BEFORE THE HON'BLE CENTRAL ELECTRICITY REGULATORY COMMISSION

NEW DELHI

PETITION NO……

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-9 of Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2024 for approval of tariff of **Rihand Super Thermal Power Station, Stage-I (1000 MW) for the period from 01.04.2024 to 31.03.2029**.

INDEX

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PETITION NO……

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-9 of Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2024 for approval of tariff of **Rihand Super Thermal Power Station, Stage-I (1000 MW) for the period from 01.04.2024 to 31.03.2029**.

AND

IN THE MATTER OF

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 Vika Nigam Limited (RUVNL)
(on behalf of DISCOMs of Rajasthan),
Vidyut Bhawan, Janpath,
Jaipur 302 005.

3. Tata Power Delhi Distribution Ltd.
Grid Substation, Hudson Road
Kingsway Camp
Delhi-110009.

4. BSES Rajdhani Power Ltd.,
2nd floor, B-Block
BSES Bhawan, Nehru Place
New Delhi-110019.

5 BSES Yamuna Power Ltd.,
Shakti Kiran Building
Karkardooma
Delhi-110092

6 Haryana Power Purchase Centre (HPPC)
Shakti Bhawan, Sector – VI,
Panchkula
Haryana – 134 109

7 Punjab State Power Corporation Ltd. (PSPCL)
The Mall
Patiala – 147 001

8 Himachal Pradesh State Electricity Board Ltd. (HPSEB)
Kumar Housing Complex Building-II
Vidyut Bhawan
Shimla – 171 004

9 Power Development Department (J&K)
Govt. of J&K, Secretariat
Srinagar

10 Electricity Department (Chandigarh)
Union Territory of Chandigarh
Addl. Office Building
Sector-9 D, Chandigarh

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

The Petitioner humbly states that:

1) The Petitioner herein NTPC Ltd. (hereinafter referred to as '**Petitioner**' or **'NTPC')**, is a company incorporated under provisions of the Company Act, 1956 and a Government Company as defined under Section 2(45) of the Companies Act, 2013. Further, NTPC is a 'Generating Company' as defined under Section 2(28) of the Electricity Act, 2003.

2) In terms of Section 79(1)(a) of Electricity Act, 2003, the Hon'ble Commission has been vested with the functions to regulate the tariff of NTPC, being a Generating Company owned and controlled by the Central Government. The regulation of the tariff of NTPC is as provided under Section 79(1)(a) read with Section 61, 62 and 64 of the Electricity Act, 2003 and the Regulations notified by the Hon'ble Commission in exercise of powers under Section 178 read with Section 61 of the Electricity Act, 2003.

3) The Petitioner is having power stations/ projects at different regions and places in the country. Rihand Super Thermal Power Station, Stage-I (1000 MW) (hereinafter referred to as Rihand St-I) is one such station located in the State of Uttar Pradesh. The power generated from Rihand St-I is being supplied to the respondents herein above.

4) The Hon'ble Commission has notified the Central Electricity Regulatory Commission (Terms & Conditions of Tariff) Regulations, 2024 (hereinafter 'Tariff Regulations 2024') which came into force from 01.04.2024, specifying the

terms & conditions and methodology of tariff determination for the period 01.04.2024 to 31.03.2029.

5) Regulation 9(2) of Tariff Regulations 2024 provides as follows:

"(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 30.11.2024 , based on admitted capital cost including additional capital expenditure already admitted and incurred up to 31.3.2024 (either based on actual or projected additional capital expenditure) and estimated additional capital expenditure for the respective years of the tariff period 2024-29 along with the true up petition for the period 2019-24 in accordance with the CERC (Terms and Conditions of Tariff) Regulations, 2019."

In terms of above, the Petitioner is filing the present petition for determination of tariff for Rihand St-I for the period from 01.04.2024 to 31.03.2029 as per the Tariff Regulations 2024.

6) The tariff of the Rihand St-I for the tariff period 1.4.2019 to 31.3.2024 was determined by the Hon'ble Commission vide its order dated 15.09.2023 in Petition No.433/GT/2020 in accordance with the CERC (Terms & Conditions of Tariff) Regulations 2019. The petitioner vide affidavit dated 16.11.2024 had filed a separate true up petition for the period 01.04.2019 to 31.03.2024 for revision of tariff in line with the applicable provisions of Tariff Regulations 2019.

7) It is submitted that Hon'ble Commission vide order dated 15.09.2023 in Petition no 433/GT/2020 has allowed a capital cost of Rs 2,51,698.87 Lakh as on 31.03.2024 based on the admitted projected capital expenditure for the 2019-24 period. However, the actual closing capital cost as on 31.03.2024 has been worked out in the foresaid true-up petition as Rs. 2,44,965.98 Lakh based on the actual expenditure after truing up exercise for the period 2019-24. Accordingly, the Petitioner has adjusted an amount of Rs. (-)6,732.89 Lakh from the admitted capital cost as on 31.03.2024 and accordingly the opening capital cost as on 01.04.2024 has been considered as Rs 2,44,965.98 Lakh in the instant petition. The Hon'ble Commission may be pleased to accordingly admit

this adjustment in the admitted capital cost as on 31.3.2024 and determine the tariff in the present petition for the period 2024-29.

8) The capital cost claimed in the instant petition is based on the opening capital cost as on 01.04.2024 considered as above and projected estimated capital expenditures claimed for the period 2024-29 under Regulation 19 and Regulation 24, 25 and 26 of the Tariff Regulations, 2024.

9) The Petitioner further respectfully submits that as per Regulation 36(1)(6) of the Tariff Regulations 2024, the water charges, security expenses, ash transportation expenses and capital spares consumed for thermal generating stations are to be allowed separately. The details in respect of water charges such as type of cooling water system, water consumption, rate of water charges as applicable for 2023-24 have been furnished below. In accordance with provision of the Regulations, the petitioner shall be furnishing the details of actual for the relevant year at the time of truing up and the same shall be subject to retrospective adjustment.

Description	**Remarks**
Type of Plant	Coal based station
Type of cooling water system	Once Through Cooling
Rate of Water charges	325.10
Total Water Charges	Rs. 477.83 lacs

10) Similarly, the Petitioner is claiming the security & ash transportation expenses based on the estimated expenses for the period 2024-29, the same shall be subject to retrospective adjustment based on actuals at the time of truing up. In respect of capital spares consumption, it is submitted that the same shall be claimed at the time of true-up in terms of the proviso to the Regulation 36(1)(6) based on actual consumption of spares during the period 2024-29.

11) However, it is submitted that the expenditure towards the ash transportation charges is recurring in nature and the Petitioner has been incurring ash transportation expenditure in its stations in the current tariff period also. In case the same is permitted to be recovered after the issuance of the tariff order for the period 2024-29, there will be additional liability on the beneficiary on account of the interest payment for the period till the time the tariff petitions for the period 2024-29 is decided. To avoid the interest payment liability of the beneficiaries, it is prayed that the petitioner may be allowed to recover/ pass on the ash transportation charges on a monthly basis subject to true-up at the end of the 2024-29 period.

12) The petitioner humbly submits that petition no. 227/MP/2024 has been filed by the petitioner concerning Ash Utilization Expenditure for its stations which is under active consideration of this Hon'ble Commission and the outcome of the said petition will be applicable to the instant petition also.

13) The Petitioner further respectfully submits that the wage/ salary revision of the employees of the Petitioner will be due with effect from 1.1.2027. As per Regulation 36(1)(8) of the Tariff Regulations 2024, the impact on account of implementation of wage/ pay revision shall be allowed at the time of truing up of tariff. The Petitioner therefore craves liberty to approach the Hon'ble Commission for allowing the impact on account of implementation of wage/ pay revision of the employees of the Petitioner with effect from 1.1.2027, based on the actual payments whenever paid by it.

14) The present petition is filed on the basis of norms specified in the Tariff Regulations 2024. It is submitted that the petitioner is in the process of installing the Emission Control Systems (ECS) in compliance of the Revised Emission Standards as notified by MOEF vide notification dated 07.12.2015 as amended. Completion of these schemes in compliance of revised emission norms will affect the Station APC, Heat Rate, O&M expenses, water consumption, etc. In addition, the availability of the unit/ station would be also affected due to shutdown of the units for installation of ECS. The petitioner would be filing the details of the same in a separate petition in terms of the Regulation 29 of CERC (Terms & Conditions of Tariff) Regulations 2024.

15) The petitioner has accordingly calculated the tariff for 2024-29 period based on the above and the same is enclosed as **Appendix-I** to this petition.

16) It is further submitted that in terms of Regulation 60 (5) of the Tariff Regulations 2024, the Petitioner is required to furnish details qua providing the details of Landed Price & Gross Calorific Value ("GCV") of coal in Form 15. It is further submitted that the Petitioner in terms of Regulation 40 of the Tariff Regulations 2019 was required to furnish the details for Landed Price & GCV of coal also as per Form 15 of the Tariff Regulations, 2019.

17) However, in so far as the present Petition is concerned, the Petitioner has prepared & submitted the data of coal as per Form 15 of the Tariff Regulations, 2019. The same is because of the following reasons:-

a) This Hon'ble Commission had notified the Tariff Regulations, 2019 on 07.03.2019 and the same was in effect till 31.03.2024.

b) The Petitioner being a diligent utility has been seamlessly providing the said data of coal in terms of the prescribed format (i.e. Form 15 of Annexure-I (Part I)) of the Tariff Regulations, 2019 to this Hon'ble Commission for computation of Interest on Working Capital.

c) Thereafter, this Hon'ble Commission on 15.03.2024 notified the Tariff Regulations, 2024, wherein the format of Form 15 was changed/ amended by this Hon'ble Commission and a new format was placed in the Tariff Regulations 2024 in the month of June'2024.

d) By virtue of the said change, the Petitioner has been obligated to furnish the data of coal for its existing plants month wise for the preceding 12 months i.e. for FY 2023-24 for computation of Interest on Working Capital.

18) It is humbly submitted that by virtue of the Tariff Regulations, 2024, this Hon'ble Commission has added a new format/ revised the format of Form-15 which has not prescribed in the past Tariff Regulations i.e. of 2019. Hence, it is only now (in the Tariff Regulations 2024) that the Petitioner has been obligated to furnish the data of coal as per the new format of Form-15.

19) It is respectfully submitted that since the format for Form 15 has been changed in Tariff Regulations, 2024 and was notified in the month of June'2024, the Petitioner could not have been aware about the said changes earlier, hence the Petitioner did not maintain the data required in new format of Form 15 of Tariff Regulations, 2024.

20) Therefore, this Hon'ble Commission may kindly exempt the Petitioner from furnishing the data of coal in terms of new format of Form 15 of the Tariff Regulations, 2024 & may be allowed to furnish the details of coal for FY 2023-24 in terms of the prescribed format of Form-15 of the Tariff Regulations, 2019.

21) In light of the above submissions, it may kindly be noted that no prejudice shall be caused to any party if the Petitioner is allowed for providing the details of Landed Price & GCV of coal to this Hon'ble Commission in terms of Form 15 of the Tariff Regulations, 2019 as the value of Landed Price & GCV of coal will remains unaffected.

22) The Petitioner humbly submits that the pay/wage revision for the employees of the Petitioner will be due wef 01.01.2027. Further, the wage/pay revision of CISF and Kendriya Vidyalaya employees will also be due for revision during the tariff period 2024-29. Regulation-36(1)(8) of CERC (Terms & Conditions of Tariff) Regulations-2024 provides as below:

"In the case of a generating company owned by the Central or State Government, the impact on account of implementation of wage or pay revision shall be allowed at the time of truing up of tariff."

In accordance with the above said regulation, the Petitioner shall approach the Hon'ble Commission for allowing the impact of Pay/wage revision of employees of the Petitioner i.e. NTPC Limited, CISF and Kendriya Vidyalaya (wherever applicable) as additional O&M at the time of truing-up of tariff for the control period 2024-29. Hon'ble Commission may be pleased to consider the impact of wage/pay revision as an additional impact on O&M and allow the same as additional O&M over and above the normative O&M.

23) It is submitted the Petitioner has served the copy of the Petition on to the Respondents mentioned herein above and has posted the Petition on the company website i.e. www.ntpc.co.in.

24) In accordance with the 'Conduct of Business Regulations 2023' of the Hon'ble Commission, the Petitioner shall, within 7 days after filing the tariff petition, publish a notice about such filing in at least two daily leading digital newspapers one in English language and another in any of the Indian languages, having wide circulation in each of the States and Union Territories where the beneficiaries are situated, as per Form 14 appended to these regulations. Subsequently, the Petitioner shall submit the proof of publications as soft copies of the publications under an affidavit through the e-filing portal of the Hon'ble Commission within one week from the date of publication. Further, the Petitioner shall also submit the detail of expenses incurred for publication of the notice alongwith the prayer for recovery of Publication Expenses as per Regulation-94 of CERC Tariff Regulations 2024.

25) The filing fee for the instant Petition has been paid for FY 2024-25 vide Payment Reference No. 37c568eba62158b7b321 on 24.04.2024. as per Central Electricity Regulatory Commission (Payment of Fees) Regulations, 2012, as amended from time to time. For subsequent years, it shall be paid as per the provisions of CERC (Payment of Fee) Regulations, 2012. Further, the proof of payment of fees is being submitted in Form I specified under Regulation 12 of the Central Electricity Regulatory Commission (Payment of Fees) Regulations, 2012, as amended from time to time. Hon'ble Commission may be pleased to take the above into consideration and allow the recovery of filing fee for the instant station as per Regulation-94 of CERC Tariff Regulations 2024.

26) It is submitted that the petitioner is filing this tariff petition subject to the outcome of its various appeals/ petitions pending before different courts. Besides, the petitions filed by NTPC for determination of capital base as on 31.3.2024 through true-up exercise are pending before the Hon'ble Commission and would take some time. The Petitioner, therefore, reserves its right to amend the tariff petition as per the outcome in such appeals/ petitions, if required.

Prayers

In the light of the above submissions, the Petitioner, therefore, prays that the Hon'ble Commission may be pleased to:

i) Approve tariff of Rihand Super Thermal Power Station, Stage-I (1000 MW) for the tariff period 01.04.2024 to 31.03.2029.

ii) Allow the recovery of filing fees as & when paid to the Hon'ble Commission and publication expenses from the beneficiaries.

iii) Allow reimbursement of Ash Utilization Expenditure directly from the beneficiaries on monthly basis, subject to true up.

iv) Allow the recovery of pay/wage revision as additional O&M over and above the normative O&M.

v) Pass any other order as it may deem fit in the circumstances mentioned above.

Petitioner

Noida (U.P.)
23.11.2024

BEFORE THE CENTRAL ELECTRICITY REGULATORY COMMISSION
NEW DELHI

PETITION NO.....

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-9 of Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2024 for approval of tariff of **Rihand STPS Stage-I (1000 MW)** for the period from 01.04.2024 to 31.03.2029.

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

NOTARY YOGENDRA SINGH ARE-II NOIDA G.B. NAGAR REGN. NO. 9677/08 NOTARIAL NOTARIAL GOVT. OF INDIA

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

NOTARY YOGENDRA SINGH AREA NOIDA G.B. NAGAR REGN. NO. 9677/08 GOVT. OF INDIA

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

Signature Not Verified
Digitally signed by PARIMAL PIYUSH
Date: 2024.11.25 14:45:51 IST
Reason: AGM(Commercial)
Location: NTPC Ltd

3. That the contents of Para No....1.... to..26.. 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 23rd 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.)

NOTARY
YOGENDRA SINGH
AREA NOIDA
G.B. NAGAR
REGN. NO. 367/08
GOVT. OF INDIA

ATTESTED
YOGENDRA SINGH
NOTARY NOIDA
G.B. NAGAR (U.P.) INDIA
23 NOV 2024

Signature Not Verified
Digitally signed by PARIMAL PIYUSH
Date: 2024.11.25 14:24:55 IST
Reason: AGM(Commercial)
Location: NTPC Ltd

TARIFF FILING FORMS (THERMAL)

FOR DETERMINATION OF TARIFF

FOR

Rihand Super Thermal Power Station Stage-I

(From 01.04.2024 to 31.03.2029)

PART-I

APPENDIX-I

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- 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	✓
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	✓
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 Seconday 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-20***	Details of Statutory Charges	***

PART-I

List of Supporting Forms / documents for 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	**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-à-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**
Provided yearwise for the period 2024-29
***** Shall be provided at the time of true up**

(Petitioner)

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.	NA
	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	
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

***** Shall be provided at the time of true up**

(Per Format)

Summary of Tariff

PART-I
FORM-1

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

Amount in Rs. Lakhs

S. No.	Particulars	Unit	Existing 2023-24	2024-25	2025-26	2026-27	2027-28	2028-29
1	2	3	4	5	6	7	8	9
1.1	Depreciation	Rs Lakh	299.02	3,945.61	6,842.10	5,921.10	324.00	270.00
1.2	Interest on Loan	Rs Lakh	247.24	135.60	85.41	85.04	3.55	3.52
1.3	Return on Equity	Rs Lakh	13,776.44	13,802.85	14,090.78	14,381.35	14,400.90	14,417.81
1.4	Interest on Working Capital	Rs Lakh	4,931.13	5,190.40	5,319.65	5,392.24	5,387.61	5,476.37
1.5	O&M Expenses	Rs Lakh	40,609.80	39,009.66	40,691.18	42,360.59	44,031.86	45,800.95
1.6	Special Allowance (If applicable)	Rs Lakh	9500.00	10,750.00	10,750.00	10,750.00	10,750.00	10,750.00
	Total	Rs Lakh	**69,363.63**	**72,834.13**	**77,779.11**	**78,890.32**	**74,897.92**	**76,718.64**
2.1	Landed Fuel Cost of coal as per FSA approved by beneficiaries	Rs/Ton	2,409.13	2302.32				
	(%) of Fuel Quantity	(%)	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	NA					
	(%) of Fuel Quantity	(%)	NA					
2.4	Landed Fuel Cost Imported Coal other than FSA.	Rs/Ton	NA					
	(%) of Fuel Quantity	(%)	NA					
2.5	Secondary fuel oil cost	Rs/Unit	0.04	0.05	0.05	0.05	0.05	0.05
	Energy Charge Rate ex-bus 2A, 2B, 2C, 2D	Rs/Unit	1.57	1.59	1.59	1.59	1.59	1.59

Signature Not Verified

Digitally signed by PARIMAL PIYUSH
Date: 2024.11.25 14:24:55 IST
Reason: AGM(Commercial)
Location: NTPC Ltd

(Petitioner)

PART-I
FORM-1(I)

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

Amount in Rs. Lakhs

Statement showing claimed capital cost – (A+B)

S. No.	Particulars	2024-25	2025-26	2026-27	2027-28	2028-29
1	2	3	4	5	6	7
1	Opening Capital Cost	2,44,965.98	2,44,965.98	2,58,003.98	2,58,123.98	2,58,723.98
2	Add: Addition during the year	-	13,038.00	120.00	600.00	-
3	Less: De-capitalisation during the year	-	-	-	-	-
4	Less: Reversal during the year	-	-	-	-	-
5	Add: Discharges during the year	-	-	-	-	-
6	Closing Capital Cost	2,44,965.98	2,58,003.98	2,58,123.98	2,58,723.98	2,58,723.98
7	**Average Capital Cost**	**2,44,965.98**	**2,51,484.98**	**2,58,063.98**	**2,58,423.98**	**2,58,723.98**

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

S. No.	Particulars	2024-25	2025-26	2026-27	2027-28	2028-29
1	2	3	4	5	6	7
1	Opening Capital Cost	2,44,965.98	2,44,965.98	2,44,965.98	2,44,965.98	2,45,565.98
2	Add: Addition during the year	-	-	-	600.00	-
3	Less: De-capitalisation during the year	-	-	-	-	-
4	Less: Reversal during the year	-	-	-	-	-
5	Add: Discharges during the year	-	-	-	-	-
6	Closing Capital Cost	2,44,965.98	2,44,965.98	2,44,965.98	2,45,565.98	2,45,565.98
7	**Average Capital Cost**	**2,44,965.98**	**2,44,965.98**	**2,44,965.98**	**2,45,265.98**	**2,45,565.98**

Statement showing claimed capital cost eligible for RoE linked to SBI MCLR (B)

S. No.	Particulars	2024-25	2025-26	2026-27	2027-28	2028-29
1	2	3	4	5	6	7
1	Opening Capital Cost	-	-	13,038.00	13,158.00	13,158.00
2	Add: Addition during the year	-	13,038.00	120.00	-	-
3	Less: De-capitalisation during the year	-	-	-	-	-
4	Less: Reversal during the year	-	-	-	-	-
5	Add: Discharges during the year	-	-	-	-	-
6	Closing Capital Cost	-	13,038.00	13,158.00	13,158.00	13,158.00
7	**Average Capital Cost**	**-**	**6,519.00**	**13,098.00**	**13,158.00**	**13,158.00**

(Petitioner)

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-I**				
						Amount in Rs. Lakhs
S. No.	**Particulars**	**2024-25**	**2025-26**	**2026-27**	**2027-28**	**2028-29**
1	**2**	**3**	**4**	**5**	**6**	**7**
	Return on Equity eligible for RoE at normal rate					
1	Gross Opening Equity (Normal)	1,20,277.37	1,20,277.37	1,20,277.37	1,20,277.37	1,20,457.37
2	Less: Adjustment in Opening Equity	46,787.57	46,787.57	46,787.57	46,787.57	46,787.57
3	Adjustment during the year	-	-	-	-	-
4	Net Opening Equity (Normal)	73,489.80	73,489.80	73,489.80	73,489.80	73,669.80
5	Add: Increase in equity due to addition during the year	0.00	0.00	0.00	180.00	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)	73,489.80	73,489.80	73,489.80	73,669.80	73,669.80
11	Average Equity (Normal)	73,489.80	73,489.80	73,489.80	73,579.80	73,669.80
12	Rate of ROE (%)	18.782%	18.782%	18.782%	18.782%	18.782%
13	Total ROE	**13,802.85**	**13,802.85**	**13,802.85**	**13,819.76**	**13,836.66**

(Petitioner)

Statement showing Return on Equity linked to SBI MCLR+350 basis points:						PART-I FORM-1(IIB)
Name of the Petitioner:		**NTPC Limited**				
Name of the Generating Station:		**Rihand Super Thermal Power Station Stage-I**				
						Amount in Rs. Lakhs
S. No.	**Particulars**	**2024-25**	**2025-26**	**2026-27**	**2027-28**	**2028-29**
1	**2**	**3**	**4**	**5**	**6**	**7**
	Return on Equity eligible for RoE at rate linked to SBI MCLR+350 basis points:					
1	Gross Opening Equity (Normal)	0.00	0.00	3911.40	3947.40	3947.40
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	3911.40	3947.40	3947.40
5	Add: Increase in equity due to addition during the year	0.00	3911.40	36.00	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	3911.40	3947.40	3947.40	3947.40
11	Average Equity (Normal)	0.00	1955.70	3929.40	3947.40	3947.40
12	Rate of ROE (Pre-Tax) (%)	12.15%	12.15%	12.15%	12.15%	12.15%
13	Rate of ROE (Post-Tax) (%)	14.72%	14.72%	14.72%	14.72%	14.72%
14	Total ROE	**0.00**	**287.92**	**578.50**	**581.15**	**581.15**

(Petitioner)

		PART-I
		FORM-2
Name of the Company:	**NTPC Limited**	
Name of the Power Station:	**Rihand Super Thermal Power Station Stage-I**	
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)	01.01.1990	01.01.1991
Pit Head or Non Pit Head or Integrated Mine	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 (^{o}C) [1]		
Reheat Steam Pressure at Turbine inlet (kg/Cm$^{2)\,1}$		
Reheat Steam Temperature at Turbine inlet (^{o}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-m3/hr		
Design Cooling Water Temperature (^{0}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/Cm2)		
Steam Temperature at super heater outlet under BMCR condition (0C)		
Steam Temperature at Reheater outlet at BMCR condition (^{0}C)		
Design / Guaranteed Boiler Efficiency (%)		
Design Fuel with and without Blending of domestic/imported coal		
Type of Cooling Tower	Not Applicable	
Type of cooling system[5]	Once Through Cooling	
Type of Boiler Feed Pump[6]	Electric Motor Driven-3 Nos per unit	
Type of Boiler based on Burner arrangement	Tangential Fired Boiler	
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		
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.FGD under implementation	

1: At Turbine MCR condition.

2: with 0% (Nil) make up and design Cooling water temperature

3: at TMCR output based on gross generation, 0% (Nil) makeup and design Cooling water temperature.

4: With Performance coal based on Higher Heating Value (HHV) of fuel and at BMCR) output

5: Closed circuit cooling, once through cooling, sea cooling, natural draft cooling, induced draft cooling etc.

6: Motor driven, Steam turbine driven etc.

7: Coal or natural gas or Naptha or lignite etc.

8: Any site specific feature such as Merry-Go-Round, Vicinity to sea, Intake /makeup water systems etc. scrubbers etc. Specify all such features

9: Any Special Technological feature like Advanced class FA technology in Gas Turbines, etc.

10: Environmental Regulation related features like FGD, ESP etc.,

(Petitioner)

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-I**						
							(Year Ending March)
Particulars	**Unit**	**Existing 2023-24**	**2024-25**	**2025-26**	**2026-27**	**2027-28**	**2028-29**
1	**2**	**3**	**4**	**5**	**6**	**7**	**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 Rate Linked to SBI MCLR	%	7.57%	12.15%	12.15%	12.15%	12.15%	12.15%
Effective Tax Rate	%	17.47%	17.47%	17.47%	17.47%	17.47%	17.47%
Target Availability	%	85.00%	83.00%	83.00%	83.00%	83.00%	83.00%
Peak Hours	%	85.00%	83.00%	83.00%	83.00%	83.00%	83.00%
Off-Peak Hours	%	85.00%	83.00%	83.00%	83.00%	83.00%	83.00%
ß- Average Monthly Frequency Response Performance##	0-1						
Auxiliary Energy Consumption	%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%
Auxiliary Energy Consumption (FGD)*		FGD UNDER IMPLEMENTATION					
Gross Station Heat Rate	kCal/kWh	2350.00	2335.00	2335.00	2335.00	2335.00	2335.00
Specific Fuel Oil Consumption	ml/kWh	0.50	0.50	0.50	0.50	0.50	0.50
Cost of Coal/Lignite for WC	in Days	40	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	25.84	27.17	28.60	30.10	31.68	33.34
Maintenance Spares for WC	% of O&M	20.00%	20.00%	20.00%	20.00%	20.00%	20.00%
Receivables for WC	in Days	45.00	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	%	12.00%	11.90%	11.90%	11.90%	11.90%	11.90%
Blending ratio of domestic coal/imported coal	%	NA	0.00%	0.00%	0.00%	0.00%	0.00%
Norms for consumption of reagent							
Specific Limestone consumption for Wet Limestone FGD		FGD UNDER IMPLEMENTATION					
Specific Limestone consumption for Lime Spray Dryer or Semi-dry FGD							
Specific consumption of sodium bicarbonate							
Specific Limestone consumption for CFBC based generating station							
specific urea consumption of the SNCR							
Specific ammonia consumption of the SCR							
Transit and Handling Losses of coal or lignite, as applicable							

Shall be provided at the time of truing-up.

*** Extra row added.**

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

(Petitioner)

Part-I
FORM-3A
ADDITIONAL FORM

Calculation of O&M Expenses

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

Amount in Rs. Lakhs

S.No.	Particulars	2024-25	2025-26	2026-27	2027-28	2028-29
1	**2**	**3**	**4**	**5**	**6**	**7**
1	**O&M expenses under Reg.35(1)**					
1a	Normative	27,170.00	28,600.00	30,100.00	31,680.00	33,340.00
2	**O&M expenses under Reg.35(6)**					
2a	Water Charges	512.86	512.86	512.86	512.86	525.51
2b	Security expenses	1548.70	1630.49	1716.87	1808.14	1904.58
2c	Capital Spares	SHALL BE PROVIDED AT THE TIME OF TRUE-UP				
3	O&M expenses-Ash Transportation	9778.10	9947.83	10030.86	10030.86	10030.86
	Total O&M Expenses	**39009.66**	**40691.18**	**42360.59**	**44031.86**	**45800.95**

(Petitioner)

PART-I
FORM- 9A
ADDITIONAL FORM

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-I**
COD	**01-01-1991**
For Financial Year	**2024-29 (Summary)**

Amount in Rs Lakh

Sl. No.	Head of Work /Equipment	ACE Claimed (Projected)					Justification	Admitted Cost by the Commission, if any
		2024-25	2025-26	2026-27	2027-28	2028-29		
1	2	3	4	5	6	7	8	9
A.	**Works eligble for RoE at Normal Rate**							
1	Cyber security Implementation for DCS				600.00		**Pl. refer Form-9 of respective FYs.**	
	Total additional capitalization claimed with RoE at Normal Rate (A)	**-**	**-**	**-**	**600.00**	**-**		
B.	**Works eligble for Return on Equity linked to SBI MCLR:**							
1	Dry Ash Evacuation System (DAES)		13,038.00		-	-	**Pl. refer Form-9 of respective FYs.**	
2	Online mercury Analyzer for Flue gas			120.00				
	Total additional capitalization claimed with RoE at Wtd. Average Rate of Interest (B)	**-**	**13,038.000**	**120.000**	**-**	**-**		
Total Add. Cap. Claimed (A+B)		**-**	**13,038.000**	**120.000**	**600.000**	**-**		

(Petitioner)

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Date: 2024.11.25 14:24:55 IST
Reason: AGM(Commercial)
Location: NTPC Ltd

PART-I
FORM- 9

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-I
COD	01-01-1991
For Financial Year	2024-25

Amount in Rs Lakh

Sl. No.	Head of Work /Equipment	ACE Claimed (Projected)				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
A.	Works eligble for RoE at Normal Rate							
	Total additional capitalization claimed with RoE at Normal Rate (A)			-				
B.	Works eligble for Return on Equity linked to SBI MCLR:							
	Total (B)	-	-	-	-			
Total Add. Cap. Claimed (A+B)				-				

(Petitioner)

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Date: 2024.11.25 14:24:55 IST
Reason: AGM(Commercial)
Location: NTPC Ltd

PART-I
FORM- 9

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-I
COD	01-01-1991
For Financial Year	2025-26

Amount in Rs Lakh

Sl. No.	Head of Work /Equipment	ACE Claimed (Projected)				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
A.	**Works eligble for RoE at Normal Rate**							
	Total additional capitalization claimed with RoE at Normal Rate (A)			-				
B.	**Works eligble for Return on Equity linked to SBI MCLR:**							
1	Dry Ash Evacuation System (DAES)	13,038.00		13,038.00		26(1)(b)	It is submitted that 100% Ash utilization has been made mandatory by MOEF &CC vide its notification dtd. 25.01.2016 and subsequent NGT Order dtd 20.11.2018.(Attached as **Annexure-A/1**) For complaince of MOEF Gazette Notification and NGT order, and to avoid imposition of penality for "damages for environment restoration" as prescribed in the said Order, NTPC is incuring this expenditure for achieving 100% Ash utilisation target in Rihand St I. The said work was allowed by Hon'ble Commission vide para 13 of order dtd. 15.09.2023 in petition no. 433/GT/2020 for 2019-24 period under change in law. The work is expected to be capitalized in 20124-29 control period. Further MoEF&CC issued notification dtd. 31.12.2021 which also mandates the 100% utilization of ash progressively within a timeline of 3-5 years. (notification dtd 31.12.2021 attached as **Annexure-A/2**). In view of this, Hon'ble Commission may be pleased to allow the same under Reg. 26(1)(b) of Tariff Regulations 2019.	
	Total (B)	-	-	**13,038.00**	-			
Total Add. Cap. Claimed (A+B)				**13,038.00**				

(Petitioner)

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Date: 2024.11.25 14:24:55 IST
Reason: AGM(Commercial)
Location: NTPC Ltd

PART-I
FORM- 9

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-I
COD	01-01-1991
For Financial Year	2026-27

Amount in Rs Lakh

Sl. No.	Head of Work /Equipment	ACE Claimed (Projected)				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
A.	**Works eligble for RoE at Normal Rate**							
	Total additional capitalization claimed with RoE at Normal Rate (A)			-				
B.	**Works eligble for Return on Equity linked to SBI MCLR:**							
1	Online mercury Analyzer for Flue gas	120.00		120.00		26(1)(b)	As per Guideilines for Continuous Emission Monitoring Systems issued by MoEF, the CEMS must have the capability of online data monitoring. The present capitalization has been done to enable measurement of mercury in Stack as per MoEF guidelines. (Relavant excerpts of MoEF guidelines attached as **Annexure-B/1**). Hon'ble Commission may be pleased to allow the same.	
	Total (B)	-	-	120.00	-			
Total Add. Cap. Claimed (A+B)				120.00				

(Petitioner)

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Date: 2024.11.25 14:24:55 IST
Reason: AGM(Commercial)
Location: NTPC Ltd

PART-I
FORM- 9

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-I**
COD	**01-01-1991**
For Financial Year	**2027-28**

Amount in Rs Lakh

Sl. No.	Head of Work /Equipment	ACE Claimed (Projected)				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
A.	**Works eligble for RoE at Normal Rate**							
1	Cyber security Implementation for DCS	600.00		600.00		25(1)(b) and 26(1)(b)	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-C/1**). The CEA guidelines, 2021 require for compliance of following salient points wrt Cyber Security in Power Sector: i) Phasing out of legacy systems ii) Ensuring security hardening with additional controls in consultation with the OEM iii) Maintaining system logs at least for 6 months duration. Further, Ministry of Electronics and Information Technology (MeitY), Govt of India vide its order No- No. 20(3)/2022-CERT-In GoI dated 28.04.2022 issued Directions under sub-section (6) of section 70B of the Information Technology Act, 2000 (Attached as **Annexure-C/2**) which inter alia provides: "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" In view of above Cyber Security suite is to be implemented. It is humbly submitted that Hon'ble Commission may be pleased to allow same under Regulations 25(1)(b) & 26(1)(b) of Tariff Regulations, 2019.	
	Total additional capitalization claimed with RoE at Normal Rate (A)			**600.00**				
B.	**Works eligble for Return on Equity linked to SBI MCLR:**							
	Total (B)			**-**				
Total Add. Cap. Claimed (A+B)				**600.00**				

(Petitioner)

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Date: 2024.11.25 14:24:55 IST
Reason: AGM(Commercial)
Location: NTPC Ltd

PART-I
FORM- 9

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-I
COD	01-01-1991
For Financial Year	2028-29

Amount in Rs Lakh

Sl. No.	Head of Work /Equipment	ACE Claimed (Projected)				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
A.	Works eligble for RoE at Normal Rate							
	Total additional capitalization claimed with RoE at Normal Rate (A)			-				
B.	Works eligble for Return on Equity linked to SBI MCLR:							
	Total (B)	-	-	-	-			
Total Add. Cap. Claimed (A+B)				-				

(Petitioner)

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Date: 2024.11.25 14:24:55 IST
Reason: AGM(Commercial)
Location: NTPC Ltd

Statement of Depreciation

PART-I
FORM- 12

Name of the Company : NTPC Limited

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

(Amount in Rs Lakh)

S. No.	Particulars	Existing 2023-24	2024-25	2025-26	2026-27	2027-28	2028-29
1	2	3	4	5	6	7	8
Existing Assets							
1	Opening Capital Cost	239067.20	238600.85	238600.85	238600.85	238600.85	238600.85
2	Closing Capital Cost	238600.85	238600.85	225562.85	225442.85	225442.85	225442.85
3	Average Capital Cost	238834.03	238600.85	238600.85	238600.85	238600.85	238600.85
1a	Cost of IT Equipments & Software included in (1) above*	319.73	615.11	615.11	615.11	615.11	615.11
2a	Cost of IT Equipments & Software included in (2) above*	615.11	615.11	615.11	615.11	615.11	615.11
3a	Average Cost of IT Equipments & Software	467.42	615.11	615.11	615.11	615.11	615.11
4	Freehold land	3,113.24	3,113.24	3,113.23	3,113.23	3,113.23	3,113.23
5	Rate of depreciation						
6	Depreciable value	2,12,195.45	2,12,000.36	2,12,000.37	2,12,000.37	2,12,000.37	2,12,000.37
7.	Balance useful life at the beginning of the period	0.00	0.00	0.00	0.00	0.00	0.00
8	Remaining depreciable value	-	45.66	0.01	-	-	-
9	Depreciation (for the period)	-	45.66	0.01	-	-	-
10	Depreciation (annualised)	**-**	**45.66**	**0.01**	**-**	**-**	**-**
11	Cumulative depreciation at the end of the period	2,12,374.41	2,12,000.36	2,12,000.37	2,12,000.37	2,12,000.37	2,12,000.37
12	Less: Cumulative depreciation adjustment on account of un-discharged liabilities deducted as on 01.04.2009	0.00	0.00	0.00	0.00	0.00	0.00
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	419.71	0.00	0.00	0.00	0.00	0.00
15	Net Cumulative depreciation at the end of the period after adjustments	2,11,954.70	2,12,000.36	2,12,000.37	2,12,000.37	2,12,000.37	2,12,000.37
New Assets							
	DEPRECIATION (@5.28%)						
1'	Opening Capital Cost	4,961.29	6,365.13	6,365.13	19,403.13	19,523.13	20,123.13
2'	Closing Capital Cost	6,365.13	6,365.13	19,403.13	19,523.13	20,123.13	20,123.13
3'	Average Capital Cost	5,663.21	6,365.13	12,884.13	19,463.13	19,823.13	20,123.13
4'	Depreciable value	5,096.89	5,728.62	11,595.72	17,516.82	17,840.82	18,110.82
5'	Cumulative Dep at the begning of the period	554.66	853.68	4,753.63	11,595.72	17,516.82	17,840.82
6'	Balance Dep Value	4,542.23	4,874.94	6,842.09	5,921.10	324.00	270.00
7'	Depreciation Rate	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%
8'	Balance Operation Life (No. of. Years)	2.25	1.25	0.25	0.00	0.00	0.00
9'	Depreciation for the year (annualized)	299.02	3,899.95	6,842.09	5,921.10	324.00	270.00
10'	Cumulative Dep at the end (periodwise)	853.68	4,753.63	11,595.72	17,516.82	17,840.82	18,110.82
	Total Depreciation during the Year (10+9')	**299.02**	**3,945.61**	**6,842.10**	**5,921.10**	**324.00**	**270.00**

* Shall be revised at true-up.

Signature Not Verified

Digitally signed by PARIMAL PIYUSH
Date: 2024.11.25 14:24:55 IST
Reason: AGM(Commercial)
Location: NTPC Ltd

(Petitioner)

Part-I
Form-13

Name of the Company: **NTPC Ltd**
Name of the station: **Rihand Stage I**

Rs in Lacs

S No	Loan	2024-25	2025-26	2026-27	2027-28	2028-29
1	**Bonds-54- repayment from 25.03.2023**					
	Gross loan - Opening	2500.00	2500.00	2500.00	2500.00	2500.00
	Cumulative repayments of Loans upto	1500.00	2500.00	2500.00	2500.00	2500.00
	Net loan - Opening	1000.00	0.00	0.00	0.00	0.00
	Increase/ Decrease due to FERV	0.00	0.00	0.00	0.00	0.00
	Increase/ Decrease due to ACE/Drawl	0.00	0.00	0.00	0.00	0.00
	Total	1000.00	0.00	0.00	0.00	0.00
	Repayments of Loans during the period	1000.00	0.00	0.00	0.00	0.00
	Net loan - Closing	0.00	0.00	0.00	0.00	0.00
	Average Net Loan	500.00	0.00	0.00	0.00	0.00
	Rate of Interest on Loan	8.5200%	0.0000%	0.0000%	0.0000%	0.0000%
	Interest on Loan Annualised	42.60	0.00	0.00	0.00	0.00
2	**Bond 72 (Bullet repaymnet 25-10-2025)**					
	Gross loan - Opening	364.58	364.58	364.58	364.58	364.58
	Cumulative repayments of Loans upto	0.00	0.00	364.58	364.58	364.58
	Net loan - Opening	364.58	364.58	0.00	0.00	0.00
	Increase/ Decrease due to FERV	0.00	0.00	0.00	0.00	0.00
	Increase/ Decrease due to ACE/Drawl	0.00	0.00	0.00	0.00	0.00
	Total	364.58	364.58	0.00	0.00	0.00
	Repayments of Loans during the period	0.00	364.58	0.00	0.00	0.00
	Net loan - Closing	364.58	0.00	0.00	0.00	0.00
	Average Net Loan	364.58	182.29	0.00	0.00	0.00
	Rate of Interest on Loan	7.5750%	7.5750%	0.0000%	0.0000%	0.0000%
	Interest on Loan Annualised	27.62	13.81	0.00	0.00	0.00
3	**Bond 72 (Bullet repaymnet 25-10-2025)**					
	Gross loan - Opening	335.42	335.42	335.42	335.42	335.42
	Cumulative repayments of Loans upto	0.00	0.00	335.42	335.42	335.42
	Net loan - Opening	335.42	335.42	0.00	0.00	0.00
	Increase/ Decrease due to FERV	0.00	0.00	0.00	0.00	0.00
	Increase/ Decrease due to ACE/Drawl	0.00	0.00	0.00	0.00	0.00
	Total	335.42	335.42	0.00	0.00	0.00
	Repayments of Loans during the period	0.00	335.42	0.00	0.00	0.00
	Net loan - Closing	335.42	0.00	0.00	0.00	0.00
	Average Net Loan	335.42	167.71	0.00	0.00	0.00
	Rate of Interest on Loan	5.4800%	5.4800%	0.0000%	0.0000%	0.0000%
	Interest on Loan Annualised	18.38	9.19	0.00	0.00	0.00
4	**Bonds-73 (Bullet repaymnet 27-01-**					
	Gross loan - Opening	1200.00	1200.00	1200.00	1200.00	1200.00
	Cumulative repayments of Loans upto	0.00	0.00	0.00	0.00	0.00
	Net loan - Opening	1200.00	1200.00	1200.00	1200.00	1200.00
	Increase/ Decrease due to FERV	0.00	0.00	0.00	0.00	0.00
	Increase/ Decrease due to ACE/Drawl	0.00	0.00	0.00	0.00	0.00
	Total	1200.00	1200.00	1200.00	1200.00	1200.00
	Repayments of Loans during the period	0.00	0.00	0.00	0.00	0.00
	Net loan - Closing	1200.00	1200.00	1200.00	1200.00	1200.00
	Average Net Loan	1200.00	1200.00	1200.00	1200.00	1200.00
	Rate of Interest on Loan	6.4600%	6.4600%	6.4600%	6.4600%	6.4600%
	Interest on Loan Annualised	77.52	77.52	77.52	77.52	77.52
5	**Bonds-74 (Bullet repaymnet 21-04-2036)**					
	Gross loan - Opening	2000.00	2000.00	2000.00	2000.00	2000.00
	Cumulative repayments of Loans upto	0.00	0.00	0.00	0.00	0.00
	Net loan - Opening	2000.00	2000.00	2000.00	2000.00	2000.00
	Increase/ Decrease due to FERV	0.00	0.00	0.00	0.00	0.00
	Increase/ Decrease due to ACE/Drawl	0.00	0.00	0.00	0.00	0.00
	Total	2000.00	2000.00	2000.00	2000.00	2000.00
	Repayments of Loans during the period	0.00	0.00	0.00	0.00	0.00
	Net loan - Closing	2000.00	2000.00	2000.00	2000.00	2000.00
	Average Net Loan	2000.00	2000.00	2000.00	2000.00	2000.00
	Rate of Interest on Loan	6.9000%	6.9000%	6.9000%	6.9000%	6.9000%
	Interest on Loan Annualised	138.00	138.00	138.00	138.00	138.00
6	**Bonds-75 (Bullet repaymnet 13-09-2031)**					
	Gross loan - Opening	6275.00	6275.00	6275.00	6275.00	6275.00
	Cumulative repayments of Loans upto	0.00	0.00	0.00	0.00	0.00
	Net loan - Opening	6275.00	6275.00	6275.00	6275.00	6275.00
	Increase/ Decrease due to FERV	0.00	0.00	0.00	0.00	0.00
	Increase/ Decrease due to ACE/Drawl	0.00	0.00	0.00	0.00	0.00
	Total	6275.00	6275.00	6275.00	6275.00	6275.00
	Repayments of Loans during the period	0.00	0.00	0.00	0.00	0.00
	Net loan - Closing	6275.00	6275.00	6275.00	6275.00	6275.00
	Average Net Loan	6275.00	6275.00	6275.00	6275.00	6275.00
	Rate of Interest on Loan	6.7200%	6.7200%	6.7200%	6.7200%	6.7200%
	Interest on Loan Annualised	421.68	421.68	421.68	421.68	421.68
7	**Bonds-78 (Bullet repaymnet 25-08-2032)**					
	Gross loan - Opening	2400.00	2400.00	2400.00	2400.00	2400.00
	Cumulative repayments of Loans upto	0.00	0.00	0.00	0.00	0.00
	Net loan - Opening	2400.00	2400.00	2400.00	2400.00	2400.00
	Increase/ Decrease due to FERV	0.00	0.00	0.00	0.00	0.00
	Increase/ Decrease due to ACE/Drawl	0.00	0.00	0.00	0.00	0.00
	Total	2400.00	2400.00	2400.00	2400.00	2400.00
	Repayments of Loans during the period	0.00	0.00	0.00	0.00	0.00
	Net loan - Closing	2400.00	2400.00	2400.00	2400.00	2400.00
	Average Net Loan	2400.00	2400.00	2400.00	2400.00	2400.00
	Rate of Interest on Loan	7.4700%	7.4700%	7.4700%	7.4700%	7.4700%
	Interest on Loan Annualised	179.28	179.28	179.28	179.28	179.28
8	**HDFC Bank-IV- D4(Repayment from 17.04.2021)**					
	Gross loan - Opening	9000.00	9000.00	9000.00	9000.00	9000.00
	Cumulative repayments of Loans upto	3000.00	4000.00	5000.00	6000.00	7000.00
	Net loan - Opening	6000.00	5000.00	4000.00	3000.00	2000.00
	Increase/ Decrease due to FERV	0.00	0.00	0.00	0.00	0.00
	Increase/ Decrease due to ACE/Drawl	0.00	0.00	0.00	0.00	0.00
	Total	6000.00	5000.00	4000.00	3000.00	2000.00
	Repayments of Loans during the period	1000.00	1000.00	1000.00	1000.00	1000.00

	Net loan - Closing	5000.00	4000.00	3000.00	2000.00	1000.00
	Average Net Loan	5500.00	4500.00	3500.00	2500.00	1500.00
	Rate of Interest on Loan	7.9500%	7.9500%	7.9500%	7.9500%	7.9500%
	Interest on Loan Annualised	437.25	357.75	278.25	198.75	119.25
9	**Punjab National Bank-III- D3(Repayment fom 01.02.2022)**					
	Gross loan - Opening	5000.00	5000.00	5000.00	5000.00	5000.00
	Cumulative repayments of Loans upto	1666.67	2222.22	2777.78	3333.33	3888.89
	Net loan - Opening	3333.33	2777.78	2222.22	1666.67	1111.11
	Increase/ Decrease due to FERV	0.00	0.00	0.00	0.00	0.00
	Increase/ Decrease due to ACE/Drawl	0.00	0.00	0.00	0.00	0.00
	Total	3333.33	2777.78	2222.22	1666.67	1111.11
	Repayments of Loans during the period	555.56	555.56	555.56	555.56	555.56
	Net loan - Closing	2777.78	2222.22	1666.67	1111.11	555.56
	Average Net Loan	3055.56	2500.00	1944.44	1388.89	833.33
	Rate of Interest on Loan	7.9000%	7.9000%	7.9000%	7.9000%	7.9000%
	Interest on Loan Annualised	241.39	197.50	153.61	109.72	65.83
10	**BANK OF INDIA-IV D-9 (REPAYMENT FROM-07-12-2024)**					
	Gross loan - Opening	3500.00	3500.00	3500.00	3500.00	3500.00
	Cumulative repayments of Loans upto	0.00	291.67	583.33	875.00	1166.67
	Net loan - Opening	3500.00	3208.33	2916.67	2625.00	2333.33
	Increase/ Decrease due to FERV	0.00	0.00	0.00	0.00	0.00
	Increase/ Decrease due to ACE/Drawl	0.00	0.00	0.00	0.00	0.00
	Total	3500.00	3208.33	2916.67	2625.00	2333.33
	Repayments of Loans during the period	291.67	291.67	291.67	291.67	291.67
	Net loan - Closing	3208.33	2916.67	2625.00	2333.33	2041.67
	Average Net Loan	3354.17	3062.50	2770.83	2479.17	2187.50
	Rate of Interest on Loan	8.0000%	8.0000%	8.0000%	8.0000%	8.0000%
	Interest on Loan Annualised	268.33	245.00	221.67	198.33	175.00
11	**HDFC Bank Ltd. VII -D3**					
	Gross loan - Opening	1000.00	1000.00	1000.00	1000.00	1000.00
	Cumulative repayments of Loans upto	0.00	0.00	0.00	111.11	222.22
	Net loan - Opening	1000.00	1000.00	1000.00	888.89	777.78
	Increase/ Decrease due to FERV	0.00	0.00	0.00	0.00	0.00
	Increase/ Decrease due to ACE/Drawl	0.00	0.00	0.00	0.00	0.00
	Total	1000.00	1000.00	1000.00	888.89	777.78
	Repayments of Loans during the period	0.00	0.00	111.11	111.11	111.11
	Net loan - Closing	1000.00	1000.00	888.89	777.78	666.67
	Average Net Loan	1000.00	1000.00	944.44	833.33	722.22
	Rate of Interest on Loan	7.9500%	7.9500%	7.9500%	7.9500%	7.9500%
	Interest on Loan Annualised	79.50	79.50	75.08	66.25	57.42
12	**HDFC Bank Ltd. IX-D8**					
	Gross loan - Opening	1600.00	1600.00	1600.00	1600.00	1600.00
	Cumulative repayments of Loans upto	0.00	177.78	355.56	533.33	711.11
	Net loan - Opening	1600.00	1422.22	1244.44	1066.67	888.89
	Increase/ Decrease due to FERV	0.00	0.00	0.00	0.00	0.00
	Increase/ Decrease due to ACE/Drawl	0.00	0.00	0.00	0.00	0.00
	Total	1600.00	1422.22	1244.44	1066.67	888.89
	Repayments of Loans during the period	177.78	177.78	177.78	177.78	177.78
	Net loan - Closing	1422.22	1244.44	1066.67	888.89	711.11
	Average Net Loan	1511.11	1333.33	1155.56	977.78	800.00
	Rate of Interest on Loan	7.9500%	7.9500%	7.9500%	7.9500%	7.9500%
	Interest on Loan Annualised	120.13	106.00	91.87	77.73	63.60
13	**HDFC Bank Ltd. X-D2**					
	Gross loan - Opening	1500.00	1500.00	1500.00	1500.00	1500.00
	Cumulative repayments of Loans upto	0.00	0.00	166.67	333.33	500.00
	Net loan - Opening	1500.00	1500.00	1333.33	1166.67	1000.00
	Increase/ Decrease due to FERV	0.00	0.00	0.00	0.00	0.00
	Increase/ Decrease due to ACE/Drawl	0.00	0.00	0.00	0.00	0.00
	Total	1500.00	1500.00	1333.33	1166.67	1000.00
	Repayments of Loans during the period	0.00	166.67	166.67	166.67	166.67
	Net loan - Closing	1500.00	1333.33	1166.67	1000.00	833.33
	Average Net Loan	1500.00	1416.67	1250.00	1083.33	916.67
	Rate of Interest on Loan	7.9500%	7.9500%	7.9500%	7.9500%	7.9500%
	Interest on Loan Annualised	119.25	112.63	99.38	86.13	72.88
14	**HDFC Bank Ltd. X-D4**					
	Gross loan - Opening	2000.00	2000.00	2000.00	2000.00	2000.00
	Cumulative repayments of Loans upto	0.00	0.00	166.67	333.33	500.00
	Net loan - Opening	2000.00	2000.00	1833.33	1666.67	1500.00
	Increase/ Decrease due to FERV	0.00	0.00	0.00	0.00	0.00
	Increase/ Decrease due to ACE/Drawl	0.00	0.00	0.00	0.00	0.00
	Total	2000.00	2000.00	1833.33	1666.67	1500.00
	Repayments of Loans during the period	0.00	166.67	166.67	166.67	166.67
	Net loan - Closing	2000.00	1833.33	1666.67	1500.00	1333.33
	Average Net Loan	2000.00	1916.67	1750.00	1583.33	1416.67
	Rate of Interest on Loan	7.9500%	7.9500%	7.9500%	7.9500%	7.9500%
	Interest on Loan Annualised	159.00	152.38	139.13	125.88	112.63
	TOTAL LOAN					
	Gross loan - Opening	42831.25	42831.25	42831.25	42831.25	42831.25
	Cumulative repayments of Loans upto	10322.92	13347.92	16406.25	18875.69	21345.14
	Net loan - Opening	32508.33	29483.33	26425.00	23955.56	21486.11
	Increase/ Decrease due to FERV	0.00	0.00	0.00	0.00	0.00
	Increase/ Decrease due to ACE/Drawl	0.00	0.00	0.00	0.00	0.00
	Total	32508.33	29483.33	26425.00	23955.56	21486.11
	Repayments of Loans during the period	3025.00	3058.33	2469.44	2469.44	2469.44
	Net loan - Closing	**29,483.33**	**26,425.00**	**23,955.56**	**21,486.11**	**19,016.67**
	Average Net Loan	30995.83	27954.17	25190.28	22720.83	20251.39
	Rate of Interest on Loan	7.5169%	7.4773%	7.4452%	7.3909%	7.3233%
	Interest on Loan Annualised	2329.93	2090.23	1875.46	1679.27	1483.08

(Petitioner)

Form 8- Domestic						
Particulars	***54***	**72**	**73**	**74**	**75**	**78**
Series	**54**	**72**	**73**	**74**	**75**	**78**
Source of Loan1	BONDS	BONDS	BONDS	BONDS	BONDS	BONDS
Currency2	INR	INR	INR	INR	INR	INR
Amount of Loan sanctioned	**1030683**	4,00,000	2,50,000	3,99,600	3,00,000	2,00,000
Interest Type6	Fixed	Fixed	Fixed	Fixed	Fixed	Fixed
Fixed Interest Rate, if applicable	8.49%	5.45%	6.43%	6.87%	6.69%	7.44%
Base Rate, if Floating Interest7	N/A	N/A	N/A	N/A	N/A	N/A
Margin, if Floating Interest8	N/A	N/A	N/A	N/A	N/A	N/A
Are there any Caps/Floor9	No	No	No	No	No	No
If above is yes,specify caps/floor	N/A	N/A	N/A	N/A	N/A	N/A
Moratorium Period10	8	5	10	15 Years and 1 day	10	10
Moratorium effective from #	25-03-2015	15-10-2020	27-01-2021	20-04-2021	13-09-2021	25-08-2022
Repayment Period11	Installments Due on 25/03/2023, 25/03/2024 & 25/03/2025	Bullet Repayment	Bullet Repayment	Bullet Repayment	Bullet Repayment	Bullet Repayment
Repayment effective from	25-03-2023	15-10-2025	27-01-2031	21-04-2036	13-09-2031	25-08-2032
Repayment Frequency12	Installments Due on 25/03/2023, 25/03/2024 & 25/03/2025	Bullet Repayment	Bullet Repayment	Bullet Repayment	Bullet Repayment	Bullet Repayment
Repayment Instalment13,14	Installments 1st - 206,136.61 2nd - 412,273.22 3rd - 412,273.22	4,00,000	2,50,000	3,99,600	3,00,000	2,00,000
Base Exchange Rate16	N/A	N/A	N/A	N/A	N/A	N/A
Door to Door Maturity	10	5	10	15 Years and 1 day	10	10
Name of the Projects						
Rihand R&M	2,500	700	1200	2000	6275	2400

Signature Not Verified

Digitally signed by PARIMAL PIYUSH
Date: 2024.11.25 14:24:55 IST
Reason: AGM(Commercial)
Location: NTPC Ltd

S.NO	Bank Loan	Interest Rate	Applicable from	Applicable upto	Number of Days	Product	Weighted Average Rate of Interest
1	**Bank Of India-IV**	8.00%	01-Apr-23	31-Mar-24	366.00	29.28	
					366.00	**29.28**	**8.00%**
2	**HDFC Bank Limited-IV**	8.01%	01-Apr-23	31-May-23	61.00	4.89	
		7.95%	01-Jun-23	31-Mar-24	305.00	24.25	
					366.00	**29.13**	**7.96%**
3	**HDFC Bank Limited-VII**	8.01%	01-Apr-23	31-May-23	61.00	4.89	
		7.95%	01-Jun-23	31-Mar-24	305.00	24.25	
					366.00	**29.13**	**7.96%**
4	**HDFC Bank Limited-IX**	8.01%	01-Apr-23	31-May-23	61.00	4.89	
		7.95%	01-Jun-23	31-Mar-24	305.00	24.25	
					366.00	**29.13**	**7.96%**
5	**HDFC X**	8.01%	01-Apr-23	31-May-23	61.00	4.89	
		7.95%	01-Jun-23	31-Mar-24	305.00	24.25	
					366.00	**29.13**	**7.96%**
6	**Punjab National Bank III**	7.90%	01-Apr-23	31-Mar-24	366.00	28.91	
					366.00	**28.91**	**7.90%**

Statement Giving Details of Project Financed through a Combination of loan

Form 8

	TRANCHE NO	
BP NO 5050000791	**T00001**	**D00003**

Unsecured Loan From HDFC Bank Ltd. VII		
Source of Loan :	**HDFC Bank Ltd. VII**	
Currency :	INR	
Amount of Loan :	25,00,00,00,000	
Total Drawn amount :	1,70,00,00,000	
Date of drawl	01.01.2020	
Interest Type :	Floating	
Fixed Interest Rate :		
Base Rate, If Floating Interest	7.65%	
Margin, If Floating Interest :	NIL	
Are there any Caps/ Floor :	Y/N	
Frequency of Intt. Payment	MONTHLY	
If Above is yes, specify Caps/ Floor :		
Moratorium Period :	6 Years	
Moratorium effective from :	01.01.2020	
Repayment Period (Inc Moratorium) :	15 Years	
Repayment Frequency :	9 Yearly Instalment	
Repayment Type :	AVG	
First Repayment Date :	11.06.2026	
Base Exchange Rate :	RUPEE	
Date of Base Exchange Rate :	N.A.	

Project Code	Project Name	Amount			
	KORBA R&M	20,00,00,000	01.01.2020	T00001	**D00003**
	RAMAGUNDAM R&M	40,00,00,000	01.01.2020	T00001	**D00003**
	VINDHYACHAL R&M	40,00,00,000	01.01.2020	T00001	**D00003**
	FARAKKA R&M	30,00,00,000	01.01.2020	T00001	**D00003**
	UNCHAHAR R&M	10,00,00,000	01.01.2020	T00001	**D00003**
	RIHAND R&M	10,00,00,000	01.01.2020	T00001	**D00003**
	TSTPP R&M	10,00,00,000	01.01.2020	T00001	**D00003**
	KAHALGAON R&M	10,00,00,000	01.01.2020	T00001	**D00003**
Total Allocated Amount		**1,70,00,00,000**			

	TRANCHE NO	
BP NO 5050000981	**T00001**	**D00008**

Unsecured Loan From HDFC Bank Ltd. IX		
Source of Loan :	**HDFC Bank Ltd. IX**	
Currency :	INR	
Amount of Loan :	50,00,00,00,000	
Total Drawn amount :	5,00,00,00,000	
Date of drawl	18.11.2020	
Interest Type :	Floating	
Fixed Interest Rate :		
Base Rate, If Floating Interest	5.95%	
Margin, If Floating Interest :	NIL	
Are there any Caps/ Floor :	Y/N	
Frequency of Intt. Payment	MONTHLY	
If Above is yes, specify Caps/ Floor :		
Moratorium Period :	3 Years	

Moratorium effective from :	18.11.2020		
Repayment Period (Inc Moratorium) :	12 Years		
Repayment Frequency :	12 Yearly Instalment		
Repayment Type :	AVG		
First Repayment Date :	30.06.2024		
Base Exchange Rate :	RUPEE		
Date of Base Exchange Rate :	N.A.		
Project Code	Project Name	Amount	
	BARH I	1,75,00,00,000.00	18.11.2020
	BARAUNI-II	25,00,00,000.00	18.11.2020
	SOLAPUR	20,00,00,000.00	18.11.2020
	TTPS R&M	1,00,00,000.00	18.11.2020
	SINGRAULI R&M	15,00,00,000.00	18.11.2020
	KORBA R&M	15,00,00,000.00	18.11.2020
	RAMAGUNDAM I & II R&M	43,50,00,000.00	18.11.2020
	VINDHYACHAL R&M	18,00,00,000.00	18.11.2020
	FARAKKA R&M	12,00,00,000.00	18.11.2020
	UNCHAHAR R&M	16,00,00,000.00	18.11.2020
	RIHAND R&M	16,00,00,000.00	18.11.2020
	FARIDABAD R&M	1,50,00,000.00	18.11.2020
	DADRI GAS R&M	3,00,00,000.00	18.11.2020
	TSTPP R&M	11,50,00,000.00	18.11.2020
	KAHALGAON R&M	16,00,00,000.00	18.11.2020
	SIMHADRI R&M	1,50,00,000.00	18.11.2020
	CHATTI BARIATU CMB	25,00,00,000.00	18.11.2020
	TALAIPALI COAL MINE	75,00,00,000.00	18.11.2020
	KIRENDARI	10,00,00,000.00	18.11.2020
Total Allocated Amount		**5,00,00,00,000**	

Form 8

TRANCHE NO

BP NO 5050001151 **T00001** **D00002**

Unsecured Loan From HDFC Bank Ltd. X		
Source of Loan :	**HDFC Bank Ltd. X**	
Currency :	INR	
Amount of Loan :	30,00,00,00,000	
Total Drawn amount :	5,00,00,00,000	
Date of drawl	24.11.2021	
Interest Type :	Floating	
Fixed Interest Rate :		
Base Rate, If Floating Interest	5.83%	
Margin, If Floating Interest :	NIL	
Are there any Caps/ Floor :	Y/N	
Frequency of Intt. Payment	MONTHLY	
If Above is yes, specify Caps/ Floor :		
Moratorium Period :	3 Years	
Moratorium effective from :	24.11.2021	
Repayment Period (Inc Moratorium) :	12 Years	
Repayment Frequency :	12 Yearly Instalment	
Repayment Type :	AVG	
First Repayment Date :	24.11.2025	
Base Exchange Rate :	RUPEE	
Date of Base Exchange Rate :	N.A.	
Project Code	Project Name	Amount

	NORTH KARANPURA	24,00,00,000.00	21.03.2022	5.83%
	RAMMAM	3,00,00,000.00	21.03.2022	5.83%
	TELANGANA	23,00,00,000.00	21.03.2022	5.83%
	LARA	50,00,00,000.00	21.03.2022	5.83%
	GADARWARA	50,00,00,000.00	21.03.2022	5.83%
	DARLIPALLI	77,00,00,000.00	21.03.2022	5.83%
	TANDA-II	65,00,00,000.00	21.03.2022	5.83%
	BARAUNI-II	20,00,00,000.00	21.03.2022	5.83%
	SINGRAULI R&M	15,00,00,000.00	21.03.2022	5.83%
	KORBA R&M	25,00,00,000.00	21.03.2022	5.83%
	RAMAGUNDAM I & II R&M	40,00,00,000.00	21.03.2022	5.83%
	VINDHYACHAL R&M	7,00,00,000.00	21.03.2022	5.83%
	FARAKKA R&M	10,00,00,000.00	21.03.2022	5.83%
	UNCHAHAR R&M	4,00,00,000.00	21.03.2022	5.83%
	RIHAND R&M	15,00,00,000.00	21.03.2022	5.83%
	KAHALGAON R&M	3,00,00,000.00	21.03.2022	5.83%
	CHATTI BARIATU CMB	5,00,00,000.00	21.03.2022	5.83%
	DULANGA COAL MINE	26,00,00,000.00	21.03.2022	5.83%
	TALAIPALI COAL MINE	26,00,00,000.00	21.03.2022	5.83%
	KIRENDARI	3,00,00,000.00	21.03.2022	5.83%
	BARH-II FGD	2,50,00,000.00	21.03.2022	5.83%
	MOUDA-II FGD	6,50,00,000.00	21.03.2022	5.83%
Total Allocated Amount		**5,00,00,00,000**		

Form 8

TRANCHE NO

BP NO 5050001151 **T00001** **D00004**

Unsecured Loan From HDFC Bank Ltd. X		
Source of Loan :	**HDFC Bank Ltd. X**	
Currency :	INR	
Amount of Loan :	30,00,00,00,000	
Total Drawn amount :	5,00,00,00,000	
Date of drawl	12.05.2022	
Interest Type :	Floating	
Fixed Interest Rate :		
Base Rate, If Floating Interest	5.83%	
Margin, If Floating Interest :	NIL	
Are there any Caps/ Floor :	Y/N	
Frequency of Intt. Payment	MONTHLY	
If Above is yes, specify Caps/ Floor :		
Moratorium Period :	3 Years	
Moratorium effective from :	24.11.2021	
Repayment Period (Inc Moratorium) :	15 Years	
Repayment Frequency :	12 Yearly Instalment	
Repayment Type :	AVG	
First Repayment Date :	24.11.2025	
Base Exchange Rate :	RUPEE	
Date of Base Exchange Rate :	N.A.	
Project Code	Project Name	Amount
	NORTH KARANPURA	33,00,00,000.00
	KAYAKULAM FLOATING	40,00,00,000.00
	AURAIYA SOLAR FS 20	5,00,00,000.00
	JETSAR SOLAR	10,00,00,000.00
	DEVIKOT SOLAR	5,00,00,000.00

	12.05.2022	5.83%
	12.05.2022	5.83%
	12.05.2022	5.83%
	12.05.2022	5.83%
	12.05.2022	5.83%

	DEVIKOT SOLAR-90MW	20,00,00,000.00	12.05.2022	5.83%
	NOKHRA SOLAR	1,00,00,00,000.00	12.05.2022	5.83%
	ETTAYAPURAM SOLAR	5,50,00,000.00	12.05.2022	5.83%
	RIHAND-SOLAR	1,00,00,000.00	12.05.2022	5.83%
	KAWAS SOLAR	5,00,00,000.00	12.05.2022	5.83%
	ANTA SOLAR	8,50,00,000.00	12.05.2022	5.83%
	SOLAPUR SOLAR	5,00,00,000.00	12.05.2022	5.83%
	NOKH SOLAR PLOT-I (245MW	33,00,00,000.00	12.05.2022	5.83%
	NOKH SOLAR PLOT-III (245M	39,00,00,000.00	12.05.2022	5.83%
	SINGRAULI-R&M	13,00,00,000.00	12.05.2022	5.83%
	KORBA-R&M	10,00,00,000.00	12.05.2022	5.83%
	RAMAGUNDAM-R&M	37,00,00,000.00	12.05.2022	5.83%
	VSTPS R&M	9,00,00,000.00	12.05.2022	5.83%
	FSTPS R&M	20,00,00,000.00	12.05.2022	5.83%
	RIHAND-R&M	20,00,00,000.00	12.05.2022	5.83%
	FARIDABAD R&M	5,00,00,000.00	12.05.2022	5.83%
	TSTPP R&M	10,00,00,000.00	12.05.2022	5.83%
	KAHALGAON(R&M)	10,00,00,000.00	12.05.2022	5.83%
	NCPS-STAGE-I-DSI	56,00,00,000.00	12.05.2022	5.83%
Total Allocated Amount		**5,00,00,00,000**		

Statement Giving Details of Project Financed through a Combination of loan

Form 8

TRANCHE NO

BP NO 50500001041 **T00001** **D00009**

Unsecured Loan From Bank Of India-IV

Source of Loan :	**Bank Of India-IV**	
Currency :	INR	
Amount of Loan :	22000000000	
Total Drawn amount :	1,94,00,00,000	
Date of Drawal :	30-03-2023	
Interest Type :	Floating	
Fixed Interest Rate :		
Base Rate, If Floating Interest	8.15%	
Margin, If Floating Interest :	NIL	
Are there any Caps/ Floor :	Y/N	
Frequency of Intt. Payment	Monthly	
If Above is yes, specify Caps/ Floor :		**D00004**
Moratorium Period :	3 Years	**D00004**
Moratorium effective from :	05.03.2021	**D00004**
Repayment Period (Inc Moratorium) :	15 Years	**D00004**
Repayment Frequency :	Yearly	**D00004**
Repayment Type :	AVG	**D00004**
First Repayment Date :	07.12.2024	**D00004**
Base Exchange Rate :	RUPEE	**D00004**
Date of Base Exchange Rate :		**D00004**
		D00004
		D00004

Project Code	**Project Name**	**Amount**	
	NCTPP R&M	50000000	30-03-2023
	DADRI GAS R&M	60000000	30-03-2023
	SIMHADRI FLOATING	50000000	30-03-2023
	RIHAND-R&M	350000000	30-03-2023
	KORBA-R&M	320000000	30-03-2023
	VSTPS R&M	400000000	30-03-2023
	FSTPS R&M	260000000	30-03-2023

	RAMAGUNDAM-R&M	450000000	30-03-2023
Total Allocated Amount		**1,94,00,00,000**	

Statement Giving Details of Project Financed through a Combination of loan

Form 8

TRANCHE NO

BP NO 5050000521 **T00001** **D00004**

Unsecured Loan From HDFC Bank Ltd.-IV		
Source of Loan :	**HDFC Bank Ltd.-IV**	
Currency :	INR	
Amount of Loan :	20,00,00,00,000	
Total Drawn amount :	12,45,00,00,000	
Date of drawl	29.06.2018	
Interest Type :	Floating	
Fixed Interest Rate :		
Base Rate, If Floating Interest	8.00%	
Margin, If Floating Interest :	NIL	
Are there any Caps/ Floor :	Y/N	
Frequency of Intt. Payment	MONTHLY	
If Above is yes, specify Caps/ Floor :		
Moratorium Period :	3 Years	
Moratorium effective from :	29.06.2018	
Repayment Period (Inc Moratorium) :	12 Years	
Repayment Frequency :	9 Yearly Instalment	
Repayment Type :	AVG	
First Repayment Date :	17.04.2021	
Base Exchange Rate :	RUPEE	
Date of Base Exchange Rate :	N.A.	

Project Code	Project Name	Amount		
	KORBA R&M	90,00,00,000	29.06.2018	T00001
	RAMAGUNDAM R&M	2,20,00,00,000	29.06.2018	T00001
	UNCHAHAR R&M	70,00,00,000	29.06.2018	T00001
	RIHAND R&M	90,00,00,000	29.06.2018	T00001
	KAWAS R&M	1,80,00,00,000	29.06.2018	T00001
	AURAIYA R&M	1,80,00,00,000	29.06.2018	T00001
	TSTPP R&M	90,00,00,000	29.06.2018	T00001
	GANDHAR R&M	1,85,00,00,000	29.06.2018	T00001
	NCTPP R&M	30,00,00,000	29.06.2018	T00001
	KAHALGAON R&M	30,00,00,000	29.06.2018	T00001
	ANTA R&M	80,00,00,000	29.06.2018	T00001
Total Allocated Amount		**12,45,00,00,000**		

Statement Giving Details of Project Financed through a Combination of loan

Form 8

TRANCHE NO

BP NO 5050000571 **T00001** **D00003**

Unsecured Loan From Punjab National Bank-III		
Source of Loan :	**Punjab National Bank-III**	
Currency :	INR	
Amount of Loan :	20,00,00,00,000	
Total Drawn amount :	5,00,00,00,000	
Date of Drawl	13.08.2018	
Interest Type :	Floating	
Fixed Interest Rate :		

Base Rate, If Floating Interest	8.05%				
Margin, If Floating Interest :	0.00%				
Are there any Caps/ Floor :	Y/N				
Frequency of Intt. Payment	MONTHLY				
If Above is yes, specify Caps/ Floor :					
Moratorium Period :	3 Years				
Moratorium effective from :	13.08.2018				
Repayment Period (Inc Moratorium) :	12 Years				
Repayment Frequency :	9 Yearly Instalment				
Repayment Type :	AVG				
First Repayment Date :	01.02.2022				
Base Exchange Rate :	RUPEE				
Date of Base Exchange Rate :	N.A.				
Project Code	Project Name	Amount			
	BARH-I	30,00,00,000.00	13.08.2018	T00001	**D00003**
	SOLAPUR	20,00,00,000.00	13.08.2018	T00001	**D00003**
	TANDA-II	20,00,00,000.00	13.08.2018	T00001	**D00003**
	TALLAIPALLI	50,00,00,000.00	13.08.2018	T00001	**D00003**
	SINGRAULI R&M	80,00,00,000.00	13.08.2018	T00001	**D00003**
	FARAKKA R&M	80,00,00,000.00	13.08.2018	T00001	**D00003**
	RIHAND R&M	50,00,00,000.00	13.08.2018	T00001	**D00003**
	DADRI GAS R&M	40,00,00,000.00	13.08.2018	T00001	**D00003**
	KORBA R&M	40,00,00,000.00	13.08.2018	T00001	**D00003**
	RAMAGUNDAM R&M	40,00,00,000.00	13.08.2018	T00001	**D00003**
	VINDHAYACHAL R&M	30,00,00,000.00	13.08.2018	T00001	**D00003**
	UNCHAHAR R&M	20,00,00,000.00	13.08.2018	T00001	**D00003**
Total Allocated Amount		**5,00,00,00,000.00**			

Details of Refinancing

Sr. No.	Bank	ROI on refinancing date	Date of refinancing	Refinanced with Bank	Refinanced Amount (Rs. In crore)	New Loan Amount (Rs. In crore)	ROI of relplaced Loan	savings	saving to be retained (Percent)	Remarks
1	Power Finance Corporation - V	7.68%	15-Oct-20	Bonds Series-72	4,000.00	4,000.00	5.45%	2.23%	1.1150%	Loan outstanding as on 14.10.2020 from PFC-V have been foreclosed by way of refinancing from Bond Series-72 at a concessional rate. One-half of the savings in the interest rate is added to the weighted average rate of loan.

Refinancing of PFC Loans 15.10.2020

BP NO.	DESCRIPTION	O/s amount	Interest rate benchmark and rate on swap date	Refinanced by Loan	Interest rate benchmark and rate on swap date
5070000011	Power Finance Corporation - V	41,66,66,66,668	3Y-AAA Bond rate +45bps	Bonds- Rs. 4000Cr , HDFC-IX-Rs. 166.66	5.45%/ Repo rate+195bps-5.95%

Station

(Rs Lakhs)

Year wise refinance of Loans

Sr. No.	Bank	ROI on refinancing date	Date of refinancing	Refinanced with Bank	ROI of relplaced Loan	Refinanced Amount	savings	saving to be retained (Percent)
3	Axis Bank II	8.30%	29-Mar-23	Bank of India-IV	8.15%	-194	0.15%	0.0750%

Table B

DADRI GAS R&M	Bank Of India-IV	(6.00)
FARAKKA R&M	Bank Of India-IV	(26.00)
KORBA R&M	Bank Of India-IV	(32.00)
NCTPP R&M	Bank Of India-IV	(5.00)
RAMAGUNDAM R&M	Bank Of India-IV	(45.00)
RIHAND R&M	Bank Of India-IV	(35.00)
SIMHADRI FLOATING	Bank Of India-IV	(5.00)
VINDHYACHAL R&M	Bank Of India-IV	(40.00)
	Total	(194.00)

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-I**					
S. No.	**Month**	**Unit**	**Apr-23**				
			Domestic (MGR)	**Domestic (Rail)**	**A-Auction**	**Imported**	**Bio Mass**
			Supplied by MGR	**Supplied by Rail**			
A)	**OPENING QUANTITY**						
1	Opening Quantity of Coal/ Lignite	(MT)	9,79,751.64				
2	Value of Stock	(Rs.)	2193952634				
B)	**QUANTITY**						
3	Quantity of Coal supplied by Coal Company	(MT)	12,40,031.14		-		
4	Adjustment (+/-) in quantity supplied made by Coal Company	(MT)	-		-		
5	Coal supplied by Coal Company (3+4)	(MT)	12,40,031.14				
6	Normative Transit & Handling Losses	(MT)	2,480.06		-		
7	Net coal / Lignite Supplied (5-6)	(MT)	12,37,551.08				
C)	**PRICE**						
8	Amount charged by the Coal Company*	(Rs.)	2,46,41,91,858.00				
9	Adjustment (+/-) in amount charged made by Coal Company	(Rs.)	8,00,13,969.00				
10	Unloading, Handling and Sampling Charges	(Rs.)	5,55,98,981.00				
11	Total amount Charged (8+9+10)	(Rs.)	2,59,98,04,808.00				
D)	**TRANSPORTATION**						
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 fuel in transporting coal through MGR system, if applicable	(Rs.)	2,69,72,340.00				
16	Total Transportation Charges (12+13+14+15)	(Rs.)	2,69,72,340.00				
17	Total amount Charged for coal supplied including Transportation (11+16)	(Rs.)	2,62,67,77,148.00				
E)	**TOTAL COST**						
18	**Landed cost of coal (2+17)/(1+7)**	**Rs./MT**	**2,174.15**				
19	Blending Ratio	%	100.00%	0.00%	0.00%	0.00%	0.00%
20	Weighted average cost of coal	Rs./MT	2174.14				
F)	**QUALITY**						
21	GCV of Domestic Coal of the opening stock as per bill of Coal Company	(kCal/Kg)	4515.00				
22	GCV of Domestic Coal supplied as per bill Coal Company	(kCal/Kg)	4450.00				
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)	**4479.00**				
26	GCV of Domestic Coal of opening stock as received at Station	(kCal/Kg)	3730.00				
27	GCV of Domestic Coal supplied as received at Station	(kCal/Kg)	3737.00				
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)**	**3734.00**				

(Petitioner)

Details of Source wise Fuel for Computation of Energy Charges **PART-I**

FORM- 15

Name of the Company :		**NTPC Limit**					
Name of the Power Station :		**Rihand Sup**					
S. No.	**Month**	**Unit**	**May-23**				
			Domestic (MGR) Supplied by MGR	**Domestic (Rail) Supplied by Rail**	**A-Auction**	**Imported**	**Bio Mass**
A)	**OPENING QUANTITY**						
1	Opening Quantity of Coal/ Lignite	(MT)	9,57,499.72				
2	Value of Stock	(Rs.)	2081740428				
B)	**QUANTITY**						
3	Quantity of Coal supplied by Coal Company	(MT)	12,25,605.54		-		
4	Adjustment (+/-) in quantity supplied made by Coal Company	(MT)	-		-		
5	Coal supplied by Coal Company (3+4)	(MT)	12,25,605.54				
6	Normative Transit & Handling Losses	(MT)	2,451.21		-		
7	Net coal / Lignite Supplied (5-6)	(MT)	12,23,154.33				
C)	**PRICE**						
8	Amount charged by the Coal Company*	(Rs.)	2,42,06,14,495.00				
9	Adjustment (+/-) in amount charged made by Coal Company	(Rs.)	13,70,48,095.00				
10	Unloading, Handling and Sampling Charges	(Rs.)	3,70,77,872.00				
11	Total amount Charged (8+9+10)	(Rs.)	2,59,47,40,462.00				
D)	**TRANSPORTATION**						
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 fuel in transporting coal through MGR system, if applicable	(Rs.)	2,93,07,484.00				
16	Total Transportation Charges (12+13+14+15)	(Rs.)	2,93,07,484.00				
17	Total amount Charged for coal supplied including Transportation (11+16)	(Rs.)	2,62,40,47,946.00				
E)	**TOTAL COST**						
18	**Landed cost of coal (2+17)/(1+7)**	**Rs./MT**	**2,157.98**				
19	Blending Ratio	%	100.00%	0.00%	0.00%	0.00%	0.00%
20	Weighted average cost of coal	Rs./MT	2157.97				
F)	**QUALITY**						
21	GCV of Domestic Coal of the opening stock as per bill of Coal Company	(kCal/Kg)	4479.00				
22	GCV of Domestic Coal supplied as per bill Coal Company	(kCal/Kg)	42525.00				
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)	**4505.00**				
26	GCV of Domestic Coal of opening stock as received at Station	(kCal/Kg)	3734.00				
27	GCV of Domestic Coal supplied as received at Station	(kCal/Kg)	3881.00				
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)**	**3816.00**				

(Petitioner)

Details of Source wise Fuel for Computation of Energy Charges **PART-I**

FORM- 15

Name of the Company :		**NTPC Limit**					
Name of the Power Station :		**Rihand Sup**					
S. No.	**Month**	**Unit**	**Jun-23**				
			Domestic (MGR) Supplied by MGR	**Domestic (Rail) Supplied by Rail**	**A-Auction**	**Imported**	**Bio Mass**
A)	**OPENING QUANTITY**						
1	Opening Quantity of Coal/ Lignite	(MT)	8,78,553.05				
2	Value of Stock	(Rs.)	1895892177				
B)	**QUANTITY**						
3	Quantity of Coal supplied by Coal Company	(MT)	12,21,805.92		-		
4	Adjustment (+/-) in quantity supplied made by Coal Company	(MT)	-		-		
5	Coal supplied by Coal Company (3+4)	(MT)	12,21,805.92				
6	Normative Transit & Handling Losses	(MT)	2,443.61		-		
7	Net coal / Lignite Supplied (5-6)	(MT)	12,19,362.31				
C)	**PRICE**						
8	Amount charged by the Coal Company*	(Rs.)	2,53,77,11,993.00				
9	Adjustment (+/-) in amount charged made by Coal Company	(Rs.)	19,70,90,288.00				
10	Unloading, Handling and Sampling Charges	(Rs.)	4,42,00,412.00				
11	Total amount Charged (8+9+10)	(Rs.)	2,77,90,02,693.00				
D)	**TRANSPORTATION**						
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 fuel in transporting coal through MGR system, if applicable	(Rs.)	2,79,36,256.00				
16	Total Transportation Charges (12+13+14+15)	(Rs.)	2,79,36,256.00				
17	Total amount Charged for coal supplied including Transportation (11+16)	(Rs.)	2,80,69,38,949.00				
E)	**TOTAL COST**						
18	**Landed cost of coal (2+17)/(1+7)**	**Rs./MT**	**2,241.68**				
19	Blending Ratio	%	100.00%	0.00%	0.00%	0.00%	0.00%
20	Weighted average cost of coal	Rs./MT	2241.67				
F)	**QUALITY**						
21	GCV of Domestic Coal of the opening stock as per bill of Coal Company	(kCal/Kg)	4505.00				
22	GCV of Domestic Coal supplied as per bill Coal Company	(kCal/Kg)	4530.00				
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)	**4520.00**				
26	GCV of Domestic Coal of opening stock as received at Station	(kCal/Kg)	3816.00				
27	GCV of Domestic Coal supplied as received at Station	(kCal/Kg)	3863.00				
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)**	**3843.00**				

(Petitioner)

Details of Source wise Fuel for Computation of Energy Charges **PART-I**

FORM- 15

Name of the Company :		**NTPC Limit**					
Name of the Power Station :		**Rihand Sup**					
S. No.	**Month**	**Unit**	**Jul-23**				
			Domestic (MGR) Supplied by MGR	**Domestic (Rail) Supplied by Rail**	**A-Auction**	**Imported**	**Bio Mass**
A)	**OPENING QUANTITY**						
1	Opening Quantity of Coal/ Lignite	(MT)	8,30,229.36				
2	Value of Stock	(Rs.)	1861098718				
B)	**QUANTITY**						
3	Quantity of Coal supplied by Coal Company	(MT)	13,15,874.98		-		
4	Adjustment (+/-) in quantity supplied made by Coal Company	(MT)	-		-		
5	Coal supplied by Coal Company (3+4)	(MT)	13,15,874.98				
6	Normative Transit & Handling Losses	(MT)	2,631.75		-		
7	Net coal / Lignite Supplied (5-6)	(MT)	13,13,243.23				
C)	**PRICE**						
8	Amount charged by the Coal Company*	(Rs.)	2,99,42,48,201.00				
9	Adjustment (+/-) in amount charged made by Coal Company	(Rs.)	-				
10	Unloading, Handling and Sampling Charges	(Rs.)	4,51,85,727.00				
11	Total amount Charged (8+9+10)	(Rs.)	3,03,94,33,928.00				
D)	**TRANSPORTATION**						
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 fuel in transporting coal through MGR system, if applicable	(Rs.)	3,07,96,879.00				
16	Total Transportation Charges (12+13+14+15)	(Rs.)	3,07,96,879.00				
17	Total amount Charged for coal supplied including Transportation (11+16)	(Rs.)	3,07,02,30,807.00				
E)	**TOTAL COST**						
18	**Landed cost of coal (2+17)/(1+7)**	**Rs./MT**	**2,300.63**				
19	Blending Ratio	%	100.00%	0.00%	0.00%	0.00%	0.00%
20	Weighted average cost of coal	Rs./MT	2300.63				
F)	**QUALITY**						
21	GCV of Domestic Coal of the opening stock as per bill of Coal Company	(kCal/Kg)	4520.00				
22	GCV of Domestic Coal supplied as per bill Coal Company	(kCal/Kg)	4614.00				
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)	**4578.00**				
26	GCV of Domestic Coal of opening stock as received at Station	(kCal/Kg)	3843.00				
27	GCV of Domestic Coal supplied as received at Station	(kCal/Kg)	3911.00				
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)**	**3885.00**				

(Petitioner)

Details of Source wise Fuel for Computation of Energy Charges **PART-I**

FORM- 15

Name of the Company :		**NTPC Limit**					
Name of the Power Station :		**Rihand Sup**					
S. No.	**Month**	**Unit**	**Aug-23**				
			Domestic (MGR) Supplied by MGR	**Domestic (Rail) Supplied by Rail**	**A-Auction**	**Imported**	**Bio Mass**
A)	**OPENING QUANTITY**						
1	Opening Quantity of Coal/ Lignite	(MT)	8,41,126.59				
2	Value of Stock	(Rs.)	1935118456				
B)	**QUANTITY**						
3	Quantity of Coal supplied by Coal Company	(MT)	12,54,897.38		-		
4	Adjustment (+/-) in quantity supplied made by Coal Company	(MT)	-		-		
5	Coal supplied by Coal Company (3+4)	(MT)	12,54,897.38				
6	Normative Transit & Handling Losses	(MT)	2,509.80		-		
7	Net coal / Lignite Supplied (5-6)	(MT)	12,52,387.58				
C)	**PRICE**						
8	Amount charged by the Coal Company*	(Rs.)	2,93,56,97,725.00				
9	Adjustment (+/-) in amount charged made by Coal Company	(Rs.)	-				
10	Unloading, Handling and Sampling Charges	(Rs.)	4,49,14,797.00				
11	Total amount Charged (8+9+10)	(Rs.)	2,98,06,12,522.00				
D)	**TRANSPORTATION**						
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 fuel in transporting coal through MGR system, if applicable	(Rs.)	2,94,58,740.00				
16	Total Transportation Charges (12+13+14+15)	(Rs.)	2,94,58,740.00				
17	Total amount Charged for coal supplied including Transportation (11+16)	(Rs.)	3,01,00,71,262.00				
E)	**TOTAL COST**						
18	**Landed cost of coal (2+17)/(1+7)**	**Rs./MT**	**2,362.15**				
19	Blending Ratio	%	100.00%	0.00%	0.00%	0.00%	0.00%
20	Weighted average cost of coal	Rs./MT	2362.15				
F)	**QUALITY**						
21	GCV of Domestic Coal of the opening stock as per bill of Coal Company	(kCal/Kg)	4551.00				
22	GCV of Domestic Coal supplied as per bill Coal Company	(kCal/Kg)	4592.00				
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)	**4576.00**				
26	GCV of Domestic Coal of opening stock as received at Station	(kCal/Kg)	3919.00				
27	GCV of Domestic Coal supplied as received at Station	(kCal/Kg)	3866.00				
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)**	**3887.00**				

(Petitioner)

Details of Source wise Fuel for Computation of Energy Charges **PART-I**

FORM- 15

Name of the Company :		**NTPC Limit**					
Name of the Power Station :		**Rihand Sup**					
S. No.	**Month**	**Unit**	**Sep-23**				
			Domestic (MGR) Supplied by MGR	**Domestic (Rail) Supplied by Rail**	**A-Auction**	**Imported**	**Bio Mass**
A)	**OPENING QUANTITY**						
1	Opening Quantity of Coal/ Lignite	(MT)	8,32,805.17				
2	Value of Stock	(Rs.)	1967208474				
B)	**QUANTITY**						
3	Quantity of Coal supplied by Coal Company	(MT)	12,11,972.00		-		
4	Adjustment (+/-) in quantity supplied made by Coal Company	(MT)	-		-		
5	Coal supplied by Coal Company (3+4)	(MT)	12,11,972.00				
6	Normative Transit & Handling Losses	(MT)	2,423.94		-		
7	Net coal / Lignite Supplied (5-6)	(MT)	12,09,548.06				
C)	**PRICE**						
8	Amount charged by the Coal Company*	(Rs.)	2,75,85,19,946.00				
9	Adjustment (+/-) in amount charged made by Coal Company	(Rs.)	-				
10	Unloading, Handling and Sampling Charges	(Rs.)	6,07,53,031.00				
11	Total amount Charged (8+9+10)	(Rs.)	2,81,92,72,977.00				
D)	**TRANSPORTATION**						
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 fuel in transporting coal through MGR system, if applicable	(Rs.)	2,89,62,178.00				
16	Total Transportation Charges (12+13+14+15)	(Rs.)	2,89,62,178.00				
17	Total amount Charged for coal supplied including Transportation (11+16)	(Rs.)	2,84,82,35,155.00				
E)	**TOTAL COST**						
18	**Landed cost of coal (2+17)/(1+7)**	**Rs./MT**	**2,357.79**				
19	Blending Ratio	%	100.00%	0.00%	0.00%	0.00%	0.00%
20	Weighted average cost of coal	Rs./MT	2357.79				
F)	**QUALITY**						
21	GCV of Domestic Coal of the opening stock as per bill of Coal Company	(kCal/Kg)	4576.00				
22	GCV of Domestic Coal supplied as per bill Coal Company	(kCal/Kg)	4702.00				
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)	**4651.00**				
26	GCV of Domestic Coal of opening stock as received at Station	(kCal/Kg)	3887.00				
27	GCV of Domestic Coal supplied as received at Station	(kCal/Kg)	4057.00				
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)**	**3988.00**				

(Petitioner)

Details of Source wise Fuel for Computation of Energy Charges **PART-I**

FORM- 15

Name of the Company :		**NTPC Limit**					
Name of the Power Station :		**Rihand Sup**					
S. No.	**Month**	**Unit**	**Oct-23**				
			Domestic (MGR) Supplied by MGR	**Domestic (Rail) Supplied by Rail**	**A-Auction**	**Imported**	**Bio Mass**
A)	**OPENING QUANTITY**						
1	Opening Quantity of Coal/ Lignite	(MT)	8,27,729.23				
2	Value of Stock	(Rs.)	1951612879				
B)	**QUANTITY**						
3	Quantity of Coal supplied by Coal Company	(MT)	11,84,019.34		-		
4	Adjustment (+/-) in quantity supplied made by Coal Company	(MT)	-		-		
5	Coal supplied by Coal Company (3+4)	(MT)	11,84,019.34				
6	Normative Transit & Handling Losses	(MT)	2,368.04		-		
7	Net coal / Lignite Supplied (5-6)	(MT)	11,81,651.30				
C)	**PRICE**						
8	Amount charged by the Coal Company*	(Rs.)	2,69,18,98,206.00				
9	Adjustment (+/-) in amount charged made by Coal Company	(Rs.)	-				
10	Unloading, Handling and Sampling Charges	(Rs.)	2,70,61,344.00				
11	Total amount Charged (8+9+10)	(Rs.)	2,71,89,59,550.00				
D)	**TRANSPORTATION**						
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 fuel in transporting coal through MGR system, if applicable	(Rs.)	2,61,29,857.00				
16	Total Transportation Charges (12+13+14+15)	(Rs.)	2,61,29,857.00				
17	Total amount Charged for coal supplied including Transportation (11+16)	(Rs.)	2,74,50,89,407.00				
E)	**TOTAL COST**						
18	**Landed cost of coal (2+17)/(1+7)**	**Rs./MT**	**2,337.39**				
19	Blending Ratio	%	100.00%	0.00%	0.00%	0.00%	0.00%
20	Weighted average cost of coal	Rs./MT	2337.39				
F)	**QUALITY**						
21	GCV of Domestic Coal of the opening stock as per bill of Coal Company	(kCal/Kg)	4650.00				
22	GCV of Domestic Coal supplied as per bill Coal Company	(kCal/Kg)	4373.00				
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)	**4487.00**				
26	GCV of Domestic Coal of opening stock as received at Station	(kCal/Kg)	3988.00				
27	GCV of Domestic Coal supplied as received at Station	(kCal/Kg)	3789.00				
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)**	**3871.00**				

(Petitioner)

Details of Source wise Fuel for Computation of Energy Charges **PART-I**

FORM- 15

Name of the Company :		**NTPC Limit**					
Name of the Power Station :		**Rihand Sup**					
S. No.	**Month**	**Unit**	**Nov-23**				
			Domestic (MGR) Supplied by MGR	**Domestic (Rail) Supplied by Rail**	**A-Auction**	**Imported**	**Bio Mass**
A)	**OPENING QUANTITY**						
1	Opening Quantity of Coal/ Lignite	(MT)	9,38,819.53				
2	Value of Stock	(Rs.)	2194385851				
B)	**QUANTITY**						
3	Quantity of Coal supplied by Coal Company	(MT)	12,33,259.08		-		
4	Adjustment (+/-) in quantity supplied made by Coal Company	(MT)	-		-		
5	Coal supplied by Coal Company (3+4)	(MT)	12,33,259.08				
6	Normative Transit & Handling Losses	(MT)	2,466.52		-		
7	Net coal / Lignite Supplied (5-6)	(MT)	12,30,792.56				
C)	**PRICE**						
8	Amount charged by the Coal Company*	(Rs.)	2,78,70,92,957.00				
9	Adjustment (+/-) in amount charged made by Coal Company	(Rs.)	-				
10	Unloading, Handling and Sampling Charges	(Rs.)	4,80,80,526.00				
11	Total amount Charged (8+9+10)	(Rs.)	2,83,51,73,483.00				
D)	**TRANSPORTATION**						
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 fuel in transporting coal through MGR system, if applicable	(Rs.)	2,58,27,276.00				
16	Total Transportation Charges (12+13+14+15)	(Rs.)	2,58,27,276.00				
17	Total amount Charged for coal supplied including Transportation (11+16)	(Rs.)	2,86,10,00,759.00				
E)	**TOTAL COST**						
18	**Landed cost of coal (2+17)/(1+7)**	**Rs./MT**	**2,330.09**				
19	Blending Ratio	%	100.00%	0.00%	0.00%	0.00%	0.00%
20	Weighted average cost of coal	Rs./MT	2330.09				
F)	**QUALITY**						
21	GCV of Domestic Coal of the opening stock as per bill of Coal Company	(kCal/Kg)	4487.00				
22	GCV of Domestic Coal supplied as per bill Coal Company	(kCal/Kg)	4695.00				
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)	**4605.00**				
26	GCV of Domestic Coal of opening stock as received at Station	(kCal/Kg)	3871.00				
27	GCV of Domestic Coal supplied as received at Station	(kCal/Kg)	4009.00				
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)**	**3949.00**				

(Petitioner)

Details of Source wise Fuel for Computation of Energy Charges **PART-I**

FORM- 15

Name of the Company :		**NTPC Limit**					
Name of the Power Station :		**Rihand Sup**					
S. No.	**Month**	**Unit**	**Dec-23**				
			Domestic (MGR) Supplied by MGR	**Domestic (Rail) Supplied by Rail**	**A-Auction**	**Imported**	**Bio Mass**
A)	**OPENING QUANTITY**						
1	Opening Quantity of Coal/ Lignite	(MT)	9,35,536.09				
2	Value of Stock	(Rs.)	2179880931				
B)	**QUANTITY**						
3	Quantity of Coal supplied by Coal Company	(MT)	12,47,860.96		-		
4	Adjustment (+/-) in quantity supplied made by Coal Company	(MT)	-		-		
5	Coal supplied by Coal Company (3+4)	(MT)	12,47,860.96				
6	Normative Transit & Handling Losses	(MT)	2,495.72		-		
7	Net coal / Lignite Supplied (5-6)	(MT)	12,45,365.24				
C)	**PRICE**						
8	Amount charged by the Coal Company*	(Rs.)	2,99,07,21,091.00				
9	Adjustment (+/-) in amount charged made by Coal Company	(Rs.)	-				
10	Unloading, Handling and Sampling Charges	(Rs.)	2,44,84,955.00				
11	Total amount Charged (8+9+10)	(Rs.)	3,01,52,06,046.00				
D)	**TRANSPORTATION**						
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 fuel in transporting coal through MGR system, if applicable	(Rs.)	2,57,60,717.00				
16	Total Transportation Charges (12+13+14+15)	(Rs.)	2,57,60,717.00				
17	Total amount Charged for coal supplied including Transportation (11+16)	(Rs.)	3,04,09,66,763.00				
E)	**TOTAL COST**						
18	**Landed cost of coal (2+17)/(1+7)**	**Rs./MT**	**2,393.89**				
19	Blending Ratio	%	100.00%	0.00%	0.00%	0.00%	0.00%
20	Weighted average cost of coal	Rs./MT	2393.89				
F)	**QUALITY**						
21	GCV of Domestic Coal of the opening stock as per bill of Coal Company	(kCal/Kg)	4606.00				
22	GCV of Domestic Coal supplied as per bill Coal Company	(kCal/Kg)	4624.00				
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)	**4616.00**				
26	GCV of Domestic Coal of opening stock as received at Station	(kCal/Kg)	3948.00				
27	GCV of Domestic Coal supplied as received at Station	(kCal/Kg)	3911.00				
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)**	**3927.00**				

(Petitioner)

Details of Source wise Fuel for Computation of Energy Charges **PART-I**

FORM- 15

Name of the Company :		**NTPC Limit**	
Name of the Power Station :		**Rihand Sup**	
S. No.	**Month**	**Unit**	**Jan-24**
			Coal Domestic
A)	**OPENING QUANTITY**		
1	Opening Quantity of Coal/ Lignite	(MT)	9,60,935.33
2	Value of Stock	(Rs.)	2300378408
B)	**QUANTITY**		
3	Quantity of Coal supplied by Coal Company	(MT)	11,52,719.62
4	Adjustment (+/-) in quantity supplied made by Coal Company	(MT)	-
5	Coal supplied by Coal Company (3+4)	(MT)	11,52,719.62
6	Normative Transit & Handling Losses	(MT)	2,305.44
7	Net coal / Lignite Supplied (5-6)	(MT)	11,50,414.18
C)	**PRICE**		
8	Amount charged by the Coal Company*	(Rs.)	2,68,09,97,132.00
9	Adjustment (+/-) in amount charged made by Coal Company	(Rs.)	-
10	Unloading, Handling and Sampling Charges	(Rs.)	1,18,85,714.87
11	Total amount Charged (8+9+10)	(Rs.)	2,69,28,82,846.87
D)	**TRANSPORTATION**		
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 fuel in transporting coal through MGR system, if applicable	(Rs.)	2,30,96,136.00
16	Total Transportation Charges (12+13+14+15)	(Rs.)	2,30,96,136.00
17	Total amount Charged for coal supplied including Transportation (11+16)	(Rs.)	2,71,59,78,982.87
E)	**TOTAL COST**		
18	**Landed cost of coal (2+17)/(1+7)**	**Rs./MT**	**2,375.90**
19	Blending Ratio	%	100.00%
20	Weighted average cost of coal	Rs./MT	2375.90
F)	**QUALITY**		
21	GCV of Domestic Coal of the opening stock as per bill of Coal Company	(kCal/Kg)	4616.00
22	GCV of Domestic Coal supplied as per bill Coal Company	(kCal/Kg)	4546.00
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)	**4578.00**
26	GCV of Domestic Coal of opening stock as received at Station	(kCal/Kg)	3927.00
27	GCV of Domestic Coal supplied as received at Station	(kCal/Kg)	3822.00
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)**	**3870.00**

(Petitioner)

Signature Not Verified

Digitally signed by PARIMAL PIYUSH
Date: 2024.11.25 14:24:55 IST
Reason: AGM(Commercial)
Location: NTPC Ltd

Details of Source wise Fuel for Computation of Energy Charges			PART-I FORM- 15
Name of the Company :		NTPC Limit	
Name of the Power Station :		Rihand Sup	
S. No.	Month	Unit	Feb-24 Coal Domestic
A)	**OPENING QUANTITY**		
1	Opening Quantity of Coal/ Lignite	(MT)	10,03,513.51
2	Value of Stock	(Rs.)	2384248730
B)	**QUANTITY**		
3	Quantity of Coal supplied by Coal Company	(MT)	9,90,144.70
4	Adjustment (+/-) in quantity supplied made by Coal Company	(MT)	-
5	Coal supplied by Coal Company (3+4)	(MT)	9,90,144.70
6	Normative Transit & Handling Losses	(MT)	1,980.29
7	Net coal / Lignite Supplied (5-6)	(MT)	9,88,164.41
C)	**PRICE**		
8	Amount charged by the Coal Company*	(Rs.)	2,22,64,21,407.00
9	Adjustment (+/-) in amount charged made by Coal Company	(Rs.)	-
10	Unloading, Handling and Sampling Charges	(Rs.)	2,12,13,075.98
11	Total amount Charged (8+9+10)	(Rs.)	2,24,76,34,482.98
D)	**TRANSPORTATION**		
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 fuel in transporting coal through MGR system, if applicable	(Rs.)	2,03,94,347.00
16	Total Transportation Charges (12+13+14+15)	(Rs.)	2,03,94,347.00
17	Total amount Charged for coal supplied including Transportation (11+16)	(Rs.)	2,26,80,28,829.98
E)	**TOTAL COST**		
18	**Landed cost of coal (2+17)/(1+7)**	**Rs./MT**	**2,335.86**
19	Blending Ratio	%	100.00%
20	Weighted average cost of coal	Rs./MT	2335.86
F)	**QUALITY**		
21	GCV of Domestic Coal of the opening stock as per bill of Coal Company	(kCal/Kg)	4578.00
22	GCV of Domestic Coal supplied as per bill Coal Company	(kCal/Kg)	4584.00
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)	**4581.00**
26	GCV of Domestic Coal of opening stock as received at Station	(kCal/Kg)	3870.00
27	GCV of Domestic Coal supplied as received at Station	(kCal/Kg)	3864.00
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)**	**3867.00**

(Petitioner)

Details of Source wise Fuel for Computation of Energy Charges			PART-I FORM- 15
Name of the Company :		NTPC Limit	
Name of the Power Station :		Rihand Sup	
S. No.	Month	Unit	Mar-24 Coal Domestic
A)	**OPENING QUANTITY**		
1	Opening Quantity of Coal/ Lignite	(MT)	9,70,961.92
2	Value of Stock	(Rs.)	2268029926
B)	**QUANTITY**		
3	Quantity of Coal supplied by Coal Company	(MT)	11,92,591.94
4	Adjustment (+/-) in quantity supplied made by Coal Company	(MT)	-
5	Coal supplied by Coal Company (3+4)	(MT)	11,92,591.94
6	Normative Transit & Handling Losses	(MT)	2,385.18
7	Net coal / Lignite Supplied (5-6)	(MT)	11,90,206.76
C)	**PRICE**		
8	Amount charged by the Coal Company*	(Rs.)	2,54,34,48,575.00
9	Adjustment (+/-) in amount charged made by Coal Company	(Rs.)	-
10	Unloading, Handling and Sampling Charges	(Rs.)	4,87,49,775.38
11	Total amount Charged (8+9+10)	(Rs.)	2,59,21,98,350.38
D)	**TRANSPORTATION**		
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 fuel in transporting coal through MGR system, if applicable	(Rs.)	2,47,81,735.61
16	Total Transportation Charges (12+13+14+15)	(Rs.)	2,47,81,735.61
17	Total amount Charged for coal supplied including Transportation (11+16)	(Rs.)	2,61,69,80,085.99
E)	**TOTAL COST**		
18	**Landed cost of coal (2+17)/(1+7)**	**Rs./MT**	**2,260.36**
19	Blending Ratio	%	100.00%
20	Weighted average cost of coal	Rs./MT	2260.36
F)	**QUALITY**		
21	GCV of Domestic Coal of the opening stock as per bill of Coal Company	(kCal/Kg)	4581.00
22	GCV of Domestic Coal supplied as per bill Coal Company	(kCal/Kg)	4425.00
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)	**4495.00**
26	GCV of Domestic Coal of opening stock as received at Station	(kCal/Kg)	3867.00
27	GCV of Domestic Coal supplied as received at Station	(kCal/Kg)	3775.00
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)**	**3816.00**

(Petitioner)

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-I				
Sl.No.	**Month**	**Unit**	**Apr-23**	
			LDO	**HFO**
1	Opening Quantity of Oil	**KL**	6337.55	0
2	Value of Opening	**(Rs)**	54,74,39,932.00	-
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 (5-6)	**KL**	-	
8	Amount charged by the Oil Company	**(Rs)**	-	
9	Adjustment(+/-) in amount charged made by Oil Company	**(Rs)**		
10	Handling, Sampling and such other Similar Charges	**(Rs)**		
11	**Total amount charged (8+9+10)**	**(Rs)**	-	
12	Transportation charges by rail / ship / road transport			
	By Rail	**(Rs)**		
	By Road	**(Rs)**		
	By Ship	**(Rs)**		
13	Adjustment (+/-) in amount charged made by Railways/Transport Company	**(Rs)**		
14	Demurrage Charges, if any	**(Rs)**		
15	Cost of diesel in transporting Oil through MGR system, if applicable	**(Rs)**		
16	Total Transportation Charges (12+/-13-14+15)	**(Rs)**	-	
17	Total amount Charged for fuel supplied including Transportation (11+16)	**(Rs)**	-	
18	Landed Cost of Oil (LDO/HFO) (2+17)/(1+7)	**(Rs)**	86,380.39	
19	Blending Ratio		100.00%	
20	Weighted average cost of Oil		86380.39	
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 if Imported coal of the opening stock as per bill of Oil company	**(kCal/Ltr)**		
24	GCV of Imported Oil supplied as per bill of coal company	**(kCal/Ltr)**		
25	Weighted average GCV if 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)**	9,302.00	
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)**	9302.00	

(Petitioner)

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-I				
Sl.No.	**Month**	**Unit**	**May-23**	
			LDO	**HFO**
1	Opening Quantity of Oil	**KL**	5,910.55	-
2	Value of Opening	**(Rs)**	51,05,55,507.00	-
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 (5-6)	**KL**	-	
8	Amount charged by the Oil Company	**(Rs)**	-	
9	Adjustment(+/-) in amount charged made by Oil Company	**(Rs)**		
10	Handling, Sampling and such other Similar Charges	**(Rs)**		
11	**Total amount charged (8+9+10)**	**(Rs)**	-	
12	Transportation charges by rail / ship / road transport			
	By Rail	**(Rs)**		
	By Road	**(Rs)**		
	By Ship	**(Rs)**		
13	Adjustment (+/-) in amount charged made by Railways/Transport Company	**(Rs)**		
14	Demurrage Charges, if any	**(Rs)**		
15	Cost of diesel in transporting Oil through MGR system, if applicable	**(Rs)**		
16	Total Transportation Charges (12+/-13-14+15)	**(Rs)**		
17	Total amount Charged for fuel supplied including Transportation (11+16)	**(Rs)**	-	
18	Landed Cost of Oil (LDO/HFO) (2+17)/(1+7)	**(Rs)**	86,380.39	
19	Blending Ratio		100.00%	
20	Weighted average cost of Oil		86380.39	
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 if Imported coal of the opening stock as per bill of Oil company	**(kCal/Ltr)**		
24	GCV of Imported Oil supplied as per bill of coal company	**(kCal/Ltr)**		
25	Weighted average GCV if 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)**	9,302.00	
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)**	9302.00	

(Petitioner)

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-I				

Sl.No.	Month	Unit	Jun-23	
			LDO	HFO
1	Opening Quantity of Oil	KL	5,880.55	
2	Value of Opening	(Rs)	50,79,64,095.00	
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 (5-6)	KL	-	
8	Amount charged by the Oil Company	(Rs)	-	
9	Adjustment(+/-) in amount charged made by Oil Company	(Rs)		
10	Handling, Sampling and such other Similar Charges	(Rs)		
11	**Total amount charged (8+9+10)**	(Rs)	-	
12	Transportation charges by rail / ship / road transport			
	By Rail	(Rs)		
	By Road	(Rs)		
	By Ship	(Rs)		
13	Adjustment (+/-) in amount charged made by Railways/Transport Company	(Rs)		
14	Demurrage Charges, if any	(Rs)		
15	Cost of diesel in transporting Oil through MGR system, if applicable	(Rs)		
16	Total Transportation Charges (12+/-13-14+15)	(Rs)	-	
17	Total amount Charged for fuel supplied including Transportation (11+16)	(Rs)	-	
18	Landed Cost of Oil (LDO/HFO) (2+17)/(1+7)	(Rs)	86,380.39	
19	Blending Ratio		100.00%	
20	Weighted average cost of Oil		86380.39	
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 if Imported coal of the opening stock as per bill of Oil company	(kCal/Ltr)		
24	GCV of Imported Oil supplied as per bill of coal company	(kCal/Ltr)		
25	Weighted average GCV if 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)	9,302.00	
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)	9302.00	

(Petitioner)

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-I				
Sl.No.	**Month**	**Unit**	**Jul-23**	
			LDO	**HFO**
1	Opening Quantity of Oil	**KL**	5,580.55	
2	Value of Opening	**(Rs)**	48,20,49,979.00	
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 (5-6)	**KL**	-	
8	Amount charged by the Oil Company	**(Rs)**	-	
9	Adjustment(+/-) in amount charged made by Oil Company	**(Rs)**		
10	Handling, Sampling and such other Similar Charges	**(Rs)**		
11	**Total amount charged (8+9+10)**	**(Rs)**	-	
12	Transportation charges by rail / ship / road transport			
	By Rail	**(Rs)**		
	By Road	**(Rs)**		
	By Ship	**(Rs)**		
13	Adjustment (+/-) in amount charged made by Railways/Transport Company	**(Rs)**		
14	Demurrage Charges, if any	**(Rs)**		
15	Cost of diesel in transporting Oil through MGR system, if applicable	**(Rs)**		
16	Total Transportation Charges (12+/-13-14+15)	**(Rs)**	-	
17	Total amount Charged for fuel supplied including Transportation (11+16)	**(Rs)**	-	
18	Landed Cost of Oil (LDO/HFO) (2+17)/(1+7)	**(Rs)**	86,380.39	
19	Blending Ratio		100.00%	
20	Weighted average cost of Oil		86380.39	
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 if Imported coal of the opening stock as per bill of Oil company	**(kCal/Ltr)**		
24	GCV of Imported Oil supplied as per bill of coal company	**(kCal/Ltr)**		
25	Weighted average GCV if 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)**	9,302.00	
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)**	9302.00	

(Petitioner)

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-I				
Sl.No.	**Month**	**Unit**	**Aug-23**	
			LDO	**HFO**
1	Opening Quantity of Oil	**KL**	5,462.55	
2	Value of Opening	**(Rs)**	47,18,57,094.00	
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 (5-6)	**KL**	-	
8	Amount charged by the Oil Company	**(Rs)**	-	
9	Adjustment(+/-) in amount charged made by Oil Company	**(Rs)**		
10	Handling, Sampling and such other Similar Charges	**(Rs)**		
11	**Total amount charged (8+9+10)**	**(Rs)**	-	
12	Transportation charges by rail / ship / road transport			
	By Rail	**(Rs)**		
	By Road	**(Rs)**		
	By Ship	**(Rs)**		
13	Adjustment (+/-) in amount charged made by Railways/Transport Company	**(Rs)**		
14	Demurrage Charges, if any	**(Rs)**		
15	Cost of diesel in transporting Oil through MGR system, if applicable	**(Rs)**		
16	Total Transportation Charges (12+/-13-14+15)	**(Rs)**	-	
17	Total amount Charged for fuel supplied including Transportation (11+16)	**(Rs)**	-	
18	Landed Cost of Oil (LDO/HFO) (2+17)/(1+7)	**(Rs)**	86,380.39	
19	Blending Ratio		100.00%	
20	Weighted average cost of Oil		86380.39	
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 if Imported coal of the opening stock as per bill of Oil company	**(kCal/Ltr)**		
24	GCV of Imported Oil supplied as per bill of coal company	**(kCal/Ltr)**		
25	Weighted average GCV if 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)**	9,302.00	
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)**	9302.00	

(Petitioner)

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-I				
Sl.No.	**Month**	**Unit**	**Sep-23**	
			LDO	**HFO**
1	Opening Quantity of Oil	**KL**	4,884.55	
2	Value of Opening	**(Rs)**	42,19,29,230.00	
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 (5-6)	**KL**	-	
8	Amount charged by the Oil Company	**(Rs)**	-	
9	Adjustment(+/-) in amount charged made by Oil Company	**(Rs)**		
10	Handling, Sampling and such other Similar Charges	**(Rs)**		
11	**Total amount charged (8+9+10)**	**(Rs)**	-	
12	Transportation charges by rail / ship / road transport			
	By Rail	**(Rs)**		
	By Road	**(Rs)**		
	By Ship	**(Rs)**		
13	Adjustment (+/-) in amount charged made by Railways/Transport Company	**(Rs)**		
14	Demurrage Charges, if any	**(Rs)**		
15	Cost of diesel in transporting Oil through MGR system, if applicable	**(Rs)**		
16	Total Transportation Charges (12+/-13-14+15)	**(Rs)**	-	
17	Total amount Charged for fuel supplied including Transportation (11+16)	**(Rs)**	-	
18	Landed Cost of Oil (LDO/HFO) (2+17)/(1+7)	**(Rs)**	86,380.39	
19	Blending Ratio		100.00%	
20	Weighted average cost of Oil		86380.39	
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 if Imported coal of the opening stock as per bill of Oil company	**(kCal/Ltr)**		
24	GCV of Imported Oil supplied as per bill of coal company	**(kCal/Ltr)**		
25	Weighted average GCV if 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)**	9,302.00	
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)**	9302.00	

(Petitioner)

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-I				

Sl.No.	Month	Unit	Oct-23	
			LDO	HFO
1	Opening Quantity of Oil	KL	4,782.55	
2	Value of Opening	(Rs)	41,31,18,431.00	
3	Quantity of Oil supplied by Oil Company	KL	3,163.69	
4	Adjustment (+/-) in quantity supplied made by Oil Company	KL		
5	Oil supplied by oil company (3+4)	KL	3,163.69	
6	Normative Transit & Handling Losses	KL	-	-
7	Net Oil Supplied (5-6)	KL	3,163.69	
8	Amount charged by the Oil Company	(Rs)	29,37,35,028.00	
9	Adjustment(+/-) in amount charged made by Oil Company	(Rs)		
10	Handling, Sampling and such other Similar Charges	(Rs)		
11	**Total amount charged (8+9+10)**	(Rs)	29,37,35,028.00	
12	Transportation charges by rail / ship / road transport			
	By Rail	(Rs)		
	By Road	(Rs)		
	By Ship	(Rs)		
13	Adjustment (+/-) in amount charged made by Railways/Transport Company	(Rs)		
14	Demurrage Charges, if any	(Rs)		
15	Cost of diesel in transporting Oil through MGR system, if applicable	(Rs)		
16	Total Transportation Charges (12+/-13-14+15)	(Rs)	-	
17	Total amount Charged for fuel supplied including Transportation (11+16)	(Rs)	29,37,35,028.00	
18	Landed Cost of Oil (LDO/HFO) (2+17)/(1+7)	(Rs)	88,954.47	
19	Blending Ratio		100.00%	
20	Weighted average cost of Oil		88954.47	
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 if Imported coal of the opening stock as per bill of Oil company	(kCal/Ltr)		
24	GCV of Imported Oil supplied as per bill of coal company	(kCal/Ltr)		
25	Weighted average GCV if 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)	9,249.00	
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)	9249.00	

(Petitioner)

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-I				
Sl.No.	**Month**	**Unit**	**Nov-23**	
			LDO	**HFO**
1	Opening Quantity of Oil	**KL**	6,737.24	
2	Value of Opening	**(Rs)**	59,93,07,508.00	
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 (5-6)	**KL**	-	
8	Amount charged by the Oil Company	**(Rs)**	-	
9	Adjustment(+/-) in amount charged made by Oil Company	**(Rs)**		
10	Handling, Sampling and such other Similar Charges	**(Rs)**		
11	**Total amount charged (8+9+10)**	**(Rs)**	-	
12	Transportation charges by rail / ship / road transport			
	By Rail	**(Rs)**		
	By Road	**(Rs)**		
	By Ship	**(Rs)**		
13	Adjustment (+/-) in amount charged made by Railways/Transport Company	**(Rs)**		
14	Demurrage Charges, if any	**(Rs)**		
15	Cost of diesel in transporting Oil through MGR system, if applicable	**(Rs)**		
16	Total Transportation Charges (12+/-13-14+15)	**(Rs)**	-	
17	Total amount Charged for fuel supplied including Transportation (11+16)	**(Rs)**	-	
18	Landed Cost of Oil (LDO/HFO) (2+17)/(1+7)	**(Rs)**	88,954.47	
19	Blending Ratio		100.00%	
20	Weighted average cost of Oil		88954.47	
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 if Imported coal of the opening stock as per bill of Oil company	**(kCal/Ltr)**		
24	GCV of Imported Oil supplied as per bill of coal company	**(kCal/Ltr)**		
25	Weighted average GCV if 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)**	9,249.00	
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)**	9249.00	

(Petitioner)

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-I				
Sl.No.	**Month**	**Unit**	**Dec-23**	
			LDO	**HFO**
1	Opening Quantity of Oil	**KL**	5,920.24	
2	Value of Opening	**(Rs)**	52,66,31,708.00	
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 (5-6)	**KL**	-	
8	Amount charged by the Oil Company	**(Rs)**	-	
9	Adjustment(+/-) in amount charged made by Oil Company	**(Rs)**		
10	Handling, Sampling and such other Similar Charges	**(Rs)**		
11	**Total amount charged (8+9+10)**	**(Rs)**	-	
12	Transportation charges by rail / ship / road transport			
	By Rail	**(Rs)**		
	By Road	**(Rs)**		
	By Ship	**(Rs)**		
13	Adjustment (+/-) in amount charged made by Railways/Transport Company	**(Rs)**		
14	Demurrage Charges, if any	**(Rs)**		
15	Cost of diesel in transporting Oil through MGR system, if applicable	**(Rs)**		
16	Total Transportation Charges (12+/-13-14+15)	**(Rs)**	-	
17	Total amount Charged for fuel supplied including Transportation (11+16)	**(Rs)**	-	
18	Landed Cost of Oil (LDO/HFO) (2+17)/(1+7)	**(Rs)**	88,954.47	
19	Blending Ratio		100.00%	
20	Weighted average cost of Oil		88954.47	
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 if Imported coal of the opening stock as per bill of Oil company	**(kCal/Ltr)**		
24	GCV of Imported Oil supplied as per bill of coal company	**(kCal/Ltr)**		
25	Weighted average GCV if 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)**	9,249.00	
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)**	9249.00	

(Petitioner)

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-I				

Sl.No.	Month	Unit	Jan-24	
			LDO	HFO
1	Opening Quantity of Oil	KL	5,550.24	
2	Value of Opening	(Rs)	49,37,18,555.00	
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 (5-6)	KL	-	
8	Amount charged by the Oil Company	(Rs)	-	
9	Adjustment(+/-) in amount charged made by Oil Company	(Rs)		
10	Handling, Sampling and such other Similar Charges	(Rs)		
11	**Total amount charged (8+9+10)**	(Rs)	-	
12	Transportation charges by rail / ship / road transport			
	By Rail	(Rs)		
	By Road	(Rs)		
	By Ship	(Rs)		
13	Adjustment (+/-) in amount charged made by Railways/Transport Company	(Rs)		
14	Demurrage Charges, if any	(Rs)		
15	Cost of diesel in transporting Oil through MGR system, if applicable	(Rs)		
16	Total Transportation Charges (12+/-13-14+15)	(Rs)	-	
17	Total amount Charged for fuel supplied including Transportation (11+16)	(Rs)	-	
18	Landed Cost of Oil (LDO/HFO) (2+17)/(1+7)	(Rs)	88,954.47	
19	Blending Ratio		100.00%	
20	Weighted average cost of Oil		88954.47	
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 if Imported coal of the opening stock as per bill of Oil company	(kCal/Ltr)		
24	GCV of Imported Oil supplied as per bill of coal company	(kCal/Ltr)		
25	Weighted average GCV if 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)	9,249.00	
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)	9249.00	

(Petitioner)

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-I				
Sl.No.	**Month**	**Unit**	**Feb-24**	
			LDO	**HFO**
1	Opening Quantity of Oil	**KL**	4,618.24	-
2	Value of Opening	**(Rs)**	41,08,12,991.00	-
3	Quantity of Oil supplied by Oil Company	**KL**	3,158.470	
4	Adjustment (+/-) in quantity supplied made by Oil Company	**KL**		
5	Oil supplied by oil company (3+4)	**KL**	3,158.47	
6	Normative Transit & Handling Losses	**KL**		
7	Net Oil Supplied (5-6)	**KL**	3,158.47	
8	Amount charged by the Oil Company	**(Rs)**	24,50,23,090.00	
9	Adjustment(+/-) in amount charged made by Oil Company	**(Rs)**		
10	Handling, Sampling and such other Similar Charges	**(Rs)**		
11	**Total amount charged (8+9+10)**	**(Rs)**	24,50,23,090.00	
12	Transportation charges by rail / ship / road transport			
	By Rail	**(Rs)**		
	By Road	**(Rs)**		
	By Ship	**(Rs)**		
13	Adjustment (+/-) in amount charged made by Railways/Transport Company	**(Rs)**		
14	Demurrage Charges, if any	**(Rs)**		
15	Cost of diesel in transporting Oil through MGR system, if applicable	**(Rs)**		
16	Total Transportation Charges (12+/-13-14+15)	**(Rs)**		
17	Total amount Charged for fuel supplied including Transportation (11+16)	**(Rs)**	24,50,23,090.00	
18	Landed Cost of Oil (LDO/HFO) (2+17)/(1+7)	**(Rs)**	84,333.37	
19	Blending Ratio		100.00%	
20	Weighted average cost of Oil		84333.37	
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 if Imported coal of the opening stock as per bill of Oil company	**(kCal/Ltr)**		
24	GCV of Imported Oil supplied as per bill of coal company	**(kCal/Ltr)**		
25	Weighted average GCV if 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)**	9,210.00	
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)**	9210.00	

(Petitioner)

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-I

Sl.No.	Month	Unit	Mar-24		
			LDO	HFO	HSD
1	Opening Quantity of Oil	KL	7,381.71		-
2	Value of Opening	(Rs)	62,25,24,400.00		-
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 (5-6)	KL	-		
8	Amount charged by the Oil Company	(Rs)	-		-
9	Adjustment(+/-) in amount charged made by Oil Company	(Rs)			
10	Handling, Sampling and such other Similar Charges	(Rs)			
11	**Total amount charged (8+9+10)**	(Rs)	-		
12	Transportation charges by rail / ship / road transport				
	By Rail	(Rs)			
	By Road	(Rs)			
	By Ship	(Rs)			
13	Adjustment (+/-) in amount charged made by Railways/Transport Company	(Rs)			
14	Demurrage Charges, if any	(Rs)			
15	Cost of diesel in transporting Oil through MGR system, if applicable	(Rs)			
16	Total Transportation Charges (12+/-13-14+15)	(Rs)	-		
17	Total amount Charged for fuel supplied including Transportation (11+16)	(Rs)	-		
18	Landed Cost of Oil (LDO/HFO) (2+17)/(1+7)	(Rs)	84,333.39		
19	Blending Ratio		100.00%		
20	Weighted average cost of Oil		84333.39		
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 if Imported coal of the opening stock as per bill of Oil company	(kCal/Ltr)			
24	GCV of Imported Oil supplied as per bill of coal company	(kCal/Ltr)			
25	Weighted average GCV if 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)	9,210.00		
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)	9210.00		

(Petitioner)

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-I**

Computation of Energy Charges

				2024-25	2025-26	2026-27	2027-28	2028-29
1	Rate of Energy Charge from Sec. Fuel Oil/ Alternate Fuel (p/kwh)	$(REC)_s$	$= (Q_s)_n \times P_s$	4.343	4.343	4.343	4.343	4.343
2	Heat Contribution from SFO / Alternate Fuel	(H_s)	$= (Qs)_n \times (GCV)_s$	4.635	4.635	4.635	4.635	4.635
3	Heat Contribution from coal	$(H_p)_s$	$= GHR - H_s$	2330.37	2330.37	2330.37	2330.37	2330.37
4	Specific Primary Fuel Consumption	$(Qp)_n$	$= H_p / (GCV)_p$	0.616	0.616	0.616	0.616	0.616
5	Rate of Energy charge from Primary Fuel (p/kwh)	$(REC)_p$		141.710	141.710	141.710	141.710	141.710
6	Rate of Energy charge ex bus (p/kWh)	(REC)	$= ((REC)_s + (REC)_p / (1-(AUX))$	158.753	158.753	158.753	158.753	158.753

		2024-25	2025-26	2026-27	2027-28	2028-29
No of Days in the period	Days	365	365	365	366	365
No of Days in the year	Days	365	365	365	366	365
Sp. Oil consumption	ml/kwh	0.5	0.5	0.5	0.5	0.5
Auxiliary consumption	%	8.00%	8.00%	8.00%	8.00%	8.00%
Heat Rate	Kcal/Kwh	2,335.00	2,335.00	2,335.00	2,335.00	2,335.00
Computation of Variable Charges						
Variable Charge (Coal)	p/kwh	154.032	154.032	154.032	154.032	154.032
Variable Charge (Oil)	p/kwh	4.721	4.721	4.721	4.721	4.721
Total	p/kwh	158.753	158.753	158.753	158.753	158.753
Price of fuel from Form-15/15A						
Coal Cost	(Rs./MT)	2302.32	2302.32	2302.32	2302.32	2302.32
Oil Cost	(Rs./KL)	86861.91	86861.91	86861.91	86861.91	86861.91
Computation of Fuel Expenses for Calculation of IWC:						
ESO in a year	(MUs)	6689.14	6689.14	6689.14	6707.46	6689.14
ESO for 40 days	(MUs)	733.056	733.056	733.056	733.056	733.056
Cost of coal for 45 Days	(Rs. Lakh)	11291.43	11291.43	11291.43	11291.43	11291.43
Cost of oil for 2 months	(Rs. Lakh)	526.30	526.30	526.30	527.74	526.30
Energy Expenses for 45 day	(Rs. Lakh)	13092.17	13092.17	13092.17	13092.17	13092.17

Coal		2024-25	2025-26	2026-27	2027-28	2028-29
Wtd. Avg. Price of Coal	Rs./MT	2302.32	2302.32	2302.32	2302.32	2302.32
Wtd. Avg. GCV of Coal as received	kCal/Kg	3871.08	3871.08	3871.08	3871.08	3871.08
Wtd. Avg.	kCal/Kg	**3786.08**	**3786.08**	**3786.08**	**3786.08**	**3786.08**
Sec. Oil						
Wtd. Avg. Price of Secondary Fuel	Rs/KL	86861.91	86861.91	86861.91	86861.91	86861.91
Wtd. Avg. GCV of Secondary Fuel	kCal/L	9269.00	9269.00	9269.00	9269.00	9269.00

(Petitioner)

PART-I
FORM- L

Statement of Capital cost

Name of the Petitioner	**NTPC Limited**
Name of the Generating Station	**Rihand Super Thermal Power Station Stage-I**
COD	**01-01-1991**
For Financial Year	**2024-29**

(Rs Lakh)

Sl. No.	Particulars	2024-25			2025-26			2026-27			2027-28			2028-29		
		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	3,35,775.23	8,111.83	3,27,663.41	SHALL BE PROVIDED AT THE TIME OF TRUE-UP.											
	b) Amount of IDC in A(a) above	824.11														
	c) Amount of FC in A(a) above	0.00														
	d) Amount of FERV in A(a) above	-772.41														
	e) Amount of Hedging Cost in A(a) above	0.00														
	f) Amount of IEDC in A(a) above	0.00														
B	a) Addition in Gross Block Amount during the period (Direct purchases)	SHALL BE PROVIDED AT THE TIME OF TRUE-UP.														
	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 CWIP)															
	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															
	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)

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Date: 2024.11.25 14:24:55 IST
Reason: AGM(Commercial)
Location: NTPC Ltd

PART-I
FORM- M

Statement of Capital Works in Progress

Name of the Petitioner	**NTPC Limited**
Name of the Generating Station	**Rihand Super Thermal Power Station Stage-I**
COD	**01-01-1991**
For Financial Year	**2024-29**

(Rs Lakh)

Sl. No.	Particulars	2024-25			2025-26			2026-27			2027-28			2028-29		
		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 CWIP as per books	51,493.43	7,863	43,630.05	**SHALL BE PROVIDED AT THE TIME OF TRUE-UP.**											
	b) Amount of IDC in A(a) above	619.23														
	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	457.66														
B	a) Addition in CWIP during the period	**SHALL BE PROVIDED AT THE TIME OF TRUE-UP.**														
	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															
	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															
	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															
	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)

Signature Not Verified
Digitally signed by PARIMAL PIYUSH
Date: 2024.11.25 14:24:55 IST
Reason: AGM(Commercial)
Location: NTPC Ltd

PART-I
FORM- N

Calculation of Interest on Normative Loan

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

(Amount in Rs Lakh)

S. No.	Particulars		Existing 2023-24	2024-25	2025-26	2026-27	2027-28	2028-29
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
1	Gross Normative loan – Opening	A	1,24,032.37	1,24,781.89	1,24,781.89	1,33,908.49	1,33,992.49	1,34,412.49
2	Cumulative repayment of Normative loan up to previous year	B	1,21,108.10	1,21,173.95	1,24,781.89	1,31,623.98	1,33,992.49	1,34,316.49
3	**Net Normative loan – Opening**	**C=A-B**	2,924.27	3,607.94	-	2,284.50	-	96.00
4	Add: Increase due to addition during the year / period	D	939.96	-	9,126.60	84.00	420.00	-
5	Less: Decrease due to de-capitalisation during the year / period	E	233.17	-	-	-	-	-
6	Less: Decrease due to reversal during the year / period	F		-	-	-	-	-
7	Add: Increase due to discharges during the year / period	G	42.72	-	-	-	-	-
8	Normative Loan Closing	H=C+D-E-F+G	3673.79	3607.94	9126.60	2368.50	420.00	96.00
9	Repayment of Loan during the year	I	299.02	3945.61	6842.10	5921.10	324.00	270.00
10	Repayment adjustment on account of decapitalization	J	233.17	0.00	0.00	0.00	0.00	0.00
11	Net Repayment of loan during the year	K=I-J	65.85	3,607.94	6,842.10	2,368.50	324.00	96.00
12	**Net Normative loan - Closing**	**L=H-K**	3,607.94	-	2,284.50	-	96.00	-
13	**Average Normative loan**	**M=Average(C,L)**	3,266.11	1,803.97	1,142.25	1,142.25	48.00	48.00
14	Weighted average rate of interest	N	7.570%	7.517%	7.477%	7.445%	7.391%	7.323%
15	**Interest on Loan**	**O=MxN**	**247.24**	**135.60**	**85.41**	**85.04**	**3.55**	**3.52**
15	Cumulative repayment of Normative loan at the end of the period	P=B+K	1,21,173.95	1,24,781.89	1,31,623.98	1,33,992.49	1,34,316.49	1,34,412.49

(Petitioner)

PART -I
FORM- O

Calculation of Interest on Working Capital

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

(Amount in Rs Lakh)

S. No.	Particulars	Existing 2023-24	2024-25	2025-26	2026-27	2027-28	2028-29
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**
1	Cost of Coal/Lignite	11,431.14	11291.43	11291.43	11291.43	11291.43	11291.43
2	Cost of Main Secondary Fuel Oi	511.42	526.30	526.30	526.30	527.74	526.30
3	Fuel Cost						
4	Liquid Fuel Stock						
5	O & M Expenses	2,778.36	3250.81	3390.93	3530.05	3669.32	3816.75
6	Maintenance Spares	6,668.06	7801.93	8138.24	8472.12	8806.37	9160.19
7	Receivables	19,703.80	20746.38	21356.03	21493.03	20979.21	21225.29
8	Total Working Capital	41092.78	43616.84	44702.92	45312.92	45274.06	46019.95
9	Rate of Interest	12.00%	11.90%	11.90%	11.90%	11.90%	11.90%
10	**Interest on Working Capital**	**4931.13**	**5190.40**	**5319.65**	**5392.24**	**5387.61**	**5476.37**

(Petitioner)

Summary of issue involved in the petition

PART -I
FORM-T

Name of the Company :		**NTPC Limited**				
Name of the Power Station :		**Rihand Super Thermal Power Station Stage-I**				
1	**Petitioner:**	**NTPC Limited**				
2	**Subject**	**Determination of Tariff for 2024-29 period**				
3	**Prayer:** i) Approve tariff of Rihand Super Thermal Power Station, Stage-I (1000 MW) for the tariff period 01.04.2024 to 31.03.2029. ii) Allow the recovery of filing fees as & when paid to the Hon'ble Commission and publication expenses from the beneficiaries. iii) Allow reimbursement of Ash Transportation Charges directly from the beneficiaries on monthly basis, subject to true up. iv) Allow the recovery of pay/wage revision as additional O&M over and above the normative O&M. v) Pass any other order as it may deem fit in the circumstances mentioned above.					
4	**Respondents**					
	Name of Respondents					
	1. Uttar Pradesh Power Corp. Ltd. (UPPCL)					
	2. Rajasthan Urja Vikas Nigam Limited (RUVNL)					
	3. Tata Power Delhi Distribution Limited					
	4. BSES Rajdhani Power Limited.					
	5. BSES Yamuna Power Limited,					
	6. Haryana Power Purchase Centre					
	7. Punjab State Power Corporation Limited,					
	8. Himachal Pradesh State Electricity Board Limited,					
	9. Power Development Department (J&K)					
	10. Electricity Department, Union Territory of Chandigarh					
	11. Uttarakhand Power Corporation Limited.					
5	**Project Scope**					
	Capital Cost as on 01.04.2024 (Rs. Lakh)	**245565.98**				
	Date of Station COD	**01-01-1991**				
	Claim (Rs Lakh)	**2024-25**	**2025-26**	**2026-27**	**2027-28**	**2028-29**
	AFC	**72834.13**	**77779.11**	**78890.32**	**74897.92**	**76718.64**
	Capital Cost	**244965.98**	**251484.98**	**258063.98**	**258423.98**	**258723.98**
	Initial spare	**N/A**				
	NAPAF (Gen)	**85%**				
	Any Specific					

(Petitioner)

Signature Not Verified
Digitally signed by PARIMAL PIYUSH
Date: 2024.11.25 14:24:55 IST
Reason: AGM(Commercial)
Location: NTPC Ltd

Annexure-A/1

रजिस्ट्री सं० डी० एल०-33004/99 REGD. NO. D. L.-33004/99

भारत का राजपत्र
The Gazette of India

असाधारण
EXTRAORDINARY
भाग II—खण्ड 3—उप-खण्ड (ii)
PART II—Section 3—Sub-section (ii)
प्राधिकार से प्रकाशित
PUBLISHED BY AUTHORITY

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पर्यावरण, वन और जलवायु परिवर्तन मंत्रालय

अधिसूचना

नई दिल्ली, 25 जनवरी, 2016

का.आ. 254(अ).—भारत सरकार, पर्यावरण, वन और जलवायु परिवर्तन मंत्रालय की अधिसूचना सं. का.आ. 763(अ), तारीख 14 सितंबर, 1999 (जिसे इसमें इसके पश्चात् उक्त अधिसूचना कहा गया है) में कतिपय संशोधनों का प्रारूप, जिन्हें केन्द्रीय सरकार पर्यावरण (संरक्षण) नियम, 1986 के नियम 5 के उप-नियम (3) के खंड (घ) के साथ पठित पर्यावरण (संरक्षण) अधिनियम, 1986 (1986 का 29) की धारा 3 की उप-धारा (1) और उप-धारा (2) के खंड (v) के अंतर्गत करने का प्रस्ताव करती है, भारत के राजपत्र, असाधारण, भाग II, खंड 3, उप-खंड (ii) में अधिसूचना सं. का.आ. 1396(अ), तारीख 25 मई, 2015 द्वारा प्रकाशित किया गया था, जिसके द्वारा ऐसे सभी व्यक्तियों से, जिनके उनसे प्रभावित होने की संभावना थी, उस तारीख से, जिसको उक्त प्रारूप संशोधनों को अंतर्विष्ट करने वाली राजपत्र की प्रतियां जनता को उपलब्ध करा दी जाती हैं, साठ दिनों के अवसान से पूर्व आक्षेप और सुझाव आमंत्रित किए गए थे;

और उक्त राजपत्र की प्रतियां 25 मई, 2015 को जनता को उपलब्ध करा दी गई थीं;

और उक्त प्रारूप अधिसूचना के संबंध में, ऐसे सभी व्यक्तियों से, जिनके उनसे प्रभावित होने की संभावना थी, प्राप्त सभी आक्षेपों और सुझावों पर केन्द्रीय सरकार द्वारा सम्यक् रूप से विचार कर लिया गया है;

अतः, अब, केन्द्रीय सरकार पर्यावरण (संरक्षण) नियम, 1986 के नियम 5 के उप-नियम (3) के खंड (घ) के साथ पठित पर्यावरण (संरक्षण) अधिनियम, 1986 (1986 का 29) की धारा 3 की उप-धारा (1) और उप-धारा (2) के खंड (v) द्वारा प्रदत्त शक्तियों का प्रयोग करते हुए उक्त अधिसूचना में निम्नलिखित संशोधन करती है, अर्थात् :-

1. उक्त अधिसूचना के पैरा 1 में-

(क) उप पैरा 1(क) में "सौ किलोमीटर" शब्दों के स्थान पर "तीन सौ किलोमीटर" शब्द रखें जाएंगे;

(ख) उप पैरा 3 में "100 कि.मी." अंकों और शब्दों के स्थान पर "तीन सौ किलोमीटर" शब्द रखें जाएंगे;

(ग) उप पैरा 5 में "सौ किलोमीटर" शब्दों के स्थान पर "तीन सौ किलोमीटर" शब्द रखें जाएंगे;

(घ) उप पैरा 7 में "सौ किलोमीटर" शब्दों के स्थान पर "तीन सौ किलोमीटर" शब्द रखें जाएंगे;

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2. उक्त अधिसूचना के पैरा 2 में:-

(क) उप पैरा (1) के पश्चात् निम्नलिखित परंतुक अंत:स्थापित किया जाएगा, अर्थात्:-

"परंतु यह और कि शुष्क ईएसपी फ्लाई ऐश के 20 प्रतिशत का नि:शुल्क प्रदाय करने का निर्बंधन उन तापीय विद्युत संयंत्रों पर लागू नहीं होगा, जो विहित रीति में सौ प्रतिशत फ्लाई ऐश का उपयोग करने में समर्थ हैं।"

(ख) उप पैरा (7) के पश्चात् निम्नलिखित उप पैरा अंत:स्थापित किए जाएंगे, अर्थात् :-

"(8) प्रत्येक कोयला या लिग्नाइट आधारित तापीय विद्युत संयंत्र (जिसके अंतर्गत कैपटिव और/या सह उत्पादन केन्द्र भी हैं), अधिसूचना की तारीख से तीन मास के भीतर उनके पास उपलब्ध प्रत्येक किस्म की ऐश के स्टाक के ब्यौरे अपनी वेबसाइट पर अपलोड करेगा और उसके पश्चात् मास में कम से कम एक बार स्टाक की स्थिति को अद्यतन करेगा।

(9) प्रत्येक कोयला या लिग्नाइट आधारित तापीय विद्युत संयंत्र समर्पित शुष्क ऐश साइलोस प्रतिष्ठापित करेगा, जिनके पास पृथक् पहुंच मार्ग होंगे, जिससे कि फ्लाई ऐश के परिदान को सुगम बनाया जा सके।

(10) कोयला या लिग्नाइट आधारित तापीय विद्युत संयंत्र से 100 किलोमीटर की परिधि के भीतर सड़क संनिर्माण परियोजनाओं या ऐश आधारित उत्पादों के संनिर्माण के लिए या कृषि संबंधित क्रियाकलापों में मृदा अनुकूलक के रूप में उपयोग के लिए ऐश के परिवहन की लागत ऐसे कोयला या लिग्नाइट आधारित तापीय विद्युत संयंत्र द्वारा वहन की जाएगी और 100 किलोमीटर की परिधि से परे और 300 किलोमीटर की परिधि के भीतर ऐसे परिवहन की लागत को उपयोक्ता और कोयला या लिग्नाइट आधारित तापीय विद्युत संयंत्र के बीच समान रूप से अंश भाजित की जाएगी।

(11) कोयला या लिग्नाइट आधारित तापीय विद्युत संयंत्र अपने परिसरों के भीतर या अपने परिसरों के आस-पास ऐश आधारित उत्पाद संनिर्माण सुविधाओं का संवर्धन करेंगे, उन्हें अपनाएंगे और उनकी स्थापना करेंगे (वित्तीय और अन्य सहबद्ध अवसंरचना)।

(12) नगरों के आस-पास बने कोयला या लिग्नाइट आधारित तापीय विद्युत संयंत्र ऐश आधारित उत्पाद विनिर्माण इकाइयों का संवर्धन करेंगे और उनकी स्थापना का समर्थन और उसमें सहायता करेंगे ताकि ईंटों और अन्य भवन संनिर्माण सामग्रियों की अपेक्षाओं की पूर्ति की जा सके और साथ ही परिवहन में कमी की जा सके।

(13) यह सुनिश्चित करने के लिए कि किसी सड़क संनिर्माण का संविदाकार सड़क निर्माण में ऐश का उपयोग करता है, सड़क संनिर्माण के लिए संबद्ध प्राधिकारी संविदाकार को किए जाने वाले संदाय को तापीय विद्युत संयंत्र से ऐश के प्रदाय के प्रमाणीकरण के साथ जोड़ेगा।

(14) कोयला या लिग्नाइट आधारित तापीय विद्युत संयंत्र, 300 किलोमीटर की परिधि के भीतर प्रधानमंत्री ग्रामीण सड़क योजना के अधीन सड़क संनिर्माण परियोजनाओं और भवनों, सड़कों, बांधों और तटबंधों के संनिर्माण को अंतर्वलित करने वाले सरकार के आस्ति सृजन कार्यक्रमों के स्थल तक ऐश के परिवहन की संपूर्ण लागत का वहन करेगा।"।

3. उक्त अधिसूचना के पैरा (2) के उप-पैरा (2क) को उप-पैरा (15) के रूप में पढ़ा जाए और उक्त उप-पैरा के अंत में निम्नलिखित उप-पैरा जोड़ा जाएगा, अर्थात् :-

"और तटीय जिलों में अवस्थित कोयला या लिग्नाइट आधारित तापीय विद्युत संयंत्र तटरेखा सुरक्षा उपायों का समर्थन करेंगे, उनके संनिर्माण में सहायता करेंगे या उसमें प्रत्यक्ष रूप से सम्मिलित होंगे।"

4. उक्त अधिसूचना के पैरा 3 में उप-पैरा (7) के पश्चात् निम्नलिखित अंत:स्थापित किया जाएगा, अर्थात् :-

"(8) विभिन्न संनिर्माण परियोजनाओं का अनुमोदन करने वाले सभी राज्य प्राधिकारियों का यह उत्तरदायित्व होगा कि वे यह सुनिश्चित करें कि फ्लाई ऐश का उपयोग करने या फ्लाई ऐश आधारित उत्पादों के लिए तापीय विद्युत संयंत्रों और संनिर्माण अभिकरण या संविदाकारों के बीच परस्पर समझ ज्ञापन या कोई अन्य ठहराव किया जाता है।

(9) राज्य प्राधिकारी, दस लाख या अधिक की जनसंख्या वाले नगरों की भवन निर्माण संबंधी उप विधियों का संशोधन करेंगे ताकि भार वहन करने वाली संरचनाओं हेतु तकनीकी अपेक्षाओं के अनुसार आवश्यक विनिर्देशों को ध्यान में रखते हुए ऐश आधारित ईंटों के आज्ञापक उपयोग को सुनिश्चित किया जा सके।

(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 आज्ञापक 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 लिग्नाइट 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-एचएमएमडी]

विश्वनाथ सिन्हा, संयुक्त सचिव

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

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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 utlise 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.

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(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.

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Item Nos. 01 to 03 Court No. 1

BEFORE THE NATIONAL GREEN TRIBUNAL
PRINCIPAL BENCH, NEW DELHI

Original Application No. 117/2014
WITH
Original Application No. 499/2014
WITH
Original Application No. 102/2014
(M.A. No. 858/2014, M.A. No.872/2014, 42/2015, 287/2015, 694/2015 & 580/2016)

Shantanu Sharma Applicant(s)

Versus

Union of India & Ors. Respondent(s)

WITH

Anupam Raghav & Anr. Applicant(s)

Versus

U.O.I. & Ors. Respondent(s)

WITH

Sandplast (India) Ltd. & Ors. Applicant(s)

Versus

MoEF & Ors. Respondent(s)

Date of hearing: 20.11.2018

CORAM: HON'BLE MR. JUSTICE ADARSH KUMAR GOEL, CHAIRPERSON
HON'BLE MR. JUSTICE S.P. WANGDI, JUDICIAL MEMBER
HON'BLE MR. JUSTICE K. RAMAKRISHNAN, JUDICIAL MEMBER
HON'BLE DR. NAGIN NANDA, EXPERT MEMBER

For Applicant(s): Tasneema Ahmadi & Mahima Rathi, Advocates

For Respondent (s): Krishna Kumar Singh, Advocate for MoEF & CC
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Arun Mathur, Avneesh Arputham, Anuradha Arputham & Geetanjali, Advocates for State of Sikkim
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ORDER

1. These matters raise concern of management of fly ash generated by the Thermal Power Plants (TPP). We may refer to the pleadings in Original Application No. 117/2014, Shantanu Sharma Vs. Union of India & Ors. Other matters are said to be identical.

2. The applicant claims to be interested in protection of environment and forest. He claims to be aggrieved by non-implementation of Notifications issued by the Ministry of Environment, Forest and Climate Change (MoEF&CC) for proper utilization of fly ash generated by the coal and lignite based TPP.

3. Case of the applicant is that non-utilization and improper disposal of fly ash leads to increase in air pollution and causes severe health problems. It also affects horticulture and agricultural crops. As at present, there are increased ash pond areas and increased height of ash dykes. Apart from air pollution, there is pollution of surface water and ground water. Major pollutants in fly ash are Arsenic and Mercury. Both the said pollutants are injurious for the land and the water bodies. Thus, there is need for 100% utilization of fly ash by all possible means such as conversion to ash based products, preventing its washing away or flying in the air. MoEF&CC has failed to ensure proper monitoring mechanism inspite of issuing notification on the subject.

4. Notification dated 14.09.1999 required use of atleast 25% of the ash for clay bricks or tiles or blocks for use in construction

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activities. The Delhi High Court vide judgment dated 05.08.2004 in Writ Petition (C) No. 2145/1999 directed the Government to make use of fly ash mandatory in roads apart from using it in bricks for construction. Land, electricity and water is required to be made available for promoting ash based production units. Vide amendment dated 03.11.2009, provision was made for its use in manufacturing of building material and in construction activity to preserve top soil by restricting excavation for disposal. Since quantum of fly ash has increased, the extent of fly ash required to be used was also increased.

5. In view of more and more concern on account of failure of efficacy of the measures already taken, a working group was constituted by the Department of Industrial Policy and Promotion, Ministry of Commerce and Industry, Govt. of India. In its report submitted in the year 2011, the said group *inter-alia* observed that increase in generation of fly ash led to increase in the requirement of land and thus target has to be of 100% utilization as against 60% utilization which was happening. The disposal process lacked transparency and it was necessary that each thermal power plant displays complete information. Other measures adopted include policy of financial institutions to require compliance of fly ash as a condition for grant of loan and incentives in rate of excise duty. The applicant has also referred to the report jointly published by the World Bank and the Department of Economic Affairs, Govt. of India pointing out the deficiencies in pro-active government policies on the subject.

6. We may now refer to the Notifications on the subject. Vide Notification dated 14.09.1999, the MoEF&CC issued directions requiring manufacturers of clay bricks or tiles or blocks or construction activities to mix atleast 25% of ash which is to be ensured by the Pollution Control Boards/Committees by

canceling the consent order for brick kilns or mining leases. Every thermal power plant was required to make available such ash and phase out dumping and disposal in three years to the extent of 30%, and in six years the remaining. This applied to plants permissioned subject to Environmental Clearance having such conditions. The remaining are required to phase-out the same in 15 years and compliance was required to be furnished to the Central Pollution Control Board and the concerned State Pollution Control Boards/Committees. The Electricity Boards, NTPC and the management of the power plants are to facilitate making available land, electricity and water for manufacturing activities and also to provide access to the ash lifting area and furnish annual implementation report. Manufacturers of ash based products such as cement, blocks, brick panels were to operate as per the guidelines laid down by the Bureau of Indian Standards, Indian Bureau of Mines, Indian Road Congress, Central Building Research Institute, Roorkee, Central Road Research Institute, New Delhi, Building Materials and Technology Promotion Council, New Delhi, Central Public Works Department, State Public Works Departments and other Central and State Government agencies. The said authorities are to prescribe the use of ash and ash based products in schedules of specifications. Local authorities are to specify such requirement in building bye-laws.

7. Vide Notification dated 27.08.2003, certain amendments were made particularly to the effect that construction agencies were required to use the fly ash to the extent of 100% in a phased manner upto 31.08.2007.

8. Next Notification is dated 03.11.2009, revising the timelines and the period for implementation. The revised timelines apply to the construction agencies as well as thermal power plants as per

details mentioned in the said Notification. The said Notification also provided for shifting of the fly ash by filling empty mined voids by stowing.

9. The report of the Working Group of Cement Industries for 12th Five Year Plan (2012-2017) by the Department of Industrial Policy and Promotion, Ministry of Commerce and Industry goes into the extent of the problems and challenges in tackling the issue. The report shows that if the fly ash generated is not consumed, the cost on the economy by way of disposal risks and threat to health will be very high. Thus, to conserve top soil and prevent dumping and disposal on land, proper disposal of fly ash was significant. It was recommended that the Ministry of Power, Govt. of India should make proper assessment of the level of fly ash generation. The fly ash need not be required to be supplied free by the cement manufacturers to small bricks manufacturers and should be utilized by the cement plants for their own consumption. If the cement plants are required to purchase the fly ash at a cost, it will require transportation and add to the cost unnecessarily.

10. We now note the stand of the respondents. The Ministry of Finance and Revenue, Govt. of India in its reply has stated that the excise duty is 2% without CENVAT credit and 6% with CENVAT credit. Fly ash products are covered by SSI exemption. No excise duty is payable upto a clearance value of Rs. 1.5 crores.

11. The Reserve Bank of India has stated that the Banks have been advised to have an appropriate policy in this regard in the matter of giving loans.

12. The MoEF&CC has referred to the Notifications issued from time to time to deal with the problem. In respect of thermal power

stations in its operation before 03.11.2009, extent of fly ash utilizations is as per following table:

Sr. No.	Percentage Utilization of Fly Ash	Target Date
1.	At least generation 50% of fly ash	One year from the date of issue of this notification.
2.	At least generation 60% of fly ash	Two years from the date of issue of this notification.
3.	At least generation 75% of fly ash	Three years from the date of issue of this notification
4.	At least generation 90% of fly ash	Four years from the date of issue of this notification
5.	At least generation 100% of fly ash	Five years from the date of issue of this notification

13. For those commissioned thereafter, the extent of fly ash utilization is as follows:

Sr. No.	Percentage Utilization of Fly Ash	Target Date
1.	At least generation 50% of fly ash	One year from the date of issue of commissioning.
2.	At least generation 70% of fly ash	Two years from the date of issue of commissioning.
3.	At least generation 90% of fly ash	Three years from the date of issue of commissioning.
4.	At least generation 100% of fly ash	Four years from the date of issue of commissioning.

14. Conditions prescribed for utilization of fly ash are as follows:

"(a) the pond ash should be made available free of cost 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.

(b) at least 20% of dry ESP fly ash shall be made available free of cost 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."

15. Under the above notification, a Monitoring Committee is to be constituted in every State/Union Territory under the Chairmanship of the Secretary, Department of Environment with representatives from Department of Power, Department of Mining, Road and Building Construction Department and State Pollution Control Board. The Committee is required to deal with

any unresolved issue by Dispute Settlement Committee in addition to the monitoring and facilitating the implementation of the notification.

16. Monitoring Committee constituted by the MoEF&CC is to have members from Ministry of Coal., Ministry of Power., Central Pollution Control Board., Central Electricity Authority., Head, Fly Ash Unit of the Department of Science and Technology and Building Material Technology Promotion Council.

17. It is further stated, in the affidavit of the MoEF&CC, that as per the information received from Central Electricity Authority (CEA), during a meeting, the fly ash generation from 138 thermal power plants is reported to be 163.56 million tons during the year 2012-13. The overall utilization of fly ash was 100.73 million ton, which is about 61.37% of the total fly ash generated. During the year 2012-13, out of 138 (one hundred thirty-eight) thermal power stations for which data was received, 66 (sixty-six) power stations have achieved the targets of fly ash utilization as stipulated in the notification dated 03.11.2009. The remaining 33 (thirty-three) plants have achieved the level of fly ash utilization up to 75%. The 19 (nineteen) plants have achieved the level of fly ash utilization up to 60%.

18. CPCB has given a chart showing progress of fly ash generation and utilization from 1996 to 2012. Some of the State Pollution Control Boards/Committees have filed their affidavits indicating the extents to which utilization of fly ash has taken place.

19. Vide Notification dated 25.01.2016, further amendment was made to the Notification dated 14.09.1999 mainly to the effect that the area within which the fly ash is to be utilized has been increased to 300 kms. The time period to comply with the requirements of 100% utilization of fly ash was extended to 31.12.2017.

20. The matter has been considered on several dates in the last four and a half years. Reference may be made to some of the orders passed.

21. Vide order dated 06.01.2016, the MoEF&CC, the State Governments/Union Territories were required to furnish the details of the Monitoring Committees and if such Committees were not constituted as per the mandate of the Notification, the same were directed to be constituted.

22. On 03.01.2018, the States/Union Territories were directed to furnish their action plans for utilization of fly ash produced and generated by thermal power plants in accordance with the Notifications.

23. On 16.02.2018, it was noted that only eight States have submitted their action plans. MoEF&CC was directed to expedite the collection of action plans from the concerned States.

24. On 20.03.2018, the Chief Secretaries of the States, who had failed to submit action plans, were again required to do so.

25. On 12.07.2018, it was stated that 20 States have submitted their action plans out of which 13 were not complete or satisfactory. The MoEF&CC was directed to monitor the compliance of the earlier orders referred to above and submit a status report.

26. Accordingly, status report has been filed before this Tribunal on 07.09.2018 by the MoEF&CC stating that no fly ash is generated in 15 States/UTs namely Goa, Himachal Pradesh, Jammu & Kashmir, Kerala, Manipur, Mizoram, Nagaland, Sikkim, Tripura, Andaman and Nicobar, Chandigarh, Daman & Diu, Dadra & Nagar Haveli, Lakshadweep and Pondicherry. Accordingly, the said States and Union Territories and their authorities be deleted from the array of parties.

27. Twenty States have given their action plans. Only State of Arunachal Pradesh has not furnished any action plan. Since there is nothing to show that there is any fly ash generation in the said

State, the said State or its authorities are also deleted from array of parties. We do not understand why deletion of unnecessary parties was never sought.

28. The position of each of the remaining twenty States has been mentioned. It may be noted that though the last date for achieving 100% utilization was 31.12.2017 and the said date has not been extended, the States have sought extension of time by 2 to 5 years upto the year 2023 which is wholly uncalled for. This Tribunal has no jurisdiction to grant any extension of time in conflict with the mandate of notification under the Environment (Protection) Act, 1986, particularly when such extension will enable harm to environment, in violation of statutory scheme. It is also stated by some of the States that action plans to achieve 100% utilization of fly ash has not even been furnished by some of the Thermal Power Plants.

29. We may also note that the NITI Aayog, vide order dated 12.06.2018, constituted a Committee headed by Joint Secretary, MoEF&CC, Govt. of India, to develop a focused strategy for best utilization of fly ash to manufacture end products. Issues to be gone into by the Committee are:- revisiting existing notifications / guidelines, transportation of fly ash, better utilization in MSME Sector, cement and allied industries, use of mobile app in data base, guidelines for ash parks, regulation of red bricks, incentives for 100% utilization, incentives to TPPs for new innovations. Draft report was circulated by MoEF&CC on 16.10.2018. The Committee noted that the existing notification needed review and the same were not being fully implemented.

30. In view of the above, only question for consideration is the directions to be issued on account of failure of 100% utilization of fly ash which has admitted adverse impact on public health and to give effect to the 'Precautionary Principle' and the 'Polluter Pays'

Principle to be applied under Section 20 the National Green Tribunal Act, 2010.

31. Since non-utilization of 100% fly ash, especially after 31.12.2017, the date fixed in the Notification of the MoEF&CC dated 25.01.2016, invites penal consequences under the provisions of the Environment Protection Act, 1986, liability in this regard is not only of the persons responsible for non-utilization but also for generators of the fly ash. The generator cannot avoid responsibility for due disposal of any residue pollutants on account of its activity. The principle of 'extended producer's liability' is well recognized as part of 'Sustainable Development'. Applying the 'Precautionary Principle', the permission to dump fly ash in the mined voids has to be subject to all precautionary measures necessary for environment protection. Area of utilization of fly ash has been extended to 300 kms, which may call for more stringent conditions to avoid damage to the environment.

32. The adverse effect of fly ash mismanagement is well acknowledged in decision of Courts[1] as well as by public authorities[2].

33. We are of the view that a Joint Committee of the representatives of the Ministry of Environment, Forest and Climate Change, Central Pollution Control Board and IIT Roorkee and any other member considered necessary by MoEF&CC needs to be forthwith constituted to finalize action plan covering all aspects so as to not only achieve 100% utilization of fly ash but also to ensure its scientific and environmentally sound disposal. The Committee will also be required to determine the amount of damages to be paid for the violation of requirement of utilization of fly ash. Needless to say that statutory authorities under the Environment

[1] Occupational Health and Safety Association v. Union of India & Ors. (2004) 3 SCC 547 ¶12-15

[2] http://pib.nic.in/PressReleseDetail.aspx?PRID=1520080, https://economictimes.indiatimes.com/news/politics-and-nation/pmo-asks-agencies-to-increase-usage-of-fly-ash-by-10-times/articleshow/65814656.cms, https://energy.economictimes.indiatimes.com/news/power/from-coal-production-to-renewable-power-obligations-niti-aayog-lays-down-its-3-year-agenda-for-indias-energy-sector/58486230, http://pib.nic.in/newsite/PrintRelease.aspx?relid=179785

(Protection) Act, 1986, the Air (Prevention and Control of Pollution) Act, 1981 and the Water (Prevention and Control of Pollution) Act, 1974 are entitled to assess and recover damages on 'Polluter Pay's Principle' in exercise of incidental powers to protect environment. The Committee may determine any other allied or incidental issue.

34. Accordingly, we direct constitution of such a Committee by the MoEF&CC forthwith. The Committee may give its report within two months from the date of its assuming charge to the MoEF&CC.

35. The report of the Committee may be complied with by all concerned, subject to any challenge to such report, in accordance with law.

36. Pending submissions of such report, we direct all Thermal Power Stations who have failed to dispose of 100% fly ash up to 31.12.2017, to deposit damages for environment restoration as follows:

Sl. No.	Capacity of the Thermal Power Plant	Cost of damages
1.	Thermal Power Plants upto the capacity of 500 MW	Rs. 1 Crore
2.	Thermal Power Plants upto the capacity of 1000 MW	Rs. 3 Crores
3.	Thermal Power Plants beyond the capacity of 1000 MW	Rs. 5 Crores

37. The above amount may be deposited with the CPCB within one month from today, failing which interest @ 12% p.a. will be payable for the delayed period. The amount may be spent on restoration and restitution of the environment.

38. No damages will be payable by the Thermal Power Plants which have utilized 100% of the ash generated by it in accordance with law up to 31.12.2017 and disposing it in scientific manner. In case, any such claim is found to be false by the Committee, the amount of penalty payable may be up to five times.

39. The MoEF&CC may furnish an action taken report to this Tribunal on or before 31.03.2019 by e-mail at ngt.filing@gmail.com. All the applications are disposed of.

40. Report may be put up for consideration on 9th April, 2019.

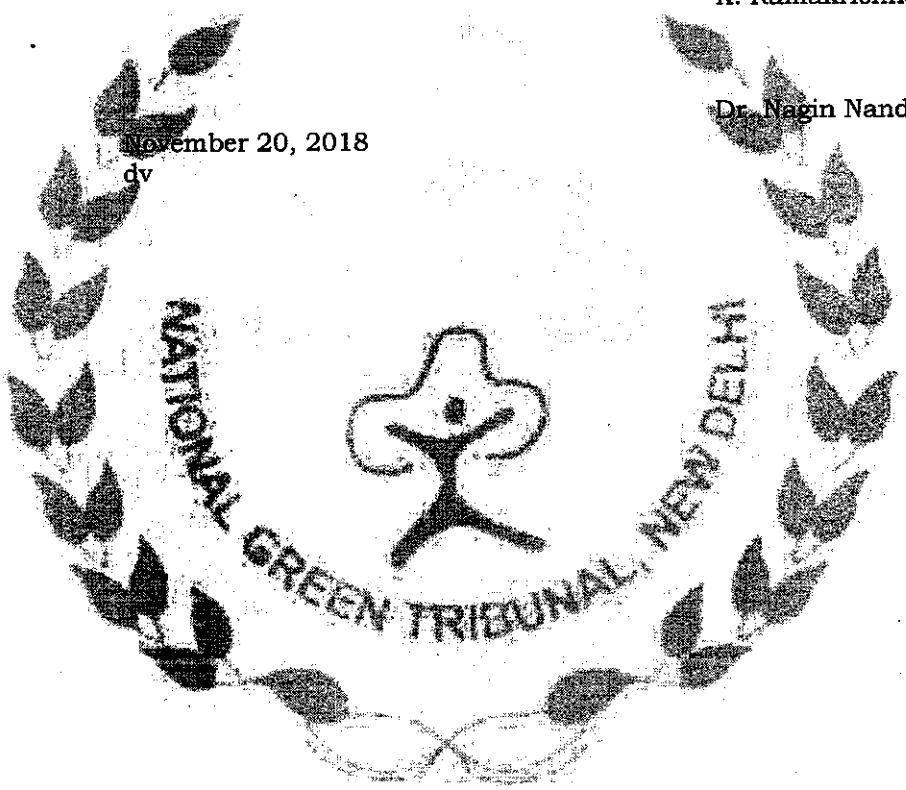
Adarsh Kumar Goel, CP

S.P. Wangdi, JM

K. Ramakrishnan, JM

Dr. Nagin Nanda, EM

November 20, 2018
dv



Annexure-A/2

रजिस्ट्री सं. डी.एल.- 33004/99 REGD. No. D. L.-33004/99

भारत का राजपत्र
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EXTRAORDINARY

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PART II—Section 3—Sub-section (ii)

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पर्यावरण, वन और जलवायु परिवर्तन मंत्रालय

अधिसूचना

नई दिल्ली, 31 दिसम्बर, 2021

का.आ. 5481(अ).—केन्द्रीय सरकार ने भारत सरकार के तत्कालीन पर्यावरण और वन मंत्रालय की अधिसूचना सं. का.आ. 763 (अ) तारीख 14 सितम्बर, 1999 द्वारा कोयला या लिग्नाइट आधारित ताप विद्युत संयंत्रों से तीन सौ किलोमीटर के विनिर्दिष्ट व्यास के भीतर ईंटों के विनिर्माण के लिए उपजाऊ मिट्टी के उत्खनन को प्रतिबंधित करने के लिए और भवन निर्माण सामग्री के विनिर्माण में और संनिर्माण क्रियाकलाप में फ्लाई-राख के उपयोग को बढ़ावा देने के लिए निदेश जारी किए हैं;

और, प्रदूषणकर्ता भुगतान सिद्धांत (पीपीपी) के आधार पर, ऐसा करके कोयला या लिग्नाइट आधारित ताप विद्युत संयंत्रों द्वारा फ्लाई-राख का 100 प्रतिशत उपयोग सुनिश्चित करते हुए और फ्लाई-राख प्रबंधन प्रणाली की संधारणीयता के लिए पूर्वोक्त अधिसूचना को और अधिक प्रभावकारी ढंग से कार्यान्वित करने हेतु, केंद्रीय सरकार ने मौजूदा अधिसूचना की समीक्षा की;

और प्रदूषणकर्ता भुगतान सिद्धांत के आधार पर पर्यावरणीय प्रतिकर निर्धारित किए जाने की आवश्यकता है;

और, विनिर्माण को बढ़ावा देकर तथा निर्माण कार्य के क्षेत्र में राख आधारित उत्पादों तथा भवन निर्माण सामग्रियों के प्रयोग को अनिवार्य करके उपजाऊ मिट्टी को संरक्षित करने की आवश्यकता है;

और, सड़क बनाने, सड़क एवं फ्लाई ओवर के रेलिंग बनाने, तटरेखा की सुरक्षा का उपाय करने, अनुमोदित परियोजनाओं के निचले क्षेत्रों को भरने, खनित स्थलों को फिर से भरने में मिट्टी की सामग्रियों से भरने के विकल्प के रूप में राख उपयोग को बढ़ावा देकर उपजाऊ मिट्टी और प्राकृतिक संसाधनों को संरक्षित करने की आवश्यकता है;

और, पर्यावरण को सुरक्षित करना तथा कोयला अथवा लिग्नाइट आधारित ताप विद्युत संयंत्रों से सृजित फ्लाई राख के निक्षेपण तथा निपटान की रोकथाम करना आवश्यक है;

और, उक्त अधिसूचना में जो 'राख' शब्द का प्रयोग किया गया है उसमें कोयला या लिग्नाइट आधारित ताप विद्युत संयंत्रों से सृजित फ्लाई-राख और बॉटम-राख दोनों शामिल हैं;

और, केंद्रीय सरकार प्रदूषणकर्ता भुगतान सिद्धांत के आधार पर, पर्यावरणीय प्रतिकर की प्रणाली सहित राख के उपयोग के लिए एक व्यापक ढांचा लाना चाहती है;

अत: पर्यावरण (संरक्षण) नियम, 1986 के नियम (5) के उप-नियम (3) के खंड (घ) के साथ पठित पर्यावरण (संरक्षण) अधिनियम, 1986 (1986 का 29) की धारा 3 की उप-धारा (1) और उप-धारा (2) के खंड (v) द्वारा प्रदत्त शक्तियों का प्रयोग करते हुए, भारत सरकार के पर्यावरण एवं वन मंत्रालय की अधिसूचना जो का.आ. 763 (अ) तारीख 14 सितम्बर, 1999 द्वारा भारत के राजपत्र, असाधारण भाग ।।, खंड 3, उप खंड (i) में प्रकाशित का अधिक्रमण करते हुए, कोयला या लिग्नाईट आधारित ताप विद्युत संयंत्रों द्वारा राख के उपयोग के संबंध में प्रारूप अधिसूचना जो सा.का.नि. 285 (अ) तारीख 22 अप्रैल, 2021 द्वारा भारत के राजपत्र, असाधारण, भाग-2, धारा 3, उप धारा (i) में प्रकाशित की गई थी जिसमें उन सभी व्यक्तियों से जिनका इससे प्रभावित होना सामान्य है उस तारीख से, जिसको उक्त प्रारूप उपबंधों की शासकीय राजपत्र में अंतर्विष्ट प्रतियां जनता को उपलब्ध करा दी गई थी, साठ दिनों के अवसान से पूर्व आक्षेप और सुझाव आमंत्रित किए गए थे।

और उक्त प्रारूप अधिसूचना के संबंध में उससे संभावित तौर पर प्रभावित होने वाले सभी व्यक्तियों से प्राप्त आक्षेपों और सुझावों पर केंद्रीय सरकार द्वारा सम्यक रूप से विचार कर लिया गया है;

अत: पर्यावरण (संरक्षण) नियम, 1986 के नियम (5) के उप-नियम (3) के खंड (घ) के साथ पठित पर्यावरण (संरक्षण) अधिनियम, 1986 (1986 का 29) की धारा 3 की उप-धारा (1) और उप-धारा (2) के खंड (v) द्वारा प्रदत्त शक्तियों का प्रयोग करते हुए और अधिसूचना का.आ. 763 (अ) तारीख 14 सितम्बर, 1999 का उन बातों के सिवाय अधिकांत करते हुए जिन्हें ऐसे अधिक्रमण से पूर्व किया गया है या करने का लोप किया गया है, केन्द्रीय सरकार कोयलों या लिग्नाईट आधारित ताप विद्युत संयंत्रों से राख के उपयोग के संबंध में निम्नलिखित अधिसूचना जारी करती है, जो इस अधिसूचना के प्रकाशन की तिथि से प्रवृत्त होगी, अर्थात्

क. फ्लाई-राख और बॉटम-राख का निपटान करने हेतु ताप विद्युत संयंत्रों (टीपीपी) के उत्तरदायित्व.-

(1) प्रत्येक कोयला या लिग्नाइट आधारित ताप विद्युत संयंत्र (जिनमें कैप्टिव और/या सह-उत्पादन केंद्र शामिल हैं या दोनों) की यह प्राथमिक जिम्मेदारी होगी कि वह अपने द्वारा सृजित राख (फ्लाई-राख और बॉटम-राख) का उप पैरा (2) में दिए गए पारि-अनुकूल तरीके से 100 प्रतिशत उपयोग सुनिश्चित करे;

(2) कोयला या लिग्नाइट आधारित ताप विद्युत संयंत्रों से सृजित राख का उपयोग केवल निम्नलिखित पारि-अनुकूल प्रयोजनों के लिए किया जाएगा, अर्थात्:-

(i) फ्लाई राख पर आधारित उत्पाद अर्थात्: ईंट ब्लॉक टाइल, फाइबर सीमेंट शीट, पाइप, बोर्ड, पैनल का विनिर्माण;

(ii) सीमेंट विनिर्माण, रेडी-मिक्स कंक्रीट;

(iii) सड़क निर्माण और फ्लाई-ओवर के रेलिंग का निर्माण, राख और जिओ-पॉलीमर आधारित निर्माण सामग्री;

(iv) बांध का निर्माण;

(v) निचले क्षेत्र को भरना;

(vi) खनन कार्य से रिक्त हुए स्थान को भरना;

(vii) सिंटर्ड या शीत–बद्ध राख संचय का विनिर्माण;

(viii) मृदा परीक्षण के आधार पर नियंत्रित तरीके से कृषि;

(ix) तटीय जिलों में तटरेखा संरक्षण संरचनाओं का निर्माण;

(x) अन्य देशों को राख का निर्यात;

(xi) समय-समय पर यथाधिसूचित किसी अन्य पारि-अनुकूल प्रयोजन के लिए।

(3) अध्यक्ष, केंद्रीय प्रदूषण नियंत्रण बोर्ड (सीपीसीबी) की अध्यक्षता में एक समिति गठित की जाएगी जिसमें पर्यावरण, वन और जलवायु परिवर्तन मंत्रालय (एमओईएफसीसी), विद्युत मंत्रालय, खान मंत्रालय, कोयला मंत्रालय, सड़क परिवहन और राजमार्ग मंत्रालय, कृषि अनुसंधान एवं शिक्षा विभाग, सड़क कांग्रेस संस्थान तथा राष्ट्रीय सीमेंट एवं भवन सामग्री परिषद के प्रतिनिधियों को सदस्यों के रूप में शामिल किया जाएगा, जिसका प्रयोजन राख के उपयोग के पारि-अनुकूल तौर-तरीकों की जांच करना, उनकी समीक्षा एवं अनुशंसा करना तथा प्रौद्योगिकीय विकासों तथा पणधारी से प्राप्त अनुरोधों के आधार पर उप-पैरा (2) में यथोल्लिखित ऐसे तौर-तरीकों की सूची में समिति द्वारा सुझाए गए तौर-तरीकों को शामिल करना या किसी तौर-तरीके को सूची से हटाना या उसमें संशोधन करना है। जब भी इस प्रयोजन के लिए अपेक्षित हो, यह समिति राज्य प्रदूषण नियंत्रण बोर्ड या प्रदूषण नियंत्रण समिति, ताप विद्युत संयंत्र और खानों के प्रचालकों को आमंत्रित कर सकती है। इस समिति सिफारिश के आधार पर, पर्यावरण, वन और जलवायु परिवर्तन मंत्रालय ऐसे पारि-अनुकूल प्रयोजन प्रकाशित करेगा।

(4) प्रत्येक कोयला या लिग्नाइट आधारित ताप विद्युत संयंत्र उस वर्ष के दौरान सृजित राख (फ्लाई-राख और बॉटम-राख) का 100 प्रतिशत उपयोग करने हेतु उत्तरदायी होगा; तथापि, किसी भी स्थिति में, किसी वर्ष में राख का उपयोग 80 प्रतिशत से नीचे नहीं होगा और साथ ही, उस ताप विद्युत संयंत्र को तीन वर्ष की अवधि में 100 प्रतिशत औसत राख के उपयोग का लक्ष्य प्राप्त करना होगा :

परंतु, यह और कि पहली बार के लिए लागू तीन वर्ष के चक्र को ऐसे ताप विद्युत संयंत्रों, जहां राख का उपयोग 60-80 प्रतिशत के बीच होता है, एक वर्ष के लिए और ऐसे संयंत्रों, जहां राख का उपयोग 60 प्रतिशत से कम है, दो वर्ष के लिए बढ़ाया जा सकता है, और राख के उपयोग की प्रतिशतता की गणना के प्रयोजन के लिए वर्ष 2021-2022 में उपयोग की प्रतिशत प्रमात्रा को नीचे दी गई तालिका के अनुसार ध्यान में रखा जाएगा:

तापीय विद्युत संयंत्रों के उपयोग की प्रतिशतता	100 प्रतिशत उपयोगिता प्राप्त करने के लिए प्रथम अनुपालन चक्र	100 प्रतिशत उपयोगिता प्राप्त करने के लिए द्वितीय अनुपालन चक्र
>80 प्रतिशत	3 वर्ष	3 वर्ष
60-80 प्रतिशत	4 वर्ष	3 वर्ष
<60 प्रतिशत	5 वर्ष	3 वर्ष

परन्तु, ताप विद्युत संयंत्रों के लिए 80 प्रतिशत न्यूनतम उपयोग प्रतिशतता, क्रमश: 60-80 प्रतिशत और <60 प्रतिशत की उपयोगिता की श्रेणी के तहत आने वाले ताप विद्युत संयंत्रों के लिए प्रथम अनुपालन चक्र के पहले वर्ष और पहले दो वर्षों पर लागू नहीं होगी।

परन्तु, अनुपालन चक्र के अंतिम वर्ष में सृजित 20 प्रतिशत राख को अगले चक्र में भी ले जाया जाएगा जिसका उपयोग उस अनुपालन चक्र के दौरान सृजित राख के साथ अगले तीन वर्षों में किया जाएगा।

(5) अप्रयुक्त संचित राख अर्थात् लीगेसी राख, जिसका इस अधिसूचना के प्रकाशन से पहले भंडारण किया गया है, को ताप विद्युत संयंत्र (टीपीपी) द्वारा इस रीति से क्रमिक रूप से उपयोग में लाया जाएगा, कि लीगेसी राख को इस अधिसूचना के प्रकाशन की तिथि से दस वर्षों के भीतर पूरी तरह उपयोग कर लिया जाएगा और यह उस विशिष्ट वर्ष के चालू संचालनों के माध्यम से राख उत्सर्जन के लिए निर्धारित उपयोग लक्ष्यों से अतिरिक्त होगा।

परन्तु, निम्नलिखित प्रतिशतताओं में यथा उल्लिखित लीगेसी राख की न्यूनतम मात्रा का उपयोग तास्थानी वर्ष के दौरान कर लिया जाएगा और लीगेसी राख की न्यूनतम मात्रा की ताप विद्युत संयंत्र की संस्थापित क्षमता के अनुसार वार्षिक राख उत्सर्जन के आधार पर की जानी है।

प्रकाशन की तिथि से वर्ष	पहला	दूसरा	तीसरा-दसवां
लीगेसी राख का उपयोग (वार्षिक राख की प्रतिशतता)	कम से कम 20 प्रतिशत	कम से कम 35 प्रतिशत	कम से कम 50 प्रतिशत

परन्तु, यह और कि लीगेसी राख का उपयोग वहां अपेक्षित नहीं है, जहां राख के तालाब या डाइक स्थिर हो गए हैं और हरित पट्टी के निर्माण या पौध रोपण से पुनरूद्धार किया गया है और संबंधित राज्य प्रदूषण नियंत्रण बोर्ड इस संबंध में प्रमाणित करेगा। किसी राख तालाब या डाइक के स्थिरीकरण और भूमि-उद्धार का कार्य, जिसमें केन्द्रीय प्रदूषण नियंत्रण बोर्ड या राज्य प्रदूषण नियंत्रण बोर्ड द्वारा प्रमाणन शामिल है, इस अधिसूचना के प्रकाशन की तारीख से एक वर्ष के भीतर किया जाएगा। अन्य सभी राख के कुंड या डाइक में शेष बचे राख का उपयोग ऊपर उल्लिखित समय-सीमाओं के अनुसार क्रमिक रूप से किया जाएगा।

टिप्पण: राख के उपयोग के लक्ष्यों को हासिल करने के लिए उप पैरा (4) और (5) के अधीन दायित्व 01 अप्रैल, 2022 की तारीख से लागू होंगे।

(6) किसी भी नए तापीय विद्युत संयंत्र (टीपीपी) में 0.1 हेक्टेयर प्रति मेगावाट (एमडब्ल्यू) क्षेत्रफल के साथ आपातकालीन या अस्थायी राख कुंड की अनुमति दी जा सकती है। राख के तालाब या डाइकों का तकनीकी विर्निदेश, केन्द्रीय विद्युत प्राधिकरण (सीईए) के परामर्श से केन्द्रीय प्रदूषण नियंत्रण बोर्ड द्वारा बनाए गए दिशानिर्देशों के अनुसार होगा और ये दिशानिर्देश राख के कुंड या डाइक के संबंध में इसकी सुरक्षा, पर्यावरणीय प्रदूषण, उपलब्ध प्रमात्रा, निपटान का तरीका, निपटान में जल की खपत या संरक्षण, राख जल पुनर्चक्रण और ग्रीन बेल्ट आदि के वार्षिक प्रमाणन के लिए कार्यविधि भी निर्धारित करेंगे और इस अधिसूचना के प्रकाशन की तारीख से तीन महीनों के भीतर प्रस्तुत किए जाएंगे।

(7) प्रत्येक कोयला या लिग्नाईट आधारित ताप विद्युत संयंत्र यह सुनिश्चित करेगा कि राख की लदाई, उतराई, ढुलाई, भंडारण और निपटान पर्यावरणीय दृष्टि से अनुकूल रीति से किया गया है और वायु और जल प्रदूषण की रोकथाम के लिए सभी ऐहितयात किए गए हैं और इस संबंध में स्थिति की सूचना इस अधिसूचना में संलग्न अनुबंध में संबंधित राज्य प्रदूषण नियंत्रण बोर्ड (एसपीसीबी) या प्रदूषण नियंत्रण समिति (पीसीसी) को दी जाएगी।

(8) प्रत्येक कोयला या लिग्नाइट आधारित तापीय विद्युत संयंत्र, संस्थापित क्षमता पर आधारित राख के कम से कम 16 घंटों के भंडारण के लिए समर्पित शुष्क फ्लाई राख साइलोस प्रतिष्ठापित करेगा, जिनके पास पृथक पहुंच मार्ग होंगे, जिससे कि राख पहुंचाने के कार्य को सुगम बनाया जा सके। इसकी सूचना संबंधित राज्य प्रदूषण नियंत्रण बोर्ड (एसपीसीबी) या प्रदूषण नियंत्रण समिति (पीसीसी) को उपाबंध में दी जाएगी और केन्द्रीय प्रदूषण नियं

बोर्ड (सीपीसीबी) या राज्य केन्द्रीय प्रदूषण नियंत्रण बोर्ड (एसपीसीबी) या प्रदूषण नियंत्रण समिति द्वारा समय-समय पर निरीक्षण किया जाएगा।

(9) प्रत्येक कोयला या लिग्नाईट आधारित तापीय विद्युत संयंत्र (जिसके अंतर्गत कैप्टिव या सह उत्पादन केन्द्र भी है या दोनों), वास्तविक उपयोगकर्ता (उपयोगकर्ताओं) के हित के लिए केन्द्रीय प्रदूषण नियंत्रण बोर्ड के वेब पोर्टल या मोबाईल फोन एप्प का लिंक उपलब्ध कराकर ताप विद्युत संयंत्र के पास राख की उपलब्धता के वास्तविक आंकड़े प्रदान करेगा।

(10) राख के 100 प्रतिशत उपयोग का वैधानिक दायित्व, जहां भी लागू हो, विधि में बदलाव के रूप में माना जाएगा।

ख. राख के उपयोग के प्रयोजनार्थ, उत्तरवर्ती उप पैराग्राफ लागू होंगे .-

(1) ऐसे सभी अभिकरण (सरकारी, अर्द्धसरकारी और निजी), जो सड़क बिछाने, सड़क और फ्लाई ओवर के किनारों, तटीय जिलों में तटरेखा की सुरक्षा संरचनाओं और लिग्नाईट या कोयला आधारित ताप विद्युत संयंत्र से 300 किमी के भीतर बांधों जैसे निर्माण संबंधी कार्यकलापों में लगे हुए हैं, इन कार्यकलापों में अनिवार्य रूप से राख का उपयोग करेंगे :

परंतु इसको परियोजना स्थल पर निशुल्क पहुंचाया जाए और परिवहन लागत, ऐसे कोयला या लिग्नाईट आधारित ताप विद्युत संयंत्रों द्वारा वहन की जाए।

परंतु यह और कि ताप विद्युत संयंत्र पारस्परिक सहमत हुई शर्तों के अनुसार राख की लागत और परिवहन के लिए शुल्क ले सकता है उस मामले में जहां ताप विद्युत संयंत्र अन्य माध्यम से राख का निपटान करने में समर्थ है और ये अभिकरण इसके लिए प्रर्थाना कर सकते हैं और बिना लागत और बिना परिवहन शुल्क के राख उपलब्ध कराने के प्रावधान तभी लागू होंगे यदि उसके लिए ताप विद्युत संयंत्र उस निर्माण अभिकरण को नोटिस जारी करता है।

(2) उक्त कार्यकलापों में राख का उपयोग भारतीय मानक ब्यूरो, भारतीय रोड कांग्रेस, केन्द्रीय भवन अनुसंधान संस्थान, रूड़की, केन्द्रीय सड़क अनुसंधान संस्थान, दिल्ली, केन्द्रीय लोक निर्माण विभाग, राज्य लोक निर्माण विभागों और अन्य केन्द्रीय और राज्य सरकार के अभिकरणों द्वारा निर्धारित किए गए विनिर्देशों और दिशानिर्देशों के अनुसार किया जाएगा।

(3) तापीय विद्युत संयंत्र की 300 किलोमीटर की परिधि के भीतर अवस्थित सभी खानों के लिए विस्तारित उत्पादक उत्तरदायित्व (ईपीआर) के तहत खुली आवर्त खानों में राख का पृष्ठ भंडारण करना या अधिक भार के ढेरों के साथ राख का मिश्रण करना बाध्यकारी होगा। सभी खान के स्वामी या प्रचालक (चाहे सरकारी, सार्वजनिक और निजी क्षेत्र के हो) कोयला या लिग्नाईट आधारित तापीय विद्युत संयंत्रों से तीन सौ किलोमीटर (सड़क द्वारा) के भीतर, महानिदेशक, खान सुरक्षा (डीजीएमएस) के दिशानिर्देशों के अनुसार ओवर बर्डन के बाह्य निक्षेप खान की बैकफिलिंग अथवा स्टोविंग (प्रचालित या छोड़ी गई खानों, जैसा भी मामला हो) के लिए उपयोग की गई सामग्रियों के भार-दर-भार के आधार पर कम से कम 25 प्रतिशत राख को मिश्रित करने के लिए उपाय करेंगे :

परंतु ऐसे तापीय विद्युत केन्द्र नि:शुल्क राख प्रदान करके और परिवहन की लागत को वहन करके या पारस्परिक सहमत हुई शर्तों पर लिए गए निर्णय के अनुसार लागत या परिवहन व्यवस्था करके राख की अपेक्षित मात्रा की उपलब्धता को सुकर बनायेंगे और खानों के खाली स्थानों और ढेरो में अधिकभार के साथ राख को मिश्रित करना, सृजित अधिभार के लिए इस अधिसूचना के प्रकाशन की तिथि से लागू होगा और उक्त कार्यकलापों में राख का उपयोग, केंद्रीय प्रदूषण नियंत्रण बोर्ड, महानिदेशक खान सुरक्षा और भारतीय खदान ब्यूरो द्वारा निर्धारित दिशा-निर्देशों के अनुसार किया जाएगा।

स्पष्टीकरण .- इस उप-पैरा के प्रयोजन के लिए यह भी स्पष्ट किया जाता है कि लागत मुक्त राख और नि:शुल्क परिवहन के उपबंध केवल तभी लागू होंगे यदि ताप विद्युत संयंत्र इसके लिए खान मालिक को नोटिस देते हैं और अधिभार वाले ढेर के साथ मिश्रित करने और खान में खाली स्थान को भरने के लिए राख के 25 प्रतिशत हिस्से के उपयोग का अधिदेश तब तक लागू नहीं होगा जब तक कि ताप विद्युत संयंत्र द्वारा खान मालिक को नोटिस न दिया गया हो।

(5) (i) सभी खान मालिकों को खान में खाली स्थानों में राख को समायोजित करने के लिए खान बंद योजना (प्रगामी और अंतिम) तैयार करनी होगी और खान में खाली स्थान में राख के निपटान और अधिभार वाले ढेर के साथ राख को मिश्रित करने के लिए खान योजनाओं को संबंधित प्राधिकारी अनुमोदित करेगा। पर्यावरण, वन और जलवायु परिवर्तन मंत्रालय द्वारा ताप विद्युत संयंत्रों और कोयला खदानों की पर्यावरणीय मंजूरी की अपेक्षा से छूट देने के साथ-साथ ऐसे निपटान के लिए अपनाए जाने वाले दिशानिर्देशों के संबंध में तारीख 28 अगस्त, 2019 को दिशानिर्देश जारी किए गए।

(ii) मंत्रालय, केन्द्रीय प्रदूषण नियंत्रण बोर्ड, महानिदेशक, खान सुरक्षा (डीजीएमएस) और भारतीय खान ब्यूरो (आईबीएम) के साथ परामर्श करके, खानों में खाली स्थानों में राख के निपटान करने तथा अधिभार वाले ढेरो में इसे मिश्रित करना सुगम बनाने के लिए समय-समय पर आगे भी दिशानिर्देश जारी कर सकता है और यह खान मालिकों की जिम्मेदारी होगी कि वे ऐसी खानों को अभिज्ञात करने की तिथि से एक वर्ष के भीतर विभिन्न विनियामक प्राधिकरणों द्वारा जारी की गई अनुमतियों में आवश्यक संशोधन या परिवर्तन प्राप्त करेंगे।

(6) (i) पर्यावरणीय प्रदूषण के संदर्भ में सुरक्षा, व्यवहार्यता (आर्थिक व्यवहार्यता नहीं) और पहलुओं की जांच सहित राख से खान में खाली स्थान को वापस भरने/अधिभार वाले ढेर के साथ राख को मिश्रित करने के लिए खानों की पहचान करने के लिए पर्यावरण, वन और जलवायु परिवर्तन मंत्रालय, विद्युत मंत्रालय, खान मंत्रालय, कोयला मंत्रालय, महानिदेशक खान सुरक्षा और भारतीय खान ब्यूरो से प्रतिनिधियों को शामिल करते हुए अध्यक्ष, केन्द्रीय प्रदूषण नियंत्रण बोर्ड (सीपीसीबी) की अध्यक्षता में एक समिति का गठन किया जाएगा और यह समिति पणधारी मंत्रालयों या विभागों के लिए अभिज्ञात खानों (भूमिगत और खुली, दोनों) के संबंध में तैयार की गई तिमाही रिपोर्टों को अद्यतन करेगी और यह समिति, इस अधिसूचना के प्रकाशन के तुरंत पश्चात उपयुक्त खानों की पहचान करना आरंभ करेगी।

(ii) ताप विद्युत संयंत्र या खानें, उपरोक्त अनुसार अधिदेशित उपयोग लक्ष्यों को पूरा करने के लिए उपर्युक्त समिति द्वारा पहचान किए जाने तक राख के निपटान हेतु प्रतीक्षा नहीं करेंगी।

(7) राख से निचले क्षेत्र को भरने का कार्य, अनुमोदित परियोजनाओं के लिए राज्य प्रदूषण नियंत्रण बोर्ड की पूर्व अनुमति से और केन्द्रीय प्रदूषण नियंत्रण बोर्ड द्वारा निर्धारित दिशा-निर्देशों के अनुसार किया जाएगा और राज्य प्रदूषण नियंत्रण बोर्ड या प्रदूषण नियंत्रण समिति द्वारा अनुमोदित स्थलों, अवस्थान, क्षेत्र और अनुमत मात्रा को अपनी वेबसाइट पर प्रतिवर्ष प्रकाशित किया जाएगा।

(8) केन्द्रीय प्रदूषण नियंत्रण बोर्ड, संगत पणधारी के साथ मिलकर, राज्य प्रदूषण नियंत्रण बोर्ड (एसपीसीबी) या प्रदूषण नियंत्रण समिति (पीसीसी) द्वारा अनुमति प्रदान करने के लिए समयबद्ध ऑनलाइन आवेदन प्रक्रिया प्रस्तुत करने के साथ-साथ इस अधिसूचना के अधीन परिकल्पित सभी प्रकार के कार्यकलापों के लिए एक वर्ष के भीतर दिशानिर्देश प्रस्तुत करेगा।

(9) कोयला या लिग्नाइट आधारित तापीय ऊर्जा संयंत्र से तीन सौ किलोमीटर के दायरे में स्थित सभी भवन निर्माण परियोजनाएं (केंद्रीय, राज्य और स्थानीय प्राथिकरणों सरकारी उपक्रमों, अन्य सरकारी अभिकरणों तथा सभी निजी अभिकरणों) राख की ईटों, टाईल्स, धातुमल राख अथवा अन्य राख आधारित उत्पादों का उपयोग करेंगी बशर्ते कि वे वैकल्पिक उत्पादों की कीमत से अधिक कीमत पर उपलब्ध न हो।

(10) राख आधारित उत्पादों के विनिर्माण और ऐसे उत्पादों में राख के उपयोग में भारतीय मानक ब्यूरो, भारतीय सड़क कांग्रेस और केंद्रीय प्रदूषण नियंत्रण बोर्ड द्वारा निर्धारित विनिर्देशों और दिशानिर्देशों की अनुपालना होगी।

ग. गैर-अनुपालन के लिए पर्यावरणीय प्रतिकर .-

(1) तीन वर्ष के चक्र के प्रथम दो वर्षों में, यदि कोयला या लिग्नाइट आधारित तापीय ऊर्जा संयंत्र (कैप्टिव और/ या सह-उत्पादक स्टेशनों या दोनों सहित) ने कम-से-कम 80 प्रतिशत राख (फ्लाई-राख और बॉटम-राख) उपयोग नहीं की है तो ऐसे गैर-अनुपालन ताप विद्युत संयंत्रों पर प्रस्तुत की गई वार्षिक रिपोर्टों के आधार पर वित्त [illegible]

अंत में अप्रयुक्त राख पर 1000 रुपए प्रति टन की दर से पर्यावरणीय प्रतिकर लगाया जाएगा और यदि यह तीन वर्ष के चक्र के तीसरे वर्ष में 100 प्रतिशत राख का उपयोग करने में असमर्थ रहता है, तो वह अप्रयुक्त मात्रा पर 1000 रुपए प्रति टन की दर से पर्यावरणीय प्रतिकर के भुगतान का पात्र होगा, जिस पर पहले पर्यावरणीय प्रतिकर नहीं लगायी गयी है।

परंतु पर्यावरणीय प्रतिकर को पैरा क के उप-पैरा (4) में उल्लिखित विभिन्न उपयोगी श्रेणियों के अनुसार प्रथम अनुपालन चक्र के अंतिम वर्ष के अंत में अनुमान लगाया जाएगा और अधिरोपित किया जाएगा।

(2) अधिकारियों द्वारा एकत्रित पर्यावरणीय प्रतिकर को केन्द्रीय प्रदूषण नियंत्रण बोर्ड के निर्दिष्ट खाते में जमा किया जाएगा।

(3) लैगेसी राख के मामले में, यदि कोयला या लिग्नाइट आधारित तापीय ऊर्जा संयंत्र (कैप्टिव या सह-उत्पादक स्टेशनों या दोनों सहित) ने स्थापित क्षमता पर आधारित उत्पन्न राख का कम-से-कम 20 प्रतिशत (प्रथम वर्ष के लिए), 35 प्रतिशत (द्वितीय वर्ष के लिए), 50 प्रतिशत (तीसरे से दसवें वर्ष तक) उपयोग के बराबर लक्ष्य प्राप्त नहीं किया है तो उस वित्तीय वर्ष के दौरान अप्रयुक्त लैगेसी राख पर 1000 रुपए प्रति टन की दर से पर्यावरणीय प्रतिकर लगाया जाएगा और यदि 10 वर्ष के अंत में लैगेसी राख का उपयोग नहीं किया जाता है तो 1000 रुपए प्रति टन की दर से शेष अप्रयुक्त मात्रा पर पर्यावरणीय प्रतिकर लगाया जाएगा जिस पर पहले पर्यावरणीय प्रतिकर नहीं लगाया गया है।

(4) अधिकृत खरीददारों या उपभोक्ता अभिकरणों तक राख भेजने की जिम्मेदारी परिवाहकों या वाहन मालिक की जिम्मेदारी है और यदि इसका अनुपालन नहीं किया जाता है, तो अनधिकृत उपयोगकर्ताओं अथवा गैर-अधिकृत उपयोगर्ताओं को ऐसी मात्रा गलत तरीके से वितरित करने पर 1500 रूपए प्रति टन की दर से पर्यावरणीय प्रतिकर लगायी, इसके अतिरिक्त राज्य प्रदूषण नियंत्रण बोर्ड (एसपीसीबी) या प्रदूषण नियंत्रण समिति (पीसीसी) द्वारा गैर अनुपालनकर्ता परिवाहकों पर अभियोजन लागू होगा।

(5) इस अधिसूचना के पैरा ख में विहित पर्यावरण अनुकूल तरीके में राख के उपयोग की जिम्मेदारी खरीददार या उपभोगकर्ता एजेंसियों की है और ऐसा नहीं करने पर केन्द्रीय प्रदूषण नियंत्रण बोर्ड (एसपीसीबी) या प्रदूषण नियंत्रण समिति (पीसीसी) द्वारा 1500 रूपए प्रति टन की दर से पर्यावरणीय प्रतिकर लगाया जाएगा।

(6) यदि उपयोगकर्ता अधिकरण पैरा ख के अधीन निर्धारित सीमा तक अथवा पैरा घ के उप-पैरा (1) के अधीन, दिए गए नोटिस के माध्यम से सूचित की गई सीमा, इनमें से जो भी कम हो, तक राख का उपयोग नहीं करती है, वे अतिरिक्त राख की मात्रा का 1500 रूपए प्रति टन की दर से भुगतान करने के लिए उत्तरदायी होंगी।

परंतु भवन निर्माण के संबंध में पर्यावरणीय प्रतिकर निर्मित क्षेत्र के 75 रूपये प्रति वर्ग फीट की दर से वसूल किया जाएगा।

(7) (i) ताप विद्युत संयंत्रों अन्य बकायादारों से केन्द्रीय प्रदूषण नियंत्रण बोर्ड द्वारा लगायी गई का पर्यावरणीय प्रतिकर उपयोग अप्रयुक्त राख के सुरक्षित निपटान हेतु किया जाएगा और राख आधारित उत्पादों सहित राख के उपयोग के संबंध में और अधिक अनुसंधान करने के लिए भी निधि का उपयोग किया जा सकता है।

(ii) अप्रयुक्त मात्रा पर लगाए गए पर्यावरणीय प्रतिकर के पश्चात भी राख के उपयोग का उत्तरदायित्व ताप विद्युत संयंत्रों की होगी और यदि पश्चातवती चक्रों में पर्यावरणीय प्रतिकर लगाने के पश्चात ताप विद्युत संयंत्र, किसी विशेष चक्र की राख के उपयोग के लक्ष्य को प्राप्त करता है तो अगले चक्र के दौरान अप्रयुक्त मात्रा पर एकत्र की गई पर्यावरणीय प्रतिकर में 10 प्रतिशत कटौती के पश्चात उक्त रकम ताप विद्युत संयंत्र को वापस कर दी जाएगी और पश्चातवती चक्रों में राख के उपयोग के मामले में एकत्र की गई पर्यावरणीय प्रतिकर की 20 प्रतिशत, 30 प्रतिशत और उसी क्रम में कटौती की जानी है।

घ. राख या राख आधारित उत्पादों की आपूर्ति हेतु प्रक्रिया ._

(1) ताप विद्युत संयंत्रों के स्वामी अथवा राख की ईटों या टाईल्स या धातुमल आधारित राख के विनिर्माता उन व्यक्तियों या अभिकरणों को लिखित सूचना देंगे जो बिक्री या परिवहन या दोनों के लिए प्रस्तुत राख या राख आधारित उत्पादों के उपयोग के लिए उत्तरदायी हैं।

(2) ऐसे व्यक्ति या उपयोगकर्ता अभिकरणों जिन्हें ताप विद्युत संयंत्रों के स्वामी द्वारा या राख की ईटों या टाईल्स या धातुमल आधारित राख के उत्पादकों द्वारा सूचना दी गई है, यदि वे पहले ही राख या राख उत्पादों के उपयोग के प्रयोजन से अन्य अभिकरणों के साथ जुड़े हुए हैं, यदि वे किसी भी राख/राख उत्पादों का उपयोग नहीं कर सकते हैं अथवा कम मात्रा का उपयोग कर सकते हैं, तदनुसार ताप विद्युत संयंत्र को सूचित करेंगे।

ड. प्रवर्तन, निगरानी, लेखा परीक्षा और प्रतिवेदन करना

(1) केंद्रीय प्रदूषण नियंत्रण बोर्ड (सीपीसीबी) और संबंधित राज्य प्रदूषण नियंत्रण बोर्ड (एसपीसीबी) या प्रदूषण नियंत्रण समिति (पीसीसी), उपबंधों के अनुपालना सुनिश्चित करने के लिए प्रवर्तन और निगरानी प्राधिकरण होंगे। सीपीसीबी या एसपीसीबी या पीसीसी तिमाही आधार पर राख के उपयोग की निगरानी करेंगे और सीपीसीबी इस प्रयोजन के लिए अधिसूचना की प्रकाशन की तारीख से छ: माह के भीतर एक पोर्टल विकसित करेगा। संबंधित जिला अधिकारी के पास इस अधिसूचना के उपबंधों को लागू करने और निगरानी करने के लिए समवर्ती अधिकारिता होगी।

(2) (i) ताप विद्युत संयंत्र, राख उत्सर्जन और उपयोग से संबंधित मासिक सूचना वेब पोर्टल पर अगले महीने की 5 तारीख तक अपलोड करेगा। कोयला या लिग्नाइट आधारित ताप ऊर्जा संयंत्रों द्वारा केंद्रीय प्रदूषण नियंत्रण बोर्ड, संबंधित राज्य प्रदूषण नियंत्रण बोर्ड या प्रदूषण नियंत्रण समिति (पीसीसी), केंद्रीय विद्युत प्राधिकरण (सीईए) और पर्यावरण, वन और जलवायु परिवर्तन मंत्रालय के संबंधित एकीकृत क्षेत्रीय कार्यालयों को इस अधिसूचना के उपबंधों के अनुपालन संबंधी सूचना उपलब्ध कराते हुए वार्षिक कार्यान्वयन रिपोर्ट प्रत्येक वर्ष (1 अप्रैल से 31 मार्च तक की अवधि के लिए) अप्रैल माह के 30वें दिन तक प्रस्तुत की जाएगी। सीपीसीबी और सीईए द्वारा सभी ताप विद्युत संयंत्रों द्वारा प्रस्तुत वार्षिक रिपोर्टों का समेकन किया जाएगा और उसे पर्यावरण, वन और जलवायु परिवर्तन मंत्रालय को 31 मई तक प्रस्तुत किया जाएगा।

(ii) सभी अन्य उपयोगकर्ता अधिकरण पर्यावरण, वन और जलवायु परिवर्तन मंत्रालय या राज्य स्तरीय पर्यावरण प्रभाव आकलन प्राधिकरण (एसईआईएए) द्वारा जारी पर्यावरणीय मंजूरी (ईसी) अथवा राज्य प्रदूषण नियंत्रण बोर्ड (एसपीसीबी) या प्रदूषण नियंत्रण समिति (पीसीसी) द्वारा जारी संचालन की सहमति (सीटीओ), जो भी लागू हो, की अनुपालना रिपोर्ट में इस अधिसूचना में आज्ञापकता के अनुसार राख के उपभोग या उपयोग या निस्तारण तथा राख आधारित उत्पादों के उपयोग संबंधी सूचना प्रस्तुत करेंगे। केन्द्रीय प्रदूषण नियंत्रण बोर्ड (सीपीसीबी) या राज्य प्रदूषण नियंत्रण बोर्ड (एसपीसीबी) या प्रदूषण नियंत्रण समिति (पीसीसी) अधिसूचना के उपबंधों के प्रभावी कार्यान्वयन की समीक्षा करने हेतु ताप विद्युत संयंत्रों के अतिरिक्त अन्य सभी अधिकरणों की राख उपयोग की वार्षिक रिपोर्ट प्रकाशित करेंगे।

(3) इस अधिसूचना के उपबंधों की निगरानी और कार्यान्वयन के प्रयोजन के लिए केन्द्रीय प्रदूषण नियंत्रण बोर्ड (सीपीसीबी) की अध्यक्षता में एक समिति का गठन किया जाएगा जिसके सदस्य विद्युत मंत्रालय, कोयला मंत्रालय, खनन मंत्रालय, पर्यावरण, वन और जलवायु परिवर्तन मंत्रालय, सड़क परिवहन और राजमार्ग मंत्रालय और भारी उद्यम विभाग से होने के साथ-साथ समिति के अध्यक्ष द्वारा नामित किए जाने वाले कोई संबंधित पणधारी होंगे। यह समिति संगत पणधारी को आमंत्रित कर सकती है। यह समिति इस अधिसूचना के उपबंधों के प्रभावी और दक्ष कार्यान्वयन के लिए सिफारिशें कर सकती है। यह समिति छ: माह में कम से कम एक बार एक बैठक करेगी और वार्षिक कार्यान्वयन रिपोर्टों की समीक्षा करेगी और यह समिति, इस अधिसूचना द्वारा आजापक किए गए अनुसार छ: महीनों में कम से कम एक बार संगत पणधारी (को) को आमंत्रित करके राख के उपयोग की निगरानी करने के लिए पणधारी से साथ परामर्शदात्री बैठकें आयोजित करेगी। यह समिति पर्यावरण, वन और जलवायु परिवर्तन मंत्रालय (एमओईएफसीसी) को छ: मासिक रिपोर्ट प्रस्तुत करेगी।

(4) ताप विद्युत संयंत्रों और राख के उपयोगकर्ताओं या राख आधारित उत्पादों के विनिर्माताओं के बीच के विवाद का समाधान करने के प्रयोजन से राज्य सरकारें या संघ राज्यक्षेत्र की सरकारें इस अधिसूचना के प्रकाशन की तारीख से तीन माह के भीतर राज्य प्रदूषण नियंत्रण बोर्ड (एसपीसीबी) या प्रदूषण नियंत्रण समिति (पीसीसी) की अध्यक्षता में एक समिति का गठन करेंगी जिसमें विद्युत विभाग के प्रतिनिधि और एक प्रतिनिधि उस विभाग का होगा, जो विवाद वाले संबंधित अभिकरण का कार्य देख रहे हैं।

(5) केन्द्रीय प्रदूषण नियंत्रण बोर्ड (सीपीसीबी) द्वारा प्राधिकृत लेखा परीक्षकों द्वारा ताप विद्युत संयंत्रों और उपयोगकर्ता अभिकरणों द्वारा किए गए राख के निपटान की अनुपालन लेखा परीक्षा संचालित की जाएगी और लेखा परीक्षा की रिपोर्ट प्रत्येक वर्ष 30 नवम्बर तक केन्द्रीय प्रदूषण नियंत्रण बोर्ड (सीपीसीबी) और संबंधित राज्य प्रदूषण नियंत्रण बोर्ड (एसपीसीबी) या प्रदूषण नियंत्रण समिति (पीसीसी) को प्रस्तुत की जाएगी। केन्द्रीय प्रदूषण नियंत्रण बोर्ड (सीपीसीबी) और संबंधित राज्य प्रदूषण नियंत्रण बोर्ड (एसपीसीबी) या प्रदूषण नियंत्रण समिति (पीसीसी) लेखा परीक्षा की रिपोर्ट प्राप्त होने के पंद्रह दिनों के भीतर अनुपालन न करने वाले ताप विद्युत संयंत्रों के विरूद्ध कार्रवाई प्रारंभ करेगें।

[फा. सं. एचएसएम-9/1/2019-एचएसएम]

नरेश पाल गंगवार, संयुक्त सचिव

उपाबंध

31 मई तक अथवा उससे पहले प्रस्तुत की जाने वाली राख संबंधी उपबंधों की अनुपालन रिपोर्ट (01 अप्रैल से 31 मार्च की अवधि के लिए) ।

क्र.सं.	**ब्यौरा**	
1.	विद्युत संयंत्र का नाम	
2.	कंपनी का नाम	
3.	जिला	
4.	राज्य	
5.	पत्राचार के लिए डाक का पता :	
6.	ई-मेल :	
7.	विद्युत संयंत्र की संस्थापित क्षमता (मेगा वॉट) :	
8.	संयंत्र लोड फैक्टर (पीएलएफ) :	
9.	उत्पादित यूनिटों की संख्या (एमडब्ल्यूएच) :	
10.	विद्युत संयंत्र के अंतर्गत कुल क्षेत्र (हेक्टेयर) (राख कुंडों के अधीन क्षेत्र सहित) :	
11.	रिपोर्टिंग की अवधि के दौरान कोयला खपत की मात्रा (प्रति वर्ष मीट्रिक टन) :	
12.	औसत राख सामग्री प्रतिशतता में (%) :	
13.	रिपोर्टिंग की अवधि के दौरान वर्तमान में उत्पादित राख की मात्रा (प्रति वर्ष मीट्रिक टन) : फ्लाई राख (प्रति वर्ष मीट्रिक टन) : बॉटम राख (प्रति वर्ष मीट्रिक टन) :	
14.	ड्राई फ्लाई राख भंडारण गड्ढा (गड्ढों) की क्षमता (मीट्रिक टन) :	
15.	**रिपोर्टिंग की अवधि के दौरान वर्तमान में उत्पादित राख के उपयोग का ब्यौरा:** (क) रिपोर्टिंग की अवधि के दौरान वर्तमान में उपयोग की गई राख की	

	कुल मात्रा (एमटीपीए) : (ख) उपयोग की गई फ्लाई राख की मात्रा (एमटीपीए) : i. फ्लाई-एश आधारित उत्पाद (ईंट या ब्लॉक या टाइल्स या फाइबर सीमेंट शीट या पाइप या बोर्ड/पैनल) : ii. सीमेंट विनिर्माण : iii. रेडी मिक्स कंक्रीट : iv. राख और जीओ-पॉलिमर आधारित निर्माण सामग्री : v. सिंटर्ड या कोल्ड बॉन्डेड राख एग्रीगेट का निर्माण : vi. सड़कों, सड़क और फ्लाई ओवर के पुश्तों का निर्माण : vii. बांधों का निर्माण : viii. निम्न भू-क्षेत्र का भराव : ix. खनिज क्षेत्रों का भराव : x. अधिभार वाले डम्पों में उपयोग : xi. कृषि : xii. तटीय जिलों में तटरेखा सुरक्षा संरचनाओं का निर्माण : xiii. अन्य देशों को राख का निर्यात : xiv. अन्य (कृपया विनिर्दिष्ट करें) : (ग) उपयोग किए गए तल के राख की मात्रा (एमटीपीए) : i. फ्लाई-एश आधारित उत्पाद (ईंट या ब्लॉक या टाइल्स या फाइबर सीमेंट शीट या पाइप या बोर्ड या पैनल) : ii. सीमेंट विनिर्माण : iii. रेडी मिक्स कंक्रीट : iv. राख और जीओ-पॉलिमर आधारित निर्माण सामग्री : v. सिंटर्ड या कोल्ड बॉन्डेड राख एग्रीगेट का निर्माण : vi. सड़कों, सड़क और फ्लाईओवर के पुश्तों का निर्माण : vii. बांधों का निर्माण : viii. निम्न भू-क्षेत्र का भराव : ix. खनिज क्षेत्रों का भराव : x. अधिभार वाले डम्पों में उपयोग : xi. कृषि : xii. तटीय जिलों में तटरेखा सुरक्षा संरचनाओं का निर्माण : xiii. अन्य देशों को राख का निर्यात : xiv. अन्य (कृपया विनिर्दिष्ट करें) : रिपोर्टिंग की अवधि के दौरान वर्तमान में अप्रयुक्त राख की कुल मात्रा (एमटीपीए :	
16.	रिपोर्टिंग की अवधि के दौरान वर्तमान में उत्पादित राख का प्रतिशतता उपयोग (%) :	
17.	**राख कुंडों में राख के निपटान का ब्यौरा** क) तारीख 31 मार्च तक (रिपोर्टिंग की अवधि को छोड़कर) राख कुण्ड (कुण्डों) में निपटान किए गए राख की कुल मात्रा (मीट्रिक टन):	

	ख) रिपोर्टिंग की अवधि के दौरान राख कुण्ड (कुण्डों) में निपटान किए गए राख की मात्रा (मीट्रिक टन): ग) रिपोर्टिंग की अवधि के दौरान राख कुण्डों में गारा निस्सरण हेतु खपत हुए जल की कुल मात्रा (मी^{3}): घ) राख कुण्डों की कुल संख्या: (i) सक्रिय: (ii) खाली किए गए (पुन: भरा जाना है) (iii) पुन: भरे गए: ड.) राख कुण्डों के अधीन कुल क्षेत्र (हेक्टेयर):	
18.	**अलग-अलग राख कुण्ड का ब्यौरा** *राख कुण्ड 1,2 आदि (यदि राख कुण्डों की संख्या एक से अधिक हो, तो कृपया निम्नलिखित ब्यौरा अलग से उपलब्ध कराएं)* क) स्थिति: निर्माणाधीन या सक्रिय या खाली किया गया या पुन: भरा गया ख) राख कुण्ड में राख का निपटान शुरू करने की तारीख/महीना/वर्ष या महीना/वर्ष): ग) राख कुण्ड की क्षमता पूर्ण किए जाने के पश्चात् उसमें राख निपटान रोकने की तारीख (तारीख/महीना/वर्ष या महीना/वर्ष): (सक्रिय राख कुण्डों के लिए लागू नहीं) ग) क्षेत्र (हेक्टेयर): घ) डाइक की ऊंचाई (मी.): घ) आयतन (मी^{3}): ड.) तारीख 31 मार्च तक निपटान किए गए राख की मात्रा (मीट्रिक टन): च) उपलब्ध आयतन का प्रतिशत (%) और आगे निपटान किए जा सकने वाले राख की मात्रा (मीट्रिक टन): छ) राख कुण्ड के भरे जाने की अनुमानित अवधि (वर्षों और महीनों की संख्या): ड.) निर्देशांक (अक्षांश और देशान्तर): (कृपया न्यूनतम 4 निर्देशांकों को विनिर्दिष्ट करें) ज) राख कुण्ड में की गई लाइनिंग का प्रकार: एचडीपीई लाइनिंग या एलडीपीई लाइनिंग या क्ले लाइनिंग या कोई लाइनिंग नहीं छ) निपटान की विधि: शुष्क निपटान या नम गारा (नम गारा के मामले में कृपया विनिर्दिष्ट करें कि क्या एचसीएसडी या एमसीएसडी या एलसीएसडी है) ज) राख का अनुपात: गारा मिश्रण में जल (1:____): झ) संस्थापित और कार्यशील राख जल पुनर्चक्रण प्रणाली (एडब्ल्यूआरएस): हां या नहीं ञ) जमीन के अंदर या जल निकाय में राख कुण्ड से निस्सरित अपशिष्ट जल की मात्रा (मी^{3}): ट) डाइक की स्थिरता का अध्ययन कराए जाने की पिछली तारीख और उस संगठन का नाम जिसने अध्ययन किया: ठ) लेखा-परीक्षा किए जाने की पिछली तारीख और उस संगठन का नाम जिसने लेखा-परीक्षा की:	
19.	उपयोग किए गए पुराने राख की मात्रा (एमटीपीए): i. फ्लाई-एश आधारित उत्पाद (ईंट या ब्लॉक या टाइल्स या फाइबर	

	सीमेंट शीट या पाइप या बोर्ड या पैनल): ii. सीमेंट विनिर्माण: iii. रेडी मिक्स कंक्रीट: iv. राख और जीओ-पॉलिमर आधारित निर्माण सामग्री: v. सिंटर्ड या कोल्ड बॉन्डेड राख एग्रीगेट का निर्माण: vi. सड़कों, सड़क और फ्लाई ओवर के पुश्तों का निर्माण: vii. बांधों का निर्माण: viii. निम्न भू-क्षेत्र का भराव: ix. खनिज क्षेत्रों का भराव: x. अधिभार वाले डम्पों में उपयोग: xi. कृषि: xii. तटीय जिलों में तटरेखा सुरक्षा संरचनाओं का निर्माण: xiii. अन्य देशों को राख का निर्यात xiv. अन्य (कृपया विनिर्दिष्ट करें):	

20.	**सार :**			
	ब्यौरा	सृजित मात्रा (एमटीपी)	उपयोग की गई मात्रा (एमटीपी) और (%)	शेष मात्रा (एमटीपी)
	रिपोर्टिंग की अवधि के दौरान राख			
	पुरानी राख			
	कुल			
21.	कोई अन्य सूचना : वार्षिक अनुपालन रिपोर्ट, और विद्युत संयंत्रों और राख कुण्डों की शेष फाइलों की सॉफ्ट कॉपी ई-मेल:- moefcc-coalash@gov.in पर भेजी जाए।			
22.	प्राधिकृत हस्ताक्षरकर्ता के हस्ताक्षर			

MINISTRY OF ENVIRONMENT, FOREST AND CLIMATE CHANGE

NOTIFICATION

New Delhi, the 31st December, 2021

S.O. 5481(E).—Whereas by notification of the Government of India in the erstwhile Ministry of Environment and Forests *vide* S.O.763 (E), dated the 14th September, 1999, as amended from time to time, the Central Government, issued directions for restricting the excavation of top soil for manufacturing of bricks and promoting the utilisation of fly ash in the manufacturing of building materials and in construction activity within a specified radius of three hundred kilometres from the coal or lignite based thermal power plants;

And whereas, to implement the aforesaid notification more effectively based on the polluter pays principle (PPP) thereby ensuring 100 per cent utilisation of fly ash by the coal or lignite based thermal power plants and for the sustainability of the fly ash management system, the Central Government reviewed the existing notification; and whereas environmental compensation needs to be introduced based on the polluter pays principle;

And whereas, there is a need to conserve top soil by promoting manufacture and mandating use of ash based products and building materials in the construction sector;

And whereas, there is a need to conserve top soil and natural resources by promoting utilisation of ash in road laying, road and flyover embankments, shoreline protection measures, low lying areas of approved projects, backfilling of mines, as an alternative for filling of earthen materials;

And whereas, it is necessary to protect the environment and prevent the dumping and disposal of fly ash discharged from coal or lignite based thermal power plants on land;

And whereas, in the said notification the phrase 'ash', has been used which includes both fly ash as well as bottom ash generated from the Coal or Lignite based thermal power plants;

And whereas, the Central Government intends to bring out a comprehensive framework for ash utilisation including system of environmental compensation based on polluter pays principle;

And whereas, a draft notification on ash utilisation by coal or lignite thermal power plants in supersession of the notification of the Government of India, Ministry of Environment and Forests published in the Gazette of India, Extra Ordinary part II, section 3, sub-section (i) *vide* S.O.763 (E), dated the 14th September, 1999, by notification in exercise of the powers conferred 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 (i), *vide* G.S.R. 285(E), dated the 22nd April, 2021 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 provisions were made available to the public;

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, and in supersession of the Notification S.O.763 (E), dated the 14th September, 1999 except as respect things done or omitted to be done before such supersession, the Central Government hereby issues the following notification on ash utilisation from coal or lignite thermal power plants which shall come into force on the date of the publication of this notification, namely:-

A. Responsibilities of thermal power plants to dispose fly ash and bottom ash.—

(1) Every coal or lignite based thermal power plant (including captive or co-generating stations or both) shall be primarily responsible to ensure 100 per cent utilisation of ash (fly ash, and bottom ash) generated by it in an eco-friendly manner as given in sub-paragraph (2);

(2) The ash generated from coal or lignite based thermal power plants shall be utilised only for the following eco-friendly purposes, namely:-

(i) Fly ash based products viz. bricks, blocks, tiles, fibre cement sheets, pipes, boards, panels;

(ii) Cement manufacturing, ready mix concrete;

(iii) Construction of road and fly over embankment, Ash and Geo-polymer based construction material;

(iv) Construction of dam;

(v) Filling up of low lying area;

(vi) Filling of mine voids;

(vii) Manufacturing of sintered or cold bonded ash aggregate;

(viii) Agriculture in a controlled manner based on soil testing;

(ix) Construction of shoreline protection structures in coastal districts;

(x) Export of ash to other countries;

(xi) Any other eco-friendly purpose as notified from time to time.

(3) A committee shall be constituted under the chairmanship of Chairman, Central Pollution Control Board (CPCB) and having representatives from Ministry of Environment, Forest and Climate Change (MoEFCC), Ministry of Power, Ministry of Mines, Ministry of Coal, Ministry of Road Transport and Highways, Department of Agricultural Research and Education, Institute of Road Congress, National Council for Cement and Building Materials, to examine and review and recommend the eco-friendly ways of utilisation of ash and make inclusion or exclusion or modification in the list of such ways as mentioned in Sub-paragraph (2) based on technological developments and requests received from stakeholders. The committee may invite State Pollution Control Board or Pollution Control Committee, operators of thermal power plants and mines, cement plants and other stakeholders as and when required for this purpose. Based on the recommendations of the Committee, Ministry of Environment, Forest and Climate Change (MoEFCC) may publish such eco-friendly purpose.

(4) Every coal or lignite based thermal power plant shall be responsible to utilise 100 per cent ash (fly ash and bottom ash) generated during that year, however, in no case shall utilisation fall below 80 per cent in any year, and the thermal power plant shall achieve average ash utilisation of 100 per cent in a three years cycle:

Provided that the three years cycle applicable for the first time is extendable by one year for the thermal power plants where ash utilisation is in the range of 60-80 per cent, and two years where ash utilisation is below 60 per cent and for the purpose of calculation of percentage of ash utilisation, the percentage quantity of utilisation in the year 2021- 2022 shall be taken into account as per the table below:

Utilisation percentages of thermal power plants	First compliance Cycle to meet 100 per cent utilisation	Second compliance cycle onwards, to meet 100 per cent utilisation
>80 per cent	3 years	3 years
60-80 per cent	4 years	3 years
<60 per cent	5 years	3 years

Provided further that the minimum utilisation percentage of 80 per cent shall not be applicable to the first year and first two years of the first compliance cycle for the thermal power plants under the utilisation category of 60-80 per cent and <60 per cent, respectively.

Provided also that 20per cent of ash generated in the final year of compliance cycle may be carried forward to the next cycle which shall be utilised in the next three years cycle along with the ash generated during that cycle.

(5) The unutilised accumulated ash i.e. legacy ash, which is stored before the publication of this notification, shall be utilised progressively by the thermal power plants in such a manner that the utilization of legacy ash shall be completed fully within ten years from the date of publication of this notification and this will be over and above the utilisation targets prescribed for ash generation through current operations of that particular year:

Provided that the minimum quantity of legacy ash in percentages as mentioned below shall be utilised during the corresponding year and the minimum quantity of legacy ash is to be calculated based on the annual ash generation as per installed capacity of thermal power plant.

Year from date of publication	1st	2nd	3rd -10th
Utilisation of legacy ash (in percentage of Annual ash)	At least 20 per cent	At least 35 per cent	At least 50 per cent

Provided further that the legacy ash utilisation shall not be required where ash pond or dyke has stabilised and the reclamation has taken place with greenbelt or plantation and the concerned State Pollution Control Board shall certify in this regard. Stabilisation and reclamation of an ash pond or dyke including certification by the Central Pollution Control Board (CPCB) or State Pollution Control Board (SPCB) or Pollution Control Committee (PCC) shall be carried out within a year from the date of publication of this notification. The ash remaining in all other ash ponds or dykes shall be utilised in progressive manner as per the above mentioned timelines.

Note: The obligations under sub-paragraph (4) and (5) above for achieving the ash utilisation targets shall be applicable from 1st April, 2022.

(6) Any new as well as operational thermal power plant may be permitted an emergency or temporary ash pond with an area of 0.1 hectare per Mega Watt (MW). Technical specifications of ash ponds or dykes shall be as per the guidelines of Central Pollution Control Board (CPCB) made in consultation with Central Electricity Authority (CEA) and these guidelines shall also lay down a procedure for annual certification of the ash pond or dyke on its safety, environmental pollution, available volume, mode of disposal, water consumption or conservation in disposal, ash water recycling and greenbelt, etc., and shall be put in place within three months from the date of publication of this notification.

(7) Every coal or lignite based thermal power plant shall ensure that loading, unloading, transport, storage and disposal of ash is done in an environmentally sound manner and that all precautions to prevent air and water pollution are taken and status in this regard shall be reported to the concerned State Pollution Control Board (SPCB) or Pollution Control Committee (PCC) in Annexure attached to this notification.

(8) Every coal or lignite based thermal power plant shall install dedicated silos for storage of dry fly ash silos for at least sixteen hours of ash based on installed capacity and it shall be reported upon to the concerned State Pollution Control Board (SPCB) or Pollution Control Committee (PCC) in the Annexure and shall be inspected by Central Pollution Control Board (CPCB) or State Pollution Control Board (SPCB) or Pollution Control Committee (PCC) from time to time.

(9) Every coal or lignite based thermal power plant (including captive or co-generating stations or both) shall provide real time data on daily basis of availability of ash with Thermal Power Plant (TPP), by providing link to Central Pollution Control Board's web portal or mobile phone App for the benefit of actual user(s).

(10) Statutory obligation of 100 per cent utilisation of ash shall be treated as a change in law, wherever applicable.

B. **For the purpose of utilisation of ash, the subsequent sub-paras shall apply.—**

(1) All agencies (Government, Semi-government and Private) engaged in construction activities such as road laying, road and flyover embankments, shoreline protection structures in coastal districts and dams within 300 kms from the lignite or coal based thermal power plants shall mandatorily utilise ash in these activities:

Provided that it is delivered at the project site free of cost and transportation cost is borne by such coal or lignite based thermal power plants.

Provided further that thermal power plant may charge for ash cost and transportation as per mutually agreed terms, in case thermal power plant is able to dispose the ash through other means and those agencies makes a request for it and the provisions of ash free of cost and free transportation shall be applicable, if thermal power plant serves a notice on the construction agency for the same.

(2) The utilisation of ash in the said activities shall be carried out in accordance with specifications and guidelines laid down by the Bureau of Indian Standards, Indian Road Congress, Central Building Research Institute, Roorkee, Central Road Research Institute, Delhi, Central Public Works Department, State Public Works Departments and other Central and State Government Agencies.

(3) It shall be obligatory on all mines located within 300 kilometres radius of thermal power plant, to undertake backfilling of ash in mine voids or mixing of ash with external Overburden dumps, under Extended Producer Responsibility (EPR). All mine owners or operators (Government, Public and Private Sector) within three hundred kilometres (by road) from coal or lignite based thermal power plants, shall undertake measures to mix at least 25 per cent of ash on weight to weight basis of the materials used for external dump of overburden, backfilling or stowing of mine (running or abandoned as the case may be) as per the guidelines of the Director General of Mines Safety (DGMS):

Provided that such thermal power stations shall facilitate the availability of required quantity of ash by delivering ash free of cost and bearing the cost of transportation or cost or transportation arrangement decided on mutually agreed terms and mixing of ash with overburden in mine voids and dumps shall be applicable for the overburden generated from the date of publication of this notification and the utilisation of ash in the said activities shall be carried out in accordance with guidelines laid down by the Central Pollution Control Board, Director General of Mines Safety and Indian Bureau of Mines.

Explanation.- For the purpose of this sub-paragraph, it is also clarified that the provisions of ash free of cost and free transportation shall be applicable, if thermal power plants serve a notice on the mine owner for the same and the mandate of using 25 per cent of ash for mixing with overburden dump and filling up of mine voids shall not be applicable unless a notice is served on the mine owner by thermal power plant.

(4) (i) All mine owners shall get mine closure plans (progressive and final) to accommodate ash in the mine voids and the concerned authority shall approve mine plans for disposal of ash in mine voids and mixing of ash with overburden dumps. The Ministry of Environment, Forest and Climate Change (MoEFCC) has issued guidelines on 28th August, 2019 regarding exemption of requirement of Environmental Clearance of thermal power plants and coal mines along with the guidelines to be followed for such disposal.

(ii) The Ministry in consultation with Central Pollution Control Board (CPCB), Director General of Mine Safety (DGMS) and Indian Bureau of Mines (IBM) may issue further guidelines time to time to facilitate ash disposal in mine voids and mixing with overburden dumps and it shall be the responsibility of mine owners to get the necessary amendments or modifications in the permissions issued by various regulatory authorities within one year from the date of identification of such mines.

(5) (i) There shall be a committee headed by Chairperson, Central Pollution Control Board (CPCB) with representatives from Ministry of Environment, Forest and Climate Change, Ministry of Power, Ministry of Mines, Ministry of Coal, Director General of Mine Safety and Indian Bureau of Mines for identification of mines for backfilling of mine voids with ash or mixing of ash with overburden dump including examination of safety, feasibility (not economic feasibility) and aspects of environmental contamination and the committee shall get updated quarterly reports prepared regarding identified mines (both underground and opencast) for the stakeholder Ministries or Departments and the committee shall start identifying the suitable mines immediately after the publication of this notification.

(ii) Thermal power plants or mines shall not wait for disposal of ash till the identification is done by the above mentioned committee, to meet the utilisation targets mandated as above.

(6) Filling of low lying areas with ash shall be carried out with prior permission of the State Pollution Control Board or Pollution Control Committee for approved projects, and in accordance with guidelines laid down by Central Pollution Control Board (CPCB) and the State Pollution Control Board or Pollution Control Committee (PCC) shall publish approved sites, location, area and permitted quantity annually on its website.

(7) Central Pollution Control Board after engaging relevant stakeholders, shall put in place the guidelines within one year for all types of activities envisaged under this notification including putting in place time bound online application process for the grant permission by State Pollution Control Boards (SPCBs) or Pollution Control Committees (PCCs).

(8) All building construction projects (Central, State and Local authorities, Govt. undertakings, other Govt. agencies and all private agencies) located within a radius of three hundred kilometres from a coal or lignite based thermal power plant shall use ash bricks, tiles, sintered ash aggregate or other ash based products, provided these are made available at prices not higher than the price of alternative products.

(9) Manufacturing of ash based products and use of ash in such products shall be in accordance with specifications and guidelines laid down by the Bureau of Indian Standards, Indian Road Congress, and Central Pollution Control Board.

C. Environmental compensation for non-compliance.—

(1) In the first two years of a three years cycle, if the coal or lignite based thermal power plant (including captive or co-generating stations or both) has not achieved at least 80 per cent ash (fly ash and bottom ash) utilisation, then such non-compliant thermal power plants shall be imposed with an environmental compensation of Rs. 1000 per ton on unutilised ash during the end of financial year based on the annual reports submitted and if it is unable to utilise 100 per cent of ash in the third year of the three years cycle, it shall be liable to pay an environmental compensation of Rs. 1000 per ton on the unutilised quantity on which environmental compensation has not been imposed earlier:

Provided that the environmental compensation shall be estimated and imposed at the end of last year of the first compliance cycle as per the various utilisation categories as mentioned in sub-paragraph (4) of Para A.

(2) Environmental compensation collected by the authorities shall be deposited in the designated account of Central Pollution Control Board.

(3) In case of legacy ash, if the coal or lignite based thermal power plant (including captive or co-generating stations or both) has not achieved utilisation equivalent to at least 20 per cent (for the first year), 35 per cent (for the second year), 50 per cent (for third to tenth year) of ash generated based on installed capacity, an environmental compensation of Rs. 1000 per ton of unutilised legacy ash during that financial year shall be imposed and if the utilization of legacy ash is not completed at the end of 10 years, an environmental compensation of Rs.1000 per ton shall be imposed on the remaining unutilised quantity which has not been imposed earlier.

(4) It shall be the responsibility of the transporters or vehicle owner to deliver ash to authorised purchaser or user agency and if it is not complied, then an environmental compensation of Rs. 1500 per ton on such quantity as mis-delivered to unauthorised users or non- delivered to authorised users will be imposed besides prosecution of such non-compliant transporters by State Pollution Control Board (SPCB) or Pollution Control Committee (PCC).

(5) It is the responsibility of the purchasers or user agencies to utilise ash in an eco-friendly manner as laid down at para B of this notification and if it is not complied, then an environmental compensation of Rs. 1500 or per ton shall be imposed by State Pollution Control Board (SPCB) or Pollution Control Committee (PCC).

(6) If the user agencies do not utilise ash to the extent obligated under para B or the extent to which they have been intimated through Notice(s) served under sub-paragraph (1) of para D, whichever is lower, they shall be liable to pay Rs. 1500 per ton of ash for the quantity they fall short off:

Provided that the environmental compensation on building constructions shall be levied at Rs.75/- per square feet of built up area of construction.

(7) (i) The environmental compensation collected by Central Pollution Control Board from the thermal power plants and other defaulters shall be used towards the safe disposal of the unutilised ash and the fund may also be utilised for advancing research on use of ash including ash based products.

(ii) The liability of ash utilisation shall be with thermal power plants even after imposition of envir... compensation on unutilised quantities and in case thermal power plant achieves the ash utilisation of

particular cycle after imposition of environmental compensation in subsequent cycles, the said amount shall be returned to thermal power plant after deducting 10 per cent of the environmental compensation collected on the unutilised quantity during the next cycle and deduction of 20 per cent, 30 per cent, and so on, of the environmental compensation collected is to be made in case of utilisation of ash in subsequent cycles.

D. Procedure for supply of ash or ash based products.—

(1) The owner of thermal power plants or manufacturers of ash bricks or tiles or sintered ash aggregate shall serve written notice to persons or agencies who are liable to utilise ash or ash based products, offering for sale, or transport or both.

(2) Persons or user agencies who have been served notices by owner of thermal power plants or manufacturers of ash bricks or tiles or sintered ash aggregate, if they have already tied up with other agencies for the purpose of utilisation of ash or ash products, shall inform the thermal power plant accordingly, if they cannot use any ash or ash products or use reduced quantity.

E. Enforcement, Monitoring, Audit and Reporting.—

(1) The Central Pollution Control Board (CPCB) and the concerned State Pollution Control Board (SPCB) or Pollution Control Committee (PCC) shall be the enforcing and monitoring authority for ensuring compliance of the provisions and shall monitor the utilisation of ash on quarterly basis. Central Pollution Control Board shall develop a portal for the purpose within six months of date of publication of the notification. The concerned District Magistrate shall have concurrent jurisdiction for enforcement and monitoring of the provisions of this notification.

(2) (i) Thermal power plants shall upload monthly information regarding ash generation and utilisation by 5th of the next month on the web portal. 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 Pollution Control Committee (PCC), Central Electricity Authority (CEA), and concerned Integrated Regional Office of Ministry of Environment, Forest and Climate Change by the coal or lignite based thermal power plants. Central Pollution Control Board and Central Electricity Authority shall compile the annual reports submitted by all the thermal power plants and submit to Ministry of Environment, Forest and Climate Change by 31st May.

(ii) All other user agencies shall submit consumption or utilisation or disposal of ash and use of ash based products as mandated in this notification in the compliance report of Environmental Clearance (EC) issued by Ministry of Environment, Forest and Climate Change or State Level Environment Impact Assessment Authority (SEIAA) or Consent to Operate (CTO) issued by State Pollution Control Board (SPCB) or Pollution Control Committee (PCC), whichever is applicable. The Central Pollution Control Board (CPCB) or State Pollution Control Board (SPCB) or Pollution Control Committee (PCC) shall publish annual report of ash utilisation of all other agencies except thermal power plants to review the effective implementation of the provisions of the notification.

(3) For the purpose of monitoring the implementation of the provisions of this notification, a committee shall be constituted under the Chairperson, Central Pollution Control Board (CPCB), with members from Ministry of Power, Ministry of Coal, Ministry of Mines, Ministry of Environment, Forest and Climate Change, Ministry Road Transportation and Highways, Department of Heavy Industry as well as any concerned stakeholder(s), to be nominated by the Chairman of the committee. The committee may make recommendations for effective and efficient implementation of the provisions of the notification. The committee shall meet at least once in six months and review annual implementation reports and the committee shall also hold stakeholder consultations for monitoring of ash utilisation as mandated by this notification by inviting relevant stakeholder(s) at least once in six months. The committee shall submit the six monthly report to Ministry of Environment, Forest and Climate Change (MoEFCC).

(4) For the purpose of resolving disputes between thermal power plants and users of ash or manufacturer of ash based products, the State Governments or Union territory administration constitute a Committee within three months from the date of publication of this notification under the Chairman, State Pollution Control Board (SPCB) or Pollution Control Committee (PCC) with representatives from Department of Power, and one representative from the Department which deals with the subject of concerned agency with which dispute is made.

(5) The compliance audit for ash disposal by the thermal power plants and the user agency shall be conducted by auditors, authorised by Central Pollution Control Board (CPCB) and audit report shall be submitted to Central Pollution Control Board (CPCB) and concerned State Pollution Control Board (SPCB) or Pollution Control Committee (PCC) by 30th November every year. Central Pollution Control Board (CPCB) and concerned State Pollution Control Board (SPCB) or Pollution Control Committee (PCC) shall initiate action against non-compliant thermal power plants within fifteen days of receipt of audit report.

[F. No. HSM-9/1/2019-HSM]

NARESH PAL GANGWAR, Jt. Secy.

Annexure

Ash Compliance Report (for the period 1st April-31st March) to be submitted on or before 31st May.

Sl. No.	Details	
1.	Name of Power Plant	
2.	Name of the company	
3.	District	
4.	State	
5.	Postal address for communication:	
6.	E-mail:	
7.	Power Plant installed capacity (MW):	
8.	Plant Load Factor (PLF):	
9.	No. of units generated (MWh):	
10.	Total area under power plant (ha): (including area under ash ponds)	
11.	Quantity of coal consumption during reporting period (Metric Tons per Annum):	
12	Average ash content in percentage (per cent):	
13.	Quantity of current ash generation during reporting period (Metric Tons per Annum): Fly ash (Metric Tons per Annum): Bottom ash (Metric Tons per Annum):	
14.	Capacity of dry fly ash storage silo(s) (Metric Tons) :	
15	Details of utilisation of current ash generated during reporting period (a) Total quantity of current ash utilised (MTPA) during reporting period: (b) Quantity of fly ash utilised (MTPA): (i) Fly ash based products (bricks or blocks or tiles or fibre cement sheets or pipes or boards or panels) (ii) Cement manufacturing:	

	(iii) Ready mix concrete: (iv) Ash and Geo-polymer based construction material: (v) Manufacturing of sintered or cold bonded ash aggregate: (vi) Construction of roads, road and fly over embankment: (vii) Construction of dams: (viii) Filling up of low lying area: (ix) Filling of mine voids: (x) Use in overburden dumps: (xi) Agriculture: (xii) Construction of shoreline protection structures in coastal districts; (xiii) Export of ash to other countries: (xiv) Others (please specify): (c) Quantity of bottom ash utilised (MTPA): (i) Fly ash based products (bricks or blocks or tiles or fibre cement sheets or pipes or boards or panels): (ii) Cement manufacturing: (iii) Ready mix concrete: (iv) Ash and Geo-polymer based construction material: (v) Manufacturing of sintered or cold bonded ash aggregate: (vi) Construction of roads, road and flyover embankment: (vii) Construction of dams: (viii) Filling up of low lying area: (ix) Filling of mine voids: (x) Use in overburden dumps: (xi) Agriculture: (xii) Construction of shoreline protection structures in coastal districts: (xiii) Export of ash to other countries: (xiv) Others (please specify): Total quantity of current ash unutilised (MTPA) during reporting period:	
16.	Percentage utilisation of current ash generated during reporting period (per cent):	
17.	Details of disposal of ash in ash ponds (a) Total quantity of ash disposed in ash pond(s) (Metric Tons) as on 31st March (excluding reporting period): (b) Quantity of ash disposed in ash pond(s) during reporting period (Metric Tons): (c) Total quantity of water consumption for slurry discharge into ash ponds during reporting period (m^3): (d) Total number of ash ponds: (i) Active: (ii) Exhausted (yet to be reclaimed): (iii) Reclaimed: (e) total area under ash ponds (ha):	
18.	Individual ash pond details *Ash pond-1,2, etc (please provide below mentioned details separately, if number of ash ponds is more than one)* (a) Status: Under construction or Active or Exhausted or	

	Reclaimed (b) Date of start of ash disposal in ash pond (DD/MM/YYYY or MMYYYY): (c) Date of stoppage of ash disposal in ash pond after completing its capacity (DD/MM/YYYY or MM/YYYY): (Not applicable for active ash ponds) (c) area (hectares): (d) dyke height (m): (d) volume (m^3): (e) quantity of ash disposed as on 31st March (Metric Tons): (f) available volume in percentage (per cent) and quantity of ash can be further disposed (Metric Tons): (g) expected life of ash pond (number of years and months): (e) co-ordinates (Lat and Long): (please specify minimum 4 co-ordinates) (f) type of lining carried in ash pond: HDPE lining or LDPE lining or clay lining or No lining g) mode of disposal: Dry disposal or wet slurry (in case of wet slurry please specify whether HCSD or MCSD or LCSD) (h) Ratio of ash: water in slurry mix (1:___): (i) Ash water recycling system (AWRS) installed and functioning: Yes or No (j) Quantity of wastewater from ash pond discharged into land or water body (m3): (k) Last date when the dyke stability study was conducted and name of the organisation who conducted the study: (l) Last date when the audit was conducted and name of the organisation who conducted the audit:	
19.	Quantity of legacy ash utilised (MTPA): i. Fly ash based products (bricks or blocks or tiles or fibre cement sheets or pipes or boards or panels): ii. Cement manufacturing: iii. Ready mix concrete: iv. Ash and Geo-polymer based construction material: v. Manufacturing of sintered or cold bonded ash aggregate: vi. Construction of roads, road and flyover embankment: vii. Construction of dams: viii. Filling up of low lying area: ix. Filling of mine voids: x. Use in overburden dumps: xi. Agriculture: xii. Construction of shoreline protection structures in coastal districts; xiii. Export of ash to other countries: xiv. Others (please specify):	
20.	Summary:	

Details	Quantity generated (MTP)	Quantity utilised (MTP) and (per cent)	Balance quantity (MTP)

	Current ash during reporting period			
	Legacy ash			
	Total			
21.	Any other information: Soft copy of the annual compliance report, and shape files of power plant and ash ponds may be e-mailed to:- moefcc-coalash@gov.in			
22.	Signature of Authorised Signatory			

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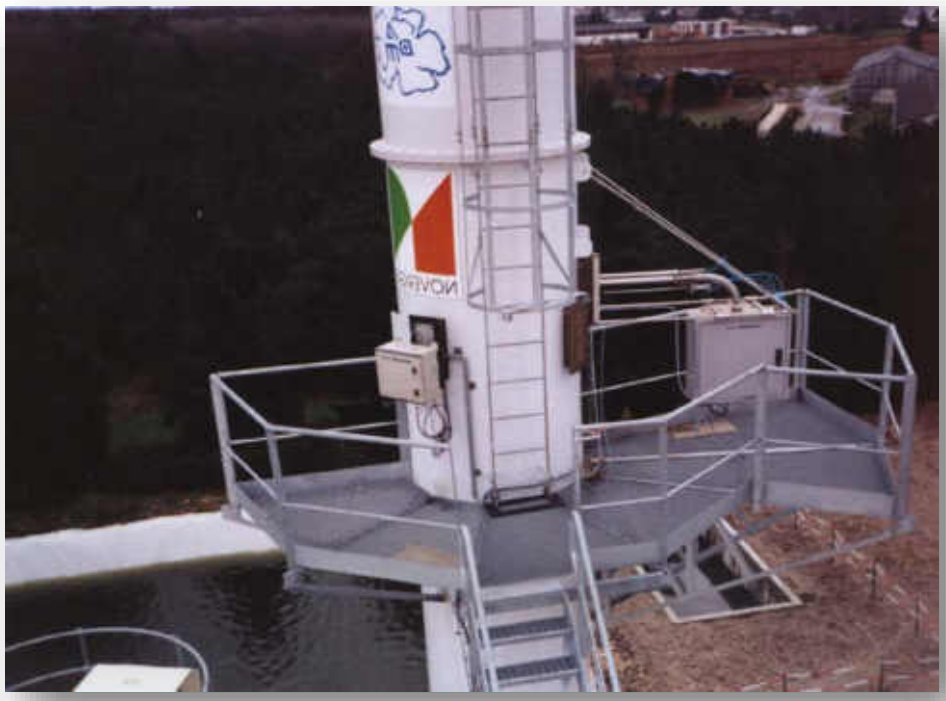
Guidelines for Continuous Emission Monitoring Systems



CENTRAL POLLUTION CONTROL BOARD
Parivesh Bhawan, East Arjun Nagar,
Delhi-110032

August, 2018
Revision-01

Note: Efforts have been made to include all available monitoring technologies/instrumentation in the document. In case any high end technology/ instrumentation is not covered or is introduced subsequently the details be forwarded to CPCB, so that the same can be incorporated while reviewing this document subsequently.

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Technical Guidance:

Shri J.S. Kamyotra, Ex-Director, CPCB

CONTENTS

1.0 BACKGROUND

In order to track release of pollutants through air emissions and effluent discharge from industries with high pollution potential, Central Pollution Control Board (vide its letter No. B-29016/04/06PCI-1/5401 dated 05.02.2014 issued directions under section 18(1) b of the Water and Air Acts to the State Pollution Control Boards and Pollution Control Committees for directing the 17 categories of highly polluting industries (such as Pulp & Paper, Distillery, Sugar, Tanneries, Power Plants, Iron & Steel, Cement, Oil Refineries, Fertilizer, Chloral Alkali Plants, Dye & Dye Intermediate Units, Pesticides, Zinc, Copper, Aluminum, Petrochemicals and Pharma Sector, etc.,), Common Effluent Treatment Plants (CETP),Sewage Treatment Plants (STPs), Common Bio Medical Waste and Common Hazardous Waste Incinerators; for installation of online effluent quality and emission monitoring systems. The directions envisage:

a) Installation of online emission quality monitoring system in 17 categories of highly polluting industries and in Common Hazardous waste and Biomedical waste incinerators for measurement of the parameters, Particulate Matter, NH_3 (Ammonia), SO_2 (Sulphur Dioxide), NO_X (Oxides of Nitrogen) and other sector specific parameters, not later than by March 31, 2015 and transmission of online data so generated simultaneously to SPCB/PCC and CPCB as well. The deadline was later extended to June 31, 2015.

b) Installation of surveillance system with industrial grade IP (Internet Protocol) cameras having PAN, Tilt, Zoom (PTZ) with leased line real time connection for data streaming and transmission of the same in case of industries claiming Zero Liquid Discharge (ZLD); and

c) Ensure regular maintenance and operation of the online system with tamper proof mechanism having facilities for online calibration (onsite/ offsite; Remote).

In addition to above, G.S.R. 96(E) January 29, 2018 Notified by MoEF&CC under Environment (Protection) Act, 1986 mandates installation of CEMS with the Boilers used in the Industries namely Sugar, Cotton Textile, Composite Woolen Mills, Synthetic Rubber, Pulp & Paper, Distilleries, Leather Industries, Calcium Carbide, Carbon Black, Natural

Rubber, Asbestos, Caustic Soda, Small Boilers, Aluminium Plants, Tanneries, Inorganic Chemicals & other such industries using boilers.

Parameters required to be monitored in the stack emissions using Continuous Emission Monitoring system, are industry specific and are specified below: -

a) PM (Particulate Matter)

b) HF (as Total Fluoride)

c) NH_3 (as Ammonia)

d) SO_2 (Sulphur Dioxide)

e) NO_X (Oxides of Nitrogen as NO_2)

f) Cl_2 (Chlorine)

g) HCl (Hydrochloric acid) and HF (Hydro Fluoric Acid)

h) TOC (Total Organic Carbon) / THC (Total Hydro Carbon) / VOC (Volatile Organic Carbon)- C_nH_m

i) Hg (Gaseous mercury)

j) Process parameters (Mandatory) to be monitored at each stack at sampling point/plane:

1 Temperature

2 Flow (applicable wherever load based standards prescribed and DC Tribo system installed for monitoring of PM)

k) Diluents gas CO_2 or O_2 as prescribed in the emission standards of respective processes /industries

l) Carbon Monoxide as prescribed in the emission standards of respective processes /industries i.e. Incinerators, etc.;

m) The emission values should be corrected for Moisture Content (For In-situ and Hot extractive analyzer real time moisture monitoring values of inbuilt measurements can be used). Moisture content value recorded during manual monitoring conducted by empaneled labs, at the time of verification/calibration can be considered for correction.

n) For normalization of emission values absolute pressure is also required to be monitored in the sampling plane. Value recorded during manual monitoring can be used for normalization.

o) Real time moisture monitoring is incinerator stack.

Annexure-I

12. Parameters for online monitoring as per Guidelines

Sl. No	Category	Emission Parameters
1	Aluminium	PM, Fluoride
2	Cement	PM,NOx,SO_2
3	Distillery	PM
4	Dye and dye Intermediate	-
5	Chlor Alkali	Cl_2, HCl
6	Fertilizers	PM, HF, Ammonia
7	Iron & steel	PM,SO_2, NOx
8	Oil refinery	PM,CO,NOx,SO_2
9	Petro chemical	PM,CO,NOx,SO_2
10	Pesticides	-
11	Pharmaceuticals	-
12	Power Plants	PM, NOx, SO_2
	Thermal Power Plants	PM, NOx, SO_2, Total Mercury(Gaseous)**
13	Pulp & paper	-
14	Sugar	-
15	Tannery	-
16	Zinc	PM, SO_2
17	Copper	PM, SO_2
18	Textile (GPI)	-
19	Dairy (GPI)	-
20	Slaughter House	-
21	Boiler	SO_2, NOx, PM

** Online CEMS for Mercury may be applicable in case such condition is stipulated in EC issued by MoEF&CC / SEIAA

13. Formulae for Data Reporting

ANNEXURE II

SN	Parameters	Units of Expression	Standard values	Algorithm	Remarks
01	Barometric Pressure (P_{bar})	mm of Hg			
02	Standard Pressure (P_{std})	mm of Hg	760		
03	Actual Pressure (P_{actual})	mm Hg			
04	Stack Temperature (T_S)	Kelvin		x ° C + 273.15	x = temperature in stack
05	Temperature at Analyser (T_m)	Kelvin		x ° C + 273.15	x = temperature in stack
06	Standard Temperature (T_{std})	Kelvin	298	25 ° C + 273.15 = 298	
07	Moisture (M)	%			
08	Moisture Fraction (Mw)	Ratio		(M) /100	
09	Wet m^3 to Wet Nm^3	Wet Nm^3		x m^3 * {(P_{actual})/ (P_{std})} { T_m / (T_{std}) }	x=volume measured by analyser
10	Wet Nm^3 to Dry Nm^3	Dry Nm^3		x m^3 * {(P_{actual})/ (P_{std})}*{T_m/ (T_{std})}*{1 / (1 – Mw)}	x=volume measured by analyser
11	Conversion of ppmw of any gas to mg/Nm^3	mg/Nm^3		(x ppmw) * (molecular weight) / 24.45 x=value measured by analyser in NM^3	All the instantaneous values required to be corrected in CEMS
12	Conversion of ppmv of any gas to mg/Nm^3	mg/Nm^3		{(x ppmv)}*{(12.187)}*{(MW)} / {(273.15 + 25 °C)} x=value measured by analyser in Nm^3	This is not applicable for CEMS as Pressure correction is not applied
13	CO_2 Correction		12 % or as specified	C_f = {x mg/Nm^3} * {(12 / Measured CO_2)} ***Correction not needed wherever CO_2 is > 12%*** *C_f=correction factor*	All the instantaneous values required to be corrected in CEMS wherever mandated as per standard
14	O_2 Correction		11%	C_f = {x mg/Nm^3} * (20.9 - 11)} /{ (20.9 - Measured O_2)} ***Correction not needed wherever O_2 is < 11%***	All the instantaneous values required to be corrected in CEMS wherever mandated as per standa

				C_f=correction factor	
15	O_2 Correction		3 %	C_f = {x mg/Nm^3 * (20.9 - 3)} /{ (20.9 - Measured O_2)} ***Correction not needed wherever O_2 is < 3%*** *C_f=correction factor*	Applicable for gas and liquid fuel in Petrochemical industries
16	Combustion Efficiency			{(%CO2)*100} / {(% CO2 + %CO)}	Applicable for Biomedical Waste Incinerator

S. No.	References
1.0	**CPCB's CEMS related Documents** i) Direction for installation of CEMS and CWQMS in 17 Categories Industries, CETP, HWI, BMWI ii) Draft Notification on CEMS and CWQMS iii) Minutes of Meeting with Industries on Online Monitoring iv) List of Parameters for CEMS and CWQMS v) First hand information on list of suppliers vi) CPCB/e-PUBLICATION/2013-14 on "Specifications and Guidelines for Continuous Emissions Monitoring Systems (CEMS) for PM Measurement With Special Reference to Emission Trading Programs"
2.0	**USEPA Documents related to CEMS** a) Continuous Monitoring Manual b) 40 CFR Part 75: CEMS Field Audit Manual c) USEPA CEMS Performance Specification i) PS – 2 : Performance Specification for SO_2 and NO_X ii) PS – 3 : Performance Specification for O_2 and CO_2 iii) PS – 4 : Performance Specification for CO iv) PS – 4A: Performance Specification and Test Procedure for CO v) PS – 4B: Performance Specification and Test Procedure for CO and O_2 vi) PS – 6: Performance Specification and Test Procedure for Emission Rate vii) PS – 8A: Performance Specification and Test Procedure for Hydrocarbon (TOC) viii) PS – 11: Performance Specification and Test Procedure for PM CEMS ix) PS – 15: Performance Specification for Extractive FTIR CEMS x) PS – 18: Performance Specification for HCl – CEMS d) Quality Assurance (QA) Documents i) Procedure 1: QA Requirement for Gaseous CEMS ii) Procedure 2: QA Requirement for PM CEMS iii) Procedure 5: QA Requirement for Total Gaseous Mercury (TGM) CEMS and Sorbent Trap e) 40 CFR part 180 f) COMS (Continuous Opacity Monitoring System)
3.0	EN Documents i) EN 15267 – Part 1: Certification of AMS (CEMS) ii) EN 15267 – Part 2: Certification of AMS (CEMS) iii) EN 15267 – Part 3: Certification of AMS (CEMS) iv) EN 14181 – Quality Assurance of AMS (CEMS) v) EN 14884 – Test Method AMS (CEMS) for TGM
4.0	UK Documents a) RM:QG-06: Calibration of PM CEMS (Low Concentration) b) MCERTS : BS EN 13284: PM CEMS
5.0	Standard Operating Procedure for Compliance Monitoring using CEMS – Abu Dhabi

Annexure-C/1

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* Edition1.0 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 systems.

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.

Annexure – A

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: 2011need 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/

Annexure - 2

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.

Annexure – 3

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.

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Annexure I

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.

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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	

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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.

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FORM-15

Details/Information to be provided to beneficiaries under Clause (2) of Regulation 40 of CERC (Terms & Conditions of Tariff) Regulations, 2019

Details of Source wise Fuel for Computation of Energy Charges (in case of coal)

	Name of the Petitioner:	**NTPC Limited**	
	Name of the Generating Station:	**Rihand STPP**	**Stage-I**
	Month:	**Apr-23**	**Revised**

S.No.	Particulars	Unit	Domestic Coal		E-Auction	Imported Coal	Bio Mass
			Supplied by MGR	Supplied by Rail			
A)	**OPENING QUANTITY**						
1	Opening Quantity ofCoal/Lignite	MT	979751.64	0.00	0.00	0.00	0.00
2	Value of Stock	Rs.	2193952634	0	0	0	0
B)	**QUANTITY**						
3	Quantity of coal supplied by the coal Company	MT	1240031.14	0.00	0.00	0.00	0.00
4	Adjustment (+/-) in quantity supplied by the coal Company	MT	0.00	0.00	0.00	0.00	0.00
5	Coal supplied by the Coal Company (1+2)	MT	1240031.14	0.00	0.00	0.00	0.00
6	Normative transit & handling losses	MT	2480.06	0.00	0.00	0.00	0.00
7	**Net Coal / Lignite supplied (5 - 6)**	**MT**	**1237551.08**	**0.00**	**0.00**	**0.00**	**0.00**
C)	**PRICE**						
8	Amount charged by the Coal / Lignite Company	Rs.	2464191858	0	0	0	0
9	Adjustment (+ / -) in amount charged by coal / Lignite Company	Rs.	80013969	0	0	0	0
10	Handling, Sampling such Other similer Charges	Rs.	55598981	0	0	0	0
11	**Total Amount charged (8 +9+10)**	**Rs.**	**2599804808**	**0**	**0**	**0**	**0**
D)	**TRANSPORATION**						
12	Transportation charges by Rail / Ship / Road Transport	Rs.	0	0	0	0	0
13	Adjustment (+/-) in amount charged by Railways / transport Company	Rs.	0	0	0	0	0
14	Demurrage charges, if any	Rs.	0	0	0	0	0
15	Cost of diesel in transporting coal through MGR system	Rs.	26972340	0	0	0	0
16	**Total transportation charges (12+ 13 + 14 + 15)**	**Rs.**	**26972340**	**0**	**0**	**0**	**0**
17	**Total amount charged for coal supplied including transportation (11+16)**	**Rs.**	**2626777148**	**0**	**0**	**0**	**0**
E)	**TOTAL COST**						
18	Landed cost of coal/ Lignite(2+17)/(1+7)	**Rs./MT**	**2174.14**		**0.00**	**0.00**	**0.00**
19	Blending Ratio(Domestic/Imported)		100.00%		0.00%	0.00%	0.00%
20	**Weighted average cost of coal (Including Bio Mass)**	**Rs./MT**	**2174.14**				
20a	**Weighted average cost of coal (Excluding Bio Mass)**	**Rs./MT**	**2174.14**				
F)	**QUALITY**						
21	GCV of Domestic Coal of the opening coal stock as per bill of Coal Company	(Kcal/Kg)	4515		0		0
22	GCV of Domestic Coal supplied as per bill of Coal Company	(Kcal/Kg)	4450		0		0
23	GCV of Imported Coal of the opening stock as per bill Coal Company	(Kcal/Kg)				0	
24	GCV of Imported Coal supplied as per bill Coal Company	(Kcal/Kg)				0	
25	Weighted average GCV of coal/ Lignite as Billed (Including Biomass)	(Kcal/Kg)	**4479**				
25a	Weighted average GCV of coal/ Lignite as Billed (Excluding Bio Mass)	(Kcal/Kg)	**4479**				
26	GCV of Domestic Coal of the opening stock as received at Station	(Kcal/Kg)	3730		0		0
27	GCV of Domestic Coal supplied as received at Station	(Kcal/Kg)	3737		0		0
28	GCV of Imported Coal of opening stock as received at Station	(Kcal/Kg)				0	
29	GCV of Imported Coal of supplied as received at Station	(Kcal/Kg)				0	
30	Weighted average GCV of coal/ Lignite as Received (Including Biomass)	(Kcal/Kg)	**3734**				
30a	Weighted average GCV of coal/ Lignite as Received (Excluding Bio Mass)	(Kcal/Kg)	**3734**				

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Date: 2024.11.25 14:24:55 IST
Reason: AGM(Commercial)
Location: NTPC Ltd

Sr Mgr (Finance)

FORM-15

Details/Information to be provided to beneficiaries under Clause (2) of Regulation 40 of CERC (Terms & Conditions of Tariff) Regulations, 2019

Details of Source wise Fuel for Computation of Energy Charges (in case of coal)

Name of the Petitioner:	**NTPC Limited**	
Name of the Generating Station:	**Rihand STPP**	**Stage-I**
Month:	**May-23**	**Revised**

S.No.	Particulars	Unit	Domestic Coal		E-Auction	Imported Coal	Bio Mass
			Supplied by MGR	Supplied by Rail			
A)	**OPENING QUANTITY**						
1	Opening Quantity ofCoal/Lignite	MT	957499.72	0.00	0.00	0.00	0.00
2	Value of Stock	Rs.	2081740428	0	0	0	0
B)	**QUANTITY**						
3	Quantity of coal supplied by the coal Company	MT	1225605.54	0.00	0.00	0.00	0.00
4	Adjustment (+/-) in quantity supplied by the coal Company	MT	0.00	0.00	0.00	0.00	0.00
5	Coal supplied by the Coal Company (1+2)	MT	1225605.54	0.00	0.00	0.00	0.00
6	Normative transit & handling losses	MT	2451.21	0.00	0.00	0.00	0.00
7	**Net Coal / Lignite supplied (5 - 6)**	**MT**	**1223154.33**	**0.00**	**0.00**	**0.00**	**0.00**
C)	**PRICE**						
8	Amount charged by the Coal / Lignite Company	Rs.	2420614495	0	0	0	0
9	Adjustment (+ / -) in amount charged by coal / Lignite Company	Rs.	137048095	0	0	0	0
10	Handling, Sampling such Other similer Charges	Rs.	37077872	0	0	0	0
11	**Total Amount charged (8 +9+10)**	**Rs.**	**2594740462**	**0**	**0**	**0**	**0**
D)	**TRANSPORATION**						
12	Transportation charges by Rail / Ship / Road Transport	Rs.	0	0	0	0	0
13	Adjustment (+/-) in amount charged by Railways / transport Company	Rs.	0	0	0	0	0
14	Demurrage charges, if any	Rs.	0	0	0	0	0
15	Cost of diesel in transporting coal through MGR system	Rs.	29307484	0	0	0	0
16	**Total transportation charges (12+ 13 + 14 + 15)**	**Rs.**	**29307484**	**0**	**0**	**0**	**0**
17	**Total amount charged for coal supplied including transportation (11+16)**	**Rs.**	**2624047946**	**0**	**0**	**0**	**0**
E)	**TOTAL COST**						
18	Landed cost of coal/ Lignite(2+17)/(1+7)	**Rs./MT**	**2157.97**		**0.00**	**0.00**	**0.00**
19	Blending Ratio(Domestic/Imported)		100.00%		0.00%	0.00%	0.00%
20	**Weighted average cost of coal (Including Bio Mass)**	**Rs./MT**	**2157.97**				
20a	**Weighted average cost of coal (Excluding Bio Mass)**	**Rs./MT**	**2157.97**				
F)	**QUALITY**						
21	GCV of Domestic Coal of the opening coal stock as per bill of Coal Company	(Kcal/Kg)	4479		0		0
22	GCV of Domestic Coal supplied as per bill of Coal Company	(Kcal/Kg)	4525		0		0
23	GCV of Imported Coal of the opening stock as per bill Coal Company	(Kcal/Kg)				0	
24	GCV of Imported Coal supplied as per bill Coal Company	(Kcal/Kg)				0	
25	Weighted average GCV of coal/ Lignite as Billed (Including Biomass)	(Kcal/Kg)	**4505**				
25a	Weighted average GCV of coal/ Lignite as Billed (Excluding Bio Mass)	(Kcal/Kg)	**4505**				
26	GCV of Domestic Coal of the opening stock as received at Station	(Kcal/Kg)	3734		0		0
27	GCV of Domestic Coal supplied as received at Station	(Kcal/Kg)	3881		0		0
28	GCV of Imported Coal of opening stock as received at Station	(Kcal/Kg)				0	
29	GCV of Imported Coal of supplied as received at Station	(Kcal/Kg)				0	
30	Weighted average GCV of coal/ Lignite as Received (Including Biomass)	(Kcal/Kg)	**3816**				
30a	Weighted average GCV of coal/ Lignite as Received (Excluding Bio Mass)	(Kcal/Kg)	**3816**				

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Date: 2024.11.25 14:24:55 IST
Reason: AGM(Commercial)
Location: NTPC Ltd

Sr Mgr (Finance)

FORM-15

Details/Information to be provided to beneficiaries under Clause (2) of Regulation 40 of CERC (Terms & Conditions of Tariff) Regulations, 2019

Details of Source wise Fuel for Computation of Energy Charges (in case of coal)

Name of the Petitioner:	**NTPC Limited**	
Name of the Generating Station:	**Rihand STPP**	**Stage-I**
Month:	**Jun-23**	**Revised**

S.No.	Particulars	Unit	Domestic Coal		E-Auction	Imported Coal	Bio Mass
			Supplied by MGR	Supplied by Rail			
A)	**OPENING QUANTITY**						
1	Opening Quantity ofCoal/Lignite	MT	878553.05	0.00	0.00	0.00	0.00
2	Value of Stock	Rs.	1895892177	0	0	0	0
B)	**QUANTITY**						
3	Quantity of coal supplied by the coal Company	MT	1221805.92	0.00	0.00	0.00	0.00
4	Adjustment (+/-) in quantity supplied by the coal Company	MT	0.00	0.00	0.00	0.00	0.00
5	Coal supplied by the Coal Company (1+2)	MT	1221805.92	0.00	0.00	0.00	0.00
6	Normative transit & handling losses	MT	2443.61	0.00	0.00	0.00	0.00
7	**Net Coal / Lignite supplied (5 - 6)**	**MT**	**1219362.31**	**0.00**	**0.00**	**0.00**	**0.00**
C)	**PRICE**						
8	Amount charged by the Coal / Lignite Company	Rs.	2537711993	0	0	0	0
9	Adjustment (+ / -) in amount charged by coal / Lignite Company	Rs.	197090288	0	0	0	0
10	Handling, Sampling such Other similer Charges	Rs.	44200412	-1	0	0	0
11	**Total Amount charged (8 +9+10)**	**Rs.**	**2779002693**	**-1**	**0**	**0**	**0**
D)	**TRANSPORATION**						
12	Transportation charges by Rail / Ship / Road Transport	Rs.	0	0	0	0	0
13	Adjustment (+/-) in amount charged by Railways / transport Company	Rs.	0	0	0	0	0
14	Demurrage charges, if any	Rs.	0	0	0	0	0
15	Cost of diesel in transporting coal through MGR system	Rs.	27936256	0	0	0	0
16	**Total transportation charges (12+ 13 + 14 + 15)**	**Rs.**	**27936256**	**0**	**0**	**0**	**0**
17	**Total amount charged for coal supplied including transportation (11+16)**	**Rs.**	**2806938949**	**-1**	**0**	**0**	**0**
E)	**TOTAL COST**						
18	Landed cost of coal/ Lignite(2+17)/(1+7)	**Rs./MT**	**2241.67**		**0.00**	**0.00**	**0.00**
19	Blending Ratio(Domestic/Imported)		100.00%		0.00%	0.00%	0.00%
20	**Weighted average cost of coal (Including Bio Mass)**	**Rs./MT**	**2241.67**				
20a	**Weighted average cost of coal (Excluding Bio Mass)**	**Rs./MT**	**2241.67**				
F)	**QUALITY**						
21	GCV of Domestic Coal of the opening coal stock as per bill of Coal Company	(Kcal/Kg)	4505		0		0
22	GCV of Domestic Coal supplied as per bill of Coal Company	(Kcal/Kg)	4530		0		0
23	GCV of Imported Coal of the opening stock as per bill Coal Company	(Kcal/Kg)				0	
24	GCV of Imported Coal supplied as per bill Coal Company	(Kcal/Kg)				0	
25	Weighted average GCV of coal/ Lignite as Billed (Including Biomass)	(Kcal/Kg)	**4520**				
25a	Weighted average GCV of coal/ Lignite as Billed (Excluding Bio Mass)	(Kcal/Kg)	**4520**				
26	GCV of Domestic Coal of the opening stock as received at Station	(Kcal/Kg)	3816		0		0
27	GCV of Domestic Coal supplied as received at Station	(Kcal/Kg)	3863		0		0
28	GCV of Imported Coal of opening stock as received at Station	(Kcal/Kg)				0	
29	GCV of Imported Coal of supplied as received at Station	(Kcal/Kg)				0	
30	Weighted average GCV of coal/ Lignite as Received (Including Biomass)	(Kcal/Kg)	**3843**				
30a	Weighted average GCV of coal/ Lignite as Received (Excluding Bio Mass)	(Kcal/Kg)	**3843**				

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Date: 2024.11.25 14:24:55 IST
Reason: AGM(Commercial)
Location: NTPC Ltd

Sr Mgr (Finance)

FORM-15

Details/Information to be provided to beneficiaries under Clause (2) of Regulation 40 of CERC (Terms & Conditions of Tariff) Regulations, 2019

Details of Source wise Fuel for Computation of Energy Charges (in case of coal)

Name of the Petitioner:	**NTPC Limited**	
Name of the Generating Station:	**Rihand STPP**	**Stage-I**
Month:	**Jul-23**	**Revised**

S.No.	Particulars	Unit	Domestic Coal		E-Auction	Imported Coal	Bio Mass
			Supplied by MGR	Supplied by Rail			
A)	**OPENING QUANTITY**						
1	Opening Quantity ofCoal/Lignite	MT	830229.36	0.00	0.00	0.00	0.00
2	Value of Stock	Rs.	1861098718	0	0	0	0
B)	**QUANTITY**						
3	Quantity of coal supplied by the coal Company	MT	1315874.98	0.00	0.00	0.00	0.00
4	Adjustment (+/-) in quantity supplied by the coal Company	MT	0.00	0.00	0.00	0.00	0.00
5	Coal supplied by the Coal Company (1+2)	MT	1315874.98	0.00	0.00	0.00	0.00
6	Normative transit & handling losses	MT	2631.75	0.00	0.00	0.00	0.00
7	**Net Coal / Lignite supplied (5 - 6)**	**MT**	**1313243.23**	**0.00**	**0.00**	**0.00**	**0.00**
C)	**PRICE**						
8	Amount charged by the Coal / Lignite Company	Rs.	2994248201	0	0	0	0
9	Adjustment (+ / -) in amount charged by coal / Lignite Company	Rs.	0	0	0	0	0
10	Handling, Sampling such Other similer Charges	Rs.	45185727	0	0	0	0
11	**Total Amount charged (8 +9+10)**	**Rs.**	**3039433928**	**0**	**0**	**0**	**0**
D)	**TRANSPORATION**						
12	Transportation charges by Rail / Ship / Road Transport	Rs.	0	0	0	0	0
13	Adjustment (+/-) in amount charged by Railways / transport Company	Rs.	0	0	0	0	0
14	Demurrage charges, if any	Rs.	0	0	0	0	0
15	Cost of diesel in transporting coal through MGR system	Rs.	30796879	0	0	0	0
16	**Total transportation charges (12+ 13 + 14 + 15)**	**Rs.**	**30796879**	**0**	**0**	**0**	**0**
17	**Total amount charged for coal supplied including transportation (11+16)**	**Rs.**	**3070230807**	**0**	**0**	**0**	**0**
E)	**TOTAL COST**						
18	Landed cost of coal/ Lignite(2+17)/(1+7)	**Rs./MT**	**2300.63**		**0.00**	**0.00**	**0.00**
19	Blending Ratio(Domestic/Imported)		100.00%		0.00%	0.00%	0.00%
20	**Weighted average cost of coal (Including Bio Mass)**	**Rs./MT**	**2300.63**				
20a	**Weighted average cost of coal (Excluding Bio Mass)**	**Rs./MT**	**2300.63**				
F)	**QUALITY**						
21	GCV of Domestic Coal of the opening coal stock as per bill of Coal Company	(Kcal/Kg)	4520		0		0
22	GCV of Domestic Coal supplied as per bill of Coal Company	(Kcal/Kg)	4614		0		0
23	GCV of Imported Coal of the opening stock as per bill Coal Company	(Kcal/Kg)				0	
24	GCV of Imported Coal supplied as per bill Coal Company	(Kcal/Kg)				0	
25	Weighted average GCV of coal/ Lignite as Billed (Including Biomass)	(Kcal/Kg)	**4578**				
25a	Weighted average GCV of coal/ Lignite as Billed (Excluding Bio Mass)	(Kcal/Kg)	**4578**				
26	GCV of Domestic Coal of the opening stock as received at Station	(Kcal/Kg)	3843		0		0
27	GCV of Domestic Coal supplied as received at Station	(Kcal/Kg)	3911		0		0
28	GCV of Imported Coal of opening stock as received at Station	(Kcal/Kg)				0	
29	GCV of Imported Coal of supplied as received at Station	(Kcal/Kg)				0	
30	Weighted average GCV of coal/ Lignite as Received (Including Biomass)	(Kcal/Kg)	**3885**				
30a	Weighted average GCV of coal/ Lignite as Received (Excluding Bio Mass)	(Kcal/Kg)	**3885**				

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Date: 2024.11.25 14:24:55 IST
Reason: AGM(Commercial)
Location: NTPC Ltd

Sr Mgr (Finance)

FORM-15

Details/Information to be provided to beneficiaries under Clause (2) of Regulation 40 of CERC (Terms & Conditions of Tariff) Regulations, 2019

Details of Source wise Fuel for Computation of Energy Charges (in case of coal)

Name of the Petitioner:	**NTPC Limited**	
Name of the Generating Station:	**Rihand STPP**	**Stage-I**
Month:	**Aug-23**	**Revised**

S.No.	Particulars	Unit	Domestic Coal		E-Auction	Imported Coal	Bio Mass
			Supplied by MGR	Supplied by Rail			
A)	**OPENING QUANTITY**						
1	Opening Quantity ofCoal/Lignite	MT	841126.59	0.00	0.00	0.00	0.00
2	Value of Stock	Rs.	1935118456	0	0	0	0
B)	**QUANTITY**						
3	Quantity of coal supplied by the coal Company	MT	1254897.38	0.00	0.00	0.00	0.00
4	Adjustment (+/-) in quantity supplied by the coal Company	MT	0.00	0.00	0.00	0.00	0.00
5	Coal supplied by the Coal Company (1+2)	MT	1254897.38	0.00	0.00	0.00	0.00
6	Normative transit & handling losses	MT	2509.80	0.00	0.00	0.00	0.00
7	**Net Coal / Lignite supplied (5 - 6)**	**MT**	**1252387.59**	**0.00**	**0.00**	**0.00**	**0.00**
C)	**PRICE**						
8	Amount charged by the Coal / Lignite Company	Rs.	2935697725	0	0	0	0
9	Adjustment (+ / -) in amount charged by coal / Lignite Company	Rs.	0	0	0	0	0
10	Handling, Sampling such Other similer Charges	Rs.	44914797	0	0	0	0
11	**Total Amount charged (8 +9+10)**	**Rs.**	**2980612522**	**0**	**0**	**0**	**0**
D)	**TRANSPORATION**						
12	Transportation charges by Rail / Ship / Road Transport	Rs.	0	0	0	0	0
13	Adjustment (+/-) in amount charged by Railways / transport Company	Rs.	0	0	0	0	0
14	Demurrage charges, if any	Rs.	0	0	0	0	0
15	Cost of diesel in transporting coal through MGR system	Rs.	29458740	0	0	0	0
16	**Total transportation charges (12+ 13 + 14 + 15)**	**Rs.**	**29458740**	**0**	**0**	**0**	**0**
17	**Total amount charged for coal supplied including transportation (11+16)**	**Rs.**	**3010071262**	**0**	**0**	**0**	**0**
E)	**TOTAL COST**						
18	Landed cost of coal/ Lignite(2+17)/(1+7)	**Rs./MT**	**2362.15**		**0.00**	**0.00**	**0.00**
19	Blending Ratio(Domestic/Imported)		100.00%		0.00%	0.00%	0.00%
20	**Weighted average cost of coal (Including Bio Mass)**	**Rs./MT**	**2362.15**				
20a	**Weighted average cost of coal (Excluding Bio Mass)**	**Rs./MT**	**2362.15**				
F)	**QUALITY**						
21	GCV of Domestic Coal of the opening coal stock as per bill of Coal Company	(Kcal/Kg)	4551		0		0
22	GCV of Domestic Coal supplied as per bill of Coal Company	(Kcal/Kg)	4592		0		0
23	GCV of Imported Coal of the opening stock as per bill Coal Company	(Kcal/Kg)				0	
24	GCV of Imported Coal supplied as per bill Coal Company	(Kcal/Kg)				0	
25	Weighted average GCV of coal/ Lignite as Billed (Including Biomass)	(Kcal/Kg)	**4576**				
25a	Weighted average GCV of coal/ Lignite as Billed (Excluding Bio Mass)	(Kcal/Kg)	**4576**				
26	GCV of Domestic Coal of the opening stock as received at Station	(Kcal/Kg)	3919		0		0
27	GCV of Domestic Coal supplied as received at Station	(Kcal/Kg)	3866		0		0
28	GCV of Imported Coal of opening stock as received at Station	(Kcal/Kg)				0	
29	GCV of Imported Coal of supplied as received at Station	(Kcal/Kg)				0	
30	Weighted average GCV of coal/ Lignite as Received (Including Biomass)	(Kcal/Kg)	**3887**				
30a	Weighted average GCV of coal/ Lignite as Received (Excluding Bio Mass)	(Kcal/Kg)	**3887**				

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Location: NTPC Ltd

Sr Mgr (Finance)

FORM-15

Details/Information to be provided to beneficiaries under Clause (2) of Regulation 40 of CERC (Terms & Conditions of Tariff) Regulations, 2019

Details of Source wise Fuel for Computation of Energy Charges (in case of coal)

Name of the Petitioner:	**NTPC Limited**	
Name of the Generating Station:	**Rihand STPP**	**Stage-I**
Month:	**Sep-23**	**Revised**

S.No.	Particulars	Unit	Domestic Coal		E-Auction	Imported Coal	Bio Mass
			Supplied by MGR	Supplied by Rail			
A)	**OPENING QUANTITY**						
1	Opening Quantity ofCoal/Lignite	MT	832805.17	0.00	0.00	0.00	0.00
2	Value of Stock	Rs.	1967208474	0	0	0	0
B)	**QUANTITY**						
3	Quantity of coal supplied by the coal Company	MT	1211972.00	0.00	0.00	0.00	0.00
4	Adjustment (+/-) in quantity supplied by the coal Company	MT	0.00	0.00	0.00	0.00	0.00
5	Coal supplied by the Coal Company (1+2)	MT	1211972.00	0.00	0.00	0.00	0.00
6	Normative transit & handling losses	MT	2423.94	0.00	0.00	0.00	0.00
7	**Net Coal / Lignite supplied (5 - 6)**	**MT**	**1209548.06**	**0.00**	**0.00**	**0.00**	**0.00**
C)	**PRICE**						
8	Amount charged by the Coal / Lignite Company	Rs.	2758519946	0	0	0	0
9	Adjustment (+ / -) in amount charged by coal / Lignite Company	Rs.	0	0	0	0	0
10	Handling, Sampling such Other similer Charges	Rs.	60753031	0	0	0	0
11	**Total Amount charged (8 +9+10)**	**Rs.**	**2819272977**	**0**	**0**	**0**	**0**
D)	**TRANSPORATION**						
12	Transportation charges by Rail / Ship / Road Transport	Rs.	0	0	0	0	0
13	Adjustment (+/-) in amount charged by Railways / transport Company	Rs.	0	0	0	0	0
14	Demurrage charges, if any	Rs.	0	0	0	0	0
15	Cost of diesel in transporting coal through MGR system	Rs.	28962178	0	0	0	0
16	**Total transportation charges (12+ 13 + 14 + 15)**	**Rs.**	**28962178**	**0**	**0**	**0**	**0**
17	**Total amount charged for coal supplied including transportation (11+16)**	**Rs.**	**2848235155**	**0**	**0**	**0**	**0**
E)	**TOTAL COST**						
18	Landed cost of coal/ Lignite(2+17)/(1+7)	**Rs./MT**	**2357.79**		**0.00**	**0.00**	**0.00**
19	Blending Ratio(Domestic/Imported)		100.00%		0.00%	0.00%	0.00%
20	**Weighted average cost of coal (Including Bio Mass)**	**Rs./MT**	**2357.79**				
20a	**Weighted average cost of coal (Excluding Bio Mass)**	**Rs./MT**	**2357.79**				
F)	**QUALITY**						
21	GCV of Domestic Coal of the opening coal stock as per bill of Coal Company	(Kcal/Kg)	4576		0		0
22	GCV of Domestic Coal supplied as per bill of Coal Company	(Kcal/Kg)	4702		0		0
23	GCV of Imported Coal of the opening stock as per bill Coal Company	(Kcal/Kg)				0	
24	GCV of Imported Coal supplied as per bill Coal Company	(Kcal/Kg)				0	
25	Weighted average GCV of coal/ Lignite as Billed (Including Biomass)	(Kcal/Kg)	**4651**				
25a	Weighted average GCV of coal/ Lignite as Billed (Excluding Bio Mass)	(Kcal/Kg)	**4651**				
26	GCV of Domestic Coal of the opening stock as received at Station	(Kcal/Kg)	3887		0		0
27	GCV of Domestic Coal supplied as received at Station	(Kcal/Kg)	4057		0		0
28	GCV of Imported Coal of opening stock as received at Station	(Kcal/Kg)				0	
29	GCV of Imported Coal of supplied as received at Station	(Kcal/Kg)				0	
30	Weighted average GCV of coal/ Lignite as Received (Including Biomass)	(Kcal/Kg)	**3988**				
30a	Weighted average GCV of coal/ Lignite as Received (Excluding Bio Mass)	(Kcal/Kg)	**3988**				

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Location: NTPC Ltd

Sr Mgr (Finance)

FORM-15

Details/Information to be provided to beneficiaries under Clause (2) of Regulation 40 of CERC (Terms & Conditions of Tariff) Regulations, 2019

Details of Source wise Fuel for Computation of Energy Charges (in case of coal)

Name of the Petitioner:	**NTPC Limited**	
Name of the Generating Station:	**Rihand STPP**	**Stage-I**
Month:	**Oct-23**	**Revised**

S.No.	Particulars	Unit	Domestic Coal		E-Auction	Imported Coal	Bio Mass
			Supplied by MGR	Supplied by Rail			
A)	**OPENING QUANTITY**						
1	Opening Quantity ofCoal/Lignite	MT	827729.23	0.00	0.00	0.00	0.00
2	Value of Stock	Rs.	1951612879	0	0	0	0
B)	**QUANTITY**						
3	Quantity of coal supplied by the coal Company	MT	1184019.34	0.00	0.00	0.00	0.00
4	Adjustment (+/-) in quantity supplied by the coal Company	MT	0.00	0.00	0.00	0.00	0.00
5	Coal supplied by the Coal Company (1+2)	MT	1184019.34	0.00	0.00	0.00	0.00
6	Normative transit & handling losses	MT	2368.04	0.00	0.00	0.00	0.00
7	**Net Coal / Lignite supplied (5 - 6)**	**MT**	**1181651.30**	**0.00**	**0.00**	**0.00**	**0.00**
C)	**PRICE**						
8	Amount charged by the Coal / Lignite Company	Rs.	2691898206	0	0	0	0
9	Adjustment (+ / -) in amount charged by coal / Lignite Company	Rs.	0	0	0	0	0
10	Handling, Sampling such Other similer Charges	Rs.	27061344	0	0	0	0
11	**Total Amount charged (8 +9+10)**	**Rs.**	**2718959550**	**0**	**0**	**0**	**0**
D)	**TRANSPORATION**						
12	Transportation charges by Rail / Ship / Road Transport	Rs.	0	0	0	0	0
13	Adjustment (+/-) in amount charged by Railways / transport Company	Rs.	0	0	0	0	0
14	Demurrage charges, if any	Rs.	0	0	0	0	0
15	Cost of diesel in transporting coal through MGR system	Rs.	26129857	0	0	0	0
16	**Total transportation charges (12+ 13 + 14 + 15)**	**Rs.**	**26129857**	**0**	**0**	**0**	**0**
17	**Total amount charged for coal supplied including transportation (11+16)**	**Rs.**	**2745089407**	**0**	**0**	**0**	**0**
E)	**TOTAL COST**						
18	Landed cost of coal/ Lignite(2+17)/(1+7)	**Rs./MT**	**2337.39**		**0.00**	**0.00**	**0.00**
19	Blending Ratio(Domestic/Imported)		100.00%		0.00%	0.00%	0.00%
20	**Weighted average cost of coal (Including Bio Mass)**	**Rs./MT**	**2337.39**				
20a	**Weighted average cost of coal (Excluding Bio Mass)**	**Rs./MT**	**2337.39**				
F)	**QUALITY**						
21	GCV of Domestic Coal of the opening coal stock as per bill of Coal Company	(Kcal/Kg)	4650		0		0
22	GCV of Domestic Coal supplied as per bill of Coal Company	(Kcal/Kg)	4373		0		0
23	GCV of Imported Coal of the opening stock as per bill Coal Company	(Kcal/Kg)				0	
24	GCV of Imported Coal supplied as per bill Coal Company	(Kcal/Kg)				0	
25	Weighted average GCV of coal/ Lignite as Billed (Including Biomass)	(Kcal/Kg)	**4487**				
25a	Weighted average GCV of coal/ Lignite as Billed (Excluding Bio Mass)	(Kcal/Kg)	**4487**				
26	GCV of Domestic Coal of the opening stock as received at Station	(Kcal/Kg)	3988		0		0
27	GCV of Domestic Coal supplied as received at Station	(Kcal/Kg)	3789		0		0
28	GCV of Imported Coal of opening stock as received at Station	(Kcal/Kg)				0	
29	GCV of Imported Coal of supplied as received at Station	(Kcal/Kg)				0	
30	Weighted average GCV of coal/ Lignite as Received (Including Biomass)	(Kcal/Kg)	**3871**				
30a	Weighted average GCV of coal/ Lignite as Received (Excluding Bio Mass)	(Kcal/Kg)	**3871**				

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Location: NTPC Ltd

Sr Mgr (Finance)

FORM-15

Details/Information to be provided to beneficiaries under Clause (2) of Regulation 40 of CERC (Terms & Conditions of Tariff) Regulations, 2019

Details of Source wise Fuel for Computation of Energy Charges (in case of coal)

Name of the Petitioner:	**NTPC Limited**	
Name of the Generating Station:	**Rihand STPP**	**Stage-I**
Month:	**Nov-23**	**Revised**

S.No.	Particulars	Unit	Domestic Coal		E-Auction	Imported Coal	Bio Mass
			Supplied by MGR	Supplied by Rail			
A)	**OPENING QUANTITY**						
1	Opening Quantity ofCoal/Lignite	MT	938819.53	0.00	0.00	0.00	0.00
2	Value of Stock	Rs.	2194385851	0	0	0	0
B)	**QUANTITY**						
3	Quantity of coal supplied by the coal Company	MT	1233259.08	0.00	0.00	0.00	0.00
4	Adjustment (+/-) in quantity supplied by the coal Company	MT	0.00	0.00	0.00	0.00	0.00
5	Coal supplied by the Coal Company (1+2)	MT	1233259.08	0.00	0.00	0.00	0.00
6	Normative transit & handling losses	MT	2466.52	0.00	0.00	0.00	0.00
7	**Net Coal / Lignite supplied (5 - 6)**	**MT**	**1230792.56**	**0.00**	**0.00**	**0.00**	**0.00**
C)	**PRICE**						
8	Amount charged by the Coal / Lignite Company	Rs.	2787092957	0	0	0	0
9	Adjustment (+ / -) in amount charged by coal / Lignite Company	Rs.	0	0	0	0	0
10	Handling, Sampling such Other similer Charges	Rs.	48080526	0	0	0	0
11	**Total Amount charged (8 +9+10)**	**Rs.**	**2835173483**	**0**	**0**	**0**	**0**
D)	**TRANSPORATION**						
12	Transportation charges by Rail / Ship / Road Transport	Rs.	0	0	0	0	0
13	Adjustment (+/-) in amount charged by Railways / transport Company	Rs.	0	0	0	0	0
14	Demurrage charges, if any	Rs.	0	0	0	0	0
15	Cost of diesel in transporting coal through MGR system	Rs.	25827276	0	0	0	0
16	**Total transportation charges (12+ 13 + 14 + 15)**	**Rs.**	**25827276**	**0**	**0**	**0**	**0**
17	**Total amount charged for coal supplied including transportation (11+16)**	**Rs.**	**2861000759**	**0**	**0**	**0**	**0**
E)	**TOTAL COST**						
18	Landed cost of coal/ Lignite(2+17)/(1+7)	**Rs./MT**	**2330.09**		**0.00**	**0.00**	**0.00**
19	Blending Ratio(Domestic/Imported)		100.00%		0.00%	0.00%	0.00%
20	**Weighted average cost of coal (Including Bio Mass)**	**Rs./MT**	**2330.09**				
20a	**Weighted average cost of coal (Excluding Bio Mass)**	**Rs./MT**	**2330.09**				
F)	**QUALITY**						
21	GCV of Domestic Coal of the opening coal stock as per bill of Coal Company	(Kcal/Kg)	4487		0		0
22	GCV of Domestic Coal supplied as per bill of Coal Company	(Kcal/Kg)	4695		0		0
23	GCV of Imported Coal of the opening stock as per bill Coal Company	(Kcal/Kg)				0	
24	GCV of Imported Coal supplied as per bill Coal Company	(Kcal/Kg)				0	
25	Weighted average GCV of coal/ Lignite as Billed (Including Biomass)	(Kcal/Kg)	**4605**				
25a	Weighted average GCV of coal/ Lignite as Billed (Excluding Bio Mass)	(Kcal/Kg)	**4605**				
26	GCV of Domestic Coal of the opening stock as received at Station	(Kcal/Kg)	3871		0		0
27	GCV of Domestic Coal supplied as received at Station	(Kcal/Kg)	4009		0		0
28	GCV of Imported Coal of opening stock as received at Station	(Kcal/Kg)				0	
29	GCV of Imported Coal of supplied as received at Station	(Kcal/Kg)				0	
30	Weighted average GCV of coal/ Lignite as Received (Including Biomass)	(Kcal/Kg)	**3949**				
30a	Weighted average GCV of coal/ Lignite as Received (Excluding Bio Mass)	(Kcal/Kg)	**3949**				

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Location: NTPC Ltd

Sr Mgr (Finance)

FORM-15

Details/Information to be provided to beneficiaries under Clause (2) of Regulation 40 of CERC (Terms & Conditions of Tariff) Regulations, 2019

Details of Source wise Fuel for Computation of Energy Charges (in case of coal)

Name of the Petitioner:	**NTPC Limited**	
Name of the Generating Station:	**Rihand STPP**	**Stage-I**
Month:	**Dec-23**	**Revised**

S.No.	Particulars	Unit	Domestic Coal		E-Auction	Imported Coal	Bio Mass
			Supplied by MGR	Supplied by Rail			
A)	**OPENING QUANTITY**						
1	Opening Quantity ofCoal/Lignite	MT	935536.09	0.00	0.00	0.00	0.00
2	Value of Stock	Rs.	2179880931	0	0	0	0
B)	**QUANTITY**						
3	Quantity of coal supplied by the coal Company	MT	1247860.96	0.00	0.00	0.00	0.00
4	Adjustment (+/-) in quantity supplied by the coal Company	MT	0.00	0.00	0.00	0.00	0.00
5	Coal supplied by the Coal Company (1+2)	MT	1247860.96	0.00	0.00	0.00	0.00
6	Normative transit & handling losses	MT	2495.72	0.00	0.00	0.00	0.00
7	**Net Coal / Lignite supplied (5 - 6)**	**MT**	**1245365.24**	**0.00**	**0.00**	**0.00**	**0.00**
C)	**PRICE**						
8	Amount charged by the Coal / Lignite Company	Rs.	2990721091	0	0	0	0
9	Adjustment (+ / -) in amount charged by coal / Lignite Company	Rs.	0	0	0	0	0
10	Handling, Sampling such Other similer Charges	Rs.	24484955	0	0	0	0
11	**Total Amount charged (8 +9+10)**	**Rs.**	**3015206046**	**0**	**0**	**0**	**0**
D)	**TRANSPORATION**						
12	Transportation charges by Rail / Ship / Road Transport	Rs.	0	0	0	0	0
13	Adjustment (+/-) in amount charged by Railways / transport Company	Rs.	0	0	0	0	0
14	Demurrage charges, if any	Rs.	0	0	0	0	0
15	Cost of diesel in transporting coal through MGR system	Rs.	25760717	0	0	0	0
16	**Total transportation charges (12+ 13 + 14 + 15)**	**Rs.**	**25760717**	**0**	**0**	**0**	**0**
17	**Total amount charged for coal supplied including transportation (11+16)**	**Rs.**	**3040966763**	**0**	**0**	**0**	**0**
E)	**TOTAL COST**						
18	Landed cost of coal/ Lignite(2+17)/(1+7)	**Rs./MT**	**2393.89**		**0.00**	**0.00**	**0.00**
19	Blending Ratio(Domestic/Imported)		100.00%		0.00%	0.00%	0.00%
20	**Weighted average cost of coal (Including Bio Mass)**	**Rs./MT**	**2393.89**				
20a	**Weighted average cost of coal (Excluding Bio Mass)**	**Rs./MT**	**2393.89**				
F)	**QUALITY**						
21	GCV of Domestic Coal of the opening coal stock as per bill of Coal Company	(Kcal/Kg)	4606		0		0
22	GCV of Domestic Coal supplied as per bill of Coal Company	(Kcal/Kg)	4624		0		0
23	GCV of Imported Coal of the opening stock as per bill Coal Company	(Kcal/Kg)				0	
24	GCV of Imported Coal supplied as per bill Coal Company	(Kcal/Kg)				0	
25	Weighted average GCV of coal/ Lignite as Billed (Including Biomass)	(Kcal/Kg)	**4616**				
25a	Weighted average GCV of coal/ Lignite as Billed (Excluding Bio Mass)	(Kcal/Kg)	**4616**				
26	GCV of Domestic Coal of the opening stock as received at Station	(Kcal/Kg)	3948		0		0
27	GCV of Domestic Coal supplied as received at Station	(Kcal/Kg)	3911		0		0
28	GCV of Imported Coal of opening stock as received at Station	(Kcal/Kg)				0	
29	GCV of Imported Coal of supplied as received at Station	(Kcal/Kg)				0	
30	Weighted average GCV of coal/ Lignite as Received (Including Biomass)	(Kcal/Kg)	**3927**				
30a	Weighted average GCV of coal/ Lignite as Received (Excluding Bio Mass)	(Kcal/Kg)	**3927**				

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Reason: AGM(Commercial)
Location: NTPC Ltd

Sr Mgr (Finance)

Part 1
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Details of Sourcewise fuel for computation of Energy Charges

Company	**NTPC Limited**
Name of the generating Station	**Rihand Superthermal Power-STAGE 01**
Month	**January-2024**

SL	Particulars	Unit	COAL-DOMESTIC
A)	**OPENING QUANTITY**		
1	Opening Stock of coal	MT	960935.33
2	Value of Stock	Rs.	2300378407.67
B)	**QUANTITY**		
3	Quantity of Coal /Lignite supplied by Coal / Lignite Company	MT	1152719.62
3.01	- Qty Received (Pit Head)	MT	1152719.62
3.02	- Qty Received (Non Pit Head)	MT	0.00
4	Adjustment (+/-) in quantity supplied made by Coal / Lignite Company	MT	0.00
5	Coal supplied by Coal/Lignite Company (3+4)	MT	1152719.62
6	Normative transit & Handling losses (for Coal /Lignite based projects)	MT	2305.44
6.01	- Normative Loss (Pit Head)	MT	2305.44
6.02	- Normative Loss (Non Pit Head)	MT	0.00
7	Net Coal / Lignite supplied (5 - 6)	MT	1150414.18
C)	**PRICE**		
8	Amount charged by the Coal / Lignite Company	Rs.	2680997132.00
9	Adjustment (+ / -) in amount charged by coal / Lignite Company	Rs.	0.00
10	Handling,Sampling and such other Similar charges	Rs.	11885714.87
11	Total Amount charged (8 +9+10)	Rs.	2692882846.87
D)	**TRANSPORTATION**		
12	Transportation charges by Rail / Ship / Road Transport	Rs.	0.00
13	Adjustment (+/-) in amount charged by railways / transport company	Rs.	0.00
14	Demurrage charges, if any	Rs.	0.00
15	Cost of diesel in transporting Coal through MGR system, if applicable	Rs.	23096136.00
16	Total transportation charges (12+/- 13 - 14 + 15)	Rs.	23096136.00
17	Total amount charged for Coal / Lignite supplied including transportation (11 + 16)	Rs.	2715978982.87
E)	**TOTAL COST**		
18	Landed Cost of Coal/Lignite (2+17) / (1+7)	Rs./MT	2375.90
19	Blending Ratio (Domestic/Imported)	%	100.00
20	Weighted average cost of Coal /Lignite (Including biomass)	Rs./MT	2375.90
20.10	Weighted average cost of Coal /Lignite (Excluding biomass)	Rs./MT	2375.90
F)	**QUALITY**		
21	GCV of Domestic coal of the opening coal stock as per bill of coal company	kCal/Kg	4616
22	GCV of Domestic coal supplied as per bill of coal company	kCal/Kg	4546
23	GCV of Imported coal of the opening coal stock as per bill of coal company	kCal/Kg	0
24	GCV of Imported coal supplied as per bill of coal company	kCal/Kg	0
25	Weighted average GCV of Coal /Lignite as billed (Including biomass)	kCal/Kg	4578
25.10	Weighted average GCV of Coal /Lignite as billed (Excluding biomass)	kCal/Kg	4578
26	GCV of Domestic coal of the Opening stock as received at station	kCal/Kg	3927
27	GCV of Domestic coal/biomass supplied as received at station	kCal/Kg	3822
28	GCV of Imported coal of the Opening stock as received at station	kCal/Kg	0
29	GCV of Imported coal supplied as received at station	kCal/Kg	0
30	Weighted average GCV of coal/ Lignite as Received (Including biomass)	kCal/Kg	3870
30.10	Weighted average GCV of coal/ Lignite as Received (Excluding biomass)	kCal/Kg	3870

Submitted On :16.04.2024

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Date: 2024.11.25 14:24:55 IST
Reason: AGM(Commercial)
Location: NTPC Ltd

Part 1
Form - 15 version: 1

Details of Sourcewise fuel for computation of Energy Charges

Company	NTPC Limited
Name of the generating Station	Rihand Superthermal Power-STAGE 01
Month	February-2024

SL	Particulars	Unit	COAL-DOMESTIC
A)	**OPENING QUANTITY**		
1	Opening Stock of coal	MT	1003513.51
2	Value of Stock	Rs.	2384248730.30
B)	**QUANTITY**		
3	Quantity of Coal /Lignite supplied by Coal / Lignite Company	MT	990144.70
3.01	- Qty Received (Pit Head)	MT	990144.70
3.02	- Qty Received (Non Pit Head)	MT	0.00
4	Adjustment (+/-) in quantity supplied made by Coal / Lignite Company	MT	0.00
5	Coal supplied by Coal/Lignite Company (3+4)	MT	990144.70
6	Normative transit & Handling losses (for Coal /Lignite based projects)	MT	1980.29
6.01	- Normative Loss (Pit Head)	MT	1980.29
6.02	- Normative Loss (Non Pit Head)	MT	0.00
7	Net Coal / Lignite supplied (5 - 6)	MT	988164.41
C)	**PRICE**		
8	Amount charged by the Coal / Lignite Company	Rs.	2226421407.00
9	Adjustment (+ / -) in amount charged by coal / Lignite Company	Rs.	0.00
10	Handling,Sampling and such other Similar charges	Rs.	21213075.98
11	Total Amount charged (8 +9+10)	Rs.	2247634482.98
D)	**TRANSPORTATION**		
12	Transportation charges by Rail / Ship / Road Transport	Rs.	0.00
13	Adjustment (+/-) in amount charged by railways / transport company	Rs.	0.00
14	Demurrage charges, if any	Rs.	0.00
15	Cost of diesel in transporting Coal through MGR system, if applicable	Rs.	20394347.00
16	Total transportation charges (12+/- 13 - 14 + 15)	Rs.	20394347.00
17	Total amount charged for Coal / Lignite supplied including transportation (11 + 16)	Rs.	2268028829.98
E)	**TOTAL COST**		
18	Landed Cost of Coal/Lignite (2+17) / (1+7)	Rs./MT	2335.86
19	Blending Ratio (Domestic/Imported)	%	100.00
20	Weighted average cost of Coal /Lignite (Including biomass)	Rs./MT	2335.86
20.10	Weighted average cost of Coal /Lignite (Excluding biomass)	Rs./MT	2335.86
F)	**QUALITY**		
21	GCV of Domestic coal of the opening coal stock as per bill of coal company	kCal/Kg	4578
22	GCV of Domestic coal supplied as per bill of coal company	kCal/Kg	4584
23	GCV of Imported coal of the opening coal stock as per bill of coal company	kCal/Kg	0
24	GCV of Imported coal supplied as per bill of coal company	kCal/Kg	0
25	Weighted average GCV of Coal /Lignite as billed (Including biomass)	kCal/Kg	4581
25.10	Weighted average GCV of Coal /Lignite as billed (Excluding biomass)	kCal/Kg	4581
26	GCV of Domestic coal of the Opening stock as received at station	kCal/Kg	3870
27	GCV of Domestic coal/biomass supplied as received at station	kCal/Kg	3864
28	GCV of Imported coal of the Opening stock as received at station	kCal/Kg	0
29	GCV of Imported coal supplied as received at station	kCal/Kg	0
30	Weighted average GCV of coal/ Lignite as Received (Including biomass)	kCal/Kg	3867
30.10	Weighted average GCV of coal/ Lignite as Received (Excluding biomass)	kCal/Kg	3867

Submitted On :16.04.2024

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Date: 2024.11.25 14:24:55 IST
Reason: AGM(Commercial)
Location: NTPC Ltd

Part 1
Form - 15 version: 1

Details of Sourcewise fuel for computation of Energy Charges

Company	NTPC Limited
Name of the generating Station	Rihand Superthermal Power-STAGE 01
Month	March-2024

SL	Particulars	Unit	COAL-DOMESTIC
A)	**OPENING QUANTITY**		
1	Opening Stock of coal	MT	970961.92
2	Value of Stock	Rs.	2268029925.95
B)	**QUANTITY**		
3	Quantity of Coal /Lignite supplied by Coal / Lignite Company	MT	1192591.94
3.01	- Qty Received (Pit Head)	MT	1192591.94
3.02	- Qty Received (Non Pit Head)	MT	0.00
4	Adjustment (+/-) in quantity supplied made by Coal / Lignite Company	MT	0.00
5	Coal supplied by Coal/Lignite Company (3+4)	MT	1192591.94
6	Normative transit & Handling losses (for Coal /Lignite based projects)	MT	2385.18
6.01	- Normative Loss (Pit Head)	MT	2385.18
6.02	- Normative Loss (Non Pit Head)	MT	0.00
7	Net Coal / Lignite supplied (5 - 6)	MT	1190206.76
C)	**PRICE**		
8	Amount charged by the Coal / Lignite Company	Rs.	2543448575.00
9	Adjustment (+ / -) in amount charged by coal / Lignite Company	Rs.	0.00
10	Handling,Sampling and such other Similar charges	Rs.	48749775.38
11	Total Amount charged (8 +9+10)	Rs.	2592198350.38
D)	**TRANSPORTATION**		
12	Transportation charges by Rail / Ship / Road Transport	Rs.	0.00
13	Adjustment (+/-) in amount charged by railways / transport company	Rs.	0.00
14	Demurrage charges, if any	Rs.	0.00
15	Cost of diesel in transporting Coal through MGR system, if applicable	Rs.	24781735.61
16	Total transportation charges (12+/- 13 - 14 + 15)	Rs.	24781735.61
17	Total amount charged for Coal / Lignite supplied including transportation (11 + 16)	Rs.	2616980085.99
E)	**TOTAL COST**		
18	Landed Cost of Coal/Lignite (2+17) / (1+7)	Rs./MT	2260.36
19	Blending Ratio (Domestic/Imported)	%	100.00
20	Weighted average cost of Coal /Lignite (Including biomass)	Rs./MT	2260.36
20.10	Weighted average cost of Coal /Lignite (Excluding biomass)	Rs./MT	2260.36
F)	**QUALITY**		
21	GCV of Domestic coal of the opening coal stock as per bill of coal company	kCal/Kg	4581
22	GCV of Domestic coal supplied as per bill of coal company	kCal/Kg	4425
23	GCV of Imported coal of the opening coal stock as per bill of coal company	kCal/Kg	0
24	GCV of Imported coal supplied as per bill of coal company	kCal/Kg	0
25	Weighted average GCV of Coal /Lignite as billed (Including biomass)	kCal/Kg	4495
25.10	Weighted average GCV of Coal /Lignite as billed (Excluding biomass)	kCal/Kg	4495
26	GCV of Domestic coal of the Opening stock as received at station	kCal/Kg	3867
27	GCV of Domestic coal/biomass supplied as received at station	kCal/Kg	3775
28	GCV of Imported coal of the Opening stock as received at station	kCal/Kg	0
29	GCV of Imported coal supplied as received at station	kCal/Kg	0
30	Weighted average GCV of coal/ Lignite as Received (Including biomass)	kCal/Kg	3816
30.10	Weighted average GCV of coal/ Lignite as Received (Excluding biomass)	kCal/Kg	3816

Submitted On :16.04.2024

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Date: 2024.11.25 14:24:55 IST
Reason: AGM(Commercial)
Location: NTPC Ltd

02-05-2023

Details of Sourcewise fuel for computation of Energy Charges **FORM -15 A**

	Company		NTPC	
	Name of the generating Station		Rihand Stage-I, II & III	
	Month		Apr-2023	
SL	Particulars	Unit	LDO	HFO
A)	**OPENING QUANTITY**			
1	Opening Stock of Oil	KL	6,337.55	0.00
2	Value of Stock	Rs	54,74,39,932	0.00
B)	**QUANTITY**			
3	Quantity of Oil supplied by Oil Company	KL	0.00	0.00
4	Adjustment (+/-) in quantity supplied made by Oil Company	KL	0.00	0.00
5	Coal supplied by Oil Company (3+4)	KL	0.00	0.00
6	Normative transit & Handling losses	KL	NA	NA
7	Net Oil supplied (5 - 6)	KL	0.00	0.00
C)	**PRICE**			
8	Amount charged by the Oil Company	Rs	0	0
9	Adjustment (+ / -) in amount charged by Oil Company	Rs	0	0
10	Handling,Sampling and such other Similar charges	Rs	0	0
11	**Total Amount charged (8 +9+10)**	Rs	0	0
D)	**TRANSPORTATION**	Rs		
12	Transportation charges by Rail / Ship / Road Transport			
	By Rail	Rs	0	0
	By Road	Rs	0	0
	By Ship	Rs	0	0
13	Adjustment (+/-) in amount charged by railways / transport company	Rs	0	0
14	Demurrage charges, if any	Rs	0	0
15	Cost of diesel in transporting Coal through MGR system, if applicable	Rs	0	0
16	Total transportation charges (12+/- 13 - 14 + 15)	Rs	0	0
17	Total amount charged for Oil supplied including transportation (11 + 16)	Rs	0	0
E)	**TOTAL COST**			
18	Landed Cost of OIl (LDO/HFO) (2+17) / (1+7)	**Rs/KL**	**86,380.39**	**0.00**
19	Blending Ratio		1.00	0.00
20	Weighted average cost of OIl		**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)	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)	**9302**	

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Sr Mgr(Finance)

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Date: 2024.11.25 14:24:55 IST
Reason: AGM(Commercial)
Location: NTPC Ltd

02-06-2023

Details of Sourcewise fuel for computation of Energy Charges **FORM -15 A**

	Company		**NTPC**	
	Name of the generating Station		**Rihand Stage-I, II & III**	
	Month		**May-2023**	
SL	**Particulars**	**Unit**	**LDO**	**HFO**
A)	**OPENING QUANTITY**			
1	Opening Stock of Oil	KL	5,910.55	0.00
2	Value of Stock	Rs	51,05,55,507	0.00
B)	**QUANTITY**			
3	Quantity of Oil supplied by Oil Company	KL	0.00	0.00
4	Adjustment (+/-) in quantity supplied made by Oil Company	KL	0.00	0.00
5	Coal supplied by Oil Company (3+4)	KL	0.00	0.00
6	Normative transit & Handling losses	KL	NA	NA
7	Net Oil supplied (5 - 6)	KL	0.00	0.00
C)	**PRICE**			
8	Amount charged by the Oil Company	Rs	0	0
9	Adjustment (+ / -) in amount charged by Oil Company	Rs	0	0
10	Handling,Sampling and such other Similar charges	Rs	0	0
11	**Total Amount charged (8 +9+10)**	Rs	0	0
D)	**TRANSPORTATION**	Rs		
12	Transportation charges by Rail / Ship / Road Transport			
	By Rail	Rs	0	0
	By Road	Rs	0	0
	By Ship	Rs	0	0
13	Adjustment (+/-) in amount charged by railways / transport company	Rs	0	0
14	Demurrage charges, if any	Rs	0	0
15	Cost of diesel in transporting Coal through MGR system, if applicable	Rs	0	0
16	Total transportation charges (12+/- 13 - 14 + 15)	Rs	0	0
17	Total amount charged for Oil supplied including transportation (11 + 16)	Rs	0	0
E)	**TOTAL COST**			
18	Landed Cost of OIl (LDO/HFO) (2+17) / (1+7)	**Rs/KL**	**86,380.39**	**0.00**
19	Blending Ratio		1.00	0.00
20	Weighted average cost of OIl		**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)	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)	**9302**	

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Sr Mgr(Finance)

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Date: 2024.11.25 14:24:55 IST
Reason: AGM(Commercial)
Location: NTPC Ltd

03-07-2023

Details of Sourcewise fuel for computation of Energy Charges **FORM -15 A**

	Company		**NTPC**	
	Name of the generating Station		**Rihand Stage-I, II & III**	
	Month		**June-2023**	
SL	**Particulars**	**Unit**	**LDO**	**HFO**
A)	**OPENING QUANTITY**			
1	Opening Stock of Oil	KL	5,880.55	0.00
2	Value of Stock	Rs	50,79,64,095	0.00
B)	**QUANTITY**			
3	Quantity of Oil supplied by Oil Company	KL	0.00	0.00
4	Adjustment (+/-) in quantity supplied made by Oil Company	KL	0.00	0.00
5	Coal supplied by Oil Company (3+4)	KL	0.00	0.00
6	Normative transit & Handling losses	KL	NA	NA
7	Net Oil supplied (5 - 6)	KL	0.00	0.00
C)	**PRICE**			
8	Amount charged by the Oil Company	Rs	0	0
9	Adjustment (+ / -) in amount charged by Oil Company	Rs	0	0
10	Handling,Sampling and such other Similar charges	Rs	0	0
11	**Total Amount charged (8 +9+10)**	Rs	0	0
D)	**TRANSPORTATION**	Rs		
12	Transportation charges by Rail / Ship / Road Transport			
	By Rail	Rs	0	0
	By Road	Rs	0	0
	By Ship	Rs	0	0
13	Adjustment (+/-) in amount charged by railways / transport company	Rs	0	0
14	Demurrage charges, if any	Rs	0	0
15	Cost of diesel in transporting Coal through MGR system, if applicable	Rs	0	0
16	Total transportation charges (12+/- 13 - 14 + 15)	Rs	0	0
17	Total amount charged for Oil supplied including transportation (11 + 16)	Rs	0	0
E)	**TOTAL COST**			
18	Landed Cost of OIl (LDO/HFO) (2+17) / (1+7)	**Rs/KL**	**86,380.39**	**0.00**
19	Blending Ratio		1.00	0.00
20	Weighted average cost of OIl		**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)	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)	**9302**	

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Sr Mgr(Finance)

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Date: 2024.11.25 14:24:55 IST
Reason: AGM(Commercial)
Location: NTPC Ltd

Details of Sourcewise fuel for computation of Energy Charges **FORM -15 A**

	Company		**NTPC**	
	Name of the generating Station		**Rihand Stage-I, II & III**	
	Month		**July-2023**	
SL	**Particulars**	**Unit**	**LDO**	**HFO**
A)	**OPENING QUANTITY**			
1	Opening Stock of Oil	KL	5,580.55	0.00
2	Value of Stock	Rs	48,20,49,979	0.00
B)	**QUANTITY**			
3	Quantity of Oil supplied by Oil Company	KL	0.00	0.00
4	Adjustment (+/-) in quantity supplied made by Oil Company	KL	0.00	0.00
5	Coal supplied by Oil Company (3+4)	KL	0.00	0.00
6	Normative transit & Handling losses	KL	NA	NA
7	Net Oil supplied (5 - 6)	KL	0.00	0.00
C)	**PRICE**			
8	Amount charged by the Oil Company	Rs	0	0
9	Adjustment (+ / -) in amount charged by Oil Company	Rs	0	0
10	Handling,Sampling and such other Similar charges	Rs	0	0
11	**Total Amount charged (8 +9+10)**	Rs	0	0
D)	**TRANSPORTATION**	Rs		
12	Transportation charges by Rail / Ship / Road Transport			
	By Rail	Rs	0	0
	By Road	Rs	0	0
	By Ship	Rs	0	0
13	Adjustment (+/-) in amount charged by railways / transport company	Rs	0	0
14	Demurrage charges, if any	Rs	0	0
15	Cost of diesel in transporting Coal through MGR system, if applicable	Rs	0	0
16	Total transportation charges (12+/- 13 - 14 + 15)	Rs	0	0
17	Total amount charged for Oil supplied including transportation (11 + 16)	Rs	0	0
E)	**TOTAL COST**			
18	Landed Cost of OIl (LDO/HFO) (2+17) / (1+7)	**Rs/KL**	**86,380.39**	**0.00**
19	Blending Ratio		1.00	0.00
20	Weighted average cost of OIl		**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)	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)	**9302**	

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Sr Mgr(Finance)

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Date: 2024.11.25 14:24:55 IST
Reason: AGM(Commercial)
Location: NTPC Ltd

02-09-2023

Details of Sourcewise fuel for computation of Energy Charges **FORM -15 A**

	Company		**NTPC**	
	Name of the generating Station		**Rihand Stage-I, II & III**	
	Month		**Aug-2023**	
SL	**Particulars**	**Unit**	**LDO**	**HFO**
A)	**OPENING QUANTITY**			
1	Opening Stock of Oil	KL	5,462.55	0.00
2	Value of Stock	Rs	47,18,57,094	0.00
B)	**QUANTITY**			
3	Quantity of Oil supplied by Oil Company	KL	0.00	0.00
4	Adjustment (+/-) in quantity supplied made by Oil Company	KL	0.00	0.00
5	Coal supplied by Oil Company (3+4)	KL	0.00	0.00
6	Normative transit & Handling losses	KL	NA	NA
7	Net Oil supplied (5 - 6)	KL	0.00	0.00
C)	**PRICE**			
8	Amount charged by the Oil Company	Rs	0	0
9	Adjustment (+ / -) in amount charged by Oil Company	Rs	0	0
10	Handling,Sampling and such other Similar charges	Rs	0	0
11	**Total Amount charged (8 +9+10)**	Rs	0	0
D)	**TRANSPORTATION**	Rs		
12	Transportation charges by Rail / Ship / Road Transport			
	By Rail	Rs	0	0
	By Road	Rs	0	0
	By Ship	Rs	0	0
13	Adjustment (+/-) in amount charged by railways / transport company	Rs	0	0
14	Demurrage charges, if any	Rs	0	0
15	Cost of diesel in transporting Coal through MGR system, if applicable	Rs	0	0
16	Total transportation charges (12+/- 13 - 14 + 15)	Rs	0	0
17	Total amount charged for Oil supplied including transportation (11 + 16)	Rs	0	0
E)	**TOTAL COST**			
18	Landed Cost of OIl (LDO/HFO) (2+17) / (1+7)	**Rs/KL**	**86,380.39**	**0.00**
19	Blending Ratio		1.00	0.00
20	Weighted average cost of OIl		**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)	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)	**9302**	

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Sr Mgr(Finance)

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Date: 2024.11.25 14:24:55 IST
Reason: AGM(Commercial)
Location: NTPC Ltd

03-10-2023

Details of Sourcewise fuel for computation of Energy Charges **FORM -15 A**

	Company		**NTPC**	
	Name of the generating Station		**Rihand Stage-I, II & III**	
	Month		**Sep-2023**	
SL	**Particulars**	**Unit**	**LDO**	**HFO**
A)	**OPENING QUANTITY**			
1	Opening Stock of Oil	KL	4,884.55	0.00
2	Value of Stock	Rs	42,19,29,230	0.00
B)	**QUANTITY**			
3	Quantity of Oil supplied by Oil Company	KL	0.00	0.00
4	Adjustment (+/-) in quantity supplied made by Oil Company	KL	0.00	0.00
5	Coal supplied by Oil Company (3+4)	KL	0.00	0.00
6	Normative transit & Handling losses	KL	NA	NA
7	Net Oil supplied (5 - 6)	KL	0.00	0.00
C)	**PRICE**			
8	Amount charged by the Oil Company	Rs	0	0
9	Adjustment (+ / -) in amount charged by Oil Company	Rs	0	0
10	Handling,Sampling and such other Similar charges	Rs	0	0
11	**Total Amount charged (8 +9+10)**	Rs	0	0
D)	**TRANSPORTATION**	Rs		
12	Transportation charges by Rail / Ship / Road Transport			
	By Rail	Rs	0	0
	By Road	Rs	0	0
	By Ship	Rs	0	0
13	Adjustment (+/-) in amount charged by railways / transport company	Rs	0	0
14	Demurrage charges, if any	Rs	0	0
15	Cost of diesel in transporting Coal through MGR system, if applicable	Rs	0	0
16	Total transportation charges (12+/- 13 - 14 + 15)	Rs	0	0
17	Total amount charged for Oil supplied including transportation (11 + 16)	Rs	0	0
E)	**TOTAL COST**			
18	Landed Cost of OIl (LDO/HFO) (2+17) / (1+7)	**Rs/KL**	**86,380.39**	**0.00**
19	Blending Ratio		1.00	0.00
20	Weighted average cost of OIl		**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)	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)	**9302**	

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Sr Mgr(Finance)

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Date: 2024.11.25 14:24:55 IST
Reason: AGM(Commercial)
Location: NTPC Ltd

02-11-2023

Details of Sourcewise fuel for computation of Energy Charges **FORM -15 A**

	Company		**NTPC**	
	Name of the generating Station		**Rihand Stage-I, II & III**	
	Month		**Oct-2023**	
SL	**Particulars**	**Unit**	**LDO**	**HFO**
A)	**OPENING QUANTITY**			
1	Opening Stock of Oil	KL	4,782.55	0.00
2	Value of Stock	Rs	41,31,18,431	0.00
B)	**QUANTITY**			
3	Quantity of Oil supplied by Oil Company	KL	3,163.69	0.00
4	Adjustment (+/-) in quantity supplied made by Oil Company	KL	0.00	0.00
5	Coal supplied by Oil Company (3+4)	KL	3,163.69	0.00
6	Normative transit & Handling losses	KL	NA	NA
7	Net Oil supplied (5 - 6)	KL	3,163.69	0.00
C)	**PRICE**			
8	Amount charged by the Oil Company	Rs	29,37,35,028	0
9	Adjustment (+ / -) in amount charged by Oil Company	Rs	0	0
10	Handling,Sampling and such other Similar charges	Rs	0	0
11	**Total Amount charged (8 +9+10)**	Rs	29,37,35,028	0
D)	**TRANSPORTATION**	Rs		
12	Transportation charges by Rail / Ship / Road Transport			
	By Rail	Rs	0	0
	By Road	Rs	0	0
	By Ship	Rs	0	0
13	Adjustment (+/-) in amount charged by railways / transport company	Rs	0	0
14	Demurrage charges, if any	Rs	0	0
15	Cost of diesel in transporting Coal through MGR system, if applicable	Rs	0	0
16	Total transportation charges (12+/- 13 - 14 + 15)	Rs	0	0
17	Total amount charged for Oil supplied including transportation (11 + 16)	Rs	29,37,35,028	0
E)	**TOTAL COST**			
18	Landed Cost of OIl (LDO/HFO) (2+17) / (1+7)	**Rs/KL**	**88,954.47**	**0.00**
19	Blending Ratio		1.00	0.00
20	Weighted average cost of OIl		**88,954.47**	
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)	9249	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)	**9249**	

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Sr Mgr(Finance)

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Date: 2024.11.25 14:24:55 IST
Reason: AGM(Commercial)
Location: NTPC Ltd

02-12-2023

Details of Sourcewise fuel for computation of Energy Charges **FORM -15 A**

	Company		**NTPC**	
	Name of the generating Station		**Rihand Stage-I, II & III**	
	Month		**Nov-2023**	
SL	**Particulars**	**Unit**	**LDO**	**HFO**
A)	**OPENING QUANTITY**			
1	Opening Stock of Oil	KL	6,737.24	0.00
2	Value of Stock	Rs	59,93,07,508	0.00
B)	**QUANTITY**			
3	Quantity of Oil supplied by Oil Company	KL	0.00	0.00
4	Adjustment (+/-) in quantity supplied made by Oil Company	KL	0.00	0.00
5	Coal supplied by Oil Company (3+4)	KL	0.00	0.00
6	Normative transit & Handling losses	KL	NA	NA
7	Net Oil supplied (5 - 6)	KL	0.00	0.00
C)	**PRICE**			
8	Amount charged by the Oil Company	Rs	0	0
9	Adjustment (+ / -) in amount charged by Oil Company	Rs	0	0
10	Handling,Sampling and such other Similar charges	Rs	0	0
11	**Total Amount charged (8 +9+10)**	Rs	0	0
D)	**TRANSPORTATION**	Rs		
12	Transportation charges by Rail / Ship / Road Transport			
	By Rail	Rs	0	0
	By Road	Rs	0	0
	By Ship	Rs	0	0
13	Adjustment (+/-) in amount charged by railways / transport company	Rs	0	0
14	Demurrage charges, if any	Rs	0	0
15	Cost of diesel in transporting Coal through MGR system, if applicable	Rs	0	0
16	Total transportation charges (12+/- 13 - 14 + 15)	Rs	0	0
17	Total amount charged for Oil supplied including transportation (11 + 16)	Rs	0	0
E)	**TOTAL COST**			
18	Landed Cost of OIl (LDO/HFO) (2+17) / (1+7)	**Rs/KL**	**88,954.47**	**0.00**
19	Blending Ratio		1.00	0.00
20	Weighted average cost of OIl		**88,954.47**	
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)	9249	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)	**9249**	

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Date: 2024.11.25 14:24:55 IST
Reason: AGM(Commercial)
Location: NTPC Ltd

Details of Sourcewise fuel for computation of Energy Charges **FORM -15 A**

	Company		**NTPC**	
	Name of the generating Station		**Rihand Stage-I, II & III**	
	Month		**Dec-2023**	
SL	**Particulars**	**Unit**	**LDO**	**HFO**
A)	**OPENING QUANTITY**			
1	Opening Stock of Oil	KL	5,920.24	0.00
2	Value of Stock	Rs	52,66,31,708	0.00
B)	**QUANTITY**			
3	Quantity of Oil supplied by Oil Company	KL	0.00	0.00
4	Adjustment (+/-) in quantity supplied made by Oil Company	KL	0.00	0.00
5	Coal supplied by Oil Company (3+4)	KL	0.00	0.00
6	Normative transit & Handling losses	KL	NA	NA
7	Net Oil supplied (5 - 6)	KL	0.00	0.00
C)	**PRICE**			
8	Amount charged by the Oil Company	Rs	0	0
9	Adjustment (+ / -) in amount charged by Oil Company	Rs	0	0
10	Handling,Sampling and such other Similar charges	Rs	0	0
11	**Total Amount charged (8 +9+10)**	Rs	0	0
D)	**TRANSPORTATION**	Rs		
12	Transportation charges by Rail / Ship / Road Transport			
	By Rail	Rs	0	0
	By Road	Rs	0	0
	By Ship	Rs	0	0
13	Adjustment (+/-) in amount charged by railways / transport company	Rs	0	0
14	Demurrage charges, if any	Rs	0	0
15	Cost of diesel in transporting Coal through MGR system, if applicable	Rs	0	0
16	Total transportation charges (12+/- 13 - 14 + 15)	Rs	0	0
17	Total amount charged for Oil supplied including transportation (11 + 16)	Rs	0	0
E)	**TOTAL COST**			
18	Landed Cost of OIl (LDO/HFO) (2+17) / (1+7)	**Rs/KL**	**88,954.47**	**0.00**
19	Blending Ratio		1.00	0.00
20	Weighted average cost of OIl		**88,954.47**	
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)	9249	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)	**9249**	

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Date: 2024.11.25 14:24:55 IST
Reason: AGM(Commercial)
Location: NTPC Ltd

02-02-2024

Details of Sourcewise fuel for computation of Energy Charges **FORM -15 A**

	Company		**NTPC**	
	Name of the generating Station		**Rihand Stage-I, II & III**	
	Month		**Jan-2024**	
SL	**Particulars**	**Unit**	**LDO**	**HFO**
A)	**OPENING QUANTITY**			
1	Opening Stock of Oil	KL	5,550.24	0.00
2	Value of Stock	Rs	49,37,18,555	0.00
B)	**QUANTITY**			
3	Quantity of Oil supplied by Oil Company	KL	0.00	0.00
4	Adjustment (+/-) in quantity supplied made by Oil Company	KL	0.00	0.00
5	Coal supplied by Oil Company (3+4)	KL	0.00	0.00
6	Normative transit & Handling losses	KL	NA	NA
7	Net Oil supplied (5 - 6)	KL	0.00	0.00
C)	**PRICE**			
8	Amount charged by the Oil Company	Rs	0	0
9	Adjustment (+ / -) in amount charged by Oil Company	Rs	0	0
10	Handling,Sampling and such other Similar charges	Rs	0	0
11	**Total Amount charged (8 +9+10)**	Rs	0	0
D)	**TRANSPORTATION**	Rs		
12	Transportation charges by Rail / Ship / Road Transport			
	By Rail	Rs	0	0
	By Road	Rs	0	0
	By Ship	Rs	0	0
13	Adjustment (+/-) in amount charged by railways / transport company	Rs	0	0
14	Demurrage charges, if any	Rs	0	0
15	Cost of diesel in transporting Coal through MGR system, if applicable	Rs	0	0
16	Total transportation charges (12+/- 13 - 14 + 15)	Rs	0	0
17	Total amount charged for Oil supplied including transportation (11 + 16)	Rs	0	0
E)	**TOTAL COST**			
18	Landed Cost of OIl (LDO/HFO) (2+17) / (1+7)	**Rs/KL**	**88,954.47**	**0.00**
19	Blending Ratio		1.00	0.00
20	Weighted average cost of OIl		**88,954.47**	
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)	9249	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)	**9249**	

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Reason: AGM(Commercial)
Location: NTPC Ltd

Details of Sourcewise fuel for computation of Energy Charges **FORM -15 A**

	Company		**NTPC**	
	Name of the generating Station		**Rihand Stage-I, II & III**	
	Month		**Jan-2024**	
SL	**Particulars**	**Unit**	**LDO**	**HFO**
A)	**OPENING QUANTITY**			
1	Opening Stock of Oil	KL	4,618.24	0.00
2	Value of Stock	Rs	41,08,12,991	0.00
B)	**QUANTITY**			
3	Quantity of Oil supplied by Oil Company	KL	3,158.47	0.00
4	Adjustment (+/-) in quantity supplied made by Oil Company	KL	0.00	0.00
5	Coal supplied by Oil Company (3+4)	KL	3,158.47	0.00
6	Normative transit & Handling losses	KL	NA	NA
7	Net Oil supplied (5 - 6)	KL	3,158.47	0.00
C)	**PRICE**			
8	Amount charged by the Oil Company	Rs	24,50,23,090	0
9	Adjustment (+ / -) in amount charged by Oil Company	Rs	0	0
10	Handling,Sampling and such other Similar charges	Rs	0	0
11	**Total Amount charged (8 +9+10)**	Rs	24,50,23,090	0
D)	**TRANSPORTATION**	Rs		
12	Transportation charges by Rail / Ship / Road Transport			
	By Rail	Rs	0	0
	By Road	Rs	0	0
	By Ship	Rs	0	0
13	Adjustment (+/-) in amount charged by railways / transport company	Rs	0	0
14	Demurrage charges, if any	Rs	0	0
15	Cost of diesel in transporting Coal through MGR system, if applicable	Rs	0	0
16	Total transportation charges (12+/- 13 - 14 + 15)	Rs	0	0
17	Total amount charged for Oil supplied including transportation (11 + 16)	Rs	24,50,23,090	0
E)	**TOTAL COST**			
18	Landed Cost of OIl (LDO/HFO) (2+17) / (1+7)	**Rs/KL**	**84,333.37**	**0.00**
19	Blending Ratio		1.00	0.00
20	Weighted average cost of OIl		**84,333.37**	
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)	9210	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)	**9210**	

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Sr Mgr(Finance)

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Date: 2024.11.25 14:24:55 IST
Reason: AGM(Commercial)
Location: NTPC Ltd

FORM-15 Ver- 0

Details of Sourcewise fuel for computation of Energy Charges

Company	**NTPC Limited**
Name of the generating Station	**Rihand Superthermal Power(STAGE 01)**
Month	**March-2024**

SL	Particulars	Unit	LDO	HFO	HSD
A)	**OPENING QUANTITY**				
1	Opening Stock Of Oil	KL	7381.709	0.000	0.000
2	Value Of Stock	Rs.	622524400.00	0.00	0.00
B)	**QUANTITY**				
3	Quantity Of Oil Supplied By Oil Company	KL	0.000	0.000	0.000
4	Adjustment (+/-) In Quantity Supplied Made By Oil Company	KL	0.000	0.000	0.000
5	Oil Supplied By Oil Company (3+4)	KL	0.000	0.000	0.000
6	Normative Transit & Handling Losses	KL	0.000	0.000	0.000
7	Net Oil Supplied (5 - 6)	KL	0.000	0.000	0.000
C)	**PRICE**				
8	Amount Charged By The Oil Company	Rs.	0.00	0.00	0.00
9	Adjustment (+ / -) In Amount Charged By Oil Company	Rs.	0.00	0.00	0.00
10	Handling,Sampling And Such Other Similar Charges	Rs.	0.00	0.00	0.00
11	**Total Amount Charged (8 +9+10)**	**Rs.**	**0.00**	**0.00**	**0.00**
D)	**TRANSPORTATION**				
12	Transportation Charges By Rail / Ship / Road Transport	Rs.	0.00	0.00	0.00
13	Adjustment (+/-) In Amount Charged By Railways/Transport	Rs.	0.00	0.00	0.00
14	Demurrage Charges, If Any	Rs.	0.00	0.00	0.00
15	Cost Of Diesel InTransporting Oil Through MGR System	Rs.	0.00	0.00	0.00
16	Total Transportation Charges (12+/- 13 - 14 + 15)	Rs.	0.00	0.00	0.00
17	Total Amount Charged For Oil Supplied Incl Transportation (11+16)	Rs.	0.00	0.00	0.00
E)	**TOTAL COST**				
18	Landed Cost Of Oil (LDO/HFO) (2+17) / (1+7)	Rs.	84333.37	0.00	0.00
19	Blending Ratio		1.000	0.000	0.000
20	**Weighted Average Cost Of Oil**	**Rs.**	**84333.37**		
F)	**QUALITY**				
21	GCV Of Oil Of The Opening Stock As Per Bill Of Oil Company	Kcal/Ltr	0	0	0
22	GCV Of Oil Supplied As Per Bill Of Oil Company	Kcal/Ltr	0	0	0
23	GCV Of Imported Oil Of The Op Stock As Per Bill Of Oil Company	Kcal/Ltr	0	0	0
24	GCV Of Imported Oil Supplied As Per Bill Of Oil Company	Kcal/Ltr	0	0	0
25	Weighted Average GCV Of Oil As Billed	Kcal/Ltr	0	0	0
26	GCV Of Oil Of The Opening Stock As Received At Station	Kcal/Ltr	0	0	0
27	GCV Of Oil Supplied	Kcal/Ltr	9210	0	0
28	GCV Of Imported Oil Of The Opening Stock As Received At Station	Kcal/Ltr	0	0	0
29	GCV Of Imported Oil Supplied As Received At Station	Kcal/Ltr	0	0	0
30	**Weighted Average GCV Of Oil**	**Kcal/Ltr**	**9210**		

Submitted on 02.04.2024

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Date: 2024.11.25 14:24:55 IST
Reason: AGM(Commercial)
Location: NTPC Ltd