,67,000
21	Vindhyachal Super Thermal Power Project- Stage 3	2,63,34,000	1,31,67,000
22	Vindhyachal Super Thermal Power Project- Stage 4	2,63,34,000	1,31,67,000
23	Vindhyachal Super Thermal Power Project- Stage 5	1,31,67,000	65,83,500
24	Sicat Super Thermal Power Project- Stage 2	4,76,49,800	2,38,24,800
25	Sicat Super Thermal Power Project- Stage 3	9,43,46,000	4,71,73,000
26	Kawagas Power Project	41,55,200	20,77,600
27	Gandhargas Power Project	66,43,000	33,21,500
28	Farakka Super Thermal Power Project- Stage 1 & 2	3,83,48,200	1,91,74,100
29	Farakka Super Thermal Power Project- Stage 3	1,82,33,800	91,16,900
30	Kahalgazi Super Thermal Power- Stage 1	3,65,40,400	1,82,70,200
31	Kahalgazi Super Thermal Power- Stage 2	6,52,50,600	3,26,25,300
32	Talcher Super Thermal Power Project- Stage 1	4,90,71,000	2,45,35,500
33	Talcher Super Thermal Power Project- Stage 2	9,81,42,100	4,90,71,100
34	Barh Thermal Power Plant- Stage 1	1,34,12,400	67,06,200
35	Barh Thermal Power Plant- Stage 2	1,60,95,000	80,47,500
36	North Karanpura STPS	1,83,41,200	91,70,600
37	Ranagundem Super Thermal Power- Stage 1 & 2	13,53,93,200	6,76,96,600
38	Ranagundem Super Thermal Power- Stage 3	3,22,36,400	1,61,18,200
39	Simhadri Thermal Power Project- Stage 1	1,76,31,400	88,15,700
40	Simhadri Thermal Power Project- Stage 2	1,76,31,400	88,15,700
41	Koldam Hydro Project	19,81,000	9,90,500
42	Bongajon	3,12,54,000	1,56,27,000
43	Mauda	1,29,51,400	64,75,700
44	Mauda- Stage 2	3,70,96,000	1,85,48,000
45	Solapur STPP	1,84,92,800	92,46,400
46	Kudjer STPP	5,41,77,800	2,70,88,900
47	Lara STPP	4,88,51,000	2,44,25,500
48	Gadawana Super Th Power Plant	1,58,01,400	79,00,700
49	Daryapur	2,40,40,000	1,20,20,000
50	Khargone	1,24,11,000	62,05,500
51	Barauni Thermal Power Station- Stage 1	93,82,000	46,91,000
52	Barauni Thermal Power Station- Stage 2	4,26,45,200	2,13,22,600
53	Nabinagar Super Thermal Power Station- Stage 1	2,05,53,600	1,02,76,800
54	Muzaffarpur TPS (Kand)- Stage 2	64,30,800	32,15,400
		2,10,44,33,600	1,05,22,16,800

For Management (NTPC)

[Signature]

Thota Vinod Kumar
GM (Finance Commercial)

For S. Dhal & Co.,
Cost Accountants

[Signature]

(Sailabala Dhal)
Partner
Membership No. 22835



ଆମ ସହଯୋଗ (ଆମ ସହଯୋଗ)
Add: Odessa House (Commercial)
ମା ଚି ଚି ରିଡିଂ/ନିପିସି/ନିପିସି

UDIN - 2422835Z22V33V8100

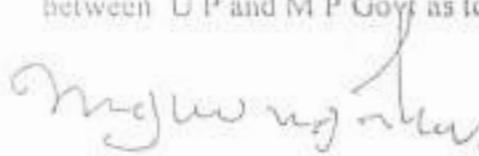
FOLLOWING WERE PRESENT :

1. Shri Naresh Agarwal, Hon'ble Minister of Energy, U.P.
2. Shri Atul Chaturvedi, Secretary (Energy), Govt. of U.P.
3. Shri G P Singh, Chairman, UPSEB
4. Shri Rajendra Singh, CMD, NTPC

PRINCIPLES FOR CONSUMPTIVE WATER CHARGES FOR FUTURE

Following principles for calculation of consumptive water charges for Rihand and Singrauli STPS to be adopted in future will be as under :-

- i) Water level may be taken on theoretical basis i.e. minimum of 830 feet and maximum of 880 feet.
- ii) T&D losses to be taken @ 12 % (Twelve percent).
- iii) Aux. Power consumption of UPSEB hydro stations viz Rihand and Obra will be taken as 0.5 %.
- iv) The energy loss will be calculated taking into consideration the actual availability of Rihand hydro station of UPSEB for the year 1998.
- v) Water charges will be payable from the date of synchronization of the units.
- vi) The per Kilowatt hour charges to be applied will be the highest average annual rate during 1998 amongst Northern Region coal based stations of NTPC and will be applicable w.e.f. 1.1.1999 for next five years. This will be revised upwards by 10% after every five years.
- vii) To provide for generation loss on account of spillover of water, the charges for consumptive use will be worked out on the basis of 3.0 (Three) times of the above rate in place of 2 (Two) times as earlier proposed. No separate payments towards spillover water will be admissible.
- viii) Water charges will be pass-through in the tariff.
- ix) M P Govt have demanded water charges from NTPC for Vindhyaçal Super Thermal Power Station. It was agreed that water charges for Vindhyaçal Super Thermal Power Station of NTPC located in M P will not be billed to NTPC till the matter is settled between U P and M P Govt as to who would be beneficiary of water charges.



(ATUL CHATURVEDI)
Secretary (Energy)
Govt. of U.P.

(RAJENDRA SINGH)
CMD
NTPC



(G P SINGH)
Chairman
UPSEB

Month wise availability of Rihand Hydro Station for year 1998

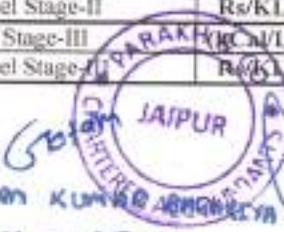
Month	Availability as intimated by UPSEB(as recorded in IOM ref No: NTPC:NRHQ :Comml: 2 Dated 26/05/99 From DGM (Comml) NRHQ Allahbad to GM (F&A).CC		No of days	Available hours
		%		
Jan-98		98.46	31	73254.24
Feb-98		96.46	28	64821.12
Mar-98		89.86	31	66855.84
Apr-98		84.02	30	60494.4
May-98		97.09	31	72234.96
Jun-98		87.84	30	63244.8
Jul-98		77.81	31	57890.64
Aug-98		79.14	31	58880.16
Sep-98		71.95	30	51804
Oct-98		88.57	31	65896.08
Nov-98		80.26	30	57787.2
Dec-98		86.6	31	64430.4
Year 1998		86.48	365	757593.8

Details of Secondary Fuel for Computation of Energy Charges

Name of the Company :	NTPC Limited
Name of the Power Station :	Rihand STPP Stage I, II & III

Sl.No.	Month	Unit	Oct-18		Nov-18		Dec-18	
			LDO	HFO	LDO	HFO	LDO	HFO
1	Opening Quantity of Oil	KL	561.95	4383.4	736.45	4263.2	3639.84	4114.2
2	Value of Opening	(Rs)	29044499	134181533	41005239	130502056	215594390	125940974
3	Quantity of Oil supplied by Oil Company	KL	233	0	3433.98	0	0	0
4	Adjustment(+/-) in quantity supplied made by Oil Company	KL	0		0.00	0	0	0
5	Oil supplied by Oil Company (1+2)	KL	233	0	3433.98	0	0	0
6	Normative Transit & Handling Losses	KL	0		0.00	0	0	0
7	Net Oil Supplied (3-4)	KL	233	0	3433.98	0	0	0
8	Amount charged by the Oil Company	(Rs)	15217996	0	206016697	0	0	0
9	Adjustment(+/-) in amount charged made by Oil Company	(Rs)						
10	Total amount charged (6+7)	(Rs)	15217996	0	206016697	0	0	0
11	Transportation charges by rail / ship / road transport	(Rs)						
12	Adjustment (+/-) in amount charged made by Railways/Transport Company	(Rs)						
13	Demurrage Charges, if any	(Rs)						
14	Cost of diesel in transporting Oil through MGR system, if applicable	(Rs)						
15	Total Transportation Charges (9+-10-11+12)	(Rs)						
16	Others -Entry Tax on Oil	(Rs.)						
17	Total amount Charged for fuel supplied including Transportation (8+13+14)	(Rs)	15217996	0	206016697		0	
18	Landed Price of Oil	Rs/KL	55679.60	30611.29	59231.77	30611.29	59231.77	30611.29
19	Weighted average GCV of Oil as fired Stage-I	(kCal/L)		9790		9790		9597
20	Weighted average rate of Secondary Fuel Stage-I	Rs/KL		30611.29		30611.29		59231.77
19	Weighted average GCV of Oil as fired Stage-II	(kCal/L)		9790		9790		9790
20	Weighted average rate of Secondary Fuel Stage-II	Rs/KL		30611.29		30611.29		30611.29
19	Weighted average GCV of Oil as fired Stage-III	(kCal/L)		9349		9419		9597
20	Weighted average rate of Secondary Fuel Stage-III	Rs/KL		55679.60		59231.77		59231.77

[Handwritten signature]


 407th KUMAR
 M.No - 425104

PETITIONER

Details of Source wise Fuel for Computation of Energy Charges

Name of the Company : NTPC Limited
Name of the Power Station : RPhand STPP Stage II

S. No.	Month	Unit	Oct-19		Nov-19		Dec-19	
			Domestic	Imported	Domestic	Imported	Domestic	Imported
A) OPENING QUANTITY								
1	Opening Quantity of Coal/Lignite	(MMT)	0.0445		0.1666		0.4884	
2	Value of Stock	(Rs.)	25565270		358473917		1164742601	
B) QUANTITY								
3	Quantity of Coal/Lignite supplied by Coal/Lignite Company	(MMT)	1.3813		1.3116		1.0738	
4	Adjustment (+/-) in quantity supplied made by Coal/Lignite Company	(MMT)	0.0000		0.0000		0.0000	
5	Coal supplied by Coal/Lignite Company (3+4)	(MMT)	1.3813		1.3116		1.0738	
6	Normative Transit & Handling Losses (for coal/ Lignite based projects)	(MMT)	0.0048		0.0030		0.0023	
7	Net coal/ Lignite Supplied (3-6)	(MMT)	1.3765		1.3086		1.0715	
C) PRICE								
8	Amount charged by the Coal/Lignite Company	(Rs.)	2856235555		3229503233		2018393474	
9	Adjustment (+/-) in amount charged made by Coal/Lignite Company	(Rs.)	0		0		0	
10	Handling, Sampling and such other similar charges	(Rs.)	29857297		46007174		64095542	
11	Total amount Charged (8+9+10)	(Rs.)	2886092752		3275510407		2082489016	
D) TRANSPORTATION								
12	Transportation charges by rail/ship/road transport							
	By Rail	(Rs.)	37212719		34418692		0	
	By Road	(Rs.)	0		0		0	
	By Ship	(Rs.)	0		0		0	
13	Adjustment (+/-) in amount charged made by Railway/Transport Company	(Rs.)	0		0		0	
14	Demurrage Charges, if any	(Rs.)						
15	Cost of diesel in transporting coal through MGR system, if applicable	(Rs.)	3048159		21496274		16656007	
16	Total Transportation Charges (12+13+14+15)	(Rs.)	61260878		25614966		16656007	
17	Total amount Charged for coal/Lignite supplied including Transportation (11+16)	(Rs.)	2947353630		3331425373		2099145123	
E) TOTAL COST								
18	Landed cost of coal/ Lignite (2+17)/(3+7)	Rs./MT	2139.89		2486.43		2119.49	
19	Blending Ratio (Domestic/Imported)		100.00		100.00		100.00	
20	Weighted average cost of coal/ Lignite for preceding three months	Rs./MT			2248.01			
F) QUALITY								
21	GCV of Domestic Coal of the opening coal stock as per bill of Coal Company	(kCal/Kg)	4558		4578		4898	
22	GCV of Domestic Coal supplied as per bill of Coal Company (Eq Basis)	(kCal/Kg)	4579		4939		4229	
23	GCV of Imported Coal of the opening stock as per bill Coal Company	(kCal/Kg)						
24	GCV of Imported Coal supplied as per bill Coal Company	(kCal/Kg)						
25	Weighted average GCV of coal/ Lignite as Billed	(kCal/Kg)	4578		4896		4432	
26	GCV of Domestic Coal of the opening stock as received at Station	(kCal/Kg)	4128		4072		4355	
27	GCV of Domestic Coal supplied as received at Station (TM basis)	(kCal/Kg)	4070		4391		4020	
28	GCV of Imported Coal of opening stock as received at Station	(kCal/Kg)						
29	GCV of Imported Coal of opening stock as received at Station	(kCal/Kg)						
30	Weighted average GCV of coal/ Lignite as Received (TM basis)	(kCal/Kg)	4072		4355		4122	

MOHD IMRAN
Digitally signed by MOHD IMRAN
Date: 2024.11.02 16:35:54 +05'30'

Sanjay Sinha

Digitally signed by Sanjay Sinha
Date: 2024.11.13 11:40:22 +05'30'

(Petitioner)

Sailabala Dhal
Sailabala Dhal, Partner
M No- 22835
UDIN - 2422835ZZTKX236AZ5



Head Office : # 400/4897, Baramunda Village, Ghubaneswar-751003
Mob.: +91 9437008479, +91 9437008479
Branch Office : Kolkata | Bangalore | Mumbai | Ghaziabad

Details of Secondary Fuel for Computation of Energy Charges

Name of the Company :	NTPC Limited
Name of the Power Station :	Rihand STPP Stage II

Sl.No.	Month	Unit	Oct-19		Nov-19		Dec-19	
			LDO	HFO	LDO	HFO	LDO	HFO
1	Opening Quantity of Oil	KL	5772.386		5507.386		5383.39	
2	Value of Opening	(Rs)	305775957		291738325		285169772	
3	Quantity of Oil supplied by Oil Company	KL	0		0.00		0	
4	Adjustment(+/-) in quantity supplied made by Oil Company	KL	0		0.00		0	
5	Oil supplied by Oil Company (3+2)	KL	0		0.00		0	
6	Normative Transit & Handling Losses	KL	0		0.00		0	
7	Net Oil Supplied (3-4)	KL	0		0.00		0	
8	Amount charged by the Oil Company	(Rs)	0		0		0	
9	Adjustment(+/-) in amount charged made by Oil Company	(Rs)					24084	
10	Total amount charged (6+7)	(Rs)	0		0		24084	
11	Transportation charges by rail / ship / road transport	(Rs)	0		0		0	
12	Adjustment (+/-) in amount charged made by Railways/Transport Company	(Rs)	0		0		0	
13	Demurrage Charges, if any	(Rs)	0		0		0	
14	Cost of diesel in transporting Oil through MGR system, if applicable	(Rs)	0		0		0	
15	Total Transportation Charges (9+/-10-11+12)	(Rs)	0		0		0	
16	Others	(Rs.)	0		0		0	
17	Total amount Charged for fuel supplied including Transportation (8+13+14)	(Rs)	0		0		24084	
18	Landed Price of Oil	Rs/KL	52972.20		52972.20		52976.70	
19	Weighted average GCV of Oil as fired Stage-II	(kCal/L)	9609		9609		9609	
20	Weighted average rate of Secondary Fuel Stage-II	Rs/KL	52972.20		52972.20		52976.70	

MOHD
IMRANDigitally signed
by MOHD IMRAN
Date: 2024.11.02
16:35:04 +05'30'Sanjay
SinhaDigitally signed by
Sanjay Sinha
Date: 2024.11.13
11:42:00 +05'30'

PETITIONER

Sailabala Dhal
Sailabala Dhal, Partner
M No- 22835
UDIN - 2422835ZZTKX236AZ5S. DHAL & CO.
COST ACCOUNTANTS

Details of Source wise Fuel for Computation of Energy Charges

Name of the Company :		NTPC Limited						
Name of the Power Station :		Rihand STPP Stage II						
S. No.	Month	Unit	Oct-20		Nov-20		Dec-20	
			Domestic	Imported	Domestic	Imported	Domestic	Imported
A) OPENING QUANTITY								
1	Opening Quantity of Coal/Lignite	(MMT)	0.0000		0.2248		0.5834	
2	Value of Stock	(Rs.)	0		452410097		1282722780	
B) QUANTITY								
3	Quantity of Coal/Lignite supplied by Coal/Lignite Company	(MMT)	1.4242		1.2625		1.1520	
4	Adjustment (+/-) in quantity supplied made by Coal/Lignite Company	(MMT)	0.0000		0.0000		0.0000	
5	Coal supplied by Coal/Lignite Company (3+4)	(MMT)	1.4242		1.2625		1.1520	
6	Normative Transit & Handling Losses (For coal/ Lignite based projects)	(MMT)	0.0043		0.0029		0.0024	
7	Net coal / Lignite Supplied (3-4)	(MMT)	1.4198		1.2596		1.1496	
C) PRICE								
8	Amount charged by the Coal /Lignite Company	(Rs.)	2665832773		2343178863		2196593399	
9	Adjustment (+/-) in amount charged made by Coal/Lignite Company	(Rs.)	65179008		379086848		310108449	
10	Handling, Sampling and such other similar charges	(Rs.)	40785312		51279360		58721528	
11	Total amount Charged (8+9+10)	(Rs.)	2771797093		2773545071		2565423376	
D) TRANSPORTATION								
12	Transportation charges by rail/ship/road transport							
	By Rail	(Rs.)	58232386		14809169		31506721	
	By Road	(Rs.)	0		0		0	
	By Ship	(Rs.)	0		0		0	
13	Adjustment (+/-) in amount charged made by Railways/Transport Company	(Rs.)	0		0		0	
14	Demurrage Charges, if any	(Rs.)						
15	Cost of diesel in transporting coal through MGR system, if applicable	(Rs.)	27262513		22773599		21624463	
16	Total Transportation Charges (12+13+14+15)	(Rs.)	85494899		37582768		53131184	
17	Total amount Charged for coal/lignite supplied including Transportation (11+16)	(Rs.)	2857291992		2811127839		2618554560	
E) TOTAL COST								
18	Landed cost of coal/ Lignite (2+17)/(1+7)	Rs./MT	2012.41		2198.59		2251.14	
19	Blending Ratio (Domestic/Imported)		100.00		100.00		100.00	
20	Weighted average cost of coal/ Lignite for preceding three months	Rs./MT			2161.22			
F) QUALITY								
21	GCV of Domestic Coal of the opening coal stock as per bill of Coal Company	(kCal/Kg)						
			4365		4435		4667	
22	GCV of Domestic Coal supplied as per bill of Coal Company (Eq Basis)	(kCal/Kg)	4435		4708		4679	
23	GCV of Imported Coal of the opening stock as per bill Coal Company	(kCal/Kg)						
24	GCV of Imported Coal supplied as per bill Coal Company	(kCal/Kg)						
25	Weighted average GCV of coal/ Lignite as Billed	(kCal/Kg)	4435		4667		4675	
26	GCV of Domestic Coal of the opening stock as received at Station	(kCal/Kg)	3630		3817		4148	
27	GCV of Domestic Coal supplied as received at Station (TM basis)	(kCal/Kg)	3817		4207		4151	
28	GCV of Imported Coal of opening stock as received at Station	(kCal/Kg)						
29	GCV of Imported Coal of opening stock as received at Station	(kCal/Kg)						
30	Weighted average GCV of coal/ Lignite as Received (TM basis)	(kCal/Kg)	3817		4148		4150	
GOTAM KUMAR BAGARIYA		Digitally signed by GOTAM KUMAR BAGARIYA Date: 2021.06.18 10:46:56 +05'30'						
								(Petitioner)

Details of Secondary Fuel for Computation of Energy Charges

Name of the Company :		NTPC Limited						
Name of the Power Station :		Rihand STPP Stage II						
Sl.No.	Month	Unit	Oct-20		Nov-20		Dec-20	
			LDO	HFO	LDO	HFO	LDO	HFO
1	Opening Quantity of Oil	KL	5060.395		5004.395		4089.40	
2	Value of Opening	(Rs)	229437752		226898718		185412719	
3	Quantity of Oil supplied by Oil Company	KL	0		0.00		3156.27	
4	Adjustment(+/-) in quantity supplied made by Oil Company	KL	0		0.00		0	
5	Oil supplied by Oil Company (1+2)	KL	0		0.00		3156.27	
6	Normative Transit & Handling Losses	KL	0		0.00		0	
7	Net Oil Supplied (3-4)	KL	0		0.00		3156.27	
8	Amount charged by the Oil Company	(Rs)	0		0		142915264	
9	Adjustment(+/-) in amount charged made by Oil Company	(Rs)					0	
10	Total amount charged (6+7)	(Rs)	0		0		142915264	
11	Transportation charges by rail / ship / road transport	(Rs)	0		0		0	
12	Adjustment (+/-) in amount charged made by Railways/Transport Company	(Rs)	0		0		0	
13	Demurrage Charges, if any	(Rs)	0		0		0	
14	Cost of diesel in transporting Oil through MGR system, if applicable	(Rs)	0		0		0	
15	Total Transportation Charges (9+/-10-11+12)	(Rs)	0		0		0	
16	Others	(Rs.)	0		0		0	
17	Total amount Charged for fuel supplied including Transportation (8+13+14)	(Rs)	0		0		142915264	
18	Landed Price of Oil	Rs/KL	45339.89		45339.89		45313.71	
19	Weighted average GCV of Oil as fired Stage-I	(kCal/L)	9540		9540		9371	
20	Weighted average rate of Secondary Fuel Stage-I	Rs/KL	45339.89		45339.89		45313.71	

GOTAM KUMAR BAGARIYA
Digitally signed by GOTAM KUMAR BAGARIYA
Date: 2021.06.18 10:47:57 +05'30'

PETITIONER

Details of Source wise Fuel for Computation of Energy Charges

Name of the Company :		NTPC Limited									
Name of the generating Station :		Rihand STPP Stage II									
S. No.	Month	Unit	Oct-21			Nov-21			Dec-21		
			Domestic	Imported	Biomass	Domestic	Imported	Biomass	Domestic	Imported	Biomass
A) OPENING QUANTITY											
1	Opening Quantity of Coal/Lignite	MT	190293.34	0.00	0.00	191433.48	0.00	0.00	191935.25	0.00	0.00
2	Value of Stock	Rs.	412890607	0	0	471911223	0	0	441700535	0	0
B) QUANTITY											
3	Quantity of Coal/Lignite supplied by Coal/Lignite Company	MT	2097711.64	0.00	0.00	1153204.18	0.00	0.00	1278343.88	0.00	0.00
4	Adjustment (+/-) in quantity supplied made by Coal/Lignite Company	MT	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	Coal supplied by Coal/Lignite Company (3+4)	MT	1097711.64	0.00	0.00	1153204.18	0.00	0.00	1278343.88	0.00	0.00
6	Normative Transit & Handling Losses (For coal/ Lignite based projects)	MT	2335.42	0.00	0.00	2306.41	0.00	0.00	2794.00	0.00	0.00
7	Net coal / Lignite Supplied (3-4)	MT	1095376.22	0.00	0.00	1150897.77	0.00	0.00	1275549.88	0.00	0.00
C) PRICE											
8	Amount charged by the Coal /Lignite Company	Rs.	2109302453	0	0	2207737872	0	0	2440460578	0	0
9	Adjustment (+/-) in amount charged made by Coal/Lignite Company	Rs.	586401868	0	0	250567855	0	0	896458332	0	0
10	Handling, Sampling and such other similar charges	Rs.	47570247	0	0	49534717	0	0	50413449	0	0
11	Total amount Charged (8+9+10)	Rs.	2743281068	0	0	2898005644	0	0	3177542357	0	0
D) TRANSPORTATION											
12	Transportation charges by rail/ship/road transport										
	By Rail	Rs.	0	0	0	0	0	0	7855517	0	0
	By Road	Rs.	0	0	0	0	0	0	0	0	0
	By Ship	Rs.	0	0	0	0	0	0	0	0	0
13	Adjustment (+/-) in amount charged made by Railway/Transport Company	Rs.	0	0	0	0	0	0	0	0	0
14	Demurrage Charges, if any	Rs.	0	0	0	0	0	0	0	0	0
15	Cost of diesel in transporting coal through MTR system, if applicable	Rs.	23456100	0	0	25787011	0	0	36458958	0	0
16	Total Transportation Charges [(12+13+14+15)]	Rs.	25454300	0	0	25787011	0	0	34792275	0	0
17	Total amount Charged for coal/ignite supplied including Transportation [(11+16)]	Rs.	2766737168	0	0	2615667555	0	0	3211544632	0	0
E) TOTAL COST											
18	Landed cost of coal/ Lignite [(2+17)/(1+7)]	Rs./MT	2473.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
19	Receiving Ratio (Domestic/Imported)		100.00	0.00	0.00	100.00	0.00	0.00	100.00	0.00	0.00
20	Weighted average cost of coal/ Lignite (including Biomass)	Rs./MT	2473.06			2301.33			2489.51		
21	Weighted average cost of coal/ Lignite (excluding Biomass)	Rs./MT	2473.06			2301.33			2489.51		
F) QUALITY											
22	GCV of Domestic Coal of the opening coal stock as per Bill of Coal Company	(KCal/Kg)	4575			4901			4748		
23	GCV of Domestic Coal supplied as per Bill of Coal Company (Es. Basis)	(KCal/Kg)	4958			4723			4895		
24	GCV of Imported Coal of the opening stock as per Bill Coal Company	(KCal/Kg)									
25	GCV of Imported Coal supplied as per Bill Coal Company	(KCal/Kg)									
26	Weighted average GCV of coal/ Lignite as Billed (including Biomass)	(KCal/Kg)	4901			4748			4876		
27	Weighted average GCV of coal/ Lignite as Billed (excluding Biomass)	(KCal/Kg)	4901			4748			4876		
28	GCV of Domestic Coal of the opening stock as received at Station	(KCal/Kg)	3083			4272			4238		
29	GCV of Domestic Coal supplied as received at Station	(KCal/Kg)	4522			4207			4472		
30	GCV of Imported Coal of opening stock as received at Station	(KCal/Kg)									
31	GCV of Imported Coal of opening stock as received at Station	(KCal/Kg)									
32	Weighted average GCV of coal/ Lignite as Received (including Biomass)		4272			4216			4439		
33	Weighted average GCV of coal/ Lignite as Received (excluding Biomass)	(KCal/Kg)	4272			4216			4439		

Digitally signed by Shalabh Jain
 DN: cn=Shalabh Jain, o=NTPC Limited, ou=NTPC Limited, email=shalabh.jain@nptcltd.com



श्री० शलभ
 मोहं शर्मा
 सचिव प्रबंध (वित्त)
 Sr. Manager (Finance)
 इन्दौर सि०- रावरी / NTPC Limited

Digitally signed
 by Shalabh Jain
 Date:
 2022.06.22
 13:17:16 +05'30'

Details of Sourcewise fuel for computation of Energy Charges

Company		NTPC Limited					
Name of the generating Station		Rihand STPP Stage II					
Month		Oct-21		Nov-21		Dec-21	
Sl. Particulars	Unit	LDO	HFO	LDO	HFO	LDO	HFO
A) OPENING QUANTITY							
1 Opening Stock of Oil	KL	4,360.09	0.00	7,027.17	0.00	6,865.17	0.00
2 Value of Stock	Rs	72,02,87,492	0.00	40,75,86,271	0.00	39,81,90,030	0.00
B) QUANTITY							
3 Quantity of Oil supplied by Oil Company	KL	3,162.08	0.00	0.00	0.00	0.00	0.00
4 Adjustment (+/-) in quantity supplied made by Oil Company	KL	0.00	0.00	0.00	0.00	0.00	0.00
5 Coal supplied by Oil Company (3+4)	KL	3,162.08	0.00	0.00	0.00	0.00	0.00
6 Normative transit & Handling losses	KL	0.00	0.00	0.00	0.00	0.00	0.00
7 Net Oil supplied (5 - 6)	KL	3,162.08	0.00	0.00	0.00	0.00	0.00
C) PRICE							
8 Amount charged by the Oil Company	Rs	21,60,09,516	0	0	0	0	0
9 Adjustment (+/-) in amount charged by Oil Company	Rs	0	0	0	0	0	0
10 Handling, sampling and such other similar charges	Rs	0	0	0	0	0	0
11 Total Amount charged (8 +9+10)	Rs	21,60,09,516	0	0	0	0	0
D) TRANSPORTATION							
12 Transportation charges by Rail / Ship / Road Transport	Rs						
By Rail	Rs	0	0	0	0	0	0
By Road	Rs	0	0	0	0	0	0
By Ship	Rs	0	0	0	0	0	0
13 Adjustment (+/-) in amount charged by railways / transport company	Rs	0	0	0	0	0	0
14 Demurrage charges, if any	Rs	0	0	0	0	0	0
15 Cost of diesel in transporting Coal through MGR system, if applicable	Rs	0	0	0	0	0	0
16 Total transportation charges (12+/- 13 + 14 + 15)	Rs	0	0	0	0	0	0
17 Total amount charged for Oil supplied including transportation (11 + 16)	Rs	21,60,09,516	0	0	0	0	0
E) TOTAL COST							
18 Landed Cost of Oil (LDO/HFO) : (2+17) / (1+7)	Rs/KL	58,001.49	0.00	58,001.49	0.00	58,001.49	0.00
19 Blending Ratio		1.00	0.00	1.00	0.00	1.00	0.00
20 Weighted average cost of Oil		58,001.49		58,001.49		58,001.49	
F) QUALITY							
21 GCV of Oil of the opening stock as per bill of Oil company	(Kcal/Ltr)						
22 GCV of oil supplied as per bill of oil company	(Kcal/Ltr)						
23 GCV of imported coal of the opening coal stock as per bill of coal company	(Kcal/Ltr)						
24 GCV of imported coal supplied as per bill of coal company	(Kcal/Ltr)						
25 Weighted average GCV of Oil as billed	(Kcal/Ltr)						
26 GCV of Oil of the Opening stock as received at station	(Kcal/Ltr)						
27 GCV of Oil supplied	(Kcal/Ltr)	9232	0	9232	0	9232	0
28 GCV of Imported coal of the Opening stock as received at station	(Kcal/Ltr)						
29 GCV of Imported coal supplied as received at station	(Kcal/Ltr)						
30 Weighted average GCV of Oil	(Kcal/Ltr)	9232		9232		9232	

Digitally signed by Shalabh Jain
 DN: cn=Shalabh Jain, o=NTPC Limited, ou=Finance, email=shalabh.jain@ntpc.co.in




मोह. इमरान
Mohd. Inam
 वरिष्ठ प्रबंधक (वित्त)
Sr. Manager (Finance)
 एन.टी.पी.सी. लि. - वाराणसी / NTPC Limited - Varanasi

Shalabh Jain
 Digitally signed
 by Shalabh Jain
 Date:
 2022.06.22
 13:17:58 +05'30'

Details of Source wise Fuel for Computation of Energy Charges

Name of the Company :		NTPC Limited									
Name of the generating Station :		Rihand STPP Stage II									
S. No.	Month	Unit	Oct-22			Nov-22			Dec-22		
			Domestic	Imported	Biomass	Domestic	Imported	Biomass	Domestic	Imported	Biomass
A)	OPENING QUANTITY										
1	Opening Quantity of Coal/Lignite	MT	89589.42	0.00	0.00	88742.25	0.00	0.00	81771.48	0.00	0.00
2	Value of Stock	Rs.	2277416502	0	0	1678275265	0	0	1770880224	0	0
B)	QUANTITY										
3	Quantity of Coal/Lignite supplied by Coal/Lignite Company	MT	982297.48	0.00	0.00	1217064.32	0.00	0.00	1118452.96	0.00	0.00
4	Adjustment (+/-) in quantity supplied made by Coal/Lignite Company	MT	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	Coal supplied by Coal/Lignite Company (3+4)	MT	982297.48	0.00	0.00	1217064.32	0.00	0.00	1118452.96	0.00	0.00
6	Normative Transit. & Handling Losses (For coal/ Lignite based projects)	MT	1964.53	0.00	0.00	2434.13	0.00	0.00	2286.01	0.00	0.00
7	Net coal/ Lignite Supplied (3-6)	MT	980332.95	0.00	0.00	1224430.19	0.00	0.00	1116166.95	0.00	0.00
C)	PRICE										
8	Amount charged by the Coal /Lignite Company	Rs.	455925106	0	0	3422352593	0	0	2229210032	0	0
9	Adjustment (+/-) in amount charged made by Coal/Lignite Company	Rs.	375549879	0	0	206295971	0	0	228889574	0	0
10	Handling, Sampling and such other similar charges	Rs.	43676433	0	0	48792067	0	0	45528268	0	0
11	Total amount Charged (8+9+10)	Rs.	227009448	0	0	3678338770	0	0	2583779374	0	0
D)	TRANSPORTATION										
12	Transportation charges by rail/ship/road transport										
	By Rail	Rs.	0	0	0	0	0	0	0	0	0
	By Road	Rs.	0	0	0	0	0	0	0	0	0
	By Ship	Rs.	0	0	0	0	0	0	0	0	0
13	Adjustment (+/-) in amount charged made by Railways/Transport Company	Rs.	0	0	0	0	0	0	0	0	0
14	Demurrage Charges, if any	Rs.									
15	Cost of diesel in transporting coal through MGR system, if applicable	Rs.	26729361	0	0	11280967	0	0	29847437	0	0
16	Total Transportation Charges (12+13+14+15)	Rs.	26729361	0	0	21520967	0	0	29847437	0	0
17	Total amount Charged for coal/Lignite supplied including Transportation (11+16)	Rs.	240689079	0	0	2710269737	0	0	2533626811	0	0
E)	TOTAL COST										
18	Landed cost of coal/ Lignite (2+17)/(1+7)	Rs./MT	2579.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
19	Blending Ratio (Domestic/Imported)		100.00	0.00	0.00	100.00	0.00	0.00	100.00	0.00	0.00
20	Weighted average cost of coal/ Lignite (Including Biomass)	Rs./MT		2579.06			2352.46			2395.24	
20a	Weighted average cost of coal/ Lignite (excluding Biomass)	Rs./MT		2579.06			2352.46			2395.26	
F)	QUALITY										
21	GCV of Domestic Coal of the opening coal stock as per bill of Coal Company	(kCal/kg)									
22	GCV of Domestic Coal supplied as per bill of Coal Company (By Basis)	(kCal/kg)	4855			4948			4708		
23	GCV of Imported Coal of the opening stock as per bill Coal Company	(kCal/kg)									
24	GCV of Imported Coal supplied as per bill Coal Company	(kCal/kg)									
25	Weighted average GCV of coal/ Lignite as billed (Including Biomass)	(kCal/kg)		4948			4708			4640	
25a	Weighted average GCV of coal/ Lignite as billed (excluding Biomass)	(kCal/kg)		4948			4708			4640	
26	GCV of Domestic Coal of the opening stock as received at Station	(kCal/kg)	4411			4311			4086		
27	GCV of Domestic Coal supplied as received at Station	(kCal/kg)	4299			3965			3862		
28	GCV of Imported Coal of opening stock as received at Station	(kCal/kg)									
29	GCV of Imported Coal of opening stock as received at Station	(kCal/kg)									
30	Weighted average GCV of coal/ Lignite as Received (Including Biomass)	(kCal/kg)		4311			4086			3958	
30a	Weighted average GCV of coal/ Lignite as Received (excluding Biomass)	(kCal/kg)		4311			4086			3958	

Digitally signed by Shalabh Jain
 Date: 2023.07.21 12:01:15 +05'30'


MOHD. IMRAN
 Sr. Manager (Finance)
 NTPC Ltd. UFCG-Dadri


SANJAY SINHA
 Add. General Manager (UFCG-Fuel)
 NTPC Ltd. Dadri

Shalabh Jain
 Digitally signed by Shalabh Jain
 Date: 2023.07.21 12:01:15 +05'30'

Details of Sourcewise fuel for computation of Energy Charges

Company		NTPC Limited					
Name of the generating Station		Rihand STPP Stage II					
Month		Oct-22		Nov-22		Dec-22	
Sl. Particulars	Unit	LDO	HFO	LDO	HFO	LDO	HFO
A) OPENING QUANTITY							
1. Opening Stock of Oil	Kl	1,770.92	0.00	4,863.92	0.00	4,481.92	0.00
2. Value of Stock	Rs	45,73,64,443	0.00	38,53,97,406	0.00	35,51,29,260	0.00
B) QUANTITY							
3. Quantity of Oil supplied by Oil Company	Kl	0.00	0.00	0.00	0.00	3,095.63	0.00
4. Adjustment (+/-) in quantity supplied made by Oil Company	Kl	0.00	0.00	0.00	0.00	0.00	0.00
5. Coal supplied by Oil Company (3+4)	Kl	0.00	0.00	0.00	0.00	3,095.63	0.00
6. Normalive transit & Handling losses	Kl	0.00	0.00	0.00	0.00	0.00	0.00
7. Net Oil supplied (5 - 6)	Kl	0.00	0.00	0.00	0.00	3,095.63	0.00
C) PRICE							
8. Amount charged by the Oil Company	Rs	0	0	0	0	29,42,39,528	0
9. Adjustment (+/-) in amount charged by Oil Company	Rs	0	0	0	0	0	0
10. Handling, Sampling and such other similar charges	Rs	0	0	0	0	0	0
11. Total Amount charged (8+9+10)	Rs	0	0	0	0	29,42,39,528	0
D) TRANSPORTATION							
12. Transportation charges by Rail / Ship / Road Transport	Rs						
By Rail	Rs	0	0	0	0	0	0
By Road	Rs	0	0	0	0	0	0
By Ship	Rs	0	0	0	0	0	0
13. Adjustment (+/-) in amount charged by railways / transport company	Rs	0	0	0	0	0	0
14. Demurrage charges, if any	Rs	0	0	0	0	0	0
15. Cost of diesel in transporting Coal through MGR system, if applicable	Rs	0	0	0	0	0	0
16. Total transportation charges (12+13+14+15)	Rs	0	0	0	0	0	0
17. Total amount charged for Oil supplied including transportation (11 + 16)	Rs	0	0	0	0	29,42,39,528	0
E) TOTAL COST							
18. Landed Cost of Oil (LDO/HFO) [2+17] / (1+7)	Rs/Kl	79,235.98	0.00	79,235.98	0.00	86,380.39	0.00
19. Blending Ratio		1.00	0.00	1.00	0.00	1.00	0.00
20. Weighted average cost of Oil		79,235.98		79,235.98		86,380.39	
F) QUALITY							
21. GCV of Oil of the opening stock as per bill of Oil company	(Kcal/Ltr)						
22. GCV of oil supplied as per bill of oil company	(Kcal/Ltr)						
23. GCV of imported coal of the opening coal stock as per bill of coal company	(Kcal/Ltr)						
24. GCV of imported coal supplied as per bill of coal company	(Kcal/Ltr)						
25. Weighted average GCV of Oil as billed	(Kcal/Ltr)						
26. GCV of Oil of the Opening stock as received at station	(Kcal/Ltr)						
27. GCV of Oil supplied	(Kcal/Ltr)	9362	0	9362	0	9302	0
28. GCV of imported coal of the Opening stock as received at station	(Kcal/Ltr)						
29. GCV of imported coal supplied as received at station	(Kcal/Ltr)						
30. Weighted average GCV of Oil	(Kcal/Ltr)	9362		9362		9302	

Digitally signed by Shalabh Jain
 DN: cn=Shalabh Jain, o=NTPC Ltd., ou=NTPC Ltd., email=shalabh.jain@ntpc.co.in




MOHD. IMRAN
 Sr. Manager (Finance)
 NTPC Ltd. UFGG-Dadri


SANJAY SINHA
 Addl. General Manager (UFGG-Fuel)
 NTPC Ltd., Dadri

Shalabh
 Jain

Digitally signed by
 Shalabh Jain
 Date: 2023.07.21
 12:00:17 +05'30'

RHAND SUPER THERMAL POWER STATION

BALANCE SHEET

(Amount in ₹)

As at	Note	31.03.2020	31.03.2019	
001	ASSETS	0.00	0.00	
002		0.00	0.00	
003	Non-Current Assets	0.00	0.00	
004	Property, plant and equipment	2	58,728,501,510.10	58,943,024,021.02
005	Capital Work-in-Progress	3	823,654,175.83	526,168,443.09
006	Intangible Assets	4	19,560.18	134,643.21
007	Intangible Assets under Development	5	0.00	0.00
008	Investments in Subsidiaries and Joint Ventures	8	0.00	0.00
009	Financial Assets	0.00	0.00	
010	i) Investments	7	0.00	0.00
011	ii) Trade receivables	8	0.00	0.00
012	iii) Loans	9	97,279,112.63	102,118,264.34
013	iv) Other financial assets	10	0.00	0.00
014	Other non-current assets	11	2,910,570,999.29	1,730,829,571.76
015	Total non-current assets		80,160,025,348.23	61,302,275,633.52
016			0.00	0.00
017	Current Assets	0.00	0.00	
018	Inventories	12	3,934,708,096.39	5,522,897,180.17
019	Financial assets	0.00	0.00	
020	i) Investments	13	0.00	0.00
021	ii) Trade receivables	14	8,200,899.09	3,309,693.64
022	iii) Cash and cash equivalents	15	436,387.81	3,393,293.36
023	iv) Bank balances other than cash and cash equivalents	15	0.00	0.00
024	v) Loans	17	70,942,725.42	71,017,591.86
025	vi) Other financial assets	18	881,977,881.50	177,325,679.59
026			0.00	0.00
027	Other Current Assets	19	841,228,747.65	493,844,905.72
028			0.00	0.00
029			0.00	0.00
030	Total Current Assets		5,335,493,741.06	6,271,787,654.38
031	Regulatory deferral account debit balances	20	366,710,508.19	348,046,371.04
032	TOTAL ASSETS		85,862,229,697.48	67,922,109,658.96
034	EQUITY AND LIABILITIES	0.00	0.00	
035	Equity	0.00	0.00	
036	Equity Share capital	21	0.00	0.00
037	Other equity	22	154,392,807,607.96	142,905,372,241.66
040	Total equity		154,392,807,607.96	142,905,372,241.66
041			0.00	0.00
042	Liabilities	0.00	0.00	
043	Non-Current Liabilities	0.00	0.00	
044	Financial liabilities	0.00	0.00	
045	i) Borrowings	23	0.00	0.00

Locked: 18.05.2020 - 14:48:40

Run on: 18.05.2020 - 14:50:51 Version: 0

V. Malik
V. Malik
(HOF)

अध्यक्ष (व्यवस्थापक)
Add. General Manager (Commercial)
एन टी पी सी लिमिटेड, NTPC Limited

AS
Page 1 of 2



**RIHAND SUPER THERMAL POWER STATION
BALANCE SHEET**

(Amount in ₹)

As at	Note	31.03.2020	31.03.2019
046 ii) Trade payables		0.00	0.00
047 - Total outstanding dues of micro and small enterprises	24	15,622,396.62	6,964,040.99
048 - Total outstanding dues of creditors other than micro and small enterprises	24	5,712,598.82	19,217,358.89
049. i) Other financial liabilities	25	34,379,901.73	2,083,288.09
050 Provisions	26	0.00	0.00
051 Deferred Tax Liabilities (net)	27	0.00	0.00
052 Other non-current liabilities	28	0.00	0.00
053		0.00	0.00
054 Total non-current liabilities		55,714,897.17	28,265,588.97
055		0.00	0.00
056 Current Liabilities		0.00	0.00
057 Financial liabilities		0.00	0.00
058 i) Borrowings	29	0.00	0.00
059 ii) Trade Payables		0.00	0.00
060 - Total outstanding dues of micro and small enterprises	30	347,533,123.95	277,066,480.33
061 - Total outstanding dues of creditors other than micro and small enterprises	30	1,929,276,543.35	1,245,121,688.26
062 iii) Other financial liabilities	31	2,174,040,601.24	2,424,995,497.91
063 Other current liabilities	32	98,045,480.01	96,740,893.18
064 Provisions	33	8,480,817.99	7,624,629.10
065 Current tax liabilities (net)	34	0.00	0.00
066		0.00	0.00
067 Sub Total		4,557,376,576.54	4,021,549,088.79
068		0.00	0.00
069 Deferred Revenue	35	1,990,729,000.00	1,250,048,000.00
070 Regulatory deferral account credit balances	36	0.00	0.00
071 Inter Unit Accounts		-95,134,398,483.19	-80,283,125,960.56
072		0.00	0.00
073 TOTAL EQUITY AND LIABILITIES		65,862,229,097.46	67,922,109,858.86
074 Significant Accounting Policies as per Note 1	1	0.00	0.00
075		0.00	0.00
076 The accompanying notes 1 to 44 form an integral part of these financial statements		0.00	0.00
077		0.00	0.00
078		0.00	0.00

(Auditor Initial & Stamp)

V. Malik
Head of Finance
(HOP)

[Signature]
(Head of Unit)

Locked: 16.05.2020 - 14:48:40
Run on: 16.05.2020 - 14:50:51 Version: 0

Page 2 of 2

RIHAND SUPER THERMAL POWER STATION
STATEMENT OF PROFIT AND LOSS

(Amount in ₹)

	For the Year ended	Note	31.03.2020	31.03.2019
001	Revenue		0.00	0.00
002	Revenue from operations	37	50,565,358,913.88	50,048,258,348.89
003	Other income	38	3,035,476,371.88	1,974,635,183.87
005	Total Revenue		53,600,835,285.76	52,022,893,532.76
007	Expenses		0.00	0.00
008	Fuel including cost of captive coal	38A	30,418,545,545.88	28,585,776,745.41
009	Employee benefits expense	39	1,854,129,627.42	2,041,743,925.51
010	Electricity Purchased		0.00	0.00
011	Finance costs	40	2,130,434,704.21	2,232,706,359.72
012	Depreciation, amortization and impairment expense	41	3,014,830,907.64	4,107,321,614.55
013			0.00	0.00
014	Other expenses	42	2,903,654,769.93	2,581,285,071.21
015	CC expenses charge to revenue		865,355,462.00	838,528,155.29
016	Less: Unit expenses transferred to CC		0.00	0.00
017	Total expenses		42,084,284,198.88	40,469,371,671.68
020	Profit before exceptional items & tax		11,516,551,086.88	11,554,521,861.10
021	Exceptional items		0.00	0.00
024	Profit before tax		11,516,551,086.88	11,554,521,861.10
027	Tax expense:		0.00	0.00
028	Current tax		0.00	0.00
029	Deferred tax		0.00	0.00
030			0.00	0.00
031	Total Tax expense		0.00	0.00
032	Profit for the period before regulatory deferral account balances		11,516,551,086.88	11,554,521,861.10
033	Movement in regulatory deferral account balances		0.00	0.00
034	Regulatory deferred account - deferred		0.00	0.00
035	Others		16,012,648.15	63,815,031.15
036	Tax impact on Regulatory deferral account balances		0.00	0.00
037	Movement in Regulatory deferral account balances (Net of Tax)		16,012,648.15	63,815,031.15
038	Profit for the period/ year		11,532,563,737.03	11,618,336,892.25
039	Other comprehensive income		0.00	0.00
040	(A) Items that will not be reclassified to profit or loss		0.00	0.00
041	- Net gains/(losses) on fair value of equity instruments through other comprehensive income		0.00	0.00
042	Income tax on above that will not be reclassified to profit or loss		0.00	0.00
043	- Net actuarial gains/(losses) on defined benefit plans		-53,349,231.17	-2,772,380.20
044	Income tax on above that will not be		0.00	0.00

Locked: 16.05.2020 - 14:48:27
Run on: 16.05.2020 - 14:51:15 Version: 0

V. Malik

V. Malik
(H.O.P.)

अध्यक्ष, वित्त विभाग (व्यक्तिगत)
Add: General Manager (Commercial)
एन टी पी सी लिमिटेड, NTPC Limited

[Signature]
Page 2 of 2

RIHAND SUPER THERMAL POWER STATION
STATEMENT OF PROFIT AND LOSS

(Amount in ₹)

	For the Year ended	Note	31.03.2020	31.03.2019
	reclassified to profit or loss			
048			0.00	0.00
049	Other comprehensive income for the year, net of income tax		-53,349,231.17	-2,772,380.20
050			0.00	0.00
051	Total Comprehensive income for the year		11,479,214,505.86	11,515,594,312.05
055			0.00	0.00
056	Earnings per equity share:		0.00	0.00
057	Basic & Diluted		0.00	0.00
058	Significant Accounting Policies		0.00	0.00
059	Expenditure during construction period (Net)Dev. of coal mines (net) 43 J43A		0.00	0.00
070	The accompanying notes 1 to 44 form an integral part of these financial statements.		0.00	0.00

(Auditor Initial & Stamp)

(Head of Finance)

(Head of Unit)

V. Malik
(HOF)

(Amount in Rupees)

Note forming part of Balance Sheet
Note 2 : Property, Plant And Equipment
Business Area :1005

Asset Class	Opening Gross Block As At 01.04.2019	Additions	Deductions/ Adjustments	Closing Gross Block As At 31.03.2020	Opening Depreciation As At 01.04.2019	Additions	Deductions/ Adjustments	Closing Depreciation As At 31.03.2020	Net Block As At 31.03.2020	Net Block As At 31.03.2019
1 TANGIBLE ASSETS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2 Land : (including development expenses)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3 Freehold	354101950.25	0.00	914893.00	355016843.25	0.00	0.00	0.00	0.00	355016843.25	354101950.25
4 Right of Use	312564894.63	0.00	0.00	312564894.63	54156195.50	10521536.67	0.00	64677732.17	247887162.46	258408699.13
5 Submergence	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6 CBA Land	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7 Roads,bridges, culverts & helipads	633382471.20	0.00	3064445.24	636446916.44	84717207.88	24819390.13	0.00	109536598.01	526910318.43	548665263.32
8 Building :	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9 Freehold	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10 Main plant	1852956664.03	0.00	0.00	1852956664.03	250006943.20	62858014.88	0.00	312864958.08	1540091705.95	1602949720.83
11 Others	2526816498.43	0.00	7148785.46	2533965283.89	295814769.33	93611156.32	0.00	389425925.65	2144539358.24	2231001729.10
12 Right of Use	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
13 Temporary erection	231168.13	0.00	0.00	231168.13	231168.13	0.00	0.00	231168.13	0.00	0.00
14 Water Supply, drainage & sewerage system	528872639.67	0.00	15099211.89	543971851.56	73117733.28	25176366.99	0.00	98294100.27	445677751.29	455754906.39
15 Hydraulic works, barrages, dams, tunnels and power channel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
16 MGR track and signalling system	1331637054.56	0.00	0.00	1331637054.56	213397002.77	69391989.74	0.00	282788992.51	1048848062.05	1118240051.79
17 Railway siding	1528212.48	0.00	0.00	1528212.48	518982.35	64482.46	0.00	583464.81	944747.67	1009230.13
18 Earth dam reservoir	1456921.40	0.00	0.00	1456921.40	0.00	0.00	0.00	0.00	1456921.40	1456921.40
19 Plant and machinery(including associated civil works)	70060155454.71	1159352990.29	930582602.97	72150091047.97	18342069443.48	4015873615.81	(19444481.65)	22338498577.64	49811592470.33	51718086011.23
Owned Asset										


 अवर महाप्रबन्धक (आर्थिक) /
 Addl. General Manager (Commercial)
 एन टी सी लिमिटेड / NTPC LIMITED

Note forming part of Balance Sheet
Note 2 : Property, Plant And Equipment
Business Area :1005

Asset Class	Opening Gross Block As At 01.04.2019	Additions	Deductions/ Adjustments	Closing Gross Block As At 31.03.2020	Opening Depreciation As At 01.04.2019	Additions	Deductions/ Adjustments	Closing Depreciation As At 31.03.2020	Net Block As At 31.03.2020	Net Block As At 31.03.2019
20 Plant and machinery(including associated civil works) -Right of use Asset	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
21 Furniture and fixtures	162827901.39	11643132.75	(8157.00)	174462877.14	44691819.20	11307625.48	(6082.95)	55993361.73	118469515.41	118136082.19
22 Assets under 5 Km Scheme	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
23 Vehicles - Owned	6558165.35	0.00	0.00	6558165.35	1447799.10	579121.79	0.00	2026920.89	4531244.46	5110366.25
24 Vehicles - Leased	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
25 Office equipment	84012276.10	3589852.00	108075.12	87710203.22	35082454.15	7205598.19	(6379.98)	42281672.36	45428530.86	48929821.95
26 EDP, WP machines and satcom equipment	90601420.49	1595454.00	(3450231.96)	88746642.53	60222035.59	9917758.55	(3461317.64)	66678476.50	22068166.03	30379384.90
27 Construction equipments	65110895.86	0.00	0.00	65110895.86	21512359.27	3506656.19	0.00	25019015.46	40091880.40	43598536.59
28 Electrical Installations	320745742.54	10354500.00	(2700.00)	331097542.54	63152266.13	30831333.36	0.00	93983599.49	237113943.05	257593476.41
29 Communication equipments	31934747.30	0.00	0.00	31934747.30	18196504.33	2942944.88	0.00	21139449.21	10795298.09	13738242.97
30 Hospital equipments	23064355.97	339187.00	0.00	23403542.97	5041564.24	1261479.28	0.00	6303043.52	17100499.45	18022791.73
31 Laboratory and workshop equipments	146083529.77	0.00	(155143.00)	145928386.77	28241795.31	7749500.18	0.00	35991295.49	109937091.28	117841734.46
32 Capital expenditure on assets not owned by the Company	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
33 Assets of Government	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
34 Less:Grants from Government	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00


 अवर सहायक (आर्थिक)
 Addl. General Manager (Commercial)
 एन टी सी लिमिटेड/NTPC LIMITED

Note forming part of Balance Sheet
Note 2 : Property, Plant And Equipment
Business Area :1005

Asset Class	Opening Gross Block As At 01.04.2019	Additions	Deductions/ Adjustments	Closing Gross Block As At 31.03.2020	Opening Depreciation As At 01.04.2019	Additions	Deductions/ Adjustments	Closing Depreciation As At 31.03.2020	Net Block As At 31.03.2020	Net Block As At 31.03.2019
35 Less: Recoverable from GOI	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
36 Assets for ash utilisation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
37 (Less):-Adjusted from fly ash utilisation reserve fund	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
38 Site Restoration Cost	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
39 Mining Properties	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grand Total (Tangible)	78534642964.26	1186875116.04	953301781.72	80674819862.02	19591618043.24	4377618570.90	(22918262.22)	23946318351.92	56728501510.10	58943024921.02
Grand Total Prev Year (Tangible)	76513713413.11	1766484574.63	254444976.52	78534642964.26	15142568138.78	4550839731.18	(101789826.72)	19591618043.24	58943024921.02	61371145274.33


 Anil Kumar (Commercial)
 Anil Kumar / NTPC LIMITED

Note forming part of Balance Sheet
Note 2 : Property, Plant And Equipment
Business Area :1005

Details of Adjustments of Gross Block and Depreciation/Amortization

Particulars	Gross Block		Depreciation/Amortization	
	Tangible As At: 31.03.2020	Tangible As At: 31.03.2019	Tangible As At: 31.03.2020	Tangible As At: 31.03.2019
Disposal of assets	(2114197.00)	(5304388.79)	(2071876.78)	(4951981.07)
Retirement of assets	(69448632.25)	(138103959.79)	(19577026.64)	(81828236.73)
Cost adjustments	1021726514.10	421175458.15	0.00	0.00
Assets capitalised with retrospective effect / Write back of excess capitalisation	0.00	0.00	0.00	0.00
Depreciation on construction equipment capitalised as EDC	0.00	0.00	0.00	0.00
Prior Period Depreciation due to Assets capitalised with retrospective effect / Write back of excess capitalisation	0.00	0.00	0.00	0.00
Special Depreciation (As per New Policy)	0.00	0.00	0.00	0.00
Transfer in /out because of Inter Unit transfers	3138096.87	(23322133.05)	(1269358.80)	(15009608.92)
Others	0.00	0.00	0.00	0.00
TOTAL	953301781.72	254444976.52	(22918262.22)	(101789826.72)


 Anil Kumar (Commercial)
 Anil Kumar / NTPC LIMITED

Note forming part of Balance Sheet

Note 3: Capital-Work-in-Progress

Business Area: RIHAND SUPER THERMAL POWER STATION

SI No	Asset Class	As At 01.04.2019	Addition	Deduction/ Adjustment	Capitalized	As At 31.03.2020
	1	2	3	4	5	6
1	CAPITAL WORK-IN-PROGRESS					
2	Development of land					
3	Roads, bridges, culverts & helipads		3064445.24	(3064445.24)		
4	Piling and foundation					
5	Buildings :					
6	Main plant		12776883.21	(12776883.21)		
7	Others	3128243.68	8015025.53	(7148785.46)		3994483.75
8	Temporary erection					
9	Water supply, drainage and sewerage system		8662414.61	(5712414.61)		2950000.00
10	Hydraulic works, barrages, dams, tunnels and power channel					
11	MGR track and signalling system		20000000.00			20000000.00
12	Railway siding					
13	Earth dam reservoir					
14	Plant and equipment	423512011.96	1222073063.20	(412613876.96)	516109085.59	716862112.61
15	Furniture and fixtures					
16	Vehicles					
17	Office equipment					
18	EDP/WP machines & satcom equipment		1367798.00			1367798.00
19	Construction equipments					
20	Electrical installations		10354500.00		10354500.00	
21	Communication equipment					
22	Hospital equipments					
23	Laboratory and workshop equipments					
24	Assets under 5Km Scheme of the GOI					
25	Capital expenditure on assets not owned by the company					
26	Expenditure towards development of coal mines					
27	Survey,Investigation,Consultancy & Supervision Cha	2987667.50				2987667.50
28	Difference in exchange on foreign currency loans					

Note forming part of Balance Sheet

Note 3: Capital-Work-in-Progress

Business Area: RIHAND SUPER THERMAL POWER STATION

SI No	Asset Class	As At 01.04.2019	Addition	Deduction/ Adjustment	Capitalized	As At 31.03.2020
	1	2	3	4	5	6
29	Expenditure towards diversion of forest land					
30	Pre-commissioning expenses (net)					
31	ExpPendAlloca-oth ex attribut Project					
32	Expenditure During Construction Period (net)*	7991487.00	14502884.03	(6718199.59)		15776171.44
33	LESS : Allocated to related works		15776171.44			15776171.44
34	LESS : Provision for Unservicable works					
35	Construction stores (At Cost)					
36	Steel	31435733.98		(2612252.04)		28823481.94
37	Cement	6722611.99		(4568450.33)		2154161.66
38	Others	53975278.44	65047466.87	(70421303.71)		48601441.60
39	Sub-total	92133624.41	65047466.87	(77602006.08)		79579085.20
40	LESS : Provision for shortages	3584591.46		502379.77		4086971.23
41	Sub-total	88549032.95	65047466.87	(78104385.85)		75492113.97
42	Total CWIP	526168443.09	1350088309.25	(526138990.92)	526463585.59	823654175.83
43						
44						
45	PREVIOUS YEAR TOTAL	1117191125.22	1406540908.81	(497169141.34)	999861027.04	526168443.09

Note forming part of Balance Sheet
Note-4 Non Current Assets- Intangible Assets
Business Area :1005

Asset Class	Opening Gross Block As At 01.04.2019	Additions	Deductions/ Adjustments	Closing Gross Block As At 31.03.2020	Opening Depreciation As At 01.04.2019	Additions	Deductions/ Adjustments	Closing Depreciation As At 31.03.2020	Net Block As At 31.03.2020	Net Block As At 31.03.2019
INTANGIBLE ASSETS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1 Right of Use- Land	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2 -Others	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3 -Software	4773867.26	0.00	0.00	4773867.26	4639223.95	115063.13	0.00	4754287.08	19580.18	134643.31
Grand Total (Intangible)	4773867.26	0.00	0.00	4773867.26	4639223.95	115063.13	0.00	4754287.08	19580.18	134643.31
Grand Total Prev Year (Intangible)	4773867.26	0.00	0.00	4773867.26	4516527.46	122696.49	0.00	4639223.95	134643.31	257339.80


 अवर सहायक (वित्त) /
 Anil Kumar Manager (Commercial)
 एन टी सी लिमिटेड / NTPC LIMITED

Note forming part of Balance Sheet
 Note-4 Non Current Assets- Intangible Assets
 Business Area :1005

Details of Adjustments of Gross Block and Depreciation/Amortization				
Particulars	Gross Block		Depreciation/Amortization	
	InTangible As At: 31.03.2020	InTangible As At: 31.03.2019	InTangible As At: 31.03.2020	InTangible As At: 31.03.2019
Disposal of assets	0.00	0.00	0.00	0.00
Retirement of assets	0.00	0.00	0.00	0.00
Cost adjustments	0.00	0.00	0.00	0.00
Assets capitalised with retrospective effect / Write back of excess capitalisation	0.00	0.00	0.00	0.00
Depreciation on construction equipment capitalised as EDC	0.00	0.00	0.00	0.00
Prior Period Depreciation due to Assets capitalised with retrospective effect / Write back of excess capitalisation	0.00	0.00	0.00	0.00
Special Depreciation (As per New Policy)	0.00	0.00	0.00	0.00
Transfer in /out because of Inter Unit transfers	0.00	0.00	0.00	0.00
Others	0.00	0.00	0.00	0.00
TOTAL	0.00	0.00	0.00	0.00


 Anil Kumar (Commercial)
 Anil Kumar / NTPC LIMITED

Note 5: Intangible Assets under Development

Business Area: RIHAND SUPER THERMAL POWER STATION

SI No	Asset Class	As At 01.04.2019	Addition	Deduction/ Adjustment	Capitalized	As At 31.03.2020
	1	2	3	4	5	6
1	INTANGIBLE ASSETS UNDER DEVELOPMENT					
2	Software					
3	Right to use Others					
4	Exploration and Evaluation Expenditure - Coal Mini					
5	Exploratory wells-in-progress					
6	Less: Provision for exploratory wells-in-progress					
7	Total					
8	PREVIOUS YEAR TOTAL-I					



RIHAND SUPER THERMAL POWER STATION

NOTE NO. 6 TO THE FS-NCA-INVESTMENTS IN SUBSIDIARIES & JOINT VENTURES

(Amount in ₹)

As at	No. of shares	Face value	31.03.2020	31.03.2019
001	NON CURRENT INVESTMENTS-		0.00	0.00
	Investments in subsidiaries and joint ventures			
012	Equity Instruments - Unquoted-(fully paid up unless otherwise stated, at cost)		0.00	0.00
013	Subsidiary Companies		0.00	0.00
014	Patratu Vidyut Utpadan Nigam Ltd.		0.00	0.00
015	NTPC Electric Supply Company Ltd.		0.00	0.00
016	NTPC Vidyut Vyapar Nigam Ltd.		0.00	0.00
017	Nabinagar Power Generating Company Ltd.		0.00	0.00
018	Kanti Bijlee Utpadan Nigam Ltd.		0.00	0.00
019	Bhartiya Rail Bijlee Company Ltd.		0.00	0.00
020	NTPC Mining Ltd (NML)		0.00	0.00
021	THDC India Ltd.		0.00	0.00
022	NEEPCO LTD.		0.00	0.00
023			0.00	0.00
024			0.00	0.00
025			0.00	0.00
026			0.00	0.00
027			0.00	0.00
028			0.00	0.00
029			0.00	0.00
030	Sub Total		0.00	0.00
055	Joint Venture Companies		0.00	0.00
056	Utility Powertech Ltd.		0.00	0.00
057	NTPC GE Power Services Pvt.Ltd.		0.00	0.00
058	NTPC-SAIL Power Company Ltd.		0.00	0.00
059	NTPC-Tamil Nadu Energy Company Ltd.		0.00	0.00
060	Ratnagiri Gas & Power Pvt. Limited (RGPPL)		0.00	0.00



RIHAND SUPER THERMAL POWER STATION

NOTE NO. 6 TO THE FS-NCA-INVESTMENTS IN SUBSIDIARIES & JOINT VENTURES

(Amount in ₹)

As at	No. of shares	Face value	31.03.2020	31.03.2019
061	Aravali Power Company Private Ltd.		0.00	0.00
062			0.00	0.00
063	NTPC BHEL Power Projects Private Ltd.		0.00	0.00
064	Meja Urja Nigam Private Limited		0.00	0.00
065	BF-NTPC Energy Systems Ltd.		0.00	0.00
066			0.00	0.00
067	Nabinagar Power Generating Company Ltd.		0.00	0.00
068	Transformer and Electrical Kerala Ltd.		0.00	0.00
069	National High Power Test Laboratory Private Ltd.		0.00	0.00
070			0.00	0.00
071	CIL NTPC Urja Private Ltd.		0.00	0.00
072	Anushakti Vidhyut Nigam Ltd.		0.00	0.00
073	Energy Efficiency Services Ltd.		0.00	0.00
074			0.00	0.00
075	Trincomalee Power Company Ltd.		0.00	0.00
076	Bangladesh-India Friendship Power Company (Pvt.) Ltd.		0.00	0.00
077	Hindustan Urvarak & Rasayan Limited		0.00	0.00
078	Konkan LNG Pvt. Ltd		0.00	0.00
079			0.00	0.00
081	Sub Total		0.00	0.00
109	Aggregate amount of impairment in the value of investments		0.00	0.00
110			0.00	0.00
111			0.00	0.00
134	Total		0.00	0.00
135	Details of Investments		0.00	0.00
136	Aggregate amount of Unquoted Investments		0.00	0.00

Locked: 16.05.2020 - 14:48:34

Run on: 14.11.2024 - 16:13:30 Version: 0


 Anil Kumar
 Addl. General Manager (Commercial)
 एन टी पी सी लिमिटेड / NTPC LIMITED

RIHAND SUPER THERMAL POWER STATION

NOTE NO. 6 TO THE FS-NCA-INVESTMENTS IN SUBSIDIARIES & JOINT VENTURES

(Amount in ₹)

As at	No. of shares	Face value	31.03.2020	31.03.2019
141			0.00	0.00
142			0.00	0.00
143			0.00	0.00
144			0.00	0.00
145			0.00	0.00
153	Valuation of Investments as per Note 1.		0.00	0.00
154			0.00	0.00
202			0.00	0.00
233			0.00	0.00

RIHAND SUPER THERMAL POWER STATION

NOTE NO. 7 TO THE FS-NCA-INVESTMENTS

(Amount in ₹)

	As at	No. of shares	Face value	31.03.2020	31.03.2019
001	Non-current financial assets (investments)			0.00	0.00
006	Long Term - Trade			0.00	0.00
007	Equity Instruments (fully paid up-unless otherwise stated)			0.00	0.00
008	Quoted			0.00	0.00
009	Joint Venture Companies			0.00	0.00
010	PTC India Ltd.			0.00	0.00
070	International Coal Ventures Private Ltd.			0.00	0.00
075	BF-NTPC Energy Systems Ltd.			0.00	0.00
098				0.00	0.00
110	Cooperative Societies			0.00	0.00
111	Sub Total			0.00	0.00
112	Aggregate amount of impairment in the value of investments			0.00	0.00
115	Total			0.00	0.00
120				0.00	0.00
146	NTPC Employees Consumers and Thrift Co-operative Society Ltd. Korba			0.00	0.00
147	NTPC Employees Consumers and Thrift Cooperative Society Ltd. RSTPP			0.00	0.00
148	NTPC Employees Consumers Cooperative Society Ltd. Farakka			0.00	0.00
149	NTPC Employees Consumers Cooperative Society Ltd. Vindhyachal			0.00	0.00
150	NTPC Employees Consumers Cooperative Society Ltd. Anta			0.00	0.00
151	NTPC Employees Consumers Cooperative Society Ltd. Kawas			0.00	0.00
152	NTPC Employees Consumers Cooperative Society Ltd. Kaniha			0.00	0.00



RIHAND SUPER THERMAL POWER STATION

NOTE NO. 8 TO THE FS-NCA-TRADE RECEIVABLES

(Amount in ₹)

As at	31.03.2020	31.03.2019
001 Non-current financial assets - Trade receivables	0.00	0.00
002 Unsecured, considered good	0.00	0.00
003 With significant increase in Credit Risk	0.00	0.00
004 Credit impaired	0.00	0.00
005	0.00	0.00
006 Total	0.00	0.00

RIHAND SUPER THERMAL POWER STATION
NOTE NO. 9 TO THE FS-NCA-LOANS
(Amount in ₹)

As at	31.03.2020	31.03.2019
001 Loans (Non Current)	0.00	0.00
004 Related Parties	0.00	0.00
005 Secured	0.00	0.00
006 Un-Secured	0.00	0.00
007 With significant increase in Credit Risk	0.00	0.00
008 Credit impaired	0.00	0.00
009	0.00	0.00
010 Employees(including accrued interest)	0.00	0.00
011 Secured	78,002,193.59	74,458,322.58
012 Unsecured	48,524,350.45	59,457,513.24
013 With significant increase in Credit Risk	0.00	0.00
014 Credit impaired	0.00	0.00
015 Less : Employee Loans Discounting	0.00	0.00
016 Secured	21,268,252.60	21,325,766.04
017 Unsecured	7,979,178.61	10,471,815.44
018 Loan to State Government in settlement of dues from customers (Unsecured)	0.00	0.00
019 Others	0.00	0.00
020 Secured	0.00	0.00
021 Unsecured	0.00	0.00
022 With significant increase in Credit Risk	0.00	0.00
023 Credit impaired	0.00	0.00
024 Less: Allowance for credit impaired loans	0.00	0.00
025 Sub Total	97,279,112.83	102,118,254.34
026	0.00	0.00
027 Total	97,279,112.83	102,118,254.34
028	0.00	0.00
029	0.00	0.00
030 Due from Directors and Officers of the Company	0.00	0.00
031 Directors	0.00	0.00
032 Officers	0.00	0.00
033	0.00	0.00
034 Loans to related parties include:	0.00	0.00
035 i)Key management personel	0.00	0.00
036 ii)Subsidiary companies	0.00	0.00
037 iii)Joint Venture companies	0.00	0.00
038 iv)Others	0.00	0.00
039	0.00	0.00
054 Other loans represent loans given to	0.00	0.00
055 a) APIIC	0.00	0.00
060	0.00	0.00
061 RPD	0.00	0.00
062 i)Key management personel	0.00	0.00
063 ii)Subsidiary companies	0.00	0.00
064 iii)Joint Venture companies	0.00	0.00
065 iv)Others	0.00	0.00



RIHAND SUPER THERMAL POWER STATION

NOTE NO. 9 TO THE FS-NCA-LOANS

(Amount in ₹)

	As at	31.03.2020	31.03.2019
066	Total	0.00	0.00

RIHAND SUPER THERMAL POWER STATION
NOTE NO. 10 TO THE FS-NCA-OTHER FINANCIAL ASSETS
(Amount in ₹)

As at	31.03.2020	31.03.2019
001 Other Financial Assets (non current)	0.00	0.00
002	0.00	0.00
003 Share application money pending allotment in (Subsidiary Companies) :	0.00	0.00
004 NTPC Electric Supply Company Ltd.	0.00	0.00
005 NTPC Vidyut Vyapar Nigam Ltd.	0.00	0.00
006 Nabinagar Power Generating Company Ltd.	0.00	0.00
007 Kanti Bijlee Utpadan Nigam Ltd.	0.00	0.00
008 Bhartiya Rail Bijlee Company Ltd.	0.00	0.00
009 Patratu Vidyut Utpadan Nigam Ltd.	0.00	0.00
010 NTPC Mining Limited	0.00	0.00
011 THDC Ltd.	0.00	0.00
012 NEEPCO Ltd	0.00	0.00
013	0.00	0.00
014 Total	0.00	0.00
015 Share application money pending allotment (Joint Venture)	0.00	0.00
016 Utility Powertech Ltd.	0.00	0.00
017 NTPC GE Power Services Pvt.Ltd.	0.00	0.00
018 NTPC-SAIL Power Company Ltd.	0.00	0.00
019 NTPC-Tamil Nadu Energy Company Ltd.	0.00	0.00
020 Ratnagiri Gas & Power Private Ltd.	0.00	0.00
021 Aravali Power Company Private Ltd.	0.00	0.00
022	0.00	0.00
023 NTPC BHEL Power Projects Private Ltd.	0.00	0.00
024 Meja Urja Nigam Private Limited	0.00	0.00
025 BF-NTPC Energy Systems Ltd.	0.00	0.00
026 Anushakti Vidhyut Nigam Ltd.	0.00	0.00
027 Nabinagar Power Generating Company Ltd.	0.00	0.00
028 Energy Efficiency Services Ltd.	0.00	0.00
029 National High Power Test Labortory Private Ltd.	0.00	0.00
030	0.00	0.00
031 CIL NTPC Urja Private Ltd.	0.00	0.00
032 Trincomalee Power Company Ltd.	0.00	0.00
033 Hindustan Urvarak & Rasayan Limited	0.00	0.00
034 Bangladesh-India Friendship Power Company Private Ltd.	0.00	0.00
035 Sub Total	0.00	0.00
036	0.00	0.00
037 Claims Recoverable	0.00	0.00
038 Finance Lease Recoverable	0.00	0.00
039 Mine Closure Deposit	0.00	0.00
040	0.00	0.00
041 Total	0.00	0.00

RIHAND SUPER THERMAL POWER STATION
NOTE NO. 11 TO THE FS-NCA-OTHER NON-CURRENT ASSETS
(Amount in ₹)

As at	31.03.2020	31.03.2019
001 Other Non-current Assets	0.00	0.00
002	0.00	0.00
003 CAPITAL ADVANCES	0.00	0.00
004 Secured	0.00	0.00
005 Unsecured	0.00	0.00
006 Covered by Bank Guarantee	323,177,345.00	297,201,725.00
007 Others	89,609,598.63	113,243,558.35
008 Considered doubtful	0.00	0.00
009 Less: Allowance for bad & doubtful advances	0.00	0.00
010 Sub-Total	412,786,943.63	410,445,283.35
011	0.00	0.00
012 Advances other than capital advances	0.00	0.00
013 Security deposits	1,436,400.00	1,436,400.00
019 Advances to Related parties	0.00	0.00
022 Advances to Contractors & Suppliers	0.00	0.00
023 Secured	0.00	0.00
024 Unsecured	0.00	0.00
025 Considered Doubtful	0.00	0.00
026 Less: Allowance for bad & doubtful advances	0.00	0.00
027 Sub Total	1,436,400.00	1,436,400.00
039 Advance tax & tax deducted at source	1,374,625.00	321,125.00
040 Less:- Provision for current tax	0.00	0.00
041	0.00	0.00
042 Sub Total	1,374,625.00	321,125.00
043 Deferred Payroll Expenses (Secured)	18,035,323.47	18,756,382.73
044 Deferred Payroll Expenses (Unsecured)	5,842,677.19	7,851,180.68
045 Sub Total	23,878,000.66	26,607,563.41
046 Deferred Foreign Currency Fluctuation Asset	2,071,095,000.00	1,292,019,000.00
048 Total	2,510,570,969.29	1,730,829,371.76
049	0.00	0.00
050	0.00	0.00
061 Advances include amount due from the following Private Companies in which Directors of the Company are also Directors in such Companies	0.00	0.00
063	0.00	0.00
064 NTPC GE Power Services Pvt.Ltd.	0.00	0.00
065	0.00	0.00
066 Ratnagiri Gas & Power Private Ltd.	0.00	0.00
067 Aravali Power Company Private Ltd.	0.00	0.00
068 NTPC-SCCL Global Ventures Private Ltd.	0.00	0.00
069 NTPC BHEL Power Projects Private Ltd.	0.00	0.00
070 Meja Urja Nigam Private Limited	0.00	0.00
071 Nabinagar Power Generating Company Ltd.	0.00	0.00
072 National High Power Test Labortory Private Ltd.	0.00	0.00
074 CIL NTPC Urja Private Ltd.	0.00	0.00
076	0.00	0.00
077 Related Party (Adv)	0.00	0.00



RIHAND SUPER THERMAL POWER STATION

NOTE NO. 11 TO THE FS-NCA-OTHER NON-CURRENT ASSETS

(Amount in ₹)

As at	31.03.2020	31.03.2019
078 Key Management personel	0.00	0.00
079 Subsidiary companies	0.00	0.00
080 Joint Venture companies	0.00	0.00
081 Contractors	0.00	0.00
082 Others	0.00	0.00
084	0.00	0.00
085 Total	0.00	0.00

RIHAND SUPER THERMAL POWER STATION
NOTE NO. 12 TO THE FS-CA-INVENTORIES
(Amount in ₹)

As at	31.03.2020	31.03.2019
001 INVENTORIES	0.00	0.00
002	0.00	0.00
003 Coal	530,693,477.72	2,088,231,631.33
004 Fuel oil	213,916,508.70	276,978,893.24
005 Naphtha	0.00	0.00
006 Stores and spares	2,507,691,473.02	2,466,139,085.48
007 Chemicals & consumables	82,869,440.00	67,098,480.64
008 Loose tools	1,481,824.88	1,681,496.63
009 Steel Scrap	4,556,896.18	4,826,650.77
010 Others*	618,290,642.20	644,360,919.29
011 Sub Total	3,959,500,262.70	5,549,317,157.38
012 Less: Provision for shortages	1,959,334.78	4,052,394.00
013 Less: Provision for obsolete/ unservicable/dimuntion in value of surplus inventory	22,832,831.53	22,367,583.21
014	0.00	0.00
015 Total	3,934,708,096.39	5,522,897,180.17
016 Inventories include material in transit	0.00	0.00
017 Coal	0.00	0.00
018 Fuel oil	0.00	0.00
019 Naphtha	0.00	0.00
020 Stores and spares	24,889,533.24	34,306,383.44
021 Chemicals & consumables	30,471.33	0.00
022 Loose tools	0.00	0.00
023 Others	527,190.00	7,458.00
024	0.00	0.00
025 Inventory items other than steel scrap have been valued considering Note 1. Steel scrap has been valued at estimated realisable value.	0.00	0.00

RIHAND SUPER THERMAL POWER STATION

NOTE NO. 13 TO THE FS-CA-INVESTMENTS

(Amount in ₹)

As at	No. of shares	Face value	31.03.2020	31.03.2019
001	CURRENT INVESTMENTS		0.00	0.00
002	(Valuation as per Note 1)		0.00	0.00
003			0.00	0.00
033	Investment in Mutual Funds (Details as under)		0.00	0.00
034	SBI-Magnum Insta Cash Fund-DDR		0.00	0.00
035	SBI Premier Liquid Fund Super-IP-DDR		0.00	0.00
036	SBI-SHF Ultra Short Term Fund-IP-DDR		0.00	0.00
037	UTI Money Market- IP-Direct-Growth		0.00	0.00
038	IDBI-Liquid plan- Direct-Growth		0.00	0.00
039	Canara Robeco Liquid Fund Super-IP-DDR		0.00	0.00
040	Canara Robeco Treasury Advantage Fund Super-IP-DDR		0.00	0.00
041	IDBI Liquid Fund-DDR		0.00	0.00
042	SBI Premier Liquid fund-Direct DDR (Ash Fund)		0.00	0.00
043	UTI Liquid CashPlan - IP - DDR (Ash Funds)		0.00	0.00
044	IDBI Liquid Fund - DDR - (Ash Funds)		0.00	0.00
045			0.00	0.00
046	Sub Total		0.00	0.00
047			0.00	0.00
052	Unquoted Investments		0.00	0.00
054			0.00	0.00
066	TOTAL		0.00	0.00
067			0.00	0.00



RIHAND SUPER THERMAL POWER STATION
NOTE NO. 14 TO THE FS-CA-TRADE RECEIVABLES

(Amount in ₹)

As at	31.03.2020	31.03.2019
001 TRADE RECEIVABLES (current)*	0.00	0.00
002	0.00	0.00
003 Secured, Considered Good	0.00	0.00
004 Unsecured , considered good	6,200,899.09	3,309,893.64
005 With significant increase in Credit Risk	0.00	0.00
006 Credit impaired	0.00	0.00
007 Sub-Total	6,200,899.09	3,309,893.64
008 Total	6,200,899.09	3,309,893.64
009 Less: Allowance for credit impaired receivables	0.00	0.00
010 Total	6,200,899.09	3,309,893.64
011	0.00	0.00
013 * After adjustment for Unbilled Revenue	0.00	0.00
014 Long-term trade receivables	0.00	0.00
015	0.00	0.00
016	0.00	0.00



RIHAND SUPER THERMAL POWER STATION

NOTE NO. 15 TO THE FS-CA-CASH AND CASH EQUIVALENTS

(Amount in ₹)

As at	31.03.2020	31.03.2019
001 CASH & BANK BALANCES	0.00	0.00
002 Cash & Cash Equivalents	0.00	0.00
003 Balances with Banks	435,387.81	3,143,233.30
004 Cheques & Drafts on hand	0.00	250,000.00
005 Cash on hand	0.00	0.00
006 Others (stamps in hand)	0.00	0.00
007 Bank deposits with original maturity upto three months	0.00	0.00
008 Balances with RBI	0.00	0.00
009	0.00	0.00
010 Total	435,387.81	3,393,233.30

RIHAND SUPER THERMAL POWER STATION

NOTE NO. 16 TO THE FS-CA-BANK BALANCES OTHER THAN CASH AND CASH EQUIVALENTS (Amount in ₹)

As at	31.03.2020	31.03.2019
001 Other Bank Balances	0.00	0.00
002 Deposits with original maturity of more than three months but not more than twelve months	0.00	0.00
003 Earmarked balances with banks*	0.00	0.00
004 SubTotal	0.00	0.00
005 Interest accrued on deposits	0.00	0.00
006	0.00	0.00
007 Total	0.00	0.00
008	0.00	0.00
009 Earmarked balances with banks consist of :	0.00	0.00
010 Unpaid dividend account balance	0.00	0.00
011 Towards public deposit repayment reserve	0.00	0.00
012 Towards redemption of bonds due for repayment within one year	0.00	0.00
013 Security with Government/other authorities	0.00	0.00
014 Unpaid refund/interest account balance - Tax free bonds/ Bonus Debentures	0.00	0.00
015 Earmarked for RGGVY/DDUGJY/SAUBHAGYA Fund	0.00	0.00
016 Earmarked for Flyash Utilisation Reserve Fund	0.00	0.00
017 Deposits with original maturity upto three months as per court orders	0.00	0.00
018 Payment Security Scheme of MNRE NSM (NTPC)	0.00	0.00
019 Payment Security Scheme of MNRE NSM (NVVN)	0.00	0.00
020 Enforcement Directorate of Solar Plant(NVVN)	0.00	0.00
021 Bank guarantee Fund of MNRE (NVVN)	0.00	0.00
022 Others	0.00	0.00
023	0.00	0.00
024 Total	0.00	0.00
025	0.00	0.00
026 Bank deposits with original maturity of less than three months- other than earmarked	0.00	0.00
027 Bank deposits with original maturity of more than three months but not more than twelve months- other than earmarked	0.00	0.00
028 Earmarked bank balances (current account)	0.00	0.00

RIHAND SUPER THERMAL POWER STATION
NOTE NO. 17 TO THE FS-CA-LOANS
(Amount in ₹)

As at	31.03.2020	31.03.2019
001 Current financial assets - Loans	0.00	0.00
002 Loans (current)-including interest accrued	0.00	0.00
004 Related Parties	0.00	0.00
005 Secured	0.00	0.00
006 Un-Secured	0.00	0.00
007 With significant increase in Credit Risk	0.00	0.00
008 Credit impaired	0.00	0.00
009	0.00	0.00
010 Employees	0.00	0.00
011 Secured	18,561,561.43	19,034,311.90
012 Unsecured	52,381,166.99	51,983,249.98
013 With significant increase in Credit Risk	0.00	0.00
014 Credit impaired	0.00	0.00
015 Less : Employee Loans Discounting	0.00	0.00
016 Loan to State Government in settlement of dues from customers (Unsecured)	0.00	0.00
017	0.00	0.00
018 Others	0.00	0.00
019 Secured	0.00	0.00
020 Unsecured	0.00	0.00
021 With significant increase in Credit Risk	0.00	0.00
022 Credit impaired	0.00	0.00
023	0.00	0.00
024 Less: Allowance for credit impaired loans	0.00	0.00
025 Total (Loans)	70,942,728.42	71,017,561.88
026	0.00	0.00
027 Due from Directors and Officers of the Company	0.00	0.00
028 Directors	0.00	0.00
029 Officers	0.00	0.00
030	0.00	0.00
031 Loans to related parties include:	0.00	0.00
032 i)Key management personel	0.00	0.00
033 ii)Subsidiary companies	0.00	0.00
034 KBUNL	0.00	0.00
035 PVUNL	0.00	0.00
036 NVVN	0.00	0.00
037 iii)Joint Venture companies	0.00	0.00
038 iv)others	0.00	0.00
039	0.00	0.00
059 RPD	0.00	0.00
060 i)Key management personel	0.00	0.00
061 ii)Subsidiary companies	0.00	0.00
062 iii)Joint Venture companies	0.00	0.00
063 iv)Others	0.00	0.00
064	0.00	0.00
065 Total	0.00	0.00

Locked: 16.05.2020 - 14:48:37

Run on: 14.11.2024 - 16:12:06 Version: 0

RIHAND SUPER THERMAL POWER STATION
NOTE NO. 18 TO THE FS-CA-OTHER FINANCIAL ASSETS
(Amount in ₹)

As at	31.03.2020	31.03.2019
001 Other Financial Assets (current)	0.00	0.00
002	0.00	0.00
003 ADVANCES	0.00	0.00
004	0.00	0.00
005 Related Parties	0.00	0.00
006 Secured	0.00	0.00
007 Un-Secured	583,008,854.62	115,514,066.15
008 Considered doubtful	0.00	0.00
009	0.00	0.00
010 Employees	0.00	0.00
012 Unsecured	3,465,523.87	2,545,980.44
013 Considered Doubtful	0.00	0.00
014	0.00	0.00
020 Others	0.00	0.00
021 Secured	0.00	0.00
022 Unsecured	0.00	0.00
023 Considered Doubtful	0.00	0.00
024	0.00	0.00
025 Less: Allowance for bad & doubtful advances	0.00	0.00
026	0.00	0.00
033 Total (Advances)	586,474,378.49	118,060,046.59
044	0.00	0.00
045 Claims Recoverable	0.00	0.00
046 Secured	0.00	0.00
047 Unsecured, considered good	95,503,503.01	59,241,658.00
048 Considered Doubtful	0.00	0.00
049 Less:- Allowance for doubtful claims	0.00	0.00
050 Others-Claims Recoverable	0.00	0.00
051	0.00	0.00
052 Unbilled Revenue	0.00	0.00
053 Hedging cost recoverable from beneficiaries	0.00	0.00
054 Derivative MTM Asset	0.00	0.00
055 Finance Lease Receivable	0.00	0.00
056 Mine Closure Deposit	0.00	0.00
057 Others*	0.00	23,375.00
058 Receivable from MCP Escrow A/c	0.00	0.00
059 Total	681,977,881.50	177,325,079.59
060	0.00	0.00
062 * Other include amount recoverable from contractors and other parties towards hire charges, rent/electricity etc.	0.00	0.00
063	0.00	0.00
067	0.00	0.00
068 Advances to related parties include:	0.00	0.00
069 i)Key management personel	0.00	0.00
070 ii)Subsidiary companies	0.00	0.00
071 iii)Joint Venture companies	0.00	0.00

Locked: 16.05.2020 - 14:48:37

Run on: 14.11.2024 - 16:12:08 Version: 0

**RIHAND SUPER THERMAL POWER STATION****NOTE NO. 18 TO THE FS-CA-OTHER FINANCIAL ASSETS****(Amount in ₹)**

As at	31.03.2020	31.03.2019
072 iv)Contractors	0.00	0.00
073 v)Others	0.00	0.00
074	0.00	0.00
075 Advances include amount due from the following Private Companies in which Directors of the Company are also Directors in such Companies	0.00	0.00
076	0.00	0.00
077	0.00	0.00
078 NTPC GE Power Services Pvt.Ltd.	0.00	0.00
079 Ratnagiri Gas & Power Private Ltd.	0.00	0.00
080 Aravali Power Company Private Ltd.	0.00	0.00
081 NTPC-SCCL Global Ventures Private Ltd.	0.00	0.00
082 NTPC BHEL Power Projects Private Ltd.	0.00	0.00
083 Meja Urja Nigam Private Limited	0.00	0.00
084 Nabinagar Power Generating Company Ltd.	0.00	0.00
085 National High Power Test Labortory Private Ltd.	0.00	0.00
086 International Coal Ventures Private Ltd.	0.00	0.00
087 CIL NTPC Urja Private Ltd.	0.00	0.00
089 Bangladesh-India Friendship Power Co. Pvt.Ltd	0.00	0.00
090	0.00	0.00
091 Related Party (Adv)- Employee	0.00	0.00
092 Related Party (Adv)- Subsidiaries	0.00	0.00
093 Related Party (Adv)- Joint Ventures	0.00	0.00
094 Related Party (Adv)- Contractors	0.00	0.00
095 Related Party (Adv)- Others	583,008,854.62	115,514,066.15
096 Total	583,008,854.62	115,514,066.15

RIHAND SUPER THERMAL POWER STATION
NOTE NO. 19 TO THE FS-CA-OTHER CURRENT ASSETS
(Amount in ₹)

As at	31.03.2020	31.03.2019
001 OTHER CURRENT ASSETS	0.00	0.00
002 Security Deposits (Unsecured)	0.00	0.00
003 Deposit with Customs, port trust & others*	191,392,850.00	191,392,850.00
004 ADVANCES	0.00	0.00
005	0.00	0.00
006 Related Parties	0.00	0.00
007 Secured	0.00	0.00
008 Un-Secured	22,267,172.00	15,733,245.00
009 Considered doubtful	0.00	0.00
010	0.00	0.00
011 Employees(including imprest)	0.00	0.00
012 Secured	0.00	0.00
013 Unsecured	313,974.00	367,109.28
014 Considered Doubtful	0.00	0.00
015	0.00	0.00
016 Contractors & Suppliers	0.00	0.00
017 Secured	0.00	0.00
018 Unsecured	195,835,792.94	122,879,539.27
019 Considered Doubtful	0.00	53,600.00
020	0.00	0.00
021 Others**	0.00	0.00
022 Secured	0.00	0.00
023 Unsecured	12,449,859.00	65,159,372.17
024 Considered Doubtful	0.00	0.00
025	0.00	0.00
026 Less: Allowance for bad & doubtful advances	0.00	53,600.00
027 Deferred Payroll Expenses (Secured)	2,488,898.40	2,810,851.92
028 Deferred Payroll Expenses (Unsecured)	3,815,730.86	4,524,013.84
029 Sub-total	6,304,629.26	7,334,865.76
030 Interest accrued on :	0.00	0.00
031 Advances to contractors	0.00	0.00
032	0.00	0.00
033 Claims Recoverable	0.00	0.00
034 Secured	0.00	0.00
035 Unsecured, considered good	207,959,344.25	86,481,056.84
036 Considered Doubtful	26,600,000.00	26,600,000.00
037 Less:- Allowance for doubtful claims	26,600,000.00	26,600,000.00
038	0.00	0.00
039 Deferred premium on forward exchange contract/ Option Assets	0.00	0.00
041 Assets Held for Disposal	197,831.40	197,831.40
042 Others	4,507,295.00	4,299,036.00
043	0.00	0.00
044 Total (Other Current Assets)	641,228,747.85	493,844,905.72
045 **Include Prepaid Expenses	12,449,859.00	65,159,372.17
046 *Includes sales tax/Entry tax/VAT deposited under protest with Sales Tax Authorities	812,756.00	466,336.00

RIHAND SUPER THERMAL POWER STATION
NOTE NO. 19 TO THE FS-CA-OTHER CURRENT ASSETS
(Amount in ₹)

As at	31.03.2020	31.03.2019
047 *Includes deposited with courts	0.00	0.00
048 *Includes deposited with LIC for annuity payments	0.00	0.00
049 * Includes deposits with WRD / against BG in r/o finance lease	0.00	0.00
050 Other include amount recoverable from contractors and other parties towards hire charges, rent/electricity etc.	0.00	0.00
052 Advances to related parties include:	0.00	0.00
053 i)Key management personel	0.00	0.00
054 ii)Subsidiary companies	0.00	0.00
055 iii)Joint Venture companies	0.00	0.00
056 Contractors	0.00	0.00
057 Others	0.00	0.00
058	0.00	0.00
059 Advances include amount due from the following Private Companies in which Directors of the Company are also Directors in such Companies	0.00	0.00
060	0.00	0.00
061	0.00	0.00
062 Related Party (Adv)- Employee	0.00	0.00
063 Related Party (Adv)- Subsidiaries	0.00	0.00
064 Related Party (Adv)- Joint Venture	0.00	3,091,378.00
065 Related Party (Adv)- Contractors	21,706,489.00	10,778,611.00
066 Related Party (Adv)- Others	560,683.00	1,863,256.00
067 Total	22,267,172.00	15,733,245.00
068	0.00	0.00



RIHAND SUPER THERMAL POWER STATION

NOTE NO. 20 TO THE FS--REGULATORY DEFERRAL ACCOUNT DEBIT BALANCES

(Amount in ₹)

As at	31.03.2020	31.03.2019
001 On account of Exchange Differences	-15,205,072.81	-33,869,209.96
002 On account of employee benefit exp	381,915,581.00	381,915,581.00
003 Regulatory deferred account - deferred	0.00	0.00
004 Deferred asset for ash transportation	0.00	0.00
005	0.00	0.00
006 Total	366,710,508.19	348,046,371.04

RIHAND SUPER THERMAL POWER STATION

NOTE NO. 21 TO THE FS-EQUITY-EQUITY SHARE CAPITAL

(Amount in ₹)

As at	31.03.2020	31.03.2019
001 SHARE CAPITAL	0.00	0.00
002 Equity Share Capital	0.00	0.00
003 Authorised	0.00	0.00
004 10,000,000,000 equity shares of Rs.10/- each (Previous year 10,000,000,000 eq shares of Rs.10/- each)	0.00	0.00
005 Issued,Subscribed and fully Paid-up	0.00	0.00
006 9,894,557,280 equity shares of Rs.10/- (Pv. Year 9,894,557,280 equity shares of Rs.10/- each)	0.00	0.00
007	0.00	0.00
008 Total	0.00	0.00
009 During FY 2018-19, the company has issued 1,649,092,880 equity shares of Rs.10/- each as fully paid bonus shares	0.00	0.00
010 The holders of the equity shares are entitled to receive dividends as declared from time to time, and are entitled to one vote per share at meetings of the company.	0.00	0.00
011 Details of shareholders holding more than 5% shares in the company	0.00	0.00
012 - President of India	0.00	0.00
013 No. of Shares	0.00	0.00
014 % of holding	0.00	0.00
015 - Life Insurance Corporation of India/ICICI Prudential Mutual Fund	0.00	0.00
016 No. of Shares	0.00	0.00
017 % of holding	0.00	0.00

RIHAND SUPER THERMAL POWER STATION
NOTE NO. 22 TO THE FS-EQUITY-OTHER EQUITY
(Amount in ₹)

As at	31.03.2020	31.03.2019
001 RESERVE AND SURPLUS	0.00	0.00
002	0.00	0.00
003 Capital Reserve	0.00	0.00
004 As per last financial statements	0.00	0.00
006 Add : Grants received during the year	0.00	0.00
007 Add: Transfer from Surplus	0.00	0.00
008 Less: Write back during the year/period	0.00	0.00
009 Less: Adjustments during the year/period	0.00	0.00
010 Sub-Total	0.00	0.00
011 Securities Premium Account	0.00	0.00
012 As per last financial statements	0.00	0.00
013 Add: Additions during the year/period	0.00	0.00
014 Less: Adjustments during the year/period	0.00	0.00
015 Sub-Total	0.00	0.00
016 Bonds Redemption Reserve	0.00	0.00
017 As per last financial statements	0.00	0.00
018 Add: Transfer from Surplus	0.00	0.00
019 Less: Transfer to surplus on redemption	0.00	0.00
020 Less: Adjustments during the year/ period	0.00	0.00
021 Sub-Total	0.00	0.00
022 Share Application money Allotment	0.00	0.00
023 As per last financial statements	0.00	0.00
024 Add: Addition during the year	0.00	0.00
025 Less: Utilised for allotment during the year	0.00	0.00
026 Less: Adjustments during the year/ period	0.00	0.00
027 Sub-Total	0.00	0.00
028 Fly-ash utilisation reserve Fund	0.00	0.00
029 As per last financial statements	0.00	-129,445,999.71
030 Transferred to CC	0.00	194,794,711.06
031 Add:Transfer from revenue from operations	8,220,860.44	0.00
032 Add:Transfer from other income	0.00	0.00
033 Less: Utilised during the year	0.00	0.00
034 Tangible assets	0.00	0.00
035 Employee benefit expenses	0.00	-4,821,064.10
036 Generation,adm. and other expenses	0.00	-60,527,647.25
037 Tax Expenses	0.00	0.00
038 Sub-Total	8,220,860.44	0.00
039 Corporate social responsibility (CSR) reserve	0.00	0.00
040 As per last financial statements	0.00	0.00
041 Add : Transfer from surplus	0.00	0.00
042 Less:-Write back during the year	0.00	0.00
043 Sub-Total	0.00	0.00
044 General Reserve	0.00	0.00
045 As per last financial statements	0.00	0.00
046 Add: Transfer from Surplus	0.00	0.00
047 Less: Transfer to Surplus	0.00	0.00

RIHAND SUPER THERMAL POWER STATION
NOTE NO. 22 TO THE FS-EQUITY-OTHER EQUITY
(Amount in ₹)

As at	31.03.2020	31.03.2019
048 Less: Write back during the year /period	0.00	0.00
049 Less: Adjustments during the year /period	0.00	0.00
050 Sub-Total	0.00	0.00
051	0.00	0.00
052 Retained earnings	0.00	0.00
053 As per last financial statements	143,024,832,290.02	131,406,495,597.77
054 Add(Less):-Changes in accounting policy / prior period errors	0.00	0.00
055 Add(Less):-Profit (Loss) after tax for the year from Statement of Profit & Loss	11,532,563,737.03	11,618,336,692.25
056	0.00	0.00
057 Add: Write back from Bond Redemption Reserve	0.00	0.00
058 Add: Write back from Capital Reserve	0.00	0.00
059 Add: Write back from Foreign Project Reserve	0.00	0.00
060 Add: Write back from CSR Reserve	0.00	0.00
061 Add: Write back from General Reserve	0.00	0.00
062 Less: Transfer to Bonds Redemption Reserve	0.00	0.00
063 Less: Transfer to Foreign Project Reserve	0.00	0.00
064 Less:Transfer to Capital Reserve	0.00	0.00
065 Less:Transfer to CSR Reserve	0.00	0.00
066 Less:Transfer to General Reserve	0.00	0.00
067 Less:Interim Dividend Paid	0.00	0.00
068 Less:Tax on Interim Dividend Paid	0.00	0.00
069 Less:Final Dividend Paid	0.00	0.00
070 Less:Tax on Final Dividend Paid	0.00	0.00
071 Less: Issue of bonus debenture	0.00	0.00
072 Less: Tax on issue of bonus debenture	0.00	0.00
073 Sub-Total	154,557,396,027.05	143,024,832,290.02
074	0.00	0.00
075 Remeasurement of defined benefit plans	0.00	0.00
076 As per last financial statements	-119,460,048.36	-116,687,668.16
077 Add/(Less):- Actuarial Gains/loss through OCI	-53,349,231.17	-2,772,380.20
078 Sub-Total	-172,809,279.53	-119,460,048.36
080	0.00	0.00
081 FVTOCI Reserve	0.00	0.00
082 As per last financial statements	0.00	0.00
083 Add(Less):-Net gain/loss of equity instruments through OCI	0.00	0.00
084 Sub-Total	0.00	0.00
085	0.00	0.00
086 Total Other equity	154,392,807,607.96	142,905,372,241.66

RIHAND SUPER THERMAL POWER STATION

NOTE NO. 23 TO THE FS-NCL-BORROWINGS

(Amount in ₹)

As at	31.03.2020	31.03.2019
001 LONG TERM BORROWINGS	0.00	0.00
002 Bonds	0.00	0.00
003 Secured	0.00	0.00
004 7.37 % Tax free secured non-cumulative non-convertible redeemable bonds-2015 of Rs. 1,000/- each redeemable at par in full on 5th October 2035 (Fifty Sixth Issue - Public Issue - Series 3A).	0.00	0.00
005 7.62 % Tax free secured non-cumulative non-convertible redeemable bonds-2015 of Rs. 1,000/- each redeemable at par in full on 5th October 2035 (Fifty Sixth Issue - Public Issue - Series 3 B).	0.00	0.00
006 8.61% Tax free secured non-cumulative non-convertible redeemable bonds of ₹ 10,00,000/- each redeemable at par in full on 4th March 2034 (Fifty First Issue C - Private Placement)	0.00	0.00
007 8.66% Tax free secured non-cumulative non-convertible redeemable bonds - 2013 of ₹ 1000/- each redeemable at par in full on 16th December 2033 (Fiftieth Issue - Public Issue - Series 3A)	0.00	0.00
008 8.91% Tax free secured non-cumulative non-convertible redeemable bonds - 2013 of ₹ 1000/- each redeemable at par in full on 16th December 2033 (Fiftieth Issue - Public Issue - Series 3B)	0.00	0.00
009 7.37% Secured non-cumulative non-convertible redeemable taxable bonds of Rs. 10,00,000/- each redeemable at par in full on 14th December 2031 (Sixty Sixth Issue - Private Placement)	0.00	0.00
010 7.49% Secured non-cumulative non-convertible redeemable taxable bonds of Rs. 10,00,000/- each redeemable at par in full on 7th November 2031 (Sixty Fourth Issue - Private Placement)	0.00	0.00
011 7.28 % Tax free secured non-cumulative non-convertible redeemable bonds-2015 of Rs. 1,000/- each redeemable at par in full on 5th October 2030 (Fifty Sixth Issue - Public Issue - Series	0.00	0.00

RIHAND SUPER THERMAL POWER STATION

NOTE NO. 23 TO THE FS-NCL-BORROWINGS

(Amount in ₹)

As at	31.03.2020	31.03.2019
2A)		
012 7.53 % Tax free secured non-cumulative non-convertible redeemable bonds-2015 of Rs. 1,000/- each redeemable at par in full on 5th October 2030 (Fifty Sixth Issue - Public Issue - Series 2 B).	0.00	0.00
013 7.93% Secured non-cumulative non-convertible redeemable taxable bonds of ` 10,00,000/- each redeemable at par in full on 03 May 2022 (68th Issue - Private Placement)	0.00	0.00
014 8.63% Tax free secured non-cumulative non-convertible redeemable bonds of ₹ 10,00,000/- each redeemable at par in full on 4th March 2029 (Fifty First Issue B - Private Placement)	0.00	0.00
015 8.30% Secured non-cumulative non-convertible redeemable taxable bonds of Rs 10,00,000/- each redeemable at par in full on 15 January 2029 (Sixty Seventh Issue - Private Placement)	0.00	0.00
016 8.48% Tax free secured non-cumulative non-convertible redeemable bonds - 2013 of ₹ 1000/- each redeemable at par in full on 16th December 2028 (Fiftieth Issue - Public Issue - Series 2A)	0.00	0.00
017 8.73% Tax free secured non-cumulative non-convertible redeemable bonds - 2013 of ₹ 1000/- each redeemable at par in full on 16th December 2028 (Fiftieth Issue - Public Issue - Series 2B)	0.00	0.00
018 7.47% Secured non-cumulative non-convertible redeemable taxable bonds of Rs. 10,00,000/- each redeemable at par in full on 16th September 2026 (Sixty Third Issue - Private Placement)	0.00	0.00
019 7.58% Secured non-cumulative non-convertible redeemable taxable bonds of Rs. 10,00,000/- each redeemable at par in full on 23rd August 2026 (Sixty Second Issue - Private Placement)	0.00	0.00

RIHAND SUPER THERMAL POWER STATION
NOTE NO. 23 TO THE FS-NCL-BORROWINGS
(Amount in ₹)

As at			31.03.2020	31.03.2019
020	8.05%	Secured non-cumulative non-convertible redeemable taxable bonds of Rs. 10,00,000/- each redeemable at par in full on 5th May 2026 (Sixtieth Issue - Private Placement)	0.00	0.00
021	8.19%	Secured non-cumulative non-convertible redeemable taxable bonds of Rs. 10,00,000/- each redeemable at par in full on 15th December 2025 (Fifty Seventh Issue - Private Placement)	0.00	0.00
022	7.11 %	Tax free secured non-cumulative non-convertible redeemable bonds-2015 of Rs. 1,000/- each redeemable at par in full on 5th October 2025 (Fifty Sixth Issue - Public Issue - Series 1A).	0.00	0.00
023	7.36 %	Tax free secured non-cumulative non-convertible redeemable bonds-2015 of Rs. 1,000/- each redeemable at par in full on 5th October 2025 (Fifty Sixth Issue - Public Issue - Series 1 B).	0.00	0.00
024	7.15%	Tax free secured non-cumulative non-convertible redeemable bonds - 2015 of Rs. 10,00,000/- each redeemable at par in full on 21st August 2025 (Fifty Fifth Issue - Private Placement)	0.00	0.00
025	9.17%	Secured non-cumulative non-convertible redeemable taxable bonds of ₹ 10,00,000/- each redeemable at par in full on 22nd September 2024 (53rd Issue - private placement).	0.00	0.00
026	9.34%	Secured non-cumulative non-convertible redeemable taxable bonds of ₹10,00,000/- each redeemable at par in full on 24th March 2024 (Fifty Second Issue - private placement)	0.00	0.00
027	8.19%	Tax free secured non-cumulative non-convertible redeemable bonds - 2013 of ₹ 10,00,000/- each redeemable at par in full on 4th March 2024 (Fifty First Issue A - Private Placement)	0.00	0.00

RIHAND SUPER THERMAL POWER STATION

NOTE NO. 23 TO THE FS-NCL-BORROWINGS

(Amount in ₹)

As at	31.03.2020	31.03.2019
028 8.41% Tax free secured non-cumulative non-convertible redeemable bonds - 2013 of ₹ 1000/- each redeemable at par in full on 16th December 2023 (Fiftieth Issue - Public Issue - Series 1A)	0.00	0.00
029 8.66% Tax free secured non-cumulative non-convertible redeemable bonds - 2013 of ₹ 1000/- each redeemable at par in full on 16th December 2023 (Fiftieth Issue - Public Issue - Series 1B)	0.00	0.00
030 9.25% Secured non-cumulative non-convertible redeemable taxable bonds of ₹10,00,000/- each with five equal separately transferable redeemable principal parts (STRPP) redeemable at par at the end of 11th year and in annual installments thereafter upto the end of 15th year respectively commencing from 4th May 2023 and ending on 4th May 2027 (Forty fourth issue - private placement)VII	0.00	0.00
031 8.48% Secured non-cumulative non-convertible redeemable taxable bonds of ₹ 10,00,000/- each redeemable at par in full on 1st May 2023 (Seventeenth issue - private placement)I	0.00	0.00
032 8.80% Secured non-cumulative non-convertible redeemable taxable bonds of ₹10,00,000/- each redeemable at par in full on 4th April 2023 (Forty ninth issue -private placement	0.00	0.00
033 8.49% Secured non-cumulative non-convertible redeemable taxable fully paid-up bonus debentures of Rs. 12.50 each redeemable at par in three annual installments of Rs. 2.50, Rs. 5.00 and Rs. 5.00 at the end of 8th year, 9th year and 10th year on 25th March 2023, 25th March 2024 and 25th March 2025 respectively (Fifty Fourth Issue -Bonus Debentures)X - (refer Note 5 d)	0.00	0.00
034 8.73% Secured non-cumulative non-convertible redeemable taxable bonds of	0.00	0.00

RIHAND SUPER THERMAL POWER STATION

NOTE NO. 23 TO THE FS-NCL-BORROWINGS

(Amount in ₹)

			31.03.2020	31.03.2019
	As at			
	₹ 10,00,000/- each redeemable at par in full on 07th March 2023 (Forty eighth issue - private placement)			
035	9.00%	Secured	non-cumulative non-convertible redeemable taxable bonds of ₹ 10,00,000/- each with five equal separately transferable redeemable principal parts (STRPP) redeemable at par at the end of 11th year and in annual installments thereafter upto the end of 15th year respectively commencing from 25th January 2023 and ending on 25th January 2027 (Forty second issue- private placement)III	0.00
				0.00
036	8.84%	Secured	non-cumulative non-convertible redeemable taxable bonds of ₹10,00,000/- each redeemable at par in full on 4th October 2022 (Forty seventh issue- private placement)VII	0.00
				0.00
037	7.32%	Secured	non-cumulative non-convertible redeemable taxable bonds of Rs 10,00,000/- each redeemable at par in full on 17 July 2029 (Sixty Ninth Issue - Private Placement)	0.00
				0.00
038	6.72%	Secured	non-cumulative non-convertible redeemable taxable bonds of Rs. 10,00,000/- each redeemable at par in full on 24th November 2021 (Sixty Fifth Issue - Private Placement)	0.00
				0.00
039	8.10%	Secured	Non-Cumulative Non-Convertible Redeemable Taxable Bonds of Rs. 30,00,000/- each redeemable at par in three equal separately transferable redeemable principal parts (STRPP) at the end of 5th year, 10th year & 15th year on 27th May 2021, 27th May 2026 and 27th May 2031 respectively (Sixty First Issue- Private Placement)	0.00
				0.00
040	8.33%	Secured	non-cumulative non-convertible redeemable taxable bonds of Rs.10,00,000/- each redeemable at par in full on 24th February 2021	0.00
				0.00

RIHAND SUPER THERMAL POWER STATION
NOTE NO. 23 TO THE FS-NCL-BORROWINGS
(Amount in ₹)

As at				31.03.2020	31.03.2019
(Fifty Ninth Issue - Private Placement).					
042	8.93%	Secured	non-cumulative non-convertible redeemable taxable bonds of ₹ 10,00,000/- each redeemable at par in full on 19th January 2021 Thirty seventh issue - private placement)III	0.00	0.00
043	8.18%	Secured	non-cumulative non-convertible redeemable taxable bonds of Rs.10,00,000/- each redeemable at par in full on 31st December 2020 (Fifty Eight Issue - Private Placement).	0.00	0.00
044	8.73 %	Secured	non-cumulative non-convertible redeemable taxable bonds of ₹ 10,00,000/- each redeemable at par in full on 31st March 2020 (Thirty third issue- private placement)III	0.00	0.00
045	8.78 %	Secured	non-cumulative non-convertible redeemable taxable bonds of ₹ 10,00,000/- each redeemable at par in full on 9th March 2020 (Thirty first issue- private placement)III	0.00	0.00
046	11.25%	Secured	non-cumulative non-convertible redeemable taxable bonds of ₹ 10,00,000/- each redeemable at par in five equal annual installments commencing from 6th Nov 2019 and ending on 6th Nov 2023 (Twenty seventh issue - private placement)III	0.00	0.00
047	7.89%	Secured	non-cumulative non-convertible redeemable taxable bonds of ₹ 10,00,000/- each redeemable at par in full on 5th May 2019 (Thirtieth issue - private placement)III	0.00	0.00
048	8.65%	Secured	non-cumulative non-convertible redeemable taxable bonds of ₹10,00,000/- each redeemable at par in full on 4th February 2019 (Twenty ninth issue - private placement)III	0.00	0.00
049	7.50%	Secured	non-cumulative non-convertible redeemable taxable bonds of ₹ 10,00,000/- each redeemable at par in full	0.00	0.00

RIHAND SUPER THERMAL POWER STATION
NOTE NO. 23 TO THE FS-NCL-BORROWINGS
(Amount in ₹)

As at		31.03.2020	31.03.2019
on 12th January 2019 (Nineteenth issue - private placement)II			
050	11% Secured non-cumulative non-convertible redeemable taxable bonds of ₹ 10,00,000/- each redeemable at par in full on 21st November 2018 (Twenty eighth issue - private placement)III	0.00	0.00
051	9.3473% Secured non-cumulative non-convertible redeemable taxable bonds of ₹15,00,000/- each with fifteen equal separately transferable redeemable principal parts (STRPP) redeemable at par at the end of 6th year and in annual installments thereafter upto the end of 20th year respectively commencing from 20th July 2018 and ending on 20th July 2032 (Forty sixth issue - private placement)VII	0.00	0.00
052	9.4376% Secured non-cumulative non-convertible redeemable taxable bonds of ₹ 15,00,000/- each with fifteen equal separately transferable redeemable principal parts (STRPP) redeemable at par at the end of 6th year and in annual installments thereafter upto the end of 20th year respectively commencing from 16th May 2018 and ending on 16th May 2032 (Forty fifth issue - private placement)VII	0.00	0.00
053	8.00% Secured non-cumulative non-convertible redeemable taxable bonds of ₹ 10,00,000/- each redeemable at par in full on 10th April 2018 (Sixteenth issue -private placement)I	0.00	0.00
054	9.2573% Secured non-cumulative non-convertible redeemable taxable bonds of ₹ 15,00,000/- each with fifteen equal separately transferable redeemable principal parts (STRPP) redeemable at par at the end of 6th year and in annual installments thereafter upto the end of 20th year respectively commencing from 2nd March 2018 and ending on 2nd March 2032 (Forty third issue - private placement)III	0.00	0.00
055	9.6713% Secured non-cumulative non-convertible redeemable taxable bonds	0.00	0.00

RIHAND SUPER THERMAL POWER STATION

NOTE NO. 23 TO THE FS-NCL-BORROWINGS

(Amount in ₹)

As at		31.03.2020	31.03.2019
of ₹ 15,00,000/- each with fifteen equal separately transferable redeemable principal parts (STRPP) redeemable at par at the end of 6th year and in annual installments thereafter upto the end of 20th year respectively commencing from 23rd December 2017 and ending on 23rd December 2031 (Forty first issue - private placement)III			
056	9.558% Secured non-cumulative non-convertible redeemable taxable bonds of ₹ 15,00,000/- each with fifteen equal separately transferable redeemable principal parts (STRPP) redeemable at par at the end of 6th year and in annual installments thereafter upto the end of 20th year respectively commencing from 29th July 2017 and ending on 29th July 2031(Fourtieth issue-private placement)III	0.00	0.00
057	9.3896% Secured non-cumulative non-convertible redeemable taxable bonds of ₹ 15,00,000/- each with fifteen equal separately transferable redeemable principal parts (STRPP) redeemable at par at the end of 6th year and in annual installments thereafter upto the end of 20th year respectively commencing from 9th June 2017 and ending on 9th June 2031(Thirty ninth issue-private placement)III	0.00	0.00
058	9.17% Secured non-cumulative non-convertible redeemable taxable bonds of ₹ 15,00,000/- each with fifteen equal separately transferable redeemable principal parts (STRPP) redeemable at par at the end of 6th year and in annual installments thereafter upto the end of 20th year respectively commencing from 22nd March 2017 and ending on 22nd March 2031(Thirty eighth issue-private placement)III	0.00	0.00
059	8.8086% Secured non-cumulative non-convertible redeemable taxable bonds of ₹ 15,00,000/- each with fifteen equal separately transferable redeemable principal parts (STRPP) redeemable at par at the end of 6th	0.00	0.00

RIHAND SUPER THERMAL POWER STATION

NOTE NO. 23 TO THE FS-NCL-BORROWINGS

(Amount in ₹)

As at		31.03.2020	31.03.2019
	year and in annual installments thereafter upto the end of 20th year respectively commencing from 15th December 2016 and ending on 15th December 2030 (Thirty sixth issue - private placement)III		
060	8.785% Secured non-cumulative non-convertible redeemable taxable bonds of ₹ 15,00,000/- each with fifteen equal separately transferable redeemable principal parts (STRPP) redeemable at par at the end of 6th year and in annual installments thereafter upto the end of 20th year respectively commencing from 15th September 2016 and ending on 15th September 2030 (Thirty fifth issue - private placement)III	0.00	0.00
061	8.71% Secured non-cumulative non-convertible redeemable taxable bonds of ₹ 15,00,000/- each with fifteen equal separately transferable redeemable principal parts (STRPP) redeemable at par at the end of 6th year and in annual installments thereafter upto the end of 20th year respectively commencing from 10th June 2016 and ending on 10th June 2030 (Thirty fourth issue - private placement)III	0.00	0.00
062	8.8493% Secured non-cumulative non-convertible redeemable taxable bonds of ₹ 15,00,000/- each with fifteen equal separately transferable redeemable principal parts (STRPP) redeemable at par at the end of 6th year and in annual installments thereafter upto the end of 20th year respectively commencing from 25th March 2016 and ending on 25th March 2030 (Thirty second issue - private placement)III	0.00	0.00
063	9.37% Secured non-cumulative non-convertible redeemable taxable bonds of ₹ 70,00,000/- each with fourteen separately transferable redeemable principal parts (STRPP) redeemable at par semi-annually commencing from 4th June 2012 and ending on 4th December 2018 (Twenty fifth issue -	0.00	0.00

RIHAND SUPER THERMAL POWER STATION

NOTE NO. 23 TO THE FS-NCL-BORROWINGS

(Amount in ₹)

As at			31.03.2020	31.03.2019
private placement)III				
065	9.06%	Secured non-cumulative non-convertible redeemable taxable bonds of ₹ 70,00,000/- each with fourteen separately transferable redeemable principal parts (STRPP) redeemable at par semi-annually commencing from 4th June 2012 and ending on 4th December 2018 (Twenty sixth issue - private placement)III	0.00	0.00
066	8.6077%	Secured non-cumulative non-convertible redeemable taxable bonds of ₹ 20,00,000/- each with twenty equal separately transferable redeemable principal parts (STRPP) redeemable at par semi-annually commencing from 9th September 2011 and ending on 9th March 2021 (Twenty fourth issue - private placement)IV	0.00	0.00
067	8.3796%	Secured non-cumulative non-convertible redeemable taxable bonds of ₹ 20,00,000/- each with twenty equal separately transferable redeemable principal parts (STRPP) redeemable at par semi-annually commencing from 5th August 2011 and ending on 5th February 2021 (Twenty third issue - private placement)IV	0.00	0.00
068	8.1771%	Secured non-cumulative non-convertible redeemable taxable bonds of ₹ 20,00,000/- each with twenty equal separately transferable redeemable principal parts (STRPP) redeemable at par semi-annually commencing from 2nd July 2011 and ending on 2nd January 2021 (Twenty second issue - private placement)IV	0.00	0.00
069	7.7125%	Secured non-cumulative non-convertible redeemable taxable bonds of ₹ 20,00,000/- each with twenty equal separately transferable redeemable principal parts (STRPP) redeemable at par semi-annually commencing from 2nd August 2010 and ending on 2nd February 2020 (Twenty first issue - private placement)V	0.00	0.00
070	7.552%	Secured non-cumulative non-convertible redeemable taxable bonds	0.00	0.00

RIHAND SUPER THERMAL POWER STATION

NOTE NO. 23 TO THE FS-NCL-BORROWINGS

(Amount in ₹)

As at	31.03.2020	31.03.2019
of ₹ 20,00,000/- each with twenty equal separately transferable redeemable principal parts (STRPP) redeemable at par semi-annually commencing from 23rd September 2009 and ending on 23rd March 2019 (Twentieth issue - private placement)VI		
071 9.55% Secured non-cumulative non-convertible taxable redeemable bonds of ₹ 10,00,000/- each with ten equal separately transferable redeemable principal parts (STRPP) redeemable at par at the end of the 6th year and in annual installments thereafter upto the end of 15th year respectively from 30th April 2002 (Thirteenth issue - Part B - private placement)VIII	0.00	0.00
072 9.55% Secured non-cumulative non-convertible taxable redeemable bonds of ₹ 10,00,000/- each redeemable at par in ten equal annual installments commencing from the end of 6th year and upto the end of 15th year respectively from 18th April 2002 (Thirteenth issue -Part A - private placement)VIII	0.00	0.00
074	0.00	0.00
075	0.00	0.00
081	0.00	0.00
082 Sub Total	0.00	0.00
083 Foreign Currency Notes-Unsecured	0.00	0.00
084 4.50% Fixed Rate Notes Due for repayment on 19th March 2028	0.00	0.00
085 2.75% Fixed rate notes due for repayment on 1st February 2027	0.00	0.00
086 4.25 % Fixed rate notes due for repayment on 26th February 2026	0.00	0.00
087 4.375% Fixed Rate Note due for repayment on 26th November 2024	0.00	0.00
088 4.75 % Fixed Rate Notes due for repayment on 3rd Oct 2022	0.00	0.00
089 7.25 % Fixed green global INR denominated bonds due on 3 May 2022	0.00	0.00
090 7.375 % Fixed green global INR denominated bonds due on 10 August 2021	0.00	0.00
091 5.625% Fixed Rate Notes due for repayment on 14th July 2021	0.00	0.00

Locked: 16.05.2020 - 14:48:32

Run on: 14.11.2024 - 16:12:22 Version: 0



अध्यक्ष, वित्त विभाग (व्यक्तिगत)
Addl. General Manager (Commercial)
एन टी सी लिमिटेड, NTPC LIMITED

RIHAND SUPER THERMAL POWER STATION
NOTE NO. 23 TO THE FS-NCL-BORROWINGS
(Amount in ₹)

As at	31.03.2020	31.03.2019
092 3.75 % Fixed rate notes due for repayment on 03 April 2024	0.00	0.00
093	0.00	0.00
094 Sub Total	0.00	0.00
095 Long term maturities of Finance Lease Obligations (Secured) IX	0.00	0.00
100 Long term maturities of Finance Lease Obligations (Unsecured) X	0.00	0.00
101 Term Loans	0.00	0.00
102 From Banks	0.00	0.00
103 Secured	0.00	0.00
104 Rupee Loans	0.00	0.00
105 Unsecured	0.00	0.00
106 Foreign Currency Loans	0.00	0.00
107 Rupee Loans	0.00	0.00
108 From Others	0.00	0.00
109 Secured	0.00	0.00
110 Rupee Loans	0.00	0.00
111 Foreign Currency loans (guaranteed by GOI)	0.00	0.00
112 Unsecured	0.00	0.00
113 Foreign Currency loans (guaranteed by GOI)	0.00	0.00
114 Other Foreign currency loans	0.00	0.00
115 Rupee Loans	0.00	0.00
116 Deposits	0.00	0.00
117 Unsecured	0.00	0.00
118 Fixed Deposits	0.00	0.00
119 Others	0.00	0.00
120 Unsecured	0.00	0.00
121 Bonds Application Money Pending Allotment	0.00	0.00
122 Sub-total	0.00	0.00
123 Less:- Interst accrued but not due on borrowings	0.00	0.00
124 Less:- Current maturities of long term borrowings	0.00	0.00
125 Bonds-Secured	0.00	0.00
126 5.875% Fixed Rate Notes	0.00	0.00
127 Foreign currency loans from Banks- unsecured	0.00	0.00
128 Rupee loans from banks- Secured	0.00	0.00
129 Rupee loans from banks- unsecured	0.00	0.00
130 Rupee Term loan from Others - Secured	0.00	0.00
131 Foreign currency loans from others- unsecured (Guaranteed by GOI)	0.00	0.00
132 Other foreign currency loans from others- unsecured	0.00	0.00
133 Rupee loans from others- unsecured	0.00	0.00
134 Finance Lease obligations - secured	0.00	0.00
135 Finance Lease obligations - unsecured	0.00	0.00
136	0.00	0.00
137	0.00	0.00



RIHAND SUPER THERMAL POWER STATION
NOTE NO. 23 TO THE FS-NCL-BORROWINGS

(Amount in ₹)

	As at	31.03.2020	31.03.2019
200	Total	0.00	0.00



RIHAND SUPER THERMAL POWER STATION

NOTE NO. 24 TO THE FS-NCL-TRADE PAYABLES

(Amount in ₹)

	As at	31.03.2020	31.03.2019
001	TRADE PAYABLES(NON CURRENT)	0.00	0.00
002	For Goods and Services	0.00	0.00
003	- Micro & Small Enterprises	15,622,396.62	6,964,940.99
004	- Others	5,712,598.82	19,217,358.89
005		0.00	0.00
006	Total	21,334,995.44	26,182,299.88



RIHAND SUPER THERMAL POWER STATION

NOTE NO. 25 TO THE FS-NCL-OTHER FINANCIAL LIABILITIES

(Amount in ₹)

As at	31.03.2020	31.03.2019
001 OTHER FINANCIAL LIABILITIES (NON-CURRENT)	0.00	0.00
002 Payable for Capital Expenditure	0.00	0.00
003 - Micro & Small Enterprises	36,951.05	1,644,420.88
004 - Others	34,267,850.68	438,868.21
005 Others	0.00	0.00
006 Deposits from contractors and others	75,100.00	0.00
007	0.00	0.00
008	0.00	0.00
009 Total	34,379,901.73	2,083,289.09



RIHAND SUPER THERMAL POWER STATION

NOTE NO. 26 TO THE FS-NCL-PROVISIONS

(Amount in ₹)

As at	31.03.2020	31.03.2019
001 LONG TERM PROVISIONS	0.00	0.00
002 Provision for Employee Benefits	0.00	0.00
003 Opening Balance	0.00	0.00
004 Additions/ (adjustments) during the year	0.00	0.00
005 Closing Balance	0.00	0.00
013	0.00	0.00
014 TOTAL	0.00	0.00

NOTE NO. 27 TO THE FS-NCL-DEFERRED TAX LIABILITIES (NET)
(Amount in ₹)

As at	Opening Balance on 01.04.2019	Addition	Closing Balance on 31.03.2020
001 DEFERRED TAX LIABILITIES (NET)			
002 Difference of book depreciation and tax depreciation	0.00	0.00	0.00
003 Less: Deferred tax assets			
004 Provisions & Other disallowances for tax purposes	0.00	0.00	0.00
005 Unabsorbed Depreciation	0.00	0.00	0.00
006 Disallowances u/s 43B of the Income Tax Act, 1961	0.00	0.00	0.00
007 MAT credit entitlement	0.00	0.00	0.00
008	0.00	0.00	0.00
009 Total	0.00	0.00	0.00
010	0.00	0.00	0.00
011 Total	0.00	0.00	0.00
012 Breakup of deferred tax assets	0.00	0.00	0.00
013 Provision	0.00	0.00	0.00
014 Statutory dues	0.00	0.00	0.00
015 Leave encashment	0.00	0.00	0.00
016 Others	0.00	0.00	0.00
017	0.00	0.00	0.00
018	0.00	0.00	0.00



RIHAND SUPER THERMAL POWER STATION

NOTE NO. 28 TO THE FS-NCL-OTHER NON-CURRENT LIABILITIES

(Amount in ₹)

As at	31.03.2020	31.03.2019
001 Other Non current Liabilities	0.00	0.00
002 Advances from customers and others	0.00	0.00
003 Deposits from contractors and others	0.00	0.00
004	0.00	0.00
005 TOTAL	0.00	0.00

RIHAND SUPER THERMAL POWER STATION

NOTE NO. 29 TO THE FS-CL-BORROWINGS

(Amount in ₹)

As at	31.03.2020	31.03.2019
001 Short Term Borrowings	0.00	0.00
002 Loans repayable on demand	0.00	0.00
003 From Banks	0.00	0.00
004 Secured	0.00	0.00
005 Cash Credit	0.00	0.00
006 Unsecured	0.00	0.00
007 Cash Credit	0.00	0.00
008 Other loans-unsecured	0.00	0.00
009 Commercial Papers	0.00	0.00
010 Less: Unamortised discount on Commercial Papers	0.00	0.00
011 Total	0.00	0.00
012	0.00	0.00



RIHAND SUPER THERMAL POWER STATION

NOTE NO. 30 TO THE FS-CL-TRADE PAYABLES

(Amount in ₹)

	As at	31.03.2020	31.03.2019
001	TRADE PAYABLES	0.00	0.00
002	For Goods and Services	0.00	0.00
003	- Micro & Small Enterprises	347,533,123.95	277,066,480.33
004	- Others	1,929,276,543.35	1,245,121,688.26
005		0.00	0.00
006	Total	2,276,809,667.30	1,522,188,168.59
007		0.00	0.00

RIHAND SUPER THERMAL POWER STATION
NOTE NO. 31 TO THE FS-CL-OTHER FINANCIAL LIABILITIES
(Amount in ₹)

As at	31.03.2020	31.03.2019
001 OTHER FINANCIAL LIABILITIES (CURRENT)	0.00	0.00
002 Current maturity of long term borrowings	0.00	0.00
003 Bonds-Secured	0.00	0.00
004 Foreign Currency Fixed Rate Notes	0.00	0.00
005 From Banks	0.00	0.00
006 Secured	0.00	0.00
007 Rupee Term Loan	0.00	0.00
008 Unsecured	0.00	0.00
009 Foreign currency loans	0.00	0.00
010 Rupee term loans	0.00	0.00
011 From Others	0.00	0.00
012 Secured	0.00	0.00
013 Rupee Term Loan	0.00	0.00
014 Unsecured	0.00	0.00
015 Foreign currency loans (Guaranteed by Government of India)	0.00	0.00
016 Other foreign currency loans	0.00	0.00
017 Rupee term loans	0.00	0.00
018 Fixed deposits	0.00	0.00
019 Sub Total	0.00	0.00
020 Current maturity of finance lease obligations (secured)	0.00	0.00
021 Current maturity of finance lease obligations (unsecured)	0.00	0.00
022 Interest accrued but not due on borrowings	0.00	0.00
023 Unpaid Dividends*	0.00	0.00
024 Unpaid matured deposits and interest accrued thereon*	0.00	0.00
025 Unpaid matured bonds and interest accrued thereon*	0.00	0.00
026 Unpaid bond refund money-Tax free bonds *	0.00	0.00
027 Book Overdraft	0.00	0.00
028 Payable to Customers	0.00	0.00
029 Liability under forward exchange contact	0.00	0.00
030 Hedging cost payable to beneficiaries	0.00	0.00
031 Derivative MTM Liability	0.00	0.00
032 Payable for Capital Expenditure	0.00	0.00
033 - Micro & Small Enterprises	118,466,640.74	118,220,405.93
034 - Others	1,851,731,237.95	1,779,019,030.22
035 Others Payables	0.00	0.00
036 Deposits from contractors and others	55,965,895.78	375,029,853.80
037 Gratuity Obligations	0.00	0.00
038 Payable to employees	21,909,288.36	31,125,349.51
039 Payable to holding company	0.00	0.00
040 Retention on A/c BG encashment (Solar)	0.00	0.00
041 Payable to Solar Payment Security Account	0.00	0.00
042 Others **	125,967,538.41	121,601,858.45



RIHAND SUPER THERMAL POWER STATION

NOTE NO. 31 TO THE FS-CL-OTHER FINANCIAL LIABILITIES

(Amount in ₹)

As at	31.03.2020	31.03.2019
043	0.00	0.00
044 Total	2,174,040,601.24	2,424,996,497.91
045 * Represents the amounts which have not been claimed by the investor/holders of the bonds/fixed deposits. Out of the above, no amount is due for payment to Investor Education and Protection Fund.	0.00	0.00
046 ** Include Payable to Hospital, parties for stale cheques and other payable.	0.00	0.00



RIHAND SUPER THERMAL POWER STATION

NOTE NO. 32 TO THE FS-CL-OTHER CURRENT LIABILITIES

(Amount in ₹)

As at	31.03.2020	31.03.2019
001 OTHER CURRENT LIABILITIES	0.00	0.00
002 Advances from customers and others	10,105,072.69	17,534,344.61
003 Deferred discount on forward exchange contact	0.00	0.00
004 Tax deducted at source and other statutory dues	87,940,416.32	49,206,348.58
005 Others	0.00	0.00
006 Total	98,045,489.01	66,740,693.19

RIHAND SUPER THERMAL POWER STATION
NOTE NO. 33 TO THE FS-CL-PROVISIONS
(Amount in ₹)

As at	31.03.2020	31.03.2019
001 SHORT TERM PROVISIONS	0.00	0.00
002 Provision for Employee Benefits	0.00	0.00
003 Opening balance	0.00	0.00
004 Additions/ (adjustments) during the year	0.00	0.00
005 Closing Balance	0.00	0.00
028 Provisions for Obligations Incidental to Land Acquisition	0.00	0.00
029 Opening balance	0.00	0.00
030 Additions during the year	0.00	0.00
031 Amounts paid during the year	0.00	0.00
032 Amounts reversed during the year	0.00	0.00
033 Closing Balance	0.00	0.00
035 Provision for Tariff Adjustment	0.00	0.00
036 Opening balance	0.00	0.00
037 Additions during the year	0.00	0.00
038 Amounts adjusted during the year	0.00	0.00
039 Amounts reversed during the year	0.00	0.00
040 Closing Balance	0.00	0.00
042 Provision for shortage in Fixed Assets Pending Investigation & Others	0.00	0.00
043 Opening balance	196,021.10	196,021.10
044 Additions during the year	437,836.89	0.00
045 Amounts adjusted during the year	0.00	0.00
046 Amounts reversed during the year	0.00	0.00
047 Closing Balance	633,857.99	196,021.10
048 Provision for Arbitration	0.00	0.00
049 Opening balance	7,428,608.00	7,010,256.00
050 Additions during the year	418,352.00	418,352.00
051 Amounts used during the year	0.00	0.00
052 Amounts reversed during the year	0.00	0.00
053 Closing Balance	7,846,960.00	7,428,608.00
054 Others	0.00	0.00
055 Opening balance	0.00	0.00
056 Additions during the year	0.00	0.00
057 Amounts used during the year	0.00	0.00
058 Amounts reversed during the year	0.00	0.00
059 Closing Balance	0.00	0.00
102	0.00	0.00
103 Total	8,480,817.99	7,624,629.10



RIHAND SUPER THERMAL POWER STATION

NOTE NO. 34 TO THE FS-CL-CURRENT TAX LIABILITIES (NET)

(Amount in ₹)

As at	31.03.2020	31.03.2019
001 Current liabilities - current tax liabilities (net)	0.00	0.00
002 Opening balance	0.00	0.00
003 Additions during the year	0.00	0.00
004 Amounts adjusted during the year	0.00	0.00
005 Less: Set off against taxes paid	0.00	0.00
006 Closing Balance	0.00	0.00



RIHAND SUPER THERMAL POWER STATION

NOTE NO. 35 TO THE FS--DEFERRED REVENUE

(Amount in ₹)

As at	31.03.2020	31.03.2019
001 Deferred Revenue	0.00	0.00
002 On account of advance against depreciation	0.00	0.00
003 On account of income from foreign currency fluctuation	1,990,729,000.00	1,250,048,000.00
004 Government grants	0.00	0.00
005	0.00	0.00
006 TOTAL	1,990,729,000.00	1,250,048,000.00



RIHAND SUPER THERMAL POWER STATION

NOTE NO. 36 TO THE FS--REGULATORY DEFERRAL ACCOUNT CREDIT BALANCES

(Amount in ₹)

As at	31.03.2020	31.03.2019
001 Regulatory deferral account credit balances	0.00	0.00
002 Exchange Differences	0.00	0.00
003	0.00	0.00
004 Total	0.00	0.00

RIHAND SUPER THERMAL POWER STATION
NOTE NO. 37 TO THE FS--REVENUE FROM OPERATIONS
(Amount in ₹)

	For the Year ended	31.03.2020	31.03.2019
001	REVENUE FROM OPERATIONS	0.00	0.00
002	Sales	0.00	0.00
003	Energy Sales (including Electricity Duty)	50,784,410,674.00	50,311,539,034.00
004	Less : Advance against depreciation deferred (net)	0.00	0.00
005	Add: Revenue recognized out of advance against depreciation	0.00	8,642,052.81
006	Add : Exchange fluctuation receivable from customers	-78,857,000.00	0.00
007	Sale of energy through trading	0.00	0.00
008	Commission (NVVN)	0.00	0.00
009	Sub total	50,705,553,674.00	50,320,181,086.81
010	Less: Rebate to customers	215,032,456.12	311,015,253.92
011	Energy Sales (Total)	50,490,521,217.88	50,009,165,832.89
012	Consultancy, project management and supervision fees	41,420.00	1,790,976.00
013	Lease rentals on assets on Operating lease	0.00	0.00
014	Sale of Captive Coal	0.00	0.00
015	Intra Company Elimination	0.00	0.00
017	Sub-total	0.00	0.00
018	Total - Sales	50,490,562,637.88	50,010,956,808.89
019	Sale of fly ash/ash products	9,410,400.00	0.00
020	Less: Transferred to fly ash utilisation reserve fund	-9,410,400.00	0.00
021	Sub-total	0.00	0.00
022	Other Operating Income	0.00	0.00
023	Interest from customers	44,084,590.00	7,596,298.00
024	Energy Internally Consumed *	30,711,686.00	29,705,242.00
025	Interest income on Assets under finance lease	0.00	0.00
026	Recognized from deferred revenue - government grant	0.00	0.00
027	Provision written back- Tariff Adjustment	0.00	0.00
028	Income form Trading of ESCerts	0.00	0.00
029	Income from E-Mobility Business	0.00	0.00
030		0.00	0.00
031	Total	50,565,358,913.88	50,048,258,348.89
040	* Valued at variable cost of generation and corresponding amount included in power charges (Note No. 42)	0.00	0.00
041	Excise duty on sale of flyash,cenospere & ash products	0.00	0.00
042	Energy sales of principal nature (NVVN)	0.00	0.00
043	Energy sales of agency nature (NVVN)	0.00	0.00

RIHAND SUPER THERMAL POWER STATION
NOTE NO. 38 TO THE FS--OTHER INCOME
(Amount in ₹)

	For the Year ended	31.03.2020	31.03.2019
001	OTHER INCOME	0.00	0.00
002	Interest from	0.00	0.00
004	Financial assets at amortised cost	0.00	0.00
005	Government Securities (8.5% Tax Free Bonds issued by the State Governments)	0.00	0.00
006	Other Bonds	0.00	0.00
007		0.00	0.00
008	Interest from Government of India Securities-Non-Trade	0.00	0.00
009	Less: Amortiation of premium	0.00	0.00
010	Sub Total	0.00	0.00
011	Interest from others	0.00	0.00
012	Loan to State Government in settlement of dues from customers	0.00	0.00
013	Loan to Subsidiary Companies	0.00	0.00
014	Loan to Employees	17,127,436.11	17,160,115.97
015	Deposit with banks	0.00	0.00
016	Foreign Banks	0.00	0.00
017	Interest from Contractors	2,488,597.00	2,162,933.00
018	Interest from Income Tax Refunds	0.00	0.00
019	Less : Refundable to Customers	0.00	0.00
020	Sub Total	0.00	0.00
021	Deposits with banks-flyash utilisation reserve fund	0.00	0.00
022	Less: transferred to flyash utilisation reserve fund	0.00	0.00
023	Sub Total	0.00	0.00
024	Deposits with banks- DDUGJY funds	0.00	0.00
025	Interest from Contractors- DDUGJY funds	0.00	0.00
026	Transfer to DDUGJY-Advance from customers	0.00	0.00
027	Sub-total	0.00	0.00
030	Others	0.00	1,445.00
031		0.00	0.00
032	Dividend from	0.00	0.00
033	Longterm investments in	0.00	0.00
034	Subsidiaries	0.00	0.00
035	Joint Ventures	0.00	0.00
036	Equity Instruments	0.00	0.00
037	Current Investments in	0.00	0.00
038	Mutual Funds measured at fairvalue through profit or loss	0.00	0.00
039	Current investments in mutual funds-flyash utilisation reserve fund	0.00	0.00
040	Less: transferred to flyash utilisation reserve fund	0.00	0.00
041	Lease Rent # Ash Brick Plant	0.00	0.00
042	Less: transferred to flyash utilisation reserve fund	0.00	0.00
043	Other non-operating income	0.00	0.00
044	Profit on disposal of PPE	90,379.35	472,425.34
045	Profit on redemption of GOI securities	0.00	0.00

RIHAND SUPER THERMAL POWER STATION
NOTE NO. 38 TO THE FS--OTHER INCOME
(Amount in ₹)

	For the Year ended	31.03.2020	31.03.2019
046	Net gain on sale of investments	0.00	0.00
047	Surcharge received from customers	2,550,077,957.00	1,749,523,951.00
048	Hire charges for equipment	67,561.00	777,334.00
049	Gain on option contract / Discount on F.ExchContract	0.00	0.00
050	Provision written back-others	6,148,851.93	6,924,813.36
051	Fair value gains/(losses) on investments in mutual funds at fair value through profit or loss	0.00	0.00
052	Interest from Solar payment security account	0.00	0.00
053	Less : Transferred to SPSA fund	0.00	0.00
054	Interest on "Retention on A/c BG encashment (Solar)"	0.00	0.00
055	Less : Transferred to "Retention on A/c BG encashment (Solar)"	0.00	0.00
056	Miscellaneous Income	459,475,589.49	197,612,166.20
057	Total	3,035,476,371.88	1,974,635,183.87
058	Less:Transferred to Development of Coal Mines- Note 43A	0.00	0.00
059	Less:Transferred to Expenditure during Construction period (net)- Note 43	0.00	0.00
061		0.00	0.00
062	Total	3,035,476,371.88	1,974,635,183.87
063		0.00	0.00
064	Details of Miscellaneous Income	0.00	0.00
065	Vehicle Hire Charges.	110,000.00	112,080.00
066	Sale of by products & residuals	0.00	0.00
067	Township recoveries(exl. Hospital Recoveries).	22,749,254.28	27,025,043.43
068	Depreciation written back	0.00	0.00
069	Sale of Scrap.	39,568,148.02	67,929,628.85
070	Receipt under loss of profit policy.	0.00	0.00
071	Receipts under MBD/Fire Policy.	315,144,938.00	28,077,160.00
072	Management development programme.	0.00	0.00
073	Management Fee - Misc (NVVN)	0.00	0.00
074	Others	81,903,249.19	74,468,253.92
075		0.00	0.00
076	Total (Miscellaneous Income)	459,475,589.49	197,612,166.20
077		0.00	0.00
078	Details of Provision written back others	0.00	0.00
079	Doubtful debts	0.00	0.00
080	Doubtful Loans, Advances and Claims	42,405.00	0.00
081	Doubtful Construction Advances	0.00	0.00
082	Shortage in Construction Stores	3,559,179.34	2,727,742.97
083	Shortage in Stores	2,545,110.36	4,180,825.39
084	Obsolescence in Stores	2,157.23	16,245.00
085	Unserviceable capital works	0.00	0.00
086	Other Obligation	0.00	0.00
087	Shortage in Fixed Assets	0.00	0.00



RIHAND SUPER THERMAL POWER STATION

NOTE NO. 38 TO THE FS--OTHER INCOME

(Amount in ₹)

	31.03.2020	31.03.2019
088 Diminution in value of Investment	0.00	0.00



RIHAND SUPER THERMAL POWER STATION

NOTE NO. 38A TO THE FS--FUEL COST

(Amount in ₹)

For the Year ended		31.03.2020	31.03.2019
001	FUEL COST	0.00	0.00
002	Coal	0.00	0.00
003	Captive	0.00	0.00
004	Other than captive	30,178,971,766.14	28,421,008,281.56
005	Gas	0.00	0.00
006	Naptha	0.00	0.00
007	Oil	239,573,779.54	265,768,463.85
008	Total	30,418,545,545.68	28,686,776,745.41
009		0.00	0.00
010		0.00	0.00

RIHAND SUPER THERMAL POWER STATION
NOTE NO. 39 TO THE FS--EMPLOYEE BENEFITS EXPENSE
(Amount in ₹)

For the Year ended		31.03.2020	31.03.2019
001	EMPLOYEE BENEFITS EXPENSE	0.00	0.00
002	Salaries and wages	1,650,643,540.59	1,753,166,094.90
003	Contribution to provident and other funds	173,843,153.43	255,676,601.51
004	Unwinding of deferred payroll expense	11,718,520.61	12,023,691.77
005	Staff welfare expenses	177,064,793.44	204,638,071.02
006	Less : Expenses transferred to Consultancy group	0.00	0.00
007		0.00	0.00
008	Sub Total	2,013,270,008.07	2,225,504,459.20
009	Less: Employee benefits expense inventorised	152,386,279.55	178,939,469.59
010	Less: Transferred/Allocated to development of coal mines	0.00	0.00
011		0.00	0.00
012	Less: Transferred to fly ash utilisation reserve fund	0.00	4,821,064.10
013	Less: Transferred to CSR Expenses	0.00	0.00
014	Reimbursements for employees on secondment	1,632.87	0.00
015	Less: Transferred to expenditure during construction period (net)- Note 43	6,752,468.23	0.00
016	TOTAL	1,854,129,627.42	2,041,743,925.51
017	Managerial Remuneration paid/ payable to Directors included above (except for Directors fee which is included in Note 42)	0.00	0.00
018	Salaries and wages	0.00	0.00
019	Contribution to provident and other funds	0.00	0.00
020	Staff welfare expenses	0.00	0.00
021	Directors fee	0.00	0.00
022		0.00	0.00
023		0.00	0.00

RIHAND SUPER THERMAL POWER STATION
NOTE NO. 40 TO THE FS--FINANCE COSTS
(Amount in ₹)

	For the Year ended	31.03.2020	31.03.2019
001	FINANCE COSTS	0.00	0.00
002	Finance charges on financial liabilities measured at amortised cost	0.00	0.00
003	Bonds	516,674,205.82	510,151,783.67
004	Government of India Loans	0.00	0.00
005	Foreign currency term loans	34,538,576.20	48,912,722.87
006	Rupee term loans	940,580,407.00	1,089,713,771.00
007	Public deposits	0.00	0.00
008	Foreign currency bonds/notes	625,074,179.63	614,796,657.21
009	Cash Credit	0.00	0.00
010	Unwinding of discount on account of vendor liabilities	6,650,468.54	4,434,514.06
011	Commercial Papers	0.00	0.00
012	Others	0.00	4,424.00
013	Sub Total	2,123,517,837.19	2,268,013,872.81
014	Other Borrowing Costs	0.00	0.00
015	Bonds servicing & public deposit exp.	768,686.21	1,084,786.97
016	Guarantee fee	0.00	0.00
017	Management fee	0.00	0.00
018	Committ charges/exposure premium	0.00	0.00
019	Bond issue expenses	0.00	0.00
020	Legal exp on foreign currency loans	0.00	0.00
021	Foreign currency bonds/notes exp.	0.00	0.00
022	Up-front fee	0.00	0.00
023	Insurance premium on foreign currency loans	0.00	0.00
024		0.00	0.00
025	Others	0.00	0.00
026	Sub Total (Other Borrowing cost)	768,686.21	1,084,786.97
027		0.00	0.00
028	Exchange differences regarded as an adjustment to interest costs	13,092,857.00	0.00
029	Sub Total	2,137,379,380.40	2,269,098,659.78
030	Less: Transferred to Expenditure during construction period (net) - Note 43	6,944,586.19	36,392,300.06
031	Less: Transferred to development of coal mines- Note 43A	0.00	0.00
032		0.00	0.00
033	Total	2,130,434,794.21	2,232,706,359.72



RIHAND SUPER THERMAL POWER STATION

NOTE NO. 41 TO THE FS--DEPRECIATION, AMORTIZATION AND IMPAIRMENT EXPENSE

(Amount in ₹)

	For the Year ended	31.03.2020	31.03.2019
001	Depreciation, amortization and impairment expense	0.00	0.00
002	On property, plant and equipment- Note 2	4,377,618,570.90	4,550,839,731.18
003	On intangible assets- Note 4	115,063.13	122,696.49
004	Sub-total	4,377,733,634.03	4,550,962,427.67
005	Less:	0.00	0.00
006	Inventorised	345,650,636.39	341,291,813.12
007	Transferred to Expenditure during Construction Period (net)- Note 43	0.00	0.00
008	Transferred/Allocated to development of coal mines	0.00	0.00
009	Adjustment with deferred revenue from deferred foreign currency fluctuation	117,252,000.00	102,349,000.00
010	Total	3,914,830,997.64	4,107,321,614.55

RIHAND SUPER THERMAL POWER STATION
NOTE NO. 42 TO THE FS--OTHER EXPENSE
(Amount in ₹)

	For the Year ended	31.03.2020	31.03.2019
001 OTHER EXPENSES		0.00	0.00
002 Power charges		30,711,686.00	29,705,242.00
003 Less: Recovered from contractors & employees		10,254,267.44	13,057,737.54
004 Sub-Total(Power Charges)		20,457,418.56	16,647,504.46
005 Water charges		139,871,221.00	130,291,077.00
006 Stores consumed		25,535,090.39	27,347,483.19
007 Rent		0.00	0.00
008 Less:Recoveries		0.00	0.00
009 Sub-Total (Rent)		0.00	0.00
010 Cost of extraction of Captive coal		0.00	0.00
011 Repairs & maintenance		0.00	0.00
012 Buildings		155,238,832.21	141,546,169.08
013 Plant & machinery		0.00	0.00
014 Power stations		1,971,478,736.27	1,693,769,413.12
015 Construction equipment		0.00	0.00
016 Others		83,615,119.59	73,925,752.72
017 Sub-total (Repairs & maintenance)		2,210,332,688.07	1,909,241,334.92
019 Load Dispatch Center Charges		31,162,794.00	22,270,407.00
021 Insurance		89,337,957.77	78,689,952.40
022 Interest to beneficiaries		0.00	0.00
023 Rates and taxes		15,456,955.21	16,070,520.39
024 Water cess & environment protection cess		0.00	0.00
025 Training & recruitment expenses		3,118,705.45	2,828,092.52
026 Less: Receipts		0.00	0.00
027 Sub-total (Training and recruitment expenses)		3,118,705.45	2,828,092.52
028 Communication expenses		22,862,791.41	23,125,419.90
029 Inland Travel		82,463,633.67	86,447,018.40
030 Foreign Travel		120,940.46	818,545.73
031 Tender expenses		0.00	2,527,824.00
032 Less: Receipt from sale of tenders		0.00	262,122.00
033 Sub-total (Tender expenses)		0.00	2,265,702.00
034 Payment to auditors		0.00	0.00
035 Audit fee		0.00	0.00
036 Tax audit fee		0.00	0.00
037 Other services		0.00	0.00
038 Reimbursement of expenses		0.00	119,556.00
039 Sub-total (Payment to Auditors)		0.00	119,556.00
040 Advertisement and publicity		1,212,507.00	1,883,491.00
041 Electricity duty		0.00	0.00
042 Security expenses		373,349,148.40	358,302,696.35
043 Entertainment expenses		28,763,376.25	24,227,675.39
044 Expenses for guest house		17,150,884.00	15,958,948.48
045 Less:Recoveries		0.00	0.00
046 Sub-Total (Guest house expenses)		17,150,884.00	15,958,948.48
047 Education expenses		55,250,389.00	44,681,502.00
049 Donations		0.00	0.00

RIHAND SUPER THERMAL POWER STATION
NOTE NO. 42 TO THE FS--OTHER EXPENSE
(Amount in ₹)

	31.03.2020	31.03.2019
For the Year ended		
050 Ash utilisation & marketing expenses	125,414,779.59	47,138,082.29
051 Directors sitting fee	0.00	0.00
053 Professional charges and consultancy fees	3,982,140.37	4,095,432.60
054 Legal expenses	15,785,425.50	15,169,675.00
055 EDP hire and other charges	2,894,018.79	4,809,590.85
056 Printing and stationery	3,525,595.39	4,990,438.36
057 Oil & gas exploration expenses	0.00	0.00
059 Hiring of vehicles	31,158,224.74	35,838,628.63
061 Reimbursement of L.C.charges on sales realisation	0.00	0.00
062	0.00	0.00
063 Cost of Hedging	0.00	0.00
064 Derivatives MTM loss/gain (Net)	0.00	0.00
065 Net loss/(gain) in foreign currency transactions & translations	42,094,396.89	-13,655,079.32
066 Transport Vehicle running expenses	912,881.50	1,163,665.91
067 Horticulture Expenses	59,606,958.76	46,914,308.67
068 Hire charges- helicopter/aircraft.	0.00	2,275,100.00
069 Hire charges of construction equipment	0.00	0.00
070 Demurrage Charges	0.00	0.00
072	0.00	0.00
073 Miscellaneous expenses	24,023,844.61	23,997,915.54
074 Loss on disposal/write-off of PPE	16,538,459.84	56,357,424.12
075 Sub-Total	3,442,383,226.62	2,990,312,109.78
076 Less: Other expenses inventorised	507,661,972.36	468,542,259.64
077 Less: Transferred/Allocated to development of coal mines	0.00	0.00
078 Less: Transferred to fly ash utilisation reserve fund	125,414,779.59	60,527,647.25
079 Less: Hedging cost Net recoverable/payable from/to beneficiaries	0.00	0.00
080	0.00	0.00
081 Less: Transferred to CSR Expenses	47,896,790.00	37,667,688.00
082 Less: Transferred to Expenditure during Construction period(net)-Note 43	805,829.61	0.00
083 Net (Generation, Administration and Other expenses)	2,760,603,855.06	2,423,574,514.89
084 Corporate Social Responsibility Expenses	102,505,554.21	126,786,061.86
085 Less: Grants-in-aid	0.00	0.00
086 Sub-total (Corporate Social Responsibility Expenses)	102,505,554.21	126,786,061.86
087 Provisions	0.00	0.00
088 Doubtful Debts	0.00	0.00
089 Doubtful loans, advances and claims	0.00	0.00
090 Doubtful Construction Advances	0.00	0.00
091 Shortage in stores	467,794.99	3,437,088.00
092 Obsolete/Diminution in the value of surplus stores	467,405.55	3,494,463.00
093 Shortage in construction stores	4,086,971.23	3,584,591.46
094 Diminution in value of long term investments	0.00	0.00

Locked: 16.05.2020 - 14:48:26

Run on: 14.11.2024 - 16:14:41 Version: 0

RIHAND SUPER THERMAL POWER STATION
NOTE NO. 42 TO THE FS--OTHER EXPENSE
(Amount in ₹)

	For the Year ended 31.03.2020	31.03.2019
095 Shortage in Fixed assets	437,836.89	0.00
096 Unfinished minimum work progress from oil & gas exploration	0.00	0.00
097 Unserviceable capital works	0.00	0.00
098 Tariff Adjustment	31,997,000.00	0.00
099 Others :	0.00	0.00
100 (i) Provision for arbitration cases	418,352.00	418,352.00
101 (ii) Other provisions	0.00	0.00
102 Total (Provisions)	37,875,360.66	10,934,494.46
103	0.00	0.00
104 Total	2,900,984,769.93	2,561,295,071.21
105	0.00	0.00
106 Breakup of miscellaneous expenses.	0.00	0.00
109 Hire charges of office equipment	71,228.00	295,857.77
111 Operating expenses of construction equipment	0.00	0.00
112 Operating expenses of D.G. sets	0.00	0.00
113 Furnishing expenses	2,160,679.12	222,088.01
114 Subscription to trade and other associations.	0.00	0.00
116 Visa and entry permit charges	0.00	0.00
117 Tree plantation exp.-NTPC Land	0.00	0.00
118 Research & development expenses .	0.00	0.00
119 Less : Grants received for Research & development expenses.	0.00	0.00
120 Sub-total (Research & development expenses)	0.00	0.00
121 Bank charges	244,632.08	493,075.18
122 Business Development Expenditure	0.00	0.00
123 Surcharge (NVVN)	0.00	0.00
124 Power Trading Expenses	1,343,810.00	2,913,317.00
125 Brokerage & commission	998,531.00	2,205,176.00
129 Books and periodicals	214,497.55	182,052.00
130 Claims/advances written off	0.00	0.00
131 Stores written off	0.00	0.00
132 Survey & Investigation expenses written off	0.00	0.00
133 Others	18,990,466.86	17,686,349.58
134 Total	24,023,844.61	23,997,915.54
135	0.00	0.00
136	0.00	0.00
137	0.00	0.00

RIHAND SUPER THERMAL POWER STATION
NOTE NO. 43 TO THE FS--EXPENDITURE DURING CONSTRUCTION PERIOD (NET)
(Amount in ₹)

For the Year ended		31.03.2020	31.03.2019
001	EXPENDITURE DURING CONSTRUCTION PERIOD (NET)	0.00	0.00
002	A. Employee benefits expense	0.00	0.00
003	Salaries and wages	5,979,041.61	0.00
004	Contribution to provident and other funds	534,992.53	0.00
005	Unwinding of deffered payroll expenses	-3,973.41	0.00
006	Staff welfare expenses	242,407.50	0.00
007	Total (A)	6,752,468.23	0.00
008	B. Finance Costs	0.00	0.00
009	Finance charges on financial liabilities measured at amortised cost	0.00	0.00
010	Bonds	0.00	8,138,448.00
011	Foreign currency term loans	0.00	428,956.00
012	Rupee term loans	3,403,287.00	16,238,008.00
013	Foreign currency bonds/notes	0.00	10,617,123.00
014	Unwinding of discount on account of vendor liabilities	456,585.19	969,765.06
015	Others	0.00	0.00
016		0.00	0.00
017	Other Borrowings Costs	0.00	0.00
018	Guarantee Commission	0.00	0.00
019	Management Fees/Arrangers Fees	0.00	0.00
020	Commitment charges/Exposure Premium	0.00	0.00
021	Legal Expenses on foreign currency loans	0.00	0.00
022	Foreign currency bonds/notes expenses	0.00	0.00
023	Foreign Credit Insurance Premium	0.00	0.00
024	Upfront Fee	0.00	0.00
025	Exchange Differences	2,651,489.00	0.00
026	Others	0.00	0.00
027	Exchange differences regarded as adjustment to interest cost	433,225.00	0.00
028	Total (B)	6,944,586.19	36,392,300.06
029		0.00	0.00
030	C. Depreciation and amortisation	0.00	0.00
031	D. Generation , administration and other expenses	0.00	0.00
032	Power charges	239,312.00	0.00
033	Less: Recovered from contractors & employees	0.00	0.00
034	Sub-total(Net power charges)	239,312.00	0.00
035	Water charges	0.00	0.00
036	Rent	0.00	0.00
037	Repairs & maintenance	0.00	0.00
038	Buildings	0.00	-10,846,102.28
039	Construction equipment	0.00	0.00
040	Others	0.00	10,846,102.28
041		0.00	0.00
042	Insurance	0.00	0.00

RIHAND SUPER THERMAL POWER STATION
NOTE NO. 43 TO THE FS--EXPENDITURE DURING CONSTRUCTION PERIOD (NET)
(Amount in ₹)

	For the Year ended	31.03.2020	31.03.2019
043	Rates and taxes	0.00	0.00
044	Communication expenses	46,289.00	0.00
045	Travelling expenses	489,962.71	0.00
046	Tender expenses	0.00	0.00
047	Less: Income from sale of tenders	0.00	0.00
048	Sub-total (Net tender expenses)	0.00	0.00
049	Advertisement and publicity	0.00	0.00
050	Security expenses	0.00	0.00
051	Entertainment expenses	29,187.94	0.00
052	Guest house expenses	0.00	0.00
053	Less: Receipt from guest house	0.00	0.00
054	Sub-total (Net Guest House Expenses)	0.00	0.00
055	Education expenses	0.00	0.00
056	Brokerage & Commission	0.00	0.00
057	Books and periodicals	0.00	0.00
058	Community development expenses	0.00	0.00
059	Professional charges and consultancy fee	0.00	0.00
060	Legal expenses	0.00	0.00
061	EDP Hire and other charges	0.00	0.00
062	Printing and stationery	0.00	0.00
063	Miscellaneous expenses	1,077.96	0.00
064	Total (D)	805,829.61	0.00
065	Total (A+B+C+D)	14,502,884.03	36,392,300.06
066	E. Less: Other Income	0.00	0.00
067	Interest from	0.00	0.00
068	Indian banks	0.00	0.00
069	Foreign banks	0.00	0.00
070	Others	0.00	0.00
071	Contractors	0.00	0.00
072	Hire charges	0.00	0.00
073	Sale of scrap	0.00	0.00
074	Exchange Differences	0.00	0.00
075	Miscellaneous income	0.00	0.00
076	TOTAL (E)	0.00	0.00
077	F. Net actuarial gain/loss OCI	0.00	0.00
078		0.00	0.00
079	GRAND TOTAL (A+B+C+D-E+F)	14,502,884.03	36,392,300.06
080		0.00	0.00
081	* Balance carried to Capital Work-in-progress - (Note 3)	14,502,884.03	36,392,300.06

RIHAND SUPER THERMAL POWER STATION
BALANCE SHEET

(Amount in ₹)

As at	Note	31.03.2021	31.03.2020
001 ASSETS		0.00	0.00
002		0.00	0.00
003 Non-Current Assets		0.00	0.00
004 Property, plant and equipment	2	53,619,450,765.67	58,728,501,510.10
005 Capital-Work-in-Progress	3	3,031,095,010.70	823,654,175.83
006 Intangible Assets	4	15,262.40	19,580.18
007 Intangible Assets under Development	5	0.00	0.00
008 Financial Assets		0.00	0.00
009 i) Investments in Subsidiaries and Joint Ventures	6	0.00	0.00
010 ii) Investments	7	0.00	0.00
011 iii) Trade receivables	8	0.00	0.00
012 iv) Loans	9	105,755,516.61	97,279,112.83
013 v) Other financial assets	10	0.00	0.00
014 Other non-current assets	11	2,224,648,606.02	2,510,570,989.29
015 Total non-current assets		58,980,965,163.40	60,160,025,348.23
016		0.00	0.00
017 Current Assets		0.00	0.00
018 Inventories	12	4,599,607,206.27	3,934,708,096.39
019 Financial assets		0.00	0.00
020 i) Investments	13	0.00	0.00
021 ii) Trade receivables	14	15,484,355.69	0.00
022 iii) Cash and cash equivalents	15	390,123.40	435,387.81
023 iv) Bank balances other than cash and cash equivalents	16	0.00	0.00
024 v) Loans	17	68,419,589.65	70,942,728.42
025 vi) Other financial assets	18	165,634,958.60	688,178,780.59
026 Current Tax Assets (net)		0.00	0.00
027		0.00	0.00
028 Other Current Assets	19	469,505,591.13	641,228,747.85
029		0.00	0.00
030 Total Current Assets		5,319,021,824.74	5,335,493,741.06
031 Regulatory deferral account debit balances	20	871,086,456.17	366,710,508.19
032 TOTAL ASSETS		64,971,073,444.31	65,862,229,597.48
034 EQUITY AND LIABILITIES		0.00	0.00
035 Equity		0.00	0.00
036 Equity Share capital	21	0.00	0.00
037 Other equity	22	167,459,875,592.17	156,372,525,419.96
040 Total equity		167,459,875,592.17	156,372,525,419.96
041		0.00	0.00
042 Liabilities		0.00	0.00
043 Non-Current Liabilities		0.00	0.00
044 Financial liabilities		0.00	0.00
045 i) Borrowings	23	0.00	0.00

[Signature]

Locked: 26.04.2021 - 20:19:51

Run on: 26.04.2021 - 20:27:44 Version: 0

[Signature]

Page 1 of 2

RIHAND SUPER THERMAL POWER STATION
BALANCE SHEET

(Amount in ₹)

As at	Note	31.03.2021	31.03.2020
046	ii) Trade payables	0.00	0.00
047	- Total outstanding dues of micro and small enterprises	18,336,269.21	15,622,396.62
048	- Total outstanding dues of creditors other than micro and small enterprises	6,373,476.89	5,712,598.82
049	iii) Other financial liabilities	661,741,354.25	34,379,901.73
050	Provisions	0.00	0.00
051	Deferred Tax Liabilities (net)	0.00	0.00
052	Other non-current liabilities	0.00	0.00
053		0.00	0.00
054	Total non-current liabilities	704,451,100.35	55,714,897.17
055		0.00	0.00
056	Current Liabilities	0.00	0.00
057	Financial liabilities	0.00	0.00
058	i) Borrowings	0.00	0.00
059	ii) Trade Payables	0.00	0.00
060	- Total outstanding dues of micro and small enterprises	227,641,821.80	347,533,123.95
061	- Total outstanding dues of creditors other than micro and small enterprises	1,688,677,134.68	1,929,276,543.35
062	iii) Other financial liabilities	2,089,371,382.23	2,174,040,601.24
063	Other current liabilities	95,628,402.86	98,045,489.01
064	Provisions	8,265,312.00	8,480,817.99
065	Current tax liabilities (net)	0.00	0.00
066		0.00	0.00
067	Sub Total	4,109,584,053.57	4,557,376,575.54
068		0.00	0.00
069	Deferred Revenue	1,550,313,000.00	1,990,729,000.00
070	Regulatory deferral account credit balances	0.00	0.00
071	Inter Unit Accounts	-108,853,150,301.78	-97,114,116,295.19
072		0.00	0.00
073	TOTAL EQUITY AND LIABILITIES	64,971,073,444.31	65,862,229,597.48
074	Significant Accounting Policies as per Note 1	0.00	0.00
075		0.00	0.00
076	The accompanying notes 1 to 44 form an integral part of these financial statements.	0.00	0.00
077		0.00	0.00
078		0.00	0.00

GOTAM
KUMAR
BAGARIYA

Digitally signed by
GOTAM KUMAR
BAGARIYA
Date: 2021.04.29
17:55:07 +05'30'

(Auditor Initial & Stamp)

eSign

Digitally Signed:

Signed by: Vinodra Malik,
Resour. Financial Statements
31.03.2021-NTPC-Rihand
Location: SSC, West Bengal
Date: 20-Apr-2021 21:31:35

(Head of Finance)

Rajendra
29/04/2021

(Head of Unit)

Locked: 26.04.2021 - 20:19:51

Run on: 26.04.2021 - 20:27:44 Version: 0

Page 2 of 2

RIHAND SUPER THERMAL POWER STATION
STATEMENT OF PROFIT AND LOSS

(Amount in ₹)

	For the Year ended	Note	31.03.2021	31.03.2020
001	Revenue		0.00	0.00
002	Revenue from operations	37	51,486,298,435.08	52,545,076,725.88
003	Other income	38	2,544,908,615.45	3,035,476,371.88
005	Total Revenue		54,011,207,050.53	55,580,553,097.76
007	Expenses		0.00	0.00
008	Fuel including cost of captive coal	38A	31,224,710,698.23	30,416,545,545.88
009	Employee benefits expense	39	1,745,537,752.39	1,854,129,627.42
010	Electricity purchased for trading		0.00	0.00
011	Finance costs	40	1,929,476,341.86	2,130,434,794.21
012	Depreciation and amortization expenses	41	4,070,986,728.27	3,914,830,997.64
013			0.00	0.00
014	Other expenses	42	3,501,403,380.71	2,900,984,769.93
015	CC expenses charge to revenue		723,835,735.02	865,358,462.00
016	Less: Unit expenses transferred to CC		0.00	0.00
017	Total expenses		43,195,950,636.48	42,084,284,196.88
020	Profit before exceptional items & tax		10,815,256,414.05	13,496,268,900.88
021	Exceptional items		0.00	0.00
024	Profit before tax		10,815,256,414.05	13,496,268,900.88
027	Tax expense:		0.00	0.00
028	Current tax		0.00	0.00
029	Deferred tax		0.00	0.00
030			0.00	0.00
031	Total Tax expense		0.00	0.00
032	Profit for the period before regulatory deferral account balances		10,815,256,414.05	13,496,268,900.88
033	Movement in regulatory deferral account balances		0.00	0.00
034	Regulatory deferred account - deferred		0.00	0.00
035	Others		304,375,947.98	16,012,648.15
036	Tax impact on Regulatory deferral account balances		0.00	0.00
037	Movement in Regulatory deferral account balances (Net of Tax)		304,375,947.98	16,012,648.15
038	Profit for the period/ year		11,119,632,362.03	13,512,281,549.03
039	Other comprehensive income		0.00	0.00
040	(A) Items that will not be reclassified to profit or loss		0.00	0.00
041	- Net gains/(losses) on fair value of equity instruments through other comprehensive income		0.00	0.00
042	Income tax on above that will not be reclassified to profit or loss		0.00	0.00
043	- Net actuarial gains/(losses) on defined benefit plans		-24,061,329.38	-53,349,231.17
044	Income tax on above that will not be reclassified to profit or loss		0.00	0.00

[Signature]
27/4/21

Locked: 26.04.2021 - 20:19:34
Run on: 26.04.2021 - 20:28:22 Version: 0

[Signature]
Page 1 of 2

RIHAND SUPER THERMAL POWER STATION
STATEMENT OF PROFIT AND LOSS

(Amount in ₹)

	For the Year ended	Note	31.03.2021	31.03.2020
048			0.00	0.00
049	Other comprehensive income for the year, net of income tax		-24,061,329.38	-53,349,231.17
050			0.00	0.00
051	Total Comprehensive Income for the year		11,095,571,032.65	13,458,932,317.86
065			0.00	0.00
066	Earnings per equity share:		0.00	0.00
067	Basic & Diluted		0.00	0.00
068	Significant Accounting Policies		0.00	0.00
069	Expenditure during construction period (Net)/Dev. of coal mines (net) 43 /43A		0.00	0.00
070	The accompanying notes 1 to 44 form an integral part of these financial statements.		0.00	0.00

GOTAM
KUMAR
BAGARIYA

Digitally signed by
GOTAM KUMAR
BAGARIYA
Date: 2021.04.29
17:55:38 +05'30'

(Auditor Initial & Stamp)

eSign

Digitally Signed
Signed by: Vinodita Malik
Reason: Financial
Statements:31.03.2021
NTPC Shared.

(Head of Finance)

Vinodita Malik
27/04/2021

(Head of Unit)

Vinodita Malik

Note forming part of Balance Sheet
Note 2 : Property, Plant And Equipment
Business Area :1005

Asset Class	Opening Gross Block As At 01.04.2020	Additions	Deductions/ Adjustments	Closing Gross Block As At 31.03.2021	Opening Depreciation As At 01.04.2020	Additions	Deductions/ Adjustments	Closing Depreciation As At 31.03.2021	Net Block As At 31.03.2021	Net Block As At 31.03.2020
1 TANGIBLE ASSETS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2 Land : (including development expenses)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3 Freehold	355016843.25	0.00	0.00	355016843.25	0.00	0.00	0.00	0.00	355016843.25	355016843.25
4 Right of Use	312564894.63	0.00	0.00	312564894.63	64677732.17	10521536.67	0.00	75199268.84	237365625.79	247887162.46
5 Submergence	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6 Right of use - Coal Bearing Area Land	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7 Roads,bridges, culverts & helipads	636446916.44	0.00	159951.50	636606867.94	109536598.01	23550768.85	0.00	133087366.86	503519501.08	526910318.43
8 Building :	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9 Freehold	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10 Main plant	1852956664.03	0.00	0.00	1852956664.03	312864958.08	62855519.69	0.00	375720477.77	1477236186.26	1540091705.95
11 Others	2533965283.89	651849.77	14352916.02	2548970049.68	389425925.65	94083092.43	0.00	483509018.08	2065461031.60	2144539358.24
12 Right of Use	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
13 Temporary erection	231168.13	0.00	0.00	231168.13	231168.13	0.00	0.00	231168.13	0.00	0.00
14 Water Supply, drainage & sewerage system	543971851.56	0.00	2075861.99	546047713.55	98294100.27	24336758.92	0.00	122630859.19	423416854.36	445677751.29
15 Hydraulic works, barrages, dams, tunnels and power channel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
16 MGR track and signalling system	1331637054.56	0.00	22735072.00	1354372126.56	282788992.51	70801086.59	0.00	353590079.10	1000782047.46	1048848062.05
17 Railway siding	1528212.48	0.00	0.00	1528212.48	583464.81	64482.46	0.00	647947.27	880265.21	944747.67
18 Earth dam reservoir	1456921.40	0.00	0.00	1456921.40	0.00	0.00	0.00	0.00	1456921.40	1456921.40
19 Plant and machinery(including associated civil works)	72150091047.97	1749417411.66	(444538934.06)	73454969525.57	22338498577.64	4250997908.53	(124764520.90)	26464731965.27	46990237560.30	49811592470.33
Owned Asset										


 Anil Kumar
 Anil, General Manager (Commercial)
 एन टी सी लिमिटेड/NTPC LIMITED

Note forming part of Balance Sheet
Note 2 : Property, Plant And Equipment
Business Area :1005

Asset Class	Opening Gross Block As At 01.04.2020	Additions	Deductions/ Adjustments	Closing Gross Block As At 31.03.2021	Opening Depreciation As At 01.04.2020	Additions	Deductions/ Adjustments	Closing Depreciation As At 31.03.2021	Net Block As At 31.03.2021	Net Block As At 31.03.2020
20 Plant and machinery(including associated civil works) -Right of use Asset	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
21 Furniture and fixtures	174462877.14	132121.00	141236.26	174736234.40	55993361.73	9718284.42	0.00	65711646.15	109024588.25	118469515.41
22 Assets under 5 Km Scheme	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
23 Vehicles including speedboats / helicopter- Owned	6558165.35	0.00	0.00	6558165.35	2026920.89	579121.79	0.00	2606042.68	3952122.67	4531244.46
24 Vehicles including speedboats / helicopter - Leased	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
25 Office equipment	87710203.22	10332475.39	(2328.66)	98040349.95	42281672.36	7149396.76	25013.36	49456082.48	48584267.47	45428530.86
26 EDP, WP machines and satcom equipment	88746642.53	4701880.50	(2207618.37)	91240904.66	66678476.50	8358261.38	(2207618.37)	72829119.51	18411785.15	22068166.03
27 Construction equipments	65110895.86	0.00	0.00	65110895.86	25019015.46	2027521.73	0.00	27046537.19	38064358.67	40091880.40
28 Electrical Installations	331097542.54	0.00	(15297.60)	331082244.94	93983599.49	24483870.32	0.00	118467469.81	212614775.13	237113943.05
29 Communication equipments	31934747.30	0.00	0.00	31934747.30	21139449.21	2682540.80	0.00	23821990.01	8112757.29	10795298.09
30 Hospital equipments	23403542.97	8015882.70	(498500.00)	30920925.67	6303043.52	1526214.95	(145000.00)	7684258.47	23236667.20	17100499.45
31 Laboratory and workshop equipments	145928386.77	0.00	(192816.00)	145735570.77	35991295.49	7667668.15	0.00	43658963.64	102076607.13	109937091.28
32 Capital expenditure on assets not owned by the Company	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
33 Assets of Government	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00


 अवर सहायक (वित्त) /
 Addl. General Manager (Commercial)
 एन टी सी लिमिटेड / NTPC LIMITED

(Amount in Rupees)

Note forming part of Balance Sheet
Note 2 : Property, Plant And Equipment
Business Area :1005

Asset Class	Opening Gross Block As At 01.04.2020	Additions	Deductions/ Adjustments	Closing Gross Block As At 31.03.2021	Opening Depreciation As At 01.04.2020	Additions	Deductions/ Adjustments	Closing Depreciation As At 31.03.2021	Net Block As At 31.03.2021	Net Block As At 31.03.2020
34 Less:Grants from Government	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
35 Less: Recoverable from GOI	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
36 Assets for ash utilisation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
37 (Less):-Adjusted from fly ash utilisation reserve fund	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
38 Site Restoration Cost	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
39 Mining Properties	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grand Total (Tangible)	80674819862.02	1773251621.02	(407990456.92)	82040081026.12	23946318351.92	4601404034.44	(127092125.91)	28420630260.45	53619450765.67	56728501510.10
Grand Total Prev Year (Tangible)	78534642964.26	1186875116.04	953301781.72	80674819862.02	19591618043.24	4377618570.90	(22918262.22)	23946318351.92	56728501510.10	58943024921.02


 Anil Kumar (Signature)
 Anil Kumar Manager (Commercial)
 एन टी सी लिमिटेड / NTPC LIMITED

Note forming part of Balance Sheet
Note 2 : Property, Plant And Equipment
Business Area :1005

Details of Adjustments of Gross Block and Depreciation/Amortization

Particulars	Gross Block		Depreciation/Amortization	
	Tangible As At: 31.03.2021	Tangible As At: 31.03.2020	Tangible As At: 31.03.2021	Tangible As At: 31.03.2020
Disposal of assets	(2046638.78)	(2114197.00)	(2032443.32)	(2071876.78)
Retirement of assets	(360826985.21)	(69448632.25)	(129619476.73)	(19577026.64)
Cost adjustments	(61206706.58)	1021726514.10	0.00	0.00
Assets capitalised with retrospective effect / Write back of excess capitalisation	0.00	0.00	0.00	0.00
Depreciation on construction equipment capitalised as EDC	0.00	0.00	0.00	0.00
Prior Period Depreciation due to Assets capitalised with retrospective effect / Write back of excess capitalisation	0.00	0.00	0.00	0.00
Special Depreciation (As per New Policy)	0.00	0.00	0.00	0.00
Transfer in /out because of Inter Unit transfers	16089873.65	3138096.87	4559794.14	(1269358.80)
Others	0.00	0.00	0.00	0.00
TOTAL	(407990456.92)	953301781.72	(127092125.91)	(22918262.22)


 अधीन निदेशक (आर्थिक) /
 Addl. General Manager (Commercial)
 एन टी सी लिमिटेड / NTPC LIMITED

Note forming part of Balance Sheet

Note 3: Capital-Work-in-Progress

Business Area: RIHAND SUPER THERMAL POWER STATION

SI No	Asset Class	As At 01.04.2020	Addition	Deduction/ Adjustment	Capitalized	As At 31.03.2021
	1	2	3	4	5	6
1	CAPITAL WORK-IN-PROGRESS					
2	Development of land					
3	Roads, bridges, culverts & helipads		159951.50	(159951.50)		
4	Piling and foundation					
5	Buildings :					
6	Main plant					
7	Others	3994483.75	41494542.99	(14352916.02)	651849.77	30484260.95
8	Temporary erection					
9	Water supply, drainage and sewerage system	2950000.00	2169334.09	(2169334.09)	1966765.00	983235.00
10	Hydraulic works, barrages, dams, tunnels and power channel					
11	MGR track and signalling system	20000000.00	2735072.00	(22735072.00)		
12	Railway siding					
13	Earth dam reservoir					
14	Plant and equipment	716862112.61	2701347755.13	(441523046.74)	459253795.13	2517433025.87
15	Furniture and fixtures		202930.66	(178285.51)		24645.15
16	Vehicles					
17	Office equipment		35588.00			35588.00
18	EDP/WP machines & satcom equipment	1367798.00		(1.00)	1367797.00	
19	Construction equipments					
20	Electrical installations					
21	Communication equipment					
22	Hospital equipments		256888.29			256888.29
23	Laboratory and workshop equipments					
24	Assets under 5Km Scheme of the GOI					
25	Capital expenditure on assets not owned by the company					
26	Expenditure towards development of coal mines					
27	Survey,Investigation,Consultancy & Supervision Cha	2987667.50				2987667.50
28	Difference in exchange on foreign currency loans					

Note forming part of Balance Sheet

Note 3: Capital-Work-in-Progress

Business Area: RIHAND SUPER THERMAL POWER STATION

SI No	Asset Class	As At 01.04.2020	Addition	Deduction/ Adjustment	Capitalized	As At 31.03.2021
	1	2	3	4	5	6
29	Expenditure towards diversion of forest land					
30	Pre-commissioning expenses (net)					
31	ExpPendAlloca-oth ex attribut Project					
32	Expenditure During Construction Period (net)*		48056989.43	19803119.69		67860109.12
33	LESS : Allocated to related works		67860109.12			67860109.12
34	LESS : Provision for Unservicable works					
35	Construction stores (At Cost)					
36	Steel	28823481.94	10797591.45	(9388238.80)		30232834.59
37	Cement	2154161.66		(126029.78)		2028131.88
38	Others	48601441.60	9455643.30	395822571.17		453879656.07
39	Sub-total	79579085.20	20253234.75	386308302.59		486140622.54
40	LESS : Provision for shortages	4086971.23		3163951.37		7250922.60
41	Sub-total	75492113.97	20253234.75	383144351.22		478889699.94
42	Total CWIP	823654175.83	2748852177.72	(78171135.95)	463240206.90	3031095010.70
43						
44						
45	PREVIOUS YEAR TOTAL	526168443.09	1282428590.34	(448034605.07)	526463585.59	823654175.83

Note forming part of Balance Sheet
Note-4 Non Current Assets- Intangible Assets
Business Area :1005

Asset Class	Opening Gross Block As At 01.04.2020	Additions	Deductions/ Adjustments	Closing Gross Block As At 31.03.2021	Opening Depreciation As At 01.04.2020	Additions	Deductions/ Adjustments	Closing Depreciation As At 31.03.2021	Net Block As At 31.03.2021	Net Block As At 31.03.2020
INTANGIBLE ASSETS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1 Right to Use- Land	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2 -Others	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3 -Software	4773867.26	0.00	0.00	4773867.26	4754287.08	4317.78	0.00	4758604.86	15262.40	19580.18
Grand Total (Intangible)	4773867.26	0.00	0.00	4773867.26	4754287.08	4317.78	0.00	4758604.86	15262.40	19580.18
Grand Total Prev Year (Intangible)	4773867.26	0.00	0.00	4773867.26	4639223.95	115063.13	0.00	4754287.08	19580.18	134643.31


 अवर सहायक (वित्त) /
 Anil Kumar Manager (Commercial)
 एन टी सी लिमिटेड / NTPC LIMITED

Note forming part of Balance Sheet
 Note-4 Non Current Assets- Intangible Assets
 Business Area :1005

Details of Adjustments of Gross Block and Depreciation/Amortization				
Particulars	Gross Block		Depreciation/Amortization	
	InTangible As At: 31.03.2021	InTangible As At: 31.03.2020	InTangible As At: 31.03.2021	InTangible As At: 31.03.2020
Disposal of assets	0.00	0.00	0.00	0.00
Retirement of assets	0.00	0.00	0.00	0.00
Cost adjustments	0.00	0.00	0.00	0.00
Assets capitalised with retrospective effect / Write back of excess capitalisation	0.00	0.00	0.00	0.00
Depreciation on construction equipment capitalised as EDC	0.00	0.00	0.00	0.00
Prior Period Depreciation due to Assets capitalised with retrospective effect / Write back of excess capitalisation	0.00	0.00	0.00	0.00
Special Depreciation (As per New Policy)	0.00	0.00	0.00	0.00
Transfer in /out because of Inter Unit transfers	0.00	0.00	0.00	0.00
Others	0.00	0.00	0.00	0.00
TOTAL	0.00	0.00	0.00	0.00


 अधीन निदेशक (वित्त/अकाउंट्स)
 Addl. General Manager (Commercial)
 एन टी सी लिमिटेड/NTPC LIMITED

Note forming part of Balance Sheet

Note 5: Intangible Assets under Development

Business Area: RIHAND SUPER THERMAL POWER STATION

SI No	Asset Class	As At 01.04.2020	Addition	Deduction/ Adjustment	Capitalized	As At 31.03.2021
	1	2	3	4	5	6
1	INTANGIBLE ASSETS UNDER DEVELOPMENT					
2	Software					
3	Right to use Others					
4	Exploration and Evaluation Expenditure - Coal Mini					
5	Exploratory wells-in-progress					
6	Less: Provision for exploratory wells-in-progress					
7	Total					
8	PREVIOUS YEAR TOTAL-I					



RIHAND SUPER THERMAL POWER STATION

NOTE NO. 6 TO THE FS-NCA-INVESTMENTS IN SUBSIDIARIES & JOINT VENTURES

(Amount in ₹)

As at	No. of shares	Face value	31.03.2021	31.03.2020
001	NON CURRENT INVESTMENTS-		0.00	0.00
	Investments in subsidiaries and joint ventures			
012	Equity Instruments - Unquoted-(fully paid up unless otherwise stated, at cost)		0.00	0.00
013	Subsidiary Companies		0.00	0.00
014	Patratu Vidyut Utpadan Nigam Ltd.		0.00	0.00
015	NTPC Electric Supply Company Ltd.		0.00	0.00
016	NTPC Vidyut Vyapar Nigam Ltd.		0.00	0.00
017	Nabinagar Power Generating Company Ltd.		0.00	0.00
018	Kanti Bijlee Utpadan Nigam Ltd.		0.00	0.00
019	Bhartiya Rail Bijlee Company Ltd.		0.00	0.00
020	NTPC Mining Ltd (NML)		0.00	0.00
021	THDC India Ltd.		0.00	0.00
022	NEEPCO LTD.		0.00	0.00
023	NTPC EDMC Waste Solutions Pvt Ltd		0.00	0.00
024	NTPC Renewables Energy Ltd		0.00	0.00
025	Ratnagiri Gas & Power Pvt. Limited (RGPPL)		0.00	0.00
026			0.00	0.00
027			0.00	0.00
028			0.00	0.00
029			0.00	0.00
030	Sub Total		0.00	0.00
055	Joint Venture Companies		0.00	0.00
056	Utility Powertech Ltd.		0.00	0.00
057	NTPC GE Power Services Pvt.Ltd.		0.00	0.00
058	NTPC-SAIL Power Company Ltd.		0.00	0.00
059	NTPC-Tamil Nadu Energy Company Ltd.		0.00	0.00
060	Ratnagiri Gas & Power Pvt. Limited (RGPPL)		0.00	0.00

Locked: 26.04.2021 - 20:19:44

Run on: 14.11.2024 - 16:08:21 Version: 0


अध्यक्ष, वित्त-प्रशासन (आयुक्तिक) /
Addl. General Manager (Commercial)
एन टी सी लिमिटेड, NTPC LIMITED



RIHAND SUPER THERMAL POWER STATION

NOTE NO. 6 TO THE FS-NCA-INVESTMENTS IN SUBSIDIARIES & JOINT VENTURES

(Amount in ₹)

As at	No. of shares	Face value	31.03.2021	31.03.2020
061	Aravali Power Company Private Ltd.		0.00	0.00
062			0.00	0.00
063	NTPC BHEL Power Projects Private Ltd.		0.00	0.00
064	Meja Urja Nigam Private Limited		0.00	0.00
065	BF-NTPC Energy Systems Ltd.		0.00	0.00
066			0.00	0.00
067	Nabinagar Power Generating Company Ltd.		0.00	0.00
068	Transformer and Electrical Kerala Ltd.		0.00	0.00
069	National High Power Test Labortory Private Ltd.		0.00	0.00
070			0.00	0.00
071	CIL NTPC Urja Private Ltd.		0.00	0.00
072	Anushakti Vidhyut Nigam Ltd.		0.00	0.00
073	Energy Efficiency Services Ltd.		0.00	0.00
074			0.00	0.00
075	Trincomalee Power Company Ltd.		0.00	0.00
076	Bangladesh-India Friendship Power Company (Pvt.) Ltd.		0.00	0.00
077	Hindustan Urvarak & Rasayan Limited		0.00	0.00
078	Konkan LNG Ltd		0.00	0.00
079			0.00	0.00
081	Sub Total		0.00	0.00
109	Aggregate amount of impairment in the value of investments		0.00	0.00
110	Total (net of impairment) of JV		0.00	0.00
111	Gross Total of Investments		0.00	0.00
134	Total		0.00	0.00
135	Details of Investments		0.00	0.00
136	Aggregate amount of Unquoted Investments		0.00	0.00

Locked: 26.04.2021 - 20:19:44

Run on: 14.11.2024 - 16:08:21 Version: 0


 आर्य समाज-भारत (प्राधिकृत)
 Addl. General Manager (Commercial)
 एन टी सी लिमिटेड, NTPC LIMITED



RIHAND SUPER THERMAL POWER STATION

NOTE NO. 6 TO THE FS-NCA-INVESTMENTS IN SUBSIDIARIES & JOINT VENTURES

(Amount in ₹)

As at	No. of shares	Face value	31.03.2021	31.03.2020
141			0.00	0.00
142			0.00	0.00
143			0.00	0.00
144			0.00	0.00
145			0.00	0.00
153	Valuation of Investments as per Note 1.		0.00	0.00
154			0.00	0.00
202			0.00	0.00
233			0.00	0.00

RIHAND SUPER THERMAL POWER STATION

NOTE NO. 7 TO THE FS-NCA-INVESTMENTS

(Amount in ₹)

	As at	No. of shares	Face value	31.03.2021	31.03.2020
001	Non-current financial assets (investments)			0.00	0.00
006	Long Term - Trade			0.00	0.00
007	Equity Instruments (fully paid up-unless otherwise stated)			0.00	0.00
008	Quoted			0.00	0.00
009	Joint Venture Companies			0.00	0.00
010	PTC India Ltd.			0.00	0.00
070	International Coal Ventures Private Ltd.			0.00	0.00
075	BF-NTPC Energy Systems Ltd.			0.00	0.00
098				0.00	0.00
110	Cooperative Societies			0.00	0.00
111	Sub Total			0.00	0.00
112	Aggregate amount of impairment in the value of investments			0.00	0.00
115	Total			0.00	0.00
120				0.00	0.00
146	NTPC Employees Consumers and Thrift Co-operative Society Ltd. Korba			0.00	0.00
147	NTPC Employees Consumers and Thrift Cooperative Society Ltd. RSTPP			0.00	0.00
148	NTPC Employees Consumers Cooperative Society Ltd. Farakka			0.00	0.00
149	NTPC Employees Consumers Cooperative Society Ltd. Vindhyachal			0.00	0.00
150	NTPC Employees Consumers Cooperative Society Ltd. Anta			0.00	0.00
151	NTPC Employees Consumers Cooperative Society Ltd. Kawas			0.00	0.00
152	NTPC Employees Consumers Cooperative Society Ltd. Kaniha			0.00	0.00



RIHAND SUPER THERMAL POWER STATION

NOTE NO. 8 TO THE FS-NCA-TRADE RECEIVABLES

(Amount in ₹)

As at	31.03.2021	31.03.2020
001 Non-current financial assets - Trade receivables	0.00	0.00
002 Unsecured, considered good	0.00	0.00
003 Credit impaired	0.00	0.00
004	0.00	0.00
005	0.00	0.00
006 Total	0.00	0.00

RIHAND SUPER THERMAL POWER STATION
NOTE NO. 9 TO THE FS-NCA-LOANS
(Amount in ₹)

As at	31.03.2021	31.03.2020
001 Loans (Non Current)	0.00	0.00
004 Related Parties	0.00	0.00
005 Secured	0.00	0.00
006 Un-Secured	0.00	0.00
007 With significant increase in Credit Risk	0.00	0.00
008 Credit impaired	0.00	0.00
009	0.00	0.00
010 Employees(including accrued interest)	0.00	0.00
011 Secured	81,640,635.94	78,971,858.25
012 Unsecured	53,590,775.89	47,554,685.79
013 With significant increase in Credit Risk	0.00	0.00
014 Credit impaired	0.00	0.00
015 Less : Employee Loans Discounting	0.00	0.00
016 Secured	22,067,890.23	21,268,252.60
017 Unsecured	7,408,004.99	7,979,178.61
018 Loan to State Government in settlement of dues from customers (Unsecured)	0.00	0.00
019 Others	0.00	0.00
020 Secured	0.00	0.00
021 Unsecured	0.00	0.00
022 With significant increase in Credit Risk	0.00	0.00
023 Credit impaired	0.00	0.00
024 Less: Allowance for credit impaired loans	0.00	0.00
025 Sub Total	105,755,516.61	97,279,112.83
026	0.00	0.00
027 Total	105,755,516.61	97,279,112.83
028	0.00	0.00
029	0.00	0.00
030 Due from Directors and Officers of the Company	0.00	0.00
031 Directors	0.00	0.00
032 Officers	0.00	0.00
033	0.00	0.00
034 Loans to related parties include:	0.00	0.00
035 i)Key management personel	0.00	0.00
036 ii)Subsidiary companies	0.00	0.00
037 iii)Joint Venture companies	0.00	0.00
038 iv)Others	0.00	0.00
039	0.00	0.00
054 Other loans represent loans given to	0.00	0.00
055 a) APIIC	0.00	0.00
060	0.00	0.00
061 RPD	0.00	0.00
062 i)Key management personel	0.00	0.00
063 ii)Subsidiary companies	0.00	0.00
064 iii)Joint Venture companies	0.00	0.00
065 iv)Others	0.00	0.00



RIHAND SUPER THERMAL POWER STATION

NOTE NO. 9 TO THE FS-NCA-LOANS

(Amount in ₹)

	As at	31.03.2021	31.03.2020
066	Total	0.00	0.00

RIHAND SUPER THERMAL POWER STATION
NOTE NO. 10 TO THE FS-NCA-OTHER FINANCIAL ASSETS
(Amount in ₹)

As at	31.03.2021	31.03.2020
001 Other Financial Assets (non current)	0.00	0.00
002	0.00	0.00
003 Share application money pending allotment in (Subsidiary Companies) :	0.00	0.00
004 NTPC Electric Supply Company Ltd.	0.00	0.00
005 NTPC Vidyut Vyapar Nigam Ltd.	0.00	0.00
006 Nabinagar Power Generating Company Ltd.	0.00	0.00
007 Kanti Bijlee Utpadan Nigam Ltd.	0.00	0.00
008 Bhartiya Rail Bijlee Company Ltd.	0.00	0.00
009 Patratu Vidyut Utpadan Nigam Ltd.	0.00	0.00
010 NTPC Mining Limited	0.00	0.00
011 THDC Ltd.	0.00	0.00
012 NEEPCO Ltd	0.00	0.00
013	0.00	0.00
014 Total	0.00	0.00
015 Share application money pending allotment (Joint Venture)	0.00	0.00
016 Utility Powertech Ltd.	0.00	0.00
017 NTPC GE Power Services Pvt.Ltd.	0.00	0.00
018 NTPC-SAIL Power Company Ltd.	0.00	0.00
019 NTPC-Tamil Nadu Energy Company Ltd.	0.00	0.00
020 Ratnagiri Gas & Power Private Ltd.	0.00	0.00
021 Aravali Power Company Private Ltd.	0.00	0.00
022	0.00	0.00
023 NTPC BHEL Power Projects Private Ltd.	0.00	0.00
024 Meja Urja Nigam Private Limited	0.00	0.00
025 BF-NTPC Energy Systems Ltd.	0.00	0.00
026 Anushakti Vidhyut Nigam Ltd.	0.00	0.00
027 Nabinagar Power Generating Company Ltd.	0.00	0.00
028 Energy Efficiency Services Ltd.	0.00	0.00
029 National High Power Test Labortory Private Ltd.	0.00	0.00
030	0.00	0.00
031 CIL NTPC Urja Private Ltd.	0.00	0.00
032 Trincomalee Power Company Ltd.	0.00	0.00
033 Hindustan Urvarak & Rasayan Limited	0.00	0.00
034 Bangladesh-India Friendship Power Company Private Ltd.	0.00	0.00
035 Sub Total	0.00	0.00
036	0.00	0.00
037 Claims Recoverable	0.00	0.00
038 Finance Lease Recoverable	0.00	0.00
039 Mine Closure Deposit	0.00	0.00
041 Total	0.00	0.00

RIHAND SUPER THERMAL POWER STATION
NOTE NO. 11 TO THE FS-NCA-OTHER NON-CURRENT ASSETS
(Amount in ₹)

As at	31.03.2021	31.03.2020
001 Other Non-current Assets	0.00	0.00
002	0.00	0.00
003 CAPITAL ADVANCES	0.00	0.00
004 Secured	0.00	0.00
005 Unsecured	0.00	0.00
006 Covered by Bank Guarantee	374,937,145.32	323,177,345.00
007 Others	23,546,752.62	89,609,598.63
008 Considered doubtful	0.00	0.00
009 Less: Allowance for bad & doubtful advances	0.00	0.00
010 Sub-Total	398,483,897.94	412,786,943.63
011	0.00	0.00
012 Advances other than capital advances	0.00	0.00
013 Security deposits	1,436,400.00	1,436,400.00
019 Advances to Related parties	0.00	0.00
022 Advances to Contractors & Suppliers	0.00	0.00
023 Secured	0.00	0.00
024 Unsecured	0.00	0.00
025 Considered Doubtful	0.00	0.00
026 Less: Allowance for bad & doubtful advances	0.00	0.00
027 Sub Total	1,436,400.00	1,436,400.00
028 Receivable from MCP Escrow A/c	0.00	0.00
039 Advance tax & tax deducted at source	2,447,428.10	1,374,625.00
040 Less:- Provision for current tax	0.00	0.00
041	0.00	0.00
042 Sub Total	2,447,428.10	1,374,625.00
043 Deferred Payroll Expenses (Secured)	17,618,156.45	18,035,323.47
044 Deferred Payroll Expenses (Unsecured)	5,186,725.53	5,842,677.19
045 Sub Total	22,804,881.98	23,878,000.66
046 Deferred Foreign Currency Fluctuation Asset	1,799,476,000.00	2,071,095,000.00
048 Total	2,224,648,608.02	2,510,570,969.29
049	0.00	0.00
050	0.00	0.00
061 Advances include amount due from the following Private Companies in which Directors of the Company are also Directors in such Companies	0.00	0.00
063	0.00	0.00
064 NTPC GE Power Services Pvt.Ltd.	0.00	0.00
065	0.00	0.00
066 Ratnagiri Gas & Power Private Ltd.	0.00	0.00
067 Aravali Power Company Private Ltd.	0.00	0.00
068 NTPC-SCCL Global Ventures Private Ltd.	0.00	0.00
069 NTPC BHEL Power Projects Private Ltd.	0.00	0.00
070 Meja Urja Nigam Private Limited	0.00	0.00
071 Nabinagar Power Generating Company Ltd.	0.00	0.00
072 National High Power Test Labortory Private Ltd.	0.00	0.00
074 CIL NTPC Urja Private Ltd.	0.00	0.00
076	0.00	0.00



RIHAND SUPER THERMAL POWER STATION

NOTE NO. 11 TO THE FS-NCA-OTHER NON-CURRENT ASSETS

(Amount in ₹)

As at	31.03.2021	31.03.2020
077 Related Party (Adv)	0.00	0.00
078 Key Management personel	0.00	0.00
079 Subsidiary companies	0.00	0.00
080 Joint Venture companies	0.00	0.00
081 Contractors	0.00	0.00
082 Others	0.00	0.00
084	0.00	0.00
085 Total	0.00	0.00

RIHAND SUPER THERMAL POWER STATION

NOTE NO. 12 TO THE FS-CA-INVENTORIES

(Amount in ₹)

As at	31.03.2021	31.03.2020
001 INVENTORIES	0.00	0.00
002	0.00	0.00
003 Coal	1,293,481,712.46	530,693,477.72
004 Fuel oil	221,275,469.56	213,916,508.70
005 Naphtha	0.00	0.00
006 Stores and spares	2,434,045,104.96	2,507,691,473.02
007 Chemicals & consumables	84,873,916.88	82,869,440.00
008 Loose tools	1,320,987.78	1,481,824.88
009 Steel Scrap	10,032,350.58	4,556,896.18
010 Others*	578,527,487.01	618,290,642.20
011 Sub Total	4,623,557,029.23	3,959,500,262.70
012 Less: Provision for shortages	1,116,991.43	1,959,334.78
013 Less: Provision for obsolete/ unservicable/dimuntion in value of surplus inventory	22,832,831.53	22,832,831.53
014	0.00	0.00
015 Total	4,599,607,206.27	3,934,708,096.39
016 Inventories include material in transit	0.00	0.00
017 Coal	0.00	0.00
018 Fuel oil	0.00	0.00
019 Naphtha	0.00	0.00
020 Stores and spares	14,287,641.72	24,889,533.24
021 Chemicals & consumables	0.00	30,471.33
022 Loose tools	0.00	0.00
023 Others	0.00	527,190.00
024	0.00	0.00
025 Inventory items other than steel scrap have been valued considering Note 1.	0.00	0.00



RIHAND SUPER THERMAL POWER STATION

NOTE NO. 13 TO THE FS-CA-INVESTMENTS

(Amount in ₹)

	As at	No. of shares	Face value	31.03.2021	31.03.2020
001	CURRENT INVESTMENTS			0.00	0.00
002	(Valuation as per Note 1)			0.00	0.00
003				0.00	0.00
033	Investment in Mutual Funds (Details as under)			0.00	0.00
034	SBI-Magnum Insta Cash Fund-DDR			0.00	0.00
035	SBI Premier Liquid Fund Super-IP-DDR			0.00	0.00
036	SBI-SHF Ultra Short Term Fund-IP-DDR			0.00	0.00
037	UTI Money Market- IP-Direct-Growth			0.00	0.00
038	IDBI-Liquid plan- Direct-Growth			0.00	0.00
039	Canara Robeco Liquid Fund Super-IP-DDR			0.00	0.00
040	Canara Robeco Treasury Advantage Fund Super-IP-DDR			0.00	0.00
041	IDBI Liquid Fund-DDR			0.00	0.00
042	SBI Premier Liquid fund-Direct DDR (Ash Fund)			0.00	0.00
043	UTI Liquid CashPlan - IP - DDR (Ash Funds)			0.00	0.00
044	IDBI Liquid Fund - DDR - (Ash Funds)			0.00	0.00
045	Baroda Liquid Fund - Direct - Growth			0.00	0.00
046	Sub Total			0.00	0.00
047				0.00	0.00
052	Unquoted Investments			0.00	0.00
054				0.00	0.00
066	TOTAL			0.00	0.00
067				0.00	0.00



RIHAND SUPER THERMAL POWER STATION

NOTE NO. 14 TO THE FS-CA-TRADE RECEIVABLES

(Amount in ₹)

As at	31.03.2021	31.03.2020
001 TRADE RECEIVABLES (current)*	0.00	0.00
002	0.00	0.00
003 Secured, Considered Good	0.00	0.00
004 Unsecured , considered good	15,464,355.69	0.00
005 Credit impaired	0.00	0.00
006 Sub-Total	15,464,355.69	0.00
007 Total	15,464,355.69	0.00
008 Less: Allowance for credit impaired receivables	0.00	0.00
009 Total	15,464,355.69	0.00
010 Less: Discom Clearing	0.00	0.00
012 Grand Total	15,464,355.69	0.00
013 * After adjustment for Unbilled Revenue	0.00	0.00
014 Long-term trade receivables	0.00	0.00
015 TCS Clearing	0.00	0.00
016 Discom Clearing	0.00	0.00



RIHAND SUPER THERMAL POWER STATION

NOTE NO. 15 TO THE FS-CA-CASH AND CASH EQUIVALENTS

(Amount in ₹)

As at	31.03.2021	31.03.2020
001 CASH & BANK BALANCES	0.00	0.00
002 Cash & Cash Equivalents	0.00	0.00
003 Balances with Banks	240,123.40	435,387.81
004 Cheques & Drafts on hand	150,000.00	0.00
005 Cash on hand	0.00	0.00
006 Others (stamps in hand)	0.00	0.00
007 Bank deposits with original maturity upto three months	0.00	0.00
008 Balances with RBI	0.00	0.00
009	0.00	0.00
010 Total	390,123.40	435,387.81

RIHAND SUPER THERMAL POWER STATION

NOTE NO. 16 TO THE FS-CA-BANK BALANCES OTHER THAN CASH AND CASH EQUIVALENTS (Amount in ₹)

As at	31.03.2021	31.03.2020
001 Other Bank Balances	0.00	0.00
002 Deposits with original maturity of more than three months but not more than twelve months	0.00	0.00
003 Earmarked balances with banks*	0.00	0.00
004 SubTotal	0.00	0.00
005 Interest accrued on deposits	0.00	0.00
006	0.00	0.00
007 Total	0.00	0.00
008	0.00	0.00
009 Earmarked balances with banks consist of :	0.00	0.00
010 Unpaid dividend account balance	0.00	0.00
011 Towards public deposit repayment reserve	0.00	0.00
012 Towards redemption of bonds due for repayment within one year	0.00	0.00
013 Security with Government/other authorities	0.00	0.00
014 Unpaid refund/interest account balance - Tax free bonds/ Bonus Debentures	0.00	0.00
015 Earmarked for RGGVY/DDUGJY/SAUBHAGYA Fund	0.00	0.00
016 Earmarked for Flyash Utilisation Reserve Fund	0.00	0.00
017 Deposits with original maturity upto three months as per court orders	0.00	0.00
018 Payment Security Scheme of MNRE NSM (NTPC)	0.00	0.00
019 Payment Security Scheme of MNRE NSM (NVVN)	0.00	0.00
020 Enforcement Directorate of Solar Plant(NVVN)	0.00	0.00
021 Bank guarantee Fund of MNRE (NVVN)	0.00	0.00
022 Others	0.00	0.00
023	0.00	0.00
024	0.00	0.00
025	0.00	0.00
026 Sub-total	0.00	0.00
030 Total	0.00	0.00
031	0.00	0.00
032 Bank deposits with original maturity of less than three months- other than earmarked	0.00	0.00
033 Bank deposits with original maturity of more than three months but not more than twelve months- other than earmarked	0.00	0.00
034 Earmarked bank balances (current account)	0.00	0.00

RIHAND SUPER THERMAL POWER STATION
NOTE NO. 17 TO THE FS-CA-LOANS
(Amount in ₹)

As at	31.03.2021	31.03.2020
001 Current financial assets - Loans	0.00	0.00
002 Loans (current)-including interest accrued	0.00	0.00
004 Related Parties	0.00	0.00
005 Secured	0.00	0.00
006 Un-Secured	0.00	0.00
007 With significant increase in Credit Risk	0.00	0.00
008 Credit impaired	0.00	0.00
009	0.00	0.00
010 Employees	0.00	0.00
011 Secured	18,612,569.77	18,700,977.43
012 Unsecured	49,807,019.88	52,241,750.99
013 With significant increase in Credit Risk	0.00	0.00
014 Credit impaired	0.00	0.00
015 Less : Employee Loans Discounting	0.00	0.00
016 Loan to State Government in settlement of dues from customers (Unsecured)	0.00	0.00
017	0.00	0.00
018 Others	0.00	0.00
019 Secured	0.00	0.00
020 Unsecured	0.00	0.00
021 With significant increase in Credit Risk	0.00	0.00
022 Credit impaired	0.00	0.00
023	0.00	0.00
024 Less: Allowance for credit impaired loans	0.00	0.00
025 Total (Loans)	68,419,589.65	70,942,728.42
026	0.00	0.00
027 Due from Directors and Officers of the Company	0.00	0.00
028 Directors	0.00	0.00
029 Officers	0.00	0.00
030	0.00	0.00
031 Loans to related parties include:	0.00	0.00
032 i)Key management personel	0.00	0.00
033 ii)Subsidiary companies	0.00	0.00
034 KBUNL	0.00	0.00
035 RGPPL	0.00	0.00
036 NVVN	0.00	0.00
037 iii)Joint Venture companies	0.00	0.00
038 iv)others	0.00	0.00
039	0.00	0.00
059 RPD	0.00	0.00
060 i)Key management personel	0.00	0.00
061 ii)Subsidiary companies	0.00	0.00
062 iii)Joint Venture companies	0.00	0.00
063 iv)Others	0.00	0.00
064	0.00	0.00
065 Total	0.00	0.00

RIHAND SUPER THERMAL POWER STATION
NOTE NO. 18 TO THE FS-CA-OTHER FINANCIAL ASSETS
(Amount in ₹)

As at	31.03.2021	31.03.2020
001 Other Financial Assets (current)	0.00	0.00
002	0.00	0.00
003 ADVANCES	0.00	0.00
004	0.00	0.00
005 Related Parties	0.00	0.00
006 Secured	0.00	0.00
007 Un-Secured	75,433,495.80	583,008,854.62
008 Considered doubtful	0.00	0.00
009	0.00	0.00
010 Employees	0.00	0.00
012 Unsecured	2,693,948.65	3,465,523.87
013 Considered Doubtful	0.00	0.00
014	0.00	0.00
020 Others	0.00	0.00
021 Secured	0.00	0.00
022 Unsecured	0.00	0.00
023 Considered Doubtful	0.00	0.00
024	0.00	0.00
025 Less: Allowance for bad & doubtful advances	0.00	0.00
026	0.00	0.00
033 Total (Advances)	78,127,444.45	586,474,378.49
044	0.00	0.00
045 Claims Recoverable	0.00	0.00
046 Secured	0.00	0.00
047 Unsecured, considered good	3,413,667.00	95,503,503.01
048 Considered Doubtful	0.00	0.00
049 Less:- Allowance for doubtful claims	0.00	0.00
050 Others-Claims Recoverable	0.00	0.00
051	0.00	0.00
052 Unbilled Revenue	0.00	0.00
053 Hedging cost recoverable from beneficiaries	0.00	0.00
054 Derivative MTM Asset	0.00	0.00
055 Finance Lease Receivable	0.00	0.00
056 Mine Closure Deposit	0.00	0.00
057 Other Accrued Income	0.00	0.00
058 Secured, Considered Good	0.00	0.00
059 Unsecured , considered good	84,093,847.15	6,200,899.09
060 Credit impaired	0.00	0.00
061 Sub-Total	84,093,847.15	6,200,899.09
062 Less: Allowance for credit impaired receivables	0.00	0.00
063 Total	0.00	0.00
064	0.00	0.00
065 Others*	0.00	0.00
066 Total	165,634,958.60	688,178,780.59
067 * Other include amount recoverable from contractors and other parties towards hire charges, rent/electricity etc.	0.00	0.00

RIHAND SUPER THERMAL POWER STATION

NOTE NO. 18 TO THE FS-CA-OTHER FINANCIAL ASSETS

(Amount in ₹)

As at	31.03.2021	31.03.2020
068 Advances to related parties include:	0.00	0.00
069 i)Key management personel	0.00	0.00
070 ii)Subsidiary companies	0.00	0.00
071 iii)Joint Venture companies	0.00	0.00
072 iv)Contractors	0.00	0.00
073 v)Others	0.00	0.00
074	0.00	0.00
075 Advances include amount due from the following Private Companies in which Directors of the Company are also Directors in such Companies	0.00	0.00
076	0.00	0.00
077	0.00	0.00
078 NTPC GE Power Services Pvt.Ltd.	0.00	0.00
079 Ratnagiri Gas & Power Private Ltd.	0.00	0.00
080 Aravali Power Company Private Ltd.	0.00	0.00
081 NTPC-SCCL Global Ventures Private Ltd.	0.00	0.00
082 NTPC BHEL Power Projects Private Ltd.	0.00	0.00
083 Meja Urja Nigam Private Limited	0.00	0.00
084 Nabinagar Power Generating Company Ltd.	0.00	0.00
085 National High Power Test Labortory Private Ltd.	0.00	0.00
086 International Coal Ventures Private Ltd.	0.00	0.00
087 CIL NTPC Urja Private Ltd.	0.00	0.00
089 Bangladesh-India Friendship Power Co. Pvt.Ltd	0.00	0.00
090 TCS Clearing	0.00	0.00
091 Related Party (Adv)- Employee	0.00	0.00
092 Related Party (Adv)- Subsidiaries	0.00	0.00
093 Related Party (Adv)- Joint Ventures	0.00	0.00
094 Related Party (Adv)- Contractors	0.00	0.00
095 Related Party (Adv)- Others	75,433,495.80	583,008,854.62
096	0.00	0.00
097	0.00	0.00
098	0.00	0.00
099	0.00	0.00
100 Total	75,433,495.80	583,008,854.62

RIHAND SUPER THERMAL POWER STATION
NOTE NO. 19 TO THE FS-CA-OTHER CURRENT ASSETS
(Amount in ₹)

As at	31.03.2021	31.03.2020
001 OTHER CURRENT ASSETS	0.00	0.00
002 Security Deposits (Unsecured)	0.00	0.00
003 Deposit with Customs, port trust & others*	900,636.00	191,392,850.00
004 ADVANCES	0.00	0.00
005	0.00	0.00
006 Related Parties	0.00	0.00
007 Secured	0.00	0.00
008 Un-Secured	19,099,073.00	22,267,172.00
009 Considered doubtful	0.00	0.00
010	0.00	0.00
011 Employees(including imprest)	0.00	0.00
012 Secured	0.00	0.00
013 Unsecured	310,414.00	313,974.00
014 Considered Doubtful	0.00	0.00
015	0.00	0.00
016 Contractors & Suppliers	0.00	0.00
017 Secured	0.00	0.00
018 Unsecured	185,761,689.46	195,835,792.94
019 Considered Doubtful	0.00	0.00
020	0.00	0.00
021 Others**	0.00	0.00
022 Secured	0.00	0.00
023 Unsecured	24,275,748.00	12,449,859.00
024 Considered Doubtful	0.00	0.00
025 Less: Allowance for bad & doubtful advances	0.00	0.00
026 Receivable from MCP Escrow A/c	0.00	0.00
027 Deferred Payroll Expenses (Secured)	2,319,227.24	2,488,898.40
028 Deferred Payroll Expenses (Unsecured)	3,778,654.23	3,815,730.86
029 Sub-total	6,097,881.47	6,304,629.26
030 Interest accrued on :	0.00	0.00
031 Advances to contractors	0.00	0.00
032	0.00	0.00
033 Claims Recoverable	0.00	0.00
034 Secured	0.00	0.00
035 Unsecured, considered good	227,947,046.81	207,959,344.25
036 Considered Doubtful	26,600,000.00	26,600,000.00
037 Less:- Allowance for doubtful claims	26,600,000.00	26,600,000.00
038	0.00	0.00
039 Deferred premium on forward exchange contract/ Option Assets	0.00	0.00
041 Assets Held for Disposal	42,084.39	197,831.40
042 Others	5,071,018.00	4,507,295.00
043	0.00	0.00
044 Total (Other Current Assets)	469,505,591.13	641,228,747.85
045 **Include Prepaid Expenses	24,275,748.00	12,449,859.00
046 *Includes sales tax/Entry tax/VAT deposited under protest with Sales Tax Authorities	812,756.00	812,756.00

RIHAND SUPER THERMAL POWER STATION
NOTE NO. 19 TO THE FS-CA-OTHER CURRENT ASSETS
(Amount in ₹)

As at	31.03.2021	31.03.2020
047 *Includes deposited with courts	0.00	0.00
048 *Includes deposited with LIC for annuity payments	0.00	0.00
049 * Includes deposits with WRD / against BG in r/o finance lease	0.00	0.00
050 Other include amount recoverable from contractors and other parties towards hire charges, rent/electricity etc.	0.00	0.00
052 Advances to related parties include:	0.00	0.00
053 i)Key management personel	0.00	0.00
054 ii)Subsidiary companies	0.00	0.00
055 iii)Joint Venture companies	0.00	0.00
056 Contractors	0.00	0.00
057 Others	0.00	0.00
058	0.00	0.00
059 Advances include amount due from the following Private Companies in which Directors of the Company are also Directors in such Companies	0.00	0.00
060	0.00	0.00
061	0.00	0.00
062 Related Party (Adv)- Employee	0.00	0.00
063 Related Party (Adv)- Subsidiaries	0.00	0.00
064 Related Party (Adv)- Joint Venture	1,407,513.00	0.00
065 Related Party (Adv)- Contractors	17,340,591.00	21,706,489.00
066 Related Party (Adv)- Others	350,969.00	560,683.00
067 Total	19,099,073.00	22,267,172.00
068	0.00	0.00



RIHAND SUPER THERMAL POWER STATION

NOTE NO. 20 TO THE FS--REGULATORY DEFERRAL ACCOUNT DEBIT BALANCES

(Amount in ₹)

As at	31.03.2021	31.03.2020
001 On account of Exchange Differences	-23,349,137.66	-15,205,072.81
002 On account of employee benefit exp	381,915,581.00	381,915,581.00
003 Regulatory deferred account - deferred	0.00	0.00
004 Deferred asset for ash transportation	312,520,012.83	0.00
005 Deferred asset for Arbitration Award	0.00	0.00
006 Total	671,086,456.17	366,710,508.19

**RIHAND SUPER THERMAL POWER STATION****NOTE NO. 21 TO THE FS-EQUITY-EQUITY SHARE CAPITAL****(Amount in ₹)**

As at	31.03.2021	31.03.2020
001 SHARE CAPITAL	0.00	0.00
002 Equity Share Capital	0.00	0.00
003 Authorised	0.00	0.00
004 10,000,000,000 equity shares of Rs.10/- each (Previous year 10,000,000,000 eq shares of Rs.10/- each)	0.00	0.00
005 Issued,Subscribed and fully Paid-up	0.00	0.00
006 9,69,66,66,134 equity shares of Rs.10/- (Pv. Year 9,894,557,280 equity shares of Rs.10/- each)	0.00	0.00
007	0.00	0.00
008 Total	0.00	0.00
009 During FY 2018-19, the company has issued 1,649,092,880 equity shares of Rs.10/- each as fully paid bonus shares	0.00	0.00
010 The holders of the equity shares are entitled to receive dividends as declared from time to time, and are entitled to one vote per share at meetings of the company.	0.00	0.00
011 Details of shareholders holding more than 5% shares in the company	0.00	0.00
012 - President of India	0.00	0.00
013 No. of Shares	0.00	0.00
014 % of holding	0.00	0.00
015 - Life Insurance Corporation of India/ICICI Prudential Mutual Fund	0.00	0.00
016 No. of Shares	0.00	0.00
017 % of holding	0.00	0.00

RIHAND SUPER THERMAL POWER STATION
NOTE NO. 22 TO THE FS-EQUITY-OTHER EQUITY
(Amount in ₹)

As at	31.03.2021	31.03.2020
001 RESERVE AND SURPLUS	0.00	0.00
002	0.00	0.00
003 Capital Reserve	0.00	0.00
004 As per last financial statements	0.00	0.00
006 Add : Grants received during the year	0.00	0.00
007 Add: Transfer from Surplus	0.00	0.00
008 Less: Write back during the year/period	0.00	0.00
009 Less: Adjustments during the year/period	0.00	0.00
010 Sub-Total	0.00	0.00
011 Securities Premium Account	0.00	0.00
012 As per last financial statements	0.00	0.00
013 Add: Additions during the year/period	0.00	0.00
014 Less: Adjustments during the year/period	0.00	0.00
015 Sub-Total	0.00	0.00
016 Bonds Redemption Reserve	0.00	0.00
017 As per last financial statements	0.00	0.00
018 Add: Transfer from Surplus	0.00	0.00
019 Less: Transfer to surplus on redemption	0.00	0.00
020 Less: Adjustments during the year/ period	0.00	0.00
021 Sub-Total	0.00	0.00
022 Capital Redemption Reserve	0.00	0.00
023 As per last financial statements	0.00	0.00
024 Add: Transfer from Surplus	0.00	0.00
025 Less: Transfer to surplus on redemption	0.00	0.00
026 Less: Adjustments during the year/ period	0.00	0.00
027 Sub-Total	0.00	0.00
028 Share Application money Allotment	0.00	0.00
029 As per last financial statements	0.00	0.00
030 Add: Addition during the year	0.00	0.00
031 Less: Utilised for allotment during the year	0.00	0.00
032 Less: Adjustments during the year/ period	0.00	0.00
033 Sub-Total	0.00	0.00
034 Fly-ash utilisation reserve Fund	0.00	0.00
035 As per last financial statements	8,220,860.44	0.00
036 Transferred to CC	0.00	0.00
037 Add:Transfer from revenue from operations	15,712,224.90	9,410,400.00
038 Add:Transfer from other income	0.00	0.00
039 Less: Utilised during the year	0.00	0.00
040 Tangible assets	0.00	0.00
041 Employee benefit expenses	0.00	0.00
042 Generation,adm. and other expenses	-23,933,085.34	-1,189,539.56
043 Tax Expenses	0.00	0.00
044 Sub-Total	0.00	8,220,860.44
045 Special allowance Reserve Fund	0.00	0.00
046 As per last financial statements	0.00	0.00
047 Add: Addition during the year	0.00	0.00

RIHAND SUPER THERMAL POWER STATION
NOTE NO. 22 TO THE FS-EQUITY-OTHER EQUITY
(Amount in ₹)

As at	31.03.2021	31.03.2020
048 Less: Utilised for allotment during the year	0.00	0.00
049 Less: Adjustments during the year/ period	0.00	0.00
050 SUB-TOTAL	0.00	0.00
053 Corporate social responsibility (CSR) reserve	0.00	0.00
054 As per last financial statements	0.00	0.00
055 Add : Transfer from surplus	0.00	0.00
056 Less:-Write back during the year	0.00	0.00
057 Sub-Total	0.00	0.00
058 General Reserve	0.00	0.00
059 As per last financial statements	0.00	0.00
060 Add: Transfer from Surplus	0.00	0.00
061 Less: Transfer to Surplus	0.00	0.00
062 Less: Write back during the year /period	0.00	0.00
063 Less: Adjustments during the year /period	0.00	0.00
064 Sub-Total	0.00	0.00
065	0.00	0.00
066 Retained earnings	0.00	0.00
067 As per last financial statements	156,537,113,839.05	143,024,832,290.02
068 Add(Less):-Changes in accounting policy / prior period errors	0.00	0.00
069 Add(Less):-Profit (Loss) after tax for the year from Statement of Profit & Loss	11,119,632,362.03	13,512,281,549.03
070	0.00	0.00
071 Add: Write back from Bond Redemption Reserve	0.00	0.00
072 Add: Write back from Capital Reserve	0.00	0.00
073 Add: Write back from Foreign Project Reserve	0.00	0.00
074 Add: Write back from CSR Reserve	0.00	0.00
075 Add: Write back from General Reserve	0.00	0.00
076 Less: Transfer to Bonds Redemption Reserve	0.00	0.00
077 Less: Transfer to Special Allowance Reserve Fund	0.00	0.00
078 Less: Transfer to Foreign Project Reserve	0.00	0.00
080 Less:Transfer to Capital Reserve	0.00	0.00
081 Less:Transfer to CSR Reserve	0.00	0.00
082 Less:Transfer to General Reserve	0.00	0.00
083 Less:Interim Dividend Paid	0.00	0.00
084 Less:Tax on Interim Dividend Paid	0.00	0.00
085 Less:Final Dividend Paid	0.00	0.00
086 Less:Tax on Final Dividend Paid	0.00	0.00
087 Less: Issue of bonus debenture	0.00	0.00
088 Less: Tax on issue of bonus debenture	0.00	0.00
089 Sub-Total	167,656,746,201.08	156,537,113,839.05
090	0.00	0.00
091 Remeasurement of defined benefit plans	0.00	0.00
092 As per last financial statements	-172,809,279.53	-119,460,048.36
093 Add/(Less):- Actuarial Gains/loss through OCI	-24,061,329.38	-53,349,231.17
094 Sub-Total	-196,870,608.91	-172,809,279.53
095	0.00	0.00



RIHAND SUPER THERMAL POWER STATION

NOTE NO. 22 TO THE FS-EQUITY-OTHER EQUITY

(Amount in ₹)

As at	31.03.2021	31.03.2020
096 FVTOCI Reserve	0.00	0.00
097 As per last financial statements	0.00	0.00
098 Add(Less):-Net gain/loss of equity instruments through OCI	0.00	0.00
099 Sub-Total	0.00	0.00
100	0.00	0.00
101 Total Other equity	167,459,875,592.17	156,372,525,419.96
102	0.00	0.00

RIHAND SUPER THERMAL POWER STATION
NOTE NO. 23 TO THE FS-NCL-BORROWINGS
(Amount in ₹)

As at	31.03.2021	31.03.2020
001 LONG TERM BORROWINGS	0.00	0.00
002 Bonds	0.00	0.00
003 Secured	0.00	0.00
004 7.37 % Tax free secured non-cumulative non-convertible redeemable bonds-2015 of Rs. 1,000/- each redeemable at par in full on 5th October 2035 (Fifty Sixth Issue - Public Issue - Series 3A).	0.00	0.00
005 7.62 % Tax free secured non-cumulative non-convertible redeemable bonds-2015 of Rs. 1,000/- each redeemable at par in full on 5th October 2035 (Fifty Sixth Issue - Public Issue - Series 3 B).	0.00	0.00
006 8.61% Tax free secured non-cumulative non-convertible redeemable bonds of ₹ 10,00,000/- each redeemable at par in full on 4th March 2034 (Fifty First Issue C - Private Placement)	0.00	0.00
007 8.66% Tax free secured non-cumulative non-convertible redeemable bonds - 2013 of ₹ 1000/- each redeemable at par in full on 16th December 2033 (Fiftieth Issue - Public Issue - Series 3A)	0.00	0.00
008 8.91% Tax free secured non-cumulative non-convertible redeemable bonds - 2013 of ₹ 1000/- each redeemable at par in full on 16th December 2033 (Fiftieth Issue - Public Issue - Series 3B)	0.00	0.00
009 7.37% Secured non-cumulative non-convertible redeemable taxable bonds of Rs. 10,00,000/- each redeemable at par in full on 14th December 2031 (Sixty Sixth Issue - Private Placement)	0.00	0.00
010 7.49% Secured non-cumulative non-convertible redeemable taxable bonds of Rs. 10,00,000/- each redeemable at par in full on 7th November 2031 (Sixty Fourth Issue - Private Placement)	0.00	0.00
011 7.28 % Tax free secured non-cumulative non-convertible redeemable bonds-2015 of Rs. 1,000/- each redeemable at par in full on 5th October 2030 (Fifty Sixth Issue - Public Issue - Series	0.00	0.00

RIHAND SUPER THERMAL POWER STATION

NOTE NO. 23 TO THE FS-NCL-BORROWINGS

(Amount in ₹)

As at	31.03.2021	31.03.2020
2A)		
012 7.53 % Tax free secured non-cumulative non-convertible redeemable bonds-2015 of Rs. 1,000/- each redeemable at par in full on 5th October 2030 (Fifty Sixth Issue - Public Issue - Series 2 B).	0.00	0.00
013 7.32% Secured non-cumulative non-convertible redeemable taxable bonds of Rs 10,00,000/- each redeemable at par in full on 17 July 2029 (Sixty Ninth Issue - Private Placement)	0.00	0.00
014 8.63% Tax free secured non-cumulative non-convertible redeemable bonds of ₹ 10,00,000/- each redeemable at par in full on 4th March 2029 (Fifty First Issue B - Private Placement)	0.00	0.00
015 8.30% Secured non-cumulative non-convertible redeemable taxable bonds of Rs 10,00,000/- each redeemable at par in full on 15 January 2029 (Sixty Seventh Issue - Private Placement)	0.00	0.00
016 8.48% Tax free secured non-cumulative non-convertible redeemable bonds - 2013 of ₹ 1000/- each redeemable at par in full on 16th December 2028 (Fiftieth Issue - Public Issue - Series 2A)	0.00	0.00
017 8.73% Tax free secured non-cumulative non-convertible redeemable bonds - 2013 of ₹ 1000/- each redeemable at par in full on 16th December 2028 (Fiftieth Issue - Public Issue - Series 2B)	0.00	0.00
018 7.47% Secured non-cumulative non-convertible redeemable taxable bonds of Rs. 10,00,000/- each redeemable at par in full on 16th September 2026 (Sixty Third Issue - Private Placement)	0.00	0.00
019 7.58% Secured non-cumulative non-convertible redeemable taxable bonds of Rs. 10,00,000/- each redeemable at par in	0.00	0.00

RIHAND SUPER THERMAL POWER STATION

NOTE NO. 23 TO THE FS-NCL-BORROWINGS

(Amount in ₹)

As at				31.03.2021	31.03.2020
full on 23rd August 2026 (Sixty Second Issue - Private Placement)					
020	8.05%	Secured	non-cumulative non-convertible redeemable taxable bonds of Rs. 10,00,000/- each redeemable at par in full on 5th May 2026 (Sixtieth Issue - Private Placement)	0.00	0.00
021	8.19%	Secured	non-cumulative non-convertible redeemable taxable bonds of Rs. 10,00,000/- each redeemable at par in full on 15th December 2025 (Fifty Seventh Issue - Private Placement)	0.00	0.00
022	7.11 %	Tax free secured	non-cumulative non-convertible redeemable bonds-2015 of Rs. 1,000/- each redeemable at par in full on 5th October 2025 (Fifty Sixth Issue - Public Issue - Series 1A).	0.00	0.00
023	7.36 %	Tax free secured	non-cumulative non-convertible redeemable bonds-2015 of Rs. 1,000/- each redeemable at par in full on 5th October 2025 (Fifty Sixth Issue - Public Issue - Series 1 B).	0.00	0.00
024	7.15%	Tax free secured	non-cumulative non-convertible redeemable bonds - 2015 of Rs. 10,00,000/- each redeemable at par in full on 21st August 2025 (Fifty Fifth Issue - Private Placement)	0.00	0.00
025	9.17%	Secured	non-cumulative non-convertible redeemable taxable bonds of ₹ 10,00,000/- each redeemable at par in full on 22nd September 2024 (53rd Issue - private placement).	0.00	0.00
026	9.34%	Secured	non-cumulative non-convertible redeemable taxable bonds of ₹10,00,000/- each redeemable at par in full on 24th March 2024 (Fifty Second Issue - private placement)	0.00	0.00
027	8.19%	Tax free secured	non-cumulative non-convertible redeemable bonds - 2013 of ₹ 10,00,000/- each redeemable at	0.00	0.00

RIHAND SUPER THERMAL POWER STATION

NOTE NO. 23 TO THE FS-NCL-BORROWINGS

(Amount in ₹)

		31.03.2021	31.03.2020
	As at		
	par in full on 4th March 2024 (Fifty First Issue A - Private Placement)		
028	8.41% Tax free secured non-cumulative non-convertible redeemable bonds - 2013 of ₹ 1000/- each redeemable at par in full on 16th December 2023 (Fiftieth Issue - Public Issue - Series 1A)	0.00	0.00
029	8.66% Tax free secured non-cumulative non-convertible redeemable bonds - 2013 of ₹ 1000/- each redeemable at par in full on 16th December 2023 (Fiftieth Issue - Public Issue - Series 1B)	0.00	0.00
030	9.25% Secured non-cumulative non-convertible redeemable taxable bonds of ₹10,00,000/- each with five equal separately transferable redeemable principal parts (STRPP) redeemable at par at the end of 11th year and in annual installments thereafter upto the end of 15th year respectively commencing from 4th May 2023 and ending on 4th May 2027 (Forty fourth issue - private placement)VII	0.00	0.00
031	8.48% Secured non-cumulative non-convertible redeemable taxable bonds of ₹ 10,00,000/- each redeemable at par in full on 1st May 2023 (Seventeenth issue - private placement)I	0.00	0.00
032	8.80% Secured non-cumulative non-convertible redeemable taxable bonds of ₹10,00,000/- each redeemable at par in full on 4th April 2023 (Forty ninth issue -private placement	0.00	0.00
033	8.49% Secured non-cumulative non-convertible redeemable taxable fully paid-up bonus debentures of Rs. 12.50 each redeemable at par in three annual installments of Rs. 2.50, Rs. 5.00 and Rs. 5.00 at the end of 8th year, 9th year and 10th year on 25th March 2023, 25th March 2024 and 25th March 2025 respectively (Fifty Fourth Issue -Bonus Debentures)X - (refer Note 5 d)	0.00	0.00
034	8.73% Secured non-cumulative	0.00	0.00

RIHAND SUPER THERMAL POWER STATION

NOTE NO. 23 TO THE FS-NCL-BORROWINGS

(Amount in ₹)

As at		31.03.2021	31.03.2020
non-convertible redeemable taxable bonds of ₹ 10,00,000/- each redeemable at par in full on 07th March 2023 (Forty eighth issue - private placement)			
035	9.00% Secured non-cumulative non-convertible redeemable taxable bonds of ₹ 10,00,000/- each with five equal separately transferable redeemable principal parts (STRPP) redeemable at par at the end of 11th year and in annual installments thereafter upto the end of 15th year respectively commencing from 25th January 2023 and ending on 25th January 2027 (Forty second issue- private placement)III	0.00	0.00
036	8.84% Secured non-cumulative non-convertible redeemable taxable bonds of ₹10,00,000/- each redeemable at par in full on 4th October 2022 (Forty seventh issue- private placement)VII	0.00	0.00
037	7.93% Secured non-cumulative non-convertible redeemable taxable bonds of ` 10,00,000/- each redeemable at par in full on 03 May 2022 (68th Issue - Private Placement)	0.00	0.00
038	6.72% Secured non-cumulative non-convertible redeemable taxable bonds of Rs. 10,00,000/- each redeemable at par in full on 24th November 2021 (Sixty Fifth Issue - Private Placement)	0.00	0.00
039	8.10% Secured Non-Cumulative Non-Convertible Redeemable Taxable Bonds of Rs. 30,00,000/- each redeemable at par in three equal separately transferable redeemable principal parts (STRPP) at the end of 5th year, 10th year & 15th year on 27th May 2021, 27th May 2026 and 27th May 2031 respectively (Sixty First Issue- Private Placement)	0.00	0.00
040	8.33% Secured non-cumulative non-convertible redeemable taxable bonds of Rs.10,00,000/- each redeemable at par in full on 24th February 2021	0.00	0.00

RIHAND SUPER THERMAL POWER STATION
NOTE NO. 23 TO THE FS-NCL-BORROWINGS
(Amount in ₹)

As at	31.03.2021	31.03.2020	
(Fifty Ninth Issue - Private Placement).			
042	8.93% Secured non-cumulative non-convertible redeemable taxable bonds of ₹ 10,00,000/- each redeemable at par in full on 19th January 2021 Thirty seventh issue - private placement)III	0.00	0.00
043	8.18% Secured non-cumulative non-convertible redeemable taxable bonds of Rs.10,00,000/- each redeemable at par in full on 31st December 2020 (Fifty Eight Issue - Private Placement).	0.00	0.00
044	8.73 % Secured non-cumulative non-convertible redeemable taxable bonds of ₹ 10,00,000/- each redeemable at par in full on 31st March 2020 (Thirty third issue- private placement)III	0.00	0.00
045	8.78 % Secured non-cumulative non-convertible redeemable taxable bonds of ₹ 10,00,000/- each redeemable at par in full on 9th March 2020 (Thirty first issue- private placement)III	0.00	0.00
046	11.25% Secured non-cumulative non-convertible redeemable taxable bonds of ₹ 10,00,000/- each redeemable at par in five equal annual installments commencing from 6th Nov 2019 and ending on 6th Nov 2023 (Twenty seventh issue - private placement)III	0.00	0.00
047	7.89% Secured non-cumulative non-convertible redeemable taxable bonds of ₹ 10,00,000/- each redeemable at par in full on 5th May 2019 (Thirtieth issue - private placement)III	0.00	0.00
048	8.65% Secured non-cumulative non-convertible redeemable taxable bonds of ₹10,00,000/- each redeemable at par in full on 4th February 2019 (Twenty ninth issue - private placement)III	0.00	0.00
049	7.50% Secured non-cumulative non-convertible redeemable taxable bonds of ₹ 10,00,000/- each redeemable at par in full	0.00	0.00

RIHAND SUPER THERMAL POWER STATION

NOTE NO. 23 TO THE FS-NCL-BORROWINGS

(Amount in ₹)

As at		31.03.2021	31.03.2020
on 12th January 2019 (Nineteenth issue - private placement)II			
050	11% Secured non-cumulative non-convertible redeemable taxable bonds of ₹ 10,00,000/- each redeemable at par in full on 21st November 2018 (Twenty eighth issue - private placement)III	0.00	0.00
051	9.3473% Secured non-cumulative non-convertible redeemable taxable bonds of ₹15,00,000/- each with fifteen equal separately transferable redeemable principal parts (STRPP) redeemable at par at the end of 6th year and in annual installments thereafter upto the end of 20th year respectively commencing from 20th July 2018 and ending on 20th July 2032 (Forty sixth issue - private placement)VII	0.00	0.00
052	9.4376% Secured non-cumulative non-convertible redeemable taxable bonds of ₹ 15,00,000/- each with fifteen equal separately transferable redeemable principal parts (STRPP) redeemable at par at the end of 6th year and in annual installments thereafter upto the end of 20th year respectively commencing from 16th May 2018 and ending on 16th May 2032 (Forty fifth issue - private placement)VII	0.00	0.00
053	8.00% Secured non-cumulative non-convertible redeemable taxable bonds of ₹ 10,00,000/- each redeemable at par in full on 10th April 2018 (Sixteenth issue -private placement)I	0.00	0.00
054	9.2573% Secured non-cumulative non-convertible redeemable taxable bonds of ₹ 15,00,000/- each with fifteen equal separately transferable redeemable principal parts (STRPP) redeemable at par at the end of 6th year and in annual installments thereafter upto the end of 20th year respectively commencing from 2nd March 2018 and ending on 2nd March 2032 (Forty third issue - private placement)III	0.00	0.00
055	9.6713% Secured non-cumulative non-convertible redeemable taxable bonds	0.00	0.00

RIHAND SUPER THERMAL POWER STATION

NOTE NO. 23 TO THE FS-NCL-BORROWINGS

(Amount in ₹)

As at	31.03.2021	31.03.2020
of ₹ 15,00,000/- each with fifteen equal separately transferable redeemable principal parts (STRPP) redeemable at par at the end of 6th year and in annual installments thereafter upto the end of 20th year respectively commencing from 23rd December 2017 and ending on 23rd December 2031 (Forty first issue - private placement)III		
056 9.558% Secured non-cumulative non-convertible redeemable taxable bonds of ₹ 15,00,000/- each with fifteen equal separately transferable redeemable principal parts (STRPP) redeemable at par at the end of 6th year and in annual installments thereafter upto the end of 20th year respectively commencing from 29th July 2017 and ending on 29th July 2031(Fourtieth issue-private placement)III	0.00	0.00
057 9.3896% Secured non-cumulative non-convertible redeemable taxable bonds of ₹ 15,00,000/- each with fifteen equal separately transferable redeemable principal parts (STRPP) redeemable at par at the end of 6th year and in annual installments thereafter upto the end of 20th year respectively commencing from 9th June 2017 and ending on 9th June 2031(Thirty ninth issue-private placement)III	0.00	0.00
058 9.17% Secured non-cumulative non-convertible redeemable taxable bonds of ₹ 15,00,000/- each with fifteen equal separately transferable redeemable principal parts (STRPP) redeemable at par at the end of 6th year and in annual installments thereafter upto the end of 20th year respectively commencing from 22nd March 2017 and ending on 22nd March 2031(Thirty eighth issue-private placement)III	0.00	0.00
059 8.8086% Secured non-cumulative non-convertible redeemable taxable bonds of ₹ 15,00,000/- each with fifteen equal separately transferable redeemable principal parts (STRPP) redeemable at par at the end of 6th	0.00	0.00

RIHAND SUPER THERMAL POWER STATION

NOTE NO. 23 TO THE FS-NCL-BORROWINGS

(Amount in ₹)

As at	31.03.2021	31.03.2020
year and in annual installments thereafter upto the end of 20th year respectively commencing from 15th December 2016 and ending on 15th December 2030 (Thirty sixth issue - private placement)III		
060 8.785% Secured non-cumulative non-convertible redeemable taxable bonds of ₹ 15,00,000/- each with fifteen equal separately transferable redeemable principal parts (STRPP) redeemable at par at the end of 6th year and in annual installments thereafter upto the end of 20th year respectively commencing from 15th September 2016 and ending on 15th September 2030 (Thirty fifth issue - private placement)III	0.00	0.00
061 8.71% Secured non-cumulative non-convertible redeemable taxable bonds of ₹ 15,00,000/- each with fifteen equal separately transferable redeemable principal parts (STRPP) redeemable at par at the end of 6th year and in annual installments thereafter upto the end of 20th year respectively commencing from 10th June 2016 and ending on 10th June 2030 (Thirty fourth issue - private placement)III	0.00	0.00
062 8.8493% Secured non-cumulative non-convertible redeemable taxable bonds of ₹ 15,00,000/- each with fifteen equal separately transferable redeemable principal parts (STRPP) redeemable at par at the end of 6th year and in annual installments thereafter upto the end of 20th year respectively commencing from 25th March 2016 and ending on 25th March 2030 (Thirty second issue - private placement)III	0.00	0.00
063 9.37% Secured non-cumulative non-convertible redeemable taxable bonds of ₹ 70,00,000/- each with fourteen separately transferable redeemable principal parts (STRPP) redeemable at par semi-annually commencing from 4th June 2012 and ending on 4th December 2018 (Twenty fifth issue -	0.00	0.00

RIHAND SUPER THERMAL POWER STATION
NOTE NO. 23 TO THE FS-NCL-BORROWINGS
(Amount in ₹)

As at			31.03.2021	31.03.2020
private placement)III				
065	9.06%	Secured non-cumulative non-convertible redeemable taxable bonds of ₹ 70,00,000/- each with fourteen separately transferable redeemable principal parts (STRPP) redeemable at par semi-annually commencing from 4th June 2012 and ending on 4th December 2018 (Twenty sixth issue - private placement)III	0.00	0.00
066	8.6077%	Secured non-cumulative non-convertible redeemable taxable bonds of ₹ 20,00,000/- each with twenty equal separately transferable redeemable principal parts (STRPP) redeemable at par semi-annually commencing from 9th September 2011 and ending on 9th March 2021 (Twenty fourth issue - private placement)IV	0.00	0.00
067	8.3796%	Secured non-cumulative non-convertible redeemable taxable bonds of ₹ 20,00,000/- each with twenty equal separately transferable redeemable principal parts (STRPP) redeemable at par semi-annually commencing from 5th August 2011 and ending on 5th February 2021 (Twenty third issue - private placement)IV	0.00	0.00
068	8.1771%	Secured non-cumulative non-convertible redeemable taxable bonds of ₹ 20,00,000/- each with twenty equal separately transferable redeemable principal parts (STRPP) redeemable at par semi-annually commencing from 2nd July 2011 and ending on 2nd January 2021 (Twenty second issue - private placement)IV	0.00	0.00
069	7.7125%	Secured non-cumulative non-convertible redeemable taxable bonds of ₹ 20,00,000/- each with twenty equal separately transferable redeemable principal parts (STRPP) redeemable at par semi-annually commencing from 2nd August 2010 and ending on 2nd February 2020 (Twenty first issue - private placement)V	0.00	0.00
070	7.552%	Secured non-cumulative non-convertible redeemable taxable bonds	0.00	0.00

Locked: 26.04.2021 - 20:19:22

Run on: 14.11.2024 - 16:07:17 Version: 0

RIHAND SUPER THERMAL POWER STATION

NOTE NO. 23 TO THE FS-NCL-BORROWINGS

(Amount in ₹)

As at	31.03.2021	31.03.2020
of ₹ 20,00,000/- each with twenty equal separately transferable redeemable principal parts (STRPP) redeemable at par semi-annually commencing from 23rd September 2009 and ending on 23rd March 2019 (Twentieth issue - private placement)VI		
071 9.55% Secured non-cumulative non-convertible taxable redeemable bonds of ₹ 10,00,000/- each with ten equal separately transferable redeemable principal parts (STRPP) redeemable at par at the end of the 6th year and in annual installments thereafter upto the end of 15th year respectively from 30th April 2002 (Thirteenth issue - Part B - private placement)VIII	0.00	0.00
072 9.55% Secured non-cumulative non-convertible taxable redeemable bonds of ₹ 10,00,000/- each redeemable at par in ten equal annual installments commencing from the end of 6th year and upto the end of 15th year respectively from 18th April 2002 (Thirteenth issue -Part A - private placement)VIII	0.00	0.00
073	0.00	0.00
074	0.00	0.00
075	0.00	0.00
076	0.00	0.00
077 Sub Total	0.00	0.00
078 Unsecured	0.00	0.00
079 6.55% Unsecured non-cumulative non-convertible redeemable taxable bonds of ₹ 10,00,000/- each redeemable at par in full on 17 April 2023 (Seventieth Issue - Private Placement)	0.00	0.00
080 6.29% Unsecured non-cumulative non-convertible redeemable taxable bonds of ₹ 10,00,000/- each redeemable at par in full on 11 April 2031 (Seventy First Issue - Private Placement)	0.00	0.00
081 5.45% Unsecured non-cumulative non-convertible redeemable taxable bonds of ₹ 10,00,000/- each redeemable at par in full on 15 October 2025 (Seventy Second Issue - Private Placement)	0.00	0.00

RIHAND SUPER THERMAL POWER STATION
NOTE NO. 23 TO THE FS-NCL-BORROWINGS
(Amount in ₹)

As at	31.03.2021	31.03.2020
082 6.43% Unsecured non-cumulative non-convertible redeemable taxable bonds of ₹ 10,00,000/- each redeemable at par in full on 27 January 2031 (Seventy Third Issue - Private Placement)	0.00	0.00
083	0.00	0.00
084	0.00	0.00
085	0.00	0.00
086 Sub-total	0.00	0.00
087 Total	0.00	0.00
088 Foreign Currency Notes-Unsecured	0.00	0.00
089 4.50% Fixed Rate Notes Due for repayment on 19th March 2028	0.00	0.00
090 2.75% Fixed rate notes due for repayment on 1st February 2027	0.00	0.00
091 4.25 % Fixed rate notes due for repayment on 26th February 2026	0.00	0.00
092 4.375% Fixed Rate Note due for repayment on 26th November 2024	0.00	0.00
093 4.75 % Fixed Rate Notes due for repayment on 3rd Oct 2022	0.00	0.00
094 7.25 % Fixed green global INR denominated bonds due on 3 May 2022	0.00	0.00
095 7.375 % Fixed green global INR denominated bonds due on 10 August 2021	0.00	0.00
096 5.625% Fixed Rate Notes due for repayment on 14th July 2021	0.00	0.00
097 3.75 % Fixed rate notes due for repayment on 03 April 2024	0.00	0.00
098	0.00	0.00
099	0.00	0.00
100	0.00	0.00
101	0.00	0.00
102 Sub Total	0.00	0.00
103 Long term maturities of Finance Lease Obligations (Secured) IX	0.00	0.00
104 Long term maturities of Finance Lease Obligations (Unsecured) X	0.00	0.00
105 Term Loans	0.00	0.00
106 From Banks	0.00	0.00
107 Secured	0.00	0.00
108 Rupee Loans	0.00	0.00
109 Unsecured	0.00	0.00
110 Foreign Currency Loans	0.00	0.00
111 Rupee Loans	0.00	0.00
112 From Others	0.00	0.00
113 Secured	0.00	0.00
114 Rupee Loans	0.00	0.00

RIHAND SUPER THERMAL POWER STATION
NOTE NO. 23 TO THE FS-NCL-BORROWINGS
(Amount in ₹)

As at	31.03.2021	31.03.2020
115 Foreign Currency loans (guaranteed by GOI)	0.00	0.00
116 Unsecured	0.00	0.00
117 Foreign Currency loans (guaranteed by GOI)	0.00	0.00
118 Other Foreign currency loans	0.00	0.00
119 Rupee Loans	0.00	0.00
120 Deposits	0.00	0.00
121 Unsecured	0.00	0.00
122 Fixed Deposits	0.00	0.00
123 Others	0.00	0.00
124 Unsecured	0.00	0.00
125 Bonds Application Money Pending Allotment	0.00	0.00
126 Sub-total	0.00	0.00
127 Total	0.00	0.00
128	0.00	0.00
129 Less:- Interst accrued but not due on borrowings	0.00	0.00
130 Less:- Current maturities of long term borrowings	0.00	0.00
131 Bonds-Secured	0.00	0.00
132 Fixed Rate Notes	0.00	0.00
133 Foreign currency loans from Banks- unsecured	0.00	0.00
134 Rupee loans from banks- Secured	0.00	0.00
135 Rupee loans from banks- unsecured	0.00	0.00
136 Rupee Term loan from Others - Secured	0.00	0.00
137 Foreign currency loans from others- unsecured (Guaranteed by GOI)	0.00	0.00
138 Other foreign currency loans from others- unsecured	0.00	0.00
139 Rupee loans from others- unsecured	0.00	0.00
140 Finance Lease obligations - secured	0.00	0.00
141 Finance Lease obligations - unsecured	0.00	0.00
200 Total	0.00	0.00



RIHAND SUPER THERMAL POWER STATION

NOTE NO. 24 TO THE FS-NCL-TRADE PAYABLES

(Amount in ₹)

	As at	31.03.2021	31.03.2020
001	TRADE PAYABLES(NON CURRENT)	0.00	0.00
002	For Goods and Services	0.00	0.00
003	- Micro & Small Enterprises	16,336,269.21	15,622,396.62
004	- Others	6,373,476.89	5,712,598.82
005		0.00	0.00
006	Total	22,709,746.10	21,334,995.44



RIHAND SUPER THERMAL POWER STATION

NOTE NO. 25 TO THE FS-NCL-OTHER FINANCIAL LIABILITIES

(Amount in ₹)

As at	31.03.2021	31.03.2020
001 OTHER FINANCIAL LIABILITIES (NON-CURRENT)	0.00	0.00
002 Payable for Capital Expenditure	0.00	0.00
003 - Micro & Small Enterprises	100,024.63	36,951.05
004 - Others	681,641,329.62	34,267,850.68
005 Others	0.00	0.00
006 Deposits from contractors and others	0.00	75,100.00
007	0.00	0.00
008	0.00	0.00
009 Total	681,741,354.25	34,379,901.73



RIHAND SUPER THERMAL POWER STATION

NOTE NO. 26 TO THE FS-NCL-PROVISIONS

(Amount in ₹)

As at	31.03.2021	31.03.2020
001 LONG TERM PROVISIONS	0.00	0.00
002 Provision for Employee Benefits	0.00	0.00
003 Opening Balance	0.00	0.00
004 Additions/ (adjustments) during the year	0.00	0.00
005 Closing Balance	0.00	0.00
013	0.00	0.00
014 TOTAL	0.00	0.00

NOTE NO. 27 TO THE FS-NCL-DEFERRED TAX LIABILITIES (NET)
(Amount in ₹)

As at	Opening Balance on 01.04.2020	Addition	Closing Balance on 31.03.2021
001 DEFERRED TAX LIABILITIES (NET)			
002 Difference of book depreciation and tax depreciation	0.00	0.00	0.00
003 Less: Deferred tax assets			
004 Provisions & Other disallowances for tax purposes	0.00	0.00	0.00
005 Unabsorbed Depreciation	0.00	0.00	0.00
006 Disallowances u/s 43B of the Income Tax Act, 1961	0.00	0.00	0.00
007	0.00	0.00	0.00
008	0.00	0.00	0.00
009	0.00	0.00	0.00
010	0.00	0.00	0.00
011 MAT credit entitlement	0.00	0.00	0.00
012	0.00	0.00	0.00
013 Total	0.00	0.00	0.00
014	0.00	0.00	0.00
015 Total	0.00	0.00	0.00
016 Breakup of deferred tax assets	0.00	0.00	0.00
017 Provision	0.00	0.00	0.00
018 Statutory dues	0.00	0.00	0.00
019 Leave encashment	0.00	0.00	0.00
020 Others	0.00	0.00	0.00
021	0.00	0.00	0.00
022	0.00	0.00	0.00



RIHAND SUPER THERMAL POWER STATION

NOTE NO. 28 TO THE FS-NCL-OTHER NON-CURRENT LIABILITIES

(Amount in ₹)

As at	31.03.2021	31.03.2020
001 Other Non current Liabilities	0.00	0.00
002 Advances from customers and others	0.00	0.00
003 Deposits from contractors and others	0.00	0.00
004 Grants	0.00	0.00
005 TOTAL	0.00	0.00



RIHAND SUPER THERMAL POWER STATION

NOTE NO. 29 TO THE FS-CL-BORROWINGS

(Amount in ₹)

As at	31.03.2021	31.03.2020
001 Short Term Borrowings	0.00	0.00
002 Loans repayable on demand	0.00	0.00
003 From Banks	0.00	0.00
004 Secured	0.00	0.00
005 Cash Credit	0.00	0.00
006 Unsecured	0.00	0.00
007 Cash Credit	0.00	0.00
008 Other loans-unsecured	0.00	0.00
009 Commercial Papers	0.00	0.00
010 Less: Unamortised discount on Commercial Papers	0.00	0.00
011 Sub-Total	0.00	0.00
012 TOTAL	0.00	0.00



RIHAND SUPER THERMAL POWER STATION

NOTE NO. 30 TO THE FS-CL-TRADE PAYABLES

(Amount in ₹)

	As at	31.03.2021	31.03.2020
001	TRADE PAYABLES	0.00	0.00
002	For Goods and Services	0.00	0.00
003	- Micro & Small Enterprises	227,641,821.80	347,533,123.95
004	- Others	1,688,677,134.68	1,929,276,543.35
005		0.00	0.00
006	Total	1,916,318,956.48	2,276,809,667.30
007		0.00	0.00

RIHAND SUPER THERMAL POWER STATION
NOTE NO. 31 TO THE FS-CL-OTHER FINANCIAL LIABILITIES
(Amount in ₹)

As at	31.03.2021	31.03.2020
001 OTHER FINANCIAL LIABILITIES (CURRENT)	0.00	0.00
002 Current maturity of long term borrowings	0.00	0.00
003 Bonds-Secured	0.00	0.00
004 Foreign Currency Fixed Rate Notes	0.00	0.00
005 From Banks	0.00	0.00
006 Secured	0.00	0.00
007 Rupee Term Loan	0.00	0.00
008 Unsecured	0.00	0.00
009 Foreign currency loans	0.00	0.00
010 Rupee term loans	0.00	0.00
011 From Others	0.00	0.00
012 Secured	0.00	0.00
013 Rupee Term Loan	0.00	0.00
014 Unsecured	0.00	0.00
015 Foreign currency loans (Guaranteed by Government of India)	0.00	0.00
016 Other foreign currency loans	0.00	0.00
017 Rupee term loans	0.00	0.00
018 Fixed deposits	0.00	0.00
019 Sub Total	0.00	0.00
020 Current maturity of finance lease obligations (secured)	0.00	0.00
021 Current maturity of finance lease obligations (unsecured)	0.00	0.00
022 Interest accrued but not due on borrowings	0.00	0.00
023 Unpaid Dividends*	0.00	0.00
024 Unpaid matured deposits and interest accrued thereon*	0.00	0.00
025 Unpaid matured bonds and interest accrued thereon*	0.00	0.00
026 Unpaid bond refund money-Tax free bonds *	0.00	0.00
027 Book Overdraft	0.00	0.00
028 Payable to Customers	0.00	0.00
029 Liability under forward exchange contact	0.00	0.00
030 Hedging cost payable to beneficiaries	0.00	0.00
031 Derivative MTM Liability	0.00	0.00
032 Payable for Capital Expenditure	0.00	0.00
033 - Micro & Small Enterprises	114,779,286.53	118,466,640.74
034 - Others	1,769,755,357.39	1,851,731,237.95
035 Others Payables	0.00	0.00
036 Deposits from contractors and others	53,078,458.78	55,965,895.78
037 Gratuity Obligations	0.00	0.00
038 Payable to employees	10,896,978.39	21,909,288.36
039 Payable to holding company	0.00	0.00
040 Retention on A/c BG encashment (Solar)	0.00	0.00
041 Payable to Solar Payment Security Account	0.00	0.00
042 Others **	140,861,301.14	125,967,538.41



RIHAND SUPER THERMAL POWER STATION

NOTE NO. 31 TO THE FS-CL-OTHER FINANCIAL LIABILITIES

(Amount in ₹)

As at	31.03.2021	31.03.2020
043 Unspent CSR balance on ongoing Approved CSR projects	0.00	0.00
044 Total	2,089,371,382.23	2,174,040,601.24
045 * Represents the amounts which have not been claimed by the investor/holders of the bonds/fixed deposits. Out of the above, no amount is due for payment to Investor Education and Protection Fund.	0.00	0.00
046 ** Include Payable to Hospital and other payable.	0.00	0.00



RIHAND SUPER THERMAL POWER STATION

NOTE NO. 32 TO THE FS-CL-OTHER CURRENT LIABILITIES

(Amount in ₹)

	As at	31.03.2021	31.03.2020
001	OTHER CURRENT LIABILITIES	0.00	0.00
002	Advances from customers and others	35,638,788.25	10,105,072.69
003	Deferred discount on forward exchange contact	0.00	0.00
004	Tax deducted at source and other statutory dues	59,989,614.61	87,940,416.32
005	Others	0.00	0.00
006	Total	95,628,402.86	98,045,489.01

RIHAND SUPER THERMAL POWER STATION
NOTE NO. 33 TO THE FS-CL-PROVISIONS
(Amount in ₹)

As at	31.03.2021	31.03.2020
001 SHORT TERM PROVISIONS	0.00	0.00
002 Provision for Employee Benefits	0.00	0.00
003 Opening balance	0.00	0.00
004 Additions/ (adjustments) during the year	0.00	0.00
005 Closing Balance	0.00	0.00
028 Provisions for Obligations Incidental to Land Acquisition	0.00	0.00
029 Opening balance	0.00	0.00
030 Additions during the year	0.00	0.00
031 Amounts paid during the year	0.00	0.00
032 Amounts reversed during the year	0.00	0.00
033 Closing Balance	0.00	0.00
035 Provision for Tariff Adjustment	0.00	0.00
036 Opening balance	0.00	0.00
037 Additions during the year	0.00	0.00
038 Amounts adjusted during the year	0.00	0.00
039 Amounts reversed during the year	0.00	0.00
040 Closing Balance	0.00	0.00
042 Provision for shortage in Fixed Assets Pending Investigation & Others	0.00	0.00
043 Opening balance	633,857.99	196,021.10
044 Additions during the year	0.00	437,836.89
045 Amounts adjusted during the year	54,258.29	0.00
046 Amounts reversed during the year	579,599.70	0.00
047 Closing Balance	0.00	633,857.99
048 Provision for Arbitration	0.00	0.00
049 Opening balance	7,846,960.00	7,428,608.00
050 Additions during the year	418,352.00	418,352.00
051 Amounts used during the year	0.00	0.00
052 Amounts reversed during the year	0.00	0.00
053 Closing Balance	8,265,312.00	7,846,960.00
054 Others	0.00	0.00
055 Opening balance	0.00	0.00
056 Additions during the year	0.00	0.00
057 Amounts used during the year	0.00	0.00
058 Amounts reversed during the year	0.00	0.00
059 Closing Balance	0.00	0.00
102	0.00	0.00
103 Total	8,265,312.00	8,480,817.99



RIHAND SUPER THERMAL POWER STATION

NOTE NO. 34 TO THE FS-CL-CURRENT TAX LIABILITIES (NET)

(Amount in ₹)

As at	31.03.2021	31.03.2020
001 Current liabilities - current tax liabilities (net)	0.00	0.00
002 Opening balance	0.00	0.00
003 Additions during the year	0.00	0.00
004 Amounts adjusted during the year	0.00	0.00
005 Less: Set off against taxes paid	0.00	0.00
006 Closing Balance	0.00	0.00



RIHAND SUPER THERMAL POWER STATION

NOTE NO. 35 TO THE FS--DEFERRED REVENUE

(Amount in ₹)

As at	31.03.2021	31.03.2020
001 Deferred Revenue	0.00	0.00
002 On account of advance against depreciation	0.00	0.00
003 On account of income from foreign currency fluctuation	1,550,313,000.00	1,990,729,000.00
004 Government grants	0.00	0.00
005	0.00	0.00
006 TOTAL	1,550,313,000.00	1,990,729,000.00



RIHAND SUPER THERMAL POWER STATION

NOTE NO. 36 TO THE FS--REGULATORY DEFERRAL ACCOUNT CREDIT BALANCES

(Amount in ₹)

As at	31.03.2021	31.03.2020
001 Regulatory deferral account credit balances	0.00	0.00
002 Exchange Differences	0.00	0.00
003	0.00	0.00
004 Total	0.00	0.00

RIHAND SUPER THERMAL POWER STATION
NOTE NO. 37 TO THE FS--REVENUE FROM OPERATIONS
(Amount in ₹)

	For the Year ended	31.03.2021	31.03.2020
001	REVENUE FROM OPERATIONS	0.00	0.00
002	Sales	0.00	0.00
003	Energy Sales (including Electricity Duty)	52,226,950,763.00	52,789,447,080.00
004	Less : Advance against depreciation deferred (net)	0.00	0.00
005	Add: Revenue recognized out of advance against depreciation	0.00	0.00
006	Add : Exchange fluctuation receivable from customers	0.00	-78,857,000.00
007	Sale of energy through trading	0.00	0.00
008	Commission (NVVN)	0.00	0.00
009	Sub total	52,226,950,763.00	52,710,590,080.00
010	Less: Rebate to customers	792,896,443.92	240,351,050.12
011	Energy Sales (Total)	51,434,054,319.08	52,470,239,029.88
012	Consultancy, project management and supervision fees	0.00	41,420.00
013	Lease rentals on assets on Operating lease	0.00	0.00
014	Sale of Captive Coal	0.00	0.00
015	Intra Company Elimination	0.00	0.00
017	Sub-total	0.00	0.00
018	Total - Sales	51,434,054,319.08	52,470,280,449.88
019	Sale of fly ash/ash products	15,712,224.90	9,410,400.00
020	Less: Transferred to fly ash utilisation reserve fund	-15,712,224.90	-9,410,400.00
021	Sub-total	0.00	0.00
022	Other Operating Income	0.00	0.00
023	Interest from customers	0.00	44,084,590.00
024	Energy Internally Consumed *	32,244,116.00	30,711,686.00
025	Interest income on Assets under finance lease	0.00	0.00
026	Recognized from deferred revenue - government grant	0.00	0.00
027	Provision written back- Tariff Adjustment	0.00	0.00
028	Income form Trading of ESCerts	0.00	0.00
029	Income from E-Mobility Business & others	0.00	0.00
030		0.00	0.00
031	Total	51,466,298,435.08	52,545,076,725.88
040	* Valued at variable cost of generation and corresponding amount included in power charges (Note No. 42)	0.00	0.00
041	Excise duty on sale of flyash,cenospere & ash products	0.00	0.00
042	Energy sales of principal nature (NVVN)	0.00	0.00
043	Energy sales of agency nature (NVVN)	0.00	0.00

RIHAND SUPER THERMAL POWER STATION
NOTE NO. 38 TO THE FS--OTHER INCOME
(Amount in ₹)

	For the Year ended	31.03.2021	31.03.2020
001	OTHER INCOME	0.00	0.00
002	Interest from	0.00	0.00
004	Financial assets at amortised cost	0.00	0.00
005	Government Securities (8.5% Tax Free Bonds issued by the State Governments)	0.00	0.00
006	Other Bonds	0.00	0.00
007		0.00	0.00
008	Interest from Government of India Securities-Non-Trade	0.00	0.00
009	Less: Amortiation of premium	0.00	0.00
010	Sub Total	0.00	0.00
011	Interest from others	0.00	0.00
012	Loan to State Government in settlement of dues from customers	0.00	0.00
013	Loan to Subsidiary Companies	0.00	0.00
014	Loan to Employees	15,321,469.09	17,127,436.11
015	Deposit with banks	0.00	0.00
016	Foreign Banks	0.00	0.00
017	Interest from Contractors	1,013,678.30	2,488,597.00
018	Interest from Income Tax Refunds	0.00	0.00
019	Less : Refundable to Customers	0.00	0.00
020	Sub Total	0.00	0.00
021	Deposits with banks-flyash utilisation reserve fund	0.00	0.00
022	Less: transferred to flyash utilisation reserve fund	0.00	0.00
023	Sub Total	0.00	0.00
024	Deposits with banks- DDUGJY funds	0.00	0.00
025	Interest from Contractors- DDUGJY funds	0.00	0.00
026	Transfer to DDUGJY-Advance from customers	0.00	0.00
027	Sub-total	0.00	0.00
030	Others	0.00	0.00
031		0.00	0.00
032	Dividend from	0.00	0.00
033	Longterm investments in	0.00	0.00
034	Subsidiaries	0.00	0.00
035	Joint Ventures	0.00	0.00
036	Equity Instruments	0.00	0.00
037	Current Investments in	0.00	0.00
038	Mutual Funds measured at fairvalue through profit or loss	0.00	0.00
039	Current investments in mutual funds-flyash utilisation reserve fund	0.00	0.00
040	Less: transferred to flyash utilisation reserve fund	0.00	0.00
041	Lease Rent # Ash Brick Plant	0.00	0.00
042	Less: transferred to flyash utilisation reserve fund	0.00	0.00
043	Other non-operating income	0.00	0.00
044	Profit on disposal of PPE	20,849.70	90,379.35
045	Profit on redemption of GOI securities	0.00	0.00

RIHAND SUPER THERMAL POWER STATION
NOTE NO. 38 TO THE FS--OTHER INCOME
(Amount in ₹)

	For the Year ended	31.03.2021	31.03.2020
046	Net gain on sale of investments	0.00	0.00
047	Surcharge received from customers	2,124,147,852.00	2,550,077,957.00
048	Hire charges for equipment	151,491.00	67,561.00
049	Gain on option contract / Discount on F.ExchContract	0.00	0.00
050	Provision written back-others	4,648,573.24	6,148,851.93
051	Fair value gains/(losses) on investments in mutual funds at fair value through profit or loss	0.00	0.00
052	Interest from Solar payment security account	0.00	0.00
053	Less : Transferred to SPSA fund	0.00	0.00
054	Interest on "Retention on A/c BG encashment (Solar)"	0.00	0.00
055	Less : Transferred to "Retention on A/c BG encashment (Solar)"	0.00	0.00
056	Miscellaneous Income	399,678,154.90	459,475,589.49
057	Total	2,544,982,068.23	3,035,476,371.88
058	Less:Transferred to Development of Coal Mines- Note 43A	0.00	0.00
059	Less:Transferred to Expenditure during Construction period (net)- Note 43	73,452.78	0.00
061	Less: Others	0.00	0.00
062	Total	2,544,908,615.45	3,035,476,371.88
063		0.00	0.00
064	Details of Miscellaneous Income	0.00	0.00
065	Vehicle Hire Charges.	100,000.00	110,000.00
066	Sale of by products & residuals	0.00	0.00
067	Township recoveries(exl. Hospital Recoveries).	26,531,613.68	22,749,254.28
068	Depreciation written back	0.00	0.00
069	Sale of Scrap.	146,790,506.41	39,568,148.02
070	Receipt under loss of profit policy.	0.00	0.00
071	Receipts under MBD/Fire Policy.	105,876,803.99	315,144,938.00
072	Management development programme.	0.00	0.00
073	Management Fee - Misc (NVVN)	0.00	0.00
074	Others	120,379,230.82	81,903,249.19
075		0.00	0.00
076	Total (Miscellaneous Income)	399,678,154.90	459,475,589.49
077		0.00	0.00
078	Details of Provision written back others	0.00	0.00
079	Doubtful debts	0.00	0.00
080	Doubtful Loans, Advances and Claims	0.00	42,405.00
081	Doubtful Construction Advances	0.00	0.00
082	Shortage in Construction Stores	3,069,811.99	3,559,179.34
083	Shortage in Stores	999,161.55	2,545,110.36
084	Obsolescence in Stores	0.00	2,157.23
085	Unserviceable capital works	0.00	0.00
086	Other Obligation including Arbitration	0.00	0.00
087	Shortage in Fixed Assets	579,599.70	0.00





RIHAND SUPER THERMAL POWER STATION

NOTE NO. 38 TO THE FS--OTHER INCOME

(Amount in ₹)

	31.03.2021	31.03.2020
088 Diminution in value of Investment	0.00	0.00



RIHAND SUPER THERMAL POWER STATION

NOTE NO. 38A TO THE FS--FUEL COST

(Amount in ₹)

For the Year ended		31.03.2021	31.03.2020
001	FUEL COST	0.00	0.00
002	Coal	0.00	0.00
003	Captive	0.00	0.00
004	Other than captive	30,976,987,392.52	30,178,971,766.14
005	Gas	0.00	0.00
006	Naptha	0.00	0.00
007	Oil	247,723,305.71	239,573,779.54
008	Total	31,224,710,698.23	30,418,545,545.68
009		0.00	0.00
010		0.00	0.00

RIHAND SUPER THERMAL POWER STATION
NOTE NO. 39 TO THE FS--EMPLOYEE BENEFITS EXPENSE
(Amount in ₹)

For the Year ended		31.03.2021	31.03.2020
001	EMPLOYEE BENEFITS EXPENSE	0.00	0.00
002	Salaries and wages	1,515,897,759.31	1,650,643,540.59
003	Contribution to provident and other funds	192,912,222.56	173,843,153.43
004	Unwinding of deferred payroll expense	10,267,426.36	11,718,520.61
005	Staff welfare expenses	170,031,632.85	177,064,793.44
006	Less : Expenses transferred to Consultancy group	0.00	0.00
007		0.00	0.00
008	Sub Total	1,889,109,041.08	2,013,270,008.07
009	Less: Employee benefits expense allocated to fuel inventory	121,440,512.65	152,386,279.55
010	Less: Transferred/Allocated to development of coal mines	0.00	0.00
011	Less: Others	0.00	0.00
012	Less: Transferred to fly ash utilisation reserve fund	0.00	0.00
013	Less: Transferred to CSR Expenses	0.00	0.00
014	Reimbursements for employees on secondment	2,735,946.17	1,632.87
015	Less: Transferred to expenditure during construction period (net)- Note 43	19,394,829.87	6,752,468.23
016	TOTAL	1,745,537,752.39	1,854,129,627.42
017	Managerial Remuneration paid/ payable to Directors included above (except for Directors fee which is included in Note 42)	0.00	0.00
018	Salaries and wages	0.00	0.00
019	Contribution to provident and other funds	0.00	0.00
020	Staff welfare expenses	0.00	0.00
021	Directors fee	0.00	0.00
022		0.00	0.00
023		0.00	0.00

RIHAND SUPER THERMAL POWER STATION
NOTE NO. 40 TO THE FS--FINANCE COSTS
(Amount in ₹)

	For the Year ended	31.03.2021	31.03.2020
001	FINANCE COSTS	0.00	0.00
002	Finance charges on financial liabilities measured at amortised cost	0.00	0.00
003	Bonds	585,552,890.58	516,674,205.82
004	Government of India Loans	0.00	0.00
005	Foreign currency term loans	19,316,822.83	34,538,576.20
006	Rupee term loans	690,539,220.00	940,580,407.00
007	Public deposits	0.00	0.00
008	Foreign currency bonds/notes	642,399,406.03	625,074,179.63
009	Cash Credit	0.00	0.00
010	Unwinding of discount on account of vendor liabilities	13,871,577.85	6,650,468.54
011	Commercial Papers	0.00	0.00
012	Sub Total	1,951,679,917.29	2,123,517,837.19
013	Interest on non financial items	0.00	0.00
014	Other Borrowing Costs	0.00	0.00
015	Bonds servicing & public deposit exp.	717,948.54	768,686.21
016	Guarantee fee	0.00	0.00
017	Management fee	0.00	0.00
018	Committ charges/exposure premium	0.00	0.00
019	Bond issue expenses	0.00	0.00
020	Legal exp on foreign currency loans	0.00	0.00
021	Foreign currency bonds/notes exp.	0.00	0.00
022	Up-front fee	0.00	0.00
023	Insurance premium on foreign currency loans	0.00	0.00
024		0.00	0.00
025	Others	0.00	0.00
026	Sub Total (Other Borrowing cost)	717,948.54	768,686.21
027		0.00	0.00
028	Exchange differences regarded as an adjustment to borrowing costs	-16,523.48	13,092,857.00
029	Sub Total	1,952,381,342.35	2,137,379,380.40
030	Less: Transferred to Expenditure during construction period (net) - Note 43	22,905,000.49	6,944,586.19
031	Less: Transferred to development of coal mines- Note 43A	0.00	0.00
032		0.00	0.00
033	Total	1,929,476,341.86	2,130,434,794.21

RIHAND SUPER THERMAL POWER STATION
NOTE NO. 41 TO THE FS--DEPRECIATION AND AMORTIZATION EXPENSES
(Amount in ₹)

	For the Year ended	31.03.2021	31.03.2020
001	Depreciation and amortization expenses	0.00	0.00
002	On property, plant and equipment- Note 2	4,601,404,034.44	4,377,618,570.90
003	On intangible assets- Note 4	4,317.78	115,063.13
004	Sub-total	4,601,408,352.22	4,377,733,634.03
005	Less:	0.00	0.00
006	Allocated to fuel inventory	361,624,623.95	345,650,636.39
007	Transferred to Expenditure during Construction Period (net)- Note 43	0.00	0.00
008		0.00	0.00
009	Transferred/Allocated to development of coal mines	0.00	0.00
010	Adjustment with deferred revenue from deferred foreign currency fluctuation	168,797,000.00	117,252,000.00
011		0.00	0.00
012	Total	4,070,986,728.27	3,914,830,997.64

RIHAND SUPER THERMAL POWER STATION
NOTE NO. 42 TO THE FS--OTHER EXPENSE
(Amount in ₹)

	For the Year ended	31.03.2021	31.03.2020
001 OTHER EXPENSES		0.00	0.00
002 Power charges		32,244,116.00	30,711,686.00
003 Less: Recovered from contractors & employees		10,218,976.19	10,254,267.44
004 Sub-Total(Power Charges)		22,025,139.81	20,457,418.56
005 Water charges		139,871,225.00	139,871,221.00
006 Stores consumed		30,362,577.69	25,535,090.39
007 Rent		0.00	0.00
008 Less:Recoveries		0.00	0.00
009 Sub-Total (Rent)		0.00	0.00
010 Cost of captive coal produced		0.00	0.00
011 Repairs & maintenance		0.00	0.00
012 Buildings		157,598,147.58	155,238,832.21
013 Plant & machinery		0.00	0.00
014 Power stations		2,012,457,618.12	1,971,478,736.27
015 Construction equipment		0.00	0.00
016 Others		71,233,169.46	83,615,119.59
017 Sub-total (Repairs & maintenance)		2,241,288,935.16	2,210,332,688.07
019 Load Dispatch Center Charges		16,378,065.00	31,162,794.00
021 Insurance		135,670,380.27	89,337,957.77
022 Interest to beneficiaries		0.00	0.00
023 Rates and taxes		14,719,674.88	15,456,955.21
024 Water cess & environment protection cess		0.00	0.00
025 Training & recruitment expenses		2,517,189.00	3,118,705.45
026 Less: Receipts		0.00	0.00
027 Sub-total (Training and recruitment expenses)		2,517,189.00	3,118,705.45
028 Communication expenses		20,286,959.05	22,862,791.41
029 Inland Travel		60,029,239.63	82,463,633.67
030 Foreign Travel		0.00	120,940.46
031 Tender expenses		0.00	0.00
032 Less: Receipt from sale of tenders		0.00	0.00
033 Sub-total (Tender expenses)		0.00	0.00
034 Payment to auditors		0.00	0.00
035 Audit fee		0.00	0.00
036 Tax audit fee		0.00	0.00
037 Other services		0.00	0.00
038 Reimbursement of expenses		0.00	0.00
039 Sub-total (Payment to Auditors)		0.00	0.00
040 Advertisement and publicity		657,415.36	1,212,507.00
041 Electricity duty		0.00	0.00
042 Security expenses		460,687,189.93	373,349,148.40
043 Entertainment expenses		26,655,551.12	28,763,376.25
044 Expenses for guest house		17,271,947.40	17,150,884.00
045 Less:Recoveries		0.00	0.00
046 Sub-Total (Guest house expenses)		17,271,947.40	17,150,884.00
047 Education expenses		79,480,752.00	55,250,389.00
049 Donations		0.00	0.00

RIHAND SUPER THERMAL POWER STATION
NOTE NO. 42 TO THE FS--OTHER EXPENSE
(Amount in ₹)

	For the Year ended	31.03.2021	31.03.2020
050	Ash utilisation & marketing expenses	432,245,428.81	125,414,779.59
051	Directors sitting fee	0.00	0.00
053	Professional charges and consultancy fees	3,302,664.23	3,982,140.37
054	Legal expenses	15,480,086.00	15,785,425.50
055	EDP hire and other charges	1,336,546.59	2,894,018.79
056	Printing and stationery	1,376,617.64	3,525,595.39
057	Oil & gas exploration expenses	0.00	0.00
059	Hiring of vehicles	20,600,619.14	31,158,224.74
061	Reimbursement of L.C.charges on sales realisation	0.00	0.00
062		0.00	0.00
063	Cost of Hedging	166,468.00	0.00
064	Derivatives MTM loss/gain (Net)	0.00	0.00
065	Net loss/(gain) in foreign currency transactions & translations	-11,861,227.40	42,094,396.89
066	Transport Vehicle running expenses	936,937.36	912,881.50
067	Horticulture Expenses	59,411,651.45	59,606,958.76
068	Hire charges- helicopter/aircraft.	0.00	0.00
069	Hire charges of construction equipment	0.00	0.00
070	Demurrage Charges	0.00	0.00
072		0.00	0.00
073	Miscellaneous expenses	21,346,532.03	24,023,844.61
074	Loss on disposal/write-off of PPE	231,316,192.66	16,538,459.84
075	Sub-Total	4,043,560,757.81	3,442,383,226.62
076	Less: Other expenses allocated to fuel inventory	567,027,646.89	507,661,972.36
077	Less: Transferred/Allocated to development of coal mines	0.00	0.00
078	Less: Transferred to fly ash utilisation reserve fund	119,725,415.98	125,414,779.59
079	Less: Hedging cost Net recoverable/payable from/to beneficiaries	0.00	0.00
080	Less: Others	0.00	0.00
081	Less: Transferred to CSR Expenses	71,755,551.00	47,896,790.00
082	Less: Transferred to Expenditure during Construction period(net)-Note 43	5,629,081.66	805,829.61
083	Net (Generation, Administration and Other expenses)	3,279,423,062.28	2,760,603,855.06
084	Corporate Social Responsibility Expenses	117,469,384.87	102,505,554.21
085	Less: Grants-in-aid	0.00	0.00
086	Sub-total (Corporate Social Responsibility Expenses)	117,469,384.87	102,505,554.21
087	Provisions	0.00	0.00
088	Doubtful Debts	0.00	0.00
089	Doubtful loans, advances and claims	0.00	0.00
090	Doubtful Construction Advances	0.00	0.00
091	Shortage in stores	156,818.20	467,794.99
092	Obsolete/Diminution in the value of surplus stores	0.00	467,405.55
093	Shortage in construction stores	6,233,763.36	4,086,971.23
094	Diminution in value of long term investments	0.00	0.00

Locked: 26.04.2021 - 20:19:32

Run on: 14.11.2024 - 16:04:54 Version: 0

RIHAND SUPER THERMAL POWER STATION
NOTE NO. 42 TO THE FS--OTHER EXPENSE
(Amount in ₹)

	For the Year ended	31.03.2021	31.03.2020
095	Shortage in Fixed assets	0.00	437,836.89
096	Unfinished minimum work progress from oil & gas exploration	0.00	0.00
097	Unserviceable capital works	0.00	0.00
098	Tariff Adjustment	97,702,000.00	31,997,000.00
099	Others :	0.00	0.00
100	(i) Provision for arbitration cases	418,352.00	418,352.00
101	(ii) Other provisions	0.00	0.00
102	Total (Provisions)	104,510,933.56	37,875,360.66
103		0.00	0.00
104	Total	3,501,403,380.71	2,900,984,769.93
105		0.00	0.00
106	Breakup of miscellaneous expenses.	0.00	0.00
109	Hire charges of office equipment	1,215,364.67	71,228.00
111	Operating expenses of construction equipment	0.00	0.00
112	Operating expenses of D.G. sets	0.00	0.00
113	Furnishing expenses	0.00	2,160,679.12
114	Subscription to trade and other associations.	0.00	0.00
116	Visa and entry permit charges	0.00	0.00
117	Tree plantation exp.-NTPC Land	0.00	0.00
118	Research & development expenses .	0.00	0.00
119	Less : Grants received for Research & development expenses.	0.00	0.00
120	Sub-total (Research & development expenses)	0.00	0.00
121	Bank charges	141,681.42	244,632.08
122	Business Development Expenditure	0.00	0.00
123	Surcharge (NVVN)	0.00	0.00
124	Power Trading Expenses	6,458,871.00	1,343,810.00
125	Brokerage & commission	1,951,671.00	998,531.00
129	Books and periodicals	88,572.00	214,497.55
130	Claims/advances written off	0.00	0.00
131	Stores written off	0.00	0.00
132	Survey & Investigation expenses written off	0.00	0.00
133	Others	11,490,371.94	18,990,466.86
134	Total	21,346,532.03	24,023,844.61
135		0.00	0.00
136		0.00	0.00
137		0.00	0.00

RIHAND SUPER THERMAL POWER STATION
NOTE NO. 43 TO THE FS--EXPENDITURE DURING CONSTRUCTION PERIOD (NET)
(Amount in ₹)

For the Year ended		31.03.2021	31.03.2020
001	EXPENDITURE DURING CONSTRUCTION PERIOD (NET)	0.00	0.00
002	A. Employee benefits expense	0.00	0.00
003	Salaries and wages	16,690,366.44	5,979,041.61
004	Contribution to provident and other funds	1,990,589.37	534,992.53
005	Unwinding of deferred payroll expenses	-9,214.56	-3,973.41
006	Staff welfare expenses	723,088.62	242,407.50
007	Total (A)	19,394,829.87	6,752,468.23
008	B. Finance Costs	0.00	0.00
009	Finance charges on financial liabilities measured at amortised cost	0.00	0.00
010	Bonds	991,703.48	0.00
011	Foreign currency term loans	202,998.16	0.00
012	Rupee term loans	12,796,466.00	3,403,287.00
013	Foreign currency bonds/notes	0.00	0.00
014	Unwinding of discount on account of vendor liabilities	8,870,269.79	456,585.19
015	Others	0.00	0.00
016		0.00	0.00
017	Other Borrowings Costs	0.00	0.00
018	Guarantee Commission	0.00	0.00
019	Management Fees/Arrangers Fees	0.00	0.00
020	Commitment charges/Exposure Premium	0.00	0.00
021	Legal Expenses on foreign currency loans	0.00	0.00
022	Foreign currency bonds/notes expenses	0.00	0.00
023	Foreign Credit Insurance Premium	0.00	0.00
024	Upfront Fee	0.00	0.00
025	Exchange Differences	0.00	2,651,489.00
026	Others	476,690.72	0.00
027	Exchange differences regarded as adjustment to interest cost	-433,127.66	433,225.00
028	Total (B)	22,905,000.49	6,944,586.19
029		0.00	0.00
030	C. Depreciation and amortisation	0.00	0.00
031	D. Generation , administration and other expenses	0.00	0.00
032	Power charges	2,653,635.00	239,312.00
033	Less: Recovered from contractors & employees	18,237.39	0.00
034	Sub-total(Net power charges)	2,635,397.61	239,312.00
035	Water charges	0.00	0.00
036	Rent	0.00	0.00
037	Repairs & maintenance	0.00	0.00
038	Buildings	0.00	0.00
039	Construction equipment	0.00	0.00
040	Others	161,732.04	0.00
041		0.00	0.00
042	Insurance	0.00	0.00

RIHAND SUPER THERMAL POWER STATION
NOTE NO. 43 TO THE FS--EXPENDITURE DURING CONSTRUCTION PERIOD (NET)
(Amount in ₹)

	For the Year ended	31.03.2021	31.03.2020
043	Rates and taxes	0.00	0.00
044	Communication expenses	202,309.00	46,289.00
045	Travelling expenses	1,061,207.26	489,962.71
046	Tender expenses	0.00	0.00
047	Less: Income from sale of tenders	0.00	0.00
048	Sub-total (Net tender expenses)	0.00	0.00
049	Advertisement and publicity	0.00	0.00
050	Security expenses	0.00	0.00
051	Entertainment expenses	96,997.19	29,187.94
052	Guest house expenses	0.00	0.00
053	Less: Receipt from guest house	0.00	0.00
054	Sub-total (Net Guest House Expenses)	0.00	0.00
055	Education expenses	0.00	0.00
056	Brokerage & Commission	0.00	0.00
057	Books and periodicals	0.00	0.00
058	Community development expenses	0.00	0.00
059	Professional charges and consultancy fee	0.00	0.00
060	Legal expenses	0.00	0.00
061	EDP Hire and other charges	0.00	0.00
062	Printing and stationery	0.00	0.00
063	Miscellaneous expenses	1,471,438.56	1,077.96
064	Total (D)	5,629,081.66	805,829.61
065	Total (A+B+C+D)	47,928,912.02	14,502,884.03
066	E. Less: Other Income	0.00	0.00
067	Interest from	0.00	0.00
068	Indian banks	0.00	0.00
069	Foreign banks	0.00	0.00
070	Others	0.00	0.00
071	Contractors	0.00	0.00
072	Hire charges	0.00	0.00
073	Sale of scrap	0.00	0.00
074	Exchange Differences	0.00	0.00
075	Miscellaneous income	73,452.78	0.00
076	TOTAL (E)	73,452.78	0.00
077	F. Net actuarial gain/loss OCI	201,530.19	0.00
078		0.00	0.00
079	GRAND TOTAL (A+B+C+D-E+F)	48,056,989.43	14,502,884.03
080		0.00	0.00
081	* Balance carried to Capital Work-in-progress - (Note 3)	48,056,989.43	14,502,884.03

**RIHAND SUPER THERMAL POWER STATION
BALANCE SHEET**

(Amount in ₹)

As at	Note	31.03.2022	31.03.2021	
001	ASSETS	0.00	0.00	
002		0.00	0.00	
003	NON-CURRENT ASSETS	0.00	0.00	
004	PROPERTY, PLANT & EQUIPMENT	2	50,524,836,213.05	53,619,450,765.67
005	CAPITAL WORK-IN-PROGRESS	3	6,758,465,834.90	3,031,095,010.70
006	INTANGIBLE ASSETS	4	15,262.40	15,262.40
007	INTANGIBLE ASSETS UNDER DEVELOPMENT	5	0.00	0.00
008	FINANCIAL ASSETS	0.00	0.00	
009	I) INVESTMENTS IN SUBSIDIARIES AND JOINT VENTURES	6	0.00	0.00
010	II) INVESTMENTS	7	0.00	0.00
011	III) TRADE RECEIVABLES	8	0.00	0.00
012	IV) LOANS	9	114,604,993.97	105,360,479.31
013	V) OTHER FINANCIAL ASSETS	10	0.00	0.00
015	OTHER NON-CURRENT ASSETS	11	1,021,604,054.55	2,225,545,606.02
016	TOTAL NON-CURRENT ASSETS		58,419,228,958.88	58,980,576,136.10
017			0.00	0.00
018	CURRENT ASSETS	0.00	0.00	
019	INVENTORIES	12	6,407,743,216.55	4,599,807,206.27
020	FINANCIAL ASSETS	0.00	0.00	
021	I) INVESTMENTS	13	0.00	0.00
022	II) TRADE RECEIVABLES	14	1,733,397.09	15,464,355.69
023	III) CASH AND CASH EQUIVALENTS	15	0.00	395,123.40
024	IV) BANK BALANCES OTHER THAN CASH AND CASH EQUIVALENTS	16	0.00	0.00
025	V) LOANS	17	75,812,587.65	68,814,626.95
026	VI) OTHER FINANCIAL ASSETS	18	149,290,961.93	158,476,059.43
027	CURRENT TAX ASSETS (NET)		0.00	0.00
028			0.00	0.00
029	OTHER CURRENT ASSETS	19	455,009,517.62	469,505,591.13
030			0.00	0.00
031	TOTAL CURRENT ASSETS		7,089,563,680.84	5,322,257,962.87
032	REGULATORY DEFERRAL ACCOUNT DEBIT BALANCES	20	1,161,297,074.19	671,086,456.17
034	TOTAL ASSETS		66,660,115,723.91	64,973,914,545.14
035	EQUITY AND LIABILITIES	0.00	0.00	
036	EQUITY	0.00	0.00	
037	EQUITY SHARE CAPITAL	21	0.00	0.00
038	OTHER EQUITY	22	177,939,235,212.48	166,407,994,973.17
041	TOTAL EQUITY		177,939,235,212.48	166,407,994,973.17
042			0.00	0.00
043	LIABILITIES	0.00	0.00	
044	NON-CURRENT LIABILITIES	0.00	0.00	
045	FINANCIAL LIABILITIES	0.00	0.00	
046	I) BORROWINGS	23	0.00	0.00
047	II) LEASE LIABILITIES	23A	0.00	0.00
048	III) TRADE PAYABLES		0.00	0.00

Locked: 27.04.2022 - 18:43:19

Run on: 27.04.2022 - 18:59:24 Version: 0

Page 1 of 2

RIHAND SUPER THERMAL POWER STATION
BALANCE SHEET

(Amount in ₹)

As at	Note	31.03.2022	31.03.2021
049 - TOTAL OUTSTANDING DUES OF MICRO AND SMALL ENTERPRISES	24	7,830,370.14	16,336,269.21
050 - TOTAL OUTSTANDING DUES OF CREDITORS OTHER THAN MICRO AND SMALL ENTERPRISES	24	11,108,850.81	5,373,476.89
051 IV) OTHER FINANCIAL LIABILITIES	25	213,937,434.72	681,741,354.25
052 PROVISIONS	26	0.00	0.00
053 DEFERRED TAX LIABILITIES (NET)	27	0.00	0.00
054 OTHER NON-CURRENT LIABILITIES	28	0.00	0.00
055		0.00	0.00
056 TOTAL NON-CURRENT LIABILITIES		232,876,455.67	794,451,190.35
057		0.00	0.00
058 CURRENT LIABILITIES		0.00	0.00
059 FINANCIAL LIABILITIES		0.00	0.00
060 I) BORROWINGS	29	0.00	0.00
061 II) LEASE LIABILITIES	25A	0.00	0.00
062 II) Trade Payables		0.00	0.00
063 - TOTAL OUTSTANDING DUES OF MICRO AND SMALL ENTERPRISES	30	220,046,789.16	227,041,821.80
064 - TOTAL OUTSTANDING DUES OF CREDITORS OTHER THAN MICRO AND SMALL ENTERPRISES	30	3,104,879,539.52	1,688,677,134.68
065 III) OTHER FINANCIAL LIABILITIES	31	3,800,418,199.66	2,089,371,382.23
066 OTHER CURRENT LIABILITIES	32	150,807,804.34	95,628,402.86
067 PROVISIONS	33	8,683,664.00	8,265,312.00
068 CURRENT TAX LIABILITIES (NET)	34	0.00	0.00
069		0.00	0.00
070 TOTAL CURRENT LIABILITIES		7,284,835,996.68	4,109,584,953.57
071		0.00	0.00
072 DEFERRED REVENUE	35	1,521,059,000.00	1,580,313,000.00
073 REGULATORY DEFERRAL ACCOUNT CREDIT BALANCES	36	0.00	0.00
074 INTER UNIT ACCOUNTS		-120,317,930,940.92	-107,790,428,581.85
075		0.00	0.00
076 TOTAL EQUITY AND LIABILITIES		66,660,115,723.91	64,673,914,545.14
077 Significant Accounting Policies as per Note 1		0.00	0.00
078		0.00	0.00
079 The accompanying notes 1 to 44 form an integral part of these financial statements.		0.00	0.00
080		0.00	0.00

(Auditor Initial & Stamp)

NARENDER KUMAR CHATRATH
(Head of Finance)

Digitally signed by
NARENDER KUMAR
CHATRATH
Date: 2022.04.27
18:53:33 +05'30'

(Head of Unit)

देवव्रत पॉल/DEBABRATA PAUL
मुख्य महासंचालक/Chief General Manager
एनटीपीसी लिमिटेड/NTPC Ltd.
रिहंद सुपर थर्मल पावर प्रोजेक्ट/RH-STPP
रिहंदनगर सोनमढा/Rihandnagar Sonbhadra 231223

**RIHAND SUPER THERMAL POWER STATION
STATEMENT OF PROFIT AND LOSS**

(Amount in ₹)

	For the Year ended	Note	31.03.2022	31.03.2021
001	Revenue		0.00	0.00
002	Revenue from operations	37	52,147,559,605.11	50,204,578,917.91
003	Other income	38	1,201,322,056.93	2,757,456,514.45
005	Total income		53,348,881,662.04	52,962,035,432.36
007	Expenses		0.00	0.00
008	Fuel including cost of captive coal	36A	30,643,568,568.19	31,227,551,790.05
009	Employee benefits expense	39	1,807,965,286.44	1,745,537,752.29
010	Electricity purchased for trading		0.00	0.00
011	Finance costs	40	1,466,105,749.88	1,529,476,341.85
012	Depreciation and amortization expenses	41	4,182,729,574.91	4,079,986,728.27
013			0.00	0.00
014	Other expenses	42	3,380,456,005.46	3,501,403,380.71
015	CC expenses charge to revenue		607,250,921.12	723,635,735.02
016	Less: Unit expenses transferred to CC		0.00	0.00
017	Total expenses		42,288,126,406.00	43,198,791,737.31
020	Profit before exceptional items & tax		11,060,755,256.04	9,763,375,795.05
021	Exceptional items		0.00	0.00
024	Profit before tax		11,060,755,256.04	9,763,375,795.05
027	Tax expense:		0.00	0.00
028	Current tax		0.00	0.00
031	Deferred tax		0.00	0.00
034			0.00	0.00
035	Total Tax expense		0.00	0.00
036	Profit for the period before regulatory deferral account balances		11,060,755,256.04	9,763,375,795.05
037	Movement in regulatory deferral account balances		0.00	0.00
038	Regulatory deferred account - deferred		0.00	0.00
039	Others		480,210,618.02	304,375,947.88
040	Tax impact on Regulatory deferral account balances		0.00	0.00
041	Movement in Regulatory deferral account balances (Net of Tax)		480,210,618.02	304,375,947.88
042	Profit for the period/ year		11,540,965,874.06	10,067,751,742.93
043	Other comprehensive Income		0.00	0.00
044	(A) Items that will not be reclassified to profit or loss		0.00	0.00
045	- Net gains/(losses) on fair value of equity instruments through other comprehensive income		0.00	0.00
046	Income tax on above that will not be reclassified to profit or loss		0.00	0.00
047	- Net actuarial gains/(losses) on defined benefit plans		-8,725,634.75	-24,061,329.38
048	Income tax on above that will not be reclassified to profit or loss		0.00	0.00
052		43	0.00	0.00
053	Other comprehensive Income for the year, net of Income tax		-8,725,634.75	-24,061,329.38
054			0.00	0.00
055	Total Comprehensive Income for the year		11,531,240,239.31	10,043,690,413.55
069			0.00	0.00

Locked: 27.04.2022 - 18:42:47

Run on: 27.04.2022 - 18:57:22 Version: 0

Page 1 of 2



A Maharatna Company

RIHAND SUPER THERMAL POWER STATION
STATEMENT OF PROFIT AND LOSS

(Amount in ₹)

	For the Year ended	Note	31.03.2022	31.03.2021
070	Earnings per equity share:		0.00	0.00
071	Basic & Diluted		0.00	0.00
072	Significant Accounting Policies		0.00	0.00
073	Expenditure during construction period (Net)Dev. of coal mines (net) 43,43A		0.00	0.00
074	The accompanying notes 1 to 44 form an integral part of these financial statements.		0.00	0.00

(Auditor Initial & Stamp)

NARENDER KUMAR CHATRATH
Digitally signed by NARENDER KUMAR CHATRATH
 DN: cn=NARENDER KUMAR CHATRATH, o=NTPC, ou=RIHAND, email=NARENDER.KUMAR.CHATRATH@ntpc.co.in
 (Head of Finance)

(Head of Unit)

देबब्रत पॉल/DEBABRATA PAU
 मुख्य महासंचालक/Chief General Manager
 एनटीपीसी लिमिटेड/NTPC Ltd
 रिहंद सुपर थर्मल पावर प्रोजेक्ट/RIHAND SUPER THERMAL POWER PROJECT
 रिहंद नगर सोनभद्र/Rihandnagar Sonbhadra 23122

RIHAND SUPER THERMAL POWER STATION

OTHER COMPREHENSIVE INCOME

(Amount in ₹)

	For the Year ended	31.03.2022	31.03.2021
001		0.00	0.00
002	Other comprehensive income	0.00	0.00
003	(A) Items that will not be reclassified to profit or loss	0.00	0.00
004	- Net gains/(losses) on fair value of equity instruments through other comprehensive income	0.00	0.00
005	Income tax on above that will not be reclassified to profit or loss	0.00	0.00
006	- Net actuarial gains/(losses) on defined benefit plans	-9,725,634.75	-24,061,329.38
007	Income tax on above that will not be reclassified to profit or loss	0.00	0.00
008		0.00	0.00
009	(B) Items that will be reclassified to profit or loss	0.00	0.00
010	Income tax relating to above items that will be reclassified to profit or loss	0.00	0.00
011		0.00	0.00
012	Other comprehensive income for the year, net of income tax	-9,725,634.75	-24,061,329.38
013		0.00	0.00
014	Total comprehensive income for the year (A+B)	-9,725,634.75	-24,061,329.38

Note forming part of Balance Sheet
Note 2 : Property, Plant And Equipment
Business Area :1005

Asset Class	Opening Gross Block As At 01.04.2021	Additions	Deductions/ Adjustments	Closing Gross Block As At 31.03.2022	Opening Depreciation As At 01.04.2021	Additions	Deductions/ Adjustments	Closing Depreciation As At 31.03.2022	Net Block As At 31.03.2022	Net Block As At 31.03.2021
1 TANGIBLE ASSETS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2 Land : (including development expenses)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3 Freehold	355016843.25	0.00	0.00	355016843.25	0.00	0.00	0.00	0.00	355016843.25	355016843.25
4 Right of Use	312564894.63	0.00	0.00	312564894.63	75199268.84	10281521.39	0.00	85480790.23	227084104.40	237365625.79
5 Submergence	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6 Right of use - Coal Bearing Area Land	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7 Roads,bridges, culverts & helipads	636606867.94	(269253.24)	0.00	636337614.70	133087366.86	23512878.36	0.00	156600245.22	479737369.48	503519501.08
8 Building :	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9 Freehold	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10 Main plant	1852956664.03	0.00	0.00	1852956664.03	375720477.77	62828072.55	0.00	438548550.32	1414408113.71	1477236186.26
11 Others	2548970049.68	12664437.15	0.00	2561634486.83	483509018.08	94762460.79	0.00	578271478.87	1983363007.96	2065461031.60
12 Right of Use	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
13 Temporary erection	231168.13	0.00	0.00	231168.13	231168.13	0.00	0.00	231168.13	0.00	0.00
14 Water Supply, drainage & sewerage system	546047713.55	174330.49	0.00	546222044.04	122630859.19	24515723.17	0.00	147146582.36	399075461.68	423416854.36
15 Hydraulic works, barrages, dams, tunnels and power channel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
16 MGR track and signalling system	1354372126.56	(593252.00)	0.00	1353778874.56	353590079.10	72484055.87	0.00	426074134.97	927704739.59	1000782047.46
17 Railway siding	1528212.48	0.00	0.00	1528212.48	647947.27	64482.46	0.00	712429.73	815782.75	880265.21
18 Earth dam reservoir	1456921.40	0.00	0.00	1456921.40	0.00	0.00	0.00	0.00	1456921.40	1456921.40
19 Plant and machinery(including associated civil works)	73454969525.57	1419281937.84	(709636889.90)	74164614573.51	26464731965.27	4360969561.58	(891144942.35)	29934556584.50	44230057989.01	46990237560.30
Owned Asset										


 अवर महाप्रबन्धक (आर्थिक) /
 Addl. General Manager (Commercial)
 एन टी सी लिमिटेड / NTPC LIMITED

Note forming part of Balance Sheet
Note 2 : Property, Plant And Equipment
Business Area :1005

Asset Class	Opening Gross Block As At 01.04.2021	Additions	Deductions/ Adjustments	Closing Gross Block As At 31.03.2022	Opening Depreciation As At 01.04.2021	Additions	Deductions/ Adjustments	Closing Depreciation As At 31.03.2022	Net Block As At 31.03.2022	Net Block As At 31.03.2021
20 Plant and machinery(including associated civil works) -Right of use Asset	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
21 Furniture and fixtures	174736234.40	328989.06	(100504.92)	174964718.54	65711646.15	12929549.78	(46237.44)	78594958.49	96369760.05	109024588.25
22 Assets under 5 Km Scheme	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
23 Vehicles including speedboats / helicopter- Owned	6558165.35	639950.00	0.00	7198115.35	2606042.68	601648.03	0.00	3207690.71	3990424.64	3952122.67
24 Vehicles including speedboats / helicopter - Leased	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
25 Office equipment	98040349.95	4307450.36	(2030608.41)	100317191.90	49456082.48	11847049.85	(1608611.96)	59694520.37	40622671.53	48584267.47
26 EDP, WP machines and satcom equipment	91240904.66	2416725.00	(12113429.83)	81544199.83	72829119.51	5817477.91	(12113429.83)	66533167.59	15011032.24	18411785.15
27 Construction equipments	65110895.86	0.00	0.00	65110895.86	27046537.19	2027521.74	0.00	29074058.93	36036836.93	38064358.67
28 Electrical Installations	331082244.94	0.00	(4203.95)	331078040.99	118467469.81	21541198.64	(928.05)	140007740.40	191070300.59	212614775.13
29 Communication equipments	31934747.30	21600.00	0.00	31956347.30	23821990.01	782560.36	0.00	24604550.37	7351796.93	8112757.29
30 Hospital equipments	30920925.67	4058616.65	(40145.34)	34939396.98	7684258.47	9759155.28	(12511.80)	17430901.95	17508495.03	23236667.20
31 Laboratory and workshop equipments	145735570.77	3673430.05	0.00	149409000.82	43658963.64	7793475.30	0.00	51452438.94	97956561.88	102076607.13
32 Capital expenditure on assets not owned by the Company	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
33 Assets of Government	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00


 अवर सहायक (आर्थिक)
 Addl. General Manager (Commercial)
 एन टी सी लिमिटेड/NTPC LIMITED

Note forming part of Balance Sheet
Note 2 : Property, Plant And Equipment
Business Area :1005

Asset Class	Opening Gross Block As At 01.04.2021	Additions	Deductions/ Adjustments	Closing Gross Block As At 31.03.2022	Opening Depreciation As At 01.04.2021	Additions	Deductions/ Adjustments	Closing Depreciation As At 31.03.2022	Net Block As At 31.03.2022	Net Block As At 31.03.2021
34 Less:Grants from Government	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
35 Less: Recoverable from GOI	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
36 Assets for ash utilisation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
37 (Less):-Adjusted from fly ash utilisation reserve fund	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
38 Site Restoration Cost	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
39 Mining Properties	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grand Total (Tangible)	82040081026.12	1446704961.36	(723925782.35)	82762860205.13	28420630260.45	4722518393.06	(904926661.43)	32238221992.08	50524638213.05	53619450765.67
Grand Total Prev Year (Tangible)	80674819862.02	1773251621.02	(407990456.92)	82040081026.12	23946318351.92	4601404034.44	(127092125.91)	28420630260.45	53619450765.67	56728501510.10


 Anil Kumar (Signature)
 Anil Kumar Manager (Commercial)
 Anil Kumar Manager / NTPC LIMITED

Note forming part of Balance Sheet
Note 2 : Property, Plant And Equipment
Business Area :1005

Details of Adjustments of Gross Block and Depreciation/Amortization

Particulars	Gross Block		Depreciation/Amortization	
	Tangible As At: 31.03.2022	Tangible As At: 31.03.2021	Tangible As At: 31.03.2022	Tangible As At: 31.03.2021
Disposal of assets	(352672.50)	(2046638.78)	(352672.50)	(2032443.32)
Retirement of assets	(995236466.75)	(360826985.21)	(926400049.04)	(129619476.73)
Cost adjustments	154890055.40	(61206706.58)	0.00	0.00
Assets capitalised with retrospective effect / Write back of excess capitalisation	0.00	0.00	0.00	0.00
Depreciation on construction equipment capitalised as EDC	0.00	0.00	0.00	0.00
Prior Period Depreciation due to Assets capitalised with retrospective effect / Write back of excess capitalisation	0.00	0.00	0.00	0.00
Special Depreciation (As per New Policy)	0.00	0.00	0.00	0.00
Transfer in /out because of Inter Unit transfers	116773301.50	16089873.65	21826060.11	4559794.14
Others	0.00	0.00	0.00	0.00
TOTAL	(723925782.35)	(407990456.92)	(904926661.43)	(127092125.91)

Note:- Additions during the year includes capital expenditure towards CSR (in Rs.) : 0.00


 Anil Kumar
 Anil General Manager (Commercial)
 एन टी सी लिमिटेड / NTPC LIMITED

Note forming part of Balance Sheet

Note 3: Capital-Work-in-Progress

Business Area: RIHAND SUPER THERMAL POWER STATION

SI No	Asset Class	As At 01.04.2021	Addition	Deduction/ Adjustment	Capitalized	As At 31.03.2022
	1	2	3	4	5	6
1	CAPITAL WORK-IN-PROGRESS					
2	Development of land					
3	Roads, bridges, culverts & helipads		369117.82	(369117.82)		
4	Piling and foundation					
5	Buildings :					
6	Main plant					
7	Others	30484260.95	69392323.59	(6172504.26)	9794375.87	83909704.41
8	Temporary erection					
9	Water supply, drainage and sewerage system	983235.00	174330.49	(174330.49)	983235.00	
10	Hydraulic works, barrages, dams, tunnels and power channel					
11	MGR track and signalling system					
12	Railway siding					
13	Earth dam reservoir					
14	Plant and equipment	2517433025.87	4706070908.49	(53446737.16)	864768104.75	6305289092.45
15	Furniture and fixtures	24645.15	14449.15	(0.30)	39094.00	
16	Vehicles					
17	Office equipment	35588.00			35588.00	
18	EDP/WP machines & satcom equipment					
19	Construction equipments					
20	Electrical installations					
21	Communication equipment					
22	Hospital equipments	256888.29		(0.29)	256888.00	
23	Laboratory and workshop equipments					
24	Assets under 5Km Scheme of the GOI					
25	Capital expenditure on assets not owned by the company					
26	Expenditure towards development of coal mines					
27	Survey,Investigation,Consultancy & Supervision Cha	2987667.50	(2987667.50)			
28	Difference in exchange on foreign currency loans					

Note forming part of Balance Sheet

Note 3: Capital-Work-in-Progress

Business Area: RIHAND SUPER THERMAL POWER STATION

SI No	Asset Class	As At 01.04.2021	Addition	Deduction/ Adjustment	Capitalized	As At 31.03.2022
	1	2	3	4	5	6
29	Expenditure towards diversion of forest land					
30	Pre-commissioning expenses (net)					
31	ExpPendAlloca-oth ex attribut Project					
32	Expenditure During Construction Period (net)*		120562893.48	(658525.44)		119904368.04
33	LESS : Allocated to related works		119904368.04			119904368.04
34	LESS : Provision for Unservicable works					
35	Construction stores (At Cost)					
36	Steel	30232834.59		(27684050.92)		2548783.67
37	Cement	2028131.88		(133175.58)		1894956.30
38	Others	453879656.07	35319846.24	(122905473.69)		366294028.62
39	Sub-total	486140622.54	35319846.24	(150722700.19)		370737768.59
40	LESS : Provision for shortages	7250922.60		(5781192.05)		1469730.55
41	Sub-total	478889699.94	35319846.24	(144941508.14)		369268038.04
42	Total CWIP	3031095010.70	4809011833.72	(205762723.90)	875877285.62	6758466834.90
43						
44						
45	PREVIOUS YEAR TOTAL	823654175.83	2730008295.62	(461315487.17)	463240206.90	3031095010.70

Note:- Additions during the year includes capital expenditure towards CSR (in Rs.) :

0.00

Note forming part of Balance Sheet
Note-4 Non Current Assets- Intangible Assets
Business Area :1005

Asset Class	Opening Gross Block As At 01.04.2021	Additions	Deductions/ Adjustments	Closing Gross Block As At 31.03.2022	Opening Depreciation As At 01.04.2021	Additions	Deductions/ Adjustments	Closing Depreciation As At 31.03.2022	Net Block As At 31.03.2022	Net Block As At 31.03.2021
INTANGIBLE ASSETS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1 Right to Use- Land	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2 -Others	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3 -Software	4773867.26	0.00	0.00	4773867.26	4758604.86	0.00	0.00	4758604.86	15262.40	15262.40
Grand Total (Intangible)	4773867.26	0.00	0.00	4773867.26	4758604.86	0.00	0.00	4758604.86	15262.40	15262.40
Grand Total Prev Year (Intangible)	4773867.26	0.00	0.00	4773867.26	4754287.08	4317.78	0.00	4758604.86	15262.40	19580.18


 अवर सहायक (वित्त) /
 Anil Kumar Manager (Commercial)
 एन टी सी लिमिटेड / NTPC LIMITED

Note forming part of Balance Sheet
Note-4 Non Current Assets- Intangible Assets
Business Area :1005

Details of Adjustments of Gross Block and Depreciation/Amortization				
Particulars	Gross Block		Depreciation/Amortization	
	InTangible As At: 31.03.2022	InTangible As At: 31.03.2021	InTangible As At: 31.03.2022	InTangible As At: 31.03.2021
Disposal of assets	0.00	0.00	0.00	0.00
Retirement of assets	0.00	0.00	0.00	0.00
Cost adjustments	0.00	0.00	0.00	0.00
Assets capitalised with retrospective effect / Write back of excess capitalisation	0.00	0.00	0.00	0.00
Depreciation on construction equipment capitalised as EDC	0.00	0.00	0.00	0.00
Prior Period Depreciation due to Assets capitalised with retrospective effect / Write back of excess capitalisation	0.00	0.00	0.00	0.00
Special Depreciation (As per New Policy)	0.00	0.00	0.00	0.00
Transfer in /out because of Inter Unit transfers	0.00	0.00	0.00	0.00
Others	0.00	0.00	0.00	0.00
TOTAL	0.00	0.00	0.00	0.00

Note:- Additions during the year includes capital expenditure towards CSR (in Rs.) : 0.00


 Anil Kumar (Commercial)
 Anil Kumar / NTPC LIMITED

Note forming part of Balance Sheet

Note 5: Intangible Assets under Development

Business Area: RIHAND SUPER THERMAL POWER STATION

SI No	Asset Class	As At 01.04.2021	Addition	Deduction/ Adjustment	Capitalized	As At 31.03.2022
	1	2	3	4	5	6
1	INTANGIBLE ASSETS UNDER DEVELOPMENT					
2	Software					
3	Right to use Others					
4	Exploration and Evaluation Expenditure - Coal Mini					
5	Exploratory wells-in-progress					
6	Less: Provision for exploratory wells-in-progress					
7	Total					
8	PREVIOUS YEAR TOTAL-I					

Note:- Additions during the year includes capital expenditure towards CSR (in Rs.) :

0.00

RIHAND SUPER THERMAL POWER STATION

NOTE NO. 6 TO THE FS-NCA-INVESTMENTS IN SUBSIDIARIES & JOINT VENTURES

(Amount in ₹)

As at	No. of shares	Face value	31.03.2022	31.03.2021
001	NON CURRENT INVESTMENTS- INVESTMENTS IN SUBSIDIARIES AND JOINT VENTURES		0.00	0.00
012	EQUITY INSTRUMENTS - UNQUOTED-(FULLY PAID UP UNLESS OTHERWISE STATED, AT COST)		0.00	0.00
013	SUBSIDIARY COMPANIES		0.00	0.00
014	PATRATU VIDYUT UTPADAN NIGAM LTD.		0.00	0.00
015	NTPC ELECTRIC SUPPLY COMPANY LTD.		0.00	0.00
016	NTPC VIDYUT VYAPAR NIGAM LTD.		0.00	0.00
017	NABINAGAR POWER GENERATING COMPANY LTD.		0.00	0.00
018	KANTI BIJLEE UTPADAN NIGAM LTD.		0.00	0.00
019	BHARTIYA RAIL BIJLEE COMPANY LTD.		0.00	0.00
020	NTPC MINING LTD (NML)		0.00	0.00
021	THDC INDIA LTD.		0.00	0.00
022	NEEPCO LTD.		0.00	0.00
023	NTPC EDMC Waste Solutions Pvt Ltd		0.00	0.00
024	NTPC Renewables Energy Ltd		0.00	0.00
025	Ratnagiri Gas & Power Pvt. Limited (RGPPL)		0.00	0.00
026			0.00	0.00
027			0.00	0.00
028			0.00	0.00
029			0.00	0.00
030	SUB TOTAL		0.00	0.00
055	JOINT VENTURE COMPANIES		0.00	0.00
056	Utility Powertech Ltd.		0.00	0.00
057	NTPC GE Power Services Pvt.Ltd.		0.00	0.00
058	NTPC-SAIL Power Company Ltd.		0.00	0.00
059	NTPC-Tamil Nadu Energy Company Ltd.		0.00	0.00

RIHAND SUPER THERMAL POWER STATION

NOTE NO. 6 TO THE FS-NCA-INVESTMENTS IN SUBSIDIARIES & JOINT VENTURES

(Amount in ₹)

	As at	No. of shares	Face value	31.03.2022	31.03.2021
060	Ratnagiri Gas & Power Pvt. Limited (RGPPL)			0.00	0.00
061	ARAVALI POWER COMPANY PRIVATE LTD.			0.00	0.00
062				0.00	0.00
063	NTPC BHEL POWER PROJECTS PRIVATE LTD.			0.00	0.00
064	MEJA URJA NIGAM PRIVATE LIMITED			0.00	0.00
065	BF-NTPC ENERGY SYSTEMS LTD.			0.00	0.00
066				0.00	0.00
067	NABINAGAR POWER GENERATING COMPANY LTD.			0.00	0.00
068	TRANSFORMER AND ELECTRICAL KERALA LTD.			0.00	0.00
069	NATIONAL HIGH POWER TEST LABORTORY PRIVATE LTD.			0.00	0.00
070				0.00	0.00
071	CIL NTPC URJA PRIVATE LTD.			0.00	0.00
072	ANUSHAKTI VIDHYUT NIGAM LTD.			0.00	0.00
073	ENERGY EFFICIENCY SERVICES LTD.			0.00	0.00
074				0.00	0.00
075	TRINCOMALEE POWER COMPANY LTD.			0.00	0.00
076	BANGLADESH-INDIA FRIENDSHIP POWER COMPANY (PVT.) LTD.			0.00	0.00
077	HINDUSTAN URVARAK & RASAYAN LIMITED			0.00	0.00
078	KONKAN LNG LTD			0.00	0.00
081	SUB TOTAL			0.00	0.00
109	AGGREGATE AMOUNT OF IMPAIRMENT IN THE VALUE OF INVESTMENTS			0.00	0.00
110	TOTAL (NET OF IMPAIRMENT) OF JV			0.00	0.00
111	Gross Total of Investments			0.00	0.00
134	Total			0.00	0.00
135	Details of Investments			0.00	0.00
136	Aggregate amount of Unquoted Investments			0.00	0.00

RIHAND SUPER THERMAL POWER STATION

NOTE NO. 6 TO THE FS-NCA-INVESTMENTS IN SUBSIDIARIES & JOINT VENTURES

(Amount in ₹)

	As at	No. of shares	Face value	31.03.2022	31.03.2021
141				0.00	0.00
142				0.00	0.00
143				0.00	0.00
144				0.00	0.00
145				0.00	0.00
153	Valuation of Investments as per Note 1.			0.00	0.00
154				0.00	0.00
202				0.00	0.00
233				0.00	0.00

RIHAND SUPER THERMAL POWER STATION

NOTE NO. 7 TO THE FS-NCA-INVESTMENTS

(Amount in ₹)

	As at	No. of shares	Face value	31.03.2022	31.03.2021
001	Non-current financial assets (investments)			0.00	0.00
006	Long Term - Trade			0.00	0.00
007	Equity Instruments (fully paid up-unless otherwise stated)			0.00	0.00
008	Quoted			0.00	0.00
009	JOINT VENTURE COMPANIES			0.00	0.00
010	PTC India Ltd.			0.00	0.00
070	INTERNATIONAL COAL VENTURES PRIVATE LTD.			0.00	0.00
075	BF-NTPC ENERGY SYSTEMS LTD.			0.00	0.00
098				0.00	0.00
110	COOPERATIVE SOCIETIES			0.00	0.00
111	SUB TOTAL			0.00	0.00
112	AGGREGATE AMOUNT OF IMPAIRMENT IN THE VALUE OF INVESTMENTS			0.00	0.00
115	TOTAL			0.00	0.00
120				0.00	0.00
146	NTPC EMPLOYEES CONSUMERS AND THRIFT CO-OPERATIVE SOCIETY LTD. KORBA			0.00	0.00
147	NTPC EMPLOYEES CONSUMERS AND THRIFT COOPERATIVE SOCIETY LTD. RSTPP			0.00	0.00
148	NTPC EMPLOYEES CONSUMERS COOPERATIVE SOCIETY LTD. FARAKKA			0.00	0.00
149	NTPC EMPLOYEES CONSUMERS COOPERATIVE SOCIETY LTD. VINDHYACHAL			0.00	0.00
150	NTPC EMPLOYEES CONSUMERS COOPERATIVE SOCIETY LTD. ANTA			0.00	0.00
151	NTPC EMPLOYEES CONSUMERS COOPERATIVE SOCIETY LTD. KAWAS			0.00	0.00
152	NTPC Employees Consumers Cooperative Society Ltd. Kaniha			0.00	0.00

RIHAND SUPER THERMAL POWER STATION

NOTE NO. 8 TO THE FS-NCA-TRADE RECEIVABLES

(Amount in ₹)

As at	31.03.2022	31.03.2021
001 Non-current financial assets - Trade receivables	0.00	0.00
002 UNSECURED, CONSIDERED GOOD	0.00	0.00
003 CREDIT IMPAIRED	0.00	0.00
004	0.00	0.00
005	0.00	0.00
006 Total	0.00	0.00

RIHAND SUPER THERMAL POWER STATION

NOTE NO. 9 TO THE FS-NCA-LOANS

(Amount in ₹)

As at	31.03.2022	31.03.2021
001 LOANS (NON CURRENT)	0.00	0.00
004 RELATED PARTIES	0.00	0.00
005 SECURED	0.00	0.00
006 UN-SECURED	0.00	0.00
007 WITH SIGNIFICANT INCREASE IN CREDIT RISK	0.00	0.00
008 CREDIT IMPAIRED	0.00	0.00
009	0.00	0.00
010 EMPLOYEES(INCLUDING ACCRUED INTEREST)	0.00	0.00
011 SECURED	87,385,641.00	81,563,013.15
012 UNSECURED	55,663,708.67	53,273,361.38
013 WITH SIGNIFICANT INCREASE IN CREDIT RISK	0.00	0.00
014 CREDIT IMPAIRED	0.00	0.00
015 LESS : EMPLOYEE LOANS DISCOUNTING	0.00	0.00
016 SECURED	21,476,411.67	22,067,890.23
017 UNSECURED	7,068,344.03	7,408,004.99
018 LOAN TO STATE GOVERNMENT IN SETTLEMENT OF DUES FROM CUSTOMERS (UNSECURED)	0.00	0.00
019 OTHERS	0.00	0.00
020 SECURED	0.00	0.00
021 UNSECURED	0.00	0.00
022 WITH SIGNIFICANT INCREASE IN CREDIT RISK	0.00	0.00
023 CREDIT IMPAIRED	0.00	0.00
024 LESS: ALLOWANCE FOR CREDIT IMPAIRED LOANS	0.00	0.00
025 SUB TOTAL	114,504,593.97	105,360,479.31
026	0.00	0.00
027 TOTAL	114,504,593.97	105,360,479.31
028	0.00	0.00
029	0.00	0.00
030 Due from Directors and Officers of the Company	0.00	0.00
031 Directors	0.00	0.00
032 Officers	0.00	0.00
033	0.00	0.00
034 Loans to related parties include:	0.00	0.00
035 i)Key management personel	0.00	0.00
036 ii)Subsidiary companies	0.00	0.00
037 iii)Joint Venture companies	0.00	0.00
038 iv)Others	0.00	0.00
039	0.00	0.00
054 Other loans represent loans given to	0.00	0.00
055 a) APIIC	0.00	0.00
060	0.00	0.00
061 RPD	0.00	0.00
062 i)Key management personel	0.00	0.00

RIHAND SUPER THERMAL POWER STATION

NOTE NO. 9 TO THE FS-NCA-LOANS

(Amount in ₹)

	As at	31.03.2022	31.03.2021
063	ii)Subsidiary companies	0.00	0.00
064	iii)Joint Venture companies	0.00	0.00
065	iv)Others	0.00	0.00
066	Total	0.00	0.00

RIHAND SUPER THERMAL POWER STATION

NOTE NO. 10 TO THE FS-NCA-OTHER FINANCIAL ASSETS

(Amount in ₹)

As at	31.03.2022	31.03.2021
001 Other Financial Assets (non current)	0.00	0.00
002	0.00	0.00
003 Share application money pending allotment in (Subsidiary Companies) :	0.00	0.00
004 NTPC Electric Supply Company Ltd.	0.00	0.00
005 NTPC Vidyut Vyapar Nigam Ltd.	0.00	0.00
006 Nabinagar Power Generating Company Ltd.	0.00	0.00
007 Kanti Bijlee Utpadan Nigam Ltd.	0.00	0.00
008 Bhartiya Rail Bijlee Company Ltd.	0.00	0.00
009 Patratu Vidyut Utpadan Nigam Ltd.	0.00	0.00
010 NTPC Mining Limited	0.00	0.00
011 THDC Ltd.	0.00	0.00
012 NEEPCO Ltd	0.00	0.00
013	0.00	0.00
014 Total	0.00	0.00
015 Share application money pending allotment (Joint Venture)	0.00	0.00
016 Utility Powertech Ltd.	0.00	0.00
017 NTPC GE Power Services Pvt.Ltd.	0.00	0.00
018 NTPC-SAIL Power Company Ltd.	0.00	0.00
019 NTPC-Tamil Nadu Energy Company Ltd.	0.00	0.00
020 Ratnagiri Gas & Power Private Ltd.	0.00	0.00
021 Aravali Power Company Private Ltd.	0.00	0.00
022	0.00	0.00
023 NTPC BHEL Power Projects Private Ltd.	0.00	0.00
024 Meja Urja Nigam Private Limited	0.00	0.00
025 BF-NTPC Energy Systems Ltd.	0.00	0.00
026 Anushakti Vidhyut Nigam Ltd.	0.00	0.00
027 Nabinagar Power Generating Company Ltd.	0.00	0.00
028 Energy Efficiency Services Ltd.	0.00	0.00
029 National High Power Test Labortory Private Ltd.	0.00	0.00
030	0.00	0.00
031 CIL NTPC Urja Private Ltd.	0.00	0.00
032 Trincomalee Power Company Ltd.	0.00	0.00
033 Hindustan Urvarak & Rasayan Limited	0.00	0.00
034 Bangladesh-India Friendship Power Company Private Ltd.	0.00	0.00
035 Sub Total	0.00	0.00
036	0.00	0.00
037 Claims Recoverable	0.00	0.00
038 Finance Lease Recoverable	0.00	0.00
039 Mine Closure Deposit	0.00	0.00
041 Total	0.00	0.00

RIHAND SUPER THERMAL POWER STATION



A Maharatna Company

(Amount in ₹)

As at

31.03.2022

31.03.2021

RIHAND SUPER THERMAL POWER STATION

NOTE NO. 11 TO THE FS-NCA-OTHER NON-CURRENT ASSETS

(Amount in ₹)

As at	31.03.2022	31.03.2021
001 Other Non-current Assets	0.00	0.00
002	0.00	0.00
003 CAPITAL ADVANCES	0.00	0.00
004 SECURED	0.00	0.00
005 Unsecured	0.00	0.00
006 COVERED BY BANK GUARANTEE	194,789,674.00	374,937,145.32
007 OTHERS	53,588,917.11	23,546,752.62
008 CONSIDERED DOUBTFUL	0.00	0.00
009 LESS: ALLOWANCE FOR BAD & DOUBTFUL ADVANCES	0.00	0.00
010 Sub-Total	248,378,591.11	398,483,897.94
011	0.00	0.00
012 Advances other than capital advances	0.00	0.00
013 SECURITY DEPOSITS	87,880.00	1,436,400.00
019 Advances to Related parties	0.00	0.00
022 Advances to Contractors & Suppliers	0.00	0.00
023 SECURED	0.00	0.00
024 UNSECURED	0.00	0.00
025 CONSIDERED DOUBTFUL	0.00	0.00
026 LESS: ALLOWANCE FOR BAD & DOUBTFUL ADVANCES	0.00	0.00
027 Sub Total	87,880.00	1,436,400.00
028 RECEIVABLE FROM MCP ESCROW A/C	0.00	0.00
039 ADVANCE TAX & TAX DEDUCTED AT SOURCE	7,544,241.17	2,447,428.10
040 LESS:- PROVISION FOR CURRENT TAX	0.00	0.00
041	0.00	0.00
042 Sub Total	7,544,241.17	2,447,428.10
043 DEFERRED PAYROLL EXPENSES (SECURED)	16,323,225.74	17,618,156.45
044 DEFERRED PAYROLL EXPENSES (UNSECURED)	4,860,126.54	5,186,725.53
045 Sub Total	21,183,352.28	22,804,881.98
046 DEFERRED FOREIGN CURRENCY FLUCTUATION ASSET	744,410,000.00	1,799,476,000.00
048 Total	1,021,604,064.56	2,224,648,608.02
049	0.00	0.00
050	0.00	0.00
061 Advances include amount due from the following Private Companies in which Directors of the Company are also Directors in such Companies	0.00	0.00
063	0.00	0.00
064 NTPC GE Power Services Pvt.Ltd.	0.00	0.00
065	0.00	0.00
066 Ratnagiri Gas & Power Private Ltd.	0.00	0.00
067 Aravali Power Company Private Ltd.	0.00	0.00
068 NTPC-SCCL Global Ventures Private Ltd.	0.00	0.00
069 NTPC BHEL Power Projects Private Ltd.	0.00	0.00
070 Meja Urja Nigam Private Limited	0.00	0.00

RIHAND SUPER THERMAL POWER STATION

NOTE NO. 11 TO THE FS-NCA-OTHER NON-CURRENT ASSETS

(Amount in ₹)

As at	31.03.2022	31.03.2021
071 Nabinagar Power Generating Company Ltd.	0.00	0.00
072 National High Power Test Labortory Private Ltd.	0.00	0.00
074 CIL NTPC Urja Private Ltd.	0.00	0.00
076	0.00	0.00
077 Related Party (Adv)	0.00	0.00
078 Key Management personel	0.00	0.00
079 Subsidiary companies	0.00	0.00
080 Joint Venture companies	0.00	0.00
081 Contractors	0.00	0.00
082 Others	0.00	0.00
084	0.00	0.00
085 Total	0.00	0.00

RIHAND SUPER THERMAL POWER STATION

NOTE NO. 12 TO THE FS-CA-INVENTORIES

(Amount in ₹)

As at	31.03.2022	31.03.2021
001 INVENTORIES	0.00	0.00
002	0.00	0.00
003 Coal	2,703,905,576.35	1,293,481,712.46
004 Fuel oil	331,140,312.31	221,275,469.56
005 Naphtha	0.00	0.00
006 Stores and spares	2,663,630,801.56	2,434,045,104.96
007 Chemicals & consumables	65,606,636.51	84,873,916.88
008 Loose tools	1,308,727.02	1,320,987.78
009 Steel Scrap	6,531,859.28	10,032,350.58
010 Others	670,976,891.13	578,527,487.01
011 Sub Total	6,443,100,804.16	4,623,557,029.23
012 Less: Provision for shortages	1,655,918.65	1,116,991.43
013 Less: Provision for obsolete/ unservicable/dimuntion in value of surplus inventory	33,701,668.96	22,832,831.53
014	0.00	0.00
015 Total	6,407,743,216.55	4,599,607,206.27
016 Inventories include material in transit	0.00	0.00
017 Coal	0.00	0.00
018 Fuel oil	0.00	0.00
019 Naphtha	0.00	0.00
020 Stores and spares	7,409,492.60	14,287,641.72
021 Chemicals & consumables	8,269,466.13	0.00
022 Loose tools	0.00	0.00
023 Others	12,040,077.62	0.00
024	0.00	0.00
025 Inventory items other than steel scrap have been valued considering Note 1.	0.00	0.00

RIHAND SUPER THERMAL POWER STATION

NOTE NO. 13 TO THE FS-CA-INVESTMENTS

(Amount in ₹)

	As at	No. of shares	Face value	31.03.2022	31.03.2021
001	CURRENT INVESTMENTS			0.00	0.00
002	(Valuation as per Note 1)			0.00	0.00
003				0.00	0.00
033	Investment in Mutual Funds (Details as under)			0.00	0.00
034	SBI-Magnum Insta Cash Fund-DDR			0.00	0.00
035	SBI Premier Liquid Fund Super-IP-DDR			0.00	0.00
036	SBI-SHF Ultra Short Term Fund-IP-DDR			0.00	0.00
037	UTI Money Market- IP-Direct-Growth			0.00	0.00
038	IDBI-Liquid plan- Direct-Growth			0.00	0.00
039	Canara Robeco Liquid Fund Super-IP-DDR			0.00	0.00
040	Canara Robeco Treasury Advantage Fund Super-IP-DDR			0.00	0.00
041	IDBI Liquid Fund-DDR			0.00	0.00
042	SBI Premier Liquid fund-Direct DDR (Ash Fund)			0.00	0.00
043	UTI Liquid CashPlan - IP - DDR (Ash Funds)			0.00	0.00
044	IDBI Liquid Fund - DDR - (Ash Funds)			0.00	0.00
045	Baroda Liquid Fund - Direct - Growth			0.00	0.00
046	Sub Total			0.00	0.00
047				0.00	0.00
052	Unquoted Investments			0.00	0.00
054				0.00	0.00
066	TOTAL			0.00	0.00
067				0.00	0.00

RIHAND SUPER THERMAL POWER STATION
NOTE NO. 14 TO THE FS-CA-TRADE RECEIVABLES

(Amount in ₹)

As at	31.03.2022	31.03.2021
001 TRADE RECEIVABLES (current)*	0.00	0.00
002	0.00	0.00
003 Secured, Considered Good	0.00	0.00
004 Unsecured , considered good	1,733,397.09	15,464,355.69
005 Credit impaired	0.00	0.00
006 Unbilled Revenue	0.00	0.00
007 Sub-Total	1,733,397.09	15,464,355.69
008 Total	1,733,397.09	15,464,355.69
009 Less: Allowance for credit impaired receivables	0.00	0.00
010 Total	1,733,397.09	15,464,355.69
012 Less: Discom Clearing	0.00	0.00
013 Grand Total	1,733,397.09	15,464,355.69
014 * After adjustment for Unbilled Revenue	0.00	0.00
015 Long-term trade receivables	0.00	0.00
016 TCS Clearing	0.00	0.00
017 Discom Clearing	0.00	0.00
228 Trade Receivable	0.00	0.00
230 Not due	0.00	0.00
231 Due	0.00	0.00
232 (i) Undisputed Trade receivables # considered good	1,733,397.09	15,464,355.69
233 (ii) Undisputed Trade Receivables # which have significant increase in credit risk	0.00	0.00
234 (iii) Undisputed Trade Receivables # credit impaired	0.00	0.00
235 (iv) Disputed Trade Receivables#considered good	0.00	0.00
236 (v) Disputed Trade Receivables # which have significant increase in credit risk	0.00	0.00
237 (vi) Disputed Trade Receivables # credit impaired	0.00	0.00
238 Unbilled	0.00	0.00
239 Total	1,733,397.09	15,464,355.69
240	0.00	0.00
241 (i) Undisputed Trade receivables # considered good	0.00	0.00
242 Less than 6 months	1,733,397.09	15,464,355.69
243 6 months -1 year	0.00	0.00
244 1-2 years	0.00	0.00
245 2-3 years	0.00	0.00
246 More than 3 years	0.00	0.00
247 Sub Total (I)	1,733,397.09	15,464,355.69
248 (ii) Undisputed Trade Receivables # which have significant increase in credit risk	0.00	0.00
249 Less than 6 months	0.00	0.00
250 6 months -1 year	0.00	0.00
251 1-2 years	0.00	0.00
252 2-3 years	0.00	0.00
253 More than 3 years	0.00	0.00

RIHAND SUPER THERMAL POWER STATION
NOTE NO. 14 TO THE FS-CA-TRADE RECEIVABLES

(Amount in ₹)

As at	31.03.2022	31.03.2021
254 Sub Total (II)	0.00	0.00
255 (iv) Disputed Trade Receivables#considered good	0.00	0.00
256 Less than 6 months	0.00	0.00
257 6 months -1 year	0.00	0.00
258 1-2 years	0.00	0.00
259 2-3 years	0.00	0.00
260 More than 3 years	0.00	0.00
261 Sub Total (IV)	0.00	0.00
262 (v) Disputed Trade Receivables # which have significant increase in credit risk	0.00	0.00
263 Less than 6 months	0.00	0.00
264 6 months -1 year	0.00	0.00
265 1-2 years	0.00	0.00
266 2-3 years	0.00	0.00
267 More than 3 years	0.00	0.00
268 Sub Total (V)	0.00	0.00
269 (vi) Disputed Trade Receivables # credit impaired	0.00	0.00
270 Less than 6 months	0.00	0.00
271 6 months -1 year	0.00	0.00
272 1-2 years	0.00	0.00
273 2-3 years	0.00	0.00
274 More than 3 years	0.00	0.00
275 Sub Total (VI)	0.00	0.00
276 Total	0.00	0.00

RIHAND SUPER THERMAL POWER STATION

NOTE NO. 15 TO THE FS-CA-CASH AND CASH EQUIVALENTS

(Amount in ₹)

As at	31.03.2022	31.03.2021
001 CASH & BANK BALANCES	0.00	0.00
002 Cash & Cash Equivalents	0.00	0.00
003 Balances with Banks	0.00	240,123.40
004 Cheques & Drafts on hand	0.00	150,000.00
005 Cash on hand	0.00	0.00
006 Others (stamps in hand)	0.00	0.00
007 Bank deposits with original maturity upto three months	0.00	0.00
008 Balances with RBI	0.00	0.00
009	0.00	0.00
010 Total	0.00	390,123.40

RIHAND SUPER THERMAL POWER STATION

NOTE NO. 16 TO THE FS-CA-BANK BALANCES OTHER THAN CASH AND CASH EQUIVALENTS (Amount in ₹)

As at	31.03.2022	31.03.2021
001 Other Bank Balances	0.00	0.00
002 Deposits with original maturity of more than three months but not more than twelve months	0.00	0.00
003 Earmarked balances with banks*	0.00	0.00
004 SubTotal	0.00	0.00
005 Interest accrued on deposits	0.00	0.00
006	0.00	0.00
007 Total	0.00	0.00
008	0.00	0.00
009 Earmarked balances with banks consist of :	0.00	0.00
010 Unpaid dividend account balance	0.00	0.00
011 Towards public deposit repayment reserve	0.00	0.00
012 Towards redemption of bonds due for repayment within one year	0.00	0.00
013 Security with Government/other authorities	0.00	0.00
014 Unpaid refund/interest account balance - Tax free bonds/ Bonus Debentures	0.00	0.00
015 Earmarked for RGGVY/DDUGJY/SAUBHAGYA Fund	0.00	0.00
016 Earmarked for Flyash Utilisation Reserve Fund	0.00	0.00
017 Deposits with original maturity upto three months as per court orders	0.00	0.00
018 Payment Security Scheme of MNRE NSM (NTPC)	0.00	0.00
019 Payment Security Scheme of MNRE NSM (NVVN)	0.00	0.00
020 Enforcement Directorate of Solar Plant(NVVN)	0.00	0.00
021 Bank guarantee Fund of MNRE (NVVN)	0.00	0.00
022 Others	0.00	0.00
023 Margin Money	0.00	0.00
024	0.00	0.00
025	0.00	0.00
026 Sub-total	0.00	0.00
030 Total	0.00	0.00
031	0.00	0.00
032 Bank deposits with original maturity of less than three months- other than earmarked	0.00	0.00
033 Bank deposits with original maturity of more than three months but not more than twelve months- other than earmarked	0.00	0.00
034 Earmarked bank balances (current account)	0.00	0.00

RIHAND SUPER THERMAL POWER STATION

NOTE NO. 17 TO THE FS-CA-LOANS

(Amount in ₹)

As at	31.03.2022	31.03.2021
001 Current financial assets - Loans	0.00	0.00
002 Loans (current)-including interest accrued	0.00	0.00
004 Related Parties	0.00	0.00
005 Secured	0.00	0.00
006 Un-Secured	0.00	0.00
007 With significant increase in Credit Risk	0.00	0.00
008 Credit impaired	0.00	0.00
009	0.00	0.00
010 Employees	0.00	0.00
011 Secured	19,369,168.43	18,592,501.77
012 Unsecured	56,443,419.22	50,222,125.18
013 With significant increase in Credit Risk	0.00	0.00
014 Credit impaired	0.00	0.00
015 Less : Employee Loans Discounting	0.00	0.00
016 Loan to State Government in settlement of dues from customers (Unsecured)	0.00	0.00
017	0.00	0.00
018 Others	0.00	0.00
019 Secured	0.00	0.00
020 Unsecured	0.00	0.00
021 With significant increase in Credit Risk	0.00	0.00
022 Credit impaired	0.00	0.00
023	0.00	0.00
024 Less: Allowance for credit impaired loans	0.00	0.00
025 Total (Loans)	75,812,587.65	68,814,626.95
026	0.00	0.00
027 Due from Directors and Officers of the Company	0.00	0.00
028 Directors	0.00	0.00
029 Officers	0.00	0.00
030	0.00	0.00
031 Loans to related parties include:	0.00	0.00
032 i)Key management personel	0.00	0.00
033 ii)Subsidiary companies	0.00	0.00
034 KBUNL	0.00	0.00
035 RGPPL	0.00	0.00
036 NVVN	0.00	0.00
037 iii)Joint Venture companies	0.00	0.00
038 iv)others	0.00	0.00
039	0.00	0.00
059 RPD	0.00	0.00
060 i)Key management personel	0.00	0.00
061 ii)Subsidiary companies	0.00	0.00
062 iii)Joint Venture companies	0.00	0.00
063 iv)Others	0.00	0.00
064	0.00	0.00
065 Total	0.00	0.00

RIHAND SUPER THERMAL POWER STATION

NOTE NO. 18 TO THE FS-CA-OTHER FINANCIAL ASSETS

(Amount in ₹)

As at	31.03.2022	31.03.2021
001 Other Financial Assets (current)	0.00	0.00
002	0.00	0.00
003 ADVANCES	0.00	0.00
004	0.00	0.00
005 Related Parties	0.00	0.00
006 Secured	0.00	0.00
007 Un-Secured	75,281,568.77	75,433,495.80
008 Considered doubtful	0.00	0.00
009	0.00	0.00
010 Employees	0.00	0.00
012 Unsecured	4,837,250.36	2,693,948.65
013 Considered Doubtful	0.00	0.00
014	0.00	0.00
020 Others	0.00	0.00
021 Secured	0.00	0.00
022 Unsecured	0.00	0.00
023 Considered Doubtful	0.00	0.00
024	0.00	0.00
025 Less: Allowance for bad & doubtful advances	0.00	0.00
026	0.00	0.00
033 Total (Advances)	80,118,819.13	78,127,444.45
044	0.00	0.00
045 Claims Recoverable	0.00	0.00
046 Secured	0.00	0.00
047 Unsecured, considered good	2,233,059.02	3,413,667.00
048 Considered Doubtful	0.00	0.00
049 Less:- Allowance for doubtful claims	0.00	0.00
050 Others-Claims Recoverable	0.00	0.00
051	0.00	0.00
052 Contract Asset- Revenue	2,841,100.83	2,841,100.83
053 Hedging cost recoverable from beneficiaries	0.00	0.00
054 Derivative MTM Asset	0.00	0.00
055 Finance Lease Receivable	0.00	0.00
056 Mine Closure Deposit	0.00	0.00
058 Other Accrued Income	0.00	0.00
059 Secured, Considered Good	0.00	0.00
060 Unsecured , considered good	64,097,982.95	84,093,847.15
061 Credit impaired	0.00	0.00
062 Sub-Total	64,097,982.95	84,093,847.15
063 Less: Allowance for credit impaired receivables	0.00	0.00
064 Total	64,097,982.95	84,093,847.15
065	0.00	0.00
066 Others*	0.00	0.00
067 Total	149,290,961.93	168,476,059.43
068 * Other include amount recoverable from contractors and other parties towards hire charges, rent/electricity etc.	0.00	0.00

RIHAND SUPER THERMAL POWER STATION

NOTE NO. 18 TO THE FS-CA-OTHER FINANCIAL ASSETS

(Amount in ₹)

As at	31.03.2022	31.03.2021
069 Advances to related parties include:	0.00	0.00
070 i)Key management personel	0.00	0.00
071 ii)Subsidiary companies	0.00	0.00
072 iii)Joint Venture companies	0.00	0.00
073 iv)Contractors	0.00	0.00
074 v)Others	0.00	0.00
075	0.00	0.00
076 Advances include amount due from the following Private Companies in which Directors of the Company are also Directors in such Companies	0.00	0.00
077	0.00	0.00
078 NTPC GE Power Services Pvt.Ltd.	0.00	0.00
079 Ratnagiri Gas & Power Private Ltd.	0.00	0.00
080 Aravali Power Company Private Ltd.	0.00	0.00
081 NTPC-SCCL Global Ventures Private Ltd.	0.00	0.00
082 NTPC BHEL Power Projects Private Ltd.	0.00	0.00
083 Meja Urja Nigam Private Limited	0.00	0.00
084 Nabinagar Power Generating Company Ltd.	0.00	0.00
085 National High Power Test Labortory Private Ltd.	0.00	0.00
086 International Coal Ventures Private Ltd.	0.00	0.00
087 CIL NTPC Urja Private Ltd.	0.00	0.00
089 Bangladesh-India Friendship Power Co. Pvt.Ltd	0.00	0.00
090 TCS Clearing	0.00	0.00
091 Related Party (Adv)- Employee	0.00	0.00
092 Related Party (Adv)- Subsidiaries	0.00	0.00
093 Related Party (Adv)- Joint Ventures	0.00	0.00
094 Related Party (Adv)- Contractors	0.00	0.00
095 Related Party (Adv)- Others	75,281,568.77	75,433,495.80
096	0.00	0.00
097	0.00	0.00
098	0.00	0.00
099	0.00	0.00
100 Total	75,281,568.77	75,433,495.80

RIHAND SUPER THERMAL POWER STATION

NOTE NO. 19 TO THE FS-CA-OTHER CURRENT ASSETS

(Amount in ₹)

As at	31.03.2022	31.03.2021
001 OTHER CURRENT ASSETS	0.00	0.00
002 Security Deposits (Unsecured)	0.00	0.00
003 Deposit with Customs, port trust & others*	2,249,156.00	900,636.00
004 ADVANCES	0.00	0.00
005	0.00	0.00
006 Related Parties	0.00	0.00
007 Secured	0.00	0.00
008 Un-Secured	1,407,513.00	1,407,513.00
009 Considered doubtful	0.00	0.00
010	0.00	0.00
011 Employees(including imprest)	0.00	0.00
012 Secured	0.00	0.00
013 Unsecured	355,986.00	310,414.00
014 Considered Doubtful	0.00	0.00
015	0.00	0.00
016 Contractors & Suppliers	0.00	0.00
017 Secured	0.00	0.00
018 Unsecured	136,271,338.36	203,102,280.46
019 Considered Doubtful	0.00	0.00
020	0.00	0.00
021 Others**	0.00	0.00
022 Secured	0.00	0.00
023 Unsecured	18,584,624.00	24,626,717.00
024 Considered Doubtful	0.00	0.00
025 Less: Allowance for bad & doubtful advances	0.00	0.00
026 Receivable from MCP Escrow A/c	0.00	0.00
027 Deferred Payroll Expenses (Secured)	2,129,056.99	2,319,227.24
028 Deferred Payroll Expenses (Unsecured)	3,686,929.13	3,778,654.23
029 Sub-total	5,815,986.12	6,097,881.47
030 Interest accrued on :	0.00	0.00
031 Advances to contractors	0.00	0.00
032	0.00	0.00
033 Claims Recoverable	0.00	0.00
034 Secured	0.00	0.00
035 Unsecured, considered good	286,458,564.02	227,947,046.81
036 Considered Doubtful	26,600,000.00	26,600,000.00
037 Less:- Allowance for doubtful claims	26,600,000.00	26,600,000.00
038	0.00	0.00
039 Deferred premium on forward exchange contract/ Option Assets	0.00	0.00
041 Assets Held for Disposal	42,084.39	42,084.39
042 Others	3,824,265.73	5,071,018.00
043	0.00	0.00
044 Total (Other Current Assets)	455,009,517.62	469,505,591.13
045 **Include Prepaid Expenses	17,926,405.00	24,275,748.00
046 *Includes sales tax/Entry tax/VAT deposited under protest with Sales Tax Authorities	812,756.00	812,756.00

RIHAND SUPER THERMAL POWER STATION

NOTE NO. 19 TO THE FS-CA-OTHER CURRENT ASSETS

(Amount in ₹)

As at	31.03.2022	31.03.2021
047 *Includes deposited with courts	0.00	0.00
048 *Includes deposited with LIC for annuity payments	0.00	0.00
049 * Includes deposits with WRD / against BG in r/o finance lease	0.00	0.00
050 Other include amount recoverable from contractors and other parties towards hire charges, rent/electricity etc.	0.00	0.00
052 Advances to related parties include:	0.00	0.00
053 i)Key management personel	0.00	0.00
054 ii)Subsidiary companies	0.00	0.00
055 iii)Joint Venture companies	0.00	0.00
056 Contractors	0.00	0.00
057 Others	0.00	0.00
058	0.00	0.00
059 Advances include amount due from the following Private Companies in which Directors of the Company are also Directors in such Companies	0.00	0.00
060	0.00	0.00
061	0.00	0.00
062 Related Party (Adv)- Employee	0.00	0.00
063 Related Party (Adv)- Subsidiaries	0.00	0.00
064 Related Party (Adv)- Joint Venture	1,407,513.00	1,407,513.00
065	0.00	0.00
066	0.00	0.00
067 Total	1,407,513.00	1,407,513.00
068	0.00	0.00

RIHAND SUPER THERMAL POWER STATION

NOTE NO. 20 TO THE FS--REGULATORY DEFERRAL ACCOUNT DEBIT BALANCES

(Amount in ₹)

As at		31.03.2022	31.03.2021
001	On account of Exchange Differences	-138,738,090.16	-23,349,137.66
002	On account of employee benefit exp	254,610,387.33	381,915,581.00
003	Regulatory deferred account - deferred	0.00	0.00
004	Deferred asset for ash transportation	1,035,424,777.02	312,520,012.83
005	Deferred asset for Arbitration Award	0.00	0.00
007	Total	1,151,297,074.19	671,086,456.17

RIHAND SUPER THERMAL POWER STATION

NOTE NO. 21 TO THE FS-EQUITY-EQUITY SHARE CAPITAL

(Amount in ₹)

As at	31.03.2022	31.03.2021
001 SHARE CAPITAL	0.00	0.00
002 Equity Share Capital	0.00	0.00
003 Authorised	0.00	0.00
004 10,000,000,000 equity shares of Rs.10/- each (Previous year 10,000,000,000 eq shares of Rs.10/- each)	0.00	0.00
005 Issued,Subscribed and fully Paid-up	0.00	0.00
006 9,69,66,66,134 equity shares of Rs.10/- (Pv. Year 9,894,557,280 equity shares of Rs.10/- each)	0.00	0.00
007	0.00	0.00
008 Total	0.00	0.00
009 During FY 2018-19, the company has issued 1,649,092,880 equity shares of Rs.10/- each as fully paid bonus shares	0.00	0.00
010 The holders of the equity shares are entitled to receive dividends as declared from time to time, and are entitled to one vote per share at meetings of the company.	0.00	0.00
011 Details of shareholders holding more than 5% shares in the company	0.00	0.00
012 - President of India	0.00	0.00
013 No. of Shares	0.00	0.00
014 % of holding	0.00	0.00
015 - Life Insurance Corporation of India/ICICI Prudential Mutual Fund	0.00	0.00
016 No. of Shares	0.00	0.00
017 % of holding	0.00	0.00

RIHAND SUPER THERMAL POWER STATION

NOTE NO. 22 TO THE FS-EQUITY-OTHER EQUITY

(Amount in ₹)

As at	31.03.2022	31.03.2021
001 RESERVE AND SURPLUS	0.00	0.00
002	0.00	0.00
003 Capital Reserve	0.00	0.00
004 As per last financial statements	0.00	0.00
006 Add : Grants received during the year	0.00	0.00
007 Add: Transfer from Surplus	0.00	0.00
008 Less: Write back during the year/period	0.00	0.00
009 Less: Adjustments during the year/period	0.00	0.00
010 SUB-TOTAL	0.00	0.00
011	0.00	0.00
017	0.00	0.00
018 SECURITIES PREMIUM ACCOUNT	0.00	0.00
019 AS PER LAST FINANCIAL STATEMENTS	0.00	0.00
020 ADD: ADDITIONS DURING THE YEAR/PERIOD	0.00	0.00
021 LESS: ADJUSTMENTS DURING THE YEAR/PERIOD	0.00	0.00
022 SUB-TOTAL	0.00	0.00
023 BONDS REDEMPTION RESERVE	0.00	0.00
024 AS PER LAST FINANCIAL STATEMENTS	0.00	0.00
025 ADD: TRANSFER FROM SURPLUS	0.00	0.00
026 LESS: TRANSFER TO SURPLUS ON REDEMPTION	0.00	0.00
027 LESS: ADJUSTMENTS DURING THE YEAR/ PERIOD	0.00	0.00
028 SUB-TOTAL	0.00	0.00
029 CAPITAL REDEMPTION RESERVE	0.00	0.00
030 As per last financial statements	0.00	0.00
031 Add: Transfer from Surplus	0.00	0.00
032 Less: Transfer to surplus on redemption	0.00	0.00
033 Less: Adjustments during the year/ period	0.00	0.00
034 Sub-Total	0.00	0.00
035 Share Application money pending Allotment	0.00	0.00
036 As per last financial statements	0.00	0.00
037 Add: Addition during the year	0.00	0.00
038 Less: Utilised for allotment during the year	0.00	0.00
039 Less: Adjustments during the year/ period	0.00	0.00
040 SUB-TOTAL	0.00	0.00
046 FLY-ASH UTILISATION RESERVE FUND	0.00	0.00
047 AS PER LAST FINANCIAL STATEMENTS	0.00	8,220,860.44
048 TRANSFERRED TO CC	0.00	0.00
049 ADD:TRANSFER FROM REVENUE FROM OPERATIONS	0.00	15,712,224.90
050 ADD:TRANSFER FROM OTHER INCOME	0.00	0.00
051 LESS: UTILISED DURING THE YEAR	0.00	0.00
052 TANGIBLE ASSETS	0.00	0.00
053 EMPLOYEE BENEFIT EXPENSES	0.00	0.00
054 GENERATION,ADMN. AND OTHER EXPENSES	0.00	23,933,085.34

RIHAND SUPER THERMAL POWER STATION

NOTE NO. 22 TO THE FS-EQUITY-OTHER EQUITY

(Amount in ₹)

As at	31.03.2022	31.03.2021
055 TAX EXPENSES	0.00	0.00
056 SUB-TOTAL	0.00	0.00
057 Self Insurance Reserve	0.00	0.00
058 As per last financial statements	0.00	0.00
059 Add: Addition during the year	0.00	0.00
060 Less: Utilised for allotment during the year	0.00	0.00
061 Less: Adjustments during the year/ period	0.00	0.00
062 SUB-TOTAL	0.00	0.00
063 SPECIAL ALLOWANCE RESERVE FUND	0.00	0.00
064 AS PER LAST FINANCIAL STATEMENTS	0.00	0.00
065 ADD: ADDITION DURING THE YEAR	0.00	0.00
066 LESS: UTILISED FOR ALLOTMENT DURING THE YEAR	0.00	0.00
067 LESS: ADJUSTMENTS DURING THE YEAR/ PERIOD	0.00	0.00
068 SUB-TOTAL	0.00	0.00
069 CORPORATE SOCIAL RESPONSIBILITY (CSR) RESERVE	0.00	0.00
070 AS PER LAST FINANCIAL STATEMENTS	0.00	0.00
071 ADD : TRANSFER FROM SURPLUS	0.00	0.00
072 LESS:-WRITE BACK DURING THE YEAR	0.00	0.00
073 SUB-TOTAL	0.00	0.00
074 GENERAL RESERVE	0.00	0.00
075 AS PER LAST FINANCIAL STATEMENTS	0.00	0.00
076 ADD: TRANSFER FROM SURPLUS	0.00	0.00
077 LESS: TRANSFER TO SURPLUS	0.00	0.00
078 LESS: WRITE BACK DURING THE YEAR /PERIOD	0.00	0.00
079 LESS: ADJUSTMENTS DURING THE YEAR /PERIOD	0.00	0.00
080 SUB-TOTAL	0.00	0.00
081	0.00	0.00
082 RETAINED EARNINGS	0.00	0.00
083 AS PER LAST FINANCIAL STATEMENTS	166,604,865,582.08	156,537,113,839.05
084 ADD(LESS):-CHANGES IN ACCOUNTING POLICY / PRIOR PERIOD ERRORS	0.00	0.00
085 ADD(LESS):-PROFIT (LOSS) AFTER TAX FOR THE YEAR FROM STATEMENT OF PROFIT & LOSS	11,540,965,874.06	10,067,751,743.03
087 ADD: WRITE BACK FROM BOND REDEMPTION RESERVE	0.00	0.00
088 ADD: WRITE BACK FROM CAPITAL RESERVE	0.00	0.00
089 ADD: WRITE BACK FROM FOREIGN PROJECT RESERVE	0.00	0.00
090 ADD: WRITE BACK FROM CSR RESERVE	0.00	0.00
091 ADD: WRITE BACK FROM GENERAL RESERVE	0.00	0.00
093 LESS: TRANSFER TO BONDS REDEMPTION RESERVE	0.00	0.00

RIHAND SUPER THERMAL POWER STATION

NOTE NO. 22 TO THE FS-EQUITY-OTHER EQUITY

(Amount in ₹)

As at	31.03.2022	31.03.2021
094 LESS: TRANSFER TO SPECIAL ALLOWANCE RESERVE FUND	0.00	0.00
095 LESS: TRANSFER TO FOREIGN PROJECT RESERVE	0.00	0.00
096 LESS: TRANSFER TO CAPITAL RESERVE	0.00	0.00
097 LESS: TRANSFER TO CSR RESERVE	0.00	0.00
098 LESS: TRANSFER TO GENERAL RESERVE	0.00	0.00
099 LESS: INTERIM DIVIDEND PAID	0.00	0.00
100 LESS: TAX ON INTERIM DIVIDEND PAID	0.00	0.00
101 LESS: FINAL DIVIDEND PAID	0.00	0.00
102 LESS: TAX ON FINAL DIVIDEND PAID	0.00	0.00
103 LESS: ISSUE OF BONUS DEBENTURE	0.00	0.00
104 LESS: TAX ON ISSUE OF BONUS DEBENTURE	0.00	0.00
105 SUB-TOTAL	178,145,831,456.14	166,604,865,582.08
110	0.00	0.00
111 REMEASUREMENT OF DEFINED BENEFIT PLANS	0.00	0.00
112 AS PER LAST FINANCIAL STATEMENTS	-196,870,608.91	-172,809,279.53
113 ADD/(LESS):- ACTUARIAL GAINS/LOSS THROUGH OCI	-9,725,634.75	-24,061,329.38
114 SUB-TOTAL	-206,596,243.66	-196,870,608.91
115	0.00	0.00
116 FVTOCI Reserve	0.00	0.00
117 AS PER LAST FINANCIAL STATEMENTS	0.00	0.00
118 ADD/(LESS):- NET GAIN/LOSS OF EQUITY INSTRUMENTS THROUGH OCI	0.00	0.00
119 Sub-Total	0.00	0.00
120	0.00	0.00
121 Total Other equity	177,939,235,212.48	166,407,994,973.17
122	0.00	0.00
123	0.00	0.00
124	0.00	0.00
125	0.00	0.00
126	0.00	0.00
127	0.00	0.00
128	0.00	0.00

RIHAND SUPER THERMAL POWER STATION



A Maharatna Company

(Amount in ₹)

As at

31.03.2022

31.03.2021

RIHAND SUPER THERMAL POWER STATION
NOTE NO. 23 TO THE FS-NCL-BORROWINGS

(Amount in ₹)

As at	31.03.2022	31.03.2021
001 LONG TERM BORROWINGS	0.00	0.00
002 Bonds	0.00	0.00
003 Secured	0.00	0.00
004 7.37 % Tax free secured non-cumulative non-convertible redeemable bonds-2015 of Rs. 1,000/- each redeemable at par in full on 5th October 2035 (Fifty Sixth Issue - Public Issue - Series 3A).	0.00	0.00
005 7.62 % Tax free secured non-cumulative non-convertible redeemable bonds-2015 of Rs. 1,000/- each redeemable at par in full on 5th October 2035 (Fifty Sixth Issue - Public Issue - Series 3 B).	0.00	0.00
006 8.61% Tax free secured non-cumulative non-convertible redeemable bonds of ₹ 10,00,000/- each redeemable at par in full on 4th March 2034 (Fifty First Issue C - Private Placement)	0.00	0.00
007 8.66% Tax free secured non-cumulative non-convertible redeemable bonds - 2013 of ₹ 1000/- each redeemable at par in full on 16th December 2033 (Fiftieth Issue - Public Issue - Series 3A)	0.00	0.00
008 8.91% Tax free secured non-cumulative non-convertible redeemable bonds - 2013 of ₹ 1000/- each redeemable at par in full on 16th December 2033 (Fiftieth Issue - Public Issue - Series 3B)	0.00	0.00
009 7.37% Secured non-cumulative non-convertible redeemable taxable bonds of Rs. 10,00,000/- each redeemable at par in full on 14th December 2031 (Sixty Sixth Issue - Private Placement)	0.00	0.00
010 7.49% Secured non-cumulative non-convertible redeemable taxable bonds of Rs. 10,00,000/- each redeemable at par in full on 7th November 2031 (Sixty Fourth Issue - Private Placement)	0.00	0.00
011 7.28 % Tax free secured non-cumulative non-convertible redeemable bonds-2015 of Rs. 1,000/- each redeemable at par in full on 5th October 2030 (Fifty Sixth Issue - Public Issue - Series	0.00	0.00

RIHAND SUPER THERMAL POWER STATION
NOTE NO. 23 TO THE FS-NCL-BORROWINGS

(Amount in ₹)

As at	31.03.2022	31.03.2021
2A)		
012 7.53 % Tax free secured non-cumulative non-convertible redeemable bonds-2015 of Rs. 1,000/- each redeemable at par in full on 5th October 2030 (Fifty Sixth Issue - Public Issue - Series 2 B).	0.00	0.00
013 7.32% Secured non-cumulative non-convertible redeemable taxable bonds of Rs 10,00,000/- each redeemable at par in full on 17 July 2029 (Sixty Ninth Issue - Private Placement)	0.00	0.00
014 8.63% Tax free secured non-cumulative non-convertible redeemable bonds of ₹ 10,00,000/- each redeemable at par in full on 4th March 2029 (Fifty First Issue B - Private Placement)	0.00	0.00
015 8.30% Secured non-cumulative non-convertible redeemable taxable bonds of Rs 10,00,000/- each redeemable at par in full on 15 January 2029 (Sixty Seventh Issue - Private Placement)	0.00	0.00
016 8.48% Tax free secured non-cumulative non-convertible redeemable bonds - 2013 of ₹ 1000/- each redeemable at par in full on 16th December 2028 (Fiftieth Issue - Public Issue - Series 2A)	0.00	0.00
017 8.73% Tax free secured non-cumulative non-convertible redeemable bonds - 2013 of ₹ 1000/- each redeemable at par in full on 16th December 2028 (Fiftieth Issue - Public Issue - Series 2B)	0.00	0.00
018 7.47% Secured non-cumulative non-convertible redeemable taxable bonds of Rs. 10,00,000/- each redeemable at par in full on 16th September 2026 (Sixty Third Issue - Private Placement)	0.00	0.00
019 7.58% Secured non-cumulative non-convertible redeemable taxable bonds of Rs. 10,00,000/- each redeemable at par in	0.00	0.00

RIHAND SUPER THERMAL POWER STATION
NOTE NO. 23 TO THE FS-NCL-BORROWINGS

(Amount in ₹)

As at				31.03.2022	31.03.2021
full on 23rd August 2026 (Sixty Second Issue - Private Placement)					
020	8.05%	Secured	non-cumulative non-convertible redeemable taxable bonds of Rs. 10,00,000/- each redeemable at par in full on 5th May 2026 (Sixtieth Issue - Private Placement)	0.00	0.00
021	8.19%	Secured	non-cumulative non-convertible redeemable taxable bonds of Rs. 10,00,000/- each redeemable at par in full on 15th December 2025 (Fifty Seventh Issue - Private Placement)	0.00	0.00
022	7.11 %	Tax free secured	non-cumulative non-convertible redeemable bonds-2015 of Rs. 1,000/- each redeemable at par in full on 5th October 2025 (Fifty Sixth Issue - Public Issue - Series 1A).	0.00	0.00
023	7.36 %	Tax free secured	non-cumulative non-convertible redeemable bonds-2015 of Rs. 1,000/- each redeemable at par in full on 5th October 2025 (Fifty Sixth Issue - Public Issue - Series 1 B).	0.00	0.00
024	7.15%	Tax free secured	non-cumulative non-convertible redeemable bonds - 2015 of Rs. 10,00,000/- each redeemable at par in full on 21st August 2025 (Fifty Fifth Issue - Private Placement)	0.00	0.00
025	9.17%	Secured	non-cumulative non-convertible redeemable taxable bonds of ₹ 10,00,000/- each redeemable at par in full on 22nd September 2024 (53rd Issue - private placement).	0.00	0.00
026	9.34%	Secured	non-cumulative non-convertible redeemable taxable bonds of ₹10,00,000/- each redeemable at par in full on 24th March 2024 (Fifty Second Issue - private placement)	0.00	0.00
027	8.19%	Tax free secured	non-cumulative non-convertible redeemable bonds - 2013 of ₹ 10,00,000/- each redeemable at	0.00	0.00

RIHAND SUPER THERMAL POWER STATION
NOTE NO. 23 TO THE FS-NCL-BORROWINGS

(Amount in ₹)

		31.03.2022	31.03.2021
	As at		
	par in full on 4th March 2024 (Fifty First Issue A - Private Placement)		
028	8.41% Tax free secured non-cumulative non-convertible redeemable bonds - 2013 of ₹ 1000/- each redeemable at par in full on 16th December 2023 (Fiftieth Issue - Public Issue - Series 1A)	0.00	0.00
029	8.66% Tax free secured non-cumulative non-convertible redeemable bonds - 2013 of ₹ 1000/- each redeemable at par in full on 16th December 2023 (Fiftieth Issue - Public Issue - Series 1B)	0.00	0.00
030	9.25% Secured non-cumulative non-convertible redeemable taxable bonds of ₹10,00,000/- each with five equal separately transferable redeemable principal parts (STRPP) redeemable at par at the end of 11th year and in annual installments thereafter upto the end of 15th year respectively commencing from 4th May 2023 and ending on 4th May 2027 (Forty fourth issue - private placement)VII	0.00	0.00
031	8.48% Secured non-cumulative non-convertible redeemable taxable bonds of ₹ 10,00,000/- each redeemable at par in full on 1st May 2023 (Seventeenth issue - private placement)I	0.00	0.00
032	8.80% Secured non-cumulative non-convertible redeemable taxable bonds of ₹10,00,000/- each redeemable at par in full on 4th April 2023 (Forty ninth issue -private placement	0.00	0.00
033	8.49% Secured non-cumulative non-convertible redeemable taxable fully paid-up bonus debentures of Rs. 12.50 each redeemable at par in three annual installments of Rs. 2.50, Rs. 5.00 and Rs. 5.00 at the end of 8th year, 9th year and 10th year on 25th March 2023, 25th March 2024 and 25th March 2025 respectively (Fifty Fourth Issue -Bonus Debentures)X - (refer Note 5 d)	0.00	0.00
034	8.73% Secured non-cumulative	0.00	0.00

**RIHAND SUPER THERMAL POWER STATION
NOTE NO. 23 TO THE FS-NCL-BORROWINGS**

(Amount in ₹)

As at	31.03.2022	31.03.2021
non-convertible redeemable taxable bonds of ₹ 10,00,000/- each redeemable at par in full on 07th March 2023 (Forty eighth issue - private placement)		
035 9.00% Secured non-cumulative non-convertible redeemable taxable bonds of ₹ 10,00,000/- each with five equal separately transferable redeemable principal parts (STRPP) redeemable at par at the end of 11th year and in annual installments thereafter upto the end of 15th year respectively commencing from 25th January 2023 and ending on 25th January 2027 (Forty second issue- private placement)III	0.00	0.00
036 8.84% Secured non-cumulative non-convertible redeemable taxable bonds of ₹10,00,000/- each redeemable at par in full on 4th October 2022 (Forty seventh issue- private placement)VII	0.00	0.00
037 7.93% Secured non-cumulative non-convertible redeemable taxable bonds of ` 10,00,000/- each redeemable at par in full on 03 May 2022 (68th Issue - Private Placement)	0.00	0.00
038 6.72% Secured non-cumulative non-convertible redeemable taxable bonds of Rs. 10,00,000/- each redeemable at par in full on 24th November 2021 (Sixty Fifth Issue - Private Placement)	0.00	0.00
039 8.10% Secured Non-Cumulative Non-Convertible Redeemable Taxable Bonds of Rs. 30,00,000/- each redeemable at par in three equal separately transferable redeemable principal parts (STRPP) at the end of 5th year, 10th year & 15th year on 27th May 2021, 27th May 2026 and 27th May 2031 respectively (Sixty First Issue- Private Placement)	0.00	0.00
040 8.33% Secured non-cumulative non-convertible redeemable taxable bonds of Rs.10,00,000/- each redeemable at par in full on 24th February 2021	0.00	0.00

**RIHAND SUPER THERMAL POWER STATION
NOTE NO. 23 TO THE FS-NCL-BORROWINGS**

(Amount in ₹)

As at				31.03.2022	31.03.2021
(Fifty Ninth Issue - Private Placement).					
042	8.93%	Secured	non-cumulative non-convertible redeemable taxable bonds of ₹ 10,00,000/- each redeemable at par in full on 19th January 2021 (Thirty seventh issue - private placement)III	0.00	0.00
043	8.18%	Secured	non-cumulative non-convertible redeemable taxable bonds of Rs.10,00,000/- each redeemable at par in full on 31st December 2020 (Fifty Eight Issue - Private Placement).	0.00	0.00
044	8.73 %	Secured	non-cumulative non-convertible redeemable taxable bonds of ₹ 10,00,000/- each redeemable at par in full on 31st March 2020 (Thirty third issue- private placement)III	0.00	0.00
045	8.78 %	Secured	non-cumulative non-convertible redeemable taxable bonds of ₹ 10,00,000/- each redeemable at par in full on 9th March 2020 (Thirty first issue- private placement)III	0.00	0.00
046	11.25%	Secured	non-cumulative non-convertible redeemable taxable bonds of ₹ 10,00,000/- each redeemable at par in five equal annual installments commencing from 6th Nov 2019 and ending on 6th Nov 2023 (Twenty seventh issue - private placement)III	0.00	0.00
047	7.89%	Secured	non-cumulative non-convertible redeemable taxable bonds of ₹ 10,00,000/- each redeemable at par in full on 5th May 2019 (Thirtieth issue - private placement)III	0.00	0.00
048	8.65%	Secured	non-cumulative non-convertible redeemable taxable bonds of ₹10,00,000/- each redeemable at par in full on 4th February 2019 (Twenty ninth issue - private placement)III	0.00	0.00
049	7.50%	Secured	non-cumulative non-convertible redeemable taxable bonds of ₹ 10,00,000/- each redeemable at par in full	0.00	0.00

RIHAND SUPER THERMAL POWER STATION
NOTE NO. 23 TO THE FS-NCL-BORROWINGS

(Amount in ₹)

As at			31.03.2022	31.03.2021
on 12th January 2019 (Nineteenth issue - private placement)II				
050	11%	Secured non-cumulative non-convertible redeemable taxable bonds of ₹ 10,00,000/- each redeemable at par in full on 21st November 2018 (Twenty eighth issue - private placement)III	0.00	0.00
051	9.3473%	Secured non-cumulative non-convertible redeemable taxable bonds of ₹15,00,000/- each with fifteen equal separately transferable redeemable principal parts (STRPP) redeemable at par at the end of 6th year and in annual installments thereafter upto the end of 20th year respectively commencing from 20th July 2018 and ending on 20th July 2032 (Forty sixth issue - private placement)VII	0.00	0.00
052	9.4376%	Secured non-cumulative non-convertible redeemable taxable bonds of ₹ 15,00,000/- each with fifteen equal separately transferable redeemable principal parts (STRPP) redeemable at par at the end of 6th year and in annual installments thereafter upto the end of 20th year respectively commencing from 16th May 2018 and ending on 16th May 2032 (Forty fifth issue - private placement)VII	0.00	0.00
053	8.00%	Secured non-cumulative non-convertible redeemable taxable bonds of ₹ 10,00,000/- each redeemable at par in full on 10th April 2018 (Sixteenth issue -private placement)I	0.00	0.00
054	9.2573%	Secured non-cumulative non-convertible redeemable taxable bonds of ₹ 15,00,000/- each with fifteen equal separately transferable redeemable principal parts (STRPP) redeemable at par at the end of 6th year and in annual installments thereafter upto the end of 20th year respectively commencing from 2nd March 2018 and ending on 2nd March 2032 (Forty third issue - private placement)III	0.00	0.00
055	9.6713%	Secured non-cumulative non-convertible redeemable taxable bonds	0.00	0.00

RIHAND SUPER THERMAL POWER STATION
NOTE NO. 23 TO THE FS-NCL-BORROWINGS

(Amount in ₹)

As at	31.03.2022	31.03.2021
of ₹ 15,00,000/- each with fifteen equal separately transferable redeemable principal parts (STRPP) redeemable at par at the end of 6th year and in annual installments thereafter upto the end of 20th year respectively commencing from 23rd December 2017 and ending on 23rd December 2031 (Forty first issue - private placement)III		
056 9.558% Secured non-cumulative non-convertible redeemable taxable bonds of ₹ 15,00,000/- each with fifteen equal separately transferable redeemable principal parts (STRPP) redeemable at par at the end of 6th year and in annual installments thereafter upto the end of 20th year respectively commencing from 29th July 2017 and ending on 29th July 2031(Fourtieth issue-private placement)III	0.00	0.00
057 9.3896% Secured non-cumulative non-convertible redeemable taxable bonds of ₹ 15,00,000/- each with fifteen equal separately transferable redeemable principal parts (STRPP) redeemable at par at the end of 6th year and in annual installments thereafter upto the end of 20th year respectively commencing from 9th June 2017 and ending on 9th June 2031(Thirty ninth issue-private placement)III	0.00	0.00
058 9.17% Secured non-cumulative non-convertible redeemable taxable bonds of ₹ 15,00,000/- each with fifteen equal separately transferable redeemable principal parts (STRPP) redeemable at par at the end of 6th year and in annual installments thereafter upto the end of 20th year respectively commencing from 22nd March 2017 and ending on 22nd March 2031(Thirty eighth issue-private placement)III	0.00	0.00
059 8.8086% Secured non-cumulative non-convertible redeemable taxable bonds of ₹ 15,00,000/- each with fifteen equal separately transferable redeemable principal parts (STRPP) redeemable at par at the end of 6th	0.00	0.00

RIHAND SUPER THERMAL POWER STATION

NOTE NO. 23 TO THE FS-NCL-BORROWINGS

(Amount in ₹)

As at		31.03.2022	31.03.2021
<p>year and in annual installments thereafter upto the end of 20th year respectively commencing from 15th December 2016 and ending on 15th December 2030 (Thirty sixth issue - private placement)III</p>			
060	8.785% Secured non-cumulative non-convertible redeemable taxable bonds of ₹ 15,00,000/- each with fifteen equal separately transferable redeemable principal parts (STRPP) redeemable at par at the end of 6th year and in annual installments thereafter upto the end of 20th year respectively commencing from 15th September 2016 and ending on 15th September 2030 (Thirty fifth issue - private placement)III	0.00	0.00
061	8.71% Secured non-cumulative non-convertible redeemable taxable bonds of ₹ 15,00,000/- each with fifteen equal separately transferable redeemable principal parts (STRPP) redeemable at par at the end of 6th year and in annual installments thereafter upto the end of 20th year respectively commencing from 10th June 2016 and ending on 10th June 2030 (Thirty fourth issue - private placement)III	0.00	0.00
062	8.8493% Secured non-cumulative non-convertible redeemable taxable bonds of ₹ 15,00,000/- each with fifteen equal separately transferable redeemable principal parts (STRPP) redeemable at par at the end of 6th year and in annual installments thereafter upto the end of 20th year respectively commencing from 25th March 2016 and ending on 25th March 2030 (Thirty second issue - private placement)III	0.00	0.00
063	9.37% Secured non-cumulative non-convertible redeemable taxable bonds of ₹ 70,00,000/- each with fourteen separately transferable redeemable principal parts (STRPP) redeemable at par semi-annually commencing from 4th June 2012 and ending on 4th December 2018 (Twenty fifth issue -	0.00	0.00

RIHAND SUPER THERMAL POWER STATION
NOTE NO. 23 TO THE FS-NCL-BORROWINGS

(Amount in ₹)

As at			31.03.2022	31.03.2021
private placement)III				
065	9.06%	Secured non-cumulative non-convertible redeemable taxable bonds of ₹ 70,00,000/- each with fourteen separately transferable redeemable principal parts (STRPP) redeemable at par semi-annually commencing from 4th June 2012 and ending on 4th December 2018 (Twenty sixth issue - private placement)III	0.00	0.00
066	8.6077%	Secured non-cumulative non-convertible redeemable taxable bonds of ₹ 20,00,000/- each with twenty equal separately transferable redeemable principal parts (STRPP) redeemable at par semi-annually commencing from 9th September 2011 and ending on 9th March 2021 (Twenty fourth issue - private placement)IV	0.00	0.00
067	8.3796%	Secured non-cumulative non-convertible redeemable taxable bonds of ₹ 20,00,000/- each with twenty equal separately transferable redeemable principal parts (STRPP) redeemable at par semi-annually commencing from 5th August 2011 and ending on 5th February 2021 (Twenty third issue - private placement)IV	0.00	0.00
068	8.1771%	Secured non-cumulative non-convertible redeemable taxable bonds of ₹ 20,00,000/- each with twenty equal separately transferable redeemable principal parts (STRPP) redeemable at par semi-annually commencing from 2nd July 2011 and ending on 2nd January 2021 (Twenty second issue - private placement)IV	0.00	0.00
069	7.7125%	Secured non-cumulative non-convertible redeemable taxable bonds of ₹ 20,00,000/- each with twenty equal separately transferable redeemable principal parts (STRPP) redeemable at par semi-annually commencing from 2nd August 2010 and ending on 2nd February 2020 (Twenty first issue - private placement)V	0.00	0.00
070	7.552%	Secured non-cumulative non-convertible redeemable taxable bonds	0.00	0.00

Locked: 27.04.2022 - 18:42:53

Run on: 27.04.2022 - 18:57:55 Version: 0

RIHAND SUPER THERMAL POWER STATION
NOTE NO. 23 TO THE FS-NCL-BORROWINGS

(Amount in ₹)

As at	31.03.2022	31.03.2021
of ₹ 20,00,000/- each with twenty equal separately transferable redeemable principal parts (STRPP) redeemable at par semi-annually commencing from 23rd September 2009 and ending on 23rd March 2019 (Twentieth issue - private placement)VI		
071 9.55% Secured non-cumulative non-convertible taxable redeemable bonds of ₹ 10,00,000/- each with ten equal separately transferable redeemable principal parts (STRPP) redeemable at par at the end of the 6th year and in annual installments thereafter upto the end of 15th year respectively from 30th April 2002 (Thirteenth issue - Part B - private placement)VIII	0.00	0.00
072 9.55% Secured non-cumulative non-convertible taxable redeemable bonds of ₹ 10,00,000/- each redeemable at par in ten equal annual installments commencing from the end of 6th year and upto the end of 15th year respectively from 18th April 2002 (Thirteenth issue -Part A - private placement)VIII	0.00	0.00
075	0.00	0.00
076	0.00	0.00
077 Sub Total	0.00	0.00
078 Unsecured	0.00	0.00
079 6.55% Unsecured non-cumulative non-convertible redeemable taxable bonds of ₹ 10,00,000/- each redeemable at par in full on 17 April 2023 (Seventieth Issue - Private Placement)	0.00	0.00
080 6.29% Unsecured non-cumulative non-convertible redeemable taxable bonds of ₹ 10,00,000/- each redeemable at par in full on 11 April 2031 (Seventy First Issue - Private Placement)	0.00	0.00
081 5.45% Unsecured non-cumulative non-convertible redeemable taxable bonds of ₹ 10,00,000/- each redeemable at par in full on 15 October 2025 (Seventy Second Issue - Private Placement)	0.00	0.00
082 6.43% Unsecured non-cumulative non-convertible redeemable taxable bonds of ₹ 10,00,000/- each redeemable at par in	0.00	0.00

RIHAND SUPER THERMAL POWER STATION
NOTE NO. 23 TO THE FS-NCL-BORROWINGS

(Amount in ₹)

As at	31.03.2022	31.03.2021
full on 27 January 2031 (Seventy Third Issue - Private Placement)		
083 6.87% Unsecured non-cumulative non-convertible redeemable taxable bonds of ₹ 10,00,000/- each redeemable at par in full on 21 April 2036 (Seventy Fourth Issue - Private Placement)	0.00	0.00
084 6.69% Unsecured non-cumulative non-convertible redeemable taxable bonds of ₹ 10,00,000/- each redeemable at par in full on 13 September 2031 (Seventy Fifth Issue - Private Placement)	0.00	0.00
085 6.74% Unsecured non-cumulative non-convertible redeemable taxable bonds of Rs.10,00,000/- each redeemable at par in full on 14 April 2032 (Seventy Sixth Issue - Private Placement)	0.00	0.00
086	0.00	0.00
087	0.00	0.00
088	0.00	0.00
089 Sub-total	0.00	0.00
090 Total	0.00	0.00
091 Foreign Currency Notes-Unsecured	0.00	0.00
092 4.50% Fixed Rate Notes Due for repayment on 19th March 2028	0.00	0.00
093 2.75% Fixed rate notes due for repayment on 1st February 2027	0.00	0.00
094 4.25 % Fixed rate notes due for repayment on 26th February 2026	0.00	0.00
095 4.375% Fixed Rate Note due for repayment on 26th November 2024	0.00	0.00
096 4.75 % Fixed Rate Notes due for repayment on 3rd Oct 2022	0.00	0.00
097 7.25 % Fixed green global INR denominated bonds due on 3 May 2022	0.00	0.00
098 7.375 % Fixed green global INR denominated bonds due on 10 August 2021	0.00	0.00
099 5.625% Fixed Rate Notes due for repayment on 14th July 2021	0.00	0.00
100 3.75 % Fixed rate notes due for repayment on 03 April 2024	0.00	0.00
101	0.00	0.00
102	0.00	0.00
103	0.00	0.00
104 Sub Total	0.00	0.00
105 Term Loans	0.00	0.00
106 From Banks	0.00	0.00
107 Secured	0.00	0.00
108 Rupee Loans	0.00	0.00

RIHAND SUPER THERMAL POWER STATION

NOTE NO. 23 TO THE FS-NCL-BORROWINGS

(Amount in ₹)

As at	31.03.2022	31.03.2021
109 Unsecured	0.00	0.00
110 Foreign Currency Loans	0.00	0.00
111 Rupee Loans	0.00	0.00
112 From Others	0.00	0.00
113 Secured	0.00	0.00
114 Rupee Loans	0.00	0.00
115 Foreign Currency loans (guaranteed by GOI)	0.00	0.00
116 Unsecured	0.00	0.00
117 Foreign Currency loans (guaranteed by GOI)	0.00	0.00
118 Other Foreign currency loans	0.00	0.00
120 Rupee Loans	0.00	0.00
121 Deposits	0.00	0.00
122 Unsecured	0.00	0.00
123 Fixed Deposits	0.00	0.00
124 Others	0.00	0.00
125 Unsecured	0.00	0.00
126 Bonds Application Money Pending Allotment	0.00	0.00
127 Sub-total	0.00	0.00
128 Total	0.00	0.00
129 Less:- Interst accrued but not due on secured borrowings	0.00	0.00
130 Less:- Interst accrued but not due on unsecured borrowings	0.00	0.00
131 Less:- Current maturities of long term borrowings	0.00	0.00
132 Bonds-Secured	0.00	0.00
133 Fixed Rate Notes	0.00	0.00
135 Foreign currency loans from Banks- unsecured	0.00	0.00
136 Rupee loans from banks- Secured	0.00	0.00
137 Rupee loans from banks- unsecured	0.00	0.00
138 Rupee Term loan from Others - Secured	0.00	0.00
139 Foreign currency loans from others- unsecured (Guaranteed by GOI)	0.00	0.00
140 Other foreign currency loans from others- unsecured	0.00	0.00
141 Rupee loans from others- unsecured	0.00	0.00
142	0.00	0.00
143	0.00	0.00
144	0.00	0.00
145	0.00	0.00
146	0.00	0.00
147	0.00	0.00
148	0.00	0.00
149	0.00	0.00
150	0.00	0.00
151	0.00	0.00
200 Total	0.00	0.00

RIHAND SUPER THERMAL POWER STATION

NOTE NO. 23A TO THE FS-NCL-LEASE BORROWINGS

(Amount in ₹)

As at	31.03.2022	31.03.2021
001 Non-current financial liabilities - Lease liabilities	0.00	0.00
002 Lease liabilities	0.00	0.00
003 Long term maturities of Finance Lease Liabilities (Secured) IX	0.00	0.00
004 Long term maturities of Finance Lease Liabilities (Unsecured) X	0.00	0.00
005 Sub-Total	0.00	0.00
006 Less: current maturities of lease liabilities	0.00	0.00
007 Finance Lease obligations - secured	0.00	0.00
008 Finance Lease obligations - unsecured	0.00	0.00
009 Sub-Total	0.00	0.00
010 Total	0.00	0.00

RIHAND SUPER THERMAL POWER STATION

NOTE NO. 24 TO THE FS-NCL-TRADE PAYABLES

(Amount in ₹)

As at		31.03.2022	31.03.2021
001	TRADE PAYABLES(NON CURRENT)	0.00	0.00
002	For Goods and Services	0.00	0.00
003	- Micro & Small Enterprises	7,830,370.14	16,336,269.21
004	- Others	11,108,650.81	6,373,476.89
005		0.00	0.00
006	Total	18,939,020.95	22,709,746.10

RIHAND SUPER THERMAL POWER STATION

NOTE NO. 25 TO THE FS-NCL-OTHER FINANCIAL LIABILITIES

(Amount in ₹)

As at	31.03.2022	31.03.2021
001 OTHER FINANCIAL LIABILITIES (NON-CURRENT)	0.00	0.00
002 Payable for Capital Expenditure	0.00	0.00
003 - Micro & Small Enterprises	3,022,575.28	100,024.63
004 - Others	210,903,859.44	681,641,329.62
005 Others	0.00	0.00
006 Deposits from contractors and others	11,000.00	0.00
007	0.00	0.00
008	0.00	0.00
009 Total	213,937,434.72	681,741,354.25

RIHAND SUPER THERMAL POWER STATION

NOTE NO. 26 TO THE FS-NCL-PROVISIONS

(Amount in ₹)

As at	31.03.2022	31.03.2021
001 LONG TERM PROVISIONS	0.00	0.00
002 Provision for Employee Benefits	0.00	0.00
003 Opening Balance	0.00	0.00
004 Additions/ (adjustments) during the year	0.00	0.00
005 Closing Balance	0.00	0.00
006	0.00	0.00
007 Others	0.00	0.00
008 i) Mine Closure Provision	0.00	0.00
009 Opening Balance	0.00	0.00
010 Additions during the year	0.00	0.00
011 Amounts adjusted during the year	0.00	0.00
012 Amounts reversed during the year	0.00	0.00
013 Closing Balance	0.00	0.00
014	0.00	0.00
015 ii) Stripping Activity Adjustments	0.00	0.00
016 Opening Balance	0.00	0.00
017 Additions during the year	0.00	0.00
018 Amounts adjusted during the year	0.00	0.00
019 Amounts reversed during the year	0.00	0.00
020 Closing Balance	0.00	0.00
021	0.00	0.00
024	0.00	0.00
025 TOTAL	0.00	0.00

NOTE NO. 27 TO THE FS-NCL-DEFERRED TAX LIABILITIES (NET)

As at	Open Balance on 01.04.2021	Addition	Closing Balance on 31.03.2022
001 DEFERRED TAX LIABILITIES (NET)			
002 Difference of book depreciation and tax depreciation	0.00	0.00	0.00
003 Less: Deferred tax assets			
004 Provisions & Other disallowances for tax purposes	0.00	0.00	0.00
005 Unabsorbed Depreciation	0.00	0.00	0.00
006 Disallowances u/s 43B of the Income Tax Act, 1961	0.00	0.00	0.00
007 Others	0.00	0.00	0.00
008 Opening Balance	0.00	0.00	0.00
009 Additions during the year	0.00	0.00	0.00
010 Amounts adjusted during the year	0.00	0.00	0.00
011 Amounts reversed during the year	0.00	0.00	0.00
012 Closing Balance	0.00	0.00	0.00
013 MAT credit entitlement	0.00	0.00	0.00
014 Total	0.00	0.00	0.00
015 Total	0.00	0.00	0.00
016 Breakup of deferred tax assets	0.00	0.00	0.00
017 Provision	0.00	0.00	0.00
018 Statutory dues	0.00	0.00	0.00
019 Leave encashment	0.00	0.00	0.00
020 Others	0.00	0.00	0.00
021	0.00	0.00	0.00
022	0.00	0.00	0.00

RIHAND SUPER THERMAL POWER STATION

NOTE NO. 28 TO THE FS-NCL-OTHER NON-CURRENT LIABILITIES

(Amount in ₹)

As at	31.03.2022	31.03.2021
001 Other Non current Liabilities	0.00	0.00
002 Advances from customers and others	0.00	0.00
003 Deposits from contractors and others	0.00	0.00
004 Grants	0.00	0.00
005 TOTAL	0.00	0.00

RIHAND SUPER THERMAL POWER STATION

NOTE NO. 29 TO THE FS-CL-BORROWINGS

(Amount in ₹)

As at	31.03.2022	31.03.2021
001 Short Term Borrowings	0.00	0.00
002 Loans repayable on demand	0.00	0.00
003 From Banks	0.00	0.00
004 Secured	0.00	0.00
005 Cash Credit	0.00	0.00
006 Unsecured	0.00	0.00
007 Cash Credit	0.00	0.00
008 Other loans-unsecured	0.00	0.00
009 Commercial Papers	0.00	0.00
010 Less: Unamortised discount on Commercial Papers	0.00	0.00
011 Sub-Total	0.00	0.00
012 Current maturity of long term borrowings	0.00	0.00
013 Bonds-Secured	0.00	0.00
014 Foreign Currency Fixed Rate Notes	0.00	0.00
015 From Banks	0.00	0.00
016 Secured	0.00	0.00
017 Rupee Term Loan	0.00	0.00
018 Foreign currency loans	0.00	0.00
019 Unsecured	0.00	0.00
020 Foreign currency loans	0.00	0.00
021 Rupee term loans	0.00	0.00
022 From Others	0.00	0.00
023 Secured	0.00	0.00
024 Rupee Term Loan	0.00	0.00
025 Unsecured	0.00	0.00
026 Foreign currency loans (Guaranteed by Government of India)	0.00	0.00
027 Other foreign currency loans	0.00	0.00
028 Rupee term loans	0.00	0.00
029 Fixed deposits	0.00	0.00
031 Sub Total	0.00	0.00
032 TOTAL	0.00	0.00

RIHAND SUPER THERMAL POWER STATION

NOTE NO. 29A TO THE FS-CL-LEASE BORROWINGS

(Amount in ₹)

As at	31.03.2022	31.03.2021
001 Current financial liabilities - Lease liabilities	0.00	0.00
002 Current maturity of finance lease obligations (secured)	0.00	0.00
003 Current maturity of finance lease obligations (unsecured)	0.00	0.00
004 Total	0.00	0.00

RIHAND SUPER THERMAL POWER STATION
NOTE NO. 30 TO THE FS-CL-TRADE PAYABLES

(Amount in ₹)

As at	31.03.2022	31.03.2021
001 TRADE PAYABLES	0.00	0.00
002 For Goods and Services	0.00	0.00
003 - Micro & Small Enterprises	220,046,789.16	227,641,821.80
004 - Others	3,104,879,539.52	1,688,677,134.68
005	0.00	0.00
006 Total	3,324,926,328.68	1,916,318,956.48
007	0.00	0.00
172 Trade payable	0.00	0.00
173 MSME	0.00	0.00
174 Unbilled	75,353,748.01	87,950,700.89
175 Not due	111,869,021.20	117,462,296.91
176 Due	32,824,020.00	22,228,824.00
177 Disputed	0.00	0.00
178 Undisputed	32,824,020.00	22,228,824.00
179	0.00	0.00
180 Sub-total (A)	220,046,789.21	227,641,821.80
181	0.00	0.00
182 Others	0.00	0.00
183 Unbilled	512,665,789.10	375,565,004.14
184 Not due	210,843,363.50	88,840,101.54
185 Due	2,381,370,387.00	1,224,272,029.00
186 Disputed	0.00	0.00
187 Undisputed	2,381,370,387.00	1,224,272,029.00
188	0.00	0.00
189 Sub-total (B)	3,104,879,539.60	1,688,677,134.68
190	0.00	0.00
191 Total	3,324,926,328.81	1,916,318,956.48
192	0.00	0.00
193 Ageing	0.00	0.00
194 MSME	0.00	0.00
195 Disputed	0.00	0.00
196 Less than 1 year	0.00	0.00
197 1-2 years	0.00	0.00
198 2-3 years	0.00	0.00
199 More than 3 years	0.00	0.00
200 Sub Total (I)	0.00	0.00
201	0.00	0.00
202 Undisputed	0.00	0.00
203 Less than 1 year	32,824,020.00	22,228,824.00
204 1-2 years	0.00	0.00
205 2-3 years	0.00	0.00
206 More than 3 years	0.00	0.00
207 Sub Total (II)	32,824,020.00	22,228,824.00
208	0.00	0.00
209 Total MSME (III)	32,824,020.00	22,228,824.00
210	0.00	0.00

RIHAND SUPER THERMAL POWER STATION
NOTE NO. 30 TO THE FS-CL-TRADE PAYABLES

(Amount in ₹)

As at	31.03.2022	31.03.2021
211 Others	0.00	0.00
212 Disputed	0.00	0.00
213 Less than 1 year	0.00	0.00
214 1-2 years	0.00	0.00
215 2-3 years	0.00	0.00
216 More than 3 years	0.00	0.00
217 Sub Total (IV)	0.00	0.00
218	0.00	0.00
219 Undisputed	0.00	0.00
220 Less than 1 year	1,676,015,685.00	730,603,504.30
221 1-2 years	85,164,135.00	430,819,121.70
222 2-3 years	193,027,381.00	1,186,607.00
223 More than 3 years	427,163,186.00	61,662,796.00
224 Sub Total (V)	2,381,370,387.00	1,224,272,029.00
225	0.00	0.00
226 Total Others (VI)	2,381,370,387.00	1,224,272,029.00

RIHAND SUPER THERMAL POWER STATION

NOTE NO. 31 TO THE FS-CL-OTHER FINANCIAL LIABILITIES

(Amount in ₹)

As at	31.03.2022	31.03.2021
001 OTHER FINANCIAL LIABILITIES (CURRENT)	0.00	0.00
020	0.00	0.00
021 Interest accrued but not due on secured borrowings	0.00	0.00
022 Interest accrued but not due on unsecured borrowings	0.00	0.00
023 Unpaid Dividends*	0.00	0.00
024 Unpaid matured deposits and interest accrued thereon*	0.00	0.00
025 Unpaid matured bonds and interest accrued thereon*	0.00	0.00
026 Unpaid bond refund money-Tax free bonds *	0.00	0.00
027 Book Overdraft	0.00	0.00
028 Payable to Customers	0.00	0.00
029 Liability under forward exchange contract	0.00	0.00
030 Hedging cost payable to beneficiaries	0.00	0.00
031 Derivative MTM Liability	0.00	0.00
032 Payable for Capital Expenditure	0.00	0.00
033 - Micro & Small Enterprises	113,167,223.51	114,779,286.53
034 - Others	3,485,636,092.15	1,769,755,357.39
035 Others Payables	0.00	0.00
036 Deposits from contractors and others	85,251,588.78	53,078,458.78
037 Gratuity Obligations	0.00	0.00
038 Payable to employees	19,782,024.00	10,896,978.39
039 Payable to holding company	0.00	0.00
040 Retention on A/c BG encashment (Solar)	0.00	0.00
041 Payable to Solar Payment Security Account	0.00	0.00
042 Others **	96,581,271.22	140,861,301.14
043 Unspent CSR balance on ongoing Approved CSR projects	0.00	0.00
044 Total	3,800,418,199.66	2,089,371,382.23
045 * Represents the amounts which have not been claimed by the investor/holders of the bonds/ fixed deposits. Out of the above, no amount is due for payment to Investor Education and Protection Fund.	0.00	0.00
046 ** Include Payable to Hospital and other payable.	0.00	0.00

RIHAND SUPER THERMAL POWER STATION

NOTE NO. 32 TO THE FS-CL-OTHER CURRENT LIABILITIES

(Amount in ₹)

As at	31.03.2022	31.03.2021
001 OTHER CURRENT LIABILITIES	0.00	0.00
002 Advances from customers and others	66,809,931.25	35,638,788.25
003 Deferred discount on forward exchange contact	0.00	0.00
004 Tax deducted at source and other statutory dues	83,997,873.09	59,989,614.61
005 Deposits from contractors and others	0.00	0.00
006 Government grants	0.00	0.00
007 Others	0.00	0.00
008 Total	150,807,804.34	95,628,402.86

RIHAND SUPER THERMAL POWER STATION

NOTE NO. 33 TO THE FS-CL-PROVISIONS

(Amount in ₹)

As at	31.03.2022	31.03.2021
001 SHORT TERM PROVISIONS	0.00	0.00
002 Provision for Employee Benefits	0.00	0.00
003 Opening balance	0.00	0.00
004 Additions/ (adjustments) during the year	0.00	0.00
005 Closing Balance	0.00	0.00
028 Provisions for Obligations Incidental to Land Acquisition	0.00	0.00
029 Opening balance	0.00	0.00
030 Additions during the year	0.00	0.00
031 Amounts paid during the year	0.00	0.00
032 Amounts reversed during the year	0.00	0.00
033 Closing Balance	0.00	0.00
035 Provision for Tariff Adjustment	0.00	0.00
036 Opening balance	0.00	0.00
037 Additions during the year	0.00	0.00
038 Amounts adjusted during the year	0.00	0.00
039 Amounts reversed during the year	0.00	0.00
040 Closing Balance	0.00	0.00
042 Provision for shortage in Fixed Assets Pending Investigation & Others	0.00	0.00
043 Opening balance	0.00	633,857.99
044 Additions during the year	0.00	0.00
045 Amounts adjusted during the year	0.00	54,258.29
046 Amounts reversed during the year	0.00	579,599.70
047 Closing Balance	0.00	0.00
048 Provision for Arbitration	0.00	0.00
049 Opening balance	8,265,312.00	7,846,960.00
050 Additions during the year	418,352.00	418,352.00
051 Amounts used during the year	0.00	0.00
052 Amounts reversed during the year	0.00	0.00
053 Closing Balance	8,683,664.00	8,265,312.00
054 Others	0.00	0.00
055 Opening balance	0.00	0.00
056 Additions during the year	0.00	0.00
057 Amounts used during the year	0.00	0.00
058 Amounts reversed during the year	0.00	0.00
059 Closing Balance	0.00	0.00
102	0.00	0.00
103 Total	8,683,664.00	8,265,312.00

RIHAND SUPER THERMAL POWER STATION

NOTE NO. 34 TO THE FS-CL-CURRENT TAX LIABILITIES (NET)

(Amount in ₹)

As at	31.03.2022	31.03.2021
001 Current liabilities - current tax liabilities (net)	0.00	0.00
002 Opening balance	0.00	0.00
003 Additions during the year	0.00	0.00
004 Amounts adjusted during the year	0.00	0.00
005 Less: Set off against taxes paid	0.00	0.00
006 Closing Balance	0.00	0.00

RIHAND SUPER THERMAL POWER STATION

NOTE NO. 35 TO THE FS--DEFERRED REVENUE

(Amount in ₹)

As at		31.03.2022	31.03.2021
001	Deferred Revenue	0.00	0.00
002	On account of advance against depreciation	0.00	0.00
003	On account of income from foreign currency fluctuation	1,521,099,000.00	1,550,313,000.00
004	Government grants	0.00	0.00
006	TOTAL	1,521,099,000.00	1,550,313,000.00

RIHAND SUPER THERMAL POWER STATION

NOTE NO. 36 TO THE FS--REGULATORY DEFERRAL ACCOUNT CREDIT BALANCES

(Amount in ₹)

As at	31.03.2022	31.03.2021
001 Regulatory deferral account credit balances	0.00	0.00
002 Exchange Differences	0.00	0.00
003	0.00	0.00
004 Total	0.00	0.00

RIHAND SUPER THERMAL POWER STATION

NOTE NO. 37 TO THE FS--REVENUE FROM OPERATIONS

(Amount in ₹)

	For the Year ended	31.03.2022	31.03.2021
001	REVENUE FROM OPERATIONS	0.00	0.00
002	Sales	0.00	0.00
003	Energy Sales (including Electricity Duty)	53,443,276,351.00	50,965,331,245.83
004	Less : Advance against depreciation deferred (net)	0.00	0.00
005	Add: Revenue recognized out of advance against depreciation	0.00	0.00
006	Add : Exchange fluctuation receivable from customers	-1,191,045,000.00	0.00
007	Sale of energy through trading	0.00	0.00
008	Commission (NVVN)	0.00	0.00
009	Sub total	52,252,231,351.00	50,965,331,245.83
010	Less: Rebate to customers	244,496,889.89	792,896,443.92
011	Energy Sales (Total)	52,007,734,461.11	50,172,434,801.91
012	Consultancy, project management and supervision fees	0.00	0.00
013	Lease rentals on assets on Operating lease	0.00	0.00
014	Sale of Captive Coal	0.00	0.00
015	Intra Company Elimination	0.00	0.00
017	Sub-total	0.00	0.00
018	Total - Sales	52,007,734,461.11	50,172,434,801.91
019	Sale of fly ash/ash products	0.00	15,712,224.90
020	Less: Transferred to fly ash utilisation reserve fund	0.00	-15,712,224.90
021	Sub-total	0.00	0.00
022	Other Operating Income	0.00	0.00
023	Interest from customers	107,849,212.00	0.00
024	Energy Internally Consumed *	31,975,932.00	32,244,116.00
025	Interest income on Assets under finance lease	0.00	0.00
026	Recognized from deferred revenue - government grant	0.00	0.00
027	Provision written back- Tariff Adjustment	0.00	0.00
028	Income form Trading of ESCerts	0.00	0.00
029	Income from E-Mobility Business & others	0.00	0.00
030	Others	0.00	0.00
031	Total	52,147,559,605.11	50,204,678,917.91
040	* Valued at variable cost of generation and corresponding amount included in power charges (Note No. 42)	0.00	0.00
041	Excise duty on sale of flyash,cenospere & ash products	0.00	0.00
042	Energy sales of principal nature (NVVN)	0.00	0.00
043	Energy sales of agency nature (NVVN)	0.00	0.00

RIHAND SUPER THERMAL POWER STATION

NOTE NO. 38 TO THE FS--OTHER INCOME

(Amount in ₹)

For the Year ended	31.03.2022	31.03.2021
001 OTHER INCOME	0.00	0.00
002 Interest from	0.00	0.00
004 Financial assets at amortised cost	0.00	0.00
005 Government Securities (8.5% Tax Free Bonds issued by the State Governments)	0.00	0.00
006 Other Bonds	0.00	0.00
007	0.00	0.00
008 Interest from Government of India Securities-Non-Trade	0.00	0.00
009 Less: Amortziation of premium	0.00	0.00
010 Sub Total	0.00	0.00
011 Interest from others	0.00	0.00
012 Loan to State Government in settlement of dues from customers	0.00	0.00
013 Loan to Subsidiary Companies	0.00	0.00
014 Loan to Employees	15,984,260.52	15,321,469.09
015 Deposit with banks	0.00	0.00
016 Foreign Banks	0.00	0.00
017 Interest from Contractors	915,881.70	1,013,678.30
018 Interest from Income Tax Refunds	0.00	0.00
019 Less : Refundable to Customers	0.00	0.00
020 Sub Total	0.00	0.00
021 Deposits with banks-flyash utilisation reserve fund	0.00	0.00
022 Less: transferred to flyash utilisation reserve fund	0.00	0.00
023 Sub Total	0.00	0.00
024 Deposits with banks- DDUGJY funds	0.00	0.00
025 Interest from Contractors- DDUGJY funds	0.00	0.00
026 Transfer to DDUGJY-Advance from customers	0.00	0.00
027 Sub-total	0.00	0.00
030 Others	1,179,995.49	0.00
031	0.00	0.00
032 Dividend from	0.00	0.00
033 Longterm investments in	0.00	0.00
034 Subsidiaries	0.00	0.00
035 Joint Ventures	0.00	0.00
036 Equity Instruments	0.00	0.00
037 Current Investments in	0.00	0.00
038 Mutual Funds measured at fairvalue through profit or loss	0.00	0.00
039 Current investments in mutual funds-flyash utilisation reserve fund	0.00	0.00
040 Less: transferred to flyash utilisation reserve fund	0.00	0.00
041 Lease Rent # Ash Brick Plant	0.00	0.00
042 Less: transferred to flyash utilisation reserve fund	0.00	0.00
043 Other non-operating income	0.00	0.00
044 Profit on disposal of PPE	3,591.10	20,849.70
045 Profit on redemption of GOI securities	0.00	0.00

RIHAND SUPER THERMAL POWER STATION

NOTE NO. 38 TO THE FS--OTHER INCOME

(Amount in ₹)

	For the Year ended	31.03.2022	31.03.2021
046	Net gain on sale of investments	0.00	0.00
047	Surcharge received from customers	890,083,371.00	2,336,727,851.00
048	Hire charges for equipment	0.00	151,491.00
049	Gain on option contract / Discount on F.ExchContract	27,567,170.36	0.00
050	Provision written back-others	8,667,761.36	4,648,573.24
051	Fair value gains/(losses) on investments in mutual funds at fair value through profit or loss	0.00	0.00
052	Interest from Solar payment security account	0.00	0.00
053	Less : Transferred to SPSA fund	0.00	0.00
054	Interest on "Retention on A/c BG encashment (Solar)"	0.00	0.00
055	Less : Transferred to "Retention on A/c BG encashment (Solar)"	0.00	0.00
056	Miscellaneous Income	257,016,760.40	399,678,154.90
057	Total	1,201,418,791.93	2,757,562,067.23
058	Less:Transferred to Development of Coal Mines- Note 43A	0.00	0.00
059	Less:Transferred to Expenditure during Construction period (net)- Note 43	96,735.00	73,452.78
060	Less: Others	0.00	0.00
062	Total	1,201,322,056.93	2,757,488,614.45
063		0.00	0.00
064	Details of Miscellaneous Income	0.00	0.00
065	Vehicle Hire Charges.	118,000.00	100,000.00
066	Sale of by products & residuals	0.00	0.00
067	Township recoveries(exl. Hospital Recoveries).	22,530,387.46	26,531,613.68
068	Depreciation written back	0.00	0.00
069	Sale of Scrap.	118,949,651.93	146,790,506.41
070	Receipt under loss of profit policy.	0.00	0.00
071	Receipts under MBD/Fire Policy.	0.00	105,876,803.99
072	Management development programme.	0.00	0.00
073	Management Fee - Misc (NVVN)	0.00	0.00
074	Others	115,418,721.01	120,379,230.82
075		0.00	0.00
076	Total (Miscellaneous Income)	257,016,760.40	399,678,154.90
077		0.00	0.00
078	Details of Provision written back others	0.00	0.00
079	Doubtful debts	0.00	0.00
080	Doubtful Loans, Advances and Claims	0.00	0.00
081	Doubtful Construction Advances	0.00	0.00
082	Shortage in Construction Stores	548,546.87	3,069,811.99
083	Shortage in Stores	6,867,724.99	999,161.55
084	Obsolescence in Stores	1,251,489.50	0.00
085	Unserviceable capital works	0.00	0.00
086	Other Obligation including Arbitration	0.00	0.00
087	Shortage in Fixed Assets	0.00	579,599.70





A Maharatna Company

RIHAND SUPER THERMAL POWER STATION

NOTE NO. 38 TO THE FS--OTHER INCOME

(Amount in ₹)

	31.03.2022	31.03.2021
088 Diminution in value of Investment	0.00	0.00

RIHAND SUPER THERMAL POWER STATION

NOTE NO. 38A TO THE FS--FUEL COST

(Amount in ₹)

For the Year ended		31.03.2022	31.03.2021
001	FUEL COST	0.00	0.00
002	Coal	0.00	0.00
003	Captive	0.00	0.00
004	Other than captive	30,357,469,404.43	30,979,828,493.35
005	Gas	0.00	0.00
006	Naptha	0.00	0.00
007	Oil	286,119,163.76	247,723,305.71
008	Biomass Pellets	0.00	0.00
009	Total	30,643,588,568.19	31,227,551,799.06
010		0.00	0.00

RIHAND SUPER THERMAL POWER STATION

NOTE NO. 39 TO THE FS--EMPLOYEE BENEFITS EXPENSE

(Amount in ₹)

For the Year ended		31.03.2022	31.03.2021
001	EMPLOYEE BENEFITS EXPENSE	0.00	0.00
002	Salaries and wages	1,545,790,249.09	1,515,897,759.31
003	Contribution to provident and other funds	204,663,720.58	192,912,222.56
004	Unwinding of deferred payroll expense	10,256,372.76	10,267,426.36
005	Staff welfare expenses	188,061,328.44	170,031,632.85
006	Less : Expenses transferred to Consultancy group	0.00	0.00
007		0.00	0.00
008	Sub Total	1,948,771,670.87	1,889,109,041.08
009	Less: Employee benefits expense allocated to fuel inventory	112,502,448.72	121,440,512.65
010	Less: Transferred/Allocated to development of coal mines	0.00	0.00
011	Less: Others	0.00	0.00
012	Less: Transferred to fly ash utilisation reserve fund	0.00	0.00
013	Less: Transferred to CSR Expenses	0.00	0.00
014	Reimbursements for employees on secondment	3,377,875.77	2,735,946.17
015	Less: Transferred to expenditure during construction period (net)- Note 43	24,926,059.94	19,394,829.87
016	TOTAL	1,807,965,286.44	1,745,537,752.39
017	Managerial Remuneration paid/ payable to Directors included above (except for Directors fee which is included in Note 42)	0.00	0.00
018	Salaries and wages	0.00	0.00
019	Contribution to provident and other funds	0.00	0.00
020	Staff welfare expenses	0.00	0.00
021	Directors fee	0.00	0.00
022		0.00	0.00
023		0.00	0.00

RIHAND SUPER THERMAL POWER STATION

NOTE NO. 40 TO THE FS--FINANCE COSTS

(Amount in ₹)

	For the Year ended	31.03.2022	31.03.2021
001	FINANCE COSTS	0.00	0.00
002	Finance charges on financial liabilities measured at amortised cost	0.00	0.00
003	Bonds	710,804,516.35	585,552,890.58
004	Government of India Loans	0.00	0.00
005	Foreign currency term loans	19,995,984.52	19,316,822.83
006	Rupee term loans	438,724,318.00	690,539,220.00
007	Public deposits	0.00	0.00
008	Foreign currency bonds/notes	316,443,493.96	642,399,406.03
009	Cash Credit	0.00	0.00
010	Unwinding of discount on account of vendor liabilities	79,228,121.55	13,871,577.85
011	Commercial Papers	0.00	0.00
012	Sub Total	1,565,196,434.38	1,951,679,917.29
013	Interest on non financial items	0.00	0.00
014	Other Borrowing Costs	0.00	0.00
015	Bonds servicing & public deposit exp.	863,783.14	717,948.54
016	Guarantee fee	0.00	0.00
017	Management fee	0.00	0.00
018	Committ charges/exposure premium	1,126,265.00	0.00
019	Bond issue expenses	0.00	0.00
020	Legal exp on foreign currency loans	0.00	0.00
021	Foreign currency bonds/notes exp.	0.00	0.00
022	Up-front fee	0.00	0.00
023	Insurance premium on foreign currency loans	0.00	0.00
024		0.00	0.00
025	Others	0.00	0.00
026	Sub Total (Other Borrowing cost)	1,990,048.14	717,948.54
027		0.00	0.00
028	Exchange differences regarded as an adjustment to borrowing costs	-2,773,694.67	-16,523.48
029	Sub Total	1,564,412,787.85	1,952,381,342.35
030	Less: Transferred to Expenditure during construction period (net) - Note 43	98,307,037.97	22,905,000.49
031	Less: Transferred to development of coal mines- Note 43A	0.00	0.00
032		0.00	0.00
033	Total	1,466,105,749.88	1,929,476,341.86

RIHAND SUPER THERMAL POWER STATION

NOTE NO. 41 TO THE FS--DEPRECIATION AND AMORTIZATION EXPENSES

(Amount in ₹)

For the Year ended		31.03.2022	31.03.2021
001	Depreciation and amortization expenses	0.00	0.00
002	On property, plant and equipment- Note 2	4,722,518,393.06	4,601,404,034.44
003	On intangible assets- Note 4	0.00	4,317.78
004	Sub-total	4,722,518,393.06	4,601,408,352.22
005	Less:	0.00	0.00
006	Allocated to fuel inventory	374,595,518.15	361,624,623.95
007	Transferred to Expenditure during Construction Period (net)- Note 43	0.00	0.00
008		0.00	0.00
009	Transferred/Allocated to development of coal mines	0.00	0.00
010	Adjustment with deferred revenue from deferred foreign currency fluctuation	165,193,000.00	168,797,000.00
011		0.00	0.00
012	Total	4,182,729,874.91	4,070,986,728.27

RIHAND SUPER THERMAL POWER STATION

NOTE NO. 42 TO THE FS--OTHER EXPENSE

(Amount in ₹)

	For the Year ended	31.03.2022	31.03.2021
001 OTHER EXPENSES		0.00	0.00
002 Power charges		31,976,053.83	32,244,116.00
003 Less: Recovered from contractors & employees		18,059,198.89	10,218,976.19
004 Sub-Total(Power Charges)		13,916,854.94	22,025,139.81
005 Water charges		139,871,225.00	139,871,225.00
006 Stores consumed		52,633,011.12	30,362,577.69
007 Rent		0.00	0.00
008 Less:Recoveries		0.00	0.00
009 Sub-Total (Rent)		0.00	0.00
010 Cost of captive coal produced		0.00	0.00
011 Repairs & maintenance		0.00	0.00
012 Buildings		129,376,643.93	157,598,147.58
013 Plant & machinery		0.00	0.00
014 Power stations		1,746,499,355.61	2,012,457,618.12
015 Construction equipment		0.00	0.00
016 Others		106,882,579.98	71,233,169.46
017 Sub-total (Repairs & maintenance)		1,982,758,579.52	2,241,288,935.16
019 Load Dispatch Center Charges		25,361,760.00	16,378,065.00
021 Insurance		141,466,994.50	135,670,380.27
022 Interest to beneficiaries		0.00	0.00
023 Rates and taxes		14,847,960.99	14,719,674.88
024 Water cess & environment protection cess		0.00	0.00
025 Training & recruitment expenses		688,607.70	2,517,189.00
026 Less: Receipts		0.00	0.00
027 Sub-total (Training and recruitment expenses)		688,607.70	2,517,189.00
028 Communication expenses		21,264,678.98	20,286,959.05
029 Inland Travel		66,788,667.74	60,029,239.63
030 Foreign Travel		0.00	0.00
031 Tender expenses		0.00	0.00
032 Less: Receipt from sale of tenders		0.00	0.00
033 Sub-total (Tender expenses)		0.00	0.00
034 Payment to auditors		0.00	0.00
035 Audit fee		0.00	0.00
036 Tax audit fee		0.00	0.00
037 Other services		0.00	0.00
038 Reimbursement of expenses		0.00	0.00
039 Sub-total (Payment to Auditors)		0.00	0.00
040 Advertisement and publicity		1,007,008.21	657,415.36
041 Electricity duty		0.00	0.00
042 Security expenses		375,343,967.09	460,687,189.93
043 Entertainment expenses		25,139,954.44	26,655,551.12
044 Expenses for guest house		18,821,757.77	17,271,947.40
045 Less:Recoveries		2,432,785.40	0.00
046 Sub-Total (Guest house expenses)		16,388,972.37	17,271,947.40
047 Education expenses		58,099,926.00	79,480,752.00
049 Donations		0.00	0.00

RIHAND SUPER THERMAL POWER STATION

NOTE NO. 42 TO THE FS--OTHER EXPENSE

(Amount in ₹)

	For the Year ended	31.03.2022	31.03.2021
050	Ash utilisation & marketing expenses	796,403,425.57	432,245,428.81
051	Directors sitting fee	0.00	0.00
053	Professional charges and consultancy fees	2,058,930.20	3,302,664.23
054	Legal expenses	15,869,702.68	15,480,086.00
055	EDP hire and other charges	778,677.16	1,336,546.59
056	Printing and stationery	1,845,738.55	1,376,617.64
057	Oil & gas exploration expenses	0.00	0.00
059	Hiring of vehicles	25,296,051.88	20,600,619.14
061	Reimbursement of L.C.charges on sales realisation	0.00	0.00
062		0.00	0.00
063	Cost of Hedging	0.00	166,468.00
064	Derivatives MTM loss/gain (Net)	0.00	0.00
065	Net loss/(gain) in foreign currency transactions & translations	-89,322,683.55	-11,861,227.40
066	Transport Vehicle running expenses	1,160,422.83	936,937.36
067	Horticulture Expenses	63,583,840.61	59,411,651.45
068	Hire charges- helicopter/aircraft.	0.00	0.00
069	Hire charges of construction equipment	0.00	0.00
070	Demurrage Charges	0.00	0.00
072		0.00	0.00
073	Miscellaneous expenses	55,867,107.84	21,346,532.03
074	Loss on disposal/write-off of PPE	68,736,584.56	231,316,192.66
075	Sub-Total	3,877,855,966.93	4,043,560,757.81
076	Less: Other expenses allocated to fuel inventory	588,057,845.97	567,027,646.89
077	Less: Transferred/Allocated to development of coal mines	0.00	0.00
078	Less: Transferred to fly ash utilisation reserve fund	73,498,661.01	119,725,415.98
079	Less: Hedging cost Net recoverable/payable from/to beneficiaries	0.00	0.00
080	Less: Others	0.00	0.00
081	Less: Transferred to CSR Expenses	58,647,288.00	71,755,551.00
082	Less: Transferred to Expenditure during Construction period(net)-Note 43	-2,659,409.99	5,629,081.66
083	Net (Generation, Administration and Other expenses)	3,160,311,581.94	3,279,423,062.28
084	Corporate Social Responsibility Expenses	98,681,095.39	117,469,384.87
085	Less: Grants-in-aid	0.00	0.00
086	Sub-total (Corporate Social Responsibility Expenses)	98,681,095.39	117,469,384.87
087	Provisions	0.00	0.00
088	Doubtful Debts	0.00	0.00
089	Doubtful loans, advances and claims	0.00	0.00
090	Doubtful Construction Advances	0.00	0.00
091	Shortage in stores	1,655,918.65	156,818.20
092	Obsolete/Diminution in the value of surplus stores	12,120,326.93	0.00
093	Shortage in construction stores	1,469,730.55	6,233,763.36
094	Diminution in value of long term investments	0.00	0.00

Locked: 27.04.2022 - 18:42:45

Run on: 27.04.2022 - 18:57:18 Version: 0

RIHAND SUPER THERMAL POWER STATION

NOTE NO. 42 TO THE FS--OTHER EXPENSE

(Amount in ₹)

	For the Year ended	31.03.2022	31.03.2021
095	Shortage in Fixed assets	0.00	0.00
096	Unfinished minimum work progress from oil & gas exploration	0.00	0.00
097	Unserviceable capital works	0.00	0.00
098	Tariff Adjustment	105,799,000.00	97,702,000.00
099	Others :	0.00	0.00
100	(i) Provision for arbitration cases	418,352.00	418,352.00
101	(ii) Other provisions	0.00	0.00
102	Total (Provisions)	121,463,328.13	104,510,933.56
103		0.00	0.00
104	Total	3,380,456,005.46	3,501,403,380.71
105		0.00	0.00
106	Breakup of miscellaneous expenses.	0.00	0.00
109	Hire charges of office equipment	1,714,504.43	1,215,364.67
111	Operating expenses of construction equipment	0.00	0.00
112	Operating expenses of D.G. sets	0.00	0.00
113	Furnishing expenses	111,933.41	0.00
114	Subscription to trade and other associations.	0.00	0.00
116	Visa and entry permit charges	0.00	0.00
117	Tree plantation exp.-NTPC Land	0.00	0.00
118	Research & development expenses .	0.00	0.00
119	Less : Grants received for Research & development expenses.	0.00	0.00
120	Sub-total (Research & development expenses)	0.00	0.00
121	Bank charges	57,713.83	141,681.42
122	Business Development Expenditure	0.00	0.00
123	Surcharge (NVVN)	0.00	0.00
124	Power Trading Expenses	23,017,240.00	6,458,871.00
125	Brokerage & commission	8,510,225.90	1,951,671.00
129	Books and periodicals	61,430.00	88,572.00
130	Claims/advances written off	0.00	0.00
131	Stores written off	0.00	0.00
132	Survey & Investigation expenses written off	2,987,667.50	0.00
133	Others	19,406,392.77	11,490,371.94
134	Total	55,867,107.84	21,346,532.03
135		0.00	0.00
136		0.00	0.00
137		0.00	0.00

RIHAND SUPER THERMAL POWER STATION

NOTE NO. 43 TO THE FS--EXPENDITURE DURING CONSTRUCTION PERIOD (NET)

(Amount in ₹)

For the Year ended		31.03.2022	31.03.2021
001	EXPENDITURE DURING CONSTRUCTION PERIOD (NET)	0.00	0.00
002	A. Employee benefits expense	0.00	0.00
003	Salaries and wages	21,286,958.63	16,690,366.44
004	Contribution to provident and other funds	2,431,771.71	1,990,589.37
005	Unwinding of deferred payroll expenses	0.00	-9,214.56
006	Staff welfare expenses	1,207,329.60	723,088.62
007	Total (A)	24,926,059.94	19,394,829.87
008	B. Finance Costs	0.00	0.00
009	Finance charges on financial liabilities measured at amortised cost	0.00	0.00
010	Bonds	5,668,439.23	991,703.48
011	Foreign currency term loans	3,847,461.50	202,998.16
012	Rupee term loans	12,081,882.00	12,796,466.00
013	Foreign currency bonds/notes	0.00	0.00
014	Unwinding of discount on account of vendor liabilities	74,018,223.04	8,870,269.79
015	Others	0.00	0.00
016		0.00	0.00
017	Other Borrowings Costs	0.00	0.00
018	Guarantee Commission	0.00	0.00
019	Management Fees/Arrangers Fees	0.00	0.00
020	Commitment charges/Exposure Premium	1,126,265.00	0.00
021	Legal Expenses on foreign currency loans	0.00	0.00
022	Foreign currency bonds/notes expenses	0.00	0.00
023	Foreign Credit Insurance Premium	0.00	0.00
024	Upfront Fee	0.00	0.00
025	Exchange Differences	0.00	0.00
026	Others	1,564,768.20	476,690.72
027	Exchange differences regarded as adjustment to interest cost	-1.00	-433,127.66
028	Total (B)	98,307,037.97	22,905,000.49
029		0.00	0.00
030	C. Depreciation and amortisation	0.00	0.00
031	D. Generation , administration and other expenses	0.00	0.00
032	Power charges	872,302.00	2,653,635.00
033	Less: Recovered from contractors & employees	6,316,951.40	18,237.39
034	Sub-total(Net power charges)	-5,444,649.40	2,635,397.61
035	Water charges	0.00	0.00
036	Rent	0.00	0.00
037	Repairs & maintenance	0.00	0.00
038	Buildings	0.00	0.00
039	Construction equipment	0.00	0.00
040	Others	0.00	161,732.04
041		0.00	0.00
042	Insurance	0.00	0.00

RIHAND SUPER THERMAL POWER STATION

NOTE NO. 43 TO THE FS--EXPENDITURE DURING CONSTRUCTION PERIOD (NET)

(Amount in ₹)

	For the Year ended	31.03.2022	31.03.2021
043	Rates and taxes	93.60	0.00
044	Communication expenses	194,837.00	202,309.00
045	Travelling expenses	863,550.68	1,061,207.26
046	Tender expenses	0.00	0.00
047	Less: Income from sale of tenders	0.00	0.00
048	Sub-total (Net tender expenses)	0.00	0.00
049	Advertisement and publicity	0.00	0.00
050	Security expenses	0.00	0.00
051	Entertainment expenses	82,552.00	96,997.19
052	Guest house expenses	0.00	0.00
053	Less: Receipt from guest house	0.00	0.00
054	Sub-total (Net Guest House Expenses)	0.00	0.00
055	Education expenses	0.00	0.00
056	Brokerage & Commission	0.00	0.00
057	Books and periodicals	0.00	0.00
058	Community development expenses	0.00	0.00
059	Professional charges and consultancy fee	0.00	0.00
060	Legal expenses	0.00	0.00
061	EDP Hire and other charges	0.00	0.00
062	Printing and stationery	0.00	0.00
063	Miscellaneous expenses	1,644,206.13	1,471,438.56
064	Total (D)	-2,659,409.99	5,629,081.66
065	Total (A+B+C+D)	120,573,687.92	47,928,912.02
066	E. Less: Other Income	0.00	0.00
067	Interest from	0.00	0.00
068	Indian banks	0.00	0.00
069	Foreign banks	0.00	0.00
070	Others	0.00	0.00
071	Contractors	0.00	0.00
072	Hire charges	0.00	0.00
073	Sale of scrap	0.00	0.00
074	Exchange Differences	0.00	0.00
075	Miscellaneous income	96,735.00	73,452.78
076	TOTAL (E)	96,735.00	73,452.78
077	F. Net actuarial gain/loss OCI	85,940.56	201,530.19
078		0.00	0.00
079	GRAND TOTAL (A+B+C+D-E+F)	120,562,893.48	48,056,989.43
080		0.00	0.00
081	* Balance carried to Capital Work-in-progress - (Note 3)	120,562,893.48	48,056,989.43

RIHAND SUPER THERMAL POWER STATION
NOTE NO. 43A TO THE FS--EDC- COAL MINING

(Amount in ₹)

	For the Year ended	31.03.2022	31.03.2021
001	EDC- Coal Mining	0.00	0.00
002	A. Employee benefits expense	0.00	0.00
003	Salaries and wages	0.00	0.00
004	Contribution to provident and other funds	0.00	0.00
005	Unwinding of deferred payroll expenses	0.00	0.00
006	Staff welfare expenses	0.00	0.00
007	Total (A)	0.00	0.00
008	B. Finance Costs	0.00	0.00
009	Finance charges on financial liabilities measured at amortised cost	0.00	0.00
010	Bonds	0.00	0.00
011	Foreign currency term loans	0.00	0.00
012	Rupee term loans	0.00	0.00
013	Foreign currency bonds/notes	0.00	0.00
014	Unwinding of discount on account of vendor liabilities	0.00	0.00
015	Others	0.00	0.00
016		0.00	0.00
017	Other Borrowings Costs	0.00	0.00
018	Guarantee Commission	0.00	0.00
019	Management Fees/Arrangers Fees	0.00	0.00
020	Commitment charges/Exposure Premium	0.00	0.00
021	Legal Expenses on foreign currency loans	0.00	0.00
022	Foreign currency bonds/notes expenses	0.00	0.00
023	Foreign Credit Insurance Premium	0.00	0.00
024	Upfront Fee	0.00	0.00
025	Exchange Differences	0.00	0.00
026	Others	0.00	0.00
027	Exchange differences regarded as adjustment to interest cost	0.00	0.00
028	Total (B)	0.00	0.00
029		0.00	0.00
030	C. Depreciation and amortisation	0.00	0.00
031	D. Generation , administration and other expenses	0.00	0.00
032	Power charges	0.00	0.00
033	Less: Recovered from contractors & employees	0.00	0.00
034	Sub-total(Net power charges)	0.00	0.00
035	Water charges	0.00	0.00
036	Rent	0.00	0.00
037	Repairs & maintenance	0.00	0.00
038	Buildings	0.00	0.00
039	Construction equipment	0.00	0.00
040	Others	0.00	0.00
041	Cost of Captive Coal	0.00	0.00
042	Insurance	0.00	0.00
043	Rates and taxes	0.00	0.00

RIHAND SUPER THERMAL POWER STATION
NOTE NO. 43A TO THE FS--EDC- COAL MINING

(Amount in ₹)

For the Year ended	31.03.2022	31.03.2021
044 Communication expenses	0.00	0.00
045 Travelling expenses	0.00	0.00
046 Tender expenses	0.00	0.00
047 Less: Income from sale of tenders	0.00	0.00
048 Sub-total (Net tender expenses)	0.00	0.00
049 Advertisement and publicity	0.00	0.00
050 Security expenses	0.00	0.00
051 Entertainment expenses	0.00	0.00
052 Guest house expenses	0.00	0.00
053 Less: Receipt from guest house	0.00	0.00
054 Sub-total (Net Guest House Expenses)	0.00	0.00
055 Education expenses	0.00	0.00
056 Brokerage & Commission	0.00	0.00
057 Books and periodicals	0.00	0.00
058 Community development expenses	0.00	0.00
059 Professional charges and consultancy fee	0.00	0.00
060 Legal expenses	0.00	0.00
061 EDP Hire and other charges	0.00	0.00
062 Printing and stationery	0.00	0.00
063 Miscellaneous expenses	0.00	0.00
064 Total (D)	0.00	0.00
065 Total (A+B+C+D)	0.00	0.00
066 E. Less: Other Income	0.00	0.00
067 Interest from	0.00	0.00
068 Indian banks	0.00	0.00
069 Foreign banks	0.00	0.00
070 Others	0.00	0.00
071 Contractors	0.00	0.00
072 Hire charges	0.00	0.00
073 Sale of scrap	0.00	0.00
074 Exchange Differences	0.00	0.00
075 Miscellaneous income	0.00	0.00
076 TOTAL (E)	0.00	0.00
077 F. Net actuarial gain/loss OCI	0.00	0.00
078	0.00	0.00
079 GRAND TOTAL (A+B+C+D-E+F)	0.00	0.00
080	0.00	0.00
081 * Balance carried to Capital Work-in-progress - (Note 3)	0.00	0.00

RIHAND SUPER THERMAL POWER STATION

NOTE NO. 44-A TO THE FINANCIAL STATEMENTS

(Amount in ₹)

As at	31.03.2022	31.03.2021
001 Balance sheet	0.00	0.00
002 Freehold land for which conveyancing of the title is awaiting completion of legal formalities	0.00	0.00
003 (a) area (in acres)	1,277.87	1,277.87
004 (b) value (in rs)	50,838,469.84	50,838,469.84
005 Right-of-use land for which execution of lease deed is awaiting completion of legal formalities	0.00	0.00
006 (a) area (in acres)	1,966.04	1,966.04
007 (b) value (in rs)	312,091,923.56	312,091,923.56
008 Right-of-use land acquired on perpetual lease and accordingly not amortised	0.00	0.00
009 (a) area (in acres)	0.00	0.00
010 (b) value (in rs.)	0.00	0.00
011 Land in physical possession of the company which has not been shown in the books pending settlement of price (in acres)	0.00	0.00
012 Deposit with government authorities towards land in possession of the company included in cost of land which is subject to adjus	0.00	0.00
013 Land not in possession of the company	0.00	0.00
014 (a) area (in acres)	0.00	0.00
015 -Freehold	786.37	786.37
016 -Right of Use	0.00	72.47
017 (b) value (in rs)	0.00	0.00
018 -Freehold	14,409,326.78	14,409,326.78
019 -Right of Use	0.00	31,000,000.00
020 Right-of-use buildings pending completion of legal fomalities - value (in rs.)	0.00	0.00
021 Estimated amount of contracts remaining to be executed on capital account and not provided for	0.00	0.00
022 Property, plant & equipment	17,845,234,843.44	13,007,728,593.40
023 Intangible assets	0.00	0.00
024 Details of precommissioning expenditure	0.00	0.00
025 (a) precommissioning expenses	0.00	0.00
026 (b) precommissioning income	0.00	0.00
027 (c) net precommissioning expenditure	0.00	0.00
028	0.00	0.00
029	0.00	0.00
030	0.00	0.00
031 Exchange rate variation taken to revenue during the year (with -ve sign, if favourable)	-92,096,377.22	-15,064,742.92
045 Exchange rate variation capitalised during the year (with -ve sign, if favourable)	154,890,055.40	-258,283,111.07
064 Short Term Leases	0.00	0.00
065 A) Rent	0.00	0.00
066 Company lease accomodation - executives	0.00	0.00
067 Company lease accomodation - directors	0.00	0.00
068 Others	0.00	0.00



अध्यक्ष, वित्त विभाग (आयुक्तिक) / Addl. General Manager (Commercial) / एन टी पी सी लिमिटेड, NTPC LIMITED

RIHAND SUPER THERMAL POWER STATION

NOTE NO. 44-A TO THE FINANCIAL STATEMENTS

(Amount in ₹)

As at	31.03.2022	31.03.2021
069 Total	0.00	0.00
101 Borrowing cost capitalised during the year	24,288,814.93	22,905,000.49
102 Revenue grants recognized during the year	0.00	0.00
103 Revenue expenditure on research and development	0.00	0.00
104 Capital expenditure on research and development.	0.00	0.00
105 Expenditure on sustainability development - capital	0.00	0.00
106 Expenditure on csr- capital	0.00	0.00
107 Opening balance - CSR Liability	39,305,330.19	12,146,990.00
108 Paid/Adjusted during the Year out of Opening above	-36,690,803.19	-11,111,558.00
109 Amount yet to be paid against Cr Year CSR Exp	3,179,626.00	38,269,898.19
110 Closing Balance CSR- Liability (110)	5,794,153.00	39,305,330.19
111	0.00	0.00
112	0.00	0.00
113	0.00	0.00
114	0.00	0.00
115 Disclosure under msmed act 2006.	0.00	0.00
116 (i) (a) the principal amount remaining unpaid as at year end	344,066,958.09	358,855,306.17
117 (i) (b) interest due there on remaining unpaid as at Year end	0.00	0.00
118 (ii) the amount of interest paid by the buyer in terms of section 16, along with the amounts of the payment made to the supplier	0.00	0.00
119 (iii) the amount of interest due and payable for the period of delay in making payment(which has been paid but beyond the appoin	0.00	0.00
120 (iv) the amount of interest accrued and remaining unpaid at the end of the year; and	0.00	0.00
121 (v) the amount of further interest remaining due and payable even in the succeeding years, until such date when the interest due	0.00	0.00
122 Amount of inventories recognized as an expense (including fuel)	31,594,433,719.35	32,450,425,492.54
123 Amount of inventories capitalised as overhauling assets out of 122 above	138,605,728.72	211,306,876.17
124 Amount capitalised as edc out of 122 above	0.00	0.00
133 Value of Imported Material Consumed during the Year	0.00	0.00
134	0.00	0.00
135 Contingent liabilities	0.00	0.00
136 A. Claims against the company not acknowledged as debts in respect of :	0.00	0.00
137 (i)Capital works	0.00	0.00
138 (ii)Land compensation cases	35,769,736.80	36,846,334.60
139 (iii)Others by state authorities towards:-	0.00	0.00
140 (a) Water royalty / water charges / nala tax	0.00	0.00
141 (b) Diversion of land / building permission fees	0.00	0.00

RIHAND SUPER THERMAL POWER STATION

NOTE NO. 44-A TO THE FINANCIAL STATEMENTS

(Amount in ₹)

As at	31.03.2022	31.03.2021
142 (c) Other demands by state authorities	257,912,490.57	213,444,000.00
143 (iv) Others by fuel companies	0.00	0.00
144 (a) Disputes related to grade slippage-third party sampling	521,176,520.00	674,113,356.00
145 (b) Surface transportation charges on coal	911,712,917.66	911,712,917.66
146 (c) Take or pay claim - Gas stations	0.00	0.00
147 (d) Other claims by fuel companies not acknowledged as debt	291,000,980.00	288,553,832.00
149 B.Disputed tax demands	0.00	0.00
150 (i) Income tax	0.00	0.00
151 (ii) Excise duty	3,691,823.00	3,691,823.00
152 (iii) Sales tax	145,060,360.00	144,606,592.00
153 (iv) Service tax	4,080,007.53	3,934,244.13
154 (v) Entry tax	0.00	0.00
155 C. Others	240,865,291.85	244,114,529.58
156 Total	2,411,270,127.41	2,521,017,628.97
157 D. Possible reimbursement on account of contingent liabilities	0.00	0.00
158 (i) Capital works	0.00	0.00
159 (ii) Land compensation cases	0.00	0.00
160 (iii) Others (by state authorities)	0.00	0.00
161	0.00	0.00
162 (iv) Others by fuel companies	1,723,890,417.66	1,874,380,105.66
163 (v) Disputed income tax demand	0.00	0.00
164 (vi) Disputed tax demands -others	148,752,183.00	147,399,897.00
165 (vii) Others	118,267,099.00	124,237,101.00
167 Total	1,990,909,699.66	2,146,017,103.66
168 E.AMOUNT PAID UNDER PROTEST/ADJUSTED BY AUTHORITIES - TAX CASES	812,756.00	812,756.00
169 F.CONTINGENT ASSETS	0.00	0.00
170 Intangible under development : less than 1 year	0.00	0.00
171 Intangible under development #: 1-2 year	0.00	0.00
227 Intangible under development #: 2-3 year	0.00	0.00
277 Intangible under development #: More than 3 years	0.00	0.00
278 Capital-Work-in Progress (CWIP)	0.00	0.00
279 Projects in progress	6,758,466,834.90	3,031,095,010.70
280 Projects temporarily suspended	0.00	0.00
281	0.00	0.00
282	0.00	0.00
283 Projects in progress	0.00	0.00
284 Less than 1 year	4,445,877,958.44	2,464,027,384.05
285 1-2 years	1,791,003,583.98	275,380,547.60
286 2-3 years	268,220,634.24	47,112,066.26
287 More than 3 years	253,364,658.24	244,575,012.79
288 Sub Total (I)	6,758,466,834.90	3,031,095,010.70
289	0.00	0.00



RIHAND SUPER THERMAL POWER STATION
NOTE NO. 44-A TO THE FINANCIAL STATEMENTS

(Amount in ₹)

As at	31.03.2022	31.03.2021
290 Projects temporarily suspended	0.00	0.00
291 Less than 1 year	0.00	0.00
292 1-2 years	0.00	0.00
293 2-3 years	0.00	0.00
294 More than 3 years	0.00	0.00
295 Sub Total (II)	0.00	0.00
296	0.00	0.00
380 Previous year figures have been regrouped/rearranged wherever necessary.	0.00	0.00

RIHAND SUPER THERMAL POWER STATION

NOTE NO. 44-B TO THE FS--RPD DISCLOSURE- TRANSACTIONS DURING THE PERIOD

(Amount in ₹)

	For the Year ended	31.03.2022	31.03.2021
001	1) Transactions during the year- subsidiaries	0.00	0.00
002	Purchase of equipment, supply & erection services	0.00	0.00
003	Purchase of spares	0.00	0.00
004	Maintenance services	0.00	0.00
005	Contracts for works/services for services provided by the company	0.00	0.00
006	Deputation of employees	0.00	0.00
007	Sales of goods	0.00	0.00
008	Sales of property and other assets	0.00	0.00
009	Sub-total	0.00	0.00
010		0.00	0.00
011	Dividend received	0.00	0.00
012	Equity contributions made	0.00	0.00
013	Share application money pending allotment	0.00	0.00
014	Loans granted	0.00	0.00
015	Interest on Loan	0.00	0.00
016	Guarantees received	0.00	0.00
017	Guarantees provided	0.00	0.00
018	Sub-total	0.00	0.00
019		0.00	0.00
020	Transactions during the year- jvs	0.00	0.00
021	Purchase of equipment, supply & erection services	5,024,657.17	-1,682,896.23
022	Purchase of spares	0.00	0.00
023	Maintenance services	859,040,089.80	997,681,580.70
024	Contracts for works/services for services provided by the company	0.00	1,329,798.62
025	Deputation of employees	0.00	0.00
026	Sales of goods	0.00	0.00
027	Sales of property and other assets	0.00	0.00
028	Sub-total	864,064,746.97	997,328,483.09
029		0.00	0.00
030	Dividend received	0.00	0.00
031	Equity contributions made	0.00	0.00
032	Share application money pending allotment	0.00	0.00
033	Loans granted	0.00	0.00
034	Guarantees received	0.00	0.00
035	Guarantees provided	0.00	0.00
036	Sub-total	0.00	0.00
037	Total	864,064,746.97	997,328,483.09
038	Transactions with post employment benefit plans	0.00	0.00
039	Contributions made during the year	0.00	0.00
040	Compensation to key management personnel	0.00	0.00
041	Short term employee benefits	0.00	0.00
042	Post employment benefits	0.00	0.00
043	Other long term benefits	0.00	0.00
044	Termination benefits	0.00	0.00

RIHAND SUPER THERMAL POWER STATION

NOTE NO. 44-B TO THE FS--RPD DISCLOSURE- TRANSACTIONS DURING THE PERIOD

(Amount in ₹)

	For the Year ended	31.03.2022	31.03.2021
045	Sitting Fee	0.00	0.00
046	Share based payments	0.00	0.00
047	Sub-total	0.00	0.00
048	Transactions with the related parties under the control of the same government:	0.00	0.00
049	Coal india ltd.. And its subsidiaries- purchase of coal	29,254,471,598.00	29,065,603,324.00
050	Singareni coalfields ltd- purchase of coal	0.00	0.00
051	Bhel ltd.	0.00	0.00
052	Purchase of equipment, supply & erection services	83,658,474.64	242,365,356.74
053	Purchase of spares	132,241,476.97	108,328,927.92
054	Maintenance services	255,496,685.48	221,583,436.88
055	Sub-total	471,396,637.09	572,277,721.54
056	Gail (i) ltd. Supply of natural gas	0.00	0.00
057	locl supply of oil products	757,980,356.02	576,989,518.01
058	Bpcl-supply of natural gas and oil	54,520,164.69	36,610,626.00
059	Sail-supply of steel and iron products	218,133,550.53	191,925,531.94
060	Other entities	0.00	0.00
061	Purchase of equipments & erection services	2,578,991.04	558,043.00
062	Purchase of spares	29,830,616.57	43,435,715.81
063	Maintenance services	116,741,621.33	134,637,356.67
064		0.00	0.00
065	Total	30,905,653,535.27	30,622,037,836.97
066	Transaction with other	0.00	0.00
067	Transaction with ntpc education and research society and ntpc foundation	0.00	0.00
068	- transactions during the year	0.00	0.00
069	ADDITIONAL TRANSACTIONS WITH RELATED PARTIES FOR PSU	0.00	0.00
070	Additional Transactions with GAIL	0.00	0.00
071	Additional Transactions with subsidiaries	0.00	0.00
072	Additional Transactions with joint ventures	0.00	0.00
073		0.00	0.00
074		0.00	0.00

RIHAND SUPER THERMAL POWER STATION

NOTE NO. 44-C TO THE FS--RPD DISCLOSURE- OUTSTANDING BALANCES

(Amount in ₹)

As at	31.03.2022	31.03.2021
001 Outstanding balance	0.00	0.00
002 Amount recoverable towards loans	0.00	0.00
003 - From Subsidiaries	0.00	0.00
004 - From JVC	0.00	0.00
005 - From KMP	0.00	0.00
006 - From Others	0.00	0.00
007 Sub-total	0.00	0.00
008 Amount recoverable other than loan	0.00	0.00
009 - from subsidiaries	0.00	0.00
010 - from joint ventures	0.00	35,658.00
011 - from key managerial personnel	0.00	0.00
012 - from post employment benefit plans	0.00	0.00
013 - from others	0.00	0.00
014 Sub-total	0.00	35,658.00
015 Amount payable	0.00	0.00
016 - from subsidiaries	0.00	0.00
017 - from joint ventures	102,917,865.18	115,175,286.78
018 - from key managerial personnel	0.00	0.00
019 - from post employment benefit plans	0.00	0.00
020 - from others	0.00	0.00
021 Sub-total	102,917,865.18	115,175,286.78
022	0.00	0.00

RIHAND SUPER THERMAL POWER STATION
BALANCE SHEET

(Amount in ₹)

As at	Note	31.03.2023	31.03.2022
001	ASSETS	0.00	0.00
002		0.00	0.00
003	NON-CURRENT ASSETS	0.00	0.00
004	PROPERTY, PLANT & EQUIPMENT	49,021,309,183.59	50,524,838,213.05
005	CAPITAL WORK-IN-PROGRESS	8,960,205,455.82	6,758,466,834.90
006	INVESTMENT PROPERTY	0.00	0.00
007	INTANGIBLE ASSETS	73,793.85	15,282.40
008	INTANGIBLE ASSETS UNDER DEVELOPMENT	0.00	0.00
009	FINANCIAL ASSETS	0.00	0.00
010	I) EQUITY INVESTMENTS IN SUBSIDIARIES AND JOINT VENTURES	0.00	0.00
011	II) OTHER INVESTMENTS	0.00	0.00
012	III) TRADE RECEIVABLES	0.00	0.00
013	IV) LOANS	111,577,788.06	114,504,593.97
014	V) OTHER FINANCIAL ASSETS	0.00	0.00
016	OTHER NON-CURRENT ASSETS	696,673,872.57	1,023,040,464.58
017	TOTAL NON-CURRENT ASSETS	59,379,845,893.79	58,420,665,369.88
018		0.00	0.00
019	CURRENT ASSETS	0.00	0.00
020	INVENTORIES	7,344,113,893.80	6,407,743,216.55
021	FINANCIAL ASSETS	0.00	0.00
022	I) OTHER INVESTMENTS	0.00	0.00
023	II) TRADE RECEIVABLES	1,737,334.04	1,733,397.09
024	III) CASH AND CASH EQUIVALENTS	0.00	0.00
025	IV) BANK BALANCES OTHER THAN CASH AND CASH EQUIVALENTS	0.00	0.00
026	V) LOANS	69,609,653.52	75,812,587.85
027	VI) OTHER FINANCIAL ASSETS	126,649,561.86	149,290,961.93
028	CURRENT TAX ASSETS (NET)	0.00	0.00
029		0.00	0.00
030	OTHER CURRENT ASSETS	682,394,268.11	453,531,000.23
031		0.00	0.00
032	TOTAL CURRENT ASSETS	8,224,504,791.53	7,888,111,196.45
033	ASSETS CLASSIFIED AS HELD FOR SALE	6,037,344.90	42,064.39
036	REGULATORY DEFERRAL ACCOUNT DEBIT BALANCES	-43,260,292.59	381,102,021.19
037	TOTAL ASSETS	67,567,127,737.83	66,489,920,676.91
038	EQUITY AND LIABILITIES	0.00	0.00
039	EQUITY	0.00	0.00
040	EQUITY SHARE CAPITAL	0.00	0.00
041	OTHER EQUITY	178,727,729,333.46	178,727,729,333.46
044	TOTAL EQUITY	178,727,729,333.46	178,727,729,333.46
045		0.00	0.00
046	LIABILITIES	0.00	0.00
047	NON-CURRENT LIABILITIES	0.00	0.00
048	FINANCIAL LIABILITIES	0.00	0.00
049	I) BORROWINGS	0.00	0.00

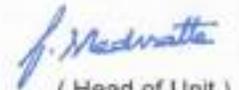
**RIHAND SUPER THERMAL POWER STATION
BALANCE SHEET**

(Amount in ₹)

As at	Note	31.03.2023	31.03.2022
050 II) LEASE LIABILITIES	23A	200,090,601.98	0.00
051 III) TRADE PAYABLES		0.00	0.00
052 - TOTAL OUTSTANDING DUES OF MICRO AND SMALL ENTERPRISES	24	3,290,711.73	7,630,370.14
053 - TOTAL OUTSTANDING DUES OF CREDITORS OTHER THAN MICRO AND SMALL ENTERPRISES	24	7,141,146.39	11,100,050.81
054 IV) OTHER FINANCIAL LIABILITIES	25	45,450,360.21	213,937,434.72
055 PROVISIONS	26	0.00	0.00
056 DEFERRED TAX LIABILITIES (NET)	27	0.00	0.00
057 OTHER NON-CURRENT LIABILITIES	28	0.00	0.00
058		0.00	0.00
059 TOTAL NON-CURRENT LIABILITIES		255,960,829.31	232,876,455.67
060		0.00	0.00
061 CURRENT LIABILITIES		0.00	0.00
062 FINANCIAL LIABILITIES		0.00	0.00
063 I) BORROWINGS	29	0.00	0.00
064 II) LEASE LIABILITIES	29A	15,669,307.00	0.00
065 III) TRADE PAYABLES		0.00	0.00
066 - TOTAL OUTSTANDING DUES OF MICRO AND SMALL ENTERPRISES	30	177,806,736.80	220,046,789.16
067 - TOTAL OUTSTANDING DUES OF CREDITORS OTHER THAN MICRO AND SMALL ENTERPRISES	30	2,778,477,796.80	3,104,879,536.52
068 III) OTHER FINANCIAL LIABILITIES	31	4,329,158,828.22	3,800,418,199.66
069 OTHER CURRENT LIABILITIES	32	124,300,877.64	150,867,804.94
070 PROVISIONS	33	9,102,016.00	8,583,884.00
071 CURRENT TAX LIABILITIES (NET)	34	0.00	0.00
072		0.00	0.00
073 TOTAL CURRENT LIABILITIES		7,434,413,564.46	7,284,835,996.68
074		0.00	0.00
077 DEFERRED REVENUE	35	1,576,387,000.00	1,521,099,000.00
078 REGULATORY DEFERRAL ACCOUNT CREDIT BALANCES	36	0.00	0.00
079 INTER UNIT ACCOUNTS		-130,781,938,495.19	-121,276,820,114.92
080		0.00	0.00
081 TOTAL EQUITY AND LIABILITIES		67,567,127,737.63	66,489,920,670.91
082 Significant Accounting Policies as per note 1	1	0.00	0.00
083		0.00	0.00
084 The Accompanying notes 1 to 44 form an integral part of these financial statements.		0.00	0.00
085		0.00	0.00

(Auditor Initial & Stamp)

(Head of Finance)


(Head of Unit)

पी. मैदीरत्ता/P. Mediratta
महाप्रबंधक (प्रवा. एवं अनु)/GM (O&M)
एनटीपीसी-रिहन्दनगर/NTPC-Rihandnagar
सोनभद्र (उ.प्र.)/Sonebhadra (U.P.) 231223

**RIHAND SUPER THERMAL POWER STATION
STATEMENT OF PROFIT AND LOSS**

(Amount in ₹)

	For the Year ended	Note	31.03.2023	31.03.2022
001	Revenue		0.00	0.00
002	Revenue from operations	37	58,472,623,746.09	53,148,219,779.11
003	Other income	38	494,325,517.35	1,201,322,056.93
005	Total Income		58,956,949,263.47	54,349,541,836.94
007	Expenses		0.00	0.00
008	Fuel including cost of captive coal	38A	34,514,855,222.10	30,643,588,586.19
009	Employee benefits expense	39	1,777,403,106.11	1,507,965,286.44
010	Electricity purchased for trading		0.00	0.00
011	Finance costs	40	1,283,819,909.71	1,466,105,749.88
012	Depreciation and amortization expenses	41	4,307,998,550.58	4,182,729,874.91
013			0.00	0.00
014	Other expenses	42	4,773,404,303.59	3,422,427,005.46
015	CC expenses charge to revenue		900,990,130.26	807,280,921.12
016	Less: Unit expenses transferred to CC		0.00	0.00
017	Total expenses		47,558,469,292.35	42,338,097,406.90
020	Profit before exceptional items & tax		11,398,479,971.12	12,019,444,430.04
021	Exceptional items		0.00	0.00
024	Profit before tax		11,398,479,971.12	12,019,444,430.04
027	Tax expense:		0.00	0.00
028	Current tax		0.00	0.00
031	Deferred tax		0.00	0.00
034			0.00	0.00
035	Total Tax expense		0.00	0.00
036	Profit for the period before regulatory deferral account balances		11,398,479,971.12	12,019,444,430.04
037	Movement in regulatory deferral account balances		0.00	0.00
038	Regulatory deferred account - deferred		0.00	0.00
039	Others		-1,024,362,313.78	310,015,565.02
040	Tax impact on Regulatory deferral account balances		0.00	0.00
041	Movement in Regulatory deferral account balances (Net of Tax)		-1,024,362,313.78	310,015,565.02
042	Profit for the period/ year		10,374,117,657.34	12,329,459,995.06
055	Other comprehensive income		0.00	0.00
056	(A) Items that will not be reclassified to profit or loss		0.00	0.00
057	- Net gains/(losses) on fair value of equity instruments through other comprehensive income		0.00	0.00
058	Income tax on above that will not be reclassified to profit or loss		0.00	0.00
059	- Net actuarial gains/(losses) on defined benefit plans		-19,544,151.77	-9,725,634.75
060	Income tax on above that will not be reclassified to profit or loss		0.00	0.00
064			0.00	0.00
065	Other comprehensive income for the year, net of income tax		-19,544,151.77	-9,725,634.75
070			0.00	0.00
071			0.00	0.00
072	Total Comprehensive Income for the year		10,354,573,505.57	12,319,734,360.31

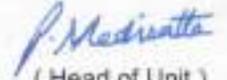
**RIHAND SUPER THERMAL POWER STATION
STATEMENT OF PROFIT AND LOSS**

(Amount in ₹)

	For the Year ended	Note	31.03.2023	31.03.2022
086			0.00	0.00
087	Earnings per equity share:		0.00	0.00
088	Basic & Diluted		0.00	0.00
089	Significant Accounting Policies		0.00	0.00
090			0.00	0.00
091	The accompanying notes 1 to 44 form an integral part of these financial statements.		0.00	0.00

(Auditor Initial & Stamp)

(Head of Finance)


(Head of Unit)

पी. मैदीरत्ता/P. Mediratta
महाप्रबंधक (प्रचा. एवं अनु.)/GM (O&M)
एनटीपीसी-रिहन्दनगर/NTPC-Rihandnagar
सोनभद्र (उ०प्र०)/Sonebhadra (U.P.) 231223

For CEO and CFO Certification

(a) We acknowledge our responsibility for preparation of financial statements in accordance with the requirements of the Companies Act 2013 and recognised accounting policies and practices. We further acknowledge our responsibility for preparation of financial statement according to the requirement of Section 134(5) of the Companies Act, 2013 relating to Director's Responsibilities Statement.

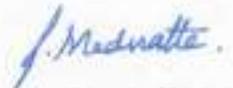
(b) We have reviewed these financial statements to the best of our knowledge and belief that these statements do not contain any materially untrue statement or omit any material fact or contain statements that might be misleading and these statements together present a true and fair view of the our Unit's affairs and are in compliance with existing accounting standards, applicable laws and regulations.

(c) To the best of our knowledge and belief, there are no transactions entered into by the Unit during the year which are fraudulent, illegal or violative of the company's code of conduct.

(d) We are responsible for establishing and maintaining internal controls for financial reporting and we have evaluated the effectiveness of the internal control system of the Unit pertaining to financial reporting and have disclosed to the auditors, the deficiencies in the design or operation of such internal controls, if any, of which we are aware and the steps we have taken or propose to take to rectify these deficiencies.

(e) We have indicated to the company's auditors significant changes in internal control over financial reporting during the year; significant changes, if any, in accounting policies during the year and the same have been disclosed in the notes to the financial statements; and instances of significant fraud of which we have become aware and the involvement therein, if any, of the management or an employee having a significant role in the company's internal control system over financial reporting.

(Head of Finance)



(Head of Unit)

पी. मैदीरत्ता/P. Mediratta
महाप्रबंधक (प्रचा. एवं अनु.)/GM (O&M)
एनटीपीसी-रिहन्दनगर/NTPC-Rihandnagar
सोनबद्र (उ०प्र०)/Sonebhadra (U.P.) 231223

Note forming part of Balance Sheet
Note 2 : Property, Plant And Equipment
Business Area :1005

Asset Class	Opening Gross Block As At 01.04.2022	Additions	Deductions/ Adjustments	Closing Gross Block As At 31.03.2023	Opening Depreciation As At 01.04.2022	Additions	Deductions/ Adjustments	Closing Depreciation As At 31.03.2023	Net Block As At 31.03.2023	Net Block As At 31.03.2022
1 TANGIBLE ASSETS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2 Land : (including development expenses)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3 Freehold	355016843.25	0.00	0.00	355016843.25	0.00	0.00	0.00	0.00	355016843.25	355016843.25
4 Right of Use	312564894.63	381975426.98	(16402587.63)	678137733.98	85480790.23	19559265.37	(5616449.11)	99423606.49	578714127.49	227084104.40
5 Submergence	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6 Right of use - Coal Bearing Area Land	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7 Roads,bridges, culverts & helipads	636337614.70	0.00	0.00	636337614.70	156600245.22	23556879.21	0.00	180157124.43	456180490.27	479737369.48
8 Building :	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9 Freehold	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10 Main plant	1852956664.03	16844083.76	0.00	1869800747.79	438548550.32	63015588.18	0.00	501564138.50	1368236609.29	1414408113.71
11 Others	2561634486.83	13176738.39	0.00	2574811225.22	578271478.87	95496029.90	0.00	673767508.77	1901043716.45	1983363007.96
12 Right of Use	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
13 Temporary erection	231168.13	0.00	0.00	231168.13	231168.13	0.00	0.00	231168.13	0.00	0.00
14 Water Supply, drainage & sewerage system	546222044.04	0.00	0.00	546222044.04	147146582.36	24193063.05	0.00	171339645.41	374882398.63	399075461.68
15 Hydraulic works, barrages, dams, tunnels and power channel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
16 MGR track and signalling system	1353778874.56	530569.59	0.00	1354309444.15	426074134.97	61386311.34	0.00	487460446.31	866848997.84	927704739.59
17 Railway siding	1528212.48	0.00	0.00	1528212.48	712429.73	64482.46	0.00	776912.19	751300.29	815782.75
18 Earth dam reservoir	1456921.40	0.00	0.00	1456921.40	0.00	0.00	0.00	0.00	1456921.40	1456921.40
19 Plant and machinery(including associated civil works)	74164614573.51	3340241532.80	(544289440.95)	76960566665.36	29934556584.50	4541497258.31	(731981424.62)	33744072418.19	43216494247.17	44230057989.01
Owned Asset										


 अवर महाप्रबन्धक (आर्थिक) /
 Addl. General Manager (Commercial)
 एन टी सी लिमिटेड / NTPC LIMITED

Note forming part of Balance Sheet
Note 2 : Property, Plant And Equipment
Business Area :1005

Asset Class	Opening Gross Block As At 01.04.2022	Additions	Deductions/ Adjustments	Closing Gross Block As At 31.03.2023	Opening Depreciation As At 01.04.2022	Additions	Deductions/ Adjustments	Closing Depreciation As At 31.03.2023	Net Block As At 31.03.2023	Net Block As At 31.03.2022
20 Plant and machinery(including associated civil works) -Right of use Asset	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
21 Furniture and fixtures	174964718.54	1676350.00	0.00	176641068.54	78594958.49	9625497.17	0.00	88220455.66	88420612.88	96369760.05
22 Assets under 5 Km Scheme	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
23 Vehicles including speedboats / helicopter- Owned	7198115.35	1836000.00	0.00	9034115.35	3207690.71	671403.19	0.00	3879093.90	5155021.45	3990424.64
24 Vehicles including speedboats / helicopter - Leased	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
25 Office equipment	100317191.90	496281.64	0.00	100813473.54	59694520.37	6658250.27	0.00	66352770.64	34460702.90	40622671.53
26 EDP, WP machines and satcom equipment	81544199.83	55528767.92	(11294623.43)	125778344.32	66533167.59	14980080.67	(11232170.33)	70281077.93	55497266.39	15011032.24
27 Construction equipments	65110895.86	0.00	0.00	65110895.86	29074058.93	2027521.71	0.00	31101580.64	34009315.22	36036836.93
28 Electrical Installations	331078040.99	0.00	0.00	331078040.99	140007740.40	21198417.68	0.00	161206158.08	169871882.91	191070300.59
29 Communication equipments	31956347.30	855500.00	0.00	32811847.30	24604550.37	483314.00	0.00	25087864.37	7723982.93	7351796.93
30 Hospital equipments	34939396.98	1223800.08	0.00	36163197.06	17430901.95	3295165.86	0.00	20726067.81	15437129.25	17508495.03
31 Laboratory and workshop equipments	149409000.82	1573758.95	0.00	150982759.77	51452438.94	8422703.15	0.00	59875142.09	91107617.68	97956561.88
32 Capital expenditure on assets not owned by the Company	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
33 Assets of Government	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00


 अवर सहायक (वित्त) /
 Addl. General Manager (Commercial)
 एन टी सी लिमिटेड / NTPC LIMITED

Note forming part of Balance Sheet
Note 2 : Property, Plant And Equipment
Business Area :1005

Asset Class	Opening Gross Block As At 01.04.2022	Additions	Deductions/ Adjustments	Closing Gross Block As At 31.03.2023	Opening Depreciation As At 01.04.2022	Additions	Deductions/ Adjustments	Closing Depreciation As At 31.03.2023	Net Block As At 31.03.2023	Net Block As At 31.03.2022
34 Less:Grants from Government	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
35 Less: Recoverable from GOI	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
36 Assets for ash utilisation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
37 (Less):-Adjusted from fly ash utilisation reserve fund	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
38 Site Restoration Cost	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
39 Mining Properties	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grand Total (Tangible)	82762860205.13	3815958810.11	(571986652.01)	86006832363.23	32238221992.08	4896131231.52	(748830044.06)	36385523179.54	49621309183.69	50524638213.05
Grand Total Prev Year (Tangible)	82040081026.12	1446704961.36	(723925782.35)	82762860205.13	28420630260.45	4722518393.06	(904926661.43)	32238221992.08	50524638213.05	53619450765.67


 Anil Kumar (Signature)
 Anil Kumar Manager (Commercial)
 Anil Kumar Manager / NTPC LIMITED

Note forming part of Balance Sheet
Note 2 : Property, Plant And Equipment
Business Area :1005

Details of Adjustments of Gross Block and Depreciation/Amortization

Particulars	Gross Block		Depreciation/Amortization	
	Tangible As At: 31.03.2023	Tangible As At: 31.03.2022	Tangible As At: 31.03.2023	Tangible As At: 31.03.2022
Disposal of assets	(11218922.70)	(352672.50)	(11218922.70)	(352672.50)
Retirement of assets	(832440819.19)	(995236466.75)	(738408039.74)	(926400049.04)
Cost adjustments	254681373.92	154890055.40	0.00	0.00
Assets capitalised with retrospective effect / Write back of excess capitalisation	0.00	0.00	0.00	0.00
Depreciation on construction equipment capitalised as EDC	0.00	0.00	0.00	0.00
Prior Period Depreciation due to Assets capitalised with retrospective effect / Write back of excess capitalisation	0.00	0.00	0.00	0.00
Special Depreciation (As per New Policy)	0.00	0.00	0.00	0.00
Transfer in /out because of Inter Unit transfers	26964560.27	116773301.50	796918.38	21826060.11
Others	(9972844.31)	0.00	0.00	0.00
TOTAL	(571986652.01)	(723925782.35)	(748830044.06)	(904926661.43)

Note:- Additions during the year includes capital expenditure towards CSR (in Rs.) : 0.00


 अधिवक्ता (आर्थिक)
 Addl. General Manager (Commercial)
 एन टी सी लिमिटेड / NTPC LIMITED

Note forming part of Balance Sheet

Note 3: Capital-Work-in-Progress

Business Area: RIHAND SUPER THERMAL POWER STATION

SI No	Asset Class	As At 01.04.2022	Addition	Deduction/ Adjustment	Capitalized	As At 31.03.2023
	1	2	3	4	5	6
29	Expenditure towards diversion of forest land					
30	Pre-commissioning expenses (net)					
31	ExpPendAlloca-oth ex attribut Project					
32	Expenditure During Construction Period (net)*		101556618.75	3866764.12		105423382.87
33	LESS : Allocated to related works		105423382.87			105423382.87
34	LESS : Provision for Unservicable works					
35	Construction stores (At Cost)					
36	Steel	2548783.67		43276.08		2592059.75
37	Cement	1894956.30		(171047.43)		1723908.87
38	Others	366294028.62	5343628.00	(260627980.45)		111009676.17
39	Sub-total	370737768.59	5343628.00	(260755751.80)		115325644.79
40	LESS : Provision for shortages	1469730.55		(1381333.39)		88397.16
41	Sub-total	369268038.04	5343628.00	(259374418.41)		115237247.63
42	Total CWIP	6758466834.90	4899010813.95	(1529841596.11)	1167430596.92	8960205455.82
43						
44						
45	PREVIOUS YEAR TOTAL	3031095010.70	4746007936.56	(60821215.76)	875877285.62	6758466834.90

Note:- Additions during the year includes capital expenditure towards CSR (in Rs.) :

0.00

(Amount in Rupees)

Note forming part of Balance Sheet
Note-4 Non Current Assets- Intangible Assets
Business Area :1005

Asset Class	Opening Gross Block As At 01.04.2022	Additions	Deductions/ Adjustments	Closing Gross Block As At 31.03.2023	Opening Depreciation As At 01.04.2022	Additions	Deductions/ Adjustments	Closing Depreciation As At 31.03.2023	Net Block As At 31.03.2023	Net Block As At 31.03.2022
INTANGIBLE ASSETS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1 Right to Use- Land	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2 -Others	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3 -Software	4773867.26	92925.00	0.00	4866792.26	4758604.86	28393.75	0.00	4786998.61	79793.65	15262.40
Grand Total (Intangible)	4773867.26	92925.00	0.00	4866792.26	4758604.86	28393.75	0.00	4786998.61	79793.65	15262.40
Grand Total Prev Year (Intangible)	4773867.26	0.00	0.00	4773867.26	4758604.86	0.00	0.00	4758604.86	15262.40	15262.40


 अवर सहायक (आर्थिक)
 Addl. General Manager (Commercial)
 एन टी सी लिमिटेड/NTPC LIMITED

Note forming part of Balance Sheet
Note-4 Non Current Assets- Intangible Assets
Business Area :1005

Details of Adjustments of Gross Block and Depreciation/Amortization				
Particulars	Gross Block		Depreciation/Amortization	
	InTangible As At: 31.03.2023	InTangible As At: 31.03.2022	InTangible As At: 31.03.2023	InTangible As At: 31.03.2022
Disposal of assets	0.00	0.00	0.00	0.00
Retirement of assets	0.00	0.00	0.00	0.00
Cost adjustments	0.00	0.00	0.00	0.00
Assets capitalised with retrospective effect / Write back of excess capitalisation	0.00	0.00	0.00	0.00
Depreciation on construction equipment capitalised as EDC	0.00	0.00	0.00	0.00
Prior Period Depreciation due to Assets capitalised with retrospective effect / Write back of excess capitalisation	0.00	0.00	0.00	0.00
Special Depreciation (As per New Policy)	0.00	0.00	0.00	0.00
Transfer in /out because of Inter Unit transfers	0.00	0.00	0.00	0.00
Others	0.00	0.00	0.00	0.00
TOTAL	0.00	0.00	0.00	0.00

Note:- Additions during the year includes capital expenditure towards CSR (in Rs.) : 0.00


 Anil Kumar (Commercial)
 Anil Kumar / NTPC LIMITED

Note forming part of Balance Sheet

Note 5: Intangible Assets under Development

Business Area: RIHAND SUPER THERMAL POWER STATION

SI No	Asset Class	As At 01.04.2022	Addition	Deduction/ Adjustment	Capitalized	As At 31.03.2023
	1	2	3	4	5	6
1	INTANGIBLE ASSETS UNDER DEVELOPMENT					
2	Software					
3	Right to use Others					
4	Exploration and Evaluation Expenditure - Coal Mini					
5	Exploratory wells-in-progress					
6	Less: Provision for exploratory wells-in-progress					
7	Total					
8	PREVIOUS YEAR TOTAL-I					

Note:- Additions during the year includes capital expenditure towards CSR (in Rs.) :

0.00

RIHAND SUPER THERMAL POWER STATION
NOTE NO. 6 TO THE FS-NCA-EQUITY INVESTMENTS IN SUBSIDIARIES AND JOINT VENTURES (Amount in ₹)

As at	No. of shares	Face value	31.03.2023	31.03.2022
001	NON CURRENT INVESTMENTS- INVESTMENTS IN SUBSIDIARIES AND JOINT VENTURES		0.00	0.00
012	EQUITY INSTRUMENTS - UNQUOTED-(FULLY PAID UP UNLESS OTHERWISE STATED, AT COST)		0.00	0.00
013	SUBSIDIARY COMPANIES		0.00	0.00
014	PATRATU VIDYUT UTPADAN NIGAM LTD.		0.00	0.00
015	NTPC ELECTRIC SUPPLY COMPANY LTD.		0.00	0.00
016	NTPC VIDYUT VYAPAR NIGAM LTD.		0.00	0.00
017	NABINAGAR POWER GENERATING COMPANY LTD.		0.00	0.00
018	KANTI BIJLEE UTPADAN NIGAM LTD.		0.00	0.00
019	BHARTIYA RAIL BIJLEE COMPANY LTD.		0.00	0.00
020	NTPC MINING LTD (NML)		0.00	0.00
021	THDC INDIA LTD.		0.00	0.00
022	NEEPCO LTD.		0.00	0.00
023	NTPC EDMC Waste Solutions Pvt Ltd		0.00	0.00
024	NTPC Renewables Energy Ltd		0.00	0.00
025	Ratnagiri Gas & Power Pvt. Limited (RGPPL)		0.00	0.00
026	NTPC Green Energy Limited		0.00	0.00
027	Green Valley Renewable Energy Limited		0.00	0.00
028			0.00	0.00
029			0.00	0.00
030	SUB TOTAL		0.00	0.00
055	JOINT VENTURE COMPANIES		0.00	0.00
056	Utility Powertech Ltd.		0.00	0.00
057	NTPC GE Power Services Pvt.Ltd.		0.00	0.00
058	NTPC-SAIL Power Company Ltd.		0.00	0.00
059	NTPC-Tamil Nadu Energy Company Ltd.		0.00	0.00

RIHAND SUPER THERMAL POWER STATION

NOTE NO. 6 TO THE FS-NCA-EQUITY INVESTMENTS IN SUBSIDIARIES AND JOINT VENTURES (Amount in ₹)

	As at	No. of shares	Face value	31.03.2023	31.03.2022
060	Ratnagiri Gas & Power Pvt. Limited (RGPPL)			0.00	0.00
061	ARAVALI POWER COMPANY PRIVATE LTD.			0.00	0.00
062	Jhabua Power Ltd.			0.00	0.00
063	NTPC BHEL POWER PROJECTS PRIVATE LTD.			0.00	0.00
064	MEJA URJA NIGAM PRIVATE LIMITED			0.00	0.00
065	BF-NTPC ENERGY SYSTEMS LTD.			0.00	0.00
066				0.00	0.00
067	NABINAGAR POWER GENERATING COMPANY LTD.			0.00	0.00
068	TRANSFORMER AND ELECTRICAL KERALA LTD.			0.00	0.00
069	NATIONAL HIGH POWER TEST LABORTORY PRIVATE LTD.			0.00	0.00
070				0.00	0.00
071	CIL NTPC URJA PRIVATE LTD.			0.00	0.00
072	ANUSHAKTI VIDHYUT NIGAM LTD.			0.00	0.00
073	ENERGY EFFICIENCY SERVICES LTD.			0.00	0.00
074				0.00	0.00
075	TRINCOMALEE POWER COMPANY LTD.			0.00	0.00
076	BANGLADESH-INDIA FRIENDSHIP POWER COMPANY (PVT.) LTD.			0.00	0.00
077	HINDUSTAN URVARAK & RASAYAN LIMITED			0.00	0.00
078	KONKAN LNG LTD			0.00	0.00
081	SUB TOTAL			0.00	0.00
109	AGGREGATE AMOUNT OF IMPAIRMENT IN THE VALUE OF INVESTMENTS			0.00	0.00
110	TOTAL (NET OF IMPAIRMENT) OF JV			0.00	0.00
111	Gross Total of Investments			0.00	0.00
134	Total			0.00	0.00
135	Details of Investments			0.00	0.00
136	Aggregate amount of Unquoted Investments			0.00	0.00



RIHAND SUPER THERMAL POWER STATION

NOTE NO. 6 TO THE FS-NCA-EQUITY INVESTMENTS IN SUBSIDIARIES AND JOINT VENTURES (Amount in ₹)

As at	No. of shares	Face value	31.03.2023	31.03.2022
141			0.00	0.00
142			0.00	0.00
143			0.00	0.00
144			0.00	0.00
145			0.00	0.00
153	Valuation of Investments as per Note 1.		0.00	0.00
154			0.00	0.00
202			0.00	0.00
233			0.00	0.00

RIHAND SUPER THERMAL POWER STATION
NOTE NO. 7 TO THE FS-NCA-OTHER INVESTMENTS
(Amount in ₹)

	As at	No. of shares	Face value	31.03.2023	31.03.2022
001	Non-current financial assets (investments)			0.00	0.00
006	Long Term - Trade			0.00	0.00
007	Equity Instruments (fully paid up-unless otherwise stated)			0.00	0.00
008	Quoted			0.00	0.00
009	JOINT VENTURE COMPANIES			0.00	0.00
010	PTC India Ltd.			0.00	0.00
070	INTERNATIONAL COAL VENTURES PRIVATE LTD.			0.00	0.00
075	BF-NTPC ENERGY SYSTEMS LTD.			0.00	0.00
098	Jhabua Power Limited-8.5% Non convertible debentures - private placement			0.00	0.00
110	COOPERATIVE SOCIETIES			0.00	0.00
111				0.00	0.00
112	SUB TOTAL			0.00	0.00
113	AGGREGATE AMOUNT OF IMPAIRMENT IN THE VALUE OF INVESTMENTS			0.00	0.00
115	TOTAL			0.00	0.00
120				0.00	0.00
146	NTPC EMPLOYEES CONSUMERS AND THRIFT CO-OPERATIVE SOCIETY LTD. KORBA			0.00	0.00
147	NTPC EMPLOYEES CONSUMERS AND THRIFT COOPERATIVE SOCIETY LTD. RSTPP			0.00	0.00
148	NTPC EMPLOYEES CONSUMERS COOPERATIVE SOCIETY LTD. FARAKKA			0.00	0.00
149	NTPC EMPLOYEES CONSUMERS COOPERATIVE SOCIETY LTD. VINDHYACHAL			0.00	0.00
150	NTPC EMPLOYEES CONSUMERS COOPERATIVE SOCIETY LTD. ANTA			0.00	0.00
151	NTPC EMPLOYEES CONSUMERS COOPERATIVE SOCIETY LTD. KAWAS			0.00	0.00
152	NTPC Employees Consumers Cooperative Society Ltd. Kaniha			0.00	0.00



RIHAND SUPER THERMAL POWER STATION

NOTE NO. 8 TO THE FS-NCA-TRADE RECEIVABLES

(Amount in ₹)

As at	31.03.2023	31.03.2022
001 Non-current financial assets - Trade receivables	0.00	0.00
002 UNSECURED, CONSIDERED GOOD	0.00	0.00
003 CREDIT IMPAIRED	0.00	0.00
004	0.00	0.00
006 Total	0.00	0.00

RIHAND SUPER THERMAL POWER STATION
NOTE NO. 9 TO THE FS-NCA-LOANS
(Amount in ₹)

As at	31.03.2023	31.03.2022
001 LOANS (NON CURRENT)	0.00	0.00
004 RELATED PARTIES	0.00	0.00
005 SECURED	0.00	0.00
006 UN-SECURED	0.00	0.00
007 WITH SIGNIFICANT INCREASE IN CREDIT RISK	0.00	0.00
008 CREDIT IMPAIRED	0.00	0.00
009	0.00	0.00
010 EMPLOYEES(INCLUDING ACCRUED INTEREST)	0.00	0.00
011 SECURED	94,115,817.95	87,385,641.00
012 UNSECURED	45,955,656.57	55,663,708.67
013 WITH SIGNIFICANT INCREASE IN CREDIT RISK	0.00	0.00
014 CREDIT IMPAIRED	0.00	0.00
015 LESS : EMPLOYEE LOANS DISCOUNTING	0.00	0.00
016 SECURED	22,171,388.03	21,476,411.67
017 UNSECURED	6,322,298.43	7,068,344.03
018 LOAN TO STATE GOVERNMENT IN SETTLEMENT OF DUES FROM CUSTOMERS (UNSECURED)	0.00	0.00
019 OTHERS	0.00	0.00
020 SECURED	0.00	0.00
021 UNSECURED	0.00	0.00
022 WITH SIGNIFICANT INCREASE IN CREDIT RISK	0.00	0.00
023 CREDIT IMPAIRED	0.00	0.00
024 LESS: ALLOWANCE FOR CREDIT IMPAIRED LOANS	0.00	0.00
026 SUB TOTAL	111,577,788.06	114,504,593.97
027	0.00	0.00
028 TOTAL	111,577,788.06	114,504,593.97
029	0.00	0.00
030	0.00	0.00
031 Due from Directors and Officers of the Company	0.00	0.00
032 Directors	0.00	0.00
033 Officers	0.00	0.00
034	0.00	0.00
035 Loans to related parties include:	0.00	0.00
036 i)Key management personel	0.00	0.00
037 ii)Subsidiary companies	0.00	0.00
038 iii)Joint Venture companies	0.00	0.00
039 iv)Others	0.00	0.00
040	0.00	0.00
055 Other loans represent loans given to	0.00	0.00
056 a) APIIC	0.00	0.00
061	0.00	0.00
062 RPD	0.00	0.00
063 i)Key management personel	0.00	0.00



RIHAND SUPER THERMAL POWER STATION

NOTE NO. 9 TO THE FS-NCA-LOANS

(Amount in ₹)

As at	31.03.2023	31.03.2022
064 ii)Subsidiary companies	0.00	0.00
065 iii)Joint Venture companies	0.00	0.00
066 iv)Others	0.00	0.00
067 Total	0.00	0.00

RIHAND SUPER THERMAL POWER STATION
NOTE NO. 10 TO THE FS-NCA-OTHER FINANCIAL ASSETS
(Amount in ₹)

As at	31.03.2023	31.03.2022
001 Other Financial Assets (non current)	0.00	0.00
002	0.00	0.00
003 Share application money pending allotment in (Subsidiary Companies) :	0.00	0.00
004 NTPC Electric Supply Company Ltd.	0.00	0.00
005 NTPC Vidyut Vyapar Nigam Ltd.	0.00	0.00
006 Nabinagar Power Generating Company Ltd.	0.00	0.00
007 Kanti Bijlee Utpadan Nigam Ltd.	0.00	0.00
008 Bhartiya Rail Bijlee Company Ltd.	0.00	0.00
009 Patratu Vidyut Utpadan Nigam Ltd.	0.00	0.00
010 NTPC Mining Limited	0.00	0.00
011 THDC Ltd.	0.00	0.00
012 NEEPCO Ltd	0.00	0.00
013	0.00	0.00
014 Total	0.00	0.00
015 Share application money pending allotment (Joint Venture)	0.00	0.00
016 Utility Powertech Ltd.	0.00	0.00
017 NTPC GE Power Services Pvt.Ltd.	0.00	0.00
018 NTPC-SAIL Power Company Ltd.	0.00	0.00
019 NTPC-Tamil Nadu Energy Company Ltd.	0.00	0.00
020 Ratnagiri Gas & Power Private Ltd.	0.00	0.00
021 Aravali Power Company Private Ltd.	0.00	0.00
022	0.00	0.00
023 NTPC BHEL Power Projects Private Ltd.	0.00	0.00
024 Meja Urja Nigam Private Limited	0.00	0.00
025 BF-NTPC Energy Systems Ltd.	0.00	0.00
026 Anushakti Vidhyut Nigam Ltd.	0.00	0.00
027 Nabinagar Power Generating Company Ltd.	0.00	0.00
028 Energy Efficiency Services Ltd.	0.00	0.00
029 National High Power Test Labortory Private Ltd.	0.00	0.00
030	0.00	0.00
031 CIL NTPC Urja Private Ltd.	0.00	0.00
032 Trincomalee Power Company Ltd.	0.00	0.00
033 Hindustan Urvarak & Rasayan Limited	0.00	0.00
034 Bangladesh-India Friendship Power Company Private Ltd.	0.00	0.00
035 Sub Total	0.00	0.00
036	0.00	0.00
037 Claims Recoverable	0.00	0.00
038 Finance Lease Recoverable	0.00	0.00
039 Mine Closure Deposit	0.00	0.00
040 Financial Deposit	0.00	0.00
041	0.00	0.00
042 Total	0.00	0.00



RIHAND SUPER THERMAL POWER STATION

(Amount in ₹)

As at	31.03.2023	31.03.2022
010	0.00	0.00

RIHAND SUPER THERMAL POWER STATION
NOTE NO. 11 TO THE FS-NCA-OTHER NON-CURRENT ASSETS
(Amount in ₹)

As at	31.03.2023	31.03.2022
001 Other Non-current Assets	0.00	0.00
002	0.00	0.00
003 CAPITAL ADVANCES	0.00	0.00
004 SECURED	0.00	0.00
005 Unsecured	0.00	0.00
006 COVERED BY BANK GUARANTEE	600,930,914.00	194,789,674.00
007 OTHERS	54,522,506.49	53,588,917.11
008 CONSIDERED DOUBTFUL	0.00	0.00
009 LESS: ALLOWANCE FOR BAD & DOUBTFUL ADVANCES	0.00	0.00
010 Sub-Total	655,453,420.49	248,378,591.11
011	0.00	0.00
012 Advances other than capital advances	0.00	0.00
013 SECURITY DEPOSITS	1,524,280.00	1,524,280.00
019 Advances to Related parties	0.00	0.00
022 Advances to Contractors & Suppliers	0.00	0.00
023 SECURED	0.00	0.00
024 UNSECURED	0.00	0.00
025 CONSIDERED DOUBTFUL	0.00	0.00
026 LESS: ALLOWANCE FOR BAD & DOUBTFUL ADVANCES	0.00	0.00
027 Sub Total	1,524,280.00	1,524,280.00
028 RECEIVABLE FROM MCP ESCROW A/C	0.00	0.00
029 Pre Paid expenses	0.00	0.00
039 ADVANCE TAX & TAX DEDUCTED AT SOURCE	9,747,424.13	7,544,241.17
040 LESS:- PROVISION FOR CURRENT TAX	0.00	0.00
041	0.00	0.00
042 Sub Total	9,747,424.13	7,544,241.17
043 DEFERRED PAYROLL EXPENSES (SECURED)	15,584,840.68	16,323,225.74
044 DEFERRED PAYROLL EXPENSES (UNSECURED)	4,362,707.27	4,860,126.54
045 Sub Total	19,947,547.95	21,183,352.28
046 DEFERRED FOREIGN CURRENCY FLUCTUATION ASSET	1,000.00	744,410,000.00
049	0.00	0.00
050 Total	686,673,672.57	1,023,040,464.56
051	0.00	0.00
052	0.00	0.00
062 Advances include amount due from the following Private Companies in which Directors of the Company are also Directors in such Companies	0.00	0.00
064	0.00	0.00
065 NTPC GE Power Services Pvt.Ltd.	0.00	0.00
066	0.00	0.00
067 Ratnagiri Gas & Power Private Ltd.	0.00	0.00
068 Aravali Power Company Private Ltd.	0.00	0.00
069 NTPC-SCCL Global Ventures Private Ltd.	0.00	0.00

**RIHAND SUPER THERMAL POWER STATION****NOTE NO. 11 TO THE FS-NCA-OTHER NON-CURRENT ASSETS****(Amount in ₹)**

As at	31.03.2023	31.03.2022
070 NTPC BHEL Power Projects Private Ltd.	0.00	0.00
071 Meja Urja Nigam Private Limited	0.00	0.00
072 Nabinagar Power Generating Company Ltd.	0.00	0.00
073 National High Power Test Labortory Private Ltd.	0.00	0.00
075 CIL NTPC Urja Private Ltd.	0.00	0.00
077	0.00	0.00
078 Related Party (Adv)	0.00	0.00
079 Key Management personel	0.00	0.00
080 Subsidiary companies	0.00	0.00
081 Joint Venture companies	0.00	0.00
082 Contractors	0.00	0.00
083 Others	0.00	0.00
085	0.00	0.00
086 Total	0.00	0.00

RIHAND SUPER THERMAL POWER STATION

NOTE NO. 12 TO THE FS-CA-INVENTORIES

(Amount in ₹)

As at	31.03.2023	31.03.2022
001 INVENTORIES	0.00	0.00
002	0.00	0.00
003 Coal	2,580,101,057.99	2,703,905,576.35
004 Fuel oil	547,439,933.51	331,140,312.31
005 Naphtha	0.00	0.00
006 Stores and spares	3,448,710,137.80	2,663,630,801.56
007 Chemicals & consumables	76,411,103.07	65,606,636.51
008 Loose tools	2,161,544.92	1,308,727.02
009 Steel Scrap	6,955,006.69	6,531,859.28
010 Others	726,364,476.25	670,976,891.13
011	0.00	0.00
012 Sub Total	7,388,143,260.23	6,443,100,804.16
013 Less: Provision for shortages	222,450.81	1,655,918.65
014 Less: Provision for obsolete/ unserviceable/dimunitation in value of surplus inventory	43,806,915.82	33,701,668.96
016	0.00	0.00
017 Total	7,344,113,893.60	6,407,743,216.55
018 Inventories include material in transit	0.00	0.00
019 Coal	0.00	0.00
020 Fuel oil	0.00	0.00
021 Naphtha	0.00	0.00
022 Stores and spares	180,646.08	7,409,492.60
023 Chemicals & consumables	1,207,500.10	8,269,466.13
024 Loose tools	0.00	0.00
025 Others	0.00	12,040,077.62
026	0.00	0.00
028 Inventory items other than steel scrap have been valued considering Note 1.	0.00	0.00

RIHAND SUPER THERMAL POWER STATION

NOTE NO. 13 TO THE FS-CA-OTHER INVESTMENTS

(Amount in ₹)

	As at	No. of shares	Face value	31.03.2023	31.03.2022
001	CURRENT INVESTMENTS			0.00	0.00
002	(Valuation as per Note 1)			0.00	0.00
003	Jhabua Power Limited-8.5% Non convertible debentures - private placement			0.00	0.00
033	Investment in Mutual Funds (Details as under)			0.00	0.00
034	SBI-Magnum Insta Cash Fund-DDR			0.00	0.00
035	SBI Premier Liquid Fund Super-IP-DDR			0.00	0.00
036	SBI-SHF Ultra Short Term Fund-IP-DDR			0.00	0.00
037	UTI Money Market- IP-Direct-Growth			0.00	0.00
038	IDBI-Liquid plan- Direct-Growth			0.00	0.00
039	Canara Robeco Liquid Fund Super-IP-DDR			0.00	0.00
040	Canara Robeco Treasury Advantage Fund Super-IP-DDR			0.00	0.00
041	IDBI Liquid Fund-DDR			0.00	0.00
042	SBI Premier Liquid fund-Direct DDR (Ash Fund)			0.00	0.00
043	UTI Liquid CashPlan - IP - DDR (Ash Funds)			0.00	0.00
044	IDBI Liquid Fund - DDR - (Ash Funds)			0.00	0.00
045	Baroda Liquid Fund - Direct - Growth			0.00	0.00
046				0.00	0.00
047	Sub Total			0.00	0.00
048				0.00	0.00
052	Unquoted Investments			0.00	0.00
054				0.00	0.00
066	TOTAL			0.00	0.00
067				0.00	0.00

RIHAND SUPER THERMAL POWER STATION
NOTE NO. 14 TO THE FS-CA-TRADE RECEIVABLES
(Amount in ₹)

As at	31.03.2023	31.03.2022
001 TRADE RECEIVABLES (current)*	0.00	0.00
002	0.00	0.00
003 Secured, Considered Good	0.00	0.00
004 Unsecured , considered good	1,737,334.04	1,733,397.09
005 Credit impaired	0.00	0.00
006 Unbilled Revenue	0.00	0.00
007 Sub-Total	1,737,334.04	1,733,397.09
008 Total	1,737,334.04	1,733,397.09
009 Less: Allowance for credit impaired receivables	0.00	0.00
010 Total	1,737,334.04	1,733,397.09
012 Less: Discom Clearing	0.00	0.00
014	0.00	0.00
015 Grand Total	1,737,334.04	1,733,397.09
016 Other Unsecured	0.00	0.00
017 Long-term trade receivables	0.00	0.00
018 TCS Clearing	0.00	0.00
019 Discom Clearing	0.00	0.00
228 Trade Receivable	0.00	0.00
230 Not due	0.00	0.00
231 Due	0.00	0.00
232 (i) Undisputed Trade receivables # considered good	1,737,334.04	1,733,397.09
233 (ii) Undisputed Trade Receivables # which have significant increase in credit risk	0.00	0.00
234 (iii) Undisputed Trade Receivables # credit impaired	0.00	0.00
235 (iv) Disputed Trade Receivables#considered good	0.00	0.00
236 (v) Disputed Trade Receivables # which have significant increase in credit risk	0.00	0.00
237 (vi) Disputed Trade Receivables # credit impaired	0.00	0.00
238 Unbilled	0.00	0.00
239 Total	1,737,334.04	1,733,397.09
240	0.00	0.00
241 (i) Undisputed Trade receivables # considered good	0.00	0.00
242 Less than 6 months	1,737,334.04	1,733,397.09
243 6 months -1 year	0.00	0.00
244 1-2 years	0.00	0.00
245 2-3 years	0.00	0.00
246 More than 3 years	0.00	0.00
247 Sub Total (I)	1,737,334.04	1,733,397.09
248 (ii) Undisputed Trade Receivables # which have significant increase in credit risk	0.00	0.00
249 Less than 6 months	0.00	0.00
250 6 months -1 year	0.00	0.00
251 1-2 years	0.00	0.00
252 2-3 years	0.00	0.00

RIHAND SUPER THERMAL POWER STATION
NOTE NO. 14 TO THE FS-CA-TRADE RECEIVABLES

(Amount in ₹)

As at	31.03.2023	31.03.2022
253 More than 3 years	0.00	0.00
254 Sub Total (II)	0.00	0.00
255 (iii) Undisputed Trade Receivables -credit impaired	0.00	0.00
256 Less than 6 months	0.00	0.00
257 6 months -1 year	0.00	0.00
258 1-2 years	0.00	0.00
259 2-3 years	0.00	0.00
260 More than 3 years	0.00	0.00
261 Sub Total (III)	0.00	0.00
262	0.00	0.00
263 (iv) Disputed Trade Receivables#considered good	0.00	0.00
264 Less than 6 months	0.00	0.00
265 6 months -1 year	0.00	0.00
266 1-2 years	0.00	0.00
267 2-3 years	0.00	0.00
268 More than 3 years	0.00	0.00
269 Sub Total (IV)	0.00	0.00
270 (v) Disputed Trade Receivables # which have significant increase in credit risk	0.00	0.00
271 Less than 6 months	0.00	0.00
272 6 months -1 year	0.00	0.00
273 1-2 years	0.00	0.00
274 2-3 years	0.00	0.00
275 More than 3 years	0.00	0.00
276 Sub Total (V)	0.00	0.00
277 (vi) Disputed Trade Receivables # credit impaired	0.00	0.00
278 Less than 6 months	0.00	0.00
279 6 months -1 year	0.00	0.00
280 1-2 years	0.00	0.00
281 2-3 years	0.00	0.00
282 More than 3 years	0.00	0.00
283 Sub Total (VI)	0.00	0.00
284 Total	-3,474,668.08	-3,466,794.18



RIHAND SUPER THERMAL POWER STATION

NOTE NO. 15 TO THE FS-CA-CASH AND CASH EQUIVALENTS

(Amount in ₹)

As at	31.03.2023	31.03.2022
001 CASH & BANK BALANCES	0.00	0.00
002 Cash & Cash Equivalents	0.00	0.00
003 Balances with Banks	0.00	0.00
004 Cheques & Drafts on hand	0.00	0.00
005 Cash on hand	0.00	0.00
006 Others (stamps in hand)	0.00	0.00
007 Bank deposits with original maturity upto three months	0.00	0.00
008 Balances with RBI	0.00	0.00
009	0.00	0.00
011 Total	0.00	0.00

RIHAND SUPER THERMAL POWER STATION

NOTE NO. 16 TO THE FS-CA-BANK BALANCES OTHER THAN CASH AND CASH EQUIVALENTS (Amount in ₹)

As at	31.03.2023	31.03.2022
001 Other Bank Balances	0.00	0.00
002 Deposits with original maturity of more than three months but not more than twelve months	0.00	0.00
003 Earmarked balances with banks*	0.00	0.00
004 SubTotal	0.00	0.00
005 Interest accrued on deposits	0.00	0.00
006	0.00	0.00
008 Total	0.00	0.00
009	0.00	0.00
010 Earmarked balances with banks consist of :	0.00	0.00
011 Unpaid dividend account balance	0.00	0.00
012 Towards public deposit repayment reserve	0.00	0.00
013 Towards redemption of bonds due for repayment within one year	0.00	0.00
014 Security with Government/other authorities	0.00	0.00
015 Unpaid refund/interest account balance - Tax free bonds/ Bonus Debentures	0.00	0.00
016 Earmarked for RGGVY/DDUGJY/SAUBHAGYA Fund	0.00	0.00
017 Earmarked for Flyash Utilisation Reserve Fund	0.00	0.00
018 Deposits with original maturity upto three months as per court orders	0.00	0.00
019 Payment Security Scheme of MNRE NSM (NTPC)	0.00	0.00
020 Payment Security Scheme of MNRE NSM (NVVN)	0.00	0.00
021 Enforcement Directorate of Solar Plant(NVVN)	0.00	0.00
022 Bank guarantee Fund of MNRE (NVVN)	0.00	0.00
023 Others	0.00	0.00
024 Margin Money	0.00	0.00
025	0.00	0.00
026	0.00	0.00
027 Sub-total	0.00	0.00
031 Total	0.00	0.00
032	0.00	0.00
033 Bank deposits with original maturity of less than three months- other than earmarked	0.00	0.00
034 Bank deposits with original maturity of more than three months but not more than twelve months- other than earmarked	0.00	0.00
035 Earmarked bank balances (current account)	0.00	0.00

RIHAND SUPER THERMAL POWER STATION
NOTE NO. 17 TO THE FS-CA-LOANS
(Amount in ₹)

As at	31.03.2023	31.03.2022
001 Current financial assets - Loans	0.00	0.00
002 Loans (current)-including interest accrued	0.00	0.00
004 Related Parties	0.00	0.00
005 Secured	0.00	0.00
006 Un-Secured	0.00	0.00
007 With significant increase in Credit Risk	0.00	0.00
008 Credit impaired	0.00	0.00
009	0.00	0.00
010 Employees	0.00	0.00
011 Secured	20,385,267.61	19,369,168.43
012 Unsecured	49,224,386.31	56,443,419.22
013 With significant increase in Credit Risk	0.00	0.00
014 Credit impaired	0.00	0.00
015 Less : Employee Loans Discounting	0.00	0.00
016 Loan to State Government in settlement of dues from customers (Unsecured)	0.00	0.00
017	0.00	0.00
018 Others	0.00	0.00
019 Secured	0.00	0.00
020 Unsecured	0.00	0.00
021 With significant increase in Credit Risk	0.00	0.00
022 Credit impaired	0.00	0.00
023	0.00	0.00
024 Less: Allowance for credit impaired loans	0.00	0.00
026	0.00	0.00
027 Total (Loans)	69,609,653.92	75,812,587.65
028	0.00	0.00
029 Due from Directors and Officers of the Company	0.00	0.00
030 Directors	0.00	0.00
031 Officers	0.00	0.00
032	0.00	0.00
033 Loans to related parties include:	0.00	0.00
034 i)Key management personel	0.00	0.00
035 ii)Subsidiary companies	0.00	0.00
036 KBUNL	0.00	0.00
037 RGPPL	0.00	0.00
038 NVVN	0.00	0.00
039 iii)Joint Venture companies	0.00	0.00
040 iv)others	0.00	0.00
041	0.00	0.00
060 RPD	0.00	0.00
061 i)Key management personel	0.00	0.00
062 ii)Subsidiary companies	0.00	0.00
063 iii)Joint Venture companies	0.00	0.00
064 iv)Others	0.00	0.00
065	0.00	0.00



RIHAND SUPER THERMAL POWER STATION

NOTE NO. 17 TO THE FS-CA-LOANS

(Amount in ₹)

	As at	31.03.2023	31.03.2022
066	Total	0.00	0.00

RIHAND SUPER THERMAL POWER STATION
NOTE NO. 18 TO THE FS-CA-OTHER FINANCIAL ASSETS
(Amount in ₹)

As at	31.03.2023	31.03.2022
001 Other Financial Assets (current)	0.00	0.00
002	0.00	0.00
003 ADVANCES	0.00	0.00
004	0.00	0.00
005 Related Parties	0.00	0.00
006 Secured	0.00	0.00
007 Un-Secured	84,291,452.19	75,281,568.77
008 Considered doubtful	0.00	0.00
009	0.00	0.00
010 Employees	0.00	0.00
012 Unsecured	4,592,765.26	4,837,250.36
013 Considered Doubtful	0.00	0.00
014	0.00	0.00
020 Others	0.00	0.00
021 Secured	0.00	0.00
022 Unsecured	0.00	0.00
023 Considered Doubtful	0.00	0.00
024	0.00	0.00
025 Less: Allowance for bad & doubtful advances	0.00	0.00
026	0.00	0.00
033 Total (Advances)	88,884,217.45	80,118,819.13
044	0.00	0.00
045 Claims Recoverable	0.00	0.00
046 Secured	0.00	0.00
047 Unsecured, considered good	10,262,639.69	2,233,059.02
048 Considered Doubtful	0.00	0.00
049 Less:- Allowance for doubtful claims	0.00	0.00
050 Others-Claims Recoverable	0.00	0.00
051	0.00	0.00
052 Contract Asset- Revenue	2,663,746.83	2,841,100.83
053 Hedging cost recoverable from beneficiaries	0.00	0.00
054 Derivative MTM Asset	0.00	0.00
055 Finance Lease Receivable	0.00	0.00
056 Mine Closure Deposit	0.00	0.00
057 Financial Deposit	0.00	0.00
059 Other Accrued Income	0.00	0.00
060 Secured,Considered Good	0.00	0.00
061 Unsecured , considered good	24,838,947.89	64,097,982.95
062 Credit impaired	0.00	0.00
063	0.00	0.00
064 Sub-Total	24,838,947.89	64,097,982.95
065 Less: Allowance for credit impaired receivables	0.00	0.00
066 Total	24,838,947.89	64,097,982.95
067	0.00	0.00
068 Others*	0.00	0.00
070	0.00	0.00

RIHAND SUPER THERMAL POWER STATION

NOTE NO. 18 TO THE FS-CA-OTHER FINANCIAL ASSETS

(Amount in ₹)

As at	31.03.2023	31.03.2022
071 Total	126,649,551.86	149,290,961.93
072 * Other include amount recoverable from contractors and other parties towards hire charges, rent/electricity etc.	0.00	0.00
073 Advances to related parties include:	0.00	0.00
074 i)Key management personel	0.00	0.00
075	0.00	0.00
076 iii)Joint Venture companies	0.00	0.00
077	0.00	0.00
078 v)Others	0.00	0.00
079	0.00	0.00
080 Advances include amount due from the following Private Companies in which Directors of the Company are also Directors in such Companies	0.00	0.00
081 Related Party (Adv)- Employee	0.00	0.00
082 Related Party (Adv)- Subsidiaries	83,366,423.19	75,281,568.77
083 Related Party (Adv)- Joint Ventures	925,029.00	0.00
084	0.00	0.00
085 Related Party (Adv)- Others	0.00	0.00
086	0.00	0.00
099	0.00	0.00
100	0.00	0.00
101 Total	84,291,452.19	75,281,568.77

RIHAND SUPER THERMAL POWER STATION
NOTE NO. 19 TO THE FS-CA-OTHER CURRENT ASSETS
(Amount in ₹)

As at	31.03.2023	31.03.2022
001 OTHER CURRENT ASSETS	0.00	0.00
002 Security Deposits (Unsecured)	0.00	0.00
003 Deposit with Customs, port trust & others*	812,756.00	812,756.00
004 ADVANCES	0.00	0.00
005	0.00	0.00
006 Related Parties	0.00	0.00
007 Secured	0.00	0.00
008 Un-Secured	1,407,513.00	1,407,513.00
009 Considered doubtful	0.00	0.00
010	0.00	0.00
011 Employees(including imprest)	0.00	0.00
012 Secured	0.00	0.00
013 Unsecured	1,322,275.00	355,986.00
014 Considered Doubtful	0.00	0.00
015	0.00	0.00
016 Contractors & Suppliers	0.00	0.00
017 Secured	0.00	0.00
018 Unsecured	205,359,772.28	136,271,338.36
019 Considered Doubtful	0.00	0.00
020	0.00	0.00
021 Others**	0.00	0.00
022 Secured	0.00	0.00
023 Unsecured	18,994,496.00	18,584,624.00
024 Considered Doubtful	0.00	0.00
025 Less: Allowance for bad & doubtful advances	0.00	0.00
026 Receivable from MCP Escrow A/c	0.00	0.00
027 Deferred Payroll Expenses (Secured)	1,972,468.83	2,129,056.99
028 Deferred Payroll Expenses (Unsecured)	3,069,573.18	3,686,929.13
029 Sub-total	5,042,042.01	5,815,986.12
030 Interest accrued on :	0.00	0.00
031 Advances to contractors	0.00	0.00
032	0.00	0.00
033 Claims Recoverable	0.00	0.00
034 Secured	0.00	0.00
035 Unsecured, considered good	445,294,831.82	286,458,564.02
036 Considered Doubtful	26,600,000.00	26,600,000.00
037 Less:- Allowance for doubtful claims	26,600,000.00	26,600,000.00
038	0.00	0.00
039 Deferred premium on forward exchange contract/ Option Assets	0.00	0.00
041	0.00	0.00
042 Others	4,160,672.00	3,824,265.73
043	0.00	0.00
045 Total (Other Current Assets)	682,394,358.11	453,531,033.23
046 **Include Prepaid Expenses	18,220,222.00	17,926,405.00
047 *Includes sales tax/Entry tax/VAT deposited under protest with Sales Tax Authorities	812,756.00	812,756.00

RIHAND SUPER THERMAL POWER STATION
NOTE NO. 19 TO THE FS-CA-OTHER CURRENT ASSETS
(Amount in ₹)

As at	31.03.2023	31.03.2022
048 *Includes deposited with courts	0.00	0.00
049 *Includes deposited with LIC for annuity payments	0.00	0.00
050 * Includes deposits with WRD / against BG in r/o finance lease	0.00	0.00
051 Other include amount recoverable from contractors and other parties towards hire charges, rent/electricity etc.	0.00	0.00
053 Advances to related parties include:	0.00	0.00
054 i)Key management personel	0.00	0.00
055 ii)Subsidiary companies	0.00	0.00
056 iii)Joint Venture companies	0.00	0.00
057 Contractors	0.00	0.00
058 Others	0.00	0.00
059	0.00	0.00
060 Advances include amount due from the following Private Companies in which Directors of the Company are also Directors in such Companies	0.00	0.00
061	0.00	0.00
062	0.00	0.00
063 Related Party (Adv)- Employee	0.00	0.00
064 Related Party (Adv)- Subsidiaries	0.00	0.00
065 Related Party (Adv)- Joint Venture	1,407,513.00	1,407,513.00
066	0.00	0.00
067	0.00	0.00
068 Total	1,407,513.00	1,407,513.00
069	0.00	0.00



RIHAND SUPER THERMAL POWER STATION

NOTE NO. 20 TO THE FS--REGULATORY DEFERRAL ACCOUNT DEBIT BALANCES

(Amount in ₹)

As at	31.03.2023	31.03.2022
001 On account of Exchange Differences	-127,675,626.92	-138,738,090.16
002 On account of employee benefit exp	84,415,334.33	84,415,334.33
003 Regulatory deferred account - deferred	0.00	0.00
004 Deferred asset for ash transportation	0.00	1,035,424,777.02
005 Deferred asset for Arbitration Award	0.00	0.00
008	0.00	0.00
009 Total	-43,260,292.59	981,102,021.19

RIHAND SUPER THERMAL POWER STATION

NOTE NO. 21 TO THE FS-EQUITY-EQUITY SHARE CAPITAL

(Amount in ₹)

As at	31.03.2023	31.03.2022
001 SHARE CAPITAL	0.00	0.00
002 Equity Share Capital	0.00	0.00
003 Authorised	0.00	0.00
004 16,60,00,00,000 equity shares of Rs.10/- each (Previous year 10,000,000,000 equity shares of Rs.10/- each)	0.00	0.00
005 Issued,Subscribed and fully Paid-up	0.00	0.00
006 9,69,66,66,134 equity shares of Rs.10/- (Pv. Year 9,894,557,280 equity shares of Rs.10/- each)	0.00	0.00
007	0.00	0.00
008 Total	0.00	0.00
009 During FY 2018-19, the company has issued 1,649,092,880 equity shares of Rs.10/- each as fully paid bonus shares	0.00	0.00
010 The holders of the equity shares are entitled to receive dividends as declared from time to time, and are entitled to one vote per share at meetings of the company.	0.00	0.00
011 Details of shareholders holding more than 5% shares in the company	0.00	0.00
012 - President of India	0.00	0.00
013 No. of Shares	0.00	0.00
014 % of holding	0.00	0.00
015 - Life Insurance Corporation of India/ICICI Prudential Mutual Fund	0.00	0.00
016 No. of Shares	0.00	0.00
017 % of holding	0.00	0.00

RIHAND SUPER THERMAL POWER STATION
NOTE NO. 22 TO THE FS-EQUITY-OTHER EQUITY
(Amount in ₹)

As at	31.03.2023	31.03.2022
001 RESERVE AND SURPLUS	0.00	0.00
002	0.00	0.00
003 Capital Reserve	0.00	0.00
004 As per last financial statements	0.00	0.00
006 Add : Grants received during the year	0.00	0.00
007 Add: Transfer from Surplus	0.00	0.00
008 Less: Write back during the year/period	0.00	0.00
009 Less: Adjustments during the year/period	0.00	0.00
010 SUB-TOTAL	0.00	0.00
011	0.00	0.00
017	0.00	0.00
018 SECURITIES PREMIUM ACCOUNT	0.00	0.00
019 AS PER LAST FINANCIAL STATEMENTS	0.00	0.00
020 ADD: ADDITIONS DURING THE YEAR/PERIOD	0.00	0.00
021 LESS: ADJUSTMENTS DURING THE YEAR/PERIOD	0.00	0.00
022 SUB-TOTAL	0.00	0.00
023 BONDS REDEMPTION RESERVE	0.00	0.00
024 AS PER LAST FINANCIAL STATEMENTS	0.00	0.00
025 ADD: TRANSFER FROM SURPLUS	0.00	0.00
026 LESS: TRANSFER TO SURPLUS ON REDEMPTION	0.00	0.00
027 LESS: ADJUSTMENTS DURING THE YEAR/ PERIOD	0.00	0.00
028 SUB-TOTAL	0.00	0.00
029 CAPITAL REDEMPTION RESERVE	0.00	0.00
030 As per last financial statements	0.00	0.00
031 Add: Transfer from Surplus	0.00	0.00
032 Less: Transfer to surplus on redemption	0.00	0.00
033 Less: Adjustments during the year/ period	0.00	0.00
034 Sub-Total	0.00	0.00
035 Share Application money pending Allotment	0.00	0.00
036 As per last financial statements	0.00	0.00
037 Add: Addition during the year	0.00	0.00
038 Less: Utilised for allotment during the year	0.00	0.00
039 Less: Adjustments during the year/ period	0.00	0.00
040 SUB-TOTAL	0.00	0.00
046 FLY-ASH UTILISATION RESERVE FUND	0.00	0.00
047 AS PER LAST FINANCIAL STATEMENTS	0.00	0.00
048 TRANSFERRED TO CC	0.00	0.00
049 ADD:TRANSFER FROM REVENUE FROM OPERATIONS	549,433.49	0.00
050 ADD:TRANSFER FROM OTHER INCOME	0.00	0.00
051 LESS: UTILISED DURING THE YEAR	0.00	0.00
052 TANGIBLE ASSETS	0.00	0.00
053 EMPLOYEE BENEFIT EXPENSES	0.00	0.00
054 GENERATION,ADMN. AND OTHER EXPENSES	549,433.49	0.00

RIHAND SUPER THERMAL POWER STATION
NOTE NO. 22 TO THE FS-EQUITY-OTHER EQUITY
(Amount in ₹)

As at	31.03.2023	31.03.2022
055 TAX EXPENSES	0.00	0.00
056 SUB-TOTAL	0.00	0.00
057 Self Insurance Reserve	0.00	0.00
058 As per last financial statements	0.00	0.00
059 Add: Addition during the year	0.00	0.00
060 Less: Utilised for allotment during the year	0.00	0.00
061 Less: Adjustments during the year/ period	0.00	0.00
062 SUB-TOTAL	0.00	0.00
063 SPECIAL ALLOWANCE RESERVE FUND	0.00	0.00
064 AS PER LAST FINANCIAL STATEMENTS	0.00	0.00
065 ADD: ADDITION DURING THE YEAR	0.00	0.00
066 LESS: UTILISED FOR ALLOTMENT DURING THE YEAR	0.00	0.00
067 LESS: ADJUSTMENTS DURING THE YEAR/ PERIOD	0.00	0.00
068 SUB-TOTAL	0.00	0.00
069 CORPORATE SOCIAL RESPONSIBILITY (CSR) RESERVE	0.00	0.00
070 AS PER LAST FINANCIAL STATEMENTS	0.00	0.00
071 ADD : TRANSFER FROM SURPLUS	0.00	0.00
072 LESS:-WRITE BACK DURING THE YEAR	0.00	0.00
073 SUB-TOTAL	0.00	0.00
074 GENERAL RESERVE	0.00	0.00
075 AS PER LAST FINANCIAL STATEMENTS	0.00	0.00
076 ADD: TRANSFER FROM SURPLUS	0.00	0.00
077 LESS: TRANSFER TO SURPLUS	0.00	0.00
078 LESS: WRITE BACK DURING THE YEAR /PERIOD	0.00	0.00
079 LESS: ADJUSTMENTS DURING THE YEAR /PERIOD	0.00	0.00
080 SUB-TOTAL	0.00	0.00
081	0.00	0.00
082 RETAINED EARNINGS	0.00	0.00
083 AS PER LAST FINANCIAL STATEMENTS	178,934,325,577.14	166,604,865,582.08
084 ADD(LESS):-CHANGES IN ACCOUNTING POLICY / PRIOR PERIOD ERRORS	0.00	0.00
085 ADD(LESS):-PROFIT (LOSS) AFTER TAX FOR THE YEAR FROM STATEMENT OF PROFIT & LOSS	10,374,117,657.34	12,329,459,995.06
087 ADD: WRITE BACK FROM BOND REDEMPTION RESERVE	0.00	0.00
088 ADD: WRITE BACK FROM CAPITAL RESERVE	0.00	0.00
089 ADD: WRITE BACK FROM FOREIGN PROJECT RESERVE	0.00	0.00
090 ADD: WRITE BACK FROM CSR RESERVE	0.00	0.00
091 ADD: WRITE BACK FROM GENERAL RESERVE	0.00	0.00
093 LESS: TRANSFER TO BONDS REDEMPTION RESERVE	0.00	0.00

RIHAND SUPER THERMAL POWER STATION
NOTE NO. 22 TO THE FS-EQUITY-OTHER EQUITY
(Amount in ₹)

As at	31.03.2023	31.03.2022
094 LESS: TRANSFER TO SPECIAL ALLOWANCE RESERVE FUND	0.00	0.00
095 LESS: TRANSFER TO FOREIGN PROJECT RESERVE	0.00	0.00
096 LESS: TRANSFER TO CAPITAL RESERVE	0.00	0.00
097 LESS: TRANSFER TO CSR RESERVE	0.00	0.00
098 LESS: TRANSFER TO GENERAL RESERVE	0.00	0.00
099 LESS: INTERIM DIVIDEND PAID	0.00	0.00
100 LESS: TAX ON INTERIM DIVIDEND PAID	0.00	0.00
101 LESS: FINAL DIVIDEND PAID	0.00	0.00
102 LESS: TAX ON FINAL DIVIDEND PAID	0.00	0.00
103 LESS: ISSUE OF BONUS DEBENTURE	0.00	0.00
104 LESS: TAX ON ISSUE OF BONUS DEBENTURE	0.00	0.00
105 SUB-TOTAL	189,308,443,234.48	178,934,325,577.14
110	0.00	0.00
111 REMEASUREMENT OF DEFINED BENEFIT PLANS	0.00	0.00
112 AS PER LAST FINANCIAL STATEMENTS	-206,596,243.66	-196,870,608.91
113 ADD/(LESS):- ACTUARIAL GAINS/LOSS THROUGH OCI	-19,544,151.77	-9,725,634.75
114 SUB-TOTAL	-226,140,395.43	-206,596,243.66
115	0.00	0.00
116 FVTOCI Reserve	0.00	0.00
117 AS PER LAST FINANCIAL STATEMENTS	0.00	0.00
118 ADD/(LESS):- NET GAIN/LOSS OF EQUITY INSTRUMENTS THROUGH OCI	0.00	0.00
119 Sub-Total	0.00	0.00
120	0.00	0.00
121 Total Other equity	189,082,302,839.05	178,727,729,333.48
122	0.00	0.00
123	0.00	0.00
124	0.00	0.00
125	0.00	0.00
126	0.00	0.00
127	0.00	0.00
128	0.00	0.00



RIHAND SUPER THERMAL POWER STATION

(Amount in ₹)

As at

31.03.2023

31.03.2022

RIHAND SUPER THERMAL POWER STATION

NOTE NO. 23 TO THE FS-NCL-BORROWINGS

(Amount in ₹)

As at	31.03.2023	31.03.2022
001 LONG TERM BORROWINGS	0.00	0.00
002 Bonds	0.00	0.00
003 Secured	0.00	0.00
004 7.37 % Tax free secured non-cumulative non-convertible redeemable bonds-2015 of Rs. 1,000/- each redeemable at par in full on 5th October 2035 (Fifty Sixth Issue - Public Issue - Series 3A).	0.00	0.00
005 7.62 % Tax free secured non-cumulative non-convertible redeemable bonds-2015 of Rs. 1,000/- each redeemable at par in full on 5th October 2035 (Fifty Sixth Issue - Public Issue - Series 3 B).	0.00	0.00
006 8.61% Tax free secured non-cumulative non-convertible redeemable bonds of ₹ 10,00,000/- each redeemable at par in full on 4th March 2034 (Fifty First Issue C - Private Placement)	0.00	0.00
007 8.66% Tax free secured non-cumulative non-convertible redeemable bonds - 2013 of ₹ 1000/- each redeemable at par in full on 16th December 2033 (Fiftieth Issue - Public Issue - Series 3A)	0.00	0.00
008 8.91% Tax free secured non-cumulative non-convertible redeemable bonds - 2013 of ₹ 1000/- each redeemable at par in full on 16th December 2033 (Fiftieth Issue - Public Issue - Series 3B)	0.00	0.00
009 7.37% Secured non-cumulative non-convertible redeemable taxable bonds of Rs. 10,00,000/- each redeemable at par in full on 14th December 2031 (Sixty Sixth Issue - Private Placement)	0.00	0.00
010 7.49% Secured non-cumulative non-convertible redeemable taxable bonds of Rs. 10,00,000/- each redeemable at par in full on 7th November 2031 (Sixty Fourth Issue - Private Placement)	0.00	0.00
011 7.28 % Tax free secured non-cumulative non-convertible redeemable bonds-2015 of Rs. 1,000/- each redeemable at par in full on 5th October 2030 (Fifty Sixth Issue - Public Issue - Series	0.00	0.00

RIHAND SUPER THERMAL POWER STATION

NOTE NO. 23 TO THE FS-NCL-BORROWINGS

(Amount in ₹)

As at	31.03.2023	31.03.2022
2A)		
012 7.53 % Tax free secured non-cumulative non-convertible redeemable bonds-2015 of Rs. 1,000/- each redeemable at par in full on 5th October 2030 (Fifty Sixth Issue - Public Issue - Series 2 B).	0.00	0.00
013 7.32% Secured non-cumulative non-convertible redeemable taxable bonds of Rs 10,00,000/- each redeemable at par in full on 17 July 2029 (Sixty Ninth Issue - Private Placement)	0.00	0.00
014 8.63% Tax free secured non-cumulative non-convertible redeemable bonds of ₹ 10,00,000/- each redeemable at par in full on 4th March 2029 (Fifty First Issue B - Private Placement)	0.00	0.00
015 8.30% Secured non-cumulative non-convertible redeemable taxable bonds of Rs 10,00,000/- each redeemable at par in full on 15 January 2029 (Sixty Seventh Issue - Private Placement)	0.00	0.00
016 8.48% Tax free secured non-cumulative non-convertible redeemable bonds - 2013 of ₹ 1000/- each redeemable at par in full on 16th December 2028 (Fiftieth Issue - Public Issue - Series 2A)	0.00	0.00
017 8.73% Tax free secured non-cumulative non-convertible redeemable bonds - 2013 of ₹ 1000/- each redeemable at par in full on 16th December 2028 (Fiftieth Issue - Public Issue - Series 2B)	0.00	0.00
018 7.47% Secured non-cumulative non-convertible redeemable taxable bonds of Rs. 10,00,000/- each redeemable at par in full on 16th September 2026 (Sixty Third Issue - Private Placement)	0.00	0.00
019 7.58% Secured non-cumulative non-convertible redeemable taxable bonds of Rs. 10,00,000/- each redeemable at par in	0.00	0.00

RIHAND SUPER THERMAL POWER STATION

NOTE NO. 23 TO THE FS-NCL-BORROWINGS

(Amount in ₹)

As at				31.03.2023	31.03.2022
full on 23rd August 2026 (Sixty Second Issue - Private Placement)					
020	8.05%	Secured	non-cumulative non-convertible redeemable taxable bonds of Rs. 10,00,000/- each redeemable at par in full on 5th May 2026 (Sixtieth Issue - Private Placement)	0.00	0.00
021	8.19%	Secured	non-cumulative non-convertible redeemable taxable bonds of Rs. 10,00,000/- each redeemable at par in full on 15th December 2025 (Fifty Seventh Issue - Private Placement)	0.00	0.00
022	7.11 %	Tax free secured	non-cumulative non-convertible redeemable bonds-2015 of Rs. 1,000/- each redeemable at par in full on 5th October 2025 (Fifty Sixth Issue - Public Issue - Series 1A).	0.00	0.00
023	7.36 %	Tax free secured	non-cumulative non-convertible redeemable bonds-2015 of Rs. 1,000/- each redeemable at par in full on 5th October 2025 (Fifty Sixth Issue - Public Issue - Series 1 B).	0.00	0.00
024	7.15%	Tax free secured	non-cumulative non-convertible redeemable bonds - 2015 of Rs. 10,00,000/- each redeemable at par in full on 21st August 2025 (Fifty Fifth Issue - Private Placement)	0.00	0.00
025	9.17%	Secured	non-cumulative non-convertible redeemable taxable bonds of ₹ 10,00,000/- each redeemable at par in full on 22nd September 2024 (53rd Issue - private placement).	0.00	0.00
026	9.34%	Secured	non-cumulative non-convertible redeemable taxable bonds of ₹10,00,000/- each redeemable at par in full on 24th March 2024 (Fifty Second Issue - private placement)	0.00	0.00
027	8.19%	Tax free secured	non-cumulative non-convertible redeemable bonds - 2013 of ₹ 10,00,000/- each redeemable at	0.00	0.00

RIHAND SUPER THERMAL POWER STATION

NOTE NO. 23 TO THE FS-NCL-BORROWINGS

(Amount in ₹)

		31.03.2023	31.03.2022
	As at		
	par in full on 4th March 2024 (Fifty First Issue A - Private Placement)		
028	8.41% Tax free secured non-cumulative non-convertible redeemable bonds - 2013 of ₹ 1000/- each redeemable at par in full on 16th December 2023 (Fiftieth Issue - Public Issue - Series 1A)	0.00	0.00
029	8.66% Tax free secured non-cumulative non-convertible redeemable bonds - 2013 of ₹ 1000/- each redeemable at par in full on 16th December 2023 (Fiftieth Issue - Public Issue - Series 1B)	0.00	0.00
030	9.25% Secured non-cumulative non-convertible redeemable taxable bonds of ₹10,00,000/- each with five equal separately transferable redeemable principal parts (STRPP) redeemable at par at the end of 11th year and in annual installments thereafter upto the end of 15th year respectively commencing from 4th May 2023 and ending on 4th May 2027 (Forty fourth issue - private placement)VII	0.00	0.00
031	8.48% Secured non-cumulative non-convertible redeemable taxable bonds of ₹ 10,00,000/- each redeemable at par in full on 1st May 2023 (Seventeenth issue - private placement)I	0.00	0.00
032	8.80% Secured non-cumulative non-convertible redeemable taxable bonds of ₹10,00,000/- each redeemable at par in full on 4th April 2023 (Forty ninth issue -private placement	0.00	0.00
033	8.49% Secured non-cumulative non-convertible redeemable taxable fully paid-up bonus debentures of Rs. 12.50 each redeemable at par in three annual installments of Rs. 2.50, Rs. 5.00 and Rs. 5.00 at the end of 8th year, 9th year and 10th year on 25th March 2023, 25th March 2024 and 25th March 2025 respectively (Fifty Fourth Issue -Bonus Debentures)X - (refer Note 5 d)	0.00	0.00
034	8.73% Secured non-cumulative	0.00	0.00

RIHAND SUPER THERMAL POWER STATION

NOTE NO. 23 TO THE FS-NCL-BORROWINGS

(Amount in ₹)

As at		31.03.2023	31.03.2022
non-convertible redeemable taxable bonds of ₹ 10,00,000/- each redeemable at par in full on 07th March 2023 (Forty eighth issue - private placement)			
035	9.00% Secured non-cumulative non-convertible redeemable taxable bonds of ₹ 10,00,000/- each with five equal separately transferable redeemable principal parts (STRPP) redeemable at par at the end of 11th year and in annual installments thereafter upto the end of 15th year respectively commencing from 25th January 2023 and ending on 25th January 2027 (Forty second issue- private placement)III	0.00	0.00
036	8.84% Secured non-cumulative non-convertible redeemable taxable bonds of ₹10,00,000/- each redeemable at par in full on 4th October 2022 (Forty seventh issue- private placement)VII	0.00	0.00
037	7.93% Secured non-cumulative non-convertible redeemable taxable bonds of ` 10,00,000/- each redeemable at par in full on 03 May 2022 (68th Issue - Private Placement)	0.00	0.00
038	6.72% Secured non-cumulative non-convertible redeemable taxable bonds of Rs. 10,00,000/- each redeemable at par in full on 24th November 2021 (Sixty Fifth Issue - Private Placement)	0.00	0.00
039	8.10% Secured Non-Cumulative Non-Convertible Redeemable Taxable Bonds of Rs. 30,00,000/- each redeemable at par in three equal separately transferable redeemable principal parts (STRPP) at the end of 5th year, 10th year & 15th year on 27th May 2021, 27th May 2026 and 27th May 2031 respectively (Sixty First Issue- Private Placement)	0.00	0.00
040	8.33% Secured non-cumulative non-convertible redeemable taxable bonds of Rs.10,00,000/- each redeemable at par in full on 24th February 2021	0.00	0.00

RIHAND SUPER THERMAL POWER STATION
NOTE NO. 23 TO THE FS-NCL-BORROWINGS
(Amount in ₹)

As at				31.03.2023	31.03.2022
(Fifty Ninth Issue - Private Placement).					
042	8.93%	Secured	non-cumulative non-convertible redeemable taxable bonds of ₹ 10,00,000/- each redeemable at par in full on 19th January 2021 Thirty seventh issue - private placement)III	0.00	0.00
043	8.18%	Secured	non-cumulative non-convertible redeemable taxable bonds of Rs.10,00,000/- each redeemable at par in full on 31st December 2020 (Fifty Eight Issue - Private Placement).	0.00	0.00
044	8.73 %	Secured	non-cumulative non-convertible redeemable taxable bonds of ₹ 10,00,000/- each redeemable at par in full on 31st March 2020 (Thirty third issue- private placement)III	0.00	0.00
045	8.78 %	Secured	non-cumulative non-convertible redeemable taxable bonds of ₹ 10,00,000/- each redeemable at par in full on 9th March 2020 (Thirty first issue- private placement)III	0.00	0.00
046	11.25%	Secured	non-cumulative non-convertible redeemable taxable bonds of ₹ 10,00,000/- each redeemable at par in five equal annual installments commencing from 6th Nov 2019 and ending on 6th Nov 2023 (Twenty seventh issue - private placement)III	0.00	0.00
047	7.89%	Secured	non-cumulative non-convertible redeemable taxable bonds of ₹ 10,00,000/- each redeemable at par in full on 5th May 2019 (Thirtieth issue - private placement)III	0.00	0.00
048	8.65%	Secured	non-cumulative non-convertible redeemable taxable bonds of ₹10,00,000/- each redeemable at par in full on 4th February 2019 (Twenty ninth issue - private placement)III	0.00	0.00
049	7.50%	Secured	non-cumulative non-convertible redeemable taxable bonds of ₹ 10,00,000/- each redeemable at par in full	0.00	0.00

RIHAND SUPER THERMAL POWER STATION

NOTE NO. 23 TO THE FS-NCL-BORROWINGS

(Amount in ₹)

As at		31.03.2023	31.03.2022
on 12th January 2019 (Nineteenth issue - private placement)II			
050	11% Secured non-cumulative non-convertible redeemable taxable bonds of ₹ 10,00,000/- each redeemable at par in full on 21st November 2018 (Twenty eighth issue - private placement)III	0.00	0.00
051	9.3473% Secured non-cumulative non-convertible redeemable taxable bonds of ₹15,00,000/- each with fifteen equal separately transferable redeemable principal parts (STRPP) redeemable at par at the end of 6th year and in annual installments thereafter upto the end of 20th year respectively commencing from 20th July 2018 and ending on 20th July 2032 (Forty sixth issue - private placement)VII	0.00	0.00
052	9.4376% Secured non-cumulative non-convertible redeemable taxable bonds of ₹ 15,00,000/- each with fifteen equal separately transferable redeemable principal parts (STRPP) redeemable at par at the end of 6th year and in annual installments thereafter upto the end of 20th year respectively commencing from 16th May 2018 and ending on 16th May 2032 (Forty fifth issue - private placement)VII	0.00	0.00
053	8.00% Secured non-cumulative non-convertible redeemable taxable bonds of ₹ 10,00,000/- each redeemable at par in full on 10th April 2018 (Sixteenth issue -private placement)I	0.00	0.00
054	9.2573% Secured non-cumulative non-convertible redeemable taxable bonds of ₹ 15,00,000/- each with fifteen equal separately transferable redeemable principal parts (STRPP) redeemable at par at the end of 6th year and in annual installments thereafter upto the end of 20th year respectively commencing from 2nd March 2018 and ending on 2nd March 2032 (Forty third issue - private placement)III	0.00	0.00
055	9.6713% Secured non-cumulative non-convertible redeemable taxable bonds	0.00	0.00

RIHAND SUPER THERMAL POWER STATION

NOTE NO. 23 TO THE FS-NCL-BORROWINGS

(Amount in ₹)

As at		31.03.2023	31.03.2022
of ₹ 15,00,000/- each with fifteen equal separately transferable redeemable principal parts (STRPP) redeemable at par at the end of 6th year and in annual installments thereafter upto the end of 20th year respectively commencing from 23rd December 2017 and ending on 23rd December 2031 (Forty first issue - private placement)III			
056	9.558% Secured non-cumulative non-convertible redeemable taxable bonds of ₹ 15,00,000/- each with fifteen equal separately transferable redeemable principal parts (STRPP) redeemable at par at the end of 6th year and in annual installments thereafter upto the end of 20th year respectively commencing from 29th July 2017 and ending on 29th July 2031(Fortieth issue-private placement)III	0.00	0.00
057	9.3896% Secured non-cumulative non-convertible redeemable taxable bonds of ₹ 15,00,000/- each with fifteen equal separately transferable redeemable principal parts (STRPP) redeemable at par at the end of 6th year and in annual installments thereafter upto the end of 20th year respectively commencing from 9th June 2017 and ending on 9th June 2031(Thirty ninth issue-private placement)III	0.00	0.00
058	9.17% Secured non-cumulative non-convertible redeemable taxable bonds of ₹ 15,00,000/- each with fifteen equal separately transferable redeemable principal parts (STRPP) redeemable at par at the end of 6th year and in annual installments thereafter upto the end of 20th year respectively commencing from 22nd March 2017 and ending on 22nd March 2031(Thirty eighth issue-private placement)III	0.00	0.00
059	8.8086% Secured non-cumulative non-convertible redeemable taxable bonds of ₹ 15,00,000/- each with fifteen equal separately transferable redeemable principal parts (STRPP) redeemable at par at the end of 6th	0.00	0.00

RIHAND SUPER THERMAL POWER STATION

NOTE NO. 23 TO THE FS-NCL-BORROWINGS

(Amount in ₹)

As at		31.03.2023	31.03.2022
	year and in annual installments thereafter upto the end of 20th year respectively commencing from 15th December 2016 and ending on 15th December 2030 (Thirty sixth issue - private placement)III		
060	8.785% Secured non-cumulative non-convertible redeemable taxable bonds of ₹ 15,00,000/- each with fifteen equal separately transferable redeemable principal parts (STRPP) redeemable at par at the end of 6th year and in annual installments thereafter upto the end of 20th year respectively commencing from 15th September 2016 and ending on 15th September 2030 (Thirty fifth issue - private placement)III	0.00	0.00
061	8.71% Secured non-cumulative non-convertible redeemable taxable bonds of ₹ 15,00,000/- each with fifteen equal separately transferable redeemable principal parts (STRPP) redeemable at par at the end of 6th year and in annual installments thereafter upto the end of 20th year respectively commencing from 10th June 2016 and ending on 10th June 2030 (Thirty fourth issue - private placement)III	0.00	0.00
062	8.8493% Secured non-cumulative non-convertible redeemable taxable bonds of ₹ 15,00,000/- each with fifteen equal separately transferable redeemable principal parts (STRPP) redeemable at par at the end of 6th year and in annual installments thereafter upto the end of 20th year respectively commencing from 25th March 2016 and ending on 25th March 2030 (Thirty second issue - private placement)III	0.00	0.00
063	9.37% Secured non-cumulative non-convertible redeemable taxable bonds of ₹ 70,00,000/- each with fourteen separately transferable redeemable principal parts (STRPP) redeemable at par semi-annually commencing from 4th June 2012 and ending on 4th December 2018 (Twenty fifth issue -	0.00	0.00

RIHAND SUPER THERMAL POWER STATION

NOTE NO. 23 TO THE FS-NCL-BORROWINGS

(Amount in ₹)

As at			31.03.2023	31.03.2022
private placement)III				
065	9.06%	Secured non-cumulative non-convertible redeemable taxable bonds of ₹ 70,00,000/- each with fourteen separately transferable redeemable principal parts (STRPP) redeemable at par semi-annually commencing from 4th June 2012 and ending on 4th December 2018 (Twenty sixth issue - private placement)III	0.00	0.00
066	8.6077%	Secured non-cumulative non-convertible redeemable taxable bonds of ₹ 20,00,000/- each with twenty equal separately transferable redeemable principal parts (STRPP) redeemable at par semi-annually commencing from 9th September 2011 and ending on 9th March 2021 (Twenty fourth issue - private placement)IV	0.00	0.00
067	8.3796%	Secured non-cumulative non-convertible redeemable taxable bonds of ₹ 20,00,000/- each with twenty equal separately transferable redeemable principal parts (STRPP) redeemable at par semi-annually commencing from 5th August 2011 and ending on 5th February 2021 (Twenty third issue - private placement)IV	0.00	0.00
068	8.1771%	Secured non-cumulative non-convertible redeemable taxable bonds of ₹ 20,00,000/- each with twenty equal separately transferable redeemable principal parts (STRPP) redeemable at par semi-annually commencing from 2nd July 2011 and ending on 2nd January 2021 (Twenty second issue - private placement)IV	0.00	0.00
069	7.7125%	Secured non-cumulative non-convertible redeemable taxable bonds of ₹ 20,00,000/- each with twenty equal separately transferable redeemable principal parts (STRPP) redeemable at par semi-annually commencing from 2nd August 2010 and ending on 2nd February 2020 (Twenty first issue - private placement)V	0.00	0.00
070	7.552%	Secured non-cumulative non-convertible redeemable taxable bonds	0.00	0.00

RIHAND SUPER THERMAL POWER STATION

NOTE NO. 23 TO THE FS-NCL-BORROWINGS

(Amount in ₹)

As at	31.03.2023	31.03.2022
of ₹ 20,00,000/- each with twenty equal separately transferable redeemable principal parts (STRPP) redeemable at par semi-annually commencing from 23rd September 2009 and ending on 23rd March 2019 (Twentieth issue - private placement)VI		
071 9.55% Secured non-cumulative non-convertible taxable redeemable bonds of ₹ 10,00,000/- each with ten equal separately transferable redeemable principal parts (STRPP) redeemable at par at the end of the 6th year and in annual installments thereafter upto the end of 15th year respectively from 30th April 2002 (Thirteenth issue - Part B - private placement)VIII	0.00	0.00
072 9.55% Secured non-cumulative non-convertible taxable redeemable bonds of ₹ 10,00,000/- each redeemable at par in ten equal annual installments commencing from the end of 6th year and upto the end of 15th year respectively from 18th April 2002 (Thirteenth issue -Part A - private placement)VIII	0.00	0.00
075	0.00	0.00
076	0.00	0.00
077 Sub Total	0.00	0.00
078 Unsecured	0.00	0.00
079 6.55% Unsecured non-cumulative non-convertible redeemable taxable bonds of ₹ 10,00,000/- each redeemable at par in full on 17 April 2023 (Seventieth Issue - Private Placement)	0.00	0.00
080 6.29% Unsecured non-cumulative non-convertible redeemable taxable bonds of ₹ 10,00,000/- each redeemable at par in full on 11 April 2031 (Seventy First Issue - Private Placement)	0.00	0.00
081 5.45% Unsecured non-cumulative non-convertible redeemable taxable bonds of ₹ 10,00,000/- each redeemable at par in full on 15 October 2025 (Seventy Second Issue - Private Placement)	0.00	0.00
082 6.43% Unsecured non-cumulative non-convertible redeemable taxable bonds of ₹ 10,00,000/- each redeemable at par in	0.00	0.00

RIHAND SUPER THERMAL POWER STATION
NOTE NO. 23 TO THE FS-NCL-BORROWINGS
(Amount in ₹)

As at	31.03.2023	31.03.2022
full on 27 January 2031 (Seventy Third Issue - Private Placement)		
083 6.87% Unsecured non-cumulative non-convertible redeemable taxable bonds of ₹ 10,00,000/- each redeemable at par in full on 21 April 2036 (Seventy Fourth Issue - Private Placement)	0.00	0.00
084 6.69% Unsecured non-cumulative non-convertible redeemable taxable bonds of ₹ 10,00,000/- each redeemable at par in full on 13 September 2031 (Seventy Fifth Issue - Private Placement)	0.00	0.00
085 6.74% Unsecured non-cumulative non-convertible redeemable taxable bonds of Rs.10,00,000/- each redeemable at par in full on 14 April 2032 (Seventy Sixth Issue - Private Placement)	0.00	0.00
086 5.78% Unsecured non-cumulative non-convertible redeemable taxable bonds of ₹ 10,00,000/- each redeemable at par in full on 29 April 2024 (Seventy Seventh Issue - Private Placement)	0.00	0.00
087 7.44% Unsecured non-cumulative non-convertible redeemable taxable bonds of ₹ 10,00,000/- each redeemable at par in full on 25 August 2032 (Seventy Eighth Issue - Private Placement)	0.00	0.00
088 7.44% Unsecured non-cumulative non-convertible redeemable taxable bonds of ` 10,00,000/- each redeemable at par in full on 15 April 2033 (Seventy Ninth Issue - Private Placement)	0.00	0.00
089	0.00	0.00
090 Sub-total	0.00	0.00
091 Total	0.00	0.00
092 Foreign Currency Notes-Unsecured	0.00	0.00
093 4.50% Fixed Rate Notes Due for repayment on 19th March 2028	0.00	0.00
094 2.75% Fixed rate notes due for repayment on 1st February 2027	0.00	0.00
095 4.25 % Fixed rate notes due for repayment on 26th February 2026	0.00	0.00
096 4.375% Fixed Rate Note due for repayment on 26th November 2024	0.00	0.00
097 4.75 % Fixed Rate Notes due for repayment on 3rd Oct 2022	0.00	0.00
098 7.25 % Fixed green global INR denominated bonds due on 3 May 2022	0.00	0.00
099 7.375 % Fixed green global INR denominated bonds due on 10 August 2021	0.00	0.00
100 5.625% Fixed Rate Notes due for repayment on	0.00	0.00

Locked: 27.04.2023 - 13:42:35

Run on: 27.04.2023 - 13:49:01 Version: 0



 अधीन निदेशक (व्यक्तिगत)
 Addl. General Manager (Commercial)
 एन टी सी लिमिटेड, NTPC LIMITED

RIHAND SUPER THERMAL POWER STATION
NOTE NO. 23 TO THE FS-NCL-BORROWINGS
(Amount in ₹)

As at	31.03.2023	31.03.2022
14th July 2021		
101 3.75 % Fixed rate notes due for repayment on 03 April 2024	0.00	0.00
102	0.00	0.00
103	0.00	0.00
104	0.00	0.00
105 Sub Total	0.00	0.00
106 Term Loans	0.00	0.00
107 From Banks	0.00	0.00
108 Secured	0.00	0.00
109 Rupee Loans	0.00	0.00
110 Unsecured	0.00	0.00
111 Foreign Currency Loans	0.00	0.00
112 Rupee Loans	0.00	0.00
113 From Others	0.00	0.00
114 Secured	0.00	0.00
115 Rupee Loans	0.00	0.00
116 Foreign Currency loans (guaranteed by GOI)	0.00	0.00
117 Unsecured	0.00	0.00
118 Foreign Currency loans (guaranteed by GOI)	0.00	0.00
119 Other Foreign currency loans	0.00	0.00
121 Rupee Loans	0.00	0.00
122 Deposits	0.00	0.00
123 Unsecured	0.00	0.00
124 Fixed Deposits	0.00	0.00
125 Others	0.00	0.00
126 Unsecured	0.00	0.00
127 Bonds Application Money Pending Allotment	0.00	0.00
128 Sub-total	0.00	0.00
129 Total	0.00	0.00
130 Less:- Interst accrued but not due on secured borrowings	0.00	0.00
131 Less:- Interst accrued but not due on unsecured borrowings	0.00	0.00
132 Less:- Current maturities of long term borrowings	0.00	0.00
133 Bonds-Secured	0.00	0.00
134 Fixed Rate Notes	0.00	0.00
136 Foreign currency loans from Banks- unsecured	0.00	0.00
137 Rupee loans from banks- Secured	0.00	0.00
138 Rupee loans from banks- unsecured	0.00	0.00
139 Rupee Term loan from Others - Secured	0.00	0.00
140 Foreign currency loans from others- unsecured (Guaranteed by GOI)	0.00	0.00
141 Other foreign currency loans from others- unsecured	0.00	0.00
142 Rupee loans from others- unsecured	0.00	0.00
143	0.00	0.00



RIHAND SUPER THERMAL POWER STATION
NOTE NO. 23 TO THE FS-NCL-BORROWINGS

(Amount in ₹)

As at	31.03.2023	31.03.2022
144	0.00	0.00
145	0.00	0.00
146	0.00	0.00
147	0.00	0.00
148	0.00	0.00
149	0.00	0.00
150	0.00	0.00
151	0.00	0.00
201 Total	0.00	0.00



RIHAND SUPER THERMAL POWER STATION

NOTE NO. 23A TO THE FS-NCL-LEASE BORROWINGS

(Amount in ₹)

	31.03.2023	31.03.2022
As at		
001 Non-current financial liabilities - Lease liabilities	0.00	0.00
002 Lease liabilities	0.00	0.00
003 Long term maturities of Finance Lease Liabilities (Secured) IX	0.00	0.00
004 Long term maturities of Finance Lease Liabilities (Unsecured) X	215,659,908.98	0.00
005 Sub-Total	215,659,908.98	0.00
006 Less: current maturities of lease liabilities	0.00	0.00
007 Finance Lease obligations - secured	0.00	0.00
008 Finance Lease obligations - unsecured	15,569,307.00	0.00
009 Sub-Total	15,569,307.00	0.00
011 Total	200,090,601.98	0.00



RIHAND SUPER THERMAL POWER STATION

NOTE NO. 24 TO THE FS-NCL-TRADE PAYABLES

(Amount in ₹)

	As at	31.03.2023	31.03.2022
001	TRADE PAYABLES(NON CURRENT)	0.00	0.00
002	For Goods and Services	0.00	0.00
003	- Micro & Small Enterprises	3,269,711.73	7,830,370.14
004	- Others	7,141,146.39	11,108,650.81
005		0.00	0.00
007	Total	10,410,858.12	18,939,020.95



RIHAND SUPER THERMAL POWER STATION

NOTE NO. 25 TO THE FS-NCL-OTHER FINANCIAL LIABILITIES

(Amount in ₹)

As at	31.03.2023	31.03.2022
001 OTHER FINANCIAL LIABILITIES (NON-CURRENT)	0.00	0.00
002 Payable for Capital Expenditure	0.00	0.00
003 - Micro & Small Enterprises	1,225,518.70	3,022,575.28
004 - Others	44,233,850.51	210,903,859.44
005 Others	0.00	0.00
006 Deposits from contractors and others	0.00	11,000.00
007	0.00	0.00
008	0.00	0.00
010 Total	45,459,369.21	213,937,434.72



RIHAND SUPER THERMAL POWER STATION

NOTE NO. 26 TO THE FS-NCL-PROVISIONS

(Amount in ₹)

As at	31.03.2023	31.03.2022
001 LONG TERM PROVISIONS	0.00	0.00
002 Provision for Employee Benefits	0.00	0.00
003 Opening Balance	0.00	0.00
004 Additions/ (adjustments) during the year	0.00	0.00
005 Closing Balance	0.00	0.00
006	0.00	0.00
007 Others	0.00	0.00
008 i) Mine Closure Provision	0.00	0.00
009 Opening Balance	0.00	0.00
010 Additions during the year	0.00	0.00
011 Amounts adjusted during the year	0.00	0.00
012 Amounts reversed during the year	0.00	0.00
013 Closing Balance	0.00	0.00
014	0.00	0.00
015 ii) Stripping Activity Adjustments	0.00	0.00
016 Opening Balance	0.00	0.00
017 Additions during the year	0.00	0.00
018 Amounts adjusted during the year	0.00	0.00
019 Amounts reversed during the year	0.00	0.00
020 Closing Balance	0.00	0.00
021	0.00	0.00
024	0.00	0.00
026 TOTAL	0.00	0.00

NOTE NO. 27 TO THE FS-NCL-DEFERRED TAX LIABILITIES (NET)
(Amount in ₹)

As at	Open Balance on 01.04.2022	Addition	Closing Balance on 31.03.2023
001 DEFERRED TAX LIABILITIES (NET)			
002 Difference of book depreciation and tax depreciation	0.00	0.00	0.00
003 Less: Deferred tax assets			
004 Provisions & Other disallowances for tax purposes	0.00	0.00	0.00
005 Unabsorbed Depreciation	0.00	0.00	0.00
006 Disallowances u/s 43B of the Income Tax Act, 1961	0.00	0.00	0.00
007 Others	0.00	0.00	0.00
008 Opening Balance	0.00	0.00	0.00
009 Additions during the year	0.00	0.00	0.00
010 Amounts adjusted during the year	0.00	0.00	0.00
011 Amounts reversed during the year	0.00	0.00	0.00
012 Closing Balance	0.00	0.00	0.00
013 MAT credit entitlement	0.00	0.00	0.00
014 Total	0.00	0.00	0.00
016	0.00	0.00	0.00
017 Total	0.00	0.00	0.00
018 Breakup of deferred tax assets	0.00	0.00	0.00
019 Provision	0.00	0.00	0.00
020 Statutory dues	0.00	0.00	0.00
021 Leave encashment	0.00	0.00	0.00
022 Others	0.00	0.00	0.00
023	0.00	0.00	0.00
024	0.00	0.00	0.00



RIHAND SUPER THERMAL POWER STATION

NOTE NO. 28 TO THE FS-NCL-OTHER NON-CURRENT LIABILITIES

(Amount in ₹)

As at	31.03.2023	31.03.2022
001 Other Non current Liabilities	0.00	0.00
002 Advances from customers and others	0.00	0.00
003 Deposits from contractors and others	0.00	0.00
004 Grants	0.00	0.00
006	0.00	0.00
007 TOTAL	0.00	0.00

RIHAND SUPER THERMAL POWER STATION
NOTE NO. 29 TO THE FS-CL-BORROWINGS
(Amount in ₹)

As at	31.03.2023	31.03.2022
001 Short Term Borrowings	0.00	0.00
002 Loans repayable on demand	0.00	0.00
003 From Banks	0.00	0.00
004 Secured	0.00	0.00
005 Cash Credit	0.00	0.00
006 Unsecured	0.00	0.00
007 Cash Credit	0.00	0.00
008 Other loans-unsecured	0.00	0.00
009 Commercial Papers	0.00	0.00
010 Less: Unamortised discount on Commercial Papers	0.00	0.00
011 Sub-Total	0.00	0.00
012 Current maturity of long term borrowings	0.00	0.00
013 Bonds-Secured	0.00	0.00
014 Foreign Currency Fixed Rate Notes	0.00	0.00
015 From Banks	0.00	0.00
016 Secured	0.00	0.00
017 Rupee Term Loan	0.00	0.00
018 Foreign currency loans	0.00	0.00
019 Unsecured	0.00	0.00
020 Foreign currency loans	0.00	0.00
021 Rupee term loans	0.00	0.00
022 From Others	0.00	0.00
023 Secured	0.00	0.00
024 Rupee Term Loan	0.00	0.00
025 Unsecured	0.00	0.00
026 Foreign currency loans (Guaranteed by Government of India)	0.00	0.00
027 Other foreign currency loans	0.00	0.00
028 Rupee term loans	0.00	0.00
029 Fixed deposits	0.00	0.00
031 Sub Total	0.00	0.00
032	0.00	0.00
034 TOTAL	0.00	0.00



RIHAND SUPER THERMAL POWER STATION

NOTE NO. 29A TO THE FS-CL-LEASE BORROWINGS

(Amount in ₹)

As at	31.03.2023	31.03.2022
001 Current financial liabilities - Lease liabilities	0.00	0.00
002 Current maturity of finance lease obligations (secured)	0.00	0.00
003 Current maturity of finance lease obligations (unsecured)	15,569,307.00	0.00
005 Total	15,569,307.00	0.00

RIHAND SUPER THERMAL POWER STATION

NOTE NO. 30 TO THE FS-CL-TRADE PAYABLES

(Amount in ₹)

As at	31.03.2023	31.03.2022
001 TRADE PAYABLES	0.00	0.00
002 For Goods and Services	0.00	0.00
003 - Micro & Small Enterprises	177,806,736.80	220,046,789.16
004 - Others	2,778,477,798.80	3,104,879,539.52
005	0.00	0.00
007 Total	2,956,284,535.60	3,324,926,328.68
008	0.00	0.00
172 Trade payable	0.00	0.00
173 MSME	0.00	0.00
174 Unbilled	74,792,751.08	75,353,748.01
175 Not due	73,630,183.72	111,869,021.20
176 Due	29,383,802.00	32,824,020.00
177 Disputed	0.00	0.00
178 Undisputed	29,383,802.00	32,824,020.00
179	0.00	0.00
180 Sub-total (A)	177,806,736.80	220,046,789.21
181	0.00	0.00
182 Others	0.00	0.00
183 Unbilled	526,354,427.03	512,665,789.10
184 Not due	313,362,335.66	210,843,363.50
185 Due	1,938,761,036.11	2,381,370,387.00
186 Disputed	0.00	0.00
187 Undisputed	1,938,761,036.11	2,381,370,387.00
188	0.00	0.00
189 Sub-total (B)	2,778,477,798.80	3,104,879,539.60
190	0.00	0.00
191 Total	2,956,284,535.60	3,324,926,328.81
192	0.00	0.00
193 Ageing	0.00	0.00
194 MSME	0.00	0.00
195 Disputed	0.00	0.00
196 Less than 1 year	0.00	0.00
197 1-2 years	0.00	0.00
198 2-3 years	0.00	0.00
199 More than 3 years	0.00	0.00
200 Sub Total (I)	0.00	0.00
201	0.00	0.00
202 Undisputed	0.00	0.00
203 Less than 1 year	29,383,802.00	32,824,020.00
204 1-2 years	0.00	0.00
205 2-3 years	0.00	0.00
206 More than 3 years	0.00	0.00
207 Sub Total (II)	29,383,802.00	32,824,020.00
208	0.00	0.00
209 Total MSME (III)	29,383,802.00	32,824,020.00
210	0.00	0.00



RIHAND SUPER THERMAL POWER STATION
NOTE NO. 30 TO THE FS-CL-TRADE PAYABLES

(Amount in ₹)

As at	31.03.2023	31.03.2022
211 Others	0.00	0.00
212 Disputed	0.00	0.00
213 Less than 1 year	0.00	0.00
214 1-2 years	0.00	0.00
215 2-3 years	0.00	0.00
216 More than 3 years	0.00	0.00
217 Sub Total (IV)	0.00	0.00
218	0.00	0.00
219 Undisputed	0.00	0.00
220 Less than 1 year	1,209,670,512.11	1,676,015,685.00
221 1-2 years	42,685,077.00	85,164,135.00
222 2-3 years	84,846,453.00	193,027,381.00
223 More than 3 years	601,558,994.00	427,163,186.00
224 Sub Total (V)	1,938,761,036.11	2,381,370,387.00
225	0.00	0.00
226 Total Others (VI)	1,938,761,036.11	2,381,370,387.00

RIHAND SUPER THERMAL POWER STATION
NOTE NO. 31 TO THE FS-CL-OTHER FINANCIAL LIABILITIES
(Amount in ₹)

As at	31.03.2023	31.03.2022
001 OTHER FINANCIAL LIABILITIES (CURRENT)	0.00	0.00
020 Interest accrued but not due on Unsecured Short Term Borrowing	0.00	0.00
021 Interest accrued but not due on secured borrowings	0.00	0.00
022 Interest accrued but not due on unsecured borrowings	0.00	0.00
023 Unpaid Dividends*	0.00	0.00
024 Unpaid matured deposits and interest accrued thereon*	0.00	0.00
025 Unpaid matured bonds and interest accrued thereon*	0.00	0.00
026 Unpaid bond refund money-Tax free bonds *	0.00	0.00
027 Book Overdraft	0.00	0.00
028 Payable to Customers	0.00	0.00
029 Liability under forward exchange contract	0.00	0.00
030 Hedging cost payable to beneficiaries	0.00	0.00
031 Derivative MTM Liability	0.00	0.00
032 Payable for Capital Expenditure	0.00	0.00
033 - Micro & Small Enterprises	54,992,423.13	113,167,223.51
034 - Others	4,136,529,470.41	3,485,636,092.15
035 Others Payables	0.00	0.00
036 Deposits from contractors and others	85,777,478.98	85,251,588.78
037 Gratuity Obligations	0.00	0.00
038 Payable to employees	34,784,381.31	19,782,024.00
039 Payable to holding company	0.00	0.00
040 Retention on A/c BG encashment (Solar)	0.00	0.00
041 Payable to Solar Payment Security Account	0.00	0.00
042 Others **	17,075,074.39	96,581,271.22
043 Unspent CSR balance on ongoing Approved CSR projects	0.00	0.00
045	0.00	0.00
046	0.00	0.00
047 Total	4,329,158,828.22	3,800,418,199.66
048 * Represents the amounts which have not been claimed by the investor/holders of the bonds/ fixed deposits. Out of the above, no amount is due for payment to Investor Education and Protection Fund.	0.00	0.00
049 ** Include Payable to Hospital and other payable.	0.00	0.00



RIHAND SUPER THERMAL POWER STATION

NOTE NO. 32 TO THE FS-CL-OTHER CURRENT LIABILITIES

(Amount in ₹)

As at	31.03.2023	31.03.2022
001 OTHER CURRENT LIABILITIES	0.00	0.00
002 Advances from customers and others	25,885,048.95	66,809,931.25
003 Deferred discount on forward exchange contact	0.00	0.00
004 Tax deducted at source and other statutory dues	98,415,828.69	83,997,873.09
005 Deposits from contractors and others	0.00	0.00
006 Government grants	0.00	0.00
007 Others	0.00	0.00
009	0.00	0.00
010	0.00	0.00
011 Total	124,300,877.64	150,807,804.34

RIHAND SUPER THERMAL POWER STATION
NOTE NO. 33 TO THE FS-CL-PROVISIONS
(Amount in ₹)

As at	31.03.2023	31.03.2022
001 SHORT TERM PROVISIONS	0.00	0.00
002 Provision for Employee Benefits	0.00	0.00
003 Opening balance	0.00	0.00
004 Additions/ (adjustments) during the year	0.00	0.00
005 Closing Balance	0.00	0.00
028 Provisions for Obligations Incidental to Land Acquisition	0.00	0.00
029 Opening balance	0.00	0.00
030 Additions during the year	0.00	0.00
031 Amounts paid during the year	0.00	0.00
032 Amounts reversed during the year	0.00	0.00
033 Closing Balance	0.00	0.00
035 Provision for Tariff Adjustment	0.00	0.00
036 Opening balance	0.00	0.00
037 Additions during the year	0.00	0.00
038 Amounts adjusted during the year	0.00	0.00
039 Amounts reversed during the year	0.00	0.00
040 Closing Balance	0.00	0.00
042 Provision for shortage in Fixed Assets Pending Investigation & Others	0.00	0.00
043 Opening balance	0.00	0.00
044 Additions during the year	0.00	0.00
045 Amounts adjusted during the year	0.00	0.00
046 Amounts reversed during the year	0.00	0.00
047 Closing Balance	0.00	0.00
048 Provision for Arbitration	0.00	0.00
049 Opening balance	8,683,664.00	8,265,312.00
050 Additions during the year	418,352.00	418,352.00
051 Amounts used during the year	0.00	0.00
052 Amounts reversed during the year	0.00	0.00
053 Closing Balance	9,102,016.00	8,683,664.00
054 Others	0.00	0.00
055 Opening balance	0.00	0.00
056 Additions during the year	0.00	0.00
057 Amounts used during the year	0.00	0.00
058 Amounts reversed during the year	0.00	0.00
059 Closing Balance	0.00	0.00
102	0.00	0.00
104 Total	9,102,016.00	8,683,664.00



RIHAND SUPER THERMAL POWER STATION

NOTE NO. 34 TO THE FS-CL-CURRENT TAX LIABILITIES (NET)

(Amount in ₹)

As at	31.03.2023	31.03.2022
001 Current liabilities - current tax liabilities (net)	0.00	0.00
002 Opening balance	0.00	0.00
003 Additions during the year	0.00	0.00
004 Amounts adjusted during the year	0.00	0.00
005 Less: Set off against taxes paid	0.00	0.00
007	0.00	0.00
008 Closing Balance	0.00	0.00



RIHAND SUPER THERMAL POWER STATION

NOTE NO. 35 TO THE FS--DEFERRED REVENUE

(Amount in ₹)

As at	31.03.2023	31.03.2022
001 Deferred Revenue	0.00	0.00
002 On account of advance against depreciation	0.00	0.00
003 On account of income from foreign currency fluctuation	1,576,387,000.00	1,521,099,000.00
004 Government grants	0.00	0.00
007	0.00	0.00
008	0.00	0.00
009 TOTAL	1,576,387,000.00	1,521,099,000.00



RIHAND SUPER THERMAL POWER STATION

NOTE NO. 36 TO THE FS--REGULATORY DEFERRAL ACCOUNT CREDIT BALANCES

(Amount in ₹)

As at	31.03.2023	31.03.2022
001 Regulatory deferral account credit balances	0.00	0.00
002 Exchange Differences	0.00	0.00
003	0.00	0.00
005 Total	0.00	0.00

RIHAND SUPER THERMAL POWER STATION
NOTE NO. 37 TO THE FS--REVENUE FROM OPERATIONS
(Amount in ₹)

	For the Year ended	31.03.2023	31.03.2022
001	REVENUE FROM OPERATIONS	0.00	0.00
002	Sales	0.00	0.00
003	Energy Sales (including Electricity Duty)	59,501,444,689.70	53,502,461,025.00
004	Less : Advance against depreciation deferred (net)	0.00	0.00
005	Add: Revenue recognized out of advance against depreciation	0.00	0.00
006	Add : Exchange fluctuation receivable from customers	-1,007,159,000.00	-1,191,045,000.00
007	Sale of energy through trading	0.00	0.00
008	Commission (NVVN)	0.00	0.00
009	Sub total	58,494,285,689.70	52,311,416,025.00
010	Less: Rebate to customers	365,485,046.28	244,496,889.89
011	Energy Sales (Total)	58,128,800,643.42	52,066,919,135.11
012	Consultancy, project management and supervision fees	0.00	0.00
013	Lease rentals on assets on Operating lease	0.00	0.00
014	Sale of Captive Coal	0.00	0.00
015	Intra Company Elimination	0.00	0.00
017	Sub-total	0.00	0.00
018	Total - Sales	58,128,800,643.42	52,066,919,135.11
019	Sale of fly ash/ash products	549,433.49	0.00
020	Less: Transferred to fly ash utilisation reserve fund	-549,433.49	0.00
021	Sub-total	0.00	0.00
022	Other Operating Income	0.00	0.00
023	Interest from customers	301,077,404.00	1,049,324,712.00
024	Energy Internally Consumed *	34,769,384.00	31,975,932.00
025	Interest income on Assets under finance lease	0.00	0.00
026	Recognized from deferred revenue - government grant	0.00	0.00
027	Provision written back- Tariff Adjustment	0.00	0.00
028	Income form Trading of ESCerts	7,976,314.67	0.00
029	Income from E-Mobility Business & others	0.00	0.00
030	Others	0.00	0.00
032		0.00	0.00
033		0.00	0.00
034	Total	58,472,623,746.09	53,148,219,779.11
040	* Valued at variable cost of generation and corresponding amount included in power charges (Note No. 42)	0.00	0.00
041	Excise duty on sale of flyash,cenospere & ash products	0.00	0.00
042	Energy sales of principal nature (NVVN)	0.00	0.00
043	Energy sales of agency nature (NVVN)	0.00	0.00

RIHAND SUPER THERMAL POWER STATION
NOTE NO. 38 TO THE FS--OTHER INCOME
(Amount in ₹)

	For the Year ended	31.03.2023	31.03.2022
001	OTHER INCOME	0.00	0.00
002	Interest from	0.00	0.00
004	Financial assets at amortised cost	0.00	0.00
005	Government Securities (8.5% Tax Free Bonds issued by the State Governments)	0.00	0.00
006	Other Bonds	0.00	0.00
007	Non current Trade Receivable	0.00	0.00
008	Interest from Government of India Securities-Non-Trade	0.00	0.00
009	Less: Amortziation of premium	0.00	0.00
010	Sub Total	0.00	0.00
011	Interest from others	0.00	0.00
012	Loan to State Government in settlement of dues from customers	0.00	0.00
013	Loan to Subsidiary Companies	0.00	0.00
014	Loan to Employees	14,118,222.87	15,984,260.52
015	Deposit with banks	0.00	0.00
016	Foreign Banks	0.00	0.00
017	Interest from Contractors	825,495.00	915,881.70
018	Interest from Income Tax Refunds	0.00	0.00
019	Less : Refundable to Customers	0.00	0.00
020	Sub Total	0.00	0.00
021	Deposits with banks-flyash utilisation reserve fund	0.00	0.00
022	Less: transferred to flyash utilisation reserve fund	0.00	0.00
023	Sub Total	0.00	0.00
024	Deposits with banks- DDUGJY funds	0.00	0.00
025	Interest from Contractors- DDUGJY funds	0.00	0.00
026	Transfer to DDUGJY-Advance from customers	0.00	0.00
027	Sub-total	0.00	0.00
030	Others	689,007.00	1,179,995.49
031	Other investments in Joint venture companies	0.00	0.00
032	Dividend from	0.00	0.00
033	Longterm investments in	0.00	0.00
034	Subsidiaries	0.00	0.00
035	Joint Ventures	0.00	0.00
036	Equity Instruments	0.00	0.00
037	Current Investments in	0.00	0.00
038	Mutual Funds measured at fairvalue through profit or loss	0.00	0.00
039	Current investments in mutual funds-flyash utilisation reserve fund	0.00	0.00
040	Less: transferred to flyash utilisation reserve fund	0.00	0.00
041	Lease Rent # Ash Brick Plant	0.00	0.00
042	Less: transferred to flyash utilisation reserve fund	0.00	0.00
043	Other non-operating income	0.00	0.00
044	Profit on disposal of PPE	113,631.34	3,591.10
045	Profit on redemption of GOI securities	0.00	0.00

RIHAND SUPER THERMAL POWER STATION
NOTE NO. 38 TO THE FS--OTHER INCOME
(Amount in ₹)

For the Year ended		31.03.2023	31.03.2022
046	Net gain on sale of investments	0.00	0.00
047	Surcharge received from customers	156,699,458.00	890,083,371.00
048	Hire charges for equipment	498,590.40	0.00
049	Gain on option contract / Discount on F.ExchContract	6,390,259.00	27,567,170.36
050	Provision written back-others	3,573,171.43	8,667,761.36
051	Fair value gains/(losses) on investments in mutual funds at fair value through profit or loss	0.00	0.00
052	Interest from Solar payment security account	0.00	0.00
053	Less : Transferred to SPSA fund	0.00	0.00
054	Interest on "Retention on A/c BG encashment (Solar)"	0.00	0.00
055	Less : Transferred to "Retention on A/c BG encashment (Solar)"	0.00	0.00
056	Miscellaneous Income	301,521,785.10	257,016,760.40
057	Total	484,429,620.14	1,201,418,791.93
058	Less:Transferred to Development of Coal Mines- Note 43A	0.00	0.00
059	Less:Transferred to Expenditure during Construction period (net)- Note 43	104,102.76	96,735.00
060	Less: Others	0.00	0.00
061	Less:Transferred to payable to Govt. of Jharkhand	0.00	0.00
063		0.00	0.00
064		0.00	0.00
065	Total	484,325,517.38	1,201,322,056.93
066		0.00	0.00
067	Details of Miscellaneous Income	0.00	0.00
068	Vehicle Hire Charges.	90,000.00	118,000.00
069	Sale of by products & residuals	0.00	0.00
070	Township recoveries(exl. Hospital Recoveries).	32,573,133.11	22,530,387.46
071	Depreciation written back	0.00	0.00
072	Sale of Scrap.	217,087,073.50	118,949,651.93
073	Receipt under loss of profit policy.	0.00	0.00
074	Receipts under MBD/Fire Policy.	0.00	0.00
075	Management development programme.	0.00	0.00
076	Management Fee - Misc (NVVN)	0.00	0.00
077	Others	51,771,578.49	115,418,721.01
078		0.00	0.00
079	Total (Miscellaneous Income)	301,521,785.10	257,016,760.40
080		0.00	0.00
081	Details of Provision written back others	0.00	0.00
082	Doubtful debts	0.00	0.00
083	Doubtful Loans, Advances and Claims	0.00	0.00
084	Doubtful Construction Advances	0.00	0.00
085	Shortage in Construction Stores	1,458,151.13	548,546.87
086	Shortage in Stores	1,607,821.96	6,867,724.99
087	Obsolescence in Stores	507,198.34	1,251,489.50



RIHAND SUPER THERMAL POWER STATION

NOTE NO. 38 TO THE FS--OTHER INCOME

(Amount in ₹)

	For the Year ended	31.03.2023	31.03.2022
088	Unserviceable capital works	0.00	0.00
089	Other Obligation including Arbitration	0.00	0.00
090	Shortage in Fixed Assets	0.00	0.00
091	Diminution in value of Investment	0.00	0.00



RIHAND SUPER THERMAL POWER STATION

NOTE NO. 38A TO THE FS--FUEL COST

(Amount in ₹)

For the Year ended		31.03.2023	31.03.2022
001	FUEL COST	0.00	0.00
002	Coal	0.00	0.00
003	Captive	0.00	0.00
004	Other than captive	34,092,322,865.30	30,357,469,404.43
005	Gas	0.00	0.00
006	Naptha	0.00	0.00
007	Oil	422,532,356.80	286,119,163.76
008	Biomass Pellets & Others	0.00	0.00
009		0.00	0.00
010	Total	34,514,855,222.10	30,643,588,568.19
011		0.00	0.00

RIHAND SUPER THERMAL POWER STATION
NOTE NO. 39 TO THE FS--EMPLOYEE BENEFITS EXPENSE
(Amount in ₹)

For the Year ended		31.03.2023	31.03.2022
001	EMPLOYEE BENEFITS EXPENSE	0.00	0.00
002	Salaries and wages	1,521,094,969.69	1,545,790,249.09
003	Contribution to provident and other funds	203,254,370.35	207,134,289.14
004	Unwinding of deferred payroll expense	8,416,475.20	10,256,372.76
005	Staff welfare expenses	203,775,030.45	185,590,759.88
006	Less : Expenses transferred to Consultancy group	0.00	0.00
007		0.00	0.00
008	Sub Total	1,936,540,845.69	1,948,771,670.87
009	Less: Employee benefits expense allocated to fuel inventory	124,169,760.51	112,502,448.72
010	Less: Transferred/Allocated to development of coal mines	0.00	0.00
011	Less: Others	0.00	0.00
012	Less: Transferred to fly ash utilisation reserve fund	0.00	0.00
013	Less: Transferred to CSR Expenses	0.00	0.00
014	Reimbursements for employees on secondment	3,276,040.25	3,377,875.77
015	Less: Transferred to expenditure during construction period (net)- Note 43	31,691,938.82	24,926,059.94
016	Less: Transfer to Govt of Jharkhand A/c as recoverable	0.00	0.00
018		0.00	0.00
019	TOTAL	1,777,403,106.11	1,807,965,286.44
020	Managerial Remuneration paid/ payable to Directors included above (except for Directors fee which is included in Note 42)	0.00	0.00
021	Salaries and wages	0.00	0.00
022	Contribution to provident and other funds	0.00	0.00
023	Staff welfare expenses	0.00	0.00
024	Directors fee	0.00	0.00
025		0.00	0.00

RIHAND SUPER THERMAL POWER STATION
NOTE NO. 40 TO THE FS--FINANCE COSTS
(Amount in ₹)

	For the Year ended	31.03.2023	31.03.2022
001	FINANCE COSTS	0.00	0.00
002	Finance charges on financial liabilities measured at amortised cost	0.00	0.00
003	Bonds	731,574,881.93	710,804,516.35
004	Government of India Loans	0.00	0.00
005	Foreign currency term loans	40,412,501.47	19,995,984.52
006	Rupee term loans	450,875,180.00	438,724,318.00
007	Public deposits	0.00	0.00
008	Foreign currency bonds/notes	99,701,512.71	316,443,493.96
009	Cash Credit	0.00	0.00
010	Unwinding of discount on account of vendor liabilities	11,815,161.51	79,228,121.55
011	Commercial Papers	0.00	0.00
012	Sub Total	1,334,379,237.62	1,565,196,434.38
013	Interest on non financial items	0.00	0.00
014	Other Borrowing Costs	0.00	0.00
015	Bonds servicing & public deposit exp.	858,707.62	863,783.14
016	Guarantee fee	0.00	0.00
017	Management fee	0.00	0.00
018	Committ charges/exposure premium	129,975.15	1,126,265.00
019	Bond issue expenses	0.00	0.00
020	Legal exp on foreign currency loans	0.00	0.00
021	Foreign currency bonds/notes exp.	0.00	0.00
022	Up-front fee	0.00	0.00
023	Insurance premium on foreign currency loans	0.00	0.00
024		0.00	0.00
025	Others	0.00	0.00
026	Sub Total (Other Borrowing cost)	988,682.77	1,990,048.14
027		0.00	0.00
028	Exchange differences regarded as an adjustment to borrowing costs	16,291,816.52	-2,773,694.67
029	Sub Total	1,351,659,736.91	1,564,412,787.85
030	Less: Transferred to Expenditure during construction period (net) - Note 43	67,839,767.20	98,307,037.97
031	Less: Transferred to development of coal mines- Note 43A	0.00	0.00
032		0.00	0.00
034	Total	1,283,819,969.71	1,466,105,749.88



RIHAND SUPER THERMAL POWER STATION

NOTE NO. 41 TO THE FS--DEPRECIATION AND AMORTIZATION EXPENSES

(Amount in ₹)

	For the Year ended	31.03.2023	31.03.2022
001	Depreciation and amortization expenses	0.00	0.00
002	On property, plant and equipment- Note 2	4,896,131,231.52	4,722,518,393.06
003	On investment property	0.00	0.00
004	On intangible assets- Note 4	28,393.75	0.00
005		0.00	0.00
006	Sub-total	4,896,159,625.27	4,722,518,393.06
007	Less:	0.00	0.00
008	Allocated to fuel inventory	380,700,405.43	374,595,518.15
009	Transferred to Expenditure during Construction Period (net)- Note 43	659.26	0.00
010		0.00	0.00
011	Transferred/Allocated to development of coal mines	0.00	0.00
012	Adjustment with deferred revenue from deferred foreign currency fluctuation	207,462,000.00	165,193,000.00
013		0.00	0.00
015	Total	4,307,996,560.58	4,182,729,874.91

RIHAND SUPER THERMAL POWER STATION
NOTE NO. 42 TO THE FS--OTHER EXPENSE
(Amount in ₹)

	For the Year ended	31.03.2023	31.03.2022
001 OTHER EXPENSES		0.00	0.00
002 Power charges		36,602,545.00	31,976,053.83
003 Less: Recovered from contractors & employees		16,759,983.93	18,059,198.89
004 Sub-Total(Power Charges)		19,842,561.07	13,916,854.94
005 Water charges		139,871,225.00	139,871,225.00
006 Stores consumed		72,975,803.55	52,633,011.12
007 Rent		0.00	0.00
008 Less:Recoveries		0.00	0.00
009 Sub-Total (Rent)		0.00	0.00
010 Cost of captive coal produced		0.00	0.00
011 Repairs & maintenance		0.00	0.00
012 Buildings		158,149,415.92	129,376,643.93
013 Plant & machinery		0.00	0.00
014 Power stations		2,228,227,417.39	1,746,499,355.61
015 Construction equipment		0.00	0.00
016 Others		133,139,689.40	106,882,579.98
017 Sub-total (Repairs & maintenance)		2,519,516,522.71	1,982,758,579.52
019 Load Dispatch Center Charges		13,176,411.00	25,361,760.00
021 Insurance		176,259,470.09	141,466,994.50
022 Interest to beneficiaries		0.00	0.00
023 Rates and taxes		-6,259,316.14	14,847,960.99
024 Water cess & environment protection cess		0.00	0.00
025 Training & recruitment expenses		2,049,738.99	688,607.70
026 Less: Receipts		0.00	0.00
027 Sub-total (Training and recruitment expenses)		2,049,738.99	688,607.70
028 Communication expenses		18,055,262.15	21,264,678.98
029 Inland Travel		73,825,041.75	66,788,667.74
030 Foreign Travel		153,377.00	0.00
031 Tender expenses		0.00	0.00
032 Less: Receipt from sale of tenders		0.00	0.00
033 Sub-total (Tender expenses)		0.00	0.00
034 Payment to auditors		0.00	0.00
035 Audit fee		0.00	0.00
036 Tax audit fee		0.00	0.00
037 Other services		0.00	0.00
038 Reimbursement of expenses		0.00	0.00
039 Sub-total (Payment to Auditors)		0.00	0.00
040 Advertisement and publicity		715,426.60	1,007,008.21
041 Electricity duty		0.00	0.00
042 Security expenses		450,957,342.53	375,343,967.09
043 Entertainment expenses		26,443,229.39	25,139,954.44
044 Expenses for guest house		20,529,003.23	18,821,757.77
045 Less:Recoveries		5,102,224.90	2,432,785.40
046 Sub-Total (Guest house expenses)		15,426,778.33	16,388,972.37
047 Education expenses		60,990,719.00	58,099,926.00
049 Donations		0.00	0.00

RIHAND SUPER THERMAL POWER STATION
NOTE NO. 42 TO THE FS--OTHER EXPENSE
(Amount in ₹)

	31.03.2023	31.03.2022
For the Year ended		
050 Ash utilisation & marketing expenses	1,205,661,111.07	796,403,425.57
051 Directors sitting fee	0.00	0.00
053 Professional charges and consultancy fees	85,099,069.19	2,058,930.20
054 Legal expenses	25,564,410.00	15,869,702.68
055 EDP hire and other charges	9,686,180.09	778,677.16
056 Printing and stationery	2,413,162.68	1,845,738.55
057 Oil & gas exploration expenses	0.00	0.00
059 Hiring of vehicles	36,342,493.81	25,296,051.88
061 Reimbursement of L.C.charges on sales realisation	0.00	0.00
062 LOSS ON FAIR VALUATION OF NON- CURRENT TRADE RECEIVABLE AT AMORTISED COST	0.00	0.00
063 Cost of Hedging	0.00	0.00
064 Derivatives MTM loss/gain (Net)	0.00	0.00
065 Net loss/(gain) in foreign currency transactions & translations	15,280,472.25	-89,322,683.55
066 Transport Vehicle running expenses	1,883,079.38	1,160,422.83
067 Horticulture Expenses	82,919,539.21	63,583,840.61
068 Hire charges- helicopter/aircraft.	0.00	0.00
069 Hire charges of construction equipment	0.00	0.00
070 Demurrage Charges	0.00	0.00
072	0.00	0.00
073 Miscellaneous expenses	54,556,145.78	55,867,107.84
074 Loss on disposal/write-off of PPE	81,328,604.99	68,736,584.56
075 Sub-Total	5,184,733,861.47	3,877,855,966.93
076 Less: Other expenses allocated to fuel inventory	584,991,830.30	588,057,845.97
077 Less: Transferred/Allocated to development of coal mines	0.00	0.00
078 Less: Transferred to fly ash utilisation reserve fund	25,183,231.73	73,498,661.01
079 Less: Hedging cost Net recoverable/payable from/to beneficiaries	0.00	0.00
080 Less: Others	0.00	0.00
081 Less: Transferred to CSR Expenses	0.00	58,647,288.00
082 Less: Transferred to Expenditure during Construction period(net)-Note 43	2,525,818.02	-2,659,409.99
083 Less: Transfer to Govt of Jharkhand A/c as recoverable	0.00	0.00
084 Net (Generation, Administration and Other expenses)	4,572,032,981.42	3,160,311,581.94
085 Corporate Social Responsibility Expenses	35,175,677.26	98,681,095.39
086 Less: Grants-in-aid	0.00	0.00
087 Sub-total (Corporate Social Responsibility Expenses)	35,175,677.26	98,681,095.39
088 Provisions	0.00	0.00
089 Doubtful Debts	0.00	0.00
090 Doubtful loans, advances and claims	0.00	0.00
091 Doubtful Construction Advances	0.00	0.00
092 Shortage in stores	222,450.81	1,655,918.65

RIHAND SUPER THERMAL POWER STATION
NOTE NO. 42 TO THE FS--OTHER EXPENSE
(Amount in ₹)

	For the Year ended	31.03.2023	31.03.2022
093	Obsolete/Dimunition in the value of surplus stores	10,612,444.94	12,120,326.93
094	Shortage in construction stores	88,397.16	1,469,730.55
095	Dimunition in value of long term investments	0.00	0.00
096	Shortage in Fixed assets	0.00	0.00
097	Unfinished minimum work progress from oil & gas exploration	0.00	0.00
098	Unserviceable capital works	0.00	0.00
099	Tariff Adjustment	154,854,000.00	147,770,000.00
100	Others :	0.00	0.00
101	(i) Provision for arbitration cases	418,352.00	418,352.00
102	(ii) Other provisions	0.00	0.00
103	Total (Provisions)	166,195,644.91	163,434,328.13
104		0.00	0.00
106	Total	4,773,404,303.59	3,422,427,005.46
107		0.00	0.00
108	Breakup of miscellaneous expenses.	0.00	0.00
110	Hire charges of office equipment	2,178,920.46	1,714,504.43
112	Operating expenses of construction equipment	0.00	0.00
113	Operating expenses of D.G. sets	0.00	0.00
114	Furnishing expenses	253,934.89	111,933.41
115	Subscription to trade and other associations.	0.00	0.00
117	Visa and entry permit charges	0.00	0.00
118	Tree plantation exp.-NTPC Land	0.00	0.00
119	Research & development expenses .	0.00	0.00
120	Less : Grants received for Research & development expenses.	0.00	0.00
121	Sub-total (Research & development expenses)	0.00	0.00
122	Bank charges	90,956.68	57,713.83
123	Business Development Expenditure	0.00	0.00
124	Surcharge (NVVN)	0.00	0.00
125	Power Trading Expenses	30,539,939.00	23,017,240.00
126	Brokerage & commission	8,616,631.00	8,510,225.90
130	Books and periodicals	408,733.00	61,430.00
131	Claims/advances written off	0.00	0.00
132	Stores written off	0.00	0.00
133	Survey &Investigation expenses written off	0.00	2,987,667.50
134	Others	12,467,030.75	19,406,392.77
135	Total	54,556,145.78	55,867,107.84
136		0.00	0.00
137		0.00	0.00
138		0.00	0.00

RIHAND SUPER THERMAL POWER STATION
NOTE NO. 43 TO THE FS--EXPENDITURE DURING CONSTRUCTION PERIOD (NET)
(Amount in ₹)

For the Year ended		31.03.2023	31.03.2022
001	EXPENDITURE DURING CONSTRUCTION PERIOD (NET)	0.00	0.00
002	A. Employee benefits expense	0.00	0.00
003	Salaries and wages	26,501,611.63	21,286,958.63
004	Contribution to provident and other funds	3,509,615.20	2,431,771.71
005	Unwinding of deferred payroll expenses	0.00	0.00
006	Staff welfare expenses	1,680,711.99	1,207,329.60
007	Total (A)	31,691,938.82	24,926,059.94
008	B. Finance Costs	0.00	0.00
009	Finance charges on financial liabilities measured at amortised cost	0.00	0.00
010	Bonds	9,928,869.03	5,668,439.23
011	Foreign currency term loans	26,164,411.47	3,847,461.50
012	Rupee term loans	16,080,739.00	12,081,882.00
013	Foreign currency bonds/notes	0.00	0.00
014	Unwinding of discount on account of vendor liabilities	0.00	74,018,223.04
015	Others	0.00	0.00
016		0.00	0.00
017	Other Borrowings Costs	0.00	0.00
018	Guarantee Commission	0.00	0.00
019	Management Fees/Arrangers Fees	0.00	0.00
020	Commitment charges/Exposure Premium	129,975.15	1,126,265.00
021	Legal Expenses on foreign currency loans	0.00	0.00
022	Foreign currency bonds/notes expenses	0.00	0.00
023	Foreign Credit Insurance Premium	0.00	0.00
024	Upfront Fee	0.00	0.00
025	Exchange Differences	0.00	0.00
026	Others	3,705,070.96	1,564,768.20
027	Exchange differences regarded as adjustment to interest cost	11,830,701.59	-1.00
028	Total (B)	67,839,767.20	98,307,037.97
029		0.00	0.00
030	C. Depreciation and amortisation	659.26	0.00
031	D. Generation , administration and other expenses	0.00	0.00
032	Power charges	314,305.00	872,302.00
033	Less: Recovered from contractors & employees	39,741.55	6,316,951.40
034	Sub-total(Net power charges)	274,563.45	-5,444,649.40
035	Water charges	0.00	0.00
036	Rent	0.00	0.00
037	Repairs & maintenance	0.00	0.00
038	Buildings	0.00	0.00
039	Construction equipment	0.00	0.00
040	Others	456.75	0.00
041		0.00	0.00
042	Insurance	0.00	0.00

RIHAND SUPER THERMAL POWER STATION
NOTE NO. 43 TO THE FS--EXPENDITURE DURING CONSTRUCTION PERIOD (NET)
(Amount in ₹)

	For the Year ended	31.03.2023	31.03.2022
043	Rates and taxes	108.00	93.60
044	Communication expenses	463,943.00	194,837.00
045	Travelling expenses	1,173,914.46	863,550.68
046	Tender expenses	0.00	0.00
047	Less: Income from sale of tenders	0.00	0.00
048	Sub-total (Net tender expenses)	0.00	0.00
049	Advertisement and publicity	0.00	0.00
050	Security expenses	0.00	0.00
051	Entertainment expenses	109,860.70	82,552.00
052	Guest house expenses	0.00	0.00
053	Less: Receipt from guest house	0.00	0.00
054	Sub-total (Net Guest House Expenses)	0.00	0.00
055	Education expenses	0.00	0.00
056	Brokerage & Commission	0.00	0.00
057	Books and periodicals	0.00	0.00
058	Community development expenses	0.00	0.00
059	Professional charges and consultancy fee	0.00	0.00
060	Legal expenses	0.00	0.00
061	EDP Hire and other charges	0.00	0.00
062	Printing and stationery	19,534.00	0.00
063	Miscellaneous expenses	483,437.66	1,644,206.13
064	Total (D)	2,525,818.02	-2,659,409.99
065	Total (A+B+C+D)	102,058,183.30	120,573,687.92
066	E. Less: Other Income	0.00	0.00
067	Interest from	0.00	0.00
068	Indian banks	0.00	0.00
069	Foreign banks	0.00	0.00
070	Others	0.00	0.00
071	Contractors	0.00	0.00
072	Hire charges	0.00	0.00
073	Sale of scrap	0.00	0.00
074	Exchange Differences	0.00	0.00
075	Miscellaneous income	104,102.76	96,735.00
076	TOTAL (E)	104,102.76	96,735.00
077	F. Net actuarial gain/loss OCI	-397,461.79	85,940.56
078		0.00	0.00
079	GRAND TOTAL (A+B+C+D-E+F)	101,556,618.75	120,562,893.48
080		0.00	0.00
081	* Balance carried to Capital Work-in-progress - (Note 3)	101,556,618.75	120,562,893.48

RIHAND SUPER THERMAL POWER STATION
NOTE NO. 43A TO THE FS--EDC- COAL MINING

(Amount in ₹)

	For the Year ended	31.03.2023	31.03.2022
001	EDC- Coal Mining	0.00	0.00
002	A. Employee benefits expense	0.00	0.00
003	Salaries and wages	0.00	0.00
004	Contribution to provident and other funds	0.00	0.00
005	Unwinding of deferred payroll expenses	0.00	0.00
006	Staff welfare expenses	0.00	0.00
007	Total (A)	0.00	0.00
008	B. Finance Costs	0.00	0.00
009	Finance charges on financial liabilities measured at amortised cost	0.00	0.00
010	Bonds	0.00	0.00
011	Foreign currency term loans	0.00	0.00
012	Rupee term loans	0.00	0.00
013	Foreign currency bonds/notes	0.00	0.00
014	Unwinding of discount on account of vendor liabilities	0.00	0.00
015	Others	0.00	0.00
016		0.00	0.00
017	Other Borrowings Costs	0.00	0.00
018	Guarantee Commission	0.00	0.00
019	Management Fees/Arrangers Fees	0.00	0.00
020	Commitment charges/Exposure Premium	0.00	0.00
021	Legal Expenses on foreign currency loans	0.00	0.00
022	Foreign currency bonds/notes expenses	0.00	0.00
023	Foreign Credit Insurance Premium	0.00	0.00
024	Upfront Fee	0.00	0.00
025	Exchange Differences	0.00	0.00
026	Others	0.00	0.00
027	Exchange differences regarded as adjustment to interest cost	0.00	0.00
028	Total (B)	0.00	0.00
029		0.00	0.00
030	C. Depreciation and amortisation	0.00	0.00
031	D. Generation , administration and other expenses	0.00	0.00
032	Power charges	0.00	0.00
033	Less: Recovered from contractors & employees	0.00	0.00
034	Sub-total(Net power charges)	0.00	0.00
035	Water charges	0.00	0.00
036	Rent	0.00	0.00
037	Repairs & maintenance	0.00	0.00
038	Buildings	0.00	0.00
039	Construction equipment	0.00	0.00
040	Others	0.00	0.00
041	Cost of Captive Coal	0.00	0.00
042	Insurance	0.00	0.00
043	Rates and taxes	0.00	0.00

RIHAND SUPER THERMAL POWER STATION
NOTE NO. 43A TO THE FS--EDC- COAL MINING

(Amount in ₹)

For the Year ended	31.03.2023	31.03.2022
044 Communication expenses	0.00	0.00
045 Travelling expenses	0.00	0.00
046 Tender expenses	0.00	0.00
047 Less: Income from sale of tenders	0.00	0.00
048 Sub-total (Net tender expenses)	0.00	0.00
049 Advertisement and publicity	0.00	0.00
050 Security expenses	0.00	0.00
051 Entertainment expenses	0.00	0.00
052 Guest house expenses	0.00	0.00
053 Less: Receipt from guest house	0.00	0.00
054 Sub-total (Net Guest House Expenses)	0.00	0.00
055 Education expenses	0.00	0.00
056 Brokerage & Commission	0.00	0.00
057 Books and periodicals	0.00	0.00
058 Community development expenses	0.00	0.00
059 Professional charges and consultancy fee	0.00	0.00
060 Legal expenses	0.00	0.00
061 EDP Hire and other charges	0.00	0.00
062 Printing and stationery	0.00	0.00
063 Miscellaneous expenses	0.00	0.00
064 Total (D)	0.00	0.00
065 Total (A+B+C+D)	0.00	0.00
066 E. Less: Other Income	0.00	0.00
067 Interest from	0.00	0.00
068 Indian banks	0.00	0.00
069 Foreign banks	0.00	0.00
070 Others	0.00	0.00
071 Contractors	0.00	0.00
072 Hire charges	0.00	0.00
073 Sale of scrap	0.00	0.00
074 Exchange Differences	0.00	0.00
075 Miscellaneous income	0.00	0.00
076 TOTAL (E)	0.00	0.00
077 F. Net actuarial gain/loss OCI	0.00	0.00
078	0.00	0.00
079 GRAND TOTAL (A+B+C+D-E+F)	0.00	0.00
080	0.00	0.00
081 * Balance carried to Capital Work-in-progress - (Note 3)	0.00	0.00

RIHAND SUPER THERMAL POWER STATION
NOTE NO. 44-A TO THE FINANCIAL STATEMENTS
(Amount in ₹)

As at	31.03.2023	31.03.2022
001 Balance sheet	0.00	0.00
002 Freehold land for which conveyancing of the title is awaiting completion of legal formalities	0.00	0.00
003 (a) area (in acres)	1,272.13	1,277.87
004 (b) value (in rs)	116,742,467.99	50,838,469.84
005 Right-of-use land for which execution of lease deed is awaiting completion of legal formalities	0.00	0.00
006 (a) area (in acres)	227.63	1,966.04
007 (b) value (in rs)	208,310,187.38	312,091,923.56
008 Right-of-use land acquired on perpetual lease and accordingly not amortised	0.00	0.00
009 (a) area (in acres)	0.00	0.00
010 (b) value (in rs.)	0.00	0.00
011 Land in physical possession of the company which has not been shown in the books pending settlement of price (in acres)	0.00	0.00
012 Deposit with government authorities towards land in possession of the company included in cost of land which is subject to adjus	0.00	0.00
013 Land not in possession of the company	0.00	0.00
014 (a) area (in acres)	0.00	0.00
015 -Freehold	776.45	786.37
016 -Right of Use	72.33	72.47
017 (b) value (in rs)	0.00	0.00
018 -Freehold	71,250,885.34	14,409,326.78
019 -Right of Use	30,718,588.01	31,000,000.00
020 Right-of-use buildings pending completion of legal fomalities - value (in rs.)	0.00	0.00
021 Estimated amount of contracts remaining to be executed on capital account and not provided for	0.00	0.00
022 Property, plant & equipment	13,566,754,374.00	17,596,562,343.00
023 Intangible assets	0.00	0.00
024 Details of precommissioning expenditure	0.00	0.00
025 (a) precommissioning expenses	0.00	0.00
026 (b) precommissioning income	0.00	0.00
027 (c) net precommissioning expenditure	0.00	0.00
028	0.00	0.00
029	0.00	0.00
030	0.00	0.00
031 Exchange rate variation taken to revenue during the year (with -ve sign, if favourable)	19,741,587.18	-92,096,377.22
045 Exchange rate variation capitalised during the year (with -ve sign, if favourable)	282,259,548.61	154,890,055.40
064 Short Term Leases	0.00	0.00
065 A) Rent	0.00	0.00
066 Company lease accomodation - executives	0.00	0.00
067 Company lease accomodation - directors	0.00	0.00
068 Others	0.00	0.00



अध्यक्ष, राष्ट्रीय पर्यावरण निदेशक (आयुक्त)
 Addl. General Manager (Compliance)
 एन टी सी लिमिटेड, NTPC LIMITED

RIHAND SUPER THERMAL POWER STATION
NOTE NO. 44-A TO THE FINANCIAL STATEMENTS
(Amount in ₹)

As at	31.03.2023	31.03.2022
069 Total	0.00	0.00
101 Borrowing cost capitalised during the year	67,839,767.20	24,288,814.93
102 Revenue grants recognized during the year	0.00	0.00
103 Revenue expenditure on research and development	0.00	0.00
104 Capital expenditure on research and development.	0.00	0.00
105 Expenditure on sustainability development - capital	1,321,815.00	0.00
106 Expenditure on csr- capital	0.00	0.00
107 Opening balance - CSR Liability	5,794,153.00	39,305,330.19
108 Paid/Adjusted during the Year out of Opening above	-1,456,484.00	36,690,803.19
109 Amount yet to be paid against Cr Year CSR Exp	1,408,871.00	-3,179,626.00
110 Closing Balance CSR- Liability (110)	5,746,540.00	-5,794,153.00
111	0.00	0.00
112	0.00	0.00
113	0.00	0.00
114	0.00	0.00
115 Disclosure under msmed act 2006.	0.00	0.00
116 (i) (a) the principal amount remaining unpaid as at year end	237,294,393.36	344,066,958.09
117 (i) (b) interest due there on remaining unpaid as at Year end	0.00	0.00
118 (ii) the amount of interest paid by the buyer in terms of section 16, along with the amounts of the payment made to the supplier	0.00	0.00
119 (iii) the amount of interest due and payable for the period of delay in making payment(which has been paid but beyond the appoin	0.00	0.00
120 (iv) the amount of interest accrued and remaining unpaid at the end of the year; and	0.00	0.00
121 (v) the amount of further interest remaining due and payable even in the succeeding years, until such date when the interest due	0.00	0.00
122 Amount of inventories recognized as an expense (including fuel)	36,118,519,159.86	31,594,433,719.35
123 Amount of inventories capitalised as overhauling assets out of 122 above	479,006,817.39	138,552,137.00
124 Amount capitalised as edc out of 122 above	0.00	0.00
133 Value of Imported Material Consumed during the Year	0.00	0.00
134	0.00	0.00
135 Contingent liabilities	0.00	0.00
136 A. Claims against the company not acknowledged as debts in respect of :	0.00	0.00
137 (i)Capital works	0.00	0.00
138 (ii)Land compensation cases	35,769,736.80	35,769,736.80
139 (iii)Others by state authorities towards:-	0.00	0.00
140 (a) Water royalty / water charges / nala tax	0.00	0.00
141 (b) Diversion of land / building permission fees	0.00	0.00

Locked: 27.04.2023 - 13:42:36

Run on: 27.04.2023 - 13:49:22 Version: 0



अधिवक्ता (आयुक्त)
 Addl. General Manager (Commercial)
 एन टी सी लिमिटेड, NTPC LIMITED

RIHAND SUPER THERMAL POWER STATION
NOTE NO. 44-A TO THE FINANCIAL STATEMENTS
(Amount in ₹)

As at	31.03.2023	31.03.2022
142 (c) Other demands by state authorities	4,590,000.00	4,590,000.00
143 (iv) Others by fuel companies	0.00	0.00
144 (a) Disputes related to grade slippage-third party sampling	1,346,927,154.99	521,176,520.00
145 (b) Surface transportation charges on coal	911,712,917.69	911,712,917.66
146 (c) Take or pay claim - Gas stations	0.00	0.00
147 (d) Other claims by fuel companies not acknowledged as debt	686,853,915.00	291,000,980.00
149 B.Disputed tax demands	0.00	0.00
150 (i) Income tax	0.00	0.00
151 (ii) Excise duty	3,691,823.00	3,691,823.00
152 (iii) Sales tax	146,412,646.00	145,060,360.00
153 (iv) Service tax/GST	4,225,770.93	4,080,007.53
154 (v) Entry tax	0.00	0.00
155 C. Others	183,583,292.71	240,865,291.85
156 Total	3,323,767,257.12	2,157,947,636.84
157 D. Possible reimbursement on account of contingent liabilities	0.00	0.00
158 (i) Capital works	0.00	0.00
159 (ii) Land compensation cases	0.00	0.00
160 (iii) Others (by state authorities)	0.00	0.00
161	0.00	0.00
162 (iv) Others by fuel companies	2,945,493,987.65	1,723,890,417.66
163 (v) Disputed income tax demand	0.00	0.00
164 (vi) Disputed tax demands -others	150,104,469.00	148,752,183.00
165 (vii) Others	58,203.00	118,267,099.00
167 Total	3,095,656,659.65	1,990,909,699.66
168 E.AMOUNT PAID UNDER PROTEST/ADJUSTED BY AUTHORITIES - TAX CASES	812,756.00	812,756.00
169 F.CONTINGENT ASSETS	0.00	0.00
170 Intangible under development : less than 1 year	0.00	0.00
171 Intangible under development #: 1-2 year	0.00	0.00
227 Intangible under development #: 2-3 year	0.00	0.00
277 Intangible under development #: More than 3 years	0.00	0.00
278 Capital-Work-in Progress (CWIP)	0.00	0.00
279 Projects in progress	8,960,205,455.82	6,758,466,834.90
280 Projects temporarily suspended	0.00	0.00
281	0.00	0.00
282	0.00	0.00
283 Projects in progress	0.00	0.00
284 Less than 1 year	3,744,284,084.47	4,445,877,958.44
285 1-2 years	3,074,034,597.30	1,791,003,583.98
286 2-3 years	1,738,373,963.21	268,220,634.24
287 More than 3 years	403,512,810.84	253,364,658.24
288 Sub Total (I)	8,960,205,455.82	6,758,466,834.90
289	0.00	0.00



RIHAND SUPER THERMAL POWER STATION
NOTE NO. 44-A TO THE FINANCIAL STATEMENTS

(Amount in ₹)

As at	31.03.2023	31.03.2022
290 Projects temporarily suspended	0.00	0.00
291 Less than 1 year	0.00	0.00
292 1-2 years	0.00	0.00
293 2-3 years	0.00	0.00
294 More than 3 years	0.00	0.00
295 Sub Total (II)	0.00	0.00
296	0.00	0.00
380 Previous year figures have been regrouped/rearranged wherever necessary.	0.00	0.00



RIHAND SUPER THERMAL POWER STATION

BALANCE SHEET

(Amount in ₹)

As at	Note	31.03.2024	31.03.2023
001	ASSETS	0.00	0.00
002		0.00	0.00
003	NON-CURRENT ASSETS	0.00	0.00
004	PROPERTY, PLANT & EQUIPMENT	2 48,149,067,190.98	49,621,309,183.69
005	CAPITAL-WORK-IN-PROGRESS	3 12,848,933,527.77	8,960,205,455.82
006	INVESTMENT PROPERTY	4 0.00	0.00
007	INTANGIBLE ASSETS	5 745,236.92	79,793.65
008	INTANGIBLE ASSETS UNDER DEVELOPMENT	6 0.00	0.00
009	FINANCIAL ASSETS	0.00	0.00
010	I) EQUITY INVESTMENTS IN SUBSIDIARIES AND JOINT VENTURES	7 0.00	0.00
011	II) OTHER INVESTMENTS	8 0.00	0.00
012	III) LOANS	9 117,068,687.39	111,577,788.06
013	IV) TRADE RECEIVABLES	10 0.00	0.00
014	V) OTHER FINANCIAL ASSETS	11 0.00	0.00
016	OTHER NON-CURRENT ASSETS	12 461,005,117.71	686,673,672.57
017	TOTAL NON-CURRENT ASSETS	61,576,819,760.77	59,379,845,893.79
018		0.00	0.00
019	CURRENT ASSETS	0.00	0.00
020	INVENTORIES	13 7,732,979,740.05	7,344,113,893.60
021	FINANCIAL ASSETS	0.00	0.00
022	I) OTHER INVESTMENTS	14 0.00	0.00
023	II) TRADE RECEIVABLES	15 0.00	1,737,334.04
024	III) CASH AND CASH EQUIVALENTS	16 0.00	0.00
025	IV) BANK BALANCES OTHER THAN CASH AND CASH EQUIVALENTS	17 0.00	0.00
026	V) LOANS	18 68,365,126.48	69,609,653.92
027	VI) OTHER FINANCIAL ASSETS	19 123,372,990.93	126,338,115.86
028	CURRENT TAX ASSETS (NET)	0.00	0.00
029		0.00	0.00
030	OTHER CURRENT ASSETS	20 599,590,417.73	682,394,358.11
031		0.00	0.00
032	TOTAL CURRENT ASSETS	8,524,308,275.19	8,224,193,355.53
033	ASSETS HELD FOR SALE	21 6,036,716.90	6,037,344.90
036	REGULATORY DEFERRAL ACCOUNT DEBIT BALANCES	22 -227,495,204.34	-43,260,292.59
037	TOTAL ASSETS	69,879,669,548.52	67,566,816,301.63
038	EQUITY AND LIABILITIES	0.00	0.00
039	EQUITY	0.00	0.00
040	EQUITY SHARE CAPITAL	23 0.00	0.00
041	OTHER EQUITY	24 201,165,336,384.38	189,186,278,816.05
044	TOTAL EQUITY	201,165,336,384.38	189,186,278,816.05
045		0.00	0.00
046	LIABILITIES	0.00	0.00
047	NON-CURRENT LIABILITIES	0.00	0.00
048	FINANCIAL LIABILITIES	0.00	0.00
049	I) BORROWINGS	25 0.00	0.00

**RIHAND SUPER THERMAL POWER STATION****BALANCE SHEET****(Amount in ₹)**

	As at	Note	31.03.2024	31.03.2023
050	II) LEASE LIABILITIES	26	229,338,533.00	201,162,209.87
051	III) TRADE PAYABLES		0.00	0.00
052	- TOTAL OUTSTANDING DUES OF MICRO AND SMALL ENTERPRISES	27	0.00	0.00
053	- TOTAL OUTSTANDING DUES OF CREDITORS OTHER THAN MICRO AND SMALL ENTERPRISES	27	0.00	0.00
054	IV) OTHER FINANCIAL LIABILITIES	28	42,444,386.96	55,870,227.33
055	PROVISIONS	29	0.00	0.00
056	DEFERRED TAX LIABILITIES (NET)	30	0.00	0.00
057	OTHER NON-CURRENT LIABILITIES	31	0.00	0.00
058			0.00	0.00
059	TOTAL NON-CURRENT LIABILITIES		271,782,919.96	257,032,437.20
060			0.00	0.00
061	CURRENT LIABILITIES		0.00	0.00
062	FINANCIAL LIABILITIES		0.00	0.00
063	I) BORROWINGS	32	0.00	0.00
064	II) LEASE LIABILITIES	33	14,911,924.69	14,497,699.11
065	III) TRADE PAYABLES		0.00	0.00
066	- TOTAL OUTSTANDING DUES OF MICRO AND SMALL ENTERPRISES	34	193,435,115.38	124,444,057.60
067	- TOTAL OUTSTANDING DUES OF CREDITORS OTHER THAN MICRO AND SMALL ENTERPRISES	34	2,199,580,679.48	2,444,847,958.62
068	III) OTHER FINANCIAL LIABILITIES	35	5,857,083,484.21	4,716,151,347.60
069	OTHER CURRENT LIABILITIES	36	110,599,056.76	124,300,877.64
070	PROVISIONS	37	13,133,268.00	9,102,016.00
071	CURRENT TAX LIABILITIES (NET)	38	0.00	0.00
072			0.00	0.00
073	TOTAL CURRENT LIABILITIES		8,388,743,528.52	7,433,343,956.57
074			0.00	0.00
077	DEFERRED REVENUE	39	1,356,547,000.00	1,576,387,000.00
078	REGULATORY DEFERRAL ACCOUNT CREDIT BALANCES	39A	0.00	0.00
079	INTER UNIT ACCOUNTS		-141,302,740,284.34	-130,886,225,908.19
080			0.00	0.00
081	TOTAL EQUITY AND LIABILITIES		69,879,669,548.52	67,566,816,301.63
082	Material Accounting Policies as per note 1	1	0.00	0.00
083			0.00	0.00
084	The Accompanying notes 1 to 48A form an integral part of these financial statements.		0.00	0.00
085			0.00	0.00

SUYASH SOMNATH KAPUR
 Digitally signed by SUYASH SOMNATH KAPUR
 Date: 2024.04.30 13:42:51 +05'30'
 (Auditor Initial & Stamp)

VENKATESWAR BOMPADA
 Digitally signed by VENKATESWAR BOMPADA
 Date: 2024.04.27 20:03:24 +05'30'
 (Head of Finance)

Pankaj Mediratta
 Digitally signed by Pankaj Mediratta
 DN: cn=Pankaj Mediratta, o=NTPC Limited, ou=Project, c=IN
 Date: 2024.04.29 18:25:48 +05'30'
 (Head of Unit)





RIHAND SUPER THERMAL POWER STATION

STATEMENT OF PROFIT AND LOSS

(Amount in ₹)

	For the Year ended	Note	31.03.2024	31.03.2023
001	Revenue		0.00	0.00
002	Revenue from operations	40	61,383,428,894.96	58,630,687,159.09
003	Other income	41	370,257,225.47	484,325,517.38
005	Total Income		61,753,686,120.43	59,115,012,676.47
007	Expenses		0.00	0.00
008	Fuel including cost of captive coal	42	35,194,069,965.70	34,514,855,222.10
009	Employee benefits expense	43	1,711,955,663.11	1,777,403,106.11
010	Electricity purchased for trading		0.00	0.00
011	Finance costs	44	1,002,897,400.49	1,283,819,969.71
012	Depreciation, amortization and impairment expenses	45	4,670,852,246.89	4,307,996,560.58
013			0.00	0.00
014	Other expenses	46	6,154,530,321.04	4,827,491,739.59
015	CC expenses charge to revenue		860,491,973.00	900,990,130.26
016	Less: Unit expenses transferred to CC		0.00	0.00
017	Total expenses		49,594,797,570.23	47,612,556,728.35
020	Profit before exceptional items & tax		12,158,888,550.20	11,502,455,948.12
021	Exceptional items		0.00	0.00
024	Profit before tax		12,158,888,550.20	11,502,455,948.12
027	Tax expense:		0.00	0.00
028	Current tax		0.00	0.00
031	Deferred tax		0.00	0.00
034			0.00	0.00
035	Total Tax expense		0.00	0.00
036	Profit for the period before regulatory deferral account balances		12,158,888,550.20	11,502,455,948.12
037	Movement in regulatory deferral account balances		0.00	0.00
038	Regulatory deferred account - deferred		0.00	0.00
039	Others		-184,234,911.75	-1,024,362,313.78
040	Tax impact on regulatory deferral account balances		0.00	0.00
041	Net movement in regulatory deferral account balances (net of tax)		-184,234,911.75	-1,024,362,313.78
042	Profit for the period/ year		11,974,653,638.45	10,478,093,634.34
055	Other comprehensive income		0.00	0.00
056	(A) Items that will not be reclassified to profit or loss		0.00	0.00
057	- Net gains/(losses) on fair value of equity instruments through other comprehensive income		0.00	0.00
058	Income tax on above that will not be reclassified to profit or loss		0.00	0.00
059	- Net actuarial gains/(losses) on defined benefit plans		4,403,929.88	-19,544,151.77
060	Income tax on above that will not be reclassified to profit or loss		0.00	0.00
064			0.00	0.00
065	Other comprehensive income for the year, net of income tax		4,403,929.88	-19,544,151.77
070			0.00	0.00
071			0.00	0.00
072	Total Comprehensive Income for the year		11,979,057,568.33	10,458,549,482.57


 अधीन प्रबन्धक (व्यवसायिक)
 Addl. General Manager (Commercial)
 एन टी सी लिमिटेड, NTPC LIMITED



RIHAND SUPER THERMAL POWER STATION

STATEMENT OF PROFIT AND LOSS

(Amount in ₹)

	For the Year ended	Note	31.03.2024	31.03.2023
086			0.00	0.00
087	Earnings per equity share:		0.00	0.00
088	Basic & Diluted		0.00	0.00
089	Material Accounting Policies		0.00	0.00
090			0.00	0.00
091	The accompanying notes 1 to 48 form an integral part of these financial statements.		0.00	0.00

SUYASH
SOMNATH
KAPUR

Digitally signed by
SUYASH SOMNATH
KAPUR
Date: 2024.04.30
13:43:31 +05'30'

(Auditor Initial & Stamp)

VENKATESWA
R BOMPADA

Digitally signed by
VENKATESWAR BOMPADA
Date: 2024.04.27 20:03:46
+05'30'

(Head of Finance)

Pankaj
Mediratta

Digitally signed by Pankaj Mediratta
DN: cn=B, o=NTPC Limited, ou=Project,
2.5.4.20=2a2c27f03930c0d956595d96
570d16633a02c048515d456e4904a8
7127d6, postalCode=431223, serialNumber=
pradeb,
serialNumber=3773aaf0841d6ba22
c2e4d42e12e26f0c0e49e795c0b10888
9cc1f6673, cn=Pankaj Mediratta
Date: 2024.04.29 18:25:10 +05'30'

(Head of Unit)

**RIHAND SUPER THERMAL POWER STATION****OTHER COMPREHENSIVE INCOME****(Amount in ₹)**

For the Year ended	31.03.2024	31.03.2023
001	0.00	0.00
002 Other comprehensive income	0.00	0.00
003 (A) Items that will not be reclassified to profit or loss	0.00	0.00
004 - Net gains/(losses) on fair value of equity instruments through other comprehensive income	0.00	0.00
005 Income tax on above that will not be reclassified to profit or loss	0.00	0.00
006 - Net actuarial gains/(losses) on defined benefit plans	4,403,929.88	-19,544,151.77
007 Income tax on above that will not be reclassified to profit or loss	0.00	0.00
008	0.00	0.00
009 (B) Items that will be reclassified to profit or loss	0.00	0.00
010 Income tax relating to above items that will be reclassified to profit or loss	0.00	0.00
011	0.00	0.00
012 Other comprehensive income for the year, net of income tax	4,403,929.88	-19,544,151.77
013	0.00	0.00
014 Total comprehensive income for the year (A+B)	4,403,929.88	-19,544,151.77

Note forming part of Balance Sheet
NOTE NO. 2 TO THE FS-NCA-PROPERTY, PLANT AND EQUIPMENT
Business Area :1005

Asset Class	Opening Gross Block As At 01.04.2023	Additions	Deductions/ Adjustments	Closing Gross Block As At 31.03.2024	Opening Depreciation As At 01.04.2023	Additions	Deductions/ Adjustments	Closing Depreciation As At 31.03.2024	Net Block As At 31.03.2024	Net Block As At 31.03.2023
1 TANGIBLE ASSETS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2 Land : (including development expenses)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3 Freehold	355016843.25	0.00	0.00	355016843.25	0.00	0.00	0.00	0.00	355016843.25	355016843.25
4 Right of Use	678137733.98	32546505.48	0.00	710684239.46	99423606.49	23536626.93	0.00	122960233.42	587724006.04	578714127.49
5 Submergence	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6 Right of use - Coal Bearing Area Land	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7 Roads,bridges, culverts & helipads	636337614.70	0.00	0.00	636337614.70	180157124.43	23626463.25	0.00	203783587.68	432554027.02	456180490.27
8 Building :	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9 Freehold	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10 Main plant	1869800747.79	980.66	0.00	1869801728.45	501564138.50	63390639.75	0.00	564954778.25	1304846950.20	1368236609.29
11 Others	2574811225.22	91130304.03	(201140.39)	2665740388.86	673767508.77	177207020.14	0.00	850974528.91	1814765859.95	1901043716.45
12 Right of Use	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
13 Temporary erection	231168.13	832000.00	0.00	1063168.13	231168.13	624000.00	0.00	855168.13	208000.00	0.00
14 Water Supply, drainage & sewerage system	546222044.04	913668.44	0.00	547135712.48	171339645.41	24175812.19	0.00	195515457.60	351620254.88	374882398.63
15 Hydraulic works, barrages, dams, tunnels and power channel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
16 MGR track and signalling system	1354309444.15	0.00	(2292175.64)	1352017268.51	487460446.31	57038141.70	0.00	544498588.01	807518680.50	866848997.84
17 Railway siding	1528212.48	0.00	0.00	1528212.48	776912.19	64482.46	0.00	841394.65	686817.83	751300.29
18 Earth dam reservoir	1456921.40	0.00	0.00	1456921.40	0.00	0.00	0.00	0.00	1456921.40	1456921.40
19 Plant and machinery(including associated civil works)	76960566665.36	3668820918.91	(481206360.20)	80148181224.07	33744072418.19	4821123153.64	(336854991.71)	38228340580.12	41919840643.95	43216494247.17
Owned Asset										


 अवर महाप्रबन्धक (आर्थिक) /
 Addl. General Manager (Commercial)
 एन टी सी लिमिटेड / NTPC LIMITED

Note forming part of Balance Sheet
NOTE NO. 2 TO THE FS-NCA-PROPERTY, PLANT AND EQUIPMENT
Business Area :1005

Asset Class	Opening Gross Block As At 01.04.2023	Additions	Deductions/ Adjustments	Closing Gross Block As At 31.03.2024	Opening Depreciation As At 01.04.2023	Additions	Deductions/ Adjustments	Closing Depreciation As At 31.03.2024	Net Block As At 31.03.2024	Net Block As At 31.03.2023
20 Plant and machinery(including associated civil works) -Right of use Asset	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
21 Furniture and fixtures	176641068.54	5613399.10	0.00	182254467.64	88220455.66	8592917.30	0.00	96813372.96	85441094.68	88420612.88
22 Assets under 5 Km Scheme	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
23 Vehicles including speedboats / helicopter- Owned	9034115.35	2809838.00	0.00	11843953.35	3879093.90	878459.75	0.00	4757553.65	7086399.70	5155021.45
24 Vehicles including speedboats / helicopter - Right of Use	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
25 Office equipment	100813473.54	132053544.87	4313542.89	237180561.30	66352770.64	13950822.72	1220794.20	81524387.56	155656173.74	34460702.90
26 EDP, WP machines and satcom equipment	125778344.32	8349424.51	(22304907.51)	111822861.32	70281077.93	21296402.28	(13488215.74)	78089264.47	33733596.85	55497266.39
27 Construction equipments	65110895.86	0.00	0.00	65110895.86	31101580.64	2027269.30	0.00	33128849.94	31982045.92	34009315.22
28 Electrical Installations	331078040.99	0.00	0.00	331078040.99	161206158.08	20440092.85	0.00	181646250.93	149431790.06	169871882.91
29 Communication equipments	32811847.30	1102000.00	9617420.83	43531268.13	25087864.37	3179304.32	5088397.55	33355566.24	10175701.89	7723982.93
30 Hospital equipments	36163197.06	419979.92	0.00	36583176.98	20726067.81	2773084.36	0.00	23499152.17	13084024.81	15437129.25
31 Laboratory and workshop equipments	150982759.77	3755889.57	0.00	154738649.34	59875142.09	8626148.94	0.00	68501291.03	86237358.31	91107617.68
32 Capital expenditure on assets not owned by the Company	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
33 Assets of Government	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00


 अवर निदेशाधिकारी (आर्थिक) /
 Addl. General Manager (Commercial)
 एन टी सी लिमिटेड / NTPC LIMITED

Note forming part of Balance Sheet
NOTE NO. 2 TO THE FS-NCA-PROPERTY, PLANT AND EQUIPMENT
Business Area :1005

Asset Class	Opening Gross Block As At 01.04.2023	Additions	Deductions/ Adjustments	Closing Gross Block As At 31.03.2024	Opening Depreciation As At 01.04.2023	Additions	Deductions/ Adjustments	Closing Depreciation As At 31.03.2024	Net Block As At 31.03.2024	Net Block As At 31.03.2023
34 Less:Grants from Government	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
35 Less: Recoverable from GOI	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
36 Assets for ash utilisation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
37 (Less):-Adjusted from fly ash utilisation reserve fund	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
38 Site Restoration Cost	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
39 Mining Properties	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grand Total (Tangible)	86006832363.23	3948348453.49	(492073620.02)	89463107196.70	36385523179.54	5272550841.88	(344034015.70)	41314040005.72	48149067190.98	49621309183.69
Grand Total Prev Year (Tangible)	82762860205.13	3815958810.11	(571986652.01)	86006832363.23	32238221992.08	4896131231.52	(748830044.06)	36385523179.54	49621309183.69	50524638213.05


 Anil Kumar (Commercial)
 Anil Kumar / NTPC LIMITED

Note forming part of Balance Sheet
NOTE NO. 2 TO THE FS-NCA-PROPERTY, PLANT AND EQUIPMENT
Business Area :1005

Details of Adjustments of Gross Block and Depreciation/Amortization

Particulars	Gross Block		Depreciation/Amortization	
	Tangible As At: 31.03.2024	Tangible As At: 31.03.2023	Tangible As At: 31.03.2024	Tangible As At: 31.03.2023
Disposal of assets	(4490895.36)	(11218922.70)	(4490895.36)	(11218922.70)
Retirement of assets	(473215802.77)	(832440819.19)	(331266377.67)	(738408039.74)
Cost adjustments	(5073602.86)	254681373.92	0.00	0.00
Assets capitalised with retrospective effect / Write back of excess capitalisation	0.00	0.00	0.00	0.00
Depreciation on construction equipment capitalised as EDC	0.00	0.00	0.00	0.00
Prior Period Depreciation due to Assets capitalised with retrospective effect / Write back of excess capitalisation	0.00	0.00	0.00	0.00
Special Depreciation (As per New Policy)	0.00	0.00	0.00	0.00
Transfer in /out because of Inter Unit transfers	(10213221.96)	26964560.27	(9196645.60)	796918.38
Others	919902.93	(9972844.31)	919902.93	0.00
TOTAL	(492073620.02)	(571986652.01)	(344034015.70)	(748830044.06)

Note:- Additions during the year includes capital expenditure towards CSR (in Rs.) : 0.00


 Anil Kumar (Commercial)
 Anil Kumar / NTPC LIMITED

Note forming part of Balance Sheet
NOTE NO. 3 TO THE FS-NCA-CAPITAL WORK-IN-PROGRESS
Business Area: RIHAND SUPER THERMAL POWER STATION

SI No	Asset Class	As At 01.04.2023	Addition	Deduction/ Adjustment	Capitalized	As At 31.03.2024
	1	2	3	4	5	6
1	CAPITAL WORK-IN-PROGRESS					
2	Development of land					
3	Roads, bridges, culverts & helipads					
4	Piling and foundation					
5	Buildings :					
6	Main plant					
7	Others	128058530.12	39533683.72	(1320674.48)		166271539.36
8	Temporary erection					
9	Water supply, drainage and sewerage system		913668.44	(913668.44)		
10	Hydraulic works, barrages, dams, tunnels and power channel					
11	MGR track and signalling system					
12	Railway siding					
13	Earth dam reservoir					
14	Plant and equipment	8716518065.07	6303220680.72	(1025443862.29)	1514617344.31	12479677539.19
15	Furniture and fixtures					
16	Vehicles					
17	Office equipment		153600.00			153600.00
18	EDP/WP machines & satcom equipment					
19	Construction equipments		4400000.87			4400000.87
20	Electrical installations					
21	Communication equipment					
22	Hospital equipments					
23	Laboratory and workshop equipments					
24	Assets under 5Km Scheme of the GOI					
25	Capital expenditure on assets not owned by the company					
26	Expenditure towards development of coal mines					
27	Survey,Investigation,Consultancy & Supervision Cha	391613.00	(391613.00)			
28	Difference in exchange on foreign currency loans					

Note forming part of Balance Sheet
NOTE NO. 3 TO THE FS-NCA-CAPITAL WORK-IN-PROGRESS
Business Area: RIHAND SUPER THERMAL POWER STATION

SI No	Asset Class	As At 01.04.2023	Addition	Deduction/ Adjustment	Capitalized	As At 31.03.2024
	1	2	3	4	5	6
29	Expenditure towards diversion of forest land					
30	Pre-commissioning expenses (net)					
31	ExpPendAlloca-oth ex attribut Project					
32	Expenditure During Construction Period (net)*		180736283.64	2202066.94		182938350.58
33	LESS : Allocated to related works		182938350.58			182938350.58
34	LESS : Provision for Unservicable works					
35	Construction stores (At Cost)					
36	Steel	2592059.75		(461242.18)		2130817.57
37	Cement	1723908.87		(9323.78)		1714585.09
38	Others	111009676.17	20465330.00	65006759.50		196481765.67
39	Sub-total	115325644.79	20465330.00	64536193.54		200327168.33
40	LESS : Provision for shortages	88397.16		1807922.82		1896319.98
41	Sub-total	115237247.63	20465330.00	62728270.72		198430848.35
42	Total CWIP	8960205455.82	6366093283.81	(962747867.55)	1514617344.31	12848933527.77
43						
44						
45	PREVIOUS YEAR TOTAL	6758466834.90	4893710462.03	(1270467177.70)	1167430596.92	8960205455.82

Note:- Additions during the year includes capital expenditure towards CSR (in Rs.) :

0.00

Note forming part of Balance Sheet
NOTE NO. 4 TO THE FS-NCA-INVESTMENT PROPERTY
Business Area :1005

Asset Class	Opening Gross Block As At 01.04.2023	Additions	Deductions/ Adjustments	Closing Gross Block As At 31.03.2024	Opening Depreciation As At 01.04.2023	Additions	Deductions/ Adjustments	Closing Depreciation As At 31.03.2024	Net Block As At 31.03.2024	Net Block As At 31.03.2023
INVESTMENT PROPERTY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1 Free Hold Land	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2 ROU Land	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grand Total (Investment Property)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grand Total Prev Year (Investment Property)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00


 अवर सहायक (वित्त/अकाउंट्स)
 Anil Kumar Manager (Commercial)
 एन टी सी लिमिटेड / NTPC LIMITED

Note forming part of Balance Sheet
NOTE NO. 4 TO THE FS-NCA-INVESTMENT PROPERTY
Business Area :1005

Details of Adjustments of Gross Block and Depreciation/Amortization				
Particulars	Gross Block		Depreciation/Amortization	
	Investment Property As At: 31.03.2024	Investment Property As At: 31.03.2023	Investment Property As At: 31.03.2024	Investment Property As At: 31.03.2023
Disposal of assets	0.00	0.00	0.00	0.00
Retirement of assets	0.00	0.00	0.00	0.00
Cost adjustments	0.00	0.00	0.00	0.00
Assets capitalised with retrospective effect / Write back of excess capitalisation	0.00	0.00	0.00	0.00
Depreciation on construction equipment capitalised as EDC	0.00	0.00	0.00	0.00
Prior Period Depreciation due to Assets capitalised with retrospective effect / Write back of excess capitalisation	0.00	0.00	0.00	0.00
Special Depreciation (As per New Policy)	0.00	0.00	0.00	0.00
Transfer in /out because of Inter Unit transfers	0.00	0.00	0.00	0.00
Others	0.00	0.00	0.00	0.00
TOTAL	0.00	0.00	0.00	0.00

Note:- Additions during the year includes capital expenditure towards CSR (in Rs.) : 0.00


 अवर सहायक (वित्त/अकाउंट्स)
 Anil Kumar (Accounts)
 एन टी सी लिमिटेड / NTPC LIMITED

Note forming part of Balance Sheet
NOTE NO. 5 TO THE FS-NCA-INTANGIBLE ASSETS
Business Area :1005

Asset Class	Opening Gross Block As At 01.04.2023	Additions	Deductions/ Adjustments	Closing Gross Block As At 31.03.2024	Opening Depreciation As At 01.04.2023	Additions	Deductions/ Adjustments	Closing Depreciation As At 31.03.2024	Net Block As At 31.03.2024	Net Block As At 31.03.2023
INTANGIBLE ASSETS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1 Right to Use- Land	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2 -Others	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3 -Software	4866792.26	985404.00	0.00	5852196.26	4786998.61	319960.73	0.00	5106959.34	745236.92	79793.65
Grand Total (Intangible)	4866792.26	985404.00	0.00	5852196.26	4786998.61	319960.73	0.00	5106959.34	745236.92	79793.65
Grand Total Prev Year (Intangible)	4773867.26	92925.00	0.00	4866792.26	4758604.86	28393.75	0.00	4786998.61	79793.65	15262.40


 Anil Kumar (Commercial)
 Anil Kumar / NTPC LIMITED

Note forming part of Balance Sheet
NOTE NO. 5 TO THE FS-NCA-INTANGIBLE ASSETS
Business Area :1005

Details of Adjustments of Gross Block and Depreciation/Amortization				
Particulars	Gross Block		Depreciation/Amortization	
	InTangible As At: 31.03.2024	InTangible As At: 31.03.2023	InTangible As At: 31.03.2024	InTangible As At: 31.03.2023
Disposal of assets	0.00	0.00	0.00	0.00
Retirement of assets	0.00	0.00	0.00	0.00
Cost adjustments	0.00	0.00	0.00	0.00
Assets capitalised with retrospective effect / Write back of excess capitalisation	0.00	0.00	0.00	0.00
Depreciation on construction equipment capitalised as EDC	0.00	0.00	0.00	0.00
Prior Period Depreciation due to Assets capitalised with retrospective effect / Write back of excess capitalisation	0.00	0.00	0.00	0.00
Special Depreciation (As per New Policy)	0.00	0.00	0.00	0.00
Transfer in /out because of Inter Unit transfers	0.00	0.00	0.00	0.00
Others	0.00	0.00	0.00	0.00
TOTAL	0.00	0.00	0.00	0.00

Note:- Additions during the year includes capital expenditure towards CSR (in Rs.) : 0.00


 Anil Kumar (Commercial)
 Anil Kumar / NTPC LIMITED

Note forming part of Balance Sheet

NOTE NO. 6 TO THE FS-NCA-INTANGIBLE ASSETS UNDER DEVELOPMENT

Business Area: RIHAND SUPER THERMAL POWER STATION

SI No	Asset Class	As At 01.04.2023	Addition	Deduction/ Adjustment	Capitalized	As At 31.03.2024
	1	2	3	4	5	6
1	INTANGIBLE ASSETS UNDER DEVELOPMENT					
2	Software					
3	Right to use Others					
4	Exploration and Evaluation Expenditure - Coal Mini					
5	Exploratory wells-in-progress					
6	Less: Provision for exploratory wells-in-progress					
7	Total					
8	PREVIOUS YEAR TOTAL-I					

Note:- Additions during the year includes capital expenditure towards CSR (in Rs.) :

0.00

RIHAND SUPER THERMAL POWER STATION

NOTE NO. 7 TO THE FS-NCA-EQUITY INVESTMENTS IN SUBSIDIARIES AND JOINT VENTURES (Amount in ₹)

As at	No. of shares	Face value	31.03.2024	31.03.2023
001	NON CURRENT INVESTMENTS- INVESTMENTS IN SUBSIDIARIES AND JOINT VENTURES		0.00	0.00
012	EQUITY INSTRUMENTS - UNQUOTED-(FULLY PAID UP UNLESS OTHERWISE STATED, AT COST)		0.00	0.00
013	SUBSIDIARY COMPANIES		0.00	0.00
014	PATRATU VIDYUT UTPADAN NIGAM LTD.		0.00	0.00
015	NTPC ELECTRIC SUPPLY COMPANY LTD.		0.00	0.00
016	NTPC VIDYUT VYAPAR NIGAM LTD.		0.00	0.00
017	NABINAGAR POWER GENERATING COMPANY LTD.		0.00	0.00
018	KANTI BIJLEE UTPADAN NIGAM LTD.		0.00	0.00
019	BHARTIYA RAIL BIJLEE COMPANY LTD.		0.00	0.00
020	NTPC MINING LTD (NML)		0.00	0.00
021	THDC INDIA LTD.		0.00	0.00
022	NEEPCO LTD.		0.00	0.00
023	NTPC EDMC Waste Solutions Pvt Ltd		0.00	0.00
024	NTPC Renewables Energy Ltd		0.00	0.00
025	Ratnagiri Gas & Power Pvt. Limited (RGPPL)		0.00	0.00
026	NTPC Green Energy Limited		0.00	0.00
027	Green Valley Renewable Energy Limited		0.00	0.00
028			0.00	0.00
029			0.00	0.00
030	SUB TOTAL		0.00	0.00
055	JOINT VENTURE COMPANIES		0.00	0.00
056	Utility Powertech Ltd.		0.00	0.00
057	NTPC GE Power Services Pvt.Ltd.		0.00	0.00
058	NTPC-SAIL Power Company Ltd.		0.00	0.00
059	NTPC-Tamil Nadu Energy Company Ltd.		0.00	0.00

RIHAND SUPER THERMAL POWER STATION

NOTE NO. 7 TO THE FS-NCA-EQUITY INVESTMENTS IN SUBSIDIARIES AND JOINT VENTURES (Amount in ₹)

	As at	No. of shares	Face value	31.03.2024	31.03.2023
060	Ratnagiri Gas & Power Pvt. Limited (RGPPL)			0.00	0.00
061	ARAVALI POWER COMPANY PRIVATE LTD.			0.00	0.00
062	Jhabua Power Ltd.			0.00	0.00
063	NTPC BHEL POWER PROJECTS PRIVATE LTD.			0.00	0.00
064	MEJA URJA NIGAM PRIVATE LIMITED			0.00	0.00
065	BF-NTPC ENERGY SYSTEMS LTD.			0.00	0.00
066				0.00	0.00
067	NABINAGAR POWER GENERATING COMPANY LTD.			0.00	0.00
068	TRANSFORMER AND ELECTRICAL KERALA LTD.			0.00	0.00
069	NATIONAL HIGH POWER TEST LABORTORY PRIVATE LTD.			0.00	0.00
070				0.00	0.00
071	CIL NTPC URJA PRIVATE LTD.			0.00	0.00
072	ANUSHAKTI VIDHYUT NIGAM LTD.			0.00	0.00
073	ENERGY EFFICIENCY SERVICES LTD.			0.00	0.00
074				0.00	0.00
075	TRINCOMALEE POWER COMPANY LTD.			0.00	0.00
076	BANGLADESH-INDIA FRIENDSHIP POWER COMPANY (PVT.) LTD.			0.00	0.00
077	HINDUSTAN URVARAK & RASAYAN LIMITED			0.00	0.00
078	KONKAN LNG LTD			0.00	0.00
085	SUB TOTAL			0.00	0.00
109	AGGREGATE AMOUNT OF IMPAIRMENT IN THE VALUE OF INVESTMENTS			0.00	0.00
110	TOTAL (NET OF IMPAIRMENT) OF JV			0.00	0.00
111	Gross Total of Investments			0.00	0.00
134	Total			0.00	0.00
135	Details of Investments			0.00	0.00
136	Aggregate amount of Unquoted Investments			0.00	0.00



RIHAND SUPER THERMAL POWER STATION

NOTE NO. 7 TO THE FS-NCA-EQUITY INVESTMENTS IN SUBSIDIARIES AND JOINT VENTURES (Amount in ₹)

As at	No. of shares	Face value	31.03.2024	31.03.2023
141			0.00	0.00
142			0.00	0.00
143			0.00	0.00
144			0.00	0.00
145			0.00	0.00
153	Valuation of Investments as per Note 1.		0.00	0.00
154			0.00	0.00
202			0.00	0.00
233			0.00	0.00



RIHAND SUPER THERMAL POWER STATION

NOTE NO. 8 TO THE FS-NCA-OTHER INVESTMENTS

(Amount in ₹)

	As at	No. of shares	Face value	31.03.2024	31.03.2023
001	Non-current financial assets (investments)			0.00	0.00
006	Long Term - Trade			0.00	0.00
007	Equity Instruments (fully paid up-unless otherwise stated)			0.00	0.00
008	Quoted			0.00	0.00
009	JOINT VENTURE COMPANIES			0.00	0.00
010	PTC India Ltd.			0.00	0.00
070	INTERNATIONAL COAL VENTURES PRIVATE LTD.			0.00	0.00
075	BF-NTPC ENERGY SYSTEMS LTD.			0.00	0.00
098	Jhabua Power Limited-8.5% Non convertible debentures - private placement			0.00	0.00
110	COOPERATIVE SOCIETIES			0.00	0.00
111				0.00	0.00
112	SUB TOTAL			0.00	0.00
113	AGGREGATE AMOUNT OF IMPAIRMENT IN THE VALUE OF INVESTMENTS			0.00	0.00
115	TOTAL			0.00	0.00
120				0.00	0.00
146	NTPC EMPLOYEES CONSUMERS AND THRIFT CO-OPERATIVE SOCIETY LTD. KORBA			0.00	0.00
147	NTPC EMPLOYEES CONSUMERS AND THRIFT COOPERATIVE SOCIETY LTD. RSTPP			0.00	0.00
148	NTPC EMPLOYEES CONSUMERS COOPERATIVE SOCIETY LTD. FARAKKA			0.00	0.00
149	NTPC EMPLOYEES CONSUMERS COOPERATIVE SOCIETY LTD. VINDHYACHAL			0.00	0.00
150	NTPC EMPLOYEES CONSUMERS COOPERATIVE SOCIETY LTD. ANTA			0.00	0.00
151	NTPC EMPLOYEES CONSUMERS COOPERATIVE SOCIETY LTD. KAWAS			0.00	0.00
152	NTPC Employees Consumers Cooperative Society Ltd. Kaniha			0.00	0.00

RIHAND SUPER THERMAL POWER STATION
NOTE NO. 9 TO THE FS-NCA-LOANS
(Amount in ₹)

As at	31.03.2024	31.03.2023
001 LOANS (NON CURRENT)	0.00	0.00
004 RELATED PARTIES	0.00	0.00
005 SECURED	0.00	0.00
006 UN-SECURED	0.00	0.00
007 WITH SIGNIFICANT INCREASE IN CREDIT RISK	0.00	0.00
008 CREDIT IMPAIRED	0.00	0.00
009	0.00	0.00
010 EMPLOYEES(INCLUDING ACCRUED INTEREST)	0.00	0.00
011 SECURED	100,515,451.47	94,523,507.55
012 UNSECURED	45,987,192.18	45,547,966.97
013 WITH SIGNIFICANT INCREASE IN CREDIT RISK	0.00	0.00
014 CREDIT IMPAIRED	0.00	0.00
015 LESS : EMPLOYEE LOANS DISCOUNTING	0.00	0.00
016 SECURED	22,007,280.80	22,171,388.03
017 UNSECURED	7,426,675.46	6,322,298.43
018 LOAN TO STATE GOVERNMENT IN SETTLEMENT OF DUES FROM CUSTOMERS (UNSECURED)	0.00	0.00
019 OTHERS	0.00	0.00
020 SECURED	0.00	0.00
021 UNSECURED	0.00	0.00
022 WITH SIGNIFICANT INCREASE IN CREDIT RISK	0.00	0.00
023 CREDIT IMPAIRED	0.00	0.00
024 LESS: ALLOWANCE FOR CREDIT IMPAIRED LOANS	0.00	0.00
026 SUB TOTAL	117,068,687.39	111,577,788.06
027	0.00	0.00
028 TOTAL	117,068,687.39	111,577,788.06
029	0.00	0.00
030	0.00	0.00
031 Due from Directors and Officers of the Company	0.00	0.00
032 Directors	0.00	0.00
033 Officers	0.00	0.00
034	0.00	0.00
035 Loans to related parties include:	0.00	0.00
036 i)Key management personel	0.00	0.00
037 ii)Subsidiary companies	0.00	0.00
038 iii)Joint Venture companies	0.00	0.00
039 iv)Others	0.00	0.00
040	0.00	0.00
055 Other loans represent loans given to	0.00	0.00
056 a) APIIC	0.00	0.00
061	0.00	0.00
062 RPD	0.00	0.00
063 i)Key management personel	0.00	0.00



RIHAND SUPER THERMAL POWER STATION

NOTE NO. 9 TO THE FS-NCA-LOANS

(Amount in ₹)

As at	31.03.2024	31.03.2023
064 ii)Subsidiary companies	0.00	0.00
065 iii)Joint Venture companies	0.00	0.00
066 iv)Others	0.00	0.00
067 Total	0.00	0.00



RIHAND SUPER THERMAL POWER STATION

NOTE NO. 10 TO THE FS-NCA-TRADE RECEIVABLES

(Amount in ₹)

As at	31.03.2024	31.03.2023
001 Non-current financial assets - Trade receivables	0.00	0.00
002 UNSECURED, CONSIDERED GOOD	0.00	0.00
003 CREDIT IMPAIRED	0.00	0.00
004	0.00	0.00
006 Total	0.00	0.00



RIHAND SUPER THERMAL POWER STATION
ANNEXURE TO NOTE 9- RPD (LOANS) SUBSIDIARIES

(Amount in ₹)

As at	31.03.2024	31.03.2023
010	0.00	0.00

RIHAND SUPER THERMAL POWER STATION
NOTE NO. 11 TO THE FS-NCA-OTHER FINANCIAL ASSETS
(Amount in ₹)

As at	31.03.2024	31.03.2023
001 Other Financial Assets (non current)	0.00	0.00
002	0.00	0.00
003 Share application money pending allotment in (Subsidiary Companies) :	0.00	0.00
004 NTPC Electric Supply Company Ltd.	0.00	0.00
005 NTPC Vidyut Vyapar Nigam Ltd.	0.00	0.00
006 Nabinagar Power Generating Company Ltd.	0.00	0.00
007 Kanti Bijlee Utpadan Nigam Ltd.	0.00	0.00
008 Bhartiya Rail Bijlee Company Ltd.	0.00	0.00
009 Patratu Vidyut Utpadan Nigam Ltd.	0.00	0.00
010 NTPC Mining Limited	0.00	0.00
011 THDC Ltd.	0.00	0.00
012 NEEPCO Ltd	0.00	0.00
013	0.00	0.00
014 Total	0.00	0.00
015 Share application money pending allotment (Joint Venture)	0.00	0.00
016 Utility Powertech Ltd.	0.00	0.00
017 NTPC GE Power Services Pvt.Ltd.	0.00	0.00
018 NTPC-SAIL Power Company Ltd.	0.00	0.00
019 NTPC-Tamil Nadu Energy Company Ltd.	0.00	0.00
020 Ratnagiri Gas & Power Private Ltd.	0.00	0.00
021 Aravali Power Company Private Ltd.	0.00	0.00
022	0.00	0.00
023 NTPC BHEL Power Projects Private Ltd.	0.00	0.00
024 Meja Urja Nigam Private Limited	0.00	0.00
025 BF-NTPC Energy Systems Ltd.	0.00	0.00
026 Anushakti Vidhyut Nigam Ltd.	0.00	0.00
027 Nabinagar Power Generating Company Ltd.	0.00	0.00
028 Energy Efficiency Services Ltd.	0.00	0.00
029 National High Power Test Labortory Private Ltd.	0.00	0.00
030	0.00	0.00
031 CIL NTPC Urja Private Ltd.	0.00	0.00
032 Trincomalee Power Company Ltd.	0.00	0.00
033 Hindustan Urvarak & Rasayan Limited	0.00	0.00
034 Bangladesh-India Friendship Power Company Private Ltd.	0.00	0.00
035 Sub Total	0.00	0.00
036	0.00	0.00
037 Claims Recoverable	0.00	0.00
038 Finance Lease Recoverable	0.00	0.00
039 Mine Closure Deposit	0.00	0.00
040 Financial Deposit	0.00	0.00
041	0.00	0.00
042 Total	0.00	0.00

RIHAND SUPER THERMAL POWER STATION
NOTE NO. 12 TO THE FS-NCA-OTHER NON-CURRENT ASSETS
(Amount in ₹)

As at	31.03.2024	31.03.2023
001 Other Non-current Assets	0.00	0.00
002	0.00	0.00
003 CAPITAL ADVANCES	0.00	0.00
004 SECURED	0.00	0.00
005 Unsecured	0.00	0.00
006 COVERED BY BANK GUARANTEE	314,389,169.00	600,930,914.00
007 OTHERS	112,549,980.49	54,522,506.49
008 CONSIDERED DOUBTFUL	0.00	0.00
009 LESS: ALLOWANCE FOR BAD & DOUBTFUL ADVANCES	0.00	0.00
010 Sub-Total	426,939,149.49	655,453,420.49
011	0.00	0.00
012 Advances other than capital advances	0.00	0.00
013 SECURITY DEPOSITS	1,524,280.00	1,524,280.00
019 Advances to Related parties	0.00	0.00
022 Advances to Contractors & Suppliers	0.00	0.00
023 SECURED	0.00	0.00
024 UNSECURED	0.00	0.00
025 CONSIDERED DOUBTFUL	0.00	0.00
026 LESS: ALLOWANCE FOR BAD & DOUBTFUL ADVANCES	0.00	0.00
027 Sub Total	1,524,280.00	1,524,280.00
028 RECEIVABLE FROM MCP ESCROW A/C	0.00	0.00
029 Pre Paid expenses	0.00	0.00
039 ADVANCE TAX & TAX DEDUCTED AT SOURCE	12,506,572.01	9,747,424.13
040 LESS:- PROVISION FOR CURRENT TAX	0.00	0.00
041	0.00	0.00
042 Sub Total	12,506,572.01	9,747,424.13
043 DEFERRED PAYROLL EXPENSES (SECURED)	14,750,249.21	15,584,840.68
044 DEFERRED PAYROLL EXPENSES (UNSECURED)	5,284,867.00	4,362,707.27
045 Sub Total	20,035,116.21	19,947,547.95
046 DEFERRED FOREIGN CURRENCY FLUCTUATION ASSET	0.00	1,000.00
049	0.00	0.00
050 Total	461,005,117.71	686,673,672.57
051	0.00	0.00
052	0.00	0.00
062 Advances include amount due from the following Private Companies in which Directors of the Company are also Directors in such Companies	0.00	0.00
064	0.00	0.00
065 NTPC GE Power Services Pvt.Ltd.	0.00	0.00
066	0.00	0.00
067 Ratnagiri Gas & Power Private Ltd.	0.00	0.00
068 Aravali Power Company Private Ltd.	0.00	0.00
069 NTPC-SCCL Global Ventures Private Ltd.	0.00	0.00



RIHAND SUPER THERMAL POWER STATION

NOTE NO. 12 TO THE FS-NCA-OTHER NON-CURRENT ASSETS

(Amount in ₹)

As at	31.03.2024	31.03.2023
070 NTPC BHEL Power Projects Private Ltd.	0.00	0.00
071 Meja Urja Nigam Private Limited	0.00	0.00
072 Nabinagar Power Generating Company Ltd.	0.00	0.00
073 National High Power Test Labortory Private Ltd.	0.00	0.00
075 CIL NTPC Urja Private Ltd.	0.00	0.00
077	0.00	0.00
078 Related Party (Adv)	0.00	0.00
079 Key Management personel	0.00	0.00
080 Subsidiary companies	0.00	0.00
081 Joint Venture companies	0.00	0.00
082 Contractors	0.00	0.00
083 Others	0.00	0.00
085	0.00	0.00
086 Total	0.00	0.00

RIHAND SUPER THERMAL POWER STATION

NOTE NO. 13 TO THE FS-CA-INVENTORIES

(Amount in ₹)

As at	31.03.2024	31.03.2023
001 INVENTORIES	0.00	0.00
002	0.00	0.00
003 Coal	2,320,889,949.63	2,580,101,057.99
004 Fuel oil	579,514,381.49	547,439,933.51
005 Naphtha	0.00	0.00
006 Stores and spares	3,748,306,665.33	3,448,710,137.80
007 Chemicals & consumables	78,857,515.31	76,411,103.07
008 Loose tools	2,454,415.01	2,161,544.92
009 Others	1,131,368,725.79	733,319,482.94
010	0.00	0.00
011	0.00	0.00
012 Sub Total	7,861,391,652.56	7,388,143,260.23
013 Less: Provision for shortages	5,923,534.81	222,450.81
014 Less: Provision for obsolete/ unserviceable/dimuniton in value of surplus inventory	122,488,377.70	43,806,915.82
016	0.00	0.00
017 Total	7,732,979,740.05	7,344,113,893.60
018 Inventories include material in transit	0.00	0.00
019 Coal	0.00	0.00
020 Fuel oil	0.00	0.00
021 Naphtha	0.00	0.00
022 Stores and spares	1,527,560.48	180,646.08
023 Chemicals & consumables	2,300,535.00	1,207,500.10
024 Loose tools	0.00	0.00
025 Others	1,104,669.12	0.00
026	0.00	0.00
028	0.00	0.00

RIHAND SUPER THERMAL POWER STATION

NOTE NO. 14 TO THE FS-CA-OTHER INVESTMENTS

(Amount in ₹)

	As at	No. of shares	Face value	31.03.2024	31.03.2023
001	CURRENT INVESTMENTS			0.00	0.00
002	(Valuation as per Note 1)			0.00	0.00
003	Jhabua Power Limited-8.5% Non convertible debentures - private placement			0.00	0.00
033	Investment in Mutual Funds (Details as under)			0.00	0.00
034	SBI-Magnum Insta Cash Fund-DDR			0.00	0.00
035	SBI Premier Liquid Fund Super-IP-DDR			0.00	0.00
036	SBI-SHF Ultra Short Term Fund-IP-DDR			0.00	0.00
037	UTI Money Market- IP-Direct-Growth			0.00	0.00
038	IDBI-Liquid plan- Direct-Growth			0.00	0.00
039	Canara Robeco Liquid Fund Super-IP-DDR			0.00	0.00
040	Canara Robeco Treasury Advantage Fund Super-IP-DDR			0.00	0.00
041	IDBI Liquid Fund-DDR			0.00	0.00
042	SBI Premier Liquid fund-Direct DDR (Ash Fund)			0.00	0.00
043	UTI Liquid CashPlan - IP - DDR (Ash Funds)			0.00	0.00
044	IDBI Liquid Fund - DDR - (Ash Funds)			0.00	0.00
045	Baroda Liquid Fund - Direct - Growth			0.00	0.00
046				0.00	0.00
047				0.00	0.00
048	Sub Total			0.00	0.00
049				0.00	0.00
052	Unquoted Investments			0.00	0.00
054				0.00	0.00
066	TOTAL			0.00	0.00
067				0.00	0.00

RIHAND SUPER THERMAL POWER STATION

NOTE NO. 15 TO THE FS-CA-TRADE RECEIVABLES

(Amount in ₹)

As at	31.03.2024	31.03.2023
001 TRADE RECEIVABLES (current)*	0.00	0.00
002	0.00	0.00
003 Secured, Considered Good	0.00	0.00
004 Unsecured , considered good	0.00	1,737,334.04
005 Credit impaired	0.00	0.00
006 Unbilled Revenue	0.00	0.00
007 Sub-Total	0.00	1,737,334.04
008 Total	0.00	1,737,334.04
009 Less: Allowance for credit impaired receivables	0.00	0.00
010 Total	0.00	1,737,334.04
012 Less: Discom Clearing	0.00	0.00
014	0.00	0.00
015 Grand Total	0.00	1,737,334.04
016 Other Unsecured	0.00	0.00
017 Long-term trade receivables	0.00	0.00
018 TCS Clearing	0.00	0.00
019 Discom Clearing	0.00	0.00
228 Trade Receivable	0.00	0.00
230 Not due	0.00	0.00
231 Due	0.00	0.00
232 (i) Undisputed Trade receivables # considered good	0.00	1,737,334.04
233 (ii) Undisputed Trade Receivables # which have significant increase in credit risk	0.00	0.00
234 (iii) Undisputed Trade Receivables # credit impaired	0.00	0.00
235 (iv) Disputed Trade Receivables#considered good	0.00	0.00
236 (v) Disputed Trade Receivables # which have significant increase in credit risk	0.00	0.00
237 (vi) Disputed Trade Receivables # credit impaired	0.00	0.00
238 Unbilled	0.00	0.00
239 Total	0.00	1,737,334.04
240	0.00	0.00
241 (i) Undisputed Trade receivables # considered good	0.00	0.00
242 Less than 6 months	0.00	1,737,334.04
243 6 months -1 year	0.00	0.00
244 1-2 years	0.00	0.00
245 2-3 years	0.00	0.00
246 More than 3 years	0.00	0.00
247 Sub Total (I)	0.00	1,737,334.04
248 (ii) Undisputed Trade Receivables # which have significant increase in credit risk	0.00	0.00
249 Less than 6 months	0.00	0.00
250 6 months -1 year	0.00	0.00
251 1-2 years	0.00	0.00
252 2-3 years	0.00	0.00

RIHAND SUPER THERMAL POWER STATION
NOTE NO. 15 TO THE FS-CA-TRADE RECEIVABLES

(Amount in ₹)

As at	31.03.2024	31.03.2023
253 More than 3 years	0.00	0.00
254 Sub Total (II)	0.00	0.00
255 (iii) Undisputed Trade Receivables -credit impaired	0.00	0.00
256 Less than 6 months	0.00	0.00
257 6 months -1 year	0.00	0.00
258 1-2 years	0.00	0.00
259 2-3 years	0.00	0.00
260 More than 3 years	0.00	0.00
261 Sub Total (III)	0.00	0.00
262	0.00	0.00
263 (iv) Disputed Trade Receivables#considered good	0.00	0.00
264 Less than 6 months	0.00	0.00
265 6 months -1 year	0.00	0.00
266 1-2 years	0.00	0.00
267 2-3 years	0.00	0.00
268 More than 3 years	0.00	0.00
269 Sub Total (IV)	0.00	0.00
270 (v) Disputed Trade Receivables # which have significant increase in credit risk	0.00	0.00
271 Less than 6 months	0.00	0.00
272 6 months -1 year	0.00	0.00
273 1-2 years	0.00	0.00
274 2-3 years	0.00	0.00
275 More than 3 years	0.00	0.00
276 Sub Total (V)	0.00	0.00
277 (vi) Disputed Trade Receivables # credit impaired	0.00	0.00
278 Less than 6 months	0.00	0.00
279 6 months -1 year	0.00	0.00
280 1-2 years	0.00	0.00
281 2-3 years	0.00	0.00
282 More than 3 years	0.00	0.00
283 Sub Total (VI)	0.00	0.00



RIHAND SUPER THERMAL POWER STATION

NOTE NO. 16 TO THE FS-CA-CASH AND CASH EQUIVALENTS

(Amount in ₹)

As at	31.03.2024	31.03.2023
001 CASH & BANK BALANCES	0.00	0.00
002 Cash & Cash Equivalents	0.00	0.00
003 Balances with Banks	0.00	0.00
004 Cheques & Drafts on hand	0.00	0.00
005 Cash on hand	0.00	0.00
006 Others (stamps in hand)	0.00	0.00
007 Bank deposits with original maturity upto three months	0.00	0.00
008 Balances with RBI	0.00	0.00
009	0.00	0.00
011 Total	0.00	0.00

RIHAND SUPER THERMAL POWER STATION

NOTE NO. 17 TO THE FS-CA-BANK BALANCES OTHER THAN CASH AND CASH EQUIVALENTS (Amount in ₹)

As at	31.03.2024	31.03.2023
001 Other Bank Balances	0.00	0.00
002 Deposits with original maturity of more than three months but not more than twelve months	0.00	0.00
003 Earmarked balances with banks*	0.00	0.00
004 SubTotal	0.00	0.00
005 Interest accrued on deposits	0.00	0.00
006	0.00	0.00
008 Total	0.00	0.00
009	0.00	0.00
010 Earmarked balances with banks consist of :	0.00	0.00
011 Unpaid dividend account balance	0.00	0.00
012 Towards public deposit repayment reserve	0.00	0.00
013 Towards redemption of bonds due for repayment within one year	0.00	0.00
014 Security with Government/other authorities	0.00	0.00
015 Unpaid refund/interest account balance - Tax free bonds/ Bonus Debentures	0.00	0.00
016 Earmarked for RGGVY/DDUGJY/SAUBHAGYA Fund/RDSS	0.00	0.00
017 Earmarked for Flyash Utilisation Reserve Fund	0.00	0.00
018 Deposits with original maturity upto three months as per court orders	0.00	0.00
019 Payment Security Scheme of MNRE NSM (NTPC)	0.00	0.00
020 Payment Security Scheme of MNRE NSM (NVVN)	0.00	0.00
021 Enforcement Directorate of Solar Plant(NVVN)	0.00	0.00
022 Bank guarantee Fund of MNRE (NVVN)	0.00	0.00
023 Others	0.00	0.00
024 Margin Money	0.00	0.00
025	0.00	0.00
026	0.00	0.00
027	0.00	0.00
031 Total	0.00	0.00
032	0.00	0.00
033 Bank deposits with original maturity of less than three months- other than earmarked	0.00	0.00
034 Bank deposits with original maturity of more than three months but not more than twelve months- other than earmarked	0.00	0.00
035 Earmarked bank balances (current account)	0.00	0.00

RIHAND SUPER THERMAL POWER STATION
NOTE NO. 18 TO THE FS-CA-LOANS
(Amount in ₹)

As at	31.03.2024	31.03.2023
001 Current financial assets - Loans	0.00	0.00
002 Loans (current)-including interest accrued	0.00	0.00
004 Related Parties	0.00	0.00
005 Secured	0.00	0.00
006 Un-Secured	0.00	0.00
007 With significant increase in Credit Risk	0.00	0.00
008 Credit impaired	0.00	0.00
009	0.00	0.00
010 Employees	0.00	0.00
011 Secured	20,444,141.39	20,505,267.61
012 Unsecured	47,920,985.09	49,104,386.31
013 With significant increase in Credit Risk	0.00	0.00
014 Credit impaired	0.00	0.00
015 Less : Employee Loans Discounting	0.00	0.00
016 Loan to State Government in settlement of dues from customers (Unsecured)	0.00	0.00
017	0.00	0.00
018 Others	0.00	0.00
019 Secured	0.00	0.00
020 Unsecured	0.00	0.00
021 With significant increase in Credit Risk	0.00	0.00
022 Credit impaired	0.00	0.00
023	0.00	0.00
024 Less: Allowance for credit impaired loans	0.00	0.00
026	0.00	0.00
027 Total (Loans)	68,365,126.48	69,609,653.92
028	0.00	0.00
029 Due from Directors and Officers of the Company	0.00	0.00
030 Directors	0.00	0.00
031 Officers	0.00	0.00
032	0.00	0.00
033 Loans to related parties include:	0.00	0.00
034 i)Key management personel	0.00	0.00
035 ii)Subsidiary companies	0.00	0.00
036 KBUNL	0.00	0.00
037 RGPPL	0.00	0.00
038 NVVN	0.00	0.00
039 iii)Joint Venture companies	0.00	0.00
040 iv)others	0.00	0.00
041	0.00	0.00
060 RPD	0.00	0.00
061 i)Key management personel	0.00	0.00
062 ii)Subsidiary companies	0.00	0.00
063 iii)Joint Venture companies	0.00	0.00
064 iv)Others	0.00	0.00
065	0.00	0.00



RIHAND SUPER THERMAL POWER STATION

NOTE NO. 18 TO THE FS-CA-LOANS

(Amount in ₹)

	As at	31.03.2024	31.03.2023
066	Total	0.00	0.00



RIHAND SUPER THERMAL POWER STATION

NOTE NO. 19 TO THE FS-CA-OTHER FINANCIAL ASSETS

(Amount in ₹)

As at	31.03.2024	31.03.2023
001 Other Financial Assets (current)	0.00	0.00
002	0.00	0.00
003 ADVANCES	0.00	0.00
004	0.00	0.00
005 Related Parties	0.00	0.00
006 Secured	0.00	0.00
007 Un-Secured	83,198,965.55	84,291,452.19
008 Considered doubtful	0.00	0.00
009	0.00	0.00
010 Employees	0.00	0.00
012 Unsecured	2,570,249.72	4,592,765.26
013 Considered Doubtful	0.00	0.00
014	0.00	0.00
020 Others	0.00	0.00
021 Secured	0.00	0.00
022 Unsecured	0.00	0.00
023 Considered Doubtful	0.00	0.00
024	0.00	0.00
025 Less: Allowance for bad & doubtful advances	0.00	0.00
026	0.00	0.00
033 Total (Advances)	85,769,215.27	88,884,217.45
044	0.00	0.00
045 Claims Recoverable	0.00	0.00
046 Secured	0.00	0.00
047 Unsecured, considered good	6,009,309.00	9,951,203.69
048 Considered Doubtful	0.00	0.00
049 Less:- Allowance for doubtful claims	0.00	0.00
050 Others-Claims Recoverable	0.00	0.00
051	0.00	0.00
052 Contract Asset- Revenue	2,663,746.83	2,663,746.83
053 Hedging cost recoverable from beneficiaries	0.00	0.00
054 Derivative MTM Asset	0.00	0.00
055 Finance Lease Receivable	0.00	0.00
056 Mine Closure Deposit	0.00	0.00
057 Financial Deposit	0.00	0.00
059 Other Accrued Income	0.00	0.00
060 Secured,Considered Good	0.00	0.00
061 Unsecured , considered good	28,930,719.83	24,838,947.89
062 Credit impaired	0.00	0.00
063	0.00	0.00
064 Sub-Total	28,930,719.83	24,838,947.89
065 Less: Allowance for credit impaired receivables	0.00	0.00
066 Total	28,930,719.83	24,838,947.89
067	0.00	0.00
068 Others*	0.00	0.00
070	0.00	0.00

**RIHAND SUPER THERMAL POWER STATION****NOTE NO. 19 TO THE FS-CA-OTHER FINANCIAL ASSETS****(Amount in ₹)**

As at	31.03.2024	31.03.2023
071 Total	123,372,990.93	126,338,115.86
072 * Other include amount recoverable from contractors and other parties towards hire charges, rent/electricity etc.	0.00	0.00
073 Advances to related parties include:	0.00	0.00
074 i)Key management personnel	0.00	0.00
075	0.00	0.00
076 iii)Joint Venture companies	0.00	0.00
077	0.00	0.00
078 v)Others	0.00	0.00
079	0.00	0.00
080 Advances include amount due from the following Private Companies in which Directors of the Company are also Directors in such Companies	0.00	0.00
081 Related Party (Adv)- Employee	0.00	0.00
082 Related Party (Adv)- Subsidiaries	82,273,936.55	83,366,423.19
083 Related Party (Adv)- Joint Ventures	925,029.00	925,029.00
084	0.00	0.00
085 Related Party (Adv)- Others	0.00	0.00
086	0.00	0.00
099	0.00	0.00
100	0.00	0.00
101 Total	83,198,965.55	84,291,452.19

RIHAND SUPER THERMAL POWER STATION
NOTE NO. 20 TO THE FS-CA-OTHER CURRENT ASSETS
(Amount in ₹)

As at	31.03.2024	31.03.2023
001 OTHER CURRENT ASSETS	0.00	0.00
002 Security Deposits (Unsecured)	0.00	0.00
003 Deposit with Customs, port trust & others*	812,756.00	812,756.00
004 ADVANCES	0.00	0.00
005	0.00	0.00
006 Related Parties	0.00	0.00
007 Secured	0.00	0.00
008 Un-Secured	1,407,513.00	1,407,513.00
009 Considered doubtful	0.00	0.00
010	0.00	0.00
011 Employees(including imprest)	0.00	0.00
012 Secured	0.00	0.00
013 Unsecured	303,927.00	1,322,275.00
014 Considered Doubtful	0.00	0.00
015	0.00	0.00
016 Contractors & Suppliers	0.00	0.00
017 Secured	0.00	0.00
018 Unsecured	189,173,545.01	205,359,772.28
019 Considered Doubtful	0.00	0.00
020	0.00	0.00
021 Others**	0.00	0.00
022 Secured	0.00	0.00
023 Unsecured	17,155,797.00	18,994,496.00
024 Considered Doubtful	0.00	0.00
025 Less: Allowance for bad & doubtful advances	0.00	0.00
026 Receivable from MCP Escrow A/c	0.00	0.00
027 Deferred Payroll Expenses (Secured)	1,712,152.62	1,972,468.83
028 Deferred Payroll Expenses (Unsecured)	3,511,865.88	3,069,573.18
029 Sub-total	5,224,018.50	5,042,042.01
030 Interest accrued on :	0.00	0.00
031 Advances to contractors	0.00	0.00
032	0.00	0.00
033 Claims Recoverable	0.00	0.00
034 Secured	0.00	0.00
035 Unsecured, considered good	378,936,323.22	445,294,831.82
036 Considered Doubtful	26,600,000.00	26,600,000.00
037 Less:- Allowance for doubtful claims	26,600,000.00	26,600,000.00
038	0.00	0.00
039 Deferred premium on forward exchange contract/ Option Assets	0.00	0.00
041	0.00	0.00
042 Others	6,576,538.00	4,160,672.00
043	0.00	0.00
045 Total (Other Current Assets)	599,590,417.73	682,394,358.11
046 **Include Prepaid Expenses	17,061,077.00	18,220,222.00
047 *Includes sales tax/Entry tax/VAT deposited under protest with Sales Tax Authorities	812,756.00	812,756.00

RIHAND SUPER THERMAL POWER STATION

NOTE NO. 20 TO THE FS-CA-OTHER CURRENT ASSETS

(Amount in ₹)

As at	31.03.2024	31.03.2023
048 *Includes deposited with courts	0.00	0.00
049 *Includes deposited with LIC for annuity payments	0.00	0.00
050 * Includes deposits with WRD / against BG in r/o finance lease	0.00	0.00
051 Other include amount recoverable from contractors and other parties towards hire charges, rent/electricity etc.	0.00	0.00
053 Advances to related parties include:	0.00	0.00
054 i)Key management personel	0.00	0.00
055 ii)Subsidiary companies	0.00	0.00
056 iii)Joint Venture companies	0.00	0.00
057 Contractors	0.00	0.00
058 Others	0.00	0.00
059	0.00	0.00
060 Advances include amount due from the following Private Companies in which Directors of the Company are also Directors in such Companies	0.00	0.00
061	0.00	0.00
062	0.00	0.00
063 Related Party (Adv)- Employee	0.00	0.00
064 Related Party (Adv)- Subsidiaries	0.00	0.00
065 Related Party (Adv)- Joint Venture	1,407,513.00	1,407,513.00
066	0.00	0.00
067	0.00	0.00
068 Total	1,407,513.00	1,407,513.00
069	0.00	0.00

RIHAND SUPER THERMAL POWER STATION

NOTE NO. 21 TO THE FS-ASSETS HELD FOR SALE

(Amount in ₹)

As at	31.03.2024	31.03.2023
001 ASSET HELD FOR SALE	0.00	0.00
002	0.00	0.00
003 Assets held for Sale	6,036,716.90	6,037,344.90
004	0.00	0.00
005 Total	6,036,716.90	6,037,344.90
031	0.00	0.00
032 Assets held for sale includes:-	0.00	0.00
033	0.00	0.00
034 Land	0.00	0.00
035 Building	0.00	0.00
036 Plant and equipment	5,995,260.51	5,995,260.51
037 Other assets	41,456.39	42,084.39
038 Total	6,036,716.90	6,037,344.90
039	0.00	0.00
040	0.00	0.00
041	0.00	0.00
042	0.00	0.00
043	0.00	0.00



RIHAND SUPER THERMAL POWER STATION

NOTE NO. 22 TO THE FS--REGULATORY DEFERRAL ACCOUNT DEBIT BALANCES

(Amount in ₹)

As at	31.03.2024	31.03.2023
001 On account of Exchange Differences	-311,910,538.67	-127,675,626.92
002 On account of employee benefit exp	84,415,334.33	84,415,334.33
003 Regulatory deferred account - deferred	0.00	0.00
004 Deferred asset for ash transportation	0.00	0.00
005 Deferred asset for Arbitration Award	0.00	0.00
008	0.00	0.00
009 Total	-227,495,204.34	-43,260,292.59



RIHAND SUPER THERMAL POWER STATION
ANNEXURE TO NOTE 9- RPD (LOANS) JOINT VENTURE

(Amount in ₹)

As at

31.03.2024

31.03.2023

**RIHAND SUPER THERMAL POWER STATION****NOTE NO. 23 TO THE FS-EQUITY-EQUITY SHARE CAPITAL****(Amount in ₹)**

As at	31.03.2024	31.03.2023
001 SHARE CAPITAL	0.00	0.00
002 Equity Share Capital	0.00	0.00
003 Authorised	0.00	0.00
004 16,60,00,00,000 equity shares of Rs.10/- each (Previous year 10,000,000,000 equity shares of Rs.10/- each)	0.00	0.00
005 Issued,Subscribed and fully Paid-up	0.00	0.00
006 9,69,66,66,134 equity shares of Rs.10/- (Pv. Year 9,894,557,280 equity shares of Rs.10/- each)	0.00	0.00
007	0.00	0.00
008 Total	0.00	0.00
009 During FY 2018-19, the company has issued 1,649,092,880 equity shares of Rs.10/- each as fully paid bonus shares	0.00	0.00
010 The holders of the equity shares are entitled to receive dividends as declared from time to time, and are entitled to one vote per share at meetings of the company.	0.00	0.00
011 Details of shareholders holding more than 5% shares in the company	0.00	0.00
012 - President of India	0.00	0.00
013 No. of Shares	0.00	0.00
014 % of holding	0.00	0.00
015 - Life Insurance Corporation of India/ICICI Prudential Mutual Fund	0.00	0.00
016 No. of Shares	0.00	0.00
017 % of holding	0.00	0.00

RIHAND SUPER THERMAL POWER STATION
NOTE NO. 24 TO THE FS-EQUITY-OTHER EQUITY
(Amount in ₹)

As at	31.03.2024	31.03.2023
001 RESERVE AND SURPLUS	0.00	0.00
002	0.00	0.00
003 Capital Reserve	0.00	0.00
004 As per last financial statements	0.00	0.00
006 Add : Grants received during the year	0.00	0.00
007 Add: Transfer from Surplus	0.00	0.00
008 Less: Write back during the year/period	0.00	0.00
009 Less: Adjustments during the year/period	0.00	0.00
010 SUB-TOTAL	0.00	0.00
011	0.00	0.00
017	0.00	0.00
018 SECURITIES PREMIUM ACCOUNT	0.00	0.00
019 AS PER LAST FINANCIAL STATEMENTS	0.00	0.00
020 ADD: ADDITIONS DURING THE YEAR/PERIOD	0.00	0.00
021 LESS: ADJUSTMENTS DURING THE YEAR/PERIOD	0.00	0.00
022 SUB-TOTAL	0.00	0.00
023 BONDS REDEMPTION RESERVE	0.00	0.00
024 AS PER LAST FINANCIAL STATEMENTS	0.00	0.00
025 ADD: TRANSFER FROM SURPLUS	0.00	0.00
026 LESS: TRANSFER TO SURPLUS ON REDEMPTION	0.00	0.00
027 LESS: ADJUSTMENTS DURING THE YEAR/ PERIOD	0.00	0.00
028 SUB-TOTAL	0.00	0.00
029 CAPITAL REDEMPTION RESERVE	0.00	0.00
030 As per last financial statements	0.00	0.00
031 Add: Transfer from Surplus	0.00	0.00
032 Less: Transfer to surplus on redemption	0.00	0.00
033 Less: Adjustments during the year/ period	0.00	0.00
034 Sub-Total	0.00	0.00
035 Share Application money pending Allotment	0.00	0.00
036 As per last financial statements	0.00	0.00
037 Add: Addition during the year	0.00	0.00
038 Less: Utilised for allotment during the year	0.00	0.00
039 Less: Adjustments during the year/ period	0.00	0.00
040 SUB-TOTAL	0.00	0.00
046 FLY-ASH UTILISATION RESERVE FUND	0.00	0.00
047 AS PER LAST FINANCIAL STATEMENTS	0.00	0.00
048 TRANSFERRED TO CC	0.00	0.00
049 ADD:TRANSFER FROM REVENUE FROM OPERATIONS	4,409,268.00	549,433.49
050 ADD:TRANSFER FROM OTHER INCOME	0.00	0.00
051 LESS: UTILISED DURING THE YEAR	0.00	0.00
052 TANGIBLE ASSETS	0.00	0.00
053 EMPLOYEE BENEFIT EXPENSES	0.00	0.00
054 GENERATION,ADMN. AND OTHER EXPENSES	4,409,268.00	549,433.49

RIHAND SUPER THERMAL POWER STATION
NOTE NO. 24 TO THE FS-EQUITY-OTHER EQUITY
(Amount in ₹)

As at	31.03.2024	31.03.2023
055 TAX EXPENSES	0.00	0.00
056 SUB-TOTAL	0.00	0.00
057 Self Insurance Reserve	0.00	0.00
058 As per last financial statements	0.00	0.00
059 Add: Addition during the year	0.00	0.00
060 Less: Utilised for allotment during the year	0.00	0.00
061 Less: Adjustments during the year/ period	0.00	0.00
062 SUB-TOTAL	0.00	0.00
063 SPECIAL ALLOWANCE RESERVE FUND	0.00	0.00
064 AS PER LAST FINANCIAL STATEMENTS	0.00	0.00
065 ADD: ADDITION DURING THE YEAR	0.00	0.00
066 LESS: UTILISED FOR ALLOTMENT DURING THE YEAR	0.00	0.00
067 LESS: ADJUSTMENTS DURING THE YEAR/ PERIOD	0.00	0.00
068 SUB-TOTAL	0.00	0.00
069 CORPORATE SOCIAL RESPONSIBILITY (CSR) RESERVE	0.00	0.00
070 AS PER LAST FINANCIAL STATEMENTS	0.00	0.00
071 ADD : TRANSFER FROM SURPLUS	0.00	0.00
072 LESS:-WRITE BACK DURING THE YEAR	0.00	0.00
073 SUB-TOTAL	0.00	0.00
074 GENERAL RESERVE	0.00	0.00
075 AS PER LAST FINANCIAL STATEMENTS	0.00	0.00
076 ADD: TRANSFER FROM SURPLUS	0.00	0.00
077 LESS: TRANSFER TO SURPLUS	0.00	0.00
078 LESS: WRITE BACK DURING THE YEAR /PERIOD	0.00	0.00
079 LESS: ADJUSTMENTS DURING THE YEAR /PERIOD	0.00	0.00
080 SUB-TOTAL	0.00	0.00
081	0.00	0.00
082 RETAINED EARNINGS	0.00	0.00
083 AS PER LAST FINANCIAL STATEMENTS	189,412,419,211.48	178,934,325,577.14
084 ADD(LESS):-CHANGES IN ACCOUNTING POLICY / PRIOR PERIOD ERRORS	0.00	0.00
085 ADD(LESS):-PROFIT (LOSS) AFTER TAX FOR THE YEAR FROM STATEMENT OF PROFIT & LOSS	11,974,653,638.45	10,478,093,634.34
087 ADD: WRITE BACK FROM BOND REDEMPTION RESERVE	0.00	0.00
088 ADD: WRITE BACK FROM CAPITAL RESERVE	0.00	0.00
089 ADD: WRITE BACK FROM FOREIGN PROJECT RESERVE	0.00	0.00
090 ADD: WRITE BACK FROM CSR RESERVE	0.00	0.00
091 ADD: WRITE BACK FROM GENERAL RESERVE	0.00	0.00
093 LESS: TRANSFER TO BONDS REDEMPTION RESERVE	0.00	0.00

RIHAND SUPER THERMAL POWER STATION
NOTE NO. 24 TO THE FS-EQUITY-OTHER EQUITY
(Amount in ₹)

As at	31.03.2024	31.03.2023
094 LESS: TRANSFER TO SPECIAL ALLOWANCE RESERVE FUND	0.00	0.00
095 LESS: TRANSFER TO FOREIGN PROJECT RESERVE	0.00	0.00
096 LESS: TRANSFER TO CAPITAL RESERVE	0.00	0.00
097 LESS: TRANSFER TO CSR RESERVE	0.00	0.00
098 LESS: TRANSFER TO GENERAL RESERVE	0.00	0.00
099 LESS: INTERIM DIVIDEND PAID	0.00	0.00
100 LESS: TAX ON INTERIM DIVIDEND PAID	0.00	0.00
101 LESS: FINAL DIVIDEND PAID	0.00	0.00
102 LESS: TAX ON FINAL DIVIDEND PAID	0.00	0.00
103 LESS: ISSUE OF BONUS DEBENTURE	0.00	0.00
104 LESS: TAX ON ISSUE OF BONUS DEBENTURE	0.00	0.00
105 SUB-TOTAL	201,387,072,849.93	189,412,419,211.48
110	0.00	0.00
111 REMEASUREMENT OF DEFINED BENEFIT PLANS	0.00	0.00
112 AS PER LAST FINANCIAL STATEMENTS	-226,140,395.43	-206,596,243.66
113 ADD/(LESS):- ACTUARIAL GAINS/LOSS THROUGH OCI	4,403,929.88	-19,544,151.77
114 SUB-TOTAL	-221,736,465.55	-226,140,395.43
115	0.00	0.00
116 FVTOCI Reserve	0.00	0.00
117 AS PER LAST FINANCIAL STATEMENTS	0.00	0.00
118 ADD/(LESS):- NET GAIN/LOSS OF EQUITY INSTRUMENTS THROUGH OCI	0.00	0.00
119 Sub-Total	0.00	0.00
120	0.00	0.00
121 Total Other equity	201,165,336,384.38	189,186,278,816.05
122	0.00	0.00
123	0.00	0.00
124	0.00	0.00
125	0.00	0.00
126	0.00	0.00
127	0.00	0.00
128 The fly ash utilization reserve fund is controlled at Corporate Centre.	0.00	0.00

RIHAND SUPER THERMAL POWER STATION

NOTE NO. 25 TO THE FS-NCL-BORROWINGS

(Amount in ₹)

As at	31.03.2024	31.03.2023
001 LONG TERM BORROWINGS	0.00	0.00
002 Bonds	0.00	0.00
003 Secured	0.00	0.00
004 7.37 % Tax free secured non-cumulative non-convertible redeemable bonds-2015 of Rs. 1,000/- each redeemable at par in full on 5th October 2035 (Fifty Sixth Issue - Public Issue - Series 3A).	0.00	0.00
005 7.62 % Tax free secured non-cumulative non-convertible redeemable bonds-2015 of Rs. 1,000/- each redeemable at par in full on 5th October 2035 (Fifty Sixth Issue - Public Issue - Series 3 B).	0.00	0.00
006 8.61% Tax free secured non-cumulative non-convertible redeemable bonds of ₹ 10,00,000/- each redeemable at par in full on 4th March 2034 (Fifty First Issue C - Private Placement)	0.00	0.00
007 8.66% Tax free secured non-cumulative non-convertible redeemable bonds - 2013 of ₹ 1000/- each redeemable at par in full on 16th December 2033 (Fiftieth Issue - Public Issue - Series 3A)	0.00	0.00
008 8.91% Tax free secured non-cumulative non-convertible redeemable bonds - 2013 of ₹ 1000/- each redeemable at par in full on 16th December 2033 (Fiftieth Issue - Public Issue - Series 3B)	0.00	0.00
009 7.37% Secured non-cumulative non-convertible redeemable taxable bonds of Rs. 10,00,000/- each redeemable at par in full on 14th December 2031 (Sixty Sixth Issue - Private Placement)	0.00	0.00
010 7.49% Secured non-cumulative non-convertible redeemable taxable bonds of Rs. 10,00,000/- each redeemable at par in full on 7th November 2031 (Sixty Fourth Issue - Private Placement)	0.00	0.00
011 7.28 % Tax free secured non-cumulative non-convertible redeemable bonds-2015 of Rs. 1,000/- each redeemable at par in full on 5th October 2030 (Fifty Sixth Issue - Public Issue - Series	0.00	0.00



RIHAND SUPER THERMAL POWER STATION

NOTE NO. 25 TO THE FS-NCL-BORROWINGS

(Amount in ₹)

As at	31.03.2024	31.03.2023
2A)		
012 7.53 % Tax free secured non-cumulative non-convertible redeemable bonds-2015 of Rs. 1,000/- each redeemable at par in full on 5th October 2030 (Fifty Sixth Issue - Public Issue - Series 2 B).	0.00	0.00
013 7.32% Secured non-cumulative non-convertible redeemable taxable bonds of Rs 10,00,000/- each redeemable at par in full on 17 July 2029 (Sixty Ninth Issue - Private Placement)	0.00	0.00
014 8.63% Tax free secured non-cumulative non-convertible redeemable bonds of ₹ 10,00,000/- each redeemable at par in full on 4th March 2029 (Fifty First Issue B - Private Placement)	0.00	0.00
015 8.30% Secured non-cumulative non-convertible redeemable taxable bonds of Rs 10,00,000/- each redeemable at par in full on 15 January 2029 (Sixty Seventh Issue - Private Placement)	0.00	0.00
016 8.48% Tax free secured non-cumulative non-convertible redeemable bonds - 2013 of ₹ 1000/- each redeemable at par in full on 16th December 2028 (Fiftieth Issue - Public Issue - Series 2A)	0.00	0.00
017 8.73% Tax free secured non-cumulative non-convertible redeemable bonds - 2013 of ₹ 1000/- each redeemable at par in full on 16th December 2028 (Fiftieth Issue - Public Issue - Series 2B)	0.00	0.00
018 7.47% Secured non-cumulative non-convertible redeemable taxable bonds of Rs. 10,00,000/- each redeemable at par in full on 16th September 2026 (Sixty Third Issue - Private Placement)	0.00	0.00
019 7.58% Secured non-cumulative non-convertible redeemable taxable bonds of Rs. 10,00,000/- each redeemable at par in	0.00	0.00

RIHAND SUPER THERMAL POWER STATION

NOTE NO. 25 TO THE FS-NCL-BORROWINGS

(Amount in ₹)

As at				31.03.2024	31.03.2023
full on 23rd August 2026 (Sixty Second Issue - Private Placement)					
020	8.05%	Secured	non-cumulative non-convertible redeemable taxable bonds of Rs. 10,00,000/- each redeemable at par in full on 5th May 2026 (Sixtieth Issue - Private Placement)	0.00	0.00
021	8.19%	Secured	non-cumulative non-convertible redeemable taxable bonds of Rs. 10,00,000/- each redeemable at par in full on 15th December 2025 (Fifty Seventh Issue - Private Placement)	0.00	0.00
022	7.11 %	Tax free secured	non-cumulative non-convertible redeemable bonds-2015 of Rs. 1,000/- each redeemable at par in full on 5th October 2025 (Fifty Sixth Issue - Public Issue - Series 1A).	0.00	0.00
023	7.36 %	Tax free secured	non-cumulative non-convertible redeemable bonds-2015 of Rs. 1,000/- each redeemable at par in full on 5th October 2025 (Fifty Sixth Issue - Public Issue - Series 1 B).	0.00	0.00
024	7.15%	Tax free secured	non-cumulative non-convertible redeemable bonds - 2015 of Rs. 10,00,000/- each redeemable at par in full on 21st August 2025 (Fifty Fifth Issue - Private Placement)	0.00	0.00
025	9.17%	Secured	non-cumulative non-convertible redeemable taxable bonds of ₹ 10,00,000/- each redeemable at par in full on 22nd September 2024 (53rd Issue - private placement).	0.00	0.00
026	9.34%	Secured	non-cumulative non-convertible redeemable taxable bonds of ₹10,00,000/- each redeemable at par in full on 24th March 2024 (Fifty Second Issue - private placement)	0.00	0.00
027	8.19%	Tax free secured	non-cumulative non-convertible redeemable bonds - 2013 of ₹ 10,00,000/- each redeemable at	0.00	0.00

RIHAND SUPER THERMAL POWER STATION

NOTE NO. 25 TO THE FS-NCL-BORROWINGS

(Amount in ₹)

		31.03.2024	31.03.2023
	As at		
	par in full on 4th March 2024 (Fifty First Issue A - Private Placement)		
028	8.41% Tax free secured non-cumulative non-convertible redeemable bonds - 2013 of ₹ 1000/- each redeemable at par in full on 16th December 2023 (Fiftieth Issue - Public Issue - Series 1A)	0.00	0.00
029	8.66% Tax free secured non-cumulative non-convertible redeemable bonds - 2013 of ₹ 1000/- each redeemable at par in full on 16th December 2023 (Fiftieth Issue - Public Issue - Series 1B)	0.00	0.00
030	9.25% Secured non-cumulative non-convertible redeemable taxable bonds of ₹10,00,000/- each with five equal separately transferable redeemable principal parts (STRPP) redeemable at par at the end of 11th year and in annual installments thereafter upto the end of 15th year respectively commencing from 4th May 2023 and ending on 4th May 2027 (Forty fourth issue - private placement)VII	0.00	0.00
031	8.48% Secured non-cumulative non-convertible redeemable taxable bonds of ₹ 10,00,000/- each redeemable at par in full on 1st May 2023 (Seventeenth issue - private placement)I	0.00	0.00
032	8.80% Secured non-cumulative non-convertible redeemable taxable bonds of ₹10,00,000/- each redeemable at par in full on 4th April 2023 (Forty ninth issue -private placement	0.00	0.00
033	8.49% Secured non-cumulative non-convertible redeemable taxable fully paid-up bonus debentures of Rs. 12.50 each redeemable at par in three annual installments of Rs. 2.50, Rs. 5.00 and Rs. 5.00 at the end of 8th year, 9th year and 10th year on 25th March 2023, 25th March 2024 and 25th March 2025 respectively (Fifty Fourth Issue -Bonus Debentures)X - (refer Note 5 d)	0.00	0.00
034	8.73% Secured non-cumulative	0.00	0.00

RIHAND SUPER THERMAL POWER STATION

NOTE NO. 25 TO THE FS-NCL-BORROWINGS

(Amount in ₹)

As at		31.03.2024	31.03.2023
non-convertible redeemable taxable bonds of ₹ 10,00,000/- each redeemable at par in full on 07th March 2023 (Forty eighth issue - private placement)			
035	9.00% Secured non-cumulative non-convertible redeemable taxable bonds of ₹ 10,00,000/- each with five equal separately transferable redeemable principal parts (STRPP) redeemable at par at the end of 11th year and in annual installments thereafter upto the end of 15th year respectively commencing from 25th January 2023 and ending on 25th January 2027 (Forty second issue- private placement)III	0.00	0.00
036	8.84% Secured non-cumulative non-convertible redeemable taxable bonds of ₹10,00,000/- each redeemable at par in full on 4th October 2022 (Forty seventh issue- private placement)VII	0.00	0.00
037	7.93% Secured non-cumulative non-convertible redeemable taxable bonds of ` 10,00,000/- each redeemable at par in full on 03 May 2022 (68th Issue - Private Placement)	0.00	0.00
038	6.72% Secured non-cumulative non-convertible redeemable taxable bonds of Rs. 10,00,000/- each redeemable at par in full on 24th November 2021 (Sixty Fifth Issue - Private Placement)	0.00	0.00
039	8.10% Secured Non-Cumulative Non-Convertible Redeemable Taxable Bonds of Rs. 30,00,000/- each redeemable at par in three equal separately transferable redeemable principal parts (STRPP) at the end of 5th year, 10th year & 15th year on 27th May 2021, 27th May 2026 and 27th May 2031 respectively (Sixty First Issue- Private Placement)	0.00	0.00
040	8.33% Secured non-cumulative non-convertible redeemable taxable bonds of Rs.10,00,000/- each redeemable at par in full on 24th February 2021	0.00	0.00

RIHAND SUPER THERMAL POWER STATION
NOTE NO. 25 TO THE FS-NCL-BORROWINGS
(Amount in ₹)

As at				31.03.2024	31.03.2023
(Fifty Ninth Issue - Private Placement).					
042	8.93%	Secured	non-cumulative non-convertible redeemable taxable bonds of ₹ 10,00,000/- each redeemable at par in full on 19th January 2021 Thirty seventh issue - private placement)III	0.00	0.00
043	8.18%	Secured	non-cumulative non-convertible redeemable taxable bonds of Rs.10,00,000/- each redeemable at par in full on 31st December 2020 (Fifty Eight Issue - Private Placement).	0.00	0.00
044	8.73 %	Secured	non-cumulative non-convertible redeemable taxable bonds of ₹ 10,00,000/- each redeemable at par in full on 31st March 2020 (Thirty third issue- private placement)III	0.00	0.00
045	8.78 %	Secured	non-cumulative non-convertible redeemable taxable bonds of ₹ 10,00,000/- each redeemable at par in full on 9th March 2020 (Thirty first issue- private placement)III	0.00	0.00
046	11.25%	Secured	non-cumulative non-convertible redeemable taxable bonds of ₹ 10,00,000/- each redeemable at par in five equal annual installments commencing from 6th Nov 2019 and ending on 6th Nov 2023 (Twenty seventh issue - private placement)III	0.00	0.00
047	7.89%	Secured	non-cumulative non-convertible redeemable taxable bonds of ₹ 10,00,000/- each redeemable at par in full on 5th May 2019 (Thirtieth issue - private placement)III	0.00	0.00
048	8.65%	Secured	non-cumulative non-convertible redeemable taxable bonds of ₹10,00,000/- each redeemable at par in full on 4th February 2019 (Twenty ninth issue - private placement)III	0.00	0.00
049	7.50%	Secured	non-cumulative non-convertible redeemable taxable bonds of ₹ 10,00,000/- each redeemable at par in full	0.00	0.00

RIHAND SUPER THERMAL POWER STATION

NOTE NO. 25 TO THE FS-NCL-BORROWINGS

(Amount in ₹)

As at		31.03.2024	31.03.2023
on 12th January 2019 (Nineteenth issue - private placement)II			
050	11% Secured non-cumulative non-convertible redeemable taxable bonds of ₹ 10,00,000/- each redeemable at par in full on 21st November 2018 (Twenty eighth issue - private placement)III	0.00	0.00
051	9.3473% Secured non-cumulative non-convertible redeemable taxable bonds of ₹15,00,000/- each with fifteen equal separately transferable redeemable principal parts (STRPP) redeemable at par at the end of 6th year and in annual installments thereafter upto the end of 20th year respectively commencing from 20th July 2018 and ending on 20th July 2032 (Forty sixth issue - private placement)VII	0.00	0.00
052	9.4376% Secured non-cumulative non-convertible redeemable taxable bonds of ₹ 15,00,000/- each with fifteen equal separately transferable redeemable principal parts (STRPP) redeemable at par at the end of 6th year and in annual installments thereafter upto the end of 20th year respectively commencing from 16th May 2018 and ending on 16th May 2032 (Forty fifth issue - private placement)VII	0.00	0.00
053	8.00% Secured non-cumulative non-convertible redeemable taxable bonds of ₹ 10,00,000/- each redeemable at par in full on 10th April 2018 (Sixteenth issue -private placement)I	0.00	0.00
054	9.2573% Secured non-cumulative non-convertible redeemable taxable bonds of ₹ 15,00,000/- each with fifteen equal separately transferable redeemable principal parts (STRPP) redeemable at par at the end of 6th year and in annual installments thereafter upto the end of 20th year respectively commencing from 2nd March 2018 and ending on 2nd March 2032 (Forty third issue - private placement)III	0.00	0.00
055	9.6713% Secured non-cumulative non-convertible redeemable taxable bonds	0.00	0.00

RIHAND SUPER THERMAL POWER STATION

NOTE NO. 25 TO THE FS-NCL-BORROWINGS

(Amount in ₹)

			31.03.2024	31.03.2023
	As at			
	of ₹ 15,00,000/- each with fifteen equal separately transferable redeemable principal parts (STRPP) redeemable at par at the end of 6th year and in annual installments thereafter upto the end of 20th year respectively commencing from 23rd December 2017 and ending on 23rd December 2031 (Forty first issue - private placement)III			
056	9.558% Secured non-cumulative non-convertible redeemable taxable bonds of ₹ 15,00,000/- each with fifteen equal separately transferable redeemable principal parts (STRPP) redeemable at par at the end of 6th year and in annual installments thereafter upto the end of 20th year respectively commencing from 29th July 2017 and ending on 29th July 2031(Fourtieth issue-private placement)III		0.00	0.00
057	9.3896% Secured non-cumulative non-convertible redeemable taxable bonds of ₹ 15,00,000/- each with fifteen equal separately transferable redeemable principal parts (STRPP) redeemable at par at the end of 6th year and in annual installments thereafter upto the end of 20th year respectively commencing from 9th June 2017 and ending on 9th June 2031(Thirty ninth issue-private placement)III		0.00	0.00
058	9.17% Secured non-cumulative non-convertible redeemable taxable bonds of ₹ 15,00,000/- each with fifteen equal separately transferable redeemable principal parts (STRPP) redeemable at par at the end of 6th year and in annual installments thereafter upto the end of 20th year respectively commencing from 22nd March 2017 and ending on 22nd March 2031(Thirty eighth issue-private placement)III		0.00	0.00
059	8.8086% Secured non-cumulative non-convertible redeemable taxable bonds of ₹ 15,00,000/- each with fifteen equal separately transferable redeemable principal parts (STRPP) redeemable at par at the end of 6th		0.00	0.00

RIHAND SUPER THERMAL POWER STATION

NOTE NO. 25 TO THE FS-NCL-BORROWINGS

(Amount in ₹)

As at		31.03.2024	31.03.2023
	year and in annual installments thereafter upto the end of 20th year respectively commencing from 15th December 2016 and ending on 15th December 2030 (Thirty sixth issue - private placement)III		
060	8.785% Secured non-cumulative non-convertible redeemable taxable bonds of ₹ 15,00,000/- each with fifteen equal separately transferable redeemable principal parts (STRPP) redeemable at par at the end of 6th year and in annual installments thereafter upto the end of 20th year respectively commencing from 15th September 2016 and ending on 15th September 2030 (Thirty fifth issue - private placement)III	0.00	0.00
061	8.71% Secured non-cumulative non-convertible redeemable taxable bonds of ₹ 15,00,000/- each with fifteen equal separately transferable redeemable principal parts (STRPP) redeemable at par at the end of 6th year and in annual installments thereafter upto the end of 20th year respectively commencing from 10th June 2016 and ending on 10th June 2030 (Thirty fourth issue - private placement)III	0.00	0.00
062	8.8493% Secured non-cumulative non-convertible redeemable taxable bonds of ₹ 15,00,000/- each with fifteen equal separately transferable redeemable principal parts (STRPP) redeemable at par at the end of 6th year and in annual installments thereafter upto the end of 20th year respectively commencing from 25th March 2016 and ending on 25th March 2030 (Thirty second issue - private placement)III	0.00	0.00
063	9.37% Secured non-cumulative non-convertible redeemable taxable bonds of ₹ 70,00,000/- each with fourteen separately transferable redeemable principal parts (STRPP) redeemable at par semi-annually commencing from 4th June 2012 and ending on 4th December 2018 (Twenty fifth issue -	0.00	0.00

RIHAND SUPER THERMAL POWER STATION

NOTE NO. 25 TO THE FS-NCL-BORROWINGS

(Amount in ₹)

As at			31.03.2024	31.03.2023
private placement)III				
065	9.06%	Secured non-cumulative non-convertible redeemable taxable bonds of ₹ 70,00,000/- each with fourteen separately transferable redeemable principal parts (STRPP) redeemable at par semi-annually commencing from 4th June 2012 and ending on 4th December 2018 (Twenty sixth issue - private placement)III	0.00	0.00
066	8.6077%	Secured non-cumulative non-convertible redeemable taxable bonds of ₹ 20,00,000/- each with twenty equal separately transferable redeemable principal parts (STRPP) redeemable at par semi-annually commencing from 9th September 2011 and ending on 9th March 2021 (Twenty fourth issue - private placement)IV	0.00	0.00
067	8.3796%	Secured non-cumulative non-convertible redeemable taxable bonds of ₹ 20,00,000/- each with twenty equal separately transferable redeemable principal parts (STRPP) redeemable at par semi-annually commencing from 5th August 2011 and ending on 5th February 2021 (Twenty third issue - private placement)IV	0.00	0.00
068	8.1771%	Secured non-cumulative non-convertible redeemable taxable bonds of ₹ 20,00,000/- each with twenty equal separately transferable redeemable principal parts (STRPP) redeemable at par semi-annually commencing from 2nd July 2011 and ending on 2nd January 2021 (Twenty second issue - private placement)IV	0.00	0.00
069	7.7125%	Secured non-cumulative non-convertible redeemable taxable bonds of ₹ 20,00,000/- each with twenty equal separately transferable redeemable principal parts (STRPP) redeemable at par semi-annually commencing from 2nd August 2010 and ending on 2nd February 2020 (Twenty first issue - private placement)V	0.00	0.00
070	7.552%	Secured non-cumulative non-convertible redeemable taxable bonds	0.00	0.00

Locked: 27.04.2024 - 18:18:07

Run on: 27.04.2024 - 18:23:47 Version: 0



अध्यक्ष, वित्त विभाग (व्यक्तिगत)
Addl. General Manager (Commercial)
एन टी सी लिमिटेड, NTPC LIMITED

RIHAND SUPER THERMAL POWER STATION

NOTE NO. 25 TO THE FS-NCL-BORROWINGS

(Amount in ₹)

As at	31.03.2024	31.03.2023
of ₹ 20,00,000/- each with twenty equal separately transferable redeemable principal parts (STRPP) redeemable at par semi-annually commencing from 23rd September 2009 and ending on 23rd March 2019 (Twentieth issue - private placement)VI		
071 9.55% Secured non-cumulative non-convertible taxable redeemable bonds of ₹ 10,00,000/- each with ten equal separately transferable redeemable principal parts (STRPP) redeemable at par at the end of the 6th year and in annual installments thereafter upto the end of 15th year respectively from 30th April 2002 (Thirteenth issue - Part B - private placement)VIII	0.00	0.00
072 9.55% Secured non-cumulative non-convertible taxable redeemable bonds of ₹ 10,00,000/- each redeemable at par in ten equal annual installments commencing from the end of 6th year and upto the end of 15th year respectively from 18th April 2002 (Thirteenth issue -Part A - private placement)VIII	0.00	0.00
075	0.00	0.00
076	0.00	0.00
077	0.00	0.00
078	0.00	0.00
079	0.00	0.00
080	0.00	0.00
081	0.00	0.00
082 Sub Total	0.00	0.00
083 Unsecured	0.00	0.00
084 6.55% Unsecured non-cumulative non-convertible redeemable taxable bonds of ₹ 10,00,000/- each redeemable at par in full on 17 April 2023 (Seventieth Issue - Private Placement)	0.00	0.00
085 6.29% Unsecured non-cumulative non-convertible redeemable taxable bonds of ₹ 10,00,000/- each redeemable at par in full on 11 April 2031 (Seventy First Issue - Private Placement)	0.00	0.00
086 5.45% Unsecured non-cumulative non-convertible redeemable taxable bonds	0.00	0.00

RIHAND SUPER THERMAL POWER STATION

NOTE NO. 25 TO THE FS-NCL-BORROWINGS

(Amount in ₹)

As at	31.03.2024	31.03.2023
of ₹ 10,00,000/- each redeemable at par in full on 15 October 2025 (Seventy Second Issue - Private Placement)		
087 6.43% Unsecured non-cumulative non-convertible redeemable taxable bonds of ₹ 10,00,000/- each redeemable at par in full on 27 January 2031 (Seventy Third Issue - Private Placement)	0.00	0.00
088 6.87% Unsecured non-cumulative non-convertible redeemable taxable bonds of ₹ 10,00,000/- each redeemable at par in full on 21 April 2036 (Seventy Fourth Issue - Private Placement)	0.00	0.00
089 6.69% Unsecured non-cumulative non-convertible redeemable taxable bonds of ₹ 10,00,000/- each redeemable at par in full on 13 September 2031 (Seventy Fifth Issue - Private Placement)	0.00	0.00
090 6.74% Unsecured non-cumulative non-convertible redeemable taxable bonds of Rs.10,00,000/- each redeemable at par in full on 14 April 2032 (Seventy Sixth Issue - Private Placement)	0.00	0.00
091 5.78% Unsecured non-cumulative non-convertible redeemable taxable bonds of ₹ 10,00,000/- each redeemable at par in full on 29 April 2024 (Seventy Seventh Issue - Private Placement)	0.00	0.00
092 7.44% Unsecured non-cumulative non-convertible redeemable taxable bonds of ₹ 10,00,000/- each redeemable at par in full on 25 August 2032 (Seventy Eighth Issue - Private Placement)	0.00	0.00
093 7.44% Unsecured non-cumulative non-convertible redeemable taxable bonds of ` 10,00,000/- each redeemable at par in full on 15 April 2033 (Seventy Ninth Issue - Private Placement)	0.00	0.00
094 7.35% Unsecured non-cumulative non-convertible redeemable taxable bonds of ` 1,00,000/- each redeemable at par in full on 17 April 2026 (Eightieth Issue - Private Placement)	0.00	0.00
095 7.48% Unsecured non-cumulative non-convertible redeemable taxable bonds of ₹ 1,00,000/- each redeemable at par in full on 21 March 2026 (Eighty First Issue - Private Placement)	0.00	0.00
096	0.00	0.00
097	0.00	0.00
098	0.00	0.00
099	0.00	0.00
100 Sub-total	0.00	0.00
101 Total	0.00	0.00

RIHAND SUPER THERMAL POWER STATION

NOTE NO. 25 TO THE FS-NCL-BORROWINGS

(Amount in ₹)

As at	31.03.2024	31.03.2023
102 Foreign Currency Notes-Unsecured	0.00	0.00
103 4.50% Fixed Rate Notes Due for repayment on 19th March 2028	0.00	0.00
104 2.75% Fixed rate notes due for repayment on 1st February 2027	0.00	0.00
105 4.25 % Fixed rate notes due for repayment on 26th February 2026	0.00	0.00
106 4.375% Fixed Rate Note due for repayment on 26th November 2024	0.00	0.00
107 4.75 % Fixed Rate Notes due for repayment on 3rd Oct 2022	0.00	0.00
108 7.25 % Fixed green global INR denominated bonds due on 3 May 2022	0.00	0.00
109 7.375 % Fixed green global INR denominated bonds due on 10 August 2021	0.00	0.00
110 5.625% Fixed Rate Notes due for repayment on 14th July 2021	0.00	0.00
111 3.75 % Fixed rate notes due for repayment on 03 April 2024	0.00	0.00
112	0.00	0.00
113	0.00	0.00
114	0.00	0.00
115 Sub Total	0.00	0.00
116 Term Loans	0.00	0.00
117 From Banks	0.00	0.00
118 Secured	0.00	0.00
119 Rupee Loans	0.00	0.00
120 Unsecured	0.00	0.00
121 Foreign Currency Loans	0.00	0.00
122 Rupee Loans	0.00	0.00
123 From Others	0.00	0.00
124 Secured	0.00	0.00
125 Rupee Loans	0.00	0.00
126 Foreign Currency loans (guaranteed by GOI)	0.00	0.00
127 Unsecured	0.00	0.00
128 Foreign Currency loans (guaranteed by GOI)	0.00	0.00
129 Other Foreign currency loans	0.00	0.00
131 Rupee Loans	0.00	0.00
132 Deposits	0.00	0.00
133 Unsecured	0.00	0.00
134 Fixed Deposits	0.00	0.00
135 Others	0.00	0.00
136 Unsecured	0.00	0.00
137 Bonds Application Money Pending Allotment	0.00	0.00
138 Sub-total	0.00	0.00
139 Total	0.00	0.00
140 Less:- Interst accrued but not due on secured	0.00	0.00



अध्यक्ष, वित्त-प्रबंधन विभाग (वित्त-प्रबंधन)
 Addl. General Manager (Commercial)
 एन टी पी सी लिमिटेड, NTPC LIMITED

RIHAND SUPER THERMAL POWER STATION

NOTE NO. 25 TO THE FS-NCL-BORROWINGS

(Amount in ₹)

As at	31.03.2024	31.03.2023
borrowings		
141 Less:- Interst accrued but not due on unsecured borrowings	0.00	0.00
142 Less:- Current maturities of long term borrowings	0.00	0.00
143 Bonds-Secured	0.00	0.00
144 Fixed Rate Notes	0.00	0.00
146 Foreign currency loans from Banks- unsecured	0.00	0.00
147 Rupee loans from banks- Secured	0.00	0.00
148 Rupee loans from banks- unsecured	0.00	0.00
149 Rupee Term loan from Others - Secured	0.00	0.00
150 Foreign currency loans from others- unsecured (Guaranteed by GOI)	0.00	0.00
151 Other foreign currency loans from others- unsecured	0.00	0.00
152 Rupee loans from others- unsecured	0.00	0.00
153	0.00	0.00
154	0.00	0.00
155	0.00	0.00
156	0.00	0.00
157	0.00	0.00
158	0.00	0.00
159	0.00	0.00
160	0.00	0.00
161	0.00	0.00
201 Total	0.00	0.00

RIHAND SUPER THERMAL POWER STATION

NOTE NO. 26 TO THE FS-NCL-LEASE LIABILITIES

(Amount in ₹)

	31.03.2024	31.03.2023
As at		
001 Non-current financial liabilities - Lease liabilities	0.00	0.00
002 Lease liabilities	0.00	0.00
003 Long term maturities of Finance Lease Liabilities (Secured) IX	0.00	0.00
004 Long term maturities of Finance Lease Liabilities (Unsecured) X	244,250,457.69	215,659,908.98
005 Sub-Total	244,250,457.69	215,659,908.98
006 Less: current maturities of lease liabilities	0.00	0.00
007 Finance Lease obligations - secured	0.00	0.00
008 Finance Lease obligations - unsecured	14,911,924.69	14,497,699.11
009 Sub-Total	14,911,924.69	14,497,699.11
011 Total	229,338,533.00	201,162,209.87



RIHAND SUPER THERMAL POWER STATION

NOTE NO. 27 TO THE FS-NCL-TRADE PAYABLES

(Amount in ₹)

As at	31.03.2024	31.03.2023
001 TRADE PAYABLES(NON CURRENT)	0.00	0.00
002 For Goods and Services	0.00	0.00
003 - Micro & Small Enterprises	0.00	0.00
004 - Others	0.00	0.00
005	0.00	0.00
007 Total	0.00	0.00

RIHAND SUPER THERMAL POWER STATION

NOTE NO. 28 TO THE FS-NCL-OTHER FINANCIAL LIABILITIES

(Amount in ₹)

As at		31.03.2024	31.03.2023
001	OTHER FINANCIAL LIABILITIES (NON-CURRENT)	0.00	0.00
002	Payable for Capital Expenditure	0.00	0.00
003	- Micro & Small Enterprises	581,704.72	1,146,502.70
004	- Others	13,812,425.91	44,312,866.51
005	Contractual Obligations	28,050,256.33	10,410,858.12
006	Others	0.00	0.00
007	Deposits from contractors and others	0.00	0.00
008		0.00	0.00
009		0.00	0.00
011	Total	42,444,386.96	55,870,227.33
020		0.00	0.00
021	Payable for Capital Expenditure - SD/retntion	0.00	0.00
022	- Micro & Small Enterprises	581,704.72	1,146,502.70
023	- Others	951,500.41	1,612,484.59
024	Sub-total	1,533,205.13	2,758,987.29
025	Contractual Obligations	0.00	0.00
026	- Micro & Small Enterprises	10,583,409.69	4,753,648.08
027	- Others	17,466,846.64	5,657,210.04
028	Sub-total	28,050,256.33	10,410,858.12
029	Total (24+28)	29,583,461.46	13,169,845.41
030		0.00	0.00



RIHAND SUPER THERMAL POWER STATION

NOTE NO. 29 TO THE FS-NCL-PROVISIONS

(Amount in ₹)

As at	31.03.2024	31.03.2023
001 LONG TERM PROVISIONS	0.00	0.00
002 Provision for Employee Benefits	0.00	0.00
003 Opening Balance	0.00	0.00
004 Additions/ (adjustments) during the year	0.00	0.00
005 Closing Balance	0.00	0.00
006	0.00	0.00
007 Others	0.00	0.00
008 i) Mine Closure Provision	0.00	0.00
009 Opening Balance	0.00	0.00
010 Additions during the year	0.00	0.00
011 Amounts adjusted during the year	0.00	0.00
012 Amounts reversed during the year	0.00	0.00
013 Closing Balance	0.00	0.00
014	0.00	0.00
015 ii) Stripping Activity Adjustments	0.00	0.00
016 Opening Balance	0.00	0.00
017 Additions during the year	0.00	0.00
018 Amounts adjusted during the year	0.00	0.00
019 Amounts reversed during the year	0.00	0.00
020 Closing Balance	0.00	0.00
021	0.00	0.00
024	0.00	0.00
026 TOTAL	0.00	0.00

NOTE NO. 30 TO THE FS-NCL-DEFERRED TAX LIABILITIES (NET)
(Amount in ₹)

As at	Opening Balance on 01.04.2023	Addition	Closing Balance on 31.03.2024
001 DEFERRED TAX LIABILITIES (NET)			
002 Difference of book depreciation and tax depreciation	0.00	0.00	0.00
003 Less: Deferred tax assets			
004 Provisions & Other disallowances for tax purposes	0.00	0.00	0.00
005 Unabsorbed Depreciation	0.00	0.00	0.00
006 Disallowances u/s 43B of the Income Tax Act, 1961	0.00	0.00	0.00
007 Others	0.00	0.00	0.00
008 Opening Balance	0.00	0.00	0.00
009 Additions during the year	0.00	0.00	0.00
010 Amounts adjusted during the year	0.00	0.00	0.00
011 Amounts reversed during the year	0.00	0.00	0.00
012 Closing Balance	0.00	0.00	0.00
013 MAT credit entitlement	0.00	0.00	0.00
014 Total	0.00	0.00	0.00
016	0.00	0.00	0.00
017 Total	0.00	0.00	0.00
018 Breakup of deferred tax assets	0.00	0.00	0.00
019 Provision	0.00	0.00	0.00
020 Statutory dues	0.00	0.00	0.00
021 Leave encashment	0.00	0.00	0.00
022 Others	0.00	0.00	0.00
023	0.00	0.00	0.00
024	0.00	0.00	0.00



RIHAND SUPER THERMAL POWER STATION

NOTE NO. 31 TO THE FS-NCL-OTHER NON-CURRENT LIABILITIES

(Amount in ₹)

As at	31.03.2024	31.03.2023
001 Other Non current Liabilities	0.00	0.00
002 Advances from customers and others	0.00	0.00
003 Deposits from contractors and others	0.00	0.00
004 Grants	0.00	0.00
006	0.00	0.00
007 TOTAL	0.00	0.00

RIHAND SUPER THERMAL POWER STATION

NOTE NO. 32 TO THE FS-CL-BORROWINGS

(Amount in ₹)

As at	31.03.2024	31.03.2023
001 Short Term Borrowings	0.00	0.00
002 Loans repayable on demand	0.00	0.00
003 From Banks	0.00	0.00
004 Secured	0.00	0.00
005 Cash Credit	0.00	0.00
006 Unsecured	0.00	0.00
007 Cash Credit	0.00	0.00
008 Other loans-unsecured	0.00	0.00
009 Commercial Papers	0.00	0.00
010 Less: Unamortised discount on Commercial Papers	0.00	0.00
011 Sub-Total	0.00	0.00
012 Current maturity of long term borrowings	0.00	0.00
013 Bonds-Secured	0.00	0.00
014 Foreign Currency Fixed Rate Notes	0.00	0.00
015 From Banks	0.00	0.00
016 Secured	0.00	0.00
017 Rupee Term Loan	0.00	0.00
018 Foreign currency loans	0.00	0.00
019 Unsecured	0.00	0.00
020 Foreign currency loans	0.00	0.00
021 Rupee term loans	0.00	0.00
022 From Others	0.00	0.00
023 Secured	0.00	0.00
024 Rupee Term Loan	0.00	0.00
025 Unsecured	0.00	0.00
026 Foreign currency loans (Guaranteed by Government of India)	0.00	0.00
027 Other foreign currency loans	0.00	0.00
028 Rupee term loans	0.00	0.00
029 Fixed deposits	0.00	0.00
030 Bill discounted	0.00	0.00
031	0.00	0.00
032 Sub Total	0.00	0.00
034	0.00	0.00
035 TOTAL	0.00	0.00



RIHAND SUPER THERMAL POWER STATION

NOTE NO. 33 TO THE FS-CL-LEASE LIABILITIES

(Amount in ₹)

	As at	31.03.2024	31.03.2023
001	Current financial liabilities - Lease liabilities	0.00	0.00
002	Current maturity of finance lease obligations (secured)	0.00	0.00
003	Current maturity of finance lease obligations (unsecured)	14,911,924.69	14,497,699.11
005	Total	14,911,924.69	14,497,699.11

**RIHAND SUPER THERMAL POWER STATION****NOTE NO. 34 TO THE FS-CL-TRADE PAYABLES****(Amount in ₹)**

As at	31.03.2024	31.03.2023
001 TRADE PAYABLES	0.00	0.00
002 For Goods and Services	0.00	0.00
003 - Micro & Small Enterprises	193,435,115.38	124,444,057.60
004 - Others	2,199,580,679.48	2,444,847,958.62
005	0.00	0.00
007 Total	2,393,015,794.86	2,569,292,016.22
008	0.00	0.00
172 Trade payable	0.00	0.00
173 MSME	0.00	0.00
174 Unbilled	111,479,469.38	90,554,124.60
175 Not due	0.00	0.00
176 Due	81,955,646.00	33,889,933.00
177 Disputed	0.00	0.00
178 Undisputed	81,955,646.00	33,889,933.00
179	0.00	0.00
180 Sub-total (A)	193,435,115.38	124,444,057.60
181	0.00	0.00
182 Others	0.00	0.00
183 Unbilled	382,056,604.52	510,593,053.51
184 Not due	0.00	0.00
185 Due	1,817,524,074.96	1,934,254,905.11
186 Disputed	0.00	0.00
187 Undisputed	1,817,524,074.96	1,934,254,905.11
188	0.00	0.00
189 Sub-total (B)	2,199,580,679.48	2,444,847,958.62
190	0.00	0.00
191 Total	2,393,015,794.86	2,569,292,016.22
192	0.00	0.00
193 Ageing	0.00	0.00
194 MSME	0.00	0.00
195 Disputed	0.00	0.00
196 Less than 1 year	0.00	0.00
197 1-2 years	0.00	0.00
198 2-3 years	0.00	0.00
199 More than 3 years	0.00	0.00
200 Sub Total (I)	0.00	0.00
201	0.00	0.00
202 Undisputed	0.00	0.00
203 Less than 1 year	81,955,646.00	33,889,933.00
204 1-2 years	0.00	0.00
205 2-3 years	0.00	0.00
206 More than 3 years	0.00	0.00
207 Sub Total (II)	81,955,646.00	33,889,933.00
208	0.00	0.00
209 Total MSME (III)	81,955,646.00	33,889,933.00
210	0.00	0.00



RIHAND SUPER THERMAL POWER STATION
NOTE NO. 34 TO THE FS-CL-TRADE PAYABLES

(Amount in ₹)

As at	31.03.2024	31.03.2023
211 Others	0.00	0.00
212 Disputed	0.00	0.00
213 Less than 1 year	0.00	0.00
214 1-2 years	0.00	0.00
215 2-3 years	0.00	0.00
216 More than 3 years	0.00	0.00
217 Sub Total (IV)	0.00	0.00
218	0.00	0.00
219 Undisputed	0.00	0.00
220 Less than 1 year	520,486,166.86	1,205,164,381.11
221 1-2 years	568,292,226.10	42,685,077.00
222 2-3 years	42,422,625.00	84,846,453.00
223 More than 3 years	686,323,057.00	601,558,994.00
224 Sub Total (V)	1,817,524,074.96	1,934,254,905.11
225	0.00	0.00
226 Total Others (VI)	1,817,524,074.96	1,934,254,905.11

RIHAND SUPER THERMAL POWER STATION
NOTE NO. 35 TO THE FS-CL-OTHER FINANCIAL LIABILITIES
(Amount in ₹)

As at	31.03.2024	31.03.2023
001 OTHER FINANCIAL LIABILITIES (CURRENT)	0.00	0.00
020 Interest accrued but not due on Unsecured Short Term Borrowing	0.00	0.00
021 Interest accrued but not due on secured borrowings	0.00	0.00
022 Interest accrued but not due on unsecured borrowings	0.00	0.00
023 Unpaid Dividends*	0.00	0.00
024 Unpaid matured deposits and interest accrued thereon*	0.00	0.00
025 Unpaid matured bonds and interest accrued thereon*	0.00	0.00
026 Unpaid bond refund money-Tax free bonds *	0.00	0.00
027 Book Overdraft	0.00	0.00
028 Payable to Customers	0.00	0.00
029 Liability under forward exchange contact	0.00	0.00
030 Hedging cost payable to beneficiaries	0.00	0.00
031 Derivative MTM Liability	0.00	0.00
032 Payable for Capital Expenditure	0.00	0.00
033 - Micro & Small Enterprises	69,094,120.25	73,235,010.01
034 - Others	4,687,516,054.53	4,118,286,883.53
035 Contractual Obligations	744,674,868.69	386,992,519.38
036 Others Payables	0.00	0.00
037 Deposits from contractors and others	291,609,186.35	85,777,478.98
038 Gratuity Obligations	0.00	0.00
039 Payable to employees	49,496,513.31	34,784,381.31
040 Payable to holding company	0.00	0.00
041 Retention on A/c BG encashment (Solar)	0.00	0.00
042 Payable to Solar Payment Security Account	0.00	0.00
043 Others **	14,692,741.08	17,075,074.39
044 Unspent CSR balance on ongoing Approved CSR projects	0.00	0.00
046	0.00	0.00
047	0.00	0.00
048 Total	5,857,083,484.21	4,716,151,347.60
049 * Represents the amounts which have not been claimed by the investor/holders of the bonds/ fixed deposits. Out of the above, no amount is due for payment to Investor Education and Protection Fund.	0.00	0.00
050 ** Include Payable to Hospital and other payable.	0.00	0.00
051 Payable for Capital Expenditure - SD/retntion	0.00	0.00
052 - Micro & Small Enterprises	51,495,838.26	37,883,895.26
053 - Others	830,776,903.27	870,016,808.78
054 Sub-total	882,272,741.53	907,900,704.04
055 Contractual Obligations	0.00	0.00
056 - Micro & Small Enterprises	134,203,480.99	87,455,777.24
057 - Others	610,471,387.70	299,536,742.14



RIHAND SUPER THERMAL POWER STATION

NOTE NO. 35 TO THE FS-CL-OTHER FINANCIAL LIABILITIES

(Amount in ₹)

	As at	31.03.2024	31.03.2023
058	Sub-total	744,674,868.69	386,992,519.38
059	Total	1,626,947,610.22	1,294,893,223.42
060		0.00	0.00



RIHAND SUPER THERMAL POWER STATION

NOTE NO. 36 TO THE FS-CL-OTHER CURRENT LIABILITIES

(Amount in ₹)

As at	31.03.2024	31.03.2023
001 OTHER CURRENT LIABILITIES	0.00	0.00
002 Advances from customers and others	36,309,666.57	25,885,048.95
003 Deferred discount on forward exchange contact	0.00	0.00
004 Tax deducted at source and other statutory dues	74,289,390.19	98,415,828.69
005 Deposits from contractors and others	0.00	0.00
006 Government grants	0.00	0.00
007 Others	0.00	0.00
009	0.00	0.00
010	0.00	0.00
011 Total	110,599,056.76	124,300,877.64

RIHAND SUPER THERMAL POWER STATION
NOTE NO. 37 TO THE FS-CL-PROVISIONS
(Amount in ₹)

As at	31.03.2024	31.03.2023
001 SHORT TERM PROVISIONS	0.00	0.00
002 Provision for Employee Benefits	0.00	0.00
003 Opening balance	0.00	0.00
004 Additions/ (adjustments) during the year	0.00	0.00
005 Closing Balance	0.00	0.00
028 Provisions for Obligations Incidental to Land Acquisition	0.00	0.00
029 Opening balance	0.00	0.00
030 Additions during the year	0.00	0.00
031 Amounts paid during the year	0.00	0.00
032 Amounts reversed during the year	0.00	0.00
033 Closing Balance	0.00	0.00
035 Provision for Tariff Adjustment	0.00	0.00
036 Opening balance	0.00	0.00
037 Additions during the year	0.00	0.00
038 Amounts adjusted during the year	0.00	0.00
039 Amounts reversed during the year	0.00	0.00
040 Closing Balance	0.00	0.00
042 Provision for shortage in Fixed Assets Pending Investigation & Others	0.00	0.00
043 Opening balance	0.00	0.00
044 Additions during the year	3,612,900.00	0.00
045 Amounts adjusted during the year	0.00	0.00
046 Amounts reversed during the year	0.00	0.00
047 Closing Balance	3,612,900.00	0.00
048 Provision for Arbitration	0.00	0.00
049 Opening balance	9,102,016.00	8,683,664.00
050 Additions during the year	418,352.00	418,352.00
051 Amounts used during the year	0.00	0.00
052 Amounts reversed during the year	0.00	0.00
053 Closing Balance	9,520,368.00	9,102,016.00
054 Others	0.00	0.00
055 Opening balance	0.00	0.00
056 Additions during the year	0.00	0.00
057 Amounts used during the year	0.00	0.00
058 Amounts reversed during the year	0.00	0.00
059 Closing Balance	0.00	0.00
102	0.00	0.00
104 Total	13,133,268.00	9,102,016.00



RIHAND SUPER THERMAL POWER STATION

NOTE NO. 38 TO THE FS-CL-CURRENT TAX LIABILITIES (NET)

(Amount in ₹)

As at	31.03.2024	31.03.2023
001 Current liabilities - current tax liabilities (net)	0.00	0.00
002 Opening balance	0.00	0.00
003 Additions during the year	0.00	0.00
004 Amounts adjusted during the year	0.00	0.00
005 Less: Set off against taxes paid	0.00	0.00
007	0.00	0.00
008 Closing Balance	0.00	0.00



RIHAND SUPER THERMAL POWER STATION

NOTE NO. 39 TO THE FS--DEFERRED REVENUE

(Amount in ₹)

	As at	31.03.2024	31.03.2023
001	Deferred Revenue	0.00	0.00
002	On account of advance against depreciation	0.00	0.00
003	On account of income from foreign currency fluctuation	1,356,547,000.00	1,576,387,000.00
004	Government grants	0.00	0.00
007		0.00	0.00
008		0.00	0.00
009	TOTAL	1,356,547,000.00	1,576,387,000.00



RIHAND SUPER THERMAL POWER STATION

NOTE NO. 39A TO THE FS--REGULATORY DEFERRAL ACCOUNT CREDIT BALANCES

(Amount in ₹)

As at	31.03.2024	31.03.2023
001 Regulatory deferral account credit balances	0.00	0.00
002 Exchange Differences	0.00	0.00
003	0.00	0.00
005 Total	0.00	0.00

RIHAND SUPER THERMAL POWER STATION
NOTE NO. 40 TO THE FS--REVENUE FROM OPERATIONS
(Amount in ₹)

	For the Year ended	31.03.2024	31.03.2023
001	REVENUE FROM OPERATIONS	0.00	0.00
002	Sales	0.00	0.00
003	Energy Sales (including Electricity Duty)	58,808,609,858.29	59,510,085,389.70
004	Less : Advance against depreciation deferred (net)	0.00	0.00
005	Add: Revenue recognized out of advance against depreciation	0.00	0.00
006	Add : Exchange fluctuation receivable from customers	-1,000.00	-1,007,159,000.00
007	Sale of energy through trading	0.00	0.00
008	Commission (NVVN)	0.00	0.00
009	Sub total	58,808,608,858.29	58,502,926,389.70
010	Less: Rebate to customers	361,523,638.66	375,810,995.28
011	Energy Sales (Total)	58,447,085,219.63	58,127,115,394.42
012	Consultancy, project management and supervision fees	0.00	0.00
013	Lease rentals on assets on Operating lease	0.00	0.00
014	Sale of Captive Coal	0.00	0.00
015	Intra Company Elimination	0.00	0.00
017	Sub-total	0.00	0.00
018	Total - Sales	58,447,085,219.63	58,127,115,394.42
019	Sale of fly ash/ash products	4,409,268.00	549,433.49
020	Less: Transferred to fly ash utilisation reserve fund	-4,409,268.00	-549,433.49
021	Sub-total	0.00	0.00
022	Other Operating Income	0.00	0.00
023	Interest from customers	2,871,210,514.00	460,826,066.00
024	Energy Internally Consumed *	34,638,756.00	34,769,384.00
025	Interest income on Assets under finance lease	0.00	0.00
026	Recognized from deferred revenue - government grant	0.00	0.00
027	Provision written back- Tariff Adjustment	0.00	0.00
028	Income form Trading of ESCerts	30,494,405.33	7,976,314.67
029	Income from E-Mobility Business & others	0.00	0.00
030	Others	0.00	0.00
032		0.00	0.00
033		0.00	0.00
034	Total	61,383,428,894.96	58,630,687,159.09
040	* Valued at variable cost of generation and corresponding amount included in power charges (Note No. 42)	0.00	0.00
041	Excise duty on sale of flyash,cenospere & ash products	0.00	0.00
042	Energy sales of principal nature (NVVN)	0.00	0.00
043	Energy sales of agency nature (NVVN)	0.00	0.00

RIHAND SUPER THERMAL POWER STATION
NOTE NO. 41 TO THE FS--OTHER INCOME
(Amount in ₹)

	For the Year ended	31.03.2024	31.03.2023
001	OTHER INCOME	0.00	0.00
002	Interest from	0.00	0.00
004	Financial assets at amortised cost	0.00	0.00
005	Government Securities (8.5% Tax Free Bonds issued by the State Governments)	0.00	0.00
006	Other Bonds	0.00	0.00
007	Non current Trade Receivable	0.00	0.00
008	Interest from Government of India Securities-Non-Trade	0.00	0.00
009	Less: Amortziation of premium	0.00	0.00
010	Sub Total	0.00	0.00
011	Interest from others	0.00	0.00
012	Loan to State Government in settlement of dues from customers	0.00	0.00
013	Loan to Subsidiary Companies	0.00	0.00
014	Loan to Employees	14,636,986.49	14,118,222.87
015	Deposit with banks	0.00	0.00
016	Foreign Banks	0.00	0.00
017	Interest from Contractors	689,008.00	825,495.00
018	Interest from Income Tax Refunds	0.00	0.00
019	Less : Refundable to Customers	0.00	0.00
020	Sub Total	0.00	0.00
021	Deposits with banks-flyash utilisation reserve fund	0.00	0.00
022	Less: transferred to flyash utilisation reserve fund	0.00	0.00
023	Sub Total	0.00	0.00
024	Deposits with banks- DDUGJY funds	0.00	0.00
025	Interest from Contractors- DDUGJY funds	0.00	0.00
026	Transfer to DDUGJY-Advance from customers	0.00	0.00
027	Sub-total	0.00	0.00
030	Others	0.00	689,007.00
031	Other investments in Joint venture companies	0.00	0.00
032	Dividend from	0.00	0.00
033	Longterm investments in	0.00	0.00
034	Subsidiaries	0.00	0.00
035	Joint Ventures	0.00	0.00
036	Equity Instruments	0.00	0.00
037	Current Investments in	0.00	0.00
038	Mutual Funds measured at fairvalue through profit or loss	0.00	0.00
039	Current investments in mutual funds-flyash utilisation reserve fund	0.00	0.00
040		0.00	0.00
041	Less: transferred to flyash utilisation reserve fund	0.00	0.00
042	Lease Rent # Ash Brick Plant	0.00	0.00
043	Less: transferred to flyash utilisation reserve fund	0.00	0.00
044	Other non-operating income	0.00	0.00
045	Profit on disposal of PPE	45,389.99	113,631.34

RIHAND SUPER THERMAL POWER STATION
NOTE NO. 41 TO THE FS--OTHER INCOME
(Amount in ₹)

	For the Year ended	31.03.2024	31.03.2023
046	Profit on redemption of GOI securities	0.00	0.00
047	Net gain on sale of investments	0.00	0.00
048	Surcharge received from customers	33,273,196.00	156,699,458.00
049	Hire charges for equipment	0.00	498,590.40
050	Gain on option contract / Discount on F.ExchContract	73,463.00	6,390,259.00
051	Lease rent from investment property	0.00	0.00
052	Provision written back-others	424,646.47	3,573,171.43
053	Fair value gains/(losses) on investments in mutual funds at fair value through profit or loss	0.00	0.00
054	Interest from Solar payment security account	0.00	0.00
055	Less : Transferred to SPSA fund	0.00	0.00
056	Interest on "Retention on A/c BG encashment (Solar)"	0.00	0.00
057	Less : Transferred to "Retention on A/c BG encashment (Solar)"	0.00	0.00
058		0.00	0.00
059		0.00	0.00
060		0.00	0.00
061	Miscellaneous Income	321,248,438.51	301,521,785.10
062	Total	370,391,128.46	484,429,620.14
063	Less:Transferred to Development of Coal Mines- Note 47A	0.00	0.00
064	Less:Transferred to Expenditure during Construction period (net)- Note 47	133,902.99	104,102.76
065	Less: Others	0.00	0.00
066	Less:Transferred to payable to Govt. of Jharkhand	0.00	0.00
068		0.00	0.00
069		0.00	0.00
070	Total	370,257,225.47	484,325,517.38
071		0.00	0.00
101	Details of Miscellaneous Income	0.00	0.00
102	Vehicle Hire Charges.	66,000.00	90,000.00
103	Sale of by products & residuals	0.00	0.00
104	Township recoveries(exl. Hospital Recoveries).	32,804,843.22	32,573,133.11
105	Depreciation written back	0.00	0.00
106	Sale of Scrap.	162,364,764.27	217,087,073.50
107	Receipt under loss of profit policy.	0.00	0.00
108	Receipts under MBD/Fire Policy.	0.00	0.00
109	Management development programme.	0.00	0.00
110	Management Fee - Misc (NVVN)	0.00	0.00
111	Others	126,012,831.02	51,771,578.49
112		0.00	0.00
113		0.00	0.00
114	Total (Miscellaneous Income)	321,248,438.51	301,521,785.10
115		0.00	0.00
131	Details of Provision written back others	0.00	0.00

RIHAND SUPER THERMAL POWER STATION

NOTE NO. 41 TO THE FS--OTHER INCOME

(Amount in ₹)

	For the Year ended	31.03.2024	31.03.2023
132	Doubtful debts	0.00	0.00
133	Doubtful Loans, Advances and Claims	0.00	0.00
134	Doubtful Construction Advances	0.00	0.00
135	Shortage in Construction Stores	88,397.16	1,458,151.13
136	Shortage in Stores	196,939.31	1,607,821.96
137	Obsolescence in Stores	139,310.00	507,198.34
138	Unserviceable capital works	0.00	0.00
139	Other Obligation including Arbitration	0.00	0.00
140	Shortage in Fixed Assets	0.00	0.00
141	Diminution in value of Investment	0.00	0.00
142		0.00	0.00
143		0.00	0.00



RIHAND SUPER THERMAL POWER STATION

NOTE NO. 42 TO THE FS--FUEL COST

(Amount in ₹)

For the Year ended		31.03.2024	31.03.2023
001	FUEL COST	0.00	0.00
002	Coal	0.00	0.00
003	Captive	0.00	0.00
004	Other than captive	34,687,386,295.68	34,092,322,865.30
005	Gas	0.00	0.00
006	Naptha	0.00	0.00
007	Oil	506,683,670.02	422,532,356.80
008	Biomass Pellets & Others	0.00	0.00
009		0.00	0.00
010		0.00	0.00
011	Total	35,194,069,965.70	34,514,855,222.10
012		0.00	0.00

RIHAND SUPER THERMAL POWER STATION
NOTE NO. 43 TO THE FS--EMPLOYEE BENEFITS EXPENSE
(Amount in ₹)

	For the Year ended	31.03.2024	31.03.2023
001	EMPLOYEE BENEFITS EXPENSE	0.00	0.00
002	Salaries and wages	1,420,229,075.93	1,521,094,969.69
003	Contribution to provident and other funds	230,813,260.68	203,254,370.35
004	Unwinding of deferred payroll expense	8,197,455.70	8,416,475.20
005	Staff welfare expenses	228,872,600.84	203,775,030.45
006	Less : Expenses transferred to Consultancy group	0.00	0.00
007		0.00	0.00
008	Sub Total	1,888,112,393.15	1,936,540,845.69
009	Less: Employee benefits expense allocated to fuel inventory	126,414,506.69	124,169,760.51
010	Less: Transferred/Allocated to development of coal mines - Note 47A	0.00	0.00
011	Less: Others	0.00	0.00
012	Less: Transferred to fly ash utilisation reserve fund	0.00	0.00
013	Less: Transferred to CSR Expenses	0.00	0.00
014	Reimbursements for employees on secondment	3,533,759.52	3,276,040.25
015	Less: Transferred to expenditure during construction period (net)- Note 47	46,208,463.83	31,691,938.82
016	Less: Transfer to Govt of Jharkhand A/c as recoverable	0.00	0.00
018		0.00	0.00
019	TOTAL	1,711,955,663.11	1,777,403,106.11
020	Managerial Remuneration paid/ payable to Directors included above (except for Directors fee which is included in Note 42)	0.00	0.00
021	Salaries and wages	0.00	0.00
022	Contribution to provident and other funds	0.00	0.00
023	Staff welfare expenses	0.00	0.00
024	Directors fee	0.00	0.00
025		0.00	0.00

RIHAND SUPER THERMAL POWER STATION
NOTE NO. 44 TO THE FS--FINANCE COSTS
(Amount in ₹)

	For the Year ended	31.03.2024	31.03.2023
001	FINANCE COSTS	0.00	0.00
002	Finance charges on financial liabilities measured at amortised cost	0.00	0.00
003	Bonds	616,779,786.46	731,574,881.93
004	Government of India Loans	0.00	0.00
005	Foreign currency term loans	65,542,908.37	40,412,501.47
006	Rupee term loans	450,346,229.00	450,875,180.00
007	Public deposits	0.00	0.00
008	Foreign currency bonds/notes	0.00	99,701,512.71
009	Cash Credit	0.00	0.00
010	Unwinding of discount on account of vendor liabilities	19,827,484.33	11,815,161.51
011	Commercial Papers	0.00	0.00
012	Sub Total	1,152,496,408.16	1,334,379,237.62
013	Interest on non financial items	18,086.00	0.00
014	Other Borrowing Costs	0.00	0.00
015	Bonds servicing & public deposit exp.	945,192.25	858,707.62
016	Guarantee fee	0.00	0.00
017	Management fee	0.00	0.00
018	Committ charges/exposure premium	0.00	129,975.15
019	Bond issue expenses	0.00	0.00
020	Legal exp on foreign currency loans	0.00	0.00
021	Foreign currency bonds/notes exp.	0.00	0.00
022	Up-front fee	0.00	0.00
023	Insurance premium on foreign currency loans	0.00	0.00
024		0.00	0.00
025	Others	0.00	0.00
026	Sub Total (Other Borrowing cost)	963,278.25	988,682.77
027		0.00	0.00
028	Exchange differences regarded as an adjustment to borrowing costs	-31,247,413.53	16,291,816.52
029	Sub Total	1,122,212,272.88	1,351,659,736.91
030	Less: Transferred to Expenditure during construction period (net) - Note 47	119,314,872.39	67,839,767.20
031	Less: Transferred to development of coal mines- Note 47A	0.00	0.00
032		0.00	0.00
034	Total	1,002,897,400.49	1,283,819,969.71



RIHAND SUPER THERMAL POWER STATION

NOTE NO. 45 TO THE FS--DEPRECIATION, AMORTIZATION AND IMPAIRMENT EXPENSES

(Amount in ₹)

	For the Year ended	31.03.2024	31.03.2023
001	Depreciation, amortization and impairment expenses	0.00	0.00
002	On property, plant and equipment- Note 2	5,272,550,841.88	4,896,131,231.52
003	On investment property- Note 2A	0.00	0.00
004	On intangible assets- Note 4	319,960.73	28,393.75
005		0.00	0.00
006	Sub-total	5,272,870,802.61	4,896,159,625.27
007	Less:	0.00	0.00
008	Allocated to fuel inventory	382,176,014.60	380,700,405.43
009	Transferred to Expenditure during Construction Period (net)- Note 47	2,541.12	659.26
010		0.00	0.00
011	Transferred/Allocated to development of coal mines - Note 47A	0.00	0.00
012	Adjustment with deferred revenue from deferred foreign currency fluctuation	219,840,000.00	207,462,000.00
013		0.00	0.00
015	Total	4,670,852,246.89	4,307,996,560.58

RIHAND SUPER THERMAL POWER STATION
NOTE NO. 46 TO THE FS--OTHER EXPENSE
(Amount in ₹)

	For the Year ended	31.03.2024	31.03.2023
001 OTHER EXPENSES		0.00	0.00
002 Power charges		114,071,005.38	36,602,545.00
003 Less: Recovered from contractors & employees		21,997,304.57	16,759,983.93
004 Sub-Total(Power Charges)		92,073,700.81	19,842,561.07
005 Water charges		143,348,894.00	139,871,225.00
006 Stores consumed		109,080,768.02	72,975,803.55
007 Rent		0.00	0.00
008 Less:Recoveries		0.00	0.00
009 Sub-Total (Rent)		0.00	0.00
010 Cost of captive coal produced		0.00	0.00
011 Repairs & maintenance		0.00	0.00
012 Buildings		115,052,101.97	158,149,415.92
013 Plant & machinery		0.00	0.00
014 Power stations		2,814,572,400.22	2,228,227,417.39
015 Construction equipment		0.00	0.00
016 Others		119,810,327.85	133,139,689.40
017 Sub-total (Repairs & maintenance)		3,049,434,830.04	2,519,516,522.71
019 Load Dispatch Center Charges		39,049,786.00	13,176,411.00
021 Insurance		177,744,689.07	176,259,470.09
022 Interest to beneficiaries		502,602,488.00	0.00
023 Rates and taxes		12,356,937.15	-6,259,316.14
024 Water cess & environment protection cess		0.00	0.00
025 Training & recruitment expenses		1,295,003.27	2,049,738.99
026 Less: Receipts		0.00	0.00
027 Sub-total (Training and recruitment expenses)		1,295,003.27	2,049,738.99
028 Communication expenses		24,933,224.99	18,055,262.15
029 Inland Travel		70,077,362.54	73,825,041.75
030 Foreign Travel		-13,890.00	153,377.00
031 Tender expenses		0.00	0.00
032 Less: Receipt from sale of tenders		0.00	0.00
033 Sub-total (Tender expenses)		0.00	0.00
034 Payment to auditors		0.00	0.00
035 Audit fee		0.00	0.00
036 Tax audit fee		0.00	0.00
037 Other services		0.00	0.00
038 Reimbursement of expenses		0.00	0.00
039 Sub-total (Payment to Auditors)		0.00	0.00
040 Advertisement and publicity		609,800.66	715,426.60
041 Electricity duty		0.00	0.00
042 Security expenses		500,034,468.77	450,957,342.53
043 Entertainment expenses		22,830,953.50	26,443,229.39
044 Expenses for guest house		22,417,249.24	20,529,003.23
045 Less:Recoveries		4,681,184.90	5,102,224.90
046 Sub-Total (Guest house expenses)		17,736,064.34	15,426,778.33
047 Education expenses		72,472,675.00	60,990,719.00
049 Donations		0.00	0.00

RIHAND SUPER THERMAL POWER STATION
NOTE NO. 46 TO THE FS--OTHER EXPENSE
(Amount in ₹)

	For the Year ended	31.03.2024	31.03.2023
050	Ash utilisation & marketing expenses	2,171,797,468.80	1,205,661,111.07
051	Directors sitting fee	0.00	0.00
053	Professional charges and consultancy fees	18,247,979.65	85,099,069.19
054	Legal expenses	28,418,531.00	25,564,410.00
055	EDP hire and other charges	4,342,518.74	9,686,180.09
056	Printing and stationery	2,895,337.34	2,413,162.68
057	Oil & gas exploration expenses	0.00	0.00
059	Hiring of vehicles	37,940,272.90	36,342,493.81
061	Reimbursement of L.C.charges on sales realisation	0.00	0.00
062	LOSS ON FAIR VALUATION OF NON- CURRENT TRADE RECEIVABLE AT AMORTISED COST	0.00	0.00
063	Cost of Hedging	0.00	0.00
064	Derivatives MTM loss/gain (Net)	0.00	0.00
065	Net loss/(gain) in foreign currency transactions & translations	-168,732,271.52	15,280,472.25
066	Transport Vehicle running expenses	1,305,447.75	1,883,079.38
067	Horticulture Expenses	60,083,345.45	82,919,539.21
068	Hire charges- helicopter/aircraft.	0.00	0.00
069	Hire charges of construction equipment	0.00	0.00
070	Demurrage Charges	0.00	0.00
072		0.00	0.00
073	Miscellaneous expenses	131,684,397.10	54,556,145.78
074	Loss on disposal/write-off of PPE	134,550,634.28	81,328,604.99
075	Sub-Total	7,258,201,417.65	5,184,733,861.47
076	Less: Other expenses allocated to fuel inventory	685,238,571.79	584,991,830.30
077	Less: Transferred/Allocated to development of coal mines - Note 47A	0.00	0.00
078	Less: Transferred to fly ash utilisation reserve fund	48,712,813.41	25,183,231.73
079	Less: Hedging cost Net recoverable/payable from/to beneficiaries	0.00	0.00
080	Less: Others	0.00	0.00
081	Less: Transferred to CSR Expenses	0.00	0.00
082	Less:Transferred to Expenditure during Construction period(net)-Note 47	15,557,399.80	2,525,818.02
083	Less: Transfer to Govt of Jharkhand A/c as recoverable	0.00	0.00
084	Net (Generation, Administration and Other expenses)	6,508,692,632.65	4,572,032,981.42
085	Corporate Social Responsibility Expenses	41,264,811.94	35,487,113.26
086	Less: Grants-in-aid	0.00	0.00
087	Sub-total (Corporate Social Responsibility Expenses)	41,264,811.94	35,487,113.26
088	Provisions	0.00	0.00
089	Doubtful Debts	0.00	0.00
090	Doubtful loans, advances and claims	0.00	0.00
091	Doubtful Construction Advances	0.00	0.00
092	Shortage in stores	5,923,534.81	222,450.81

RIHAND SUPER THERMAL POWER STATION
NOTE NO. 46 TO THE FS--OTHER EXPENSE
(Amount in ₹)

	For the Year ended	31.03.2024	31.03.2023
093	Obsolete/Dimunition in the value of surplus stores	78,820,769.66	10,612,444.94
094	Shortage in construction stores	1,896,319.98	88,397.16
095	Dimunition in value of long term investments	0.00	0.00
096	Shortage in Fixed assets	3,612,900.00	0.00
097	Unfinished minimum work progress from oil & gas exploration	0.00	0.00
098	Unserviceable capital works	0.00	0.00
099	Tariff Adjustment	-486,099,000.00	208,630,000.00
100	Others :	0.00	0.00
101	(i) Provision for arbitration cases	418,352.00	418,352.00
102	(ii) Other provisions	0.00	0.00
103	Total (Provisions)	-395,427,123.55	219,971,644.91
104		0.00	0.00
106	Total	6,154,530,321.04	4,827,491,739.59
107		0.00	0.00
108	Breakup of miscellaneous expenses.	0.00	0.00
110	Hire charges of office equipment	1,014,069.25	2,178,920.46
112	Operating expenses of construction equipment	0.00	0.00
113	Operating expenses of D.G. sets	0.00	0.00
114	Furnishing expenses	1,216,856.77	253,934.89
115	Subscription to trade and other associations.	0.00	0.00
117	Visa and entry permit charges	0.00	0.00
118	Tree plantation exp.-NTPC Land	0.00	0.00
119	Research & development expenses .	0.00	0.00
120	Less : Grants received for Research & development expenses.	0.00	0.00
121	Sub-total (Research & development expenses)	0.00	0.00
122	Bank charges	64,876.52	90,956.68
123	Business Development Expenditure	0.00	0.00
124	Surcharge (NVVN)	0.00	0.00
125	Power Trading Expenses	58,605,449.00	30,539,939.00
126	Brokerage & commission	16,345,004.00	8,616,631.00
130	Books and periodicals	71,235.00	408,733.00
131	Claims/advances written off	0.00	0.00
132	Stores written off	0.00	0.00
133	Survey &Investigation expenses written off	0.00	0.00
134	Others	54,366,906.56	12,467,030.75
135	Total	131,684,397.10	54,556,145.78
136		0.00	0.00
137		0.00	0.00
138		0.00	0.00

RIHAND SUPER THERMAL POWER STATION
NOTE NO. 47 TO THE FS--EXPENDITURE DURING CONSTRUCTION PERIOD (NET)
(Amount in ₹)

For the Year ended		31.03.2024	31.03.2023
001	EXPENDITURE DURING CONSTRUCTION PERIOD (NET)	0.00	0.00
002	A. Employee benefits expense	0.00	0.00
003	Salaries and wages	36,814,049.23	26,501,611.63
004	Contribution to provident and other funds	5,706,688.39	3,509,615.20
005	Unwinding of deferred payroll expenses	0.00	0.00
006	Staff welfare expenses	3,687,726.21	1,680,711.99
007	Total (A)	46,208,463.83	31,691,938.82
008	B. Finance Costs	0.00	0.00
009	Finance charges on financial liabilities measured at amortised cost	0.00	0.00
010	Bonds	12,419,822.69	9,928,869.03
011	Foreign currency term loans	52,297,655.15	26,164,411.47
012	Rupee term loans	60,296,295.00	16,080,739.00
013	Foreign currency bonds/notes	0.00	0.00
014	Unwinding of discount on account of vendor liabilities	0.00	0.00
015	Others	0.00	0.00
016		0.00	0.00
017	Other Borrowings Costs	0.00	0.00
018	Guarantee Commission	0.00	0.00
019	Management Fees/Arrangers Fees	0.00	0.00
020	Commitment charges/Exposure Premium	0.00	129,975.15
021	Legal Expenses on foreign currency loans	0.00	0.00
022	Foreign currency bonds/notes expenses	0.00	0.00
023	Foreign Credit Insurance Premium	0.00	0.00
024	Upfront Fee	0.00	0.00
025	Exchange Differences	0.00	0.00
026	Others	6,131,800.75	3,705,070.96
027	Exchange differences regarded as adjustment to interest cost	-11,830,701.20	11,830,701.59
028	Total (B)	119,314,872.39	67,839,767.20
029		0.00	0.00
030	C. Depreciation and amortisation	2,541.12	659.26
031	D. Generation , administration and other expenses	0.00	0.00
032	Power charges	8,614,842.00	314,305.00
033	Less: Recovered from contractors & employees	144,064.99	39,741.55
034	Sub-total(Net power charges)	8,470,777.01	274,563.45
035	Water charges	0.00	0.00
036	Rent	0.00	0.00
037	Repairs & maintenance	0.00	0.00
038	Buildings	0.00	0.00
039	Construction equipment	0.00	0.00
040	Others	35,196.45	456.75
041		0.00	0.00
042	Insurance	0.00	0.00

RIHAND SUPER THERMAL POWER STATION
NOTE NO. 47 TO THE FS--EXPENDITURE DURING CONSTRUCTION PERIOD (NET)
(Amount in ₹)

	For the Year ended	31.03.2024	31.03.2023
043	Rates and taxes	466.20	108.00
044	Communication expenses	182,703.00	463,943.00
045	Travelling expenses	2,240,084.41	1,173,914.46
046	Tender expenses	0.00	0.00
047	Less: Income from sale of tenders	0.00	0.00
048	Sub-total (Net tender expenses)	0.00	0.00
049	Advertisement and publicity	0.00	0.00
050	Security expenses	0.00	0.00
051	Entertainment expenses	133,743.00	109,860.70
052	Guest house expenses	0.00	0.00
053	Less: Receipt from guest house	0.00	0.00
054	Sub-total (Net Guest House Expenses)	0.00	0.00
055	Education expenses	0.00	0.00
056	Brokerage & Commission	0.00	0.00
057	Books and periodicals	0.00	0.00
058	Community development expenses	0.00	0.00
059	Professional charges and consultancy fee	0.00	0.00
060	Legal expenses	67,493.00	0.00
061	EDP Hire and other charges	0.00	0.00
062	Printing and stationery	2,794.00	19,534.00
063	Miscellaneous expenses	4,424,142.73	483,437.66
064	Total (D)	15,557,399.80	2,525,818.02
065	Total (A+B+C+D)	181,083,277.14	102,058,183.30
066	E. Less: Other Income	0.00	0.00
067	Interest from	0.00	0.00
068	Indian banks	0.00	0.00
069	Foreign banks	0.00	0.00
070	Others	0.00	0.00
071	Contractors	0.00	0.00
072	Hire charges	0.00	0.00
073	Sale of scrap	0.00	0.00
074	Exchange Differences	0.00	0.00
075	Miscellaneous income	133,902.99	104,102.76
076	TOTAL (E)	133,902.99	104,102.76
077	F. Net actuarial gain/loss OCI	-213,090.51	-397,461.79
078		0.00	0.00
079	GRAND TOTAL (A+B+C+D-E+F)	180,736,283.64	101,556,618.75
080		0.00	0.00
081	* Balance carried to Capital Work-in-progress - (Note 3)	180,736,283.64	101,556,618.75

**RIHAND SUPER THERMAL POWER STATION
NOTE NO. 47A TO THE FS--EDC- COAL MINING**

(Amount in ₹)

	For the Year ended	31.03.2024	31.03.2023
001	EDC- Coal Mining	0.00	0.00
002	A. Employee benefits expense	0.00	0.00
003	Salaries and wages	0.00	0.00
004	Contribution to provident and other funds	0.00	0.00
005	Unwinding of deferred payroll expenses	0.00	0.00
006	Staff welfare expenses	0.00	0.00
007	Total (A)	0.00	0.00
008	B. Finance Costs	0.00	0.00
009	Finance charges on financial liabilities measured at amortised cost	0.00	0.00
010	Bonds	0.00	0.00
011	Foreign currency term loans	0.00	0.00
012	Rupee term loans	0.00	0.00
013	Foreign currency bonds/notes	0.00	0.00
014	Unwinding of discount on account of vendor liabilities	0.00	0.00
015	Others	0.00	0.00
016		0.00	0.00
017	Other Borrowings Costs	0.00	0.00
018	Guarantee Commission	0.00	0.00
019	Management Fees/Arrangers Fees	0.00	0.00
020	Commitment charges/Exposure Premium	0.00	0.00
021	Legal Expenses on foreign currency loans	0.00	0.00
022	Foreign currency bonds/notes expenses	0.00	0.00
023	Foreign Credit Insurance Premium	0.00	0.00
024	Upfront Fee	0.00	0.00
025	Exchange Differences	0.00	0.00
026	Others	0.00	0.00
027	Exchange differences regarded as adjustment to interest cost	0.00	0.00
028	Total (B)	0.00	0.00
029		0.00	0.00
030	C. Depreciation and amortisation	0.00	0.00
031	D. Generation , administration and other expenses	0.00	0.00
032	Power charges	0.00	0.00
033	Less: Recovered from contractors & employees	0.00	0.00
034	Sub-total(Net power charges)	0.00	0.00
035	Water charges	0.00	0.00
036	Rent	0.00	0.00
037	Repairs & maintenance	0.00	0.00
038	Buildings	0.00	0.00
039	Construction equipment	0.00	0.00
040	Others	0.00	0.00
041	Cost of Captive Coal	0.00	0.00
042	Insurance	0.00	0.00
043	Rates and taxes	0.00	0.00

RIHAND SUPER THERMAL POWER STATION
NOTE NO. 47A TO THE FS--EDC- COAL MINING

(Amount in ₹)

	For the Year ended	31.03.2024	31.03.2023
044	Communication expenses	0.00	0.00
045	Travelling expenses	0.00	0.00
046	Tender expenses	0.00	0.00
047	Less: Income from sale of tenders	0.00	0.00
048	Sub-total (Net tender expenses)	0.00	0.00
049	Advertisement and publicity	0.00	0.00
050	Security expenses	0.00	0.00
051	Entertainment expenses	0.00	0.00
052	Guest house expenses	0.00	0.00
053	Less: Receipt from guest house	0.00	0.00
054	Sub-total (Net Guest House Expenses)	0.00	0.00
055	Education expenses	0.00	0.00
056	Brokerage & Commission	0.00	0.00
057	Books and periodicals	0.00	0.00
058	Community development expenses	0.00	0.00
059	Professional charges and consultancy fee	0.00	0.00
060	Legal expenses	0.00	0.00
061	EDP Hire and other charges	0.00	0.00
062	Printing and stationery	0.00	0.00
063	Miscellaneous expenses	0.00	0.00
064	Total (D)	0.00	0.00
065	Total (A+B+C+D)	0.00	0.00
066	E. Less: Other Income	0.00	0.00
067	Interest from	0.00	0.00
068	Indian banks	0.00	0.00
069	Foreign banks	0.00	0.00
070	Others	0.00	0.00
071	Contractors	0.00	0.00
072	Hire charges	0.00	0.00
073	Sale of scrap	0.00	0.00
074	Exchange Differences	0.00	0.00
075	Miscellaneous income	0.00	0.00
076	TOTAL (E)	0.00	0.00
077	F. Net actuarial gain/loss OCI	0.00	0.00
078		0.00	0.00
079	GRAND TOTAL (A+B+C+D-E+F)	0.00	0.00
080		0.00	0.00
081	* Balance carried to Capital Work-in-progress - (Note 3)	0.00	0.00

RIHAND SUPER THERMAL POWER STATION
NOTE NO. 48A TO THE FINANCIAL STATEMENTS
(Amount in ₹)

As at	31.03.2024	31.03.2023
001 Balance sheet	0.00	0.00
002 Freehold land for which conveyancing of the title is awaiting completion of legal formalities	0.00	0.00
003 (a) area (in acres)	1,272.13	1,272.13
004 (b) value (in rs)	116,742,467.99	116,742,467.99
005 Right-of-use land for which execution of lease deed is awaiting completion of legal formalities	0.00	0.00
006 (a) area (in acres)	227.63	227.63
007 (b) value (in rs)	208,310,187.38	208,310,187.38
008 Right-of-use land acquired on perpetual lease and accordingly not amortised	0.00	0.00
009 (a) area (in acres)	0.00	0.00
010 (b) value (in rs.)	0.00	0.00
011 Land in physical possession of the company which has not been shown in the books pending settlement of price (in acres)	0.00	0.00
012 Deposit with government authorities towards land in possession of the company included in cost of land which is subject to adjus	0.00	0.00
013 Land not in possession of the company	0.00	0.00
014 (a) area (in acres)	0.00	0.00
015 -Freehold	787.37	776.45
016 -Right of Use	72.33	72.33
017 (b) value (in rs)	0.00	0.00
018 -Freehold	72,256,386.55	71,250,885.34
019 -Right of Use	32,189,938.59	30,718,588.01
020 Right-of-use buildings pending completion of legal fomalities - value (in rs.)	0.00	0.00
021 Estimated amount of contracts remaining to be executed on capital account and not provided for	0.00	0.00
022 Property, plant & equipment	12,949,342,350.00	13,566,754,374.00
023 Intangible assets	0.00	0.00
024 Details of precommissioning expenditure	0.00	0.00
025 (a) precommissioning expenses	0.00	0.00
026 (b) precommissioning income	0.00	0.00
027 (c) net precommissioning expenditure	0.00	0.00
028	0.00	0.00
029	0.00	0.00
030	0.00	0.00
031 Exchange rate variation taken to revenue during the year (with -ve sign, if favourable)	-188,148,983.85	19,741,587.18
045 Exchange rate variation capitalised during the year (with -ve sign, if favourable)	-5,125,413.86	282,259,548.61
064 Short Term Leases	0.00	0.00
065 A) Rent	0.00	0.00
066 Company lease accomodation - executives	0.00	0.00
067 Company lease accomodation - directors	0.00	0.00
068 Others	0.00	0.00



अध्यक्ष, राष्ट्रीयतांत्रिक (आयुक्तिक)
 Addl. General Manager (Commercial)
 एन टी सी लिमिटेड, NTPC LIMITED

RIHAND SUPER THERMAL POWER STATION
NOTE NO. 48A TO THE FINANCIAL STATEMENTS
(Amount in ₹)

As at	31.03.2024	31.03.2023
069 Total	0.00	0.00
101 Borrowing cost capitalised during the year	119,314,872.39	67,839,767.20
102 Revenue grants recognized during the year	0.00	0.00
103 Revenue expenditure on research and development	0.00	0.00
104 Capital expenditure on research and development.	0.00	0.00
105 Expenditure on sustainability development - capital	0.00	1,321,815.00
106 Expenditure on csr- capital	0.00	0.00
107 Opening balance - CSR Liability	5,746,540.00	5,794,153.00
108 Paid/Adjusted during the Year out of Opening above	-5,605,546.00	-1,456,484.00
109 Amount yet to be paid against Cr Year CSR Exp	9,271,344.00	1,408,871.00
110 Closing Balance CSR- Liability (110)	9,412,338.00	5,746,540.00
111	0.00	0.00
112	0.00	0.00
113 Disclosure under msmed act 2006.	0.00	0.00
114 Long-term	0.00	0.00
115 Short-term	-193,435,115.38	0.00
116 (i) (a) the principal amount remaining unpaid as at year end	-193,435,115.38	0.00
117 (i) (b) interest due there on remaining unpaid as at Year end	0.00	0.00
118 (ii) the amount of interest paid by the buyer in terms of section 16, along with the amounts of the payment made to the supplier	0.00	0.00
119 (iii) the amount of interest due and payable for the period of delay in making payment(which has been paid but beyond the appoin	0.00	0.00
120 (iv) the amount of interest accrued and remaining unpaid at the end of the year; and	0.00	0.00
121 (v) the amount of further interest remaining due and payable even in the succeeding years, until such date when the interest due	0.00	0.00
122 Amount of inventories recognized as an expense (including fuel)	37,170,395,683.42	36,118,519,159.86
123 Amount of inventories capitalised as overhauling assets out of 122 above	398,467,421.52	479,006,817.39
124 Amount capitalised as edc out of 122 above	0.00	0.00
133 Value of Imported Material Consumed during the Year	0.00	0.00
134	0.00	0.00
135 Contingent liabilities	0.00	0.00
136 A. Claims against the company not acknowledged as debts in respect of :	0.00	0.00
137 (i)Capital works	0.00	0.00
138 (ii)Land compensation cases	32,725,296.47	35,769,736.80
139 (iii)Others by state authorities towards:-	0.00	0.00
140 (a) Water royalty / water charges / nala tax	0.00	0.00
141 (b) Diversion of land / building permission fees	0.00	0.00

RIHAND SUPER THERMAL POWER STATION
NOTE NO. 48A TO THE FINANCIAL STATEMENTS
(Amount in ₹)

As at	31.03.2024	31.03.2023
142 (c) Other demands by state authorities	4,590,000.00	4,590,000.00
143 (iv) Others by fuel companies	0.00	0.00
144 (a) Disputes related to grade slippage-third party sampling	1,415,704,076.30	1,394,269,079.00
145 (b) Surface transportation charges on coal	911,712,917.66	911,712,917.69
146 (c) Take or pay claim - Gas stations	0.00	0.00
147 (d) Other claims by fuel companies not acknowledged as debt	686,853,915.00	686,853,915.00
149 B.Disputed tax demands	0.00	0.00
150 (i) Income tax	0.00	0.00
151 (ii) Excise duty	3,691,823.00	3,691,823.00
152 (iii) Sales tax	147,764,932.00	146,412,646.00
153 (iv) Service tax/GST	4,371,933.68	4,225,770.93
154 (v) Entry tax	0.00	0.00
155 C. Others	183,594,882.52	183,583,292.71
156 Total	3,391,009,776.63	3,371,109,181.13
157 D. Possible reimbursement on account of contingent liabilities	0.00	0.00
158 (i) Capital works	0.00	0.00
159 (ii) Land compensation cases	0.00	0.00
160 (iii) Others (by state authorities)	0.00	0.00
161	0.00	0.00
162 (iv) Others by fuel companies	3,017,962,731.96	2,992,835,911.66
163 (v) Disputed income tax demand	0.00	0.00
164 (vi) Disputed tax demands -others	147,764,932.00	150,104,469.00
165 (vii) Others	58,203.00	58,203.00
167 Total	3,165,785,866.96	3,142,998,583.66
168 E.AMOUNT PAID UNDER PROTEST/ADJUSTED BY AUTHORITIES - TAX CASES	812,756.00	812,756.00
169 F.CONTINGENT ASSETS	0.00	0.00
170 Intangible under development : less than 1 year	0.00	0.00
171 Intangible under development #: 1-2 year	0.00	0.00
227 Intangible under development #: 2-3 year	0.00	0.00
277 Intangible under development #: More than 3 years	0.00	0.00
278 Capital-Work-in Progress (CWIP)	0.00	0.00
279 Projects in progress	12,848,933,527.77	8,960,205,455.82
280 Projects temporarily suspended	0.00	0.00
281	0.00	0.00
282	0.00	0.00
283 Projects in progress	0.00	0.00
284 Less than 1 year	5,630,293,641.08	3,744,284,084.47
285 1-2 years	2,963,595,270.36	3,074,034,597.30
286 2-3 years	2,462,596,838.61	1,738,373,963.21
287 More than 3 years	1,792,447,777.72	403,512,810.84
288 Sub Total (I)	12,848,933,527.77	8,960,205,455.82
289	0.00	0.00



RIHAND SUPER THERMAL POWER STATION
NOTE NO. 48A TO THE FINANCIAL STATEMENTS

(Amount in ₹)

As at	31.03.2024	31.03.2023
290 Projects temporarily suspended	0.00	0.00
291 Less than 1 year	0.00	0.00
292 1-2 years	0.00	0.00
293 2-3 years	0.00	0.00
294 More than 3 years	0.00	0.00
295 Sub Total (II)	0.00	0.00
296	0.00	0.00
380 Previous year figures have been regrouped/rearranged wherever necessary.	0.00	0.00