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 **Gandhar Gas Power Station (657.39 MW) for the period from 01.04.2024 to 31.03.2029**.

INDEX

Summary of Issues: Determination of Tariff of Gandhar Gas Power Station (657.39 MW) for the period 2024-29

(In compliance with CERC notice dated 07.06.2024)

The major highlights of the Tariff Petition for Gandhar Gas Power Station (657.39 MW) for determination of tariff for the period 2024-29 are as follows:

1. The present petition is being filed 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 determination of tariff of Gandhar Gas Power Station (657.39 MW) (hereinafter referred as "Gandhar GPS") for the 2024-29 based on projected expenditures for the said period.
2. Gandhar GPS is located at district Bharuch of Gujarat. The gas station comprises 03 Gas Turbines of 144.3 MW capacity each and 01 Steam Turbine of 224.49 MW, with date of commercial operation (COD) of the Station as 1.11.1995.
3. The power generated from Gandhar is being supplied to various discoms as per MoP allocation and respective PPAs including Maharashtra State Electricity Distribution Company, Gujarat Urja Vikas Nigam Limited, Electricity Department - Government of Goa, Dadra and Nagar haveli and Daman and Diu Power Distribution Corporation Limited (DNHDDPDCL).
4. The tariff for Gandhar for the 2019-24 period was determined by the Hon'ble Commission vide order dated 04.06.2022 in Petition No. 420/GT/2020. Subsequently, the petitioner has filed a separate true up petition for the 2019-24 period for revision of tariff in line with the applicable provisions of Tariff Regulations 2019. Accordingly, the opening capital cost as on 01.04.2024 has been considered the same as closing capital cost as on 31.03.2024 as per the said true-up petition, i.e. Rs 2862.92 Cr.
5. The tariff of Gandhar GPS for the tariff period 2024-29 based on projected expenditures for the period 2024-29 is annexed with the petition as per provisions of Regulation 10 of CERC Tariff Regulations 2024.

6. The projected additional capital expenditures on cash basis for FY 24-25, FY 25-26, FY 26-27, FY 27-28 and FY 28-29 are Rs 1.43 Cr, Rs 7.04 Cr, Rs 253.66 Cr, Rs 55.40 Cr and Rs 3.00 Cr respectively amounting to total of Rs 320.53 Cr for the period 2024-29. The same has been depicted year wise in Form 9 of the Appendix-I along with applicable regulations and justification for the claims. Supporting documents wherever applicable have also been annexed in the Petition. It is humbly requested to approve the projected Additional Capital expenditure during the 2024-29 period.
7. The Petitioner has also provided the estimated water charges and security expenses in Form-3A of Appendix-I. The Hon'ble Commission may be pleased to allow the same subject to retrospective adjustment based on actuals at the time of truing up.
8. It is submitted that the useful life of the Station is getting over in the 2024-29 period in the FY 26-27 and accordingly Hon'ble Commission may be pleased to allow recovery of Unrecovered Depreciation up to 31.03.2014 of Rs 60.40 Cr in terms of Hon'ble Appellate Tribunal Judgement dated 13.06.2007 and as noted in Hon'ble Commission's Order dated 10.04.2017 in Petition No 325/GT/2014 for the instant Station.

In the light of above submissions and as per the Petition being filed by the Petitioner for determination of tariff of Gandhar Gas Power Station (657.39 MW), the Hon'ble Commission may please determine the tariff for the period 2024-29 as per provisions of Tariff Regulations 2024.

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 **Gandhar Gas Power Station (657.39 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.

Respondents

1. Maharashtra State Electricity Distribution Co Ltd. (MSEDCL)
Prakashgad, Bandra (East),
Mumbai 400 051

2. Gujarat Urja Vikas Nigam Ltd.(GUVNL)
Vidyut Bhavan, Race Course
Vadodara – 390 007

3. Electricity Department
Government of Goa
Vidyut Bhawan, Panaji, Goa

4. Dadra And Nagar Haveli and Daman and Diu Power Distribution Corporation Limited (DNHDDPDCL);
1st & 2nd Floor, Vidyut Bhavan, Silvassa-396230, DNH, India

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. **Gandhar Gas Power Station (657.39 MW)** (hereinafter referred to as **Gandhar GPS**) is one such station located in the State of Gujarat. The power generated from Gandhar GPS 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 Gandhar GPS for the period from 01.04.2024 to 31.03.2029 as per the Tariff Regulations 2024.

6) The tariff of the Gandhar GPS for the tariff period 1.4.2019 to 31.3.2024 was determined by the Hon'ble Commission vide its order dated 04.06.2022 in Petition No.420/GT/2020 in accordance with the CERC (Terms & Conditions of Tariff) Regulations 2019. The petitioner vide affidavit dated 18.11.2024 has 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 04.06.2022 in Petition no 420/GT/2020 has allowed a capital cost of Rs 2855.68 Cr 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 aforesaid true-up petition as Rs.2862.92 Cr based on the actual expenditure after truing up exercise for the period 2019-24. Accordingly, the Petitioner has adjusted an amount of Rs 7.24 Cr to 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 2862.92 Cr in the instant petition. The Hon'ble Commission may be pleased to accordingly adopt 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 25, 26 and 102 of the Tariff Regulations, 2024.

9) **Unrecovered Depreciation till 31.03.2014**

i) The Hon'ble Appellate Tribunal vide Judgement dated 13.06.2007 on the issue of "Admissibility of depreciation upto 90% of the value of the assets" had allowed the unpaid portion of the depreciation (because of under recovery of fixed charges due to availability lower than NAPAF) after the plant has lived its designated useful life.

ii) With regard to the above, the Hon'ble Commission vide Order dated 10.04.2017 in Petition No 325/GT/2014 for the instant Station noted the following:

"55. The petitioner also submitted that in terms of the Tribunal's judgment dated 13.6.2007 on the issue of "Admissibility of depreciation upto 90% of the value of the assets", was considered and the Tribunal has observed as under:

"In a regulatory cost plus regime all costs have to be reimbursed. Depreciation amount up to 90% being a cost has to be allowed over the life of the plant. If due to underperformance in a particular year the appellant is not able to recover full depreciation allowed in that year and if this denial is forever, it will tantamount to a penalty. In a contract between the appellant and the beneficiaries, only levy of liquidated damages can be permitted. It will, therefore, be enough deterrent for the appellant if the depreciation is not allowed during the year of underperformance. However, the same cannot be denied forever and, therefore, it will be only fair to allow the unpaid portion of the depreciation after the plant has lived its designated useful life. In this view of the matter the CERC needs to examine this aspect as per the aforesaid observations."

56. Accordingly, the details in respect of this generating station as furnished by the petitioner is as under:

(Rs in lakh)

Year	Target Availability (%)	Annual Availability (%)	% of Fixed charge/ depreciation recovered* (%)	Annual Fixed Charges	Dep. Included in AFC	Disincentive	Dep. Unrecovered due to disincentive
1998-99	62.79	37.56	85	61979.19	17715.00	9296.88	2657.25
1999-2000	62.79	39.88	89	64962.50	17735.00	7145.88	1950.85
2000-01	62.79	48.46	92.5	58308.00	19087.00	4373.10	1431.53

** As per the Govt of India notification dated 30.4.1994 and order dated 4.7.2013 in petition no. 78/2001.*

57. We have examined the matter. Since R&M of the generating station has been undertaken by the petitioner, and the generating station has extended its useful life by 10 years, the unrecovered depreciation shall be reconsidered by the generating station in terms of the judgment of the Tribunal once the plant has lived its designated useful life."

iii) It is submitted that since the useful life of the Station is getting over in the 2024-29 period in the FY 26-27, the Petitioner in the instant Petition has claimed an amount of Rs 6039.63 lakh, as part of AFC in the year FY 26-27, against the aforementioned Unrecovered Depreciation up to 31.03.2014, as per the Hon'ble Commission's direction. The Hon'ble Commission may be pleased to allow the same.

10) The Petitioner further respectfully submits that as per Regulation 36(1)(6) of the Tariff Regulations 2024, the water charges, security 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, rate of water charges, etc. as applicable for 2023-24 have been furnished below. Further, water charges for 2024-29 period have been claimed on projection basis based on pertinent factors such as yearly revision in rate of water charges, expected PLF of the Station, etc. and the same may be allowed in the tariff for the 2024-29 period

subject to retrospective adjustment at the time of truing-up based on actual water charges paid.

Description	Remarks
Type of Plant	Gas based Thermal Power Plant
Type of cooling water system	Closed Circuit Cooling System
Rate of Water charges (Rs/cubic meter)*	Rs 39.11 per cu.m. (Industrial water) Rs 4.73 per cu.m. (Drinking water)
Water Charges for Gandhar GPS*	Rs 428.04 lakh

(For FY 2023-24 as per truing-up petition filed for the instant Station)*

11) Similarly, the Petitioner is claiming the security 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.

12) 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.

13) The Petitioner humbly submits that the pay/wage revision for the employees of the Petitioner will be due w.e.f. 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 craves liberty to 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 expenses.

14) It is submitted that the Petitioner has already paid the requisite filing fee vide Transaction Id 37c568eba62158b7b321 on 24.04.2024 for the year 2024-25 and the details of the same have been duly furnished to the Hon'ble Commission vide our communication dtd. 27.04.2024. For the subsequent years, it shall be paid as per the provisions of the CERC (Payment of Fees) Regulations, 2012 as amended. Further Regulation 94 (1) of Tariff Regulations 2024 provides that the application fee and publication expenses may be allowed to be recovered directly from the beneficiaries at the discretion of the Hon'ble Commission. Accordingly, it is prayed that Hon'ble Commission may be pleased to allow recover filing fee and publication fee directly from the beneficiaries.

15) It is submitted that the Petitioner has uploaded the copy of the Petition at CERC site (Saudamini), the access of which is available to all the Respondents mentioned herein above and therefore the petition stands served to all the respondents. Further, the petitioner has also posted the Petition on the company website i.e. www.ntpc.co.in.

16) In accordance with the 'Conduct of Business Regulations 2023' of the Hon'ble Commission, the Petitioner shall, 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.

17) 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 31.03.2024 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 Gandhar GPS 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 the recovery of Unrecovered Depreciation up to 31.03.2014 at the end of useful life of the instant Station

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
Date: .....

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 Gandhar Gas Power Station (657.39 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
Respondents:		Maharashtra State Electricity Distribution Company Limited, Prakashgad, Bandra (East Mumbai – 400051 **and Others**

NOTARIAL NOTARIAL

AFFIDAVIT

I, Sameer Kumar Aggarwal, Son of Late Shri B K Aggarwal, aged about 51 years, working as Additional General Manager (Commercial) in the office of NTPC Limited, having its registered office at NTPC Bhawan, Scope Complex, Core-7, Lodhi Road, New Delhi-110003 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

Sk Aggarwal

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

3. That the contents 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.

(Deponent)

समीर अग्रवाल/SAMEER AGGARWAL
अपर महाप्रबंधक (वाणिज्यिक)
Addl. General Manager (Commercial)
एन टी पी सी लिमिटेड/NTPC LIMITED
EOC, A-8A, Sector-24, Noida-201 301 (U.P.)

Verification:

Verified at Noida on this ..... 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)

समीर अग्रवाल/SAMEER AGGARWAL
अपर महाप्रबंधक (वाणिज्यिक)
Addl. General Manager (Commercial)
एन टी पी सी लिमिटेड/NTPC LIMITED
EOC, A-8A, Sector-24, Noida-201 301 (U.P.)

NOTARY
YOGENDRA SINGH
AREA NOIDA
G.B.NAGAR
REGD.NO. 5577
GOVT. OF INDIA

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

28 NOV 2024

APPENDIX-I

TARIFF FILING FORMS (THERMAL)

FOR DETERMINATION OF TARIFF

FOR

Jhanor Gandhar Gas Power Station

(From 01.04.2024 TO 31.03.2029)

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	✓
FORM-5A**	Abstract of Claimed Capital Cost for the existing Projects	✓
FORM- 6	Financial Package upto COD	NA
FORM- 7	Details of Project Specific Loans	NA
FORM- 8	Details of Allocation of corporate loans to various projects	✓
FORM-9A**	Summary of Statement of Additional Capitalisation claimed during the period	✓
FORM-9 ##	Statement of Additional Capitalisation after COD	✓
FORM- 10	Financing of Additional Capitalisation	✓
FORM- 11	Calculation of Depreciation on original project cost	NA
FORM- 12	Statement of Depreciation	✓
FORM- 13	Calculation of Weighted Average Rate of Interest on Actual Loans	✓
FORM- 14	Draw Down Schedule for Calculation of IDC & Financing Charges	NA
FORM- 15	Details of Fuel for Computation of Energy Charges	✓
FORM- 15A	Details of Seconday Fuel for Computation of Energy Charges	NA
FORM- 15B**	Computation of Energy Charges	✓
FORM- 16	Details of Limestone for Computation of Energy Charge Rate	NA
FORM-17^	Details of Capital Spares	NA
FORM- 18^	Non-Tariff Income	NA
FORM-19^	Details of Water Charges	NA
FORM-20^	Details of Statutory Charges	NA

PART-I

List of Supporting Forms / documents for 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	✓
FORM –I^	Details of Assets De-capitalised during the period	NA
FORM –J^	Reconciliation of Capitalisation claimed vis-à-vis books of accounts	NA
FORM –K^	Statement showing details of items/assets/works claimed under Exclusions	NA
FORM-L	Statement of Capital cost	✓
FORM-M	Statement of Capital Woks in Progress	✓
FORM-N	Calculation of Interest on Normative Loan	✓
FORM-O	Calculation of Interest on Working Capital	✓
FORM-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 truing-up

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.	NA
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	NA
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 submitted at the time of truing up

PART-I
FORM- 1

Summary of Tariff

	Name of the Petitioner:	**NTPC Limited**
	Name of the Generating Station:	**Jhanor Gandhar Gas power Station**
	Place (Region/District/State):	**Western Region/ Bharuch / Gujarat**

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	5,915.54	6,016.55	6,229.49	16,652.79	12,661.20	3,874.50
1.2	Interest on Loan	Rs Lakh	64.53	-	-	44.35	44.33	-
1.3	Return on Equity	Rs Lakh	24,518.75	24,517.34	24,540.33	25,272.27	17,757.67	17,922.20
1.4	Interest on Working Capital	Rs Lakh	30,079.70	12,830.12	12,888.09	13,114.15	12,991.10	12,918.05
1.5	O&M Expenses	Rs Lakh	15,787.90	14300.71	15190.84	16160.05	16989.26	17864.13
1.6	Unrecovered Depreciation upto 31.03.2014	Rs Lakh	-	-	-	6,039.63	-	-
1.7	Special Allowance (If applicable)	Rs Lakh	NA					
1.8	Compensation Allowance (If applicable – relevant for column 4 only)	Rs. Lakh	NA					
	Total	Rs Lakh	**76366.42**	**57664.72**	**58848.75**	**77283.24**	**60443.56**	**52578.88**
2.1	Landed Fuel Cost (Gas-APM)	Rs/1000SCM		-	-	-	-	-
	(%) of Fuel Quantity	(%)		-	-	-	-	-
2.2	Landed Fuel Cost (Gas-Non APM)	Rs/1000SCM		-	-	-	-	-
	(%) of Fuel Quantity	(%)		-	-	-	-	-
2.3	Landed Fuel Cost (Committed Gas)	Rs/1000SCM		50,388.33	50,388.33	50,388.33	50,388.33	50,388.33
	(%) of Fuel Quantity	(%)		57.11	57.11	57.11	57.11	57.11
2.4	Landed Fuel Cost (RLNG)	Rs/1000SCM		47,235.59	47,235.59	47,235.59	47,235.59	47,235.59
	(%) of Fuel Quantity	(%)		42.89	42.89	42.89	42.89	42.89
3.1	Energy Charge Rate (APM Gas-CC) ex-bus	Paise/kWh		0.00	0.00	0.00	0.00	0.00
3.2	Energy Charge Rate (APM Gas-OC) ex-bus	Paise/kWh		0.00	0.00	0.00	0.00	0.00
3.3	Energy Charge Rate (Gas-Non APM) ex-bus	Paise/kWh		0.00	0.00	0.00	0.00	0.00
3.4	Energy Charge Rate (Gas-Non APM) ex-bus	Paise/kWh		0.00	0.00	0.00	0.00	0.00
3.5	Energy Charge Rate (Committed Gas-CC) ex-bus	Paise/kWh		1111.80	1111.80	1111.80	1111.80	1111.80
3.6	Energy Charge Rate (Committed Gas-OC) ex-bus	Paise/kWh		1584.69	1584.69	1584.69	1584.69	1584.69
3.7	Energy Charge Rate (RLNG-CC) ex-bus	Paise/kWh		1027.70	1027.70	1027.70	1464.81	1027.70
3.8	Energy Charge Rate (RLNG-OC) ex-bus	Paise/kWh		1464.81	1464.81	1464.81	42.89	1464.81

(Petitioner)

PART-I
FORM- 1(I)

Name of the Petitioner:	NTPC Limited
Name of the Generating Station:	Jhanor Gandhar Gas power Station

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	2,86,291.66	2,86,434.66	2,87,138.66	3,12,504.66	3,18,044.66
2	Add: Addition during the year/period	143.00	704.00	25,366.00	5,540.00	300.00
3	Less: De-capitalisation during the year/period	-	-	-	-	-
4	Less: Reversal during the year / period	-	-	-	-	-
5	Add: Discharges during the year/ period	-	-	-	-	-
6	Closing Capital Cost	2,86,434.66	2,87,138.66	3,12,504.66	3,18,044.66	3,18,344.66
7	**Average Capital Cost**	**2,86,363.16**	**2,86,786.66**	**2,99,821.66**	**3,15,274.66**	**3,18,194.66**

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	286291.66	286291.66	286995.66	311946.66	317486.66
2	Add: Addition during the year / period	0.00	704.00	24951.00	5540.00	300.00
3	Less: De-capitalisation during the year / period	0.00	0.00	0.00	0.00	0.00
4	Less: Reversal during the year / period	0.00	0.00	0.00	0.00	0.00
5	Add: Discharges during the year / period	0.00	0.00	0.00	0.00	0.00
6	Closing Capital Cost	286291.66	286995.66	311946.66	317486.66	317786.66
7	**Average Capital Cost**	**286291.66**	**286643.66**	**299471.16**	**314716.66**	**317636.66**

Statement showing claimed capital cost eligible for RoE at MCLR plus 350 basis points (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	0.00	143.00	143.00	558.00	558.00
2	Add: Addition during the year / period	143.00	0.00	415.00	0.00	0.00
3	Less: De-capitalisation during the year / period	0.00	0.00	0.00	0.00	0.00
4	Less: Reversal during the year / period	0.00	0.00	0.00	0.00	0.00
5	Add: Discharges during the year / period	0.00	0.00	0.00	0.00	0.00
6	Closing Capital Cost	143.00	143.00	558.00	558.00	558.00
7	**Average Capital Cost**	**71.50**	**143.00**	**350.50**	**558.00**	**558.00**

(Petitioner)

PART-I
FORM- 1(IIA)

Name of the Petitioner:	**NTPC Limited**
Name of the Generating Station:	**Jhanor Gandhar Gas power Station**

Statement showing Return on Equity at Normal Rate

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 (@ Normal Rate)					
1	Gross Opening Equity (Normal)	1,30,519.54	1,30,519.54	1,30,730.74	1,38,216.04	1,39,878.04
2	Less: Adjustment in Opening Equity	-	-	-	44,632.04	44,632.04
3	Adjustment during the year	-	-	-	-	-
4	Net Opening Equity (Normal)	1,30,519.54	1,30,519.54	1,30,730.74	93,584.00	95,246.00
5	Add: Increase in equity due to addition during the year / period	-	211.20	7,485.30	1,662.00	90.00
6	Less: Decrease due to De-capitalisation during the year / period	-	-	-	-	-
7	Less: Decrease due to reversal during the year / period	-	-	-	-	-
8	Add: Increase due to discharges during the year / period	-	-	-	-	-
9	Net closing Equity (Normal)	1,30,519.54	1,30,730.74	1,38,216.04	95,246.00	95,336.00
10	Average Equity (Normal)	1,30,519.54	1,30,625.14	1,34,473.39	94,415.00	95,291.00
11	Rate of ROE (%)	18.782	18.782	18.782	18.782	18.782
12	Total ROE	**24,514.18**	**24,534.01**	**25,256.79**	**17,733.02**	**17,897.56**

(Petitioner)

PART-I

FORM- 1(IIB)

Name of the Petitioner:	**NTPC Limited**
Name of the Generating Station:	**Jhanor Gandhar Gas power Station**

Statement showing Return on Equity at MCLR plus 350 basis points (BPS)

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 (@ SBI MCLR plus 350 BP)					
1	Gross Opening Equity (SBI MCLR plus 350 BP)	0.00	42.90	42.90	167.40	167.40
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 (SBI MCLR plus 350 BP)	0.00	42.90	42.90	167.40	167.40
5	Add: Increase in equity due to addition during the year / period	42.90	0.00	124.50	0.00	0.00
6	Less: Decrease due to De-capitalisation during the year / period	0.00	0.00	0.00	0.00	0.00
7	Less: Decrease due to reversal during the year / period	0.00	0.00	0.00	0.00	0.00
8	Add: Increase due to discharges during the year / period	0.00	0.00	0.00	0.00	0.00
9	Net closing Equity (SBI MCLR plus 350 BP)	42.90	42.90	167.40	167.40	167.40
10	Average Equity (SBI MCLR plus 350 BP)	21.45	42.90	105.15	167.40	167.40
11	Rate of ROE - post tax, i.e. SBI MCLR plus 350 BP (%)	12.15	12.15	12.15	12.15	12.15
12	Rate of ROE - pre tax (%)	14.723	14.723	14.723	14.723	14.723
13	Total ROE (SBI MCLR plus 350 BP)	**3.16**	**6.32**	**15.48**	**24.65**	**24.65**

(Petitioner)

PART-I
FORM-2

Plant Characteristics

Name of the Petitioner	NTPC Ltd.			
Name of the Generating Station	Gandhar GPS			
Unit(s)/Block(s)/Parameters	GT-I	GT-2	GT-3	ST
Installed Capacity (MW)	144.3	144.3	144.3	224.49
Schedule COD as per Investment Approval				
Actual COD /Date of Taken Over (as applicable)	01.03.95	01.07.95	01.03.95	01.11.95
Pit Head or Non 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 (^0C) [1]				
Reheat Steam Pressure at Turbine inlet ($kg/Cm^{2)}$ [1]				
Reheat Steam Temperature at Turbine inlet (^0C) [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			NA	
% MCR				
% Makeup Water Consumption				
Design Capacity of Make up Water System				
Design Capacity of Inlet Cooling System				
Design Cooling Water Temperature (^0C)				
Back Pressure				
Steam flow at super heater outlet under BMCR condition (tons/hr)				
Steam Pressure at super heater outlet under				
BMCR condition) **($kg/Cm^{2)}$**				
Steam Temperature at super heater outlet under				
BMCR condition (^0C)				
Steam Temperature at Reheater outlet at BMCR condition (^0C)				
Design / Guaranteed Boiler Efficiency (%)[4]				
Design Fuel with and without Blending of domestic/imported coal				
Type of Cooling Tower				
Type of cooling system[5]		Closed circuit cooling		
Type of Boiler Feed Pump[6]		Motor driven		
Fuel Details[7]				
-Primary Fuel		Natural gas, RLNG		
-Secondary Fuel			NA	
-Alternate Fuels			NA	

PART-I
FORM-2

Plant Characteristics

Name of the Petitioner	NTPC Ltd.			
Name of the Generating Station	Gandhar GPS			
Unit(s)/Block(s)/Parameters	GT-I	GT-2	GT-3	ST
Special Features/Site Specific Features[8]	Make up water from river Narmada			
Special Technological Features[5]				
Environmental Regulation related features[10]				
Any other special features				

Petitioner

PART-I
FORM- 3

Normative parameters considered for tariff computations

Name of the Petitioner:	**NTPC Limited**
Name of the Generating Station:	**Gandhar Gas power Station**

(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 (Normal ROE)	%	15.50	15.50	15.50	15.50	15.50	15.50
Base Rate of Return on Equity (ROE @ MCLR plus 350 BP)	%		12.15	12.15	12.15	12.15	12.15
Effective Tax Rate	%	17.472	17.472	17.472	17.472	17.472	17.472
Target Availability:	%						
Peak Hours	%	85.00	85.00	85.00	85.00	85.00	85.00
Off-Peak Hours	%	85.00	85.00	85.00	85.00	85.00	85.00
Auxiliary Energy Consumption (Combined Cycle)	%	2.75	2.75	2.75	2.75	2.75	2.75
Auxiliary Energy Consumption (Open Cycle)	%	1.00	1.00	1.00	1.00	1.00	1.00
Gross Station Heat Rate (Combined Cycle)	kCal/kWh	2040.00	2040.00	2040.00	2040.00	2040.00	2040.00
Gross Station Heat Rate (Open Cycle)	kCal/kWh	2960.00	2960.00	2960.00	2960.00	2960.00	2960.00
Specific Fuel Oil Consumption	ml/kWh	NA	NA	NA	NA	NA	NA
Cost of Coal/Lignite for WC	in Days	NA	NA	NA	NA	NA	NA
Cost of Main Secondary Fuel Oil for WC	in Months	NA	NA	NA	NA	NA	NA
Fuel Cost for WC	in Days	30	15	15	15	15	15
Liquid Fuel Stock for WC	in Days	15	15	15	15	15	15
O&M Expenses	Rs lakh/MW	20.19	18.18	19.14	20.14	21.2	22.32
Maintenance Spares for WC	% of O&M	30.00	30.00	30.00	30.00	30.00	30.00
Receivables for WC	in Days	45	45	45	45	45	45
Storage capacity of Primary fuel	MT	NA					
Rate of IOWC (SBI MCLR plus 325 BP)	%	12.00	11.90	11.90	11.90	11.90	11.90
ß- Average Monthly Frequency Response Performance	0-1	Shall be provided at truing-up					
Blending ratio of domestic coal/imported coal		NA					

Petitioner

Part-I
FORM-3A
ADDITIONAL FORM

Calculation of O&M Expenses

Name of the Company :	**NTPC Limited**
Name of the Power Station :	**Jhanor Gandhar Gas power Station**

Amount in Rs. Lakhs

S.No.	Particulars	2024-25	2025-26	2026-27	2027-28	2028-29
1	2	3	4	5	7	8
1	**O&M expenses under Reg.36(1)(1)**					
1a	Normative	11951.35	12582.44	13239.83	13936.67	14672.94
2	**O&M expenses under Reg.36(1)(6)**					
2a	Water Charges ^	495.03	661.35	681.11	701.53	722.57
2b	Secutiry expenses^	1854.33	1947.05	2239.10	2351.06	2468.61
2c	Capital Spares consumed*					
	Total O&M Expenses	**14300.71**	**15190.84**	**16160.05**	**16989.26**	**17864.13**

* Shall be provided at truing-up

^ on projected basis

Petitioner

PART 1
FORM- 5

Abstract of Admitted Capital Cost for the existing Projects

Name of the Company :	**NTPC Limited**
Name of the Power Station :	**Jhanor Gandhar Gas Power Station**

Last date of order of Commission for the project	**Date (DD-MM-YYYY)**	04.06.2022
Reference of petition no. in which the above order was passed	**Petition no.**	420/GT/2020
Following details (whether admitted and /or considered) as on the last date (i.e. as on 31.03.2024) of the period for which tariff is approved, in the above order by the Commission:		(Amount in Rs Lakh)
Capital cost	**(Rs. in lakh)**	285567.84
Amount of un-discharged liabilities included in above (& forming part of admitted capital cost)		0.00
Amount of un-discharged liabilities corresponding to above admitted capital cost (but not forming part of admitted capital cost being allowed on cash basis)		29.20
Gross Normative Debt		155101.02
Cumulative Repayment		155101.02
Net Normative Debt		0
Normative Equity		1,30,466.82
Cumulative Depreciation		2,37,642.52
Freehold land		3,916.01

(Petitioner)

PART 1
FORM- 5A

Abstract of Claimed Capital Cost for the existing Projects

Name of the Company :	**NTPC Limited**
Name of the Power Station :	**Jhanor Gandhar Gas Power Station**

Truing-up petition for 2019-24 period filed vide:	Affidavit dated 18.11.2024	
Capital Cost as on 31.03.2024 as per Hon'ble Commission's Order dated 04.06.2022 in 420/GT/2020	**Rs. Lakhs**	2,85,567.84
Adjustment as per Para (7) of this petition		723.82
Following details as considered by the Petitioner as on the last date of the period claimed as per 2019-24 truing up petition (i.e. as on 31.03.2024):		(Amount in Rs Lakh)
Capital cost as on 31.03.2024		2,86,291.66
Amount of un-discharged liabilities included in above (& forming part of admitted capital cost)		-
Amount of un-discharged liabilities corresponding to above claimed capital cost as on 31.03.2024 (but not forming part of admitted capital cost being allowed on cash basis)		1,279.10
Gross Normative Debt		1,55,772.12
Cumulative Repayment		1,55,772.12
Net Normative Debt		-
Normative Equity		1,30,519.54
Cumulative Depreciation		2,37,711.75
Freehold land		3,916.29

(Petitioner)

FORM-8

Data for filling truing up petitions for 2018-19

Name of the Company
Name of the Power Station

Particulars		
Source of Loan	SBI, NEW YORK*	4.75% Fixed Rate Notes due 2022#
Drawal	III	-
Currency	USD	USD
Amount of loan sanctioned	250,000,000	500000000.00
Amount of Gross Loan drawn upto 31.03.2019	5,00,00,000	500000000.00
Interest Type	Floating	Fixed
Fixed Interest Rate, if applicable	-	4.75% #
Base Rate, if floating interest	6 Month LIBOR	-
Margin, if floating interest rate	185.00%	-
Are there any Caps / Floor	NO	NO
If above is Yes, specify Caps / Floor	-	-
Moratorium Period	6 Years	10 Years
Moratorium effective from	06.03.13	03.10.12
Repayment period	1 Year	Bullet payment
Repayment effective from	29.07.2019	03.10.2022
Repayment frequency	Semi Annual	One time
Repayment installment	2 Half Yearly Instalments	50,00,00,000.00
Base Exchange Rate (31.03.2019)	60.61	60.61
Are foreign currency loan hedged	NO	NO
If above is Yes, specify details	-	
Drawl Date	31.05.13	03.10.12
Drawl Exchange Rate	56.45	51.91

Name of the Projects		
Auraiya R&M		2.43610%
Barh-I		11.26690%
Barh-II		2.78170%
Bongaigaon		4.85260%
Gandhar R&M	33.10833%	0.24990%
Kawas R&M	24.15102%	4.45800%
Koldam		6.42730%
Korba R&M		1.13750%
Kudgi-I	9.40359%	5.04200%
Lara-I		15.28680%
Mouda-I		8.48480%
Mouda-II	23.26666%	3.60330%
Rihand-III		9.59290%
Simhadri-II		3.99480%
Sipat-I		1.09000%
Solapur	10.07040%	5.49940%
Tapovan Vishnugad		3.16590%
Vindhyachal-IV		10.63010%
Total	**100.00000%**	**100.00000%**

Notes:-
* The Interest rate is exclusive of withholding tax @ 5.46% w.e.f 01.04.2019

Statement Giving Details of Project Financed through a Combination of loan

Form 8

TRANCHE NO

BP NO 5050000261	**T00001**	**D00005**
Unsecured Loan From SBI-VII		
Source of Loan :	**SBI-VII**	
Currency :	INR	
Amount of Loan :	1,00,00,00,00,000	
Total Drawn amount :	5,00,00,00,000	
Date of Drawl	31.08.2012	
Interest Type :	Floating	
Rate of Interest as on 01.04.2019	8.25%	
Upfront fees	0.08% excluding service tax	
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 :	4 Years	
Moratorium effective from :	08.07.2011	
Repayment Period (Inc Moratorium) :	12 Years	
Repayment Frequency :	16 Half Yearly Instalments	
Repayment Type :	AVG	
First Repayment Date :	30.09.2015	
Base Exchange Rate :	RUPEE	
Date of Base Exchange Rate :	N.A.	
Project Code	Project Name	Amount
	TAPOVAN	65,00,00,000.00
	BARH-I	1,00,00,00,000.00
	MOUDA-I	85,00,00,000.00
	RIHAND-III	85,00,00,000.00
	SOLAPUR	90,00,00,000.00
	GANDHAR-R&M	35,00,00,000.00
	KAWAS-R&M	40,00,00,000.00
Total Allocated Amount		**5,00,00,00,000.00**

Statement Giving Details of Project Financed through a Combination of loan

Form 8

TRANCHE NO

BP NO 5050000261 **T00001** **D00006**

Unsecured Loan From SBI-VII		
Source of Loan :	**SBI-VII**	
Currency :	INR	
Amount of Loan :	1,00,00,00,00,000	
Total Drawn amount :	5,00,00,00,000	
Date of Drawl	28.09.2012	
Interest Type :	Floating	
Rate of Interest as on 01.04.2019	8.25%	
Upfront fees	0.08% excluding service tax	
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 :	4 Years	
Moratorium effective from :	08.07.2011	
Repayment Period (Inc Moratorium) :	12 Years	
Repayment Frequency :	16 Half Yearly Instalments	
Repayment Type :	AVG	
First Repayment Date :	30.09.2015	
Base Exchange Rate :	RUPEE	
Date of Base Exchange Rate :	N.A.	
Project Code	Project Name	Amount
	KOLDAM	45,00,00,000
	SIMHADRI-II	50,00,00,000
	VINDHYACHAL-IV	30,00,00,000
	SIPAT-I	75,00,00,000
	BARH-I	15,00,00,000
	MOUDA-I	20,00,00,000
	RIHAND III	20,00,00,000
	KUDGI-I	40,00,00,000
	MOUDA-II	50,00,00,000
	FARAKKA-III	15,00,00,000
	GANDHAR-R&M	40,00,00,000
	BONGAIGAON	1,00,00,00,000
Total Allocated Amount		**5,00,00,00,000.00**

Statement Giving Details of Project Financed through a Combination of loan

Form 8

TRANCHE NO

BP NO 5050000261	**T00001**	**D00007**
Unsecured Loan From SBI-VII		
Source of Loan :	**SBI-VII**	
Currency :	INR	
Amount of Loan :	1,00,00,00,00,000	
Total Drawn amount :	5,00,00,00,000	
Date of Drawl	12.11.2012	
Interest Type :	Floating	
Rate of Interest as on 01.04.2019	8.25%	
Upfront fees	0.08% excluding service tax	
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 :	4 Years	
Moratorium effective from :	08.07.2011	
Repayment Period (Inc Moratorium) :	12 Years	
Repayment Frequency :	16 Half Yearly Instalments	
Repayment Type :	AVG	
First Repayment Date :	30.09.2015	
Base Exchange Rate :	RUPEE	
Date of Base Exchange Rate :	N.A.	
Project Code	Project Name	Amount
	KOLDAM	35,00,00,000
	SOLAPUR	25,00,00,000
	VINDHYACHAL-IV	20,00,00,000
	TAPOVAN	20,00,00,000
	BARH-I	80,00,00,000
	MOUDA-I	15,00,00,000
	RIHAND-III	45,00,00,000
	KUDGI-I	20,00,00,000
	DADRI SOLAR PV	5,00,00,000
	A&N SOLAR PV	5,00,00,000
	SINGARULI 8 MW	5,00,00,000
	BONGAIGAON	40,00,00,000
	BARH-II	80,00,00,000
	SINGRAULI-R&M	25,00,00,000
	TANDA - R&M	15,00,00,000
	KAWAS-R&M	35,00,00,000
	GANDHAR -R&M	20,00,00,000
	TSTPP-R&M	10,00,00,000
Total Allocated Amount		**5,00,00,00,000.00**

Form 8

TRANCHE NO

BP NO 5050000261 T00001 D00008

Unsecured Loan From SBI-VII		
Source of Loan :	SBI-VII	
Currency :	INR	
Amount of Loan :	1,00,00,00,00,000	
Total Drawn amount :	5,00,00,00,000	
Date of Drawl	11.03.2013	
Interest Type :	Floating	
Rate of Interest as on 01.04.2019	8.25%	
Upfront fees	0.08% excluding service tax	
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 :	4 Years	
Moratorium effective from :	08.07.2011	
Repayment Period (Inc Moratorium) :	12 Years	
Repayment Frequency :	16 Half Yearly Instalments	
Repayment Type :	AVG	
First Repayment Date :	30.09.2015	
Base Exchange Rate :	RUPEE	
Date of Base Exchange Rate :	N.A.	
Project Code	Project Name	Amount
	KOLDAM	35,00,00,000
	SOLAPUR	30,00,00,000
	VINDHYACHAL-V	38,00,00,000
	TAPOVAN	18,00,00,000
	BARH-I	57,00,00,000
	MOUDA-II	26,00,00,000
	RIHAND III	32,00,00,000
	KUDGI-I	38,00,00,000
	DADRI SOLAR PV	19,00,00,000
	A&N SOLAR PV	20,00,00,000
	LARA-I	20,00,00,000
	BONGAIGAON	34,00,00,000
	FARAKKA-III	27,00,00,000
	SIMHADRI-II	20,00,00,000
	SINGRAULI-R&M	10,00,00,000
	TTPS-R&M	15,00,00,000
	KAWAS-R&M	15,00,00,000
	GANDHAR-R&M	8,00,00,000
	TSTPP-R&M	10,00,00,000
	RAMAGUNDAM-R&M	8,00,00,000
	BADARPUR-R&M	20,00,00,000
Total Allocated Amount		**5,00,00,00,000.00**

Statement Giving Details of Project Financed through a Combination of loan

Form 8

TRANCHE NO

BP NO 5050000261 **T00001** **D00015**

Unsecured Loan From SBI-VII		
Source of Loan :	**SBI-VII**	
Currency :	INR	
Amount of Loan :	1,00,00,00,00,000	
Total Drawn amount :	2,00,00,00,000	
Date of Drawal:	11.01.2014	
Interest Type :	Floating	
Rate of Interest as on 01.04.2019	8.25%	
Upfront fees	0.08% excluding service tax	
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 :	4 Years	
Moratorium effective from :	08.07.2011	
Repayment Period (Inc Moratorium) :	12 Years	
Repayment Frequency :	16 Half Yearly Instalments	
Repayment Type :	AVG	
First Repayment Date :	30.09.2015	
Base Exchange Rate :	RUPEE	
Date of Base Exchange Rate :	N.A.	
Project Code	Project Name	Amount
	KOLDAM HEPP	40,00,00,000
	TAPOVAN VISHNUGAD	25,00,00,000
	MOUDA-I	70,00,00,000
	GANDHAR-R&M	65,00,00,000
Total Allocated Amount		**2,00,00,00,000.00**

Statement Giving Details of Project Financed through a Combination of loan

Form 8

TRANCHE NO

BP NO 5050000721	T00001	D00001
Unsecured Loan From Corporation Bank-IV		
Source of Loan :	**Corporation Bank-IV**	
Currency :	INR	
Amount of Loan :	20,00,00,00,000	
Total Drawn amount :	20,00,00,00,000	
Date of Drawal:	11.01.2019	
Interest Type :	Floating	
Fixed Interest Rate :	8.25%	
Base Rate, If Floating Interest	-	
Margin, If Floating Interest :	-	
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 :	11.01.2019	
Repayment Period (Inc Moratorium) :	12 Years	
Repayment Frequency :	9 Yearly Instalments	
Repayment Type :	AVG	
First Repayment Date :	11-Jan-23	
Base Exchange Rate :	RUPEE	
Date of Base Exchange Rate :	N.A.	
Project Code	Project Name	Amount
	SINGRAULI 8MW HYDRO	8,75,00,000
	FARIDABAD SOLAR PV	8,75,00,000
	SINGRAULI SOLAR	8,75,00,000
	FARAKKA III	11,42,85,716
	RAJGARH SOLAR	13,12,50,000
	NCTPP-II	14,28,57,139
	GANDHAR R&M	16,60,71,436
	SIMHADRI-II	23,21,42,855
	SIPAT-I	23,43,75,000
	MOUDA-II	50,00,00,000
	VINDHYACHAL-V	1,00,00,00,000
	SIPAT-II	1,01,07,14,287
	MOUDA-I	1,05,44,64,284
	RIHAND-III	1,22,85,71,426
	VINDHYACHAL-IV	2,45,00,00,000
	KOLDAM	2,71,51,78,577
	BARH-II	6,75,75,89,280
	KUDGI	2,00,00,00,000
Total Allocated Amount		**20,00,00,00,000**

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	8.45%	
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
	RAMAGUNDAM R&M	2,20,00,00,000
	UNCHAHAR R&M	70,00,00,000
	RIHAND R&M	90,00,00,000
	KAWAS R&M	1,80,00,00,000
	AURAIYA R&M	1,80,00,00,000
	TSTPP R&M	90,00,00,000
	GANDHAR R&M	1,85,00,00,000
	NCTPP R&M	30,00,00,000
	KAHALGAON R&M	30,00,00,000
	ANTA R&M	80,00,00,000
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 5050000641	**T00001**	**D00002**
Unsecured Loan From HDFC Bank Ltd. VI		
Source of Loan :	**HDFC Bank Ltd. VI**	
Currency :	INR	
Amount of Loan :	15,00,00,00,000	
Total Drawn amount :	5,00,00,00,000	
Date of drawl	11.10.2018	
Interest Type :	Floating	
Fixed Interest Rate :		
Base Rate, If Floating Interest	8.45%	
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 :	11.10.2018	
Repayment Period (Inc Moratorium) :	15 Years	
Repayment Frequency :	9 Yearly Instalment	
Repayment Type :	AVG	
First Repayment Date :	26.09.2025	
Base Exchange Rate :	RUPEE	
Date of Base Exchange Rate :	N.A.	
Project Code	Project Name	Amount
	BARH-I	55,00,00,000
	TAPOVAN VISHNUGARH	10,00,00,000
	BONGAIGAON	10,00,00,000
	SOLAPUR	14,00,00,000
	LARA-I	33,00,00,000
	GADARWARA	68,00,00,000
	NORTH KARANPURA	42,00,00,000
	DARLIPALLI	34,00,00,000
	TANDA II	31,00,00,000
	RAMMAM	3,00,00,000
	KHARGONE	48,00,00,000
	TELANGANA	42,00,00,000
	AURAIYA R&M	50,00,00,000
	NCTPP R&M	10,00,00,000
	KAWAS R&M	15,00,00,000
	GANDHAR R&M	35,00,00,000
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 5050000442 **T00001** D0001

	Unsecured Loan From SBI-VIII	
Source of Loan :	**SBI-VIII**	
Currency :	INR	
Amount of Loan :	1,00,00,00,00,000	
Total Drawn amount :	5,00,00,00,000	
Interest Type :	Floating	
Fixed Interest Rate :	----------	
Base Rate, If Floating Interest	D0001-3-8.25%	
Margin, If Floating Interest :		
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 :	21.01.2015	
Repayment Period (Inc Moratorium) :	15 Years	
Repayment Frequency :	9 Yearly Installments	
Repayment Type :	AVG	
First Repayment Date :	31.01.2022	
Base Exchange Rate :	RUPEE	
Date of Base Exchange Rate :	N.A.	
Project Code	**Project Name**	**Amount**
	BARH-I	1,00,00,00,000
	FARAKKA R&M	25,00,00,000
	TSTPP R&M	40,00,00,000
	SINGRAULI R&M	40,00,00,000
	RAMAGUNDAM R&M	50,00,00,000
	KAWAS R&M	60,00,00,000
	KORBA R&M	60,00,00,000
	GANDHAR R&M	1,25,00,00,000
Total Allocated Amount		**5,00,00,00,000.00**

Statement Giving Details of Project Financed through a Combination of loan

Form 8

TRANCHE NO

BP NO 5050000442 **T00001** **D00018**

Unsecured Loan From SBI-VIII		
Source of Loan :	**SBI-VIII**	
Currency :	INR	
Amount of Loan :	1,00,00,00,00,000	
Total Drawn amount :	1,50,00,00,000	
Date of Drawl	21.04.2016	
Interest Type :	Floating	
Fixed Interest Rate :	----------	
Base Rate, If Floating Interest	D00018-8.25%	
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 :	6 Years	
Moratorium effective from :	21.04.2016	
Repayment Period (Inc Moratorium) :	15 Years	
Repayment Frequency :	9 Yearly Installments	
Repayment Type :	AVG	
First Repayment Date :	31.01.2022	
Base Exchange Rate :	RUPEE	
Date of Base Exchange Rate :	N.A.	
Project Code	**Project Name**	**Amount**
	BONGAIGAON	70,00,00,000
	UNCHAHAR-IV	5,00,00,000
	RAMAGUNDAM R&M	15,00,00,000
	TSTPS R&M	21,00,00,000
	GANDHAR R&M	8,00,00,000
	KORBA R&M	6,00,00,000
	DADRI GAS R&M	10,00,00,000
	UNCHAHAR R&M	5,00,00,000
	BADARPUR R&M	5,00,00,000
	KAHALGAON R&M	5,00,00,000
Total Allocated Amount		**1,50,00,00,000**

FORM-8

Name of the Company NTPC Limted

Particulars			
Source of Loan - Bonds Series	**54**	**57**	**58**
Currency	INR	INR	INR
Amount of Loan sanctioned (In Lakh)	10,30,683.05	50,000.00	30,000.00
Amount of Gross Loan drawn upto COD (In Lakh)	10,30,683.05	50,000.00	30,000.00
Interest Type	Fixed	Fixed	Fixed
Fixed Interest Rate, if applicable	8.49%	8.19%	8.18%
	8.5200%	8.2200%	8.2100%
Base Rate, if Floating Interest	N/A	N/A	N/A
Margin, if Floating Interest	N/A	N/A	N/A
Are there any Caps/Floor	No	No	No
If above is yes,specify caps/floor	N/A	N/A	N/A
Moratorium Period (In Years)	8	10	5
Moratorium effective from*	25-03-2015	15-12-2015	31-12-2015
Repayment Period	Installments Due on 25/03/2023, 25/03/2024 & 25/03/2025	Bullet Repayment	Bullet Repayment
Repayment effective from	25-03-2023	15-12-2025	31-12-2020
Repayment Frequency	Installments Due on 25/03/2023, 25/03/2024 & 25/03/2025	Bullet Repayment	Bullet Repayment
Repayment Instalment (In Lakh)	Installments 1st - 206,136.61 2nd - 412,273.22 3rd - 412,273.22	50,000.00	30,000.00
Base Exchange Rate	N/A	N/A	N/A
Door to Door Maturity (In Years)	10	10	5

Name of the Projects	54	57	58
Anantpur Solar	5600	0	0
Auraiya R & M	0	1400	0
Badarpur R&M	2300	0	0
BARH I	74883	8900	4000
BARH II	63500	0	2400
BONGAIGAON	54000	500	600
Chatti Bariatu CMB	8100	0	0
Dadri Gas R & M	600	0	0
DARLIPALLI	49200	0	13500
FARAKKA III	10900	0	0
Farakka R & M	2000	0	0
GADARWARA	81000	2000	0
Gandhar R &M	4300	800	2000
Kahalgaon II Phase II	1800	0	0
Khstpp R & M	2000	500	0
Kawas R & M	1400	0	0
Khargone	45000	3000	0
KOLDAM	25100	3700	0
KORBA III	9200	500	0
Korba R & M	4400	0	0
Kudgi	123300	0	0
LARA I	53300	13700	0
Lata Tapovan	1600	0	0
Mauda	21900	0	2700
Mauda II	45800	0	0
NCTPP II	11000	500	0
NCTPP R & M	3700	0	1000
NORTH KARANPURA	12400	0	0
Pakri Barwadih CMB	26600	800	1000
Ramagundam I & II R & M	2400	0	1000
Rammam	3100	0	0
RIHAND III	28300	800	0
Rihand R & M	2500	0	0
Simhadari II	26800	1000	0
Simhadari R & M	900	0	0
Vidhyachal Hydro**	1900	0	0
Singrauli R & M	1600	0	0
Vindyachal Solar**	4800	0	0
SIPAT I	20500	1400	0
SOLAPUR	70300	0	1000
TALCHER II	12000	700	0
Tanda II	9000	400	0
Tapovan Vishnugad	26400	0	800
TSTPP R & M	1600	1000	0
TTPS R & M	1000	0	0
Unchahar R & M	3400	0	0
Unchahar IV	17400	4800	0
Vindhyachal IV	17200	500	0
Vindhyachal V	33500	2200	0
Vindhyachal R & M	1200	900	0
TOTAL	1030683	50000	30000

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	Jhanor Gandhar Gas power Station
COD	01-11-1995
For Financial Year	2024-29 (Summary)

Amount in Rs Lakh

Sl. No.	Head of Work /Equipment	ACE Claimed (Projected on cash basis)					Total 2024-29	Regulation	Justification
		2024-25	2025-26	2026-27	2027-28	2028-29			
1	2	3	4	5	6	7			8
A.	**Eligible for Normal ROE**								
1	Upgradation of Variable Frequency Drive System (LCI) for Gas Turbine Startup		704.00	704.00			1,408.00	25(2)(c)	Please refer Form-9 of respective Financial Year for Justification
2	Upgradation of Turbine Blading & associated system of Gas Turbine # 2			22965.00			22,965.00	25(2)(c)	
3	Replacement of existing GT and ST air washer system			337.00			337.00	25(2)(c)	
4	Upgradation of Control System of Fire Detection and Mulsifyre system			100.00			100.00	25(2)(a), 25(2)(c) and 26(1)(d)	
5	Replacement of Fire-fighting System Pipelines & Pumps System			500.00	700.00	300.00	1,500.00	25(2)(a) and 26(1)(d)	
6	Major Renovation/ new construction of Plant Buildings			150.00	30.00		180.00	25(2)(a) and Reg 102 (Power to Relax)	
7	Major Renovation/ new construction of Township quarters			195.00	210.00		405.00	25(2)(a) and Reg 102 (Power to Relax)	
9	Upgradation of Control System of POS-30 HMI				500.00		500.00	25(2)(c)	
10	Upgradation of Control System of Bypass control and Protection system				300.00		300.00	25(2)(c)	
11	Upgradation of P13 DCS (Distributed Control System) of Steam Turbine Control and Protection System				2000.00		2,000.00	25(2)(c)	
12	Upgradation of Obsolete Modules of P14 Control System of WHRB (Waste Heat Recovery Boiler) and Balance of Plant (BoP)				1800.00		1,800.00	25(2)(c)	
	Total (A)	-	704.00	24,951.00	5,540.00	300.00	31,495.00		
B.	**Eligible for ROE@ SBI MCLR plus 350 BP**								
1	Installation of CCTV Cameras in Plant Area	100.00					100.00	26(1)(d)	Please refer Form-9 of respective Financial Year for Justification
2	Storage Shed for waste material	43.00					43.00	26(1)(b)	
3	Construction of New Plant Boundary Wall			267.00			267.00	26(1)(d)	
4	Construction of Vermicomposting Area in Plant area			148.00			148.00	26(1)(b)	
	Total (B)	143.00	-	415.00	-	-	558.00		
							-		
Total Add. Cap. Claimed (A+B)		143.00	704.00	25,366.00	5,540.00	300.00	32,053.00		

(Petitioner)

PART-I
Form-9
(Amount in Rs Lakh)

Year wise Statement of Additional Capitalisation after COD

Name of the Petitioner : NTPC Ltd
Name of the Generating Station : Gandhar GPS
COD : 01.11.1995
For Financial Year : 2024-25

SL No.	Head of Work / Equipment	ACE (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 incl. in Col. 3			
1	2	3	4	5= (3-4)	6			
A1	For assets eligible for Normal ROE							
	Sub total A1	0.00	0.00	0.00				
A2	For assets eligible for RoE at MCLR plus 350 basis points							
1	Installation of CCTV Cameras in Plant Area	100.00	0.00	100.00		26(1)(d)	It is submitted that CISF, Ministry of Home Affairs, GoI is responsible for ensuring safety and security of the instant Station. To ensure that various locations in the Plant area are covered under the CCTV surveillance so as to maintain necessary vigil for the security of the Plant, CISF vide their letter dated 11.11.2024 (attached herewith at Annexure-A/1) has directed to install CCTV cameras at different vital installations in Plant premises such as Boundary wall, Central Store, Switchgear Room, GT area, etc. CISF has directed that the same may be installed on top priority basis for better security and surveillance of the areas. The instant projected capitalization is on account of the same. Hon'ble Commission may be pleased to allow the same.	

PART-I
Form-9
(Amount in Rs Lakh)

Year wise Statement of Additional Capitalisation after COD

Name of the Petitioner : NTPC Ltd
Name of the Generating Station : Gandhar GPS
COD : 01.11.1995
For Financial Year : 2024-25

SL No.	Head of Work / Equipment	ACE (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 incl. in Col. 3			
1	2	3	4	5= (3-4)	6			
2	Storage Shed for waste material	43.00	0.00	43.00		26(1)(b)	It is submitted that the instant Station being a Gas based thermal power station generates a variety of hazardous waste. As per Clause 6 of the Consent to Operate granted by Gujarat Pollution Control Board (GPCB), the instant Station has authorization to operate the facility for various hazardous wastes to be handled in the process such as ETP waste sludge, used oil, residues containing oil/ oil soaked cotton waste, discarded drums/ bags/ liners, lead acid battery, used ion exchange resin, waste residue of paint, spent activated carbon, etc. It is also pertinent to note that with regard to handling, storage and management of hazardous wastes as described avove, the Petitioner is governed by the Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016 notified by MoEF&CC, GoI on 04.04.2016. As per the said Rules, the occupier (the Petitioner in the instant case) is responsible for safe and environmentally sound management of such wastes including establishment of a proper storage facility before the wastes are treated/ disposed off. A copy of the Consent to Operate for the instant Station valid for the period 12.03.2024 to 23.02.2029 and relevant extract of the said Rules is attached herewith at **Annexure-A/2**. In the past the Petitioner has been handling such wastes through makeshit arrangements, however, in view of the statutory norms as mentioned above, it has become imperative for the Petitioner to construct a proper Storage Shed which would be used to store hazardous wastes produced in the operation of the instant Station before their disposal. In view of the above, the Hon'ble Commisison may be pleased to allow the instant projected capitalisation	
	Sub-total A2	**143.00**	**0.00**	**143.00**				
	Total Add Cap (A1+A2)	**143.00**	**0.00**	**143.00**				

PART-I
Form-9
(Amount in Rs Lakh)

Year wise Statement of Additional Capitalisation after COD

Name of the Petitioner : NTPC Ltd
Name of the Generating Station : Gandhar GPS
COD : 01.11.1995
For Financial Year : 2025-26

Sl. No.	Head of Work / Equipment	ACE (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 incl. in Col. 3			
1	2	3	4	5= (3-4)	6			
A1	For assets eligible for Normal ROE							
1	Upgradation of Variable Frequency Drive System (LCI) for Gas Turbine Startup	704.00	0.00	704.00		25(2)(c)	Upgradation of existing gas turbine startup system is required due to its obsolescence. Its OEM, i.e., M/s ABB, vide its Obsolescence Certificate dated 16.10.2024 (attached herewith at Annexure-A/3) has declared that the MEGADRIVE-LCI is in the obsolete life cycle phase since 01.01.2021. Due to the said obsolescence since 01.01.2021 declared by the OEM, Station is facing frequent problems in starting the device as Service/ Spares support is also not available with the OEM. Therefore, the instant capitalization has been projected to upgrade the said Variable Frequency Drive (VFD) System for Gas Turbine Startup. Hon'ble Commission may be pleased to allow the same.	
	Sub total A1	**704.00**	**0.00**	**704.00**				
A2	For assets eligible for RoE at MCLR plus 350 basis points							
	Sub-total A2	**0.00**	**0.00**	**0.00**				
	Total Add Cap (A1+A2)	**704.00**	**0.00**	**704.00**				

PART-I
Form-9
(Amount in Rs Lakh)

Year wise Statement of Additional Capitalisation after COD

Name of the Petitioner : NTPC Ltd
Name of the Generating Station : Gandhar GPS
COD : 01.11.1995
For Financial Year : 2026-27

Sl. No.	Head of Work / Equipment	ACE (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 incl. in Col. 3			
1	2	3	4	5= (3-4)	6			
A1	For assets eligible for Normal ROE							
1	Upgradation of Variable Frequency Drive System (LCI) for Gas Turbine Startup	704.00	0.00	704.00		25(2)(c)	PI refer justification provided for this item in Form-9 for FY 25-26	
2	Upgradation of Turbine Blading & associated system of Gas Turbine # 2	22965.00	0.00	22965.00		25(2)(c)	It is submitted that upgradation of Turbine Blading and associated system of GT # 2 is required on account of obsolescence of blading as declared by the OEM of GT, i.e. M/s GE. Detailed justification and supporting documents in this regard are attached herewith at **Annexure-A/4**.	
3	Replacement of existing GT and ST air washer system	337.00	0.00	337.00		25(2)(c)	It is submitted that the existing Air Washer System for Gas turbines and Steam Turbines is more than 28 year old. Its OEM, i.e. M/s FlaktGroup, vide its Obsolescence Certificate dated 25.08.2022 (attached herewith at **Annexure-A/5**) has certified that the existing Air Washer System for GTs and ST has become obsolete. The OEM has noted that the existing system was supplied by it in the Year 1993 and condition of the existing system is beyond repair. Also, the fans and several other parts are not working and need to be replaced. Therefore, to provide adequate ventilation to the people working around and to avoid adverse impact on health, it has become necessary for replacement of the existing obsolete Air Washer System. Hon'ble Commission may be pleased to allow the same.	
4	Upgradation of Control System of Fire Detection and Muisifyre system	100.00	0.00	100.00		25(2)(a), 25(2)(c) and 26(1)(d)	It is submitted that the existing Control System for Fire Detection and Fire Fighting System is installed and commissioned since the Station COD in the year 1995, i.e. the Control System is more than 28 years old. This control system is utilised for detection of fire at various important areas like Control Room, Switchgear, Cable Galleries, etc. Fire detection system is very critical for detection of fire in case of any fire incident and availability of this system is also very critical for ensuring the safety of equipment from fire incidents. The said Control System is responsible for ensuring flawless automatic operation of spray system and parallelly audio visual alarms for further swift course of action from CISF and concerned personnel. Being more than 28 years old and since there has been fast technological upgradation in the field of control & instrumentation, the existing Control System fire detectors and cards have become obsolete now and the system requires upgradation to ensure man and material safety. Its OEM, M/s Autronica, has also declared the existing control system (BS-100) as obsolete (copy of declaration from OEM attached herewith at **Annexure-A/6**). Therefore, Hon'ble Commission may be pleased to allow the instant projected capitalisation on behalf of the said works.	

PART-I
Form-9
(Amount in Rs Lakh)

Year wise Statement of Additional Capitalisation after COD

Name of the Petitioner : NTPC Ltd
Name of the Generating Station : Gandhar GPS
COD : 01.11.1995
For Financial Year : 2026-27

Sl. No.	Head of Work / Equipment	ACE (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 incl. in Col. 3			
1	2	3	4	5= (3-4)	6			
5	Replacement of Fire-fighting System Pipelines & Pumps System	500.00	0.00	500.00		25(2)(a) and 26(1)(d)	It is submitted that the existing Fire-fighting System Pipelines & Pumps System are installed and commissioned since the Station COD in the year 1995, i.e. the said pipeline network/ pump system is more than 28 years old. On the account of pipelines being so old and being underground in various stretches, frequent leakages are being experienced due to corrosion/ wear & tear/ soil settlement/ etc. These frequent leakages lead to resource wastage, pump malfunctions, and inadequate water supply during fire emergencies. Also, diagnosing and repairing these leaks is a complex and costly process that often provides only temporary relief. It is pertinent to note that having a robust and malfunction free Fire-fighting system is most critical and vital for safe operation of the Instant Gas based power station. To ensure timely and effective action in case of fire incidents, it is vital that fire fighting system works flawlessly ensuring protection against injury to men and damages to equipment. Pertinently, CISF, MHA, GoI, which is responsible for ensuring security of the Instant Station including fire safety and which handles the fire fighting system, has vide their letter dated 19.10.2024 (attached herewith at Annexure-A/7) raised serious concern about the old fire pipelines and pumping system due to which frequent leakages are being observed, resulting into surface hydrant and spray hydrant remaining unavailable for firefighting system during repair time. Due to the same, any fire emergency may lead to major fire incident at the Instant Station. Therefore, CISF has directed to replace the existing fire fighting system with new one on top priority so as to handle any fire emergency tactfully and to avoid any untoward incident. In view of the above, it has become necessary for the Petitioner to replace the existing fire fighting system pipelines and pumps system. Hon'ble Commission may be pleased to allow the projected capitalization on this behalf.	
6	Major Renovation/ new construction of Plant Buildings	150.00	0.00	150.00		25(2)(a) and Reg 102 (Power to Relax)	It is submitted that various buildings in Plant area such as Civil Const. office, Field Quality office, etc. were constructed at the time of COD of the Station in the year 1995 and have been under existance for more than 28 years. In spite of regular repair works undertaken from time to time, the condition of buildings has delapilated over time. Continued use of such structurally unsafe buildings also jeopardizes the safety of the people using these buildings for different purpose. Therefore, based on detailed structural assessment of such buildings to be undertaken, it is planned to carry out major renovation works including construction of new buildings as required from FY 25-26 onwards. It is also to be noted that unlike coal based stations, there is no Special Allowance for gas based stations for carrying out various Renovation/ Modernization nature of works including construction/ major renovation of buildings/ civil structures. It is submitted that such buildings are an integral part of the Station and are required to perform various functions apart from core plant activities. In view of the above, Hon'ble Commission may be pleased to allow the instant capitalisation on projected basis.	

PART-I
Form-9
(Amount in Rs Lakh)

Year wise Statement of Additional Capitalisation after COD

Name of the Petitioner : NTPC Ltd
Name of the Generating Station : Gandhar GPS
COD : 01.11.1995
For Financial Year : 2026-27

Sl. No.	Head of Work / Equipment	ACE (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 incl. in Col. 3			
1	2	3	4	5= (3-4)	6			
7	Major Renovation/ new construction of Township quarters	195.00	0.00	195.00		25(2)(a) and Reg 102 (Power to Relax)	It is submitted that residential buildings in Township area were constructed at the time of COD of the Station in the year 1995 and have been under existance for more than 28 years. In spite of regular repair works undertaken from time to time, the condition of various parts of the buildings such as plinth protection, staircase, water pipelines, etc. have deteriorated significantly over time leading to frequent problems faced by employees residing in these buildings. It is expected that in few years these buildings would no longer be safe and sound for living. Therefore, it would be necessary to take up major rennovation work/ construct new quarters to fulfill the basic need of providing suitable residence to the employees working for the instant Station. It is also to be noted that unlike coal based stations, there is no Special Allowance for gas based stations for carrying out various Renovation/ Modernization nature of works including major renovation of township buildings. It is submitted that for employees to function efficiently, a safe, sound and hassle free residence is vitally important. In view of the above, Hon'ble Commission may be pleased to allow the instant capitalisation on projected basis.	
	Sub total A1	**24951.00**	**0.00**	**24951.00**				
A2	**For assets eligible for RoE at MCLR plus 350 basis points**							
1	Construction of New Plant Boundary Wall	367.00				26(1)(d)	The Plant Boundary Wall of the instant Station is build on concrete piles and plinth beam over which wall has been erected with brickwork. It is submitted that the the Boundary wall was constructed at the time of COD of the Station in 1995 and is more than 28 years old. With passage of time, while the concrete piles and plinth beam are intact, the brick wall has become weak and has developed hugs cracks and has fallen at many sections along the Plant periphery. Also, the barbed wire over the boundary wall keeps on getting damaged due to rusting/ wind & rains. Pertinently, having a proper boundary wall is the basic requirement of the Station to ensure security from entry of unwarranted elements into the Station and prevent incidences of theft and thwart other security concerns. CISF, Ministry of Home Affairs, GoI, which is responsible for ensuring security of the instant Station, vide their letter dated 22.10.2024 has drawn the attention of the Petitioner towards the above described delapilated condition of the boundary wall. CISF has further raised concern that since the instant station comes under most-sensitive category from threat perception and the outside adjoining areas to boundary wall are cultivated land with regular presence of civil people, it become more important to ensure proper boundary wall. Accordingly, vide the said letter, CISF has directed the Petitioner to replace the existing boundary wall and construct a new boundary wall so that security of the instant Station can be further made sturdy. A copy of the said letter dated 22.10.2024 by CISF is attached herewith at **Annexure-A/8**. In view of the above, it is proposed to dismantle the damaged and weak brick boundary wall and contruct new concrete boundary wall with barbed wires to ensure a strong and damage prone free Plant boundary wall thereby ensuring first line of security against trespassing of unauthorised elements. Accordingly, Hon'ble Commission may be pleased to allow the instant capitalisation on projected basis on this behalf.	

PART-I
Form-9
(Amount in Rs Lakh)

Year wise Statement of Additional Capitalisation after COD

Name of the Petitioner : NTPC Ltd
Name of the Generating Station : Gandhar GPS
COD : 01.11.1995
For Financial Year : 2026-27

Sl. No.	Head of Work / Equipment	ACE (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 incl. in Col. 3			
1	2	3	4	5= (3-4)	6			
2	Construction of Vermicomposting Area in Plant area	148.00	0.00	148.00		16(1)(b)	It is submitted that huge quantity of green waste is generated in the Plant area. As per Solid Waste Magament Rules 2016, provision 4 (6) inter alia provides that it is the duty of every waste generator that bio-degradable waste shall be processed, treated and disposed off through composting or bio-methanation within the premises as far as possible. A copy of the said Rules is attached herewith at Annexure-A/9. Therefore, to comply with the above said environmental norm, it has been planned to construct an organized facility in the form of Vermicomposting Area for processing of green waste generated in the instant Station. Accordingly, Hon'ble Commission may be pleased to allow the instant projected capitalization.	
	Sub-total A2	148.00	0.00	148.00				
	Total Add Cap (A1+A2)	25099.00	0.00	25099.00				

PART-I
Form-9
(Amount in Rs Lakh)

Year wise Statement of Additional Capitalisation after COD

Name of the Petitioner : NTPC Ltd
Name of the Generating Station : Gandhar GPS
COD : 01.11.1995
For Financial Year : 2027-28

Sl. No.	Head of Work / Equipment	ACE (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 incl. in Col. 3			
1	2	3	4	5= (3-4)	6			
A1	For assets eligible for Normal ROE							
1	Upgradation of Control System of POS-30 HMI	500.00	0.00	500.00		25(2)(c)	It is submitted that the POS-30 operator station for PROCONTROL power plant control system is used to control, supervise, monitor, analyze and optimize the power plant process. Its OEM, i.e. M/s ABB, in reply to query raised by the Station has confirmed that the POS30 is presently in life cycle phase "limited", i.e. the manufacturing of new hardware is no longer supported but hardware availability continues for a certain time. ABB has confirmed that the successor system for POS30 is 800xA. So, once the hardware (i.e. server of POS30 system) is replaced with new one, the software HMI system for POS30 system should also be upgraded to 800xA. A copy of communication in this regard with M/s ABB is enclosed herwith at **Annexure-A/10**. In view of the above, it is evident that by the year 2027-28 the HMI of POS30 would become obsolete and would need to be replaced with its upgraded version, i.e. 800xA. Accordingly, the Hon'ble Commisison may be pleased to allow the instant projected capitalization on this behalf.	
2	Upgradation of P13 DCS (Distributed Control System) of Steam Turbine Control and Protection System	2000.00	0.00	2000.00		25(2)(c)	It is submitted that the P13 control and protection system for the Steam Turbine of the instant Station is installed and commissioned since COD of the Station in the year 1995, i.e. the same is more than 28 years old. Its OEM, i.e. M/s ABB, in reply to query raised by the Station, has confirmed that the P13 is presently in life cycle phase "limited", i.e. the manufacturing of new hardware is no longer supported but spares/ hardware availability continues for a certain time. A copy of communication in this regard with M/s ABB is enclosed herwith at **Annexure-A/10**. As the said P13 control system is already in "limited" phase of product life cycle management and is likely to become obsolete by FY 2028-29, it has been planned to upgrade the same with its upgraded version. Accordingly, the Hon'ble Commisison may be pleased to allow the instant projected capitalization on this behalf.	
3	Upgradation of Obsolete Modules of P14 Control System of WHRB (Waste Heat Recovery Boiler) and Balance of Plant (BoP)	1800.00	0.00	1800.00		25(2)(c)	It is submitted that the P14 Control System in (Waste Heat Recovery Boiler) and Balance of Plant (BoP) is running on P14 system Generation-1 modules. Its OEM, i.e. M/s ABB, in reply to query raised by the Station, has confirmed that though the Procontrol P14 is in active life cycle, the modules installed at the instant Station are in all the four life cycle phases (i.e. active, classic, limited and obsolete). Depending upon the module type the life cycle is different and the modules installed at the instant Station are mostly obsolete and need to be upgraded. A copy of communication in this regard with M/s ABB is enclosed herwith at **Annexure-A/10**. In view of the above, it is planned to upgrade the obsolete modules by the FY 2028-29. the Hon'ble Commisison may be pleased to allow the instant projected capitalization on this behalf.	

PART-I
Form-9
(Amount in Rs Lakh)

Year wise Statement of Additional Capitalisation after COD

Name of the Petitioner : NTPC Ltd
Name of the Generating Station : Gandhar GPS
COD : 01.11.1995
For Financial Year : 2027-28

Sl. No.	Head of Work / Equipment	ACE (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 incl. in Col. 3			
1	2	3	4	5= (3-4)	6			
4	Upgradation of Control System of Bypass control and Protection system	300.00	0.00	300.00		25(2)(c)	It is submitted that the Control System of Bypass control and Protection system is installed and commissioned since the Station COD in the year 1995, i.e. the Control System is more than 28 years old. Its OEM, i.e. M/s CCI SULZER Valves, vide its Obsolescence Certificate (attached herewith at **Annexute-A/11**) has certified that the Servovalves ST10/20 installed at the instant Station have become obsolete and the same can be replaced with technologically upgraded Proportional Valves PV. The proposed upgradation would improve system efficiency, reliability, reduce downtime, etc. and is necessary on account of the said obsolescence. In view of the above, the Hon'ble Commission may be pleased to allow the instant projected capitalisation.	
5	Replacement of Fire-fighting system Pipe lines & Pumps system	700.00	0.00	700.00		25(2)(a) and 26(1)(d)	PI refer justification provided for this item in Form-9 for FY 26-27	
6	Major Renovation/ new construction of Plant Buildings and Non-residential Township Buildings	30.00	0.00	30.00		25(2)(a) and Reg 102 (Power to Relax)	PI refer justification provided for these items in Form-9 for FY 26-27	
7	Major Renovation/ new construction of Township quarters	210.00	0.00	210.00				
	Sub total A1	**5540.00**	**0.00**	**5540.00**				
A2	**For assets eligible for RoE at MCLR plus 350 basis points**							
	Sub-total A2	**0.00**	**0.00**	**0.00**				
	Total Add Cap (A1+A2)	**5540.00**	**0.00**	**5540.00**				

PART-I
Form-9
(Amount in Rs Lakh)

Year wise Statement of Additional Capitalisation after COD

Name of the Petitioner : NTPC Ltd
Name of the Generating Station : Gandhar GPS
COD : 01.11.1995
For Financial Year : 2028-29

Sl. No.	Head of Work / Equipment	ACE (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 incl. in Col. 3			
1	2	3	4	5= (3-4)	6			
A1	For assets eligible for Normal ROE							
1	Replacement of Fire-fighting system Pipe lines & Pumps system	300.00	0.00	300.00		25(2)(a) and 26(1)(d)	PI refer justification provided for this item in Form-9 for FY 26-27	
	Sub total A1	300.00	0.00	300.00				
A2	For assets eligible for RoE at MCLR plus 350 basis points							
	Sub-total A2	0.00	0.00	0.00				
	Total Add Cap (A1+A2)	300.00	0.00	300.00				

PART-I
FORM- 10

Name of the Petitioner				**NTPC Limited**	
Name of the Generating Station				**Jhanor Gandhar**	
Date of Commercial Operation				**01-11-1995**	
					Amount in Rs Lakh
Financial Year (Starting from COD)1	**Projected**				
	2024-25	**2025-26**	**2026-27**	**2027-28**	**2028-29**
1	2	3	4	5	6
Amount capitalised in Work/ Equipment					
Financing Details	**Add cap is projected to be financed in Debt:Equity ratio of 70:30**				
Loan-1					
Loan-2					
Loan-3 and so on					
Total Loan2					
Equity Internal Resources					
Others (Pl. specify)					
Total					

PART-I
FORM- 12

Statement of Depreciation

Name of the Company : NTPC Limited

Name of the Power Station : Jhanor Gandhar Gas power Station

(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	Opening Capital Cost	2,86,296.92	2,86,291.66	2,86,434.66	2,87,138.66	3,12,504.66	3,18,044.66
2	Closing Capital Cost	2,86,291.66	2,86,434.66	2,87,138.66	3,12,504.66	3,18,044.66	3,18,344.66
3	Average Capital Cost	2,86,294.29	2,86,363.16	2,86,786.66	2,99,821.66	3,15,274.66	3,18,194.66
	Opening Cost of IT Equipments & Software	681.82	836.40	836.40	836.40	836.40	836.40
	Addition of IT Equipments & Software*	154.58	-	-	-	-	-
	Closing Cost of IT Equipments & Software	836.40	836.40	836.40	836.40	836.40	836.40
4	Average Cost of IT Equipments & Software	759.11	836.40	836.40	836.40	836.40	836.40
5	Freehold land	3,916.29	3,916.29	3,916.29	3,916.29	3,916.29	3,916.29
6	Rate of depreciation	2.07	2.10	2.17	5.55	4.02	1.22
7	Aggregate Depreciable value	2,54,216.11	2,54,285.82	2,54,666.97	2,66,398.47	2,80,306.17	2,82,934.17
8	Remaining Aggregate Depreciable Value at the beginning of the period	22,419.90	16,786.18	11,150.78	16,652.79	13,907.70	3,874.50
9	Balance useful life at the beginning of the period	3.79	2.79	1.79	0.79	-	-
10	Depreciation (for the period)	5,915.54	6,016.55	6,229.49	16,652.79	12,661.20	3,874.50
11	Depreciation (annualised)	5,915.54	6,016.55	6,229.49	16,652.79	12,661.20	3,874.50
12	Cumulative depreciation at the end of the period	2,37,711.75	2,43,516.19	2,49,745.68	2,66,398.47	2,79,059.67	2,82,934.17
13	Less: Cumulative depreciation adjustment on account of un-discharged liabilities deducted as on 01.04.2009	-	-	-	-	-	-
14	Add: Cumulative depreciation adjustment on account of liability Discharge	-	-	-	-	-	-
15	Less: Cumulative depreciation adjustment on account of de-capitalisation	212.11	-	-	-	-	-
16	Net Cumulative depreciation at the end of the period after adjustments	2,37,499.64	2,43,516.19	2,49,745.68	2,66,398.47	2,79,059.67	2,82,934.17

* Shall be provided at truing-up

(Petitioner)

FORM-13

Calculation of Interest on Actual Loans

Name of the Company NTPC Limited
Name of the Power Station Gandhar

Sl. no.	Particulars	2024-25	2025-26	2026-27	2027-28	2028-29
1	**Bonds 54 Series Repayment in 3 Installments from 25.03.2023**					
	Gross loan - Opening	4300.00	4300.00	4300.00	4300.00	4300.00
	Cumulative repayments of Loans	2580.00	4300.00	4300.00	4300.00	4300.00
	Net loan - Opening	1720.00	0.00	0.00	0.00	0.00
	Addition	0.00	0.00	0.00	0.00	0.00
	Repayments of Loans during the year	1720.00	0.00	0.00	0.00	0.00
	Net loan - Closing	0.00	0.00	0.00	0.00	0.00
	Average Net Loan	860.00	0.00	0.00	0.00	0.00
	Rate of Interest on Loan	8.5200%	8.5200%	8.5200%	8.5200%	8.5200%
	Interest on loan	73.27	0.00	0.00	0.00	0.00
2	**Bonds 57 Series Repayment Bullet 15.12.2025**					
	Gross loan - Opening	800.00	800.00	800.00	800.00	800.00
	Cumulative repayments of Loans	0.00	0.00	800.00	800.00	800.00
	Net loan - Opening	800.00	800.00	0.00	0.00	0.00
	Addition	0.00	0.00	0.00	0.00	0.00
	Repayments of Loans during the year	0.00	800.00	0.00	0.00	0.00
	Net loan - Closing	800.00	0.00	0.00	0.00	0.00
	Average Net Loan	800.00	400.00	0.00	0.00	0.00
	Rate of Interest on Loan	8.2200%	8.2200%	8.2200%	8.2200%	8.2200%
	Interest on loan	65.76	32.88	0.00	0.00	0.00
3	**Bonds 58 Series Repayment Bullet 31.12.2020**					
	Gross loan - Opening	2000.00	2000.00	2000.00	2000.00	2000.00
	Cumulative repayments of Loans	2000.00	2000.00	2000.00	2000.00	2000.00
	Net loan - Opening	0.00	0.00	0.00	0.00	0.00
	Addition	0.00	0.00	0.00	0.00	0.00
	Repayments of Loans during the year	0.00	0.00	0.00	0.00	0.00
	Net loan - Closing	0.00	0.00	0.00	0.00	0.00
	Average Net Loan	0.00	0.00	0.00	0.00	0.00
	Rate of Interest on Loan	8.2100%	8.2100%	8.2100%	8.2100%	8.2100%
	Interest on loan	0.00	0.00	0.00	0.00	0.00
4	**SBI VII- T-1-D5**					
	Gross loan - Opening	3500.00	3500.00	3500.00	3500.00	3500.00
	Cumulative repayments of Loans	3500.00	3500.00	3500.00	3500.00	3500.00
	Net loan - Opening	0.00	0.00	0.00	0.00	0.00
	Addition	0.00	0.00	0.00	0.00	0.00
	Repayments of Loans during the year	0.00	0.00	0.00	0.00	0.00
	Net loan - Closing	0.00	0.00	0.00	0.00	0.00
	Average Net Loan	0.00	0.00	0.00	0.00	0.00
	Rate of Interest on Loan	8.1000%	8.1000%	8.1000%	8.1000%	8.1000%
	Interest on loan	0.00	0.00	0.00	0.00	0.00

					FORM-13	
	Calculation of Interest on Actual Loans					
	Name of the Company Name of the Power Station	NTPC Limited Gandhar				
Sl. no.	Particulars	2024-25	2025-26	2026-27	2027-28	2028-29
5	SBI VII- T-1-D6					
	Gross loan - Opening	4000.00	4000.00	4000.00	4000.00	4000.00
	Cumulative repayments of Loans	4000.00	4000.00	4000.00	4000.00	4000.00
	Net loan - Opening	0.00	0.00	0.00	0.00	0.00
	Addition	0.00	0.00	0.00	0.00	0.00
	Repayments of Loans during the year	0.00	0.00	0.00	0.00	0.00
	Net loan - Closing	0.00	0.00	0.00	0.00	0.00
	Average Net Loan	0.00	0.00	0.00	0.00	0.00
	Rate of Interest on Loan	8.1000%	8.1000%	8.1000%	8.1000%	8.1000%
	Interest on loan	0.00	0.00	0.00	0.00	0.00
6	SBI VII- T-1-D7					
	Gross loan - Opening	2000.00	2000.00	2000.00	2000.00	2000.00
	Cumulative repayments of Loans	2000.00	2000.00	2000.00	2000.00	2000.00
	Net loan - Opening	0.00	0.00	0.00	0.00	0.00
	Addition	0.00	0.00	0.00	0.00	0.00
	Repayments of Loans during the year	0.00	0.00	0.00	0.00	0.00
	Net loan - Closing	0.00	0.00	0.00	0.00	0.00
	Average Net Loan	0.00	0.00	0.00	0.00	0.00
	Rate of Interest on Loan	8.1000%	8.1000%	8.1000%	8.1000%	8.1000%
	Interest on loan	0.00	0.00	0.00	0.00	0.00
7	SBI VII- T-1-D8					
	Gross loan - Opening	800.00	800.00	800.00	800.00	800.00
	Cumulative repayments of Loans	800.00	800.00	800.00	800.00	800.00
	Net loan - Opening	0.00	0.00	0.00	0.00	0.00
	Addition	0.00	0.00	0.00	0.00	0.00
	Repayments of Loans during the year	0.00	0.00	0.00	0.00	0.00
	Net loan - Closing	0.00	0.00	0.00	0.00	0.00
	Average Net Loan	0.00	0.00	0.00	0.00	0.00
	Rate of Interest on Loan	8.1000%	8.1000%	8.1000%	8.1000%	8.1000%
	Interest on loan	0.00	0.00	0.00	0.00	0.00
8	SBI VII- T-1-D15					
	Gross loan - Opening	6500.00	6500.00	6500.00	6500.00	6500.00
	Cumulative repayments of Loans	6500.00	6500.00	6500.00	6500.00	6500.00
	Net loan - Opening	0.00	0.00	0.00	0.00	0.00
	Addition	0.00	0.00	0.00	0.00	0.00
	Repayments of Loans during the year	0.00	0.00	0.00	0.00	0.00
	Net loan - Closing	0.00	0.00	0.00	0.00	0.00
	Average Net Loan	0.00	0.00	0.00	0.00	0.00
	Rate of Interest on Loan	8.1000%	8.1000%	8.1000%	8.1000%	8.1000%
	Interest on loan	0.00	0.00	0.00	0.00	0.00
		0				
9	SBI New York					
	Gross loan - Opening	9344.83	9344.83	9344.83	9344.83	9344.83
	Cumulative repayments of Loans	9344.83	9344.83	9344.83	9344.83	9344.83
	Net loan - Opening	0.00	0.00	0.00	0.00	0.00
	Addition	0.00	0.00	0.00	0.00	0.00
	Repayments of Loans during the year	0.00	0.00	0.00	0.00	0.00
	Net loan - Closing	0.00	0.00	0.00	0.00	0.00
	Average Net Loan	0.00	0.00	0.00	0.00	0.00
	Rate of Interest on Loan	3.8619%	3.8619%	3.8619%	3.8619%	3.8619%
	Interest on loan	0.00	0.00	0.00	0.00	0.00

					FORM-13	
	Calculation of Interest on Actual Loans					
	Name of the Company Name of the Power Station	NTPC Limited Gandhar				
Sl. no.	Particulars	2024-25	2025-26	2026-27	2027-28	2028-29
10	**4.75% Fixed Rate Notes Due 2022**					
	Gross loan - Opening	648.62	648.62	648.62	648.62	648.62
	Cumulative repayments of Loans	648.62	648.62	648.62	648.62	648.62
	Net loan - Opening	0.00	0.00	0.00	0.00	0.00
	Addition	0.00	0.00	0.00	0.00	0.00
	Repayments of Loans during the year	0.00	0.00	0.00	0.00	0.00
	Net loan - Closing	0.00	0.00	0.00	0.00	0.00
	Average Net Loan	0.00	0.00	0.00	0.00	0.00
	Rate of Interest on Loan	5.0243%	5.0243%	5.0243%	5.0243%	5.0243%
	Interest on loan	0.00	0.00	0.00	0.00	0.00
11	**Corporation Bank-IV- T-1-D1**					
	Gross loan - Opening	1660.71	1660.71	1660.71	1660.71	1660.71
	Cumulative repayments of Loans	369.05	553.57	738.10	922.62	1107.14
	Net loan - Opening	1291.67	1107.14	922.62	738.10	553.57
	Addition	0.00	0.00	0.00	0.00	0.00
	Repayments of Loans during the year	184.52	184.52	184.52	184.52	184.52
	Net loan - Closing	1107.14	922.62	738.10	553.57	369.05
	Average Net Loan	1199.40	1014.88	830.36	645.83	461.31
	Rate of Interest on Loan	8.1000%	8.1000%	8.1000%	8.1000%	8.1000%
	Interest on loan	97.15	82.21	67.26	52.31	37.37
12	**HDFC Bank Ltd.-IV- T-1-D4**					
	Gross loan - Opening	18500.00	18500.00	18500.00	18500.00	18500.00
	Cumulative repayments of Loans	6166.67	8222.22	10277.78	12333.33	14388.89
	Net loan - Opening	12333.33	10277.78	8222.22	6166.67	4111.11
	Addition	0.00	0.00	0.00	0.00	0.00
	Repayments of Loans during the year	2055.56	2055.56	2055.56	2055.56	2055.56
	Net loan - Closing	10277.78	8222.22	6166.67	4111.11	2055.56
	Average Net Loan	11305.56	9250.00	7194.44	5138.89	3083.33
	Rate of Interest on Loan	7.9500%	7.9500%	7.9500%	7.9500%	7.9500%
	Interest on loan	898.79	735.38	571.96	408.54	245.13
13	**HDFC Bank Ltd. VI- T-1-D2**					
	Gross loan - Opening	3500.00	3500.00	3500.00	3500.00	3500.00
	Cumulative repayments of Loans	0.00	0.00	388.89	777.78	1166.67
	Net loan - Opening	3500.00	3500.00	3111.11	2722.22	2333.33
	Addition	0.00	0.00	0.00	0.00	0.00
	Repayments of Loans during the year	0.00	388.89	388.89	388.89	388.89
	Net loan - Closing	3500.00	3111.11	2722.22	2333.33	1944.44
	Average Net Loan	3500.00	3305.56	2916.67	2527.78	2138.89
	Rate of Interest on Loan	7.9500%	7.9500%	7.9500%	7.9500%	7.9500%
	Interest on loan	278.25	262.79	231.88	200.96	170.04

					FORM-13	
	Calculation of Interest on Actual Loans					
	Name of the Company Name of the Power Station	NTPC Limited Gandhar				
Sl. no.	Particulars	2024-25	2025-26	2026-27	2027-28	2028-29
14	SBI-VIII- T-1-D1					
	Gross loan - Opening	12500.00	12500.00	12500.00	12500.00	12500.00
	Cumulative repayments of Loans	4166.67	5555.56	6944.44	8333.33	9722.22
	Net loan - Opening	8333.33	6944.44	5555.56	4166.67	2777.78
	Addition	0.00	0.00	0.00	0.00	0.00
	Repayments of Loans during the year	1388.89	1388.89	1388.89	1388.89	1388.89
	Net loan - Closing	6944.44	5555.56	4166.67	2777.78	1388.89
	Average Net Loan	7638.89	6250.00	4861.11	3472.22	2083.33
	Rate of Interest on Loan	8.2000%	8.2000%	8.2000%	8.2000%	8.2000%
	Interest on loan	626.39	512.50	398.61	284.72	170.83
15	SBI-VIII- T-1-D18					
	Gross loan - Opening	800.00	800.00	800.00	800.00	800.00
	Cumulative repayments of Loans	266.67	355.56	444.44	533.33	622.22
	Net loan - Opening	533.33	444.44	355.56	266.67	177.78
	Addition	0.00	0.00	0.00	0.00	0.00
	Repayments of Loans during the year	88.89	88.89	88.89	88.89	88.89
	Net loan - Closing	444.44	355.56	266.67	177.78	88.89
	Average Net Loan	488.89	400.00	311.11	222.22	133.33
	Rate of Interest on Loan	8.2000%	8.2000%	8.2000%	8.2000%	8.2000%
	Interest on loan	40.09	32.80	25.51	18.22	10.93
	Total Loan					
	Gross loan - Opening	70,854.16	70,854.16	70,854.16	70,854.16	70,854.16
	Cumulative repayments of Loans	42,342.49	47,780.35	52,687.09	56,793.84	60,900.58
	Net loan - Opening	28,511.67	23,073.81	18,167.06	14,060.32	9,953.57
	Addition	-	-	-	-	-
	Repayments of Loans during the year	5,437.86	4,906.75	4,106.75	4,106.75	4,106.75
	Net loan - Closing	23,073.81	18,167.06	14,060.32	9,953.57	5,846.83
	Average Net Loan	25,792.74	20,620.44	16,113.69	12,006.94	7,900.20
	Rate of Interest on Loan	8.0631%	8.0432%	8.0380%	8.0350%	8.0289%
	Interest on loan	2,079.70	1,658.55	1,295.21	964.76	634.30
Note:-						
1)	SBI VII Rate of Interest includes upfront fees of 0.0075% (i.e. 0.08%*1.1236%/12years).					

Weighted Average rate of interest

Name of the Company **NTPC Limited**

Name of the Power Station **Gandhar**

S.No.	Bank Loan	Interest Rate	Applicable from	Applicable upto	Number of Days	Product	Weighted Average Rate of Interest
1	Corporation Bank-IV	8.2500%	01-Apr-19	11-04-2019	10.00	0.83	8.0556%
		8.2000%	11-Apr-19	11-10-2019	183.00	15.01	
		8.0500%	11-Oct-19	11-11-2019	31.00	2.50	
		8.0000%	11-Nov-19	11-01-2020	61.00	4.88	
		7.8500%	11-Jan-20	11-02-2020	31.00	2.43	
		7.7500%	11-Feb-20	11-03-2020	29.00	2.25	
		7.6000%	11-Mar-20	31-Mar-20	21.00	1.60	
					366.00	29.48	8.0556%
	Corporation Bank-IV	7.600%	01-Apr-20	10-Apr-20	10.00	0.76	6.6705%
		7.350%	11-Apr-20	10-May-20	30.00	2.21	
		7.250%	11-May-20	10-Jun-20	31.00	2.25	
		7.150%	11-Jun-20	10-Jul-20	30.00	2.15	
		6.950%	11-Jul-20	10-Aug-20	31.00	2.15	
		6.800%	11-Aug-20	10-Sep-20	31.00	2.11	
		6.750%	11-Sep-20	30-Nov-20	81.00	5.47	
		6.000%	01-Dec-20	31-Mar-21	121.00	7.26	
					365.00	24.35	
	Corporation Bank-IV	6.00%	01-04-2021	31-03-2022	365	21.90	6.00%
	Corporation Bank-IV	6.00%	01-04-2022	10-05-2022	40.00	2.40	
	Corporation Bank-IV	6.40%	11-05-2022	10-06-2022	31.00	1.98	
	Corporation Bank-IV	6.90%	11-06-2022	10-08-2022	61.00	4.21	
	Corporation Bank-IV	7.40%	11-08-2022	10-10-2022	61.00	4.51	
	Corporation Bank-IV	7.90%	11-10-2022	10-12-2022	61.00	4.82	
	Corporation Bank-IV	8.25%	11-12-2022	29-12-2022	19.00	1.57	
	Corporation Bank-IV	7.50%	30-12-2022	10-01-2023	12.00	0.90	
	Corporation Bank-IV	7.65%	11-01-2023	10-02-2023	31.00	2.37	
	Corporation Bank-IV	7.90%	11-02-2023	31-03-2023	49.00	3.87	
					365.00	26.64	7.2975%
	Corporation Bank-IV	7.90%	01-Apr-23	10-Jan-24	285.00	22.52	
	Corporation Bank-IV	8.10%	11-Jan-24	31-Mar-24	81.00	6.56	
					366.00	**29.08**	**7.94%**
2	HDFC Bank Limited-IV	8.450%	01-Apr-19	17-04-2019	16.00	1.35	8.0492%
		8.400%	17-Apr-19	29-07-2019	103.00	8.65	
		8.300%	29-Jul-19	29-08-2019	31.00	2.57	
		8.200%	29-Aug-19	29-09-2019	31.00	2.54	
		8.100%	29-Sep-19	29-10-2019	30.00	2.43	
		8.000%	29-Oct-19	01-12-2019	33.00	2.64	
		7.650%	01-Dec-19	01-03-2020	91.00	6.96	
		7.450%	01-Mar-20	31-Mar-20	31.00	2.31	
					366.00	29.46	8.0492%
	HDFC Bank Limited-IV	7.450%	01-Apr-20	31-May-20	61.00	4.54	6.3982%
		6.300%	01-Jun-20	23-Dec-20	206.00	12.98	
		5.950%	24-Dec-20	31-Mar-21	98.00	5.83	
					365.00	23.35	
	HDFC Bank Limited-IV	5.95%	01-04-2021	31-03-2022	365	21.72	5.95%

Weighted Average rate of interest
Name of the Company **NTPC Limited**
Name of the Power Station **Gandhar**

S.No.	Bank Loan	Interest Rate	Applicable from	Applicable upto	Number of Days	Product	Weighted Average Rate of Interest
	HDFC Bank Limited-IV	5.95%	01-04-2022	23-05-2022	53.00	3.15	
	HDFC Bank Limited-IV	6.35%	24-05-2022	23-06-2022	31.00	1.97	
	HDFC Bank Limited-IV	6.85%	24-06-2022	23-08-2022	61.00	4.18	
	HDFC Bank Limited-IV	7.35%	24-08-2022	23-10-2022	61.00	4.48	
	HDFC Bank Limited-IV	7.85%	24-10-2022	23-12-2022	61.00	4.79	
	HDFC Bank Limited-IV	8.20%	24-12-2022	31-12-2022	8.00	0.66	
	HDFC Bank Limited-IV	7.95%	01-01-2023	28-02-2023	59.00	4.69	
	HDFC Bank Limited-IV	8.01%	01-03-2023	31-03-2023	31.00	2.48	
					365.00	26.40	7.2335%
	HDFC Bank Limited-IV	8.01%	01-Apr-23	31-May-23	61.00	4.89	
	HDFC Bank Limited-IV	7.95%	01-Jun-23	31-Mar-24	305.00	24.25	
					366.00	**29.13**	**7.96%**
3	HDFC Bank Ltd. VI	8.450%	01-Apr-19	26-06-2019	86.00	7.27	8.0587%
		8.400%	26-Jun-19	29-07-2019	33.00	2.77	
		8.300%	29-Jul-19	29-08-2019	31.00	2.57	
		8.200%	29-Aug-19	29-09-2019	31.00	2.54	
		8.100%	29-Sep-19	29-10-2019	30.00	2.43	
		8.000%	29-Oct-19	01-12-2019	33.00	2.64	
		7.650%	01-Dec-19	01-03-2020	91.00	6.96	
		7.450%	01-Mar-20	31-Mar-20	31.00	2.31	
					366.00	29.50	8.0587%
	HDFC Bank Ltd. VI	7.450%	01-Apr-20	31-May-20	61.00	4.54	6.3982%
		6.300%	01-Jun-20	23-Dec-20	206.00	12.98	
		5.950%	24-Dec-20	31-Mar-21	98.00	5.83	
					365.00	23.35	
	HDFC VI	5.95%	01-04-2021	31-03-2022	365	21.72	5.95%
	HDFC Bank Ltd. VI	5.95%	01-04-2022	23-05-2022	53.00	3.15	
	HDFC Bank Ltd. VI	6.35%	24-05-2022	23-06-2022	31.00	1.97	
	HDFC Bank Ltd. VI	6.85%	24-06-2022	23-08-2022	61.00	4.18	
	HDFC Bank Ltd. VI	7.35%	24-08-2022	23-10-2022	61.00	4.48	
	HDFC Bank Ltd. VI	7.85%	24-10-2022	23-12-2022	61.00	4.79	
	HDFC Bank Ltd. VI	8.20%	24-12-2022	31-12-2022	8.00	0.66	
	HDFC Bank Ltd. VI	7.95%	01-01-2023	28-02-2023	59.00	4.69	
	HDFC Bank Ltd. VI	8.01%	01-03-2023	31-03-2023	31.00	2.48	
					365.00	26.40	7.2335%
	HDFC Bank Ltd. VI	8.01%	01-Apr-23	31-May-23	61.00	4.89	
	HDFC Bank Ltd. VI	7.95%	01-Jun-23	31-Mar-24	305.00	24.25	
					366.00	**29.13**	**7.96%**

Weighted Average rate of interest

Name of the Company **NTPC Limited**

Name of the Power Station **Gandhar**

S.No.	Bank Loan	Interest Rate	Applicable from	Applicable upto	Number of Days	Product	Weighted Average Rate of Interest
4	State Bank of India - VIII	8.2500%	01-Apr-19	14-05-2019	43.00	3.55	7.9342%
		8.1500%	14-May-19	14-08-2019	92.00	7.50	
		7.9500%	14-Aug-19	14-11-2019	92.00	7.31	
		7.7000%	14-Nov-19	14-02-2020	92.00	7.08	
		7.6500%	14-Feb-20	31-Mar-20	47.00	3.60	
					366.00	29.04	7.9342%
	State Bank of India - VIII	7.650%	01-Apr-20	13-May-20	43.00	3.29	6.8560%
		7.000%	14-May-20	13-Aug-20	92.00	6.44	
		6.650%	14-Aug-20	31-Mar-21	230.00	15.30	
					365.00	25.02	
	State Bank of India-VIII	6.65%	01-04-2021	31-03-2022	365	24.27	6.65%
	State Bank of India - VIII	6.65%	01-04-2022	13-05-2022	43.00	2.86	
	State Bank of India - VIII	6.75%	14-05-2022	13-08-2022	92.00	6.21	
	State Bank of India - VIII	7.15%	14-08-2022	13-11-2022	92.00	6.58	
	State Bank of India - VIII	7.60%	14-11-2022	13-02-2023	92.00	6.99	
	State Bank of India - VIII	8.00%	14-02-2023	31-03-2023	46.00	3.68	
					365.00	26.32	7.2108%
	State Bank of India - VIII	8.00%	01-Apr-23	13-May-23	43.00	3.44	
	State Bank of India - VIII	8.10%	14-May-23	13-Aug-23	92.00	7.45	
	State Bank of India - VIII	8.15%	14-Aug-23	13-Feb-24	184.00	15.00	
	State Bank of India - VIII	8.20%	14-Feb-24	31-Mar-24	47.00	3.85	
					366.00	**29.74**	**8.13%**
5	State Bank of India - VII	8.2500%	01-Apr-19	14-05-2019	43.00	3.55	7.9342%
		8.1500%	14-May-19	14-08-2019	92.00	7.50	
		7.9500%	14-Aug-19	14-11-2019	92.00	7.31	
		7.7000%	14-Nov-19	14-02-2020	92.00	7.08	
		7.6500%	14-Feb-20	31-Mar-20	47.00	3.60	
					366.00	29.04	7.9342%
	State Bank of India - VII	7.650%	01-Apr-20	13-May-20	43.00	3.29	6.8560%
		7.000%	14-May-20	13-Aug-20	92.00	6.44	
		6.650%	14-Aug-20	31-Mar-21	230.00	15.30	
					365.00	25.02	
	State Bank of India-VII	6.65%	01-04-2021	31-03-2022	365	24.27	6.65%
	State Bank of India - VII	6.65%	01-04-2022	13-05-2022	43.00	2.86	
	State Bank of India - VII	6.75%	14-05-2022	13-08-2022	92.00	6.21	
	State Bank of India - VII	7.15%	14-08-2022	13-11-2022	92.00	6.58	
	State Bank of India - VII	7.60%	14-11-2022	13-02-2023	92.00	6.99	
	State Bank of India - VII	8.00%	14-02-2023	31-03-2023	46.00	3.68	
					365.00	26.32	7.2108%
	State Bank of India - VII	8.00%	01-Apr-23	13-May-23	43.00	3.44	
	State Bank of India - VII	8.10%	14-May-23	29-Jun-23	47.00	3.81	
					90.00	**7.25**	**8.05%**

FORM -15

Details of Sourcewise fuel for computation of Energy Charges

	Company		NTPC				NTPC				NTPC		
	Name of the generating Station		Jhanor Gandhar Gas power project				Jhanor Gandhar Gas power project				Jhanor Gandhar Gas power project		
	Month		Apr'23				May'23				June'23		
SL	Particulars	Unit	Natural Gas APM	NON APM Gas	Committed Gas	RLNG	Natural Gas APM	NON APM Gas	Committed Gas	RLNG	Natural Gas APM	NON APM Gas	Committed Gas
A)	OPENING QUANTITY												
1	Opening Stock of Gas	(1000 SCM)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	Value of Stock	Rs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
B)	QUANTITY												
3	Quantity of gas/RLNG/Liquid fuel supplied by gas company	(1000 SCM)	0.00	0.00	880.77	5,226.05	0.00	0.00	105.83	8,954.82	0.00	0.00	11,265.30
4	Adjustment (+/-) in quantity supplied made by Gas Company	(1000 SCM)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	Gas supplied by Gas Company (3+4)	(1000 SCM)	0.00	0.00	880.77	5,226.05	0.00	0.00	105.83	8,954.82	0.00	0.00	11,265.30
6	Normative transit & Handling losses	(1000 SCM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
7	Net gas supplied (5 - 6)	(1000 SCM)	0.00	0.00	880.77	5,226.05	0.00	0.00	105.83	8,954.82	0.00	0.00	11,265.30
C)	PRICE												
8	Amount charged by the Gas/Oil Company	Rs	0.00	0.00	4,44,70,676.00	24,24,61,173.00	0.00	0.00	51,82,565.00	42,35,67,392.00	0.00	0.00	50,85,07,822.00
9	Adjustment (+ / -) in amount charged by Gas Company	Rs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10	Handling,Sampling and such other Similar charges	Rs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	Total Amount charged (8 49410)	Rs	0.00	0.00	4,44,70,676.00	24,24,61,173.00	0.00	0.00	51,82,565.00	42,35,67,392.00	0.00	0.00	50,85,07,822.00
D)	TRANSPORTATION	Rs											
12	Transportation charges by Rail / Ship / Road Transport												
	By Rail	Rs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	By Road	Rs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	By Ship	Rs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	By Pipe	Rs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
13	Adjustment (+/-) in amount charged by railways / transport company	Rs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
14	Demurrage charges, if any	Rs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15	Cost of diesel in transporting Coal through MGR system, if applicable	Rs	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
16	Total transportation charges (12+/- 13 - 14 + 15)	Rs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
17	Total amount charged for Gas/Oil supplied including transportation (11 + 16)	Rs	0.00	0.00	4,44,70,676.00	24,24,61,173.00	0.00	0.00	51,82,565.00	42,35,67,392.00	0.00	0.00	50,85,07,822.00
E)	TOTAL COST												
18	Landed Cost of Gas (2+17) / (1+7)	Rs/1000 SCM/MT	0.00	0.00	50,490.80	46,394.89	0.00	0.00	48,969.46	47,142.56	0.00	0.00	45,121.54
19	Blending Ratio (Domestic/Imported)		NA				NA				NA		
20	Weighted average cost of Gas		NA				NA				NA		
F)	QUALITY												
21	GCV of Gas of the opening coal stock as per bill of Gas company	(kcal/SCM)	NA		NA	NA	NA		NA	NA	NA		NA
22	GCV of Gas supplied as per bill of Gas company	(kcal/SCM)	9407.89	0.00	9416.81	9532.94	9407.89	0.00	9395.81	9560.25	0.00	0.00	9358.92
23	GCV of imported coal of the opening coal stock as per bill of Gas company	(kcal/SCM)				NA				NA			
24	GCV of imported coal supplied as per bill of Gas company	(kcal/SCM)											
25	Weighted average GCV of Coal /Lignite as billed	(kcal/SCM)	NA				NA				NA		
26	GCV of Gas of the Opening stock as received at station	(kcal/SCM)	NA		NA	NA	NA		NA	NA	NA		NA
27	GCV of Gas supplied as received at station	(kcal/SCM)	9407.89	0.00	9416.81	9532.94	9407.89	0.00	9395.81	9560.25	0.00	0.00	9358.92
28	GCV of imported coal of the Opening stock as received at station	(kcal/SCM)											
29	GCV of imported coal supplied as received at station	(kcal/SCM)											
30	Weighted average GCV of GAS as received	(kcal/SCM)	9407.89	0.00	9416.81	9532.94	9407.89	0.00	9395.81	9560.25	0.00	0.00	9358.92

FORM -15

Details of Sourcewise fuel for computation of Energy Charges

	Company			NTPC				NTPC			
	Name of the generating Station			Jhanor Gandhar Gas power project				Jhanor Gandhar Gas power project			
	Month			July'23				August'23			
SL	Particulars	Unit	RLNG	Natural Gas APM	NON APM Gas	Committed Gas	RLNG	Natural Gas APM	NON APM Gas	Committed Gas	RLNG
A)	OPENING QUANTITY										
1	Opening Stock of Gas	(1000 SCM)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	Value of Stock	Rs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
B)	QUANTITY										
3	Quantity of gas/RLNG/Liquid fuel supplied by gas company	(1000 SCM)	15,755.56	0.00	0.00	8,005.94	7,864.66	0.00	0.00	35,947.52	2,824.56
4	Adjustment (+/-) in quantity supplied made by Gas Company	(1000 SCM)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	Gas supplied by Gas Company (3+4)	(1000 SCM)	15,755.56	0.00	0.00	8,005.94	7,864.66	0.00	0.00	35,947.52	2,824.56
6	Normative transit & Handling losses	(1000 SCM)	NA	NA	NA	NA	NA	NA	NA	NA	NA
7	Net gas supplied (5 - 6)	(1000 SCM)	15,755.56	0.00	0.00	8,005.94	7,864.66	0.00	0.00	35,947.52	2,824.56
C)	PRICE										
8	Amount charged by the Gas/Oil Company	Rs	72,56,64,196.00	0.00	0.00	30,18,17,725.00	35,84,16,056.00	0.00	0.00	1,62,39,54,406.00	12,59,27,911.00
9	Adjustment (+ / -) in amount charged by Gas Company	Rs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10	Handling,Sampling and such other Similar charges	Rs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	Total Amount charged (8 +9+10)	Rs	72,56,64,196.00	0.00	0.00	30,18,17,725.00	35,84,16,056.00	0.00	0.00	1,62,39,54,406.00	12,59,27,911.00
D)	TRANSPORTATION	Rs									
12	Transportation charges by Rail / Ship / Road Transport										
	By Rail	Rs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	By Road	Rs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	By Ship	Rs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	By Pipe	Rs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
13	Adjustment (+/-) in amount charged by railways / transport company	Rs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
14	Demurrage charges, if any	Rs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15	Cost of diesel in transporting Coal through MGR system, if applicable	Rs	NA	NA	NA	NA	NA	NA	NA	NA	NA
16	Total transportation charges (12+/- 13 - 14 + 15)	Rs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
17	Total amount charged for Gas/Oil supplied including transportation (11 + 16)	Rs	72,56,64,196.00	0.00	0.00	30,18,17,725.00	35,84,16,056.00	0.00	0.00	1,62,39,54,406.00	12,59,27,911.00
E)	TOTAL COST										
18	Landed Cost of Gas (17+17) / (7+7)	Rs/1000 SCM/MT	46,108.67	0.00	0.00	50,236.61	45,318.66	0.00	0.00	50,739.37	44,578.16
19	Blending Ratio (Domestic/Imported)					NA				NA	
20	Weighted average cost of Gas					NA				NA	
F)	QUALITY										
21	GCV of Gas of the opening coal stock as per bill of Gas company	(kcal/SCM)	NA	NA		NA	NA	NA		NA	NA
22	GCV of Gas supplied as per bill of Gas company	(kcal/SCM)	9579.93	0.00	0.00	9413.08	9549.93	0.00	0.00	9465.00	9487.90
23	GCV of imported coal of the opening coal stock as per bill of Gas company	(kcal/SCM)	NA				NA				NA
24	GCV of imported coal supplied as per bill of Gas company	(kcal/SCM)									
25	Weighted average GCV of Coal /Lignite as billed	(kcal/SCM)				NA				NA	
26	GCV of Gas of the Opening stock as received at station	(kcal/SCM)	NA	NA		NA	NA	NA		NA	NA
27	GCV of Gas supplied as received at station	(kcal/SCM)	9579.93	0.00	0.00	9413.08	9549.93	0.00	0.00	9465.00	9487.90
28	GCV of imported coal of the Opening stock as received at station	(kcal/SCM)									
29	GCV of imported coal supplied as received at station	(kcal/SCM)									
30	Weighted average GCV of GAS as received	(kcal/SCM)	9579.93	0.00	0.00	9413.08	9549.93	0.00	0.00	9465.00	9487.90

FORM -15

Details of Sourcewise fuel for computation of Energy Charges

	Company		NTPC				NTPC			
	Name of the generating Station		Jhanor Gandhar Gas power project				Jhanor Gandhar Gas power project			
	Month		September'23				october'23			
Sl	Particulars	Unit	Natural Gas APM	NON APM Gas	Committed Gas	RLNG	Natural Gas APM	NON APM Gas	Committed Gas	RLNG
A)	OPENING QUANTITY									
1	Opening Stock of Gas	(1000 SCM)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	Value of Stock	Rs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
B)	QUANTITY									
3	Quantity of gas/RLNG/Liquid fuel supplied by gas company	(1000 SCM)	0.00	0.00	12,344.17	9,295.96	0.00	0.00	11,842.60	16,197.95
4	Adjustment (+/-) in quantity supplied made by Gas Company	(1000 SCM)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	Gas supplied by Gas Company (3+4)	(1000 SCM)	0.00	0.00	12,344.17	9,295.96	0.00	0.00	11,842.60	16,197.95
6	Normative transit & handling losses	(1000 SCM)	NA	NA	NA	NA	NA	NA	NA	NA
7	Net gas supplied (5 - 6)	(1000 SCM)	0.00	0.00	12,344.17	9,295.96	0.00	0.00	11,842.60	16,197.95
C)	PRICE									
8	Amount charged by the Gas/Oil Company	Rs	0.00	0.00	65,87,80,544.00	42,66,07,567.00	0.00	0.00	62,01,24,334.00	82,56,02,405.00
9	Adjustment (+ / -) in amount charged by Gas Company	Rs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10	Handling,Sampling and such other Similar charges	Rs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	Total Amount charged (8 +9+10)	Rs	0.00	0.00	65,87,80,544.00	42,66,07,567.00	0.00	0.00	62,01,24,334.00	82,56,02,405.00
D)	TRANSPORTATION	Rs								
12	Transportation charges by Rail / Ship / Road Transport									
	By Rail	Rs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	By Road	Rs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	By Ship	Rs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	By Pipe	Rs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
13	Adjustment (+/-) in amount charged by railways / transport company	Rs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
14	Demurrage charges, if any	Rs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15	Cost of diesel in transporting Coal through MGR system, if applicable	Rs	NA	NA	NA	NA	NA	NA	NA	NA
16	Total transportation charges (12+/- 13 - 14 + 15)	Rs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
17	Total amount charged for Gas/Oil supplied including transportation (11 + 16)	Rs	0.00	0.00	65,87,80,544.00	42,66,07,567.00	0.00	0.00	62,01,24,334.00	82,56,02,405.00
E)	TOTAL COST									
18	Landed Cost of Gas (3+17) / (1+7)	Rs/1000 SCM/MT	0.00	0.00	53,365.90	45,891.74	0.00	0.00	53,262.46	50,969.57
19	Blending Ratio (Domestic/Imported)				NA				NA	
20	Weighted average cost of Gas				NA				NA	
F)	QUALITY									
21	GCV of Gas of the opening coal stock as per bill of Gas company	(kcal/SCM)	NA		NA	NA	NA		NA	NA
22	GCV of Gas supplied as per bill of Gas company	(kcal/SCM)	0.00	0.00	9439.23	9603.50	0.00	0.00	9440.88	9663.89
23	GCV of imported coal of the opening coal stock as per bill of Gas company	(kcal/SCM)				NA				NA
24	GCV of imported coal supplied as per bill of Gas company	(kcal/SCM)								
25	Weighted average GCV of Coal /Lignite as billed	(kcal/SCM)			NA				NA	
26	GCV of Gas of the Opening stock as received at station	(kcal/SCM)	NA		NA	NA	NA		NA	NA
27	GCV of Gas supplied as received at station	(kcal/SCM)	0.00	0.00	9439.23	9603.50	0.00	0.00	9440.88	9663.89
28	GCV of imported coal of the Opening stock as received at station	(kcal/SCM)								
29	GCV of imported coal supplied as received at station	(kcal/SCM)								
30	Weighted average GCV of GAS as received	(kcal/SCM)	0.00	0.00	9439.23	9603.50	0.00	0.00	9440.88	9663.89

FORM -15

Details of Sourcewise fuel for computation of Energy Charges

	Company		NTPC				NTPC			
	Name of the generating Station		Jhanor Gandhar Gas power project				Jhanor Gandhar Gas power project			
	Month		november'23				December'23			
Sl.	Particulars	Unit	Natural Gas APM	NON APM Gas	Committed Gas	RLNG	Natural Gas APM	NON APM Gas	Committed Gas	RLNG
A)	OPENING QUANTITY									
1	Opening Stock of Gas	(1000 SCM)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	Value of Stock	Rs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
B)	QUANTITY									
3	Quantity of gas/RLNG/Liquid fuel supplied by gas company	(1000 SCM)	0.00	0.00	4,871.91	0.00	0.00	0.00	8,496.29	0.00
4	Adjustment (+/-) in quantity supplied made by Gas Company	(1000 SCM)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	Gas supplied by Gas Company (3+4)	(1000 SCM)	0.00	0.00	4,871.91	0.00	0.00	0.00	8,496.29	0.00
6	Normative transit & Handling losses	(1000 SCM)	NA	NA	NA	NA	NA	NA	NA	NA
7	Net gas supplied (5 - 6)	(1000 SCM)	0.00	0.00	4,871.91	0.00	0.00	0.00	8,496.29	0.00
C)	PRICE									
8	Amount charged by the Gas/Oil Company	Rs	0.00	0.00	55,51,84,098.00	0.00	0.00	0.00	39,02,91,282.20	0.00
9	Adjustment (+ / -) in amount charged by Gas Company	Rs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10	Handling,Sampling and such other Similar charges	Rs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	Total Amount charged (8 +9+10)	Rs	0.00	0.00	55,51,84,098.00	0.00	0.00	0.00	39,02,91,282.20	0.00
D)	TRANSPORTATION	Rs								
12	Transportation charges by Rail / Ship / Road Transport									
	By Rail	Rs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	By Road	Rs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	By Ship	Rs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	By Pipe	Rs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
13	Adjustment (+/-) in amount charged by railways / transport company	Rs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
14	Demurrage charges, if any	Rs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15	Cost of diesel in transporting Coal through MGR system, if applicable	Rs	NA	NA	NA	NA	NA	NA	NA	NA
16	Total transportation charges (12+/- 13 - 14 + 15)	Rs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
17	Total amount charged for Gas/Oil supplied including transportation (11 + 16)	Rs	0.00	0.00	55,51,84,098.00	0.00	0.00	0.00	39,02,91,282.20	0.00
E)	TOTAL COST									
18	Landed Cost of Gas (17/7) / (1*7)	Rs/1000 SCM/MT	0.00	0.00	58,388.80	0.00	0.00	0.00	60,079.10	0.00
19	Blending Ratio (Domestic/Imported)		NA				NA			
20	Weighted average cost of Gas		NA				NA			
F)	QUALITY									
21	GCV of Gas of the opening coal stock as per bill of Gas company	(kcal/SCM)	NA		NA	NA	NA		NA	NA
22	GCV of Gas supplied as per bill of Gas company	(kcal/SCM)	0.00	0.00	9498.74		0.00	0.00	9679.42	
23	GCV of imported coal of the opening coal stock as per bill of Gas company	(kcal/SCM)				NA				NA
24	GCV of imported coal supplied as per bill of Gas company	(kcal/SCM)								
25	Weighted average GCV of Coal /Lignite as billed	(kcal/SCM)	NA				NA			
26	GCV of Gas of the Opening stock as received at station	(kcal/SCM)	NA		NA	NA	NA		NA	NA
27	GCV of Gas supplied as received at station	(kcal/SCM)	0.00	0.00	9498.74	0.00	0.00	0.00	9679.42	0.00
28	GCV of imported coal of the Opening stock as received at station	(kcal/SCM)								
29	GCV of imported coal supplied as received at station	(kcal/SCM)								
30	Weighted average GCV of GAS as received	(kcal/SCM)	0.00	0.00	9498.74	0.00	0.00	0.00	9679.42	0.00

FORM -15

Details of Sourcewise fuel for computation of Energy Charges

	Company		NTPC				NTPC			
	Name of the generating Station		Jhanor Gandhar Gas power project				Jhanor Gandhar Gas power project			
	Month		January'24				February'24			
Sl.	Particulars	Unit	Natural Gas APM	NON APM Gas	Committed Gas	RLNG	Natural Gas APM	NON APM Gas	Committed Gas	RLNG
A)	OPENING QUANTITY									
1	Opening Stock of Gas	(1000 SCM)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	Value of Stock	Rs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
B)	QUANTITY									
3	Quantity of gas/RLNG/Liquid fuel supplied by gas company	(1000 SCM)	0.00		12,416.98	5,596.91	0.00		5,805.95	1,159.48
4	Adjustment (+/-) in quantity supplied made by Gas Company	(1000 SCM)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	Gas supplied by Gas Company (3+4)	(1000 SCM)	0.00	0.00	12,416.98	5,596.91	0.00	0.00	5,805.95	1,159.48
6	Normative transit & Handling losses	(1000 SCM)	NA	NA	NA	NA	NA	NA	NA	NA
7	Net gas supplied (5 - 6)	(1000 SCM)	0.00	0.00	12,416.98	5,596.91	0.00	0.00	5,805.95	1,159.48
C)	PRICE									
8	Amount charged by the Gas/Oil Company	Rs	0.00		61,56,05,294.00	18,24,75,554.00	0.00		23,04,91,273.95	5,45,42,665.00
9	Adjustment (+ / -) in amount charged by Gas Company	Rs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10	Handling,Sampling and such other Similar charges	Rs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	Total Amount charged (8 +9+10)	Rs	0.00	0.00	61,56,05,294.00	18,24,75,554.00	0.00	0.00	23,04,91,273.95	5,45,42,665.00
D)	TRANSPORTATION	Rs								
12	Transportation charges by Rail / Ship / Road Transport									
	By Rail	Rs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	By Road	Rs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	By Ship	Rs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	By Pipe	Rs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
13	Adjustment (+/-) in amount charged by railways / transport company	Rs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
14	Demurrage charges, if any	Rs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15	Cost of diesel in transporting Coal through MGR system, if applicable	Rs	NA	NA	NA	NA	NA	NA	NA	NA
16	Total transportation charges (12+/- 13 - 14 + 15)	Rs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
17	Total amount charged for Gas/Oil supplied including transportation (11 + 16)	Rs	0.00	0.00	61,56,05,294.00	18,24,75,554.00	0.00	0.00	23,04,91,273.95	5,45,42,665.00
E)	TOTAL COST									
18	Landed Cost of Gas (17+7) / (1+7)	Rs/1000 SCM/MT	0.00	0.00	49,569.82	50,731.15	0.00	0.00	39,712.86	47,042.05
19	Blending Ratio (Domestic/Imported)		NA				NA			
20	Weighted average cost of Gas		NA				NA			
F)	QUALITY									
21	GCV of Gas of the opening coal stock as per bill of Gas company	(kcal/SCM)	NA		NA	NA	NA		NA	NA
22	GCV of Gas supplied as per bill of Gas company	(kcal/SCM)	0.00	0.00	9754.46	9561.78	0.00	0.00	9570.70	9591.12
23	GCV of imported coal of the opening coal stock as per bill of Gas company	(kcal/SCM)				NA				NA
24	GCV of imported coal supplied as per bill of Gas company	(kcal/SCM)								
25	Weighted average GCV of Coal /Lignite as billed	(kcal/SCM)	NA				NA			
26	GCV of Gas of the Opening stock as received at station	(kcal/SCM)	NA		NA	NA	NA		NA	NA
27	GCV of Gas supplied as received at station	(kcal/SCM)	0.00	0.00	9754.46	9561.78	0.00	0.00	9570.70	9591.12
28	GCV of imported coal of the Opening stock as received at station	(kcal/SCM)								
29	GCV of imported coal supplied as received at station	(kcal/SCM)								
30	Weighted average GCV of GAS as received	(kcal/SCM)	0.00	0.00	9754.46	9561.78	0.00	0.00	9570.70	9591.12

FORM -15

Details of Sourcewise fuel for computation of Energy Charges

	Company		NTPC			
	Name of the generating Station		Jhanor Gandhar Gas power project			
	Month		Mar'24			
SL	Particulars	Unit	Natural Gas APM	NON APM Gas	Committed Gas	RLNG
A)	OPENING QUANTITY					
1	Opening Stock of Gas	(1000 SCM)	0.00	0.00	0.00	0.00
2	Value of Stock	Rs	0.00	0.00	0.00	0.00
B)	QUANTITY					
3	Quantity of gas/RLNG/Liquid fuel supplied by gas company	(1000 SCM)	0.00		4.42	1,390.91
4	Adjustment (+/-) in quantity supplied made by Gas Company	(1000 SCM)	0.00	0.00	0.00	0.00
5	Gas supplied by Gas Company (3+4)	(1000 SCM)	0.00	0.00	4.42	1,390.91
6	Normative transit & Handling losses	(1000 SCM)	NA	NA	NA	NA
7	Net gas supplied (5 - 6)	(1000 SCM)	0.00	0.00	4.42	1,390.91
C)	PRICE					
8	Amount charged by the Gas/Oil Company	Rs	0.00		1,60,637.00	6,70,11,841.00
9	Adjustment (+ / -) in amount charged by Gas Company	Rs	0.00	0.00	0.00	0.00
10	Handling,Sampling and such other Similar charges	Rs	0.00	0.00	0.00	0.00
11	Total Amount charged (8 +9+10)	Rs	0.00	0.00	1,60,637.00	6,70,11,841.00
D)	TRANSPORTATION	Rs				
12	Transportation charges by Rail / Ship / Road Transport					
	By Rail	Rs	0.00	0.00	0.00	0.00
	By Road	Rs	0.00	0.00	0.00	0.00
	By Ship	Rs	0.00	0.00	0.00	0.00
	By Pipe	Rs	0.00	0.00	0.00	0.00
13	Adjustment (+/-) in amount charged by railways / transport company	Rs	0.00	0.00	0.00	0.00
14	Demurrage charges, if any	Rs	0.00	0.00	0.00	0.00
15	Cost of diesel in transporting Coal through MGR system, if applicable	Rs	NA	NA	NA	NA
16	Total transportation charges (12+/- 13 - 14 + 15)	Rs	0.00	0.00	0.00	0.00
17	Total amount charged for Gas/Oil supplied including transportation (11 + 16)	Rs	0.00	0.00	1,60,637.00	6,70,11,841.00
E)	TOTAL COST					
18	Landed Cost of Gas (17/7) / (17)	Rs/1000 SCM/MT	0.00	0.00	36,348.21	48,178.42
19	Blending Ratio (Domestic/Imported)		NA			
20	Weighted average cost of Gas		NA			
F)	QUALITY					
21	GCV of Gas of the opening coal stock as per bill of Gas company	(kcal/SCM)	NA		NA	NA
22	GCV of Gas supplied as per bill of Gas company	(kcal/SCM)	0.00	0.00	9,652.81	9,783.96
23	GCV of imported coal of the opening coal stock as per bill of Gas company	(kcal/SCM)				NA
24	GCV of imported coal supplied as per bill of Gas company	(kcal/SCM)				
25	Weighted average GCV of Coal /Lignite as billed	(kcal/SCM)	NA			
26	GCV of Gas of the Opening stock as received at station	(kcal/SCM)	NA		NA	NA
27	GCV of Gas supplied as received at station	(kcal/SCM)	0.00	0.00	9652.81	9783.96
28	GCV of imported coal of the Opening stock as received at station	(kcal/SCM)				
29	GCV of imported coal supplied as received at station	(kcal/SCM)				
30	Weighted average GCV of GAS as received	(kcal/SCM)	0.00	0.00	9652.81	9783.96

Form-15B
Additional Form

Computation of Energy Charges

Name of the Company : NTPC Ltd

Name of the Power Station : Gandhar GPS

Sl	Description	Unit	Natural Gas APM	Non APM Gas	Committed Gas	RLNG	Natural Gas APM	Non APM Gas	Committed Gas	RLNG
		Gas/RLNG	2024-25				2025-26			
1	Normative Heat Rate (For CC Operation)	(Kcal/kwh)	2040				2040			
2	Normative Heat Rate (For OC Operation)	(Kcal/kwh)	2960				2960			
3	Capacity	MW	657.39				657.39			
4	Normative Availability Factor	%	85.00%				85.00%			
5	APC for Combined Cycle (CC) operation	%	2.75%				2.75%			
6	APC for Open Cycle (OC) operation	%	1.00%				1.00%			
7	Weighted Average Price of Fuel (for FY 23-24)	Rs/1000SCM	-	-	50,388.33	47,235.59	-	-	50,388.33	47,235.59
8	Weighted Average GCV of Fuel (for FY 23-24)	Kcal/SCM	-	-	9,506.99	9,641.52	-	-	9,506.99	9,641.52
9	Rate of Energy- Ex Bus-CC	(Paise/kwh)	-	-	1111.8	1027.7	-	-	1,111.80	1,027.70
10	Rate of Energy- Ex Bus-OC	(Paise/kwh)	-	-	1584.7	1464.8	-	-	1,584.69	1,464.81
11	Mode of Operation on Fuel during FY 23-24 (% of Scheduled Generation)	%	-	-	**57.11**	**42.89**	-	-	**57.11**	**42.89**
12	Weighted Average Energy Charge Rate as per above - Ex Bus-CC	(Paise/kwh)	**1075.7**				**1075.7**			
13	Weighted Average Energy Charge Rate as per above - Ex Bus-OC	(Paise/kwh)	**1533.3**				**1533.3**			
14	Gross Generation on CC during FY 23-24	%	**70.55%**				**70.55%**			
15	Gross Generation on OC during FY 23-24	%	**29.45%**				**29.45%**			
16	**Weighted Average Energy Charge Rate**	(Paise/kwh)	**1210.5**				**1210.5**			
17	Wt Avg APC considering OC & CC	%	2.23%				2.23%			
	Working Capital Calculations:									
1	Year		2024-25				2025-26			
2	No. Of days	Days	365				365			
3	ESO in a year	(in MUs)	4785.55				4785.55			
4	Fuel cost for 15 days	Rs Lakh	23806.20				23806.20			
5	Cost of Liquid stock for 15 days	Rs Lakh	0.00				0.00			

Form-15B
Additional Form

Computation of Energy Charges

Name of the Company : NTPC Ltd

Name of the Power Station : Gandhar GPS

Sl	Description	Unit	Natural Gas APM	Non APM Gas	Committed Gas	RLNG	Natural Gas APM	Non APM Gas	Committed Gas	RLNG
		Gas/RLNG	2026-27				2027-28			
1	Normative Heat Rate (For CC Operation)	(Kcal/kwh)	2040				2040			
2	Normative Heat Rate (For OC Operation)	(Kcal/kwh)	2960				2960			
3	Capacity	MW	657.39				657.39			
4	Normative Availability Factor	%	85.00%				85.00%			
5	APC for Combined Cycle (CC) operation	%	2.75%				2.75%			
6	APC for Open Cycle (OC) operation	%	1.00%				1.00%			
7	Weighted Average Price of Fuel (for FY 23-24)	Rs/1000SCM	-	-	50,388.33	47,235.59	-	-	50,388.33	47,235.59
8	Weighted Average GCV of Fuel (for FY 23-24)	Kcal/SCM	-	-	9,506.99	9,641.52	-	-	9,506.99	9,641.52
9	Rate of Energy- Ex Bus-CC	(Paise/kwh)	-	-	1,111.80	1,027.70	-	-	1,111.80	1,027.70
10	Rate of Energy- Ex Bus-OC	(Paise/kwh)	-	-	1,584.69	1,464.81	-	-	1,584.69	1,464.81
11	Mode of Operation on Fuel during FY 23-24 (% of Scheduled Generation)	%	-	-	**57.11**	**42.89**	-	-	**57.11**	**42.89**
12	Weighted Average Energy Charge Rate as per above - Ex Bus-CC	(Paise/kwh)	**1075.7**				**1075.7**			
13	Weighted Average Energy Charge Rate as per above - Ex Bus-OC	(Paise/kwh)	**1533.3**				**1533.3**			
14	Gross Generation on CC during FY 23-24	%	**70.55%**				**70.55%**			
15	Gross Generation on OC during FY 23-24	%	**29.45%**				**29.45%**			
16	**Weighted Average Energy Charge Rate**	(Paise/kwh)	**1210.5**				**1210.5**			
17	Wt Avg APC considering OC & CC	%	2.23%				2.23%			
	Working Capital Calculations:									
1	Year		2026-27				2027-28			
2	No. Of days	Days	365				366			
3	ESO in a year	(in MUs)	4785.55				4798.66			
4	Fuel cost for 15 days	Rs Lakh	23806.20				23806.20			
5	Cost of Liquid stock for 15 days	Rs Lakh	0.00				0.00			

Form-15B
Additional Form

Computation of Energy Charges

Name of the Company : NTPC Ltd

Name of the Power Station : Gandhar GPS

Sl	Description	Unit	Natural Gas APM	Non APM Gas	Committed Gas	RLNG
		Gas/RLNG	2028-29			
1	Normative Heat Rate (For CC Operation)	(Kcal/kwh)	2040			
2	Normative Heat Rate (For OC Operation)	(Kcal/kwh)	2960			
3	Capacity	MW	657.39			
4	Normative Availability Factor	%	85.00%			
5	APC for Combined Cycle (CC) operation	%	2.75%			
6	APC for Open Cycle (OC) operation	%	1.00%			
7	Weighted Average Price of Fuel (for FY 23-24)	Rs/1000SCM	-	-	50,388.33	47,235.59
8	Weighted Average GCV of Fuel (for FY 23-24)	Kcal/SCM	-	-	9,506.99	9,841.52
9	Rate of Energy- Ex Bus-CC	(Paise/kwh)	-	-	1,111.80	1,027.70
10	Rate of Energy- Ex Bus-OC	(Paise/kwh)	-	-	1,584.69	1,464.81
11	Mode of Operation on Fuel during FY 23-24 (% of Scheduled Generation)	%	-	-	**57.11**	**42.89**
12	Weighted Average Energy Charge Rate as per above - Ex Bus-CC	(Paise/kwh)	**1075.7**			
13	Weighted Average Energy Charge Rate as per above - Ex Bus-OC	(Paise/kwh)	**1533.3**			
14	Gross Generation on CC during FY 23-24	%	**70.55%**			
15	Gross Generation on OC during FY 23-24	%	**29.45%**			
16	**Weighted Average Energy Charge Rate**	(Paise/kwh)	**1210.5**			
17	Wt Avg APC considering OC & CC	%	2.23%			
	Working Capital Calculations:					
1	**Year**		**2028-29**			
2	No. Of days	Days	365			
3	ESO in a year	(in MUs)	4785.55			
4	Fuel cost for 15 days	Rs Lakh	23806.20			
5	Cost of Liquid stock for 15 days	Rs Lakh	0.00			

PART-I
Form-H
(Amount in Rs Lakh)

Statement of Additional Capitalisation during five year before the end of useful life of the Project

Name of the Petitioner : NTPC Ltd
Name of the Generating Station : Gandhar GPS
COD : 01.11.1995

Sl. No.	Head of Work / Equipment	ACE (Projected)				Regulations under which claimed	Justification	Impact on life extension
		Accrual basis as per IGAAP	Un-discharged Liability included in col. 3	Cash basis	IDC incl. in Col. 3			
1	2	3	4	5= (3-4)	6			
Pl refer Form-9 for the respective years for 2024-29 period since useful life of the Station is getting over in FY 26-27.								

Petitioner

PART-I
FORM- L

Statement of Capital cost

(Amount in Rs Lakh)

Name of the Petitioner	**NTPC Limited**
Name of the Generating Station	**Jhanor Gandhar Gas power Station**
COD	**01-11-1995**

Sl. No.	Particulars	2024-25		
		Accrual Basis	Un-discharged Liabilities	Cash Basis
A	a) Opening Gross Block Amount as per books	3,53,639.11	1,330.15	3,52,308.95
	b) Amount of IDC in A(a) above	2,323.39	0.00	2,323.39
	c) Amount of FC in A(a) above	0.00	0.00	0.00
	d) Amount of FERV in A(a) above	1,993.05	0.00	1,993.05
	e) Amount of Hedging Cost in A(a) above	0.00	0.00	0.00
	f) Amount of IEDC in A(a) above	0.00	0.00	0.00
B	a) Addition in Gross Block Amount during the	Shall be provided at truing-up for subsequent period for 2024-29		
	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			
	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			
	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

PART-I

FORM- M

Statement of Capital Works in Progress

(Amount in Rs Lakh)

Name of the Petitioner	**NTPC Limited**
Name of the Generating Station	**Jhanor Gandhar Gas power Station**
COD	**01-11-1995**

Sl. No.	Particulars	2024-25			
		Accrual Basis	Un-discharged Liabilities	Cash Basis	
A	a) Opening CWIP as per books	166.45	13.26	153.19	
	b) Amount of IDC in A(a) above			-	
	c) Amount of FC in A(a) above			-	
	d) Amount of FERV in A(a) above			-	
	e) Amount of Hedging Cost in A(a) above			-	
	f) Amount of IEDC in A(a) above			-	
B	a) Addition in CWIP during the period	Shall be provided at truing-up for subsequent period for 2024-29			
	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				
	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

PART-I
FORM- N

Calculation of Interest on Normative Loan

Name of the Company :	**NTPC Limited**
Name of the Power Station :	**Jhanor Gandhar Gas power Station**

(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	Gross Normative loan – Opening	1,55,728.67	1,55,772.12	1,55,872.22	1,56,365.02	1,74,121.22	1,77,999.22
2	Cumulative repayment of Normative loan up to previous year	1,54,128.22	1,55,772.12	1,55,872.22	1,56,365.02	1,73,017.82	1,77,999.22
3	**Net Normative loan – Opening**	1,600.45	0.00	0.00	0.00	1,103.41	0.00
4	Add: Increase due to addition during the year / period	149.84	100.10	492.80	17756.20	3878.00	210.00
5	Less: Decrease due to de-capitalisation during the year / period	117.84	0.00	0.00	0.00	0.00	0.00
6	Less: Decrease due to reversal during the year / period						
7	Add: Increase due to discharges during the year / period	11.45	0.00	0.00	0.00	0.00	0.00
8	Repayment during the year	1761.74	100.10	492.80	16652.79	4981.41	210.00
9	Repayment adj on account of Decap	117.84	0.00	0.00	0.00	0.00	0.00
10	Less: Net repayment of loan	1643.91	100.10	492.80	16652.79	4981.41	210.00
11	**Net Normative loan - Closing**	0.00	0.00	0.00	1103.41	0.00	0.00
12	**Average Normative loan**	800.23	-	-	551.70	551.70	-
13	Weighted average rate of interest	8.063	8.063	8.043	8.038	8.035	8.029
14	**Interest on Loan**	**64.53**	**0.00**	**0.00**	**44.35**	**44.33**	**0.00**

(Petitioner)

PART 1
FORM- O

Calculation of Interest on Working Capital

Name of the Company :	**NTPC Limited**
Name of the Power Station :	**Jhanor Gandhar Gas power Station**

(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						
2	Cost of Main Secondary Fuel Oil						
3	Fuel Cost	94089.1447	23806.20	23806.20	23806.20	23806.20	23806.20
4	Liquid Fuel Stock	0.00	0.00	0.00	0.00	0.00	0.00
5	O & M Expenses	1,315.66	1191.73	1265.90	1346.67	1415.77	1488.68
6	Maintenance Spares	4,736.37	4290.21	4557.25	4848.01	5096.78	5359.24
7	Receivables	1,50,523.03	78527.95	78673.93	80202.06	78850.19	77900.93
8	Total Working Capital	250664.20	107816.10	108303.29	110202.95	109168.94	108555.05
9	Rate of Interest (in %)	13.50	11.9000	11.9000	11.9000	11.9000	11.9000
10	**Interest on Working Capital**	**33839.67**	**12830.12**	**12888.09**	**13114.15**	**12991.10**	**12918.05**

Petitioner

PART 1
FORM-T

Summary of issue involved in the petition

Name of the Company :		**NTPC Limited**		
Name of the Power Station :		**Jhanor Gandhar Gas power Station**		
1	**Petitioner:**	**NTPC Limited**		
2	**Subject**	**DETERMINATION OF TARIFF FOR THE PERIOD 2024-29**		
3	i)Approve tariff of Gandhar GPS 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 the recovery of Unrecovered Depreciation up to 31.03.2014 at the end of useful life of the instant Station 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: 4**			
	Name of Respondents			
	1.Maharashtra State Electricity Distribution Company Limited Prakashgad, Bandra (East), Mumbai – 400051.	2.Gujarat Urja Vikas Nigam Limited 2nd Floor, Sardar Patel Vidyut Bhawan, Race Course, Vadodara – 390007.		
	3.Electricity Department Government of Goa, 3rd Floor, Vidyut Bhawan, Panaji, Goa – 403001.	5.Dadra and Nagar haveli and Daman and Diu Power Distribution Corporation Limited (DNHDDPDCL) 1st & 2nd floor, Vidyut Bhavan, 66 kV Road Dadra and Nagar haveli and Daman and Diu - 396230		
6	**Project Scope**	**657.39 MW Gas Power Station**		
7	**COD**	**01.11.1995**		
				(Rs Lakh)
8	**Claim: Add Cap**			
	2024-25		**143.00**	
	2025-26		**704.00**	
	2026-27		**25,366.00**	
	2027-28		**5,540.00**	
	2028-29		**300.00**	
9	**AFC (2028-29)**	**52,578.88**		
10	**Capital cost as on 31.03.29**	**3,18,344.66**		
11	**NAPAF (Gen)**	**85%**		
12	**Any Specific**	-		

Annexure-A/1

OFFICE OF THE DEPUTY COMMANDANT
CENTRAL INDUSTRIAL SECURIYT FORCE
(MINISTRY OF HOME AFFAIRS

Unit: JGGPP, Jhanor
Dist: Bharuch (Gujrat)

No. E-42099/CISF/JGGPP (J)/SW/Security wing./2024-795 Date: 11/11/2024

To,
The AGM/HO (HR)
JGGPP/ NTPC Jhanor

Subject:- REQUIREMENTS OF CCTV CAMERAS IN PLANT AREA: REG.

It is brought to your kind notice that it is required of installation of approx (65-70) CCTV cameras at different vital installations in plant premises (i.e. Boundary wall, Switch Gear Room, MCC, Central store, GT area, Cable gallery, etc.). These cameras are required for better security as well as surveillance of these areas.

Therefore, it is requested to please install the aforesaid cameras at plant boundary wall areas and different vital installations in plant premises on top priority basis so that it may be used to better security as well as surveillance of these areas.

11.11.2024
(P L KUMRMI)
INSPECTOR/EXE.
FOR DEPUTY COMMANDANT
CISF UNIT JGGPP JHANOR

Copy To:-

01. The CGM/HOP : For kind information please.
NTPC/JGGPP Jhanor
02. The DGM/IT : For kind information & necessary action please.
NTPC/JGGPP Jhanor
04. The Sr. Mgr / Safety : For kind information please.
NTPC/JGGPP Jhanor

GUJARAT POLLUTION CONTROL BOARD
PARYAVARAN BHAVAN, SECTOR 10-A,
GANDHINAGAR - 382010,
(T) 079-23232152

By R.P.A.D.

CONSOLIDATED CONSENT AND AUTHORIZATION (CC & A)
CCA NO: AWH-132985

NO: GPCB/BRCH/CCA-479(4)/ID-15384/12510 **DT:29/05/2024**

In exercise of the power conferred under Section-25 of the Water (Prevention and Control of Pollution) Act-1974, under Section-21 of the Air (Prevention and Control of Pollution) Act-1981 and Authorization under rule 6(2) of the Hazardous & Other Wastes (Management and Transboundary Movement) Rules-2016, framed under the E(P)Act-1986.

And whereas Board has received consolidated application dated **04/12/2023** and inward no. **250332** for the consolidated consent and authorization (CC & A) of this Board under the provisions / rules of the aforesaid Acts, Consolidated Consent & Authorization is hereby granted as under.

CONSOLIDATED CONSENT AND AUTHORISATION:
(Under the provisions / rules of the aforesaid Environmental Acts)

To,
M/s: NTPC LIMITED.
Jhanor-Gandhar Gas Power Project ,
Vill: Jhanor Po: Urjanagar-Jhanor,
Ta. & Dist. Bharuch.

1. **Consent Order No. : AWH-132985 date of Issue 12/03/2024.**
2. The consent under Water Act -1974, Air Act - 1981 and Authorization under Environment (Protection) Act, 1986 **shall be valid up to 23/02/2029** to operate industrial plant to manufacture following products:

Sr. No.	Name of Product	Quantity (MT/Month)
1	Electrical Energy (Electricity)	657.39 MW (Full Load)

Specific conditions:

a) Unit shall not carry out any construction activities and production which attracts provisions of Environment Clearance without obtaining EC from competent authority under EIA notification dated 14/09/2006 and amended thereafter.
b) All the efforts shall be made to send hazardous waste to cement industry for Co-processing first & there after it shall be disposed through other option.
c) Unit shall install online Continuous Emission Monitoring Systems (CEMS) and link it with the server of GPCB for real time data transfer for boiler more than 8 TPH capacity or equivalent capacity of TFH.

3. CONDITION UNDER THE WATER ACT:

3.1 The quantity of total water consumption shall not exceed **34920 KLD** as per below break up as mentioned in form D submitted for consent application under the Water Act- 1974.

a) Industrial: 32520 KLD
b) Domestic: 2400 KLD

3.2 The quantity of total waste water generation shall not exceed **19220 KLD** as per below break up as mentioned in form D submitted for consent application under the Water Act- 1974.

a) Industrial: 18720 KLD
b) Domestic: 500 KLD

3.3 Mode of disposal of wastewater:

a) Generated **18720 KLD** treated effluent shall be reused to the maximum extent and utilized for irrigation as much as possible within the industrial premises and the remaining treated effluent shall be discharge into River Bhukhi through underground pipeline as safe disposal point as per NEERI recommendation vide latter dated 12/10/1998 at location iii between NH No.8 and Railway line from where actual disposal 1km downstream of bridge on NH No. 8 @ 7.5km (Aerial Distance) from the power plant.

b) Generated **500 KLD** domestic treated sewage shall be treated into STP and treated sewage shall be used for horticulture and remaining shall be recycled in cooling water system.

3.4 The quality of industrial effluent shall conform to the following standards.

Sr.No	Type of effluent	Parameters	Permissible Limit
1	Condenser Cooling Water	pH	6.5-8.5
		Temperature	Not more than 5° C higher than the intake water temperature
		Free available chlorine	0.5 mg/l
2	Boiler Blow Down	Suspended solids	100 mg/l
		Oil and Grease	10 mg/l
		Total Copper (as Cu)	1.0 mg/l
		Total Iron (as Fe)	1.0 g/l
3	Cooling Water Blow down	Free Available Chlorine	0.5 mg/l
		Zinc (as Zn)	1.0 mg/l
		Hexavalent Chromium	0.1 mg/l
		Total Chromium (as Cr)	0.2 mg/l
		Phosphate (as P)	5.0 mg/l
4	Combined Effluent	pH	6.5 - 8.5
		Oil and Grease	10 mg/l
		Suspended Solids	100 mg/l
		Hexavalent Chromium (as Cr)	0.1 mg/l
		Total Copper (as Cu)	0.2 mg/l
		Total Iron (as Fe)	1.0 mg/l
		Zinc (as Zn)	1.0 mg/l
		Phosphate (as P)	1.0 mg/l
			5.0 mg/l

3.5 The unit shall affix water meters and shall keep it operational for the purpose of measuring and recording the quantity of water consumed at such places as may be required and it shall be presumed that the quantity indicated by the meter has been consumed by the industry until the contrary is proved.

Subject to the following specific condition under water act:-

3.6 Applicant shall be a member of Dahej CETP as & when come up and industrial waste water, if required.

3.7 The effluent shall be stripped off, of VOC's in a closed system before further treatment into ETP.

3.8 Unit shall provide treated effluent holding facility for at least 48 hrs, having vertical tank design preferably.

3.9 Applicant shall carry out Bio Assay and Toxicity test for the treated waste water and same shall be submitted to the GPCB.

3.10 Unit shall install continuous monitoring as well as alarm system for parameters of treated effluent such as: pH meter, TOC analyzer, magnetic flow meter along with totalizer and recorder at the final outlet of factory drain/pipe of ETP Records of the same shall be maintained invariably by the unit and shall be submitted to GPCB every month.

4. CONDITIONS UNDER THE AIR ACT:

4.1 The following shall be used as fuel:

Sr. no.	Fuel	Quantity
1	NATURAL GAS	93 MCM/Month

4.2 The flue gas emission through stack shall conform to the following standards:

Sr. no.	Stack attached to	Stack height	APCM	Parameter	Permissible limit
1	Waste Heat Recovery Boiler	70 m	Water Injection system (about 40MT/Hr Demineralized water to control NOx emission	NO_x	150 ppm (v/v), at 15% excess oxygen

4.3 There shall be no process gas emission.

4.4 The concentration of the following parameters in the ambient air within the premises of the unit shall not exceed the limits specified hereunder.

Sr. No.	Parameters	Permissible Limit (microgram /m^3)	
		Annual	24 Hours Average
1.	Particulate Matter (PM_{10})	60	100
2.	Particulate Matter ($PM_{2.5}$)	40	60
3.	Sulphur Dioxide (SO_2)	50	80
4.	Nitrogen Dioxide (NO_2)	40	80

- **Annual arithmetic mean of minimum 104 measurements in a year at a particular site taken twice a week 24 hourly at uniform intervals.**
- **24 hourly or 08 hourly or 01 hourly monitored values, as applicable, shall be complied with 98% of the time in a year. 2% of the time, they may exceed the limits but not on two consecutive days of monitoring.**

4.5 Unit shall operate industrial plant / air pollution control equipment very efficiently and continuously so that the gaseous emission always conforms to the standards specified as above.

4.6 The consent to operate the industrial plant shall lapse if at any time the parameters of the gaseous emission are not within the tolerance limits specified as above.

4.7 Unit shall provide portholes, ladder, platform etc at chimney(s) for monitoring the air emissions and the same shall be open for inspection to/and for use of Board's staff. The chimney(s) vents attached to various sources of emission shall be designed by numbers such as S-1, S-2, etc. and these shall be painted/ displayed to facilitate identification.

4.8 Unit shall take adequate measures for control of noise levels from its own sources within the premises so as to maintain ambient air quality standards in respect of noise to less than 75 dB(a) during day time and 70 dB (A) during night time. Daytime is reckoned in between 6a.m. and10 p.m. and nighttime is reckoned between 10 p.m. and 6 a.m.

4.9 All efforts shall be made to control VOC emissions and odor problem, if any.

5 GENERAL CONDITIONS: -

5.1 In case of change of ownership/ management the name and address of the new ownership/ partners/ directors/ proprietor should immediately be intimate to the Board. Also any change in equipment or working conditions as mentioned in the consents form/ order should immediately be intimated to this Board.

5.2 Adequate plantation shall be carried out all along the periphery of the industrial premises in such a way that the density of plantation is at least 1000 trees per acre of land and a green belt of **5** meters width is developed.

5.3 Unit shall put up at the entrance a board displaying the name of unit, particulars of the products/ process and the name of proprietor/partners /directors of the unit and the electricity consumer number as on the record of DGVCL.

6. AUTHORISATION FOR THE MANAGEMENT & HANDLING OF HAZARDOUS WASTES Form-2 (See rule 6(2)).

6.1 Number of authorization: **AWH-132985 date of Issue 12/03/2024.**

6.2 **M/s. NTPC LIMITED (Jhanor-Gandhar Gas Power Project)** is hereby granted an authorization to operate facility for following hazardous wastes on the premises situated at **, Vill: Jhanor Po: Urjanagar-Jhanor, Ta. & Dist. Bharuch.**

Sr. No.	Name of Haz. Waste	Category Number	Quantity	Facility
1	ETP Waste Sludge	35.3	500 MT/Year	Collection, Storage, Transportation and send to common TSDF site.
2	Used Oil	5.1	30000 Lit/ Year	Collection, Storage, reuse within premises or Transportation, send to registers re-refiners.
3	Wastes, Residues containing Oil/ oil soaked cotton waste	33.2	4 MT/Year	Collection, Storage, reuse within premises or Transportation, send to registers re-refiners or CHWIF for incineration.
4	Discarded Drums/Bags/Liners	33.1	5000 M^3/Year	Collection, Storage, Decontamination / detoxification, reuse, transportation and/or send to authorized decontamination facility.

5	Lead Acid Battery	Sr. No: 17 Sch-IV	200 no./ Year	Collection, storage, transportation and return back to supplier.
6	Used Ion Exchange Resin	35.2	20 M^3 /Year	Collection, Storage, Transportation and send to common TSDF Site.
7	Waste Residue of Paints	21.1	500 Kg/Year	Collection, Storage, Transportation and send to common TSDF Site.
8	Spent Activated Carbon	28.2	10 MT/Year	Collection, Storage, Transportation and send to common TSDF Site.

6.3 The authorization is granted to operate a facility as above.
6.4 The authorization shall be in force for a period up to **23/02/2029**.
6.5 The authorization is subject to the conditions stated below and such other conditions as may be specified in the rules from time to time under the Environment (Protection) Act-1986.

7. **TERMS AND CONDITIONS OF AUTHORISATION:**

7.1 The authorized person shall comply with the provisions of the Environment (Protection) Act, 1986, and the rules made there under.
7.2 The authorization or its renewal shall be produced for inspection at the request of an officer authorized by the Gujarat Pollution Control Board.
7.3 The person authorized shall not rent, lend, sell, transfer or otherwise transport the hazardous and other wastes except what is permitted through this authorization.
7.4 Any unauthorized change in personnel, equipment or working conditions as mentioned in the application by the person authorized shall constitute a breach of his authorization.
7.5 The person authorized shall implement Emergency Response Procedure (ERP) for which this authorization is being granted considering all site specific possible scenarios such as spillages, leakages, fire etc. and their possible impacts and also carry out mock drill in this regard at regular interval of time;
7.6 The person authorized shall comply with the provisions outlined in the Central Pollution Control Board guidelines on "Implementing Liabilities for Environmental Damages due to Handling and Disposal of Hazardous Waste and Penalty"
7.7 It is the duty of the authorized person to take prior permission of the Gujarat Pollution Control Board to close down the facility.
7.8 The imported hazardous and other wastes shall be fully insured for transit as well as for any accidental occurrence and its clean-up operation.
7.9 The record of consumption and fate of the imported hazardous and other wastes shall be maintained.
7.10 The hazardous and other waste which gets generated during recycling or reuse or recovery or pre-processing or utilization of imported hazardous or other wastes shall be treated and disposed of as per specific conditions of authorization.
7.11 The importer or exporter shall bear the cost of import or export and mitigation of damages if, any.
7.12 An application for the renewal of an authorization shall be made as laid down under Hazardous & Other Wastes (Management and Transboundary Movement) Rules-2016.
7.13 Any other conditions for compliance as per the Guidelines issued by the Ministry of Environment, Forest and Climate Change or Central Pollution Control Board from time to time.

7.14 Annual return shall be filed by June 30th for the period ensuring 31st March of the year.

7.15 Unit shall have to display the relevant information with regard to hazardous waste as indicated in the Court's order in W.P. No. 657 of 1995 dated 14th October 2003.

7.16 Unit shall have to display on-line data outside the main factory gate with regard to and nature of hazardous chemicals being handled in the plant, including waste water and air emission and solid hazardous waste generated within the factory premises.

7.17 Unit shall have to manage used or spent oil; empty or discarded barrels / containers / liners contaminated with hazardous chemicals / wastes, process waste as per Hazardous & Other Wastes (Management and Transboundary Movement) Rules-2016, framed under the E(P)Act-1986 and shall apply Authorization for all applicable waste.

FOR AND ON BEHALF OF
GUJARAT POLLUTION CONTROL BOARD

(M. R. MACWANA)
UNIT HEAD- BHARUCH

[PUBLISHED IN THE GAZETTE OF INDIA, EXTRAORDINARY, PART II, SECTION 3, SUB-SECTION (i)]

GOVERNMENT OF INDIA
MINISTRY OF ENVIRONMENT, FOREST AND CLIMATE CHANGE

NOTIFICATION

New Delhi, the 04th April, 2016

G.S.R No. 395 (E). - Whereas the draft rules, namely the Hazardous And Other Wastes (Management and Transboundary Movement) Rules, 2015, were published by the Government of India in the Ministry of Environment, Forest and Climate Change *vide* number G.S.R. 582(E), dated the 24th July, 2015 in the Gazette of India, Extraordinary Part II, section 3, sub-section (ii) inviting objections and suggestions from all persons likely to be affected thereby, before the expiry of the period of sixty days from the date on which copies of the Gazette containing the said notification were made available to the public;

AND WHEREAS the copies of the said Gazette containing the said notification were made available to the public on the 24th day of July, 2015;

AND WHEREAS the objections and suggestions received within the specified period from the public in respect of the said draft rules have been duly considered by the Central Government;

NOW, THEREFORE, in exercise of the powers conferred by sections 6, 8 and 25 of the Environment (Protection) Act, 1986 (29 of 1986), and in supersession of the Hazardous Wastes (Management, Handling and Transboundary Movement) Rules, 2008, except as respects things done or omitted to be done before such supersession, the Central Government hereby makes the following rules, namely:-

CHAPTER I

PRELIMINARY

1. Short title and commencement. - (1) These rules may be called the Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016.

(2) They shall come into force on the date of their publication in the Official Gazette.

2. Application. - These rules shall apply to the management of hazardous and other wastes as specified in the Schedules to these rules but shall not apply to -

(a) waste-water and exhaust gases as covered under the provisions of the Water (Prevention and Control of Pollution) Act, 1974 (6 of 1974) and the Air (Prevention and Control of Pollution) Act, 1981 (14 of 1981) and the rules made thereunder and as amended from time to time;

(b) wastes arising out of the operation from ships beyond five kilometres of the relevant baseline as covered under the provisions of the Merchant Shipping Act, 1958 (44 of 1958) and the rules made thereunder and as amended from time to time;

(c) radio-active wastes as covered under the provisions of the Atomic Energy Act, 1962 (33 of 1962) and the rules made thereunder and as amended from time to time;

(d) bio-medical wastes covered under the Bio-Medical Wastes (Management and Handling) Rules, 1998 made under the Act and as amended from time to time; and

(e) wastes covered under the Municipal Solid Wastes (Management and Handling) Rules, 2000 made under the Act and as amended from time to time.

3. Definitions. - (1) In these rules, unless the context otherwise requires,-

1. "Act" means the Environment (Protection) Act, 1986 (29 of 1986);

2. "actual user" means an occupier who procures and processes hazardous and other waste for reuse, recycling, recovery, pre-processing, utilisation including co-processing;

3. "authorisation" means permission for generation, handling, collection, reception, treatment, transport, storage, reuse, recycling, recovery, pre-processing, utilisation including co-processing and disposal of hazardous wastes granted under sub-rule (2) of rule 6;

4. "Basel Convention" means the United Nations Environment Programme Convention on the Control of Transboundary Movement of Hazardous Wastes and their Disposal;

5. "captive treatment, storage and disposal facility" means a facility developed within the premises of an occupier for treatment, storage and disposal of wastes generated during manufacture, processing, treatment, package, storage, transportation, use, collection, destruction, conversion, offering for sale, transfer or the like of hazardous and other wastes;

6. "Central Pollution Control Board" means the Central Pollution Control Board constituted under sub-section (1) of section 3 of the Water (Prevention and Control of Pollution) Act, 1974 (6 of 1974);

7. "common treatment, storage and disposal facility" means a common facility identified and established individually or jointly or severally by the State Government, occupier, operator of a facility or any association of occupiers that shall be used as common facility by multiple occupiers or actual users for treatment, storage and disposal of the hazardous and other wastes;

8. "co-processing" means the use of waste materials in manufacturing processes for the purpose of energy or resource recovery or both and resultant reduction in the use of conventional fuels or raw materials or both through substitution;

9. "critical care medical equipment" means life saving equipment and includes such equipment as specified by the Ministry of Health and Family Welfare from time to time;

10. "disposal" means any operation which does not lead to reuse, recycling, recovery, utilisation including co-processing and includes physico-chemical treatment, biological treatment, incineration and disposal in secured landfill;

11. "export", with its grammatical variations and cognate expressions, means taking out of India to a place outside India;

12. "exporter" means any person or occupier under the jurisdiction of the exporting country who exports hazardous or other wastes, including the country which exports hazardous or other waste;

13. "environmentally sound management of hazardous and other wastes" means taking all steps required to ensure that the hazardous and other wastes are managed in a manner which shall protect health and the environment against the adverse effects which may result from such waste;

14. "environmentally sound technologies" means any technology approved by the Central Government from time to time;

15. "facility" means any establishment wherein the processes incidental to the generation, handling, collection, reception, treatment, storage, reuse, recycling, recovery, pre-processing, co-processing, utilisation and disposal of hazardous and, or, other wastes are carried out;

16. "Form" means a form appended to these rules;

17. "hazardous waste" means any waste which by reason of characteristics such as physical, chemical, biological, reactive, toxic, flammable, explosive or corrosive, causes danger or is likely to cause danger to health or environment, whether alone or in contact with other wastes or substances, and shall include -
    (i) waste specified under column (3) of Schedule I;
    (ii) waste having equal to or more than the concentration limits specified for the constituents in class A and class B of Schedule II or any of the characteristics as specified in class C of Schedule II; and
    (iii) wastes specified in Part A of Schedule III in respect of import or export of such wastes or the wastes not specified in Part A but exhibit hazardous characteristics specified in Part C of Schedule III;

18. "import", with its grammatical variations and cognate expressions, means bringing into India from a place outside India;

19. "importer" mean any person or occupier who imports hazardous or other waste;

20. "manifest" means transporting document prepared and signed by the sender authorised in accordance with the provisions of these rules;

21. "occupier" in relation to any factory or premises, means a person who has, control over the affairs of the factory or the premises and includes in relation to any hazardous and other wastes, the person in possession of the hazardous or other waste;

22. "operator of disposal facility" means a person who owns or operates a facility for collection, reception, treatment, storage and disposal of hazardous and other wastes;

23. "other wastes" means wastes specified in Part B and Part D of Schedule III for import or export and includes all such waste generated indigenously within the country;

24. "pre-processing" means the treatment of waste to make it suitable for co-processing or recycling or for any further processing;

25. "recycling" means reclamation and processing of hazardous or other wastes in an environmentally sound manner for the originally intended purpose or for other purposes;

26. "reuse" means use of hazardous or other waste for the purpose of its original use or other use;

27. "recovery" means any operation or activity wherein specific materials are recovered;

28. "Schedule" means a Schedule appended to these rules;

29. "State Government" in relation to a Union territory means, the Administrator thereof appointed under article 239 of the Constitution;

30. "State Pollution Control Board" means the State Pollution Control Board constituted under section 4 of the Water (Prevention and Control of Pollution) Act, 1974 (6 of 1974) and includes, in relation to a Union territory, the Pollution Control Committee;

31. "storage" mean storing any hazardous or other waste for a temporary period, at the end of which such waste is processed or disposed of;

32. "transboundary movement" means any movement of hazardous or other wastes from an area under the jurisdiction of one country to or through an area under the jurisdiction of another country or to or through an area not under the jurisdiction of any country, provided that at least two countries are involved in the movement;

33. "transport" means off-site movement of hazardous or other wastes by air, rail, road or water;

34. "transporter" means a person engaged in the off-site transportation of hazardous or other waste by air, rail, road or water;

35. "treatment" means a method, technique or process, designed to modify the physical, chemical or biological characteristics or composition of any hazardous or other waste so as to reduce its potential to cause harm;

36. "used oil" means any oil-

    (i) derived from crude oil or mixtures containing synthetic oil including spent oil, used engine oil, gear oil, hydraulic oil, turbine oil, compressor oil, industrial gear oil, heat transfer oil, transformer oil and their tank bottom sludges; and
    (ii) suitable for reprocessing, if it meets the specification laid down in Part A of Schedule V but does not include waste oil;

37. "utilisation" means use of hazardous or other waste as a resource;

38. "waste" means materials that are not products or by-products, for which the generator has no further use for the purposes of production, transformation or consumption.

Explanation.- for the purposes of this clause,

(i) waste includes the materials that may be generated during, the extraction of raw materials, the processing of raw materials into intermediates and final products, the consumption of final products, and through other human activities and excludes residuals recycled or reused at the place of generation; and

(ii) by-product means a material that is not intended to be produced but gets produced in the production process of intended product and is used as such;

39. "waste oil" means any oil which includes spills of crude oil, emulsions, tank bottom sludge and slop oil generated from petroleum refineries, installations or ships and can be used as fuel in furnaces for energy recovery, if it meets the specifications laid down in Part-B of Schedule V either as such or after reprocessing.

(2) Words and expressions used in these rules and not defined but defined in the Act shall have the meanings respectively assigned to them in the Act.

CHAPTER II

PROCEDURE FOR MANAGEMENT OF HAZARDOUS AND OTHER WASTES

4. Responsibilities of the occupier for management of hazardous and other wastes.-

(1) For the management of hazardous and other wastes, an occupier shall follow the following steps, namely:-

(a) prevention;
(b) minimization;
(c) reuse,
(d) recycling;
(e) recovery, utilisation including co-processing;
(f) safe disposal.

(2) The occupier shall be responsible for safe and environmentally sound management of hazardous and other wastes.

(3) The hazardous and other wastes generated in the establishment of an occupier shall be sent or sold to an authorised actual user or shall be disposed of in an authorised disposal facility.

(4) The hazardous and other wastes shall be transported from an occupier's establishment to an authorised actual user or to an authorised disposal facility in accordance with the provisions of these rules.

(5) The occupier who intends to get its hazardous and other wastes treated and disposed of by the operator of a treatment, storage and disposal facility shall give to the operator of that facility, such specific information as may be needed for safe storage and disposal.

(6) The occupier shall take all the steps while managing hazardous and other wastes to-

(a) contain contaminants and prevent accidents and limit their consequences on human beings and the environment; and

(b) provide persons working in the site with appropriate training, equipment and the information necessary to ensure their safety.

5. Responsibilities of State Government for environmentally sound management of hazardous and other wastes. – (1) Department of Industry in the State or any other government agency authorised in this regard by the State Government, to ensure earmarking or allocation of industrial space or shed for recycling, pre-processing and other utilisation of hazardous or other waste in the existing and upcoming industrial park, estate and industrial clusters;

(2) Department of Labour in the State or any other government agency authorised in this regard by the State Government shall,-

(a) ensure recognition and registration of workers involved in recycling, pre-processing and other utilisation activities;
(b) assist formation of groups of such workers to facilitate setting up such facilities;
(c) undertake industrial skill development activities for the workers involved in recycling, pre-processing and other utilisation;
(d) undertake annual monitoring and to ensure safety and health of workers involved in recycling, pre-processing and other utilisation.

(3) Every State Government may prepare integrated plan for effective implementation of these provisions and to submit annual report to the Ministry of Environment, Forest and Climate Change, in the Central Government.

6. Grant of authorisation for managing hazardous and other wastes.- (1) Every occupier of the facility who is engaged in handling, generation, collection, storage, packaging, transportation, use, treatment, processing, recycling, recovery, pre-processing, co-processing, utilisation, offering for sale, transfer or disposal of the hazardous and other wastes shall be required to make an application in **Form 1** to the State Pollution Control Board and obtain an authorisation from the State Pollution Control Board within a period of sixty days from the date of publication of these rules. Such application for authorisation shall be accompanied with a copy each of the following documents, namely:-

(a) consent to establish granted by the State Pollution Control Board under the Water (Prevention and Control of Pollution) Act, 1974 (25 of 1974) and the Air (Prevention and Control of Pollution) Act, 1981 (21 of 1981);
(b) Consent to operate granted by the State Pollution Control Board under the Water (Prevention and Control of Pollution) Act, 1974 (25 of 1974) and/or Air (Prevention and Control of Pollution) Act, 1981, (21 of 1981);
(c) in case of renewal of authorisation, a self-certified compliance report in respect of effluent, emission standards and the conditions specified in the authorisation for hazardous and other wastes:

Provided that an application for renewal of authorisation may be made three months before the expiry of such authorisation:

Provided further that-

(i) any person authorised under the provisions of the Hazardous Waste (Management, Handling and Transboundary Movement) Rules, 2008, prior to the date of commencement

of these rules, shall not be required to make an application for authorisation till the period of expiry of such authorisation;

(ii) any person engaged in recycling or reprocessing of the hazardous waste specified in Schedule IV and having registration under the provisions of the Hazardous Waste (Management, Handling and Transboundary Movement) Rules, 2008, shall not be required to make an application for authorisation till the period of expiry of such registration.

(2) On receipt of an application complete in all respects for the authorisation, the State Pollution Control Board may, after such inquiry as it considers necessary, and on being satisfied that the applicant possesses appropriate facilities for collection, storage, packaging, transportation, treatment, processing, use, destruction, recycling, recovery, pre-processing, co-processing, utilisation, offering for sale, transfer or disposal of the hazardous and other waste, as the case may be, and after ensuring technical capabilities and equipment complying with the standard operating procedure or other guidelines specified by the Central Pollution Control Board from time to time and through site inspection, grant within a period of one hundred and twenty days, an authorisation in **Form 2** to the applicant, which shall be valid for a period of five years subject to such conditions as may be laid down therein. For commonly recyclable hazardous waste as given in Schedule IV, the guidelines already prepared by the Central Pollution Control Board shall be followed:

Provided that in the case of an application for renewal of authorisation, the State Pollution Control Board may, before granting such authorisation, satisfy itself that there has been no violation of the conditions specified in the authorisation earlier granted by it and same shall be recorded in the inspection report.

(3) The authorisation granted by the State Pollution Control Board under sub-rule (2) shall be accompanied by a copy of the field inspection report signed by that Board indicating the adequacy of facilities for collection, storage, packaging, transportation, treatment, processing, use, destruction, recycling, recovery, pre-processing, co-processing, utilisation, offering for sale, transfer or disposal of the hazardous and other wastes and compliance to the guidelines or standard operating procedures specified by the Central Pollution Control Board from time to time.

(4) The State Pollution Control Board may, for the reasons to be recorded in writing and after giving reasonable opportunity of being heard to the applicant, refuse to grant any authorisation under these rules.

(5) Every occupier authorised under these rules, shall maintain a record of hazardous and other wastes managed by him in **Form 3** and prepare and submit to the State Pollution Control Board, an annual return containing the details specified in **Form 4** on or before the 30th day of June following the financial year to which that return relates.

(6) The State Pollution Control Board shall maintain a register containing particulars of the conditions imposed under these rules for management of hazardous and other wastes and it shall be open for inspection during office hours to any interested or affected person.

(7) The authorised actual user of hazardous and other wastes shall maintain records of hazardous and other wastes purchased in a passbook issued by the State Pollution Control Board along with the authorisation.

(8) Handing over of the hazardous and other wastes to the authorised actual user shall be only after making the entry into the passbook of the actual user.

7. Power to suspend or cancel an authorisation.- (1) The State Pollution Control Board, may, if in its opinion the holder of the authorisation has failed to comply with any of the conditions of the authorisation or with any provisions of the Act or these rules and after giving him a reasonable opportunity of being heard and after recording reasons thereof in writing cancel or suspend the authorisation issued under rule 6 for such period as it considers necessary in the public interest.

(2) Upon suspension or cancellation of the authorisation, the State Pollution Control Board may give directions to the person whose authorisation has been suspended or cancelled for the safe storage and management of the hazardous and other wastes, and such occupier shall comply with such directions.

8. Storage of hazardous and other wastes.- (1) The occupiers of facilities may store the hazardous and other wastes for a period not exceeding ninety days and shall maintain a record of sale, transfer, storage, recycling, recovery, pre-processing, co-processing and utilisation of such wastes and make these records available for inspection:

Provided that the State Pollution Control Board may extend the said period of ninety days in following cases, namely:-

(i) small generators (up to ten tonnes per annum) up to one hundred and eighty days of their annual capacity;
(ii) actual users and disposal facility operators up to one hundred and eighty days of their annual capacity,
(iii) occupiers who do not have access to any treatment, storage, disposal facility in the concerned State; or
(iv) the waste which needs to be specifically stored for development of a process for its recycling, recovery, pre-processing, co-processing or utilisation;
(v) in any other case, on justifiable grounds up to one hundred and eighty days.

9. Utilisation of hazardous and other wastes.- (1) The utilisation of hazardous and other wastes as a resource or after pre-processing either for co-processing or for any other use, including within the premises of the generator (if it is not part of process), shall be carried out only after obtaining authorisation from the State Pollution Control Board in respect of waste on the basis of standard operating procedures or guidelines provided by the Central Pollution Control Board.

(2) Where standard operating procedures or guidelines are not available for specific utilisation, the approval has to be sought from Central Pollution Control Board which shall be granting approval on the basis of trial runs and thereafter, standard operating procedures or guidelines shall be prepared by Central Pollution Control Board:

Provided, if trial run has been conducted for particular waste with respect to particular utilisation and compliance to the environmental standards has been demonstrated, authorisation may be granted by the State Pollution Control Board with respect to the same waste and utilisation, without need of separate trial run by Central Pollution Control Board and such cases of successful trial run, Central Pollution Control Board shall intimate all the State Pollution Control Board regarding the same.

(3) No trial runs shall be required for co-processing of waste in cement plants for which guidelines by the Central Pollution Control Board are already available; however, the actual users shall

ensure compliance to the standards notified under the Environment (Protection) Act,1986 (29 of 1986), for cement plant with respect to co-processing of waste:

Provided that till the time the standards are notified, the procedure as applicable to other kind of utilisation of hazardous and other waste, as enumerated above shall be followed.

10. Standard Operating Procedure or guidelines for actual users.- The Ministry of Environment, Forest and Climate Change or the Central Pollution Control Board may issue guidelines or standard operating procedures for environmentally sound management of hazardous and other wastes from time to time.

CHAPTER III

IMPORT AND EXPORT OF HAZARDOUS AND OTHER WASTES

11. Import and export (transboundary movement) of hazardous and other wastes.- The Ministry of Environment, Forest and Climate Change shall be the nodal Ministry to deal with the transboundary movement of the hazardous and other wastes in accordance with the provisions of these rules.

12. Strategy for Import and export of hazardous and other wastes.- (1) No import of the hazardous and other wastes from any country to India for disposal shall be permitted.

(2) The import of hazardous and other wastes from any country shall be permitted only for recycling, recovery, reuse and utilisation including co-processing.

(3) The import of hazardous waste in Part A of Schedule III may be allowed to actual users with the prior informed consent of the exporting country and shall require the permission of the Ministry of Environment, Forest and Climate Change.

(4) The import of other wastes in Part B of Schedule III may be allowed to actual users with the permission of the Ministry of Environment, Forest and Climate Change.

(5) The import of other wastes in Part D of Schedule III will be allowed as per procedure given in rule 13 and as per the note below the said Schedule.

(6) No import of the hazardous and other wastes specified in Schedule VI shall be permitted.

(7) The export of hazardous and other wastes from India listed in Part A and Part B of Schedule III and Schedule VI shall be with the permission of Ministry of Environment, Forest and Climate Change. In case of applications for export of hazardous and other waste listed in Part A of Schedule III and Schedule VI, they shall be considered on the basis of prior informed consent of the importing country.

(8) The import and export of hazardous and other wastes not specified in Schedule III, but exhibiting the hazardous characteristics outlined in Part C of Schedule III shall require prior written permission of the Ministry of Environment, Forest and Climate Change before it is imported to or exported from India, as the case may be.

13. Procedure for import of hazardous and other wastes.- (1) Actual users intending to import or transit for transboundary movement of hazardous and other wastes specified in Part A and Part B of Schedule III shall apply in **Form 5** along with the documents listed therein, to the Ministry of Environment, Forest and Climate Change for the proposed import together with the prior informed consent of the exporting country in respect of Part A of Schedule III waste, and shall send a copy of the application, simultaneously, to the concerned State Pollution Control Board for information and the acknowledgement in this respect from the concerned State Pollution Control Board shall be submitted to the Ministry of Environment, Forest and Climate Change along with the application.

(2) For the import of other wastes listed in Part D of Schedule III, the importer shall not require the permission of the Ministry of Environment, Forest and Climate Change. However, the importer shall furnish the required information as per **Form 6** to the Customs authorities, accompanied with the following documents in addition to those listed in Schedule VIII, wherever applicable. For used electrical and electronic assemblies listed at serial numbers 4 (e) to 4(i) of Schedule VIII (Basel No. B1110), there is no specific requirement of documentation under these rules:

(a) the import license from Directorate General of Foreign Trade, if applicable;
(b) the valid consents under the Water (Prevention and Control of Pollution) Act, 1974 (25 of 1974) and the Air (Prevention and Control of Pollution) Act, 1981 (21 of 1981)and the authorisation under these rules as well as the authorisation under the E-Waste (Management and Handling) Rules, 2011, as amended from time to time, whichever applicable;
(c) importer who is a trader, importing waste on behalf of actual users, shall obtain one time authorisation in **Form 7** and copy of this authorisation shall be appended to **Form 6**.

(3) For Part B of Schedule III, in case of import of any used electrical and electronic assemblies or spares or part or component or consumables as listed under Schedule I of the E-Waste (Management and Handling) Rules, 2011, as amended from time to time, the importer need to obtain extended producer responsibility-authorisation as producer under the said E-Waste (Management and Handling) Rules, 2011.

(4) Prior to clearing of consignment of wastes listed in Part D of Schedule III, the Custom authorities shall verify the documents as given in column (3) of Schedule VIII.

(5) On receipt of the complete application with respect to Part A and Part B of Schedule III, the Ministry of Environment, Forest and Climate Change shall examine the application considering the comments and observations, if any, received from the State Pollution Control Boards, and may grant the permission for import within a period of sixty days subject to the condition that the importer has -

(i) the environmentally sound facilities;
(ii) adequate arrangements for treatment and disposal of wastes generated;
(iii)a valid authorisation and consents from the State Pollution Control Board;
(iv) prior informed consent from the exporting country in case of Part A of Schedule III wastes.

(6) The Ministry of Environment, Forest and Climate Change shall forward a copy of the permission to the concerned Port and Customs authorities, Central Pollution Control Board and the concerned State Pollution Control Board for ensuring compliance with respect to their respective functions given in Schedule VII.

(7) The importer of the hazardous and other wastes shall maintain records of the hazardous and other waste imported by him in **Form 3** and the record so maintained shall be made available for inspection.

(8) The importer of the hazardous and other wastes shall file an annual return in **Form 4** to the State Pollution Control Board on or before the 30th day of June following the financial year to which that return relates.

(9) Samples of hazardous and other wastes being imported for testing or research and development purposes up to 1000 gm or 1000 ml shall be exempted from need of taking permission for import under these rules.

(10) The Port and Customs authorities shall ensure that shipment is accompanied with the movement document as given in **Form 6** and the test report of analysis of the waste, consignment, wherever applicable, from a laboratory accredited or recognised by the exporting country. In case of any doubt, the customs may verify the analysis.

14. Procedure for Export of hazardous and other wastes from India.- (1) Any occupier intending to export waste specified in Part A of Schedule III, Part B of Schedule III and Schedule VI, shall make an application in **Form 5** along with insurance cover to the Ministry of Environment, Forest and Climate Change for the proposed transboundary movement of the hazardous and other wastes together with the prior informed consent in writing from the importing country in respect of wastes specified in Part A of Schedule III and Schedule VI.

(2) On receipt of an application under sub-rule (1), the Ministry of Environment, Forest and Climate Change may give permission for the proposed export within a period of sixty days from the date of submission of complete application and may impose such conditions as it may consider necessary.

(3) The Ministry of Environment, Forest and Climate Change shall forward a copy of the permission granted under sub-rule (2) to the State Pollution Control Board of the State where the waste is generated and the Pollution Control Board of the State where the port of export is located and the concerned Port and Customs authorities for ensuring compliance of the conditions of the export permission.

(4) The exporter shall ensure that no consignment is shipped before the prior informed consent is received from the importing country, wherever applicable.

(5) The exporter shall also ensure that the shipment is accompanied with movement document in **Form 6.**

(6) The exporter of the hazardous and other wastes shall maintain the records of the hazardous or other waste exported by him in **Form 3** and the record so maintained shall be available for inspection.

15. Illegal traffic.- (1) The export and import of hazardous or other wastes from and into India, respectively shall be deemed illegal, if,-

(i) it is without permission of the Central Government in accordance with these rules; or
(ii) the permission has been obtained through falsification, mis-representation or fraud; or
(iii) it does not conform to the shipping details provided in the movement documents; or

(iv) it results in deliberate disposal (i.e., dumping) of hazardous or other waste in contravention of the Basel Convention and of general principles of international or domestic law.

(2) In case of illegal import of the hazardous or other waste, the importer shall re-export the waste in question at his cost within a period of ninety days from the date of its arrival into India and its implementation will be ensured by the concerned Port and the Custom authority. In case of disposal of such waste by the Port and Custom authorities, they shall do so in accordance with these rules with the permission of the Pollution Control Board of the State where the Port exists.

(3) In case of illegal import of hazardous or other waste, where the importer is not traceable then the waste either can be sold by the Customs authority to any user having authorisation under these rules from the concerned State Pollution Control Board or can be sent to authorised treatment, storage and disposal facility.

CHAPTER - IV

TREATMENT, STORAGE AND DISPOSAL FACILITY FOR HAZARDOUS AND OTHER WASTES

16. Treatment, storage and disposal facility for hazardous and other wastes.- (1) The State Government, occupier, operator of a facility or any association of occupiers shall individually or jointly or severally be responsible for identification of sites for establishing the facility for treatment, storage and disposal of the hazardous and other waste in the State.

(2) The operator of common facility or occupier of a captive facility, shall design and set up the treatment, storage and disposal facility as per technical guidelines issued by the Central Pollution Control Board in this regard from time to time and shall obtain approval from the State Pollution Control Board for design and layout in this regard.

(3) The State Pollution Control Board shall monitor the setting up and operation of the common or captive treatment, storage and disposal facility, regularly.

(4) The operator of common facility or occupier of a captive facility shall be responsible for safe and environmentally sound operation of the facility and its closure and post closure phase, as per guidelines or standard operating procedures issued by the Central Pollution Control Board from time to time.

(5) The operator of common facility or occupier of a captive facility shall maintain records of hazardous and other wastes handled by him in **Form 3.**

(6) The operator of common facility or occupier of a captive facility shall file an annual return in **Form 4** to the State Pollution Control Board on or before the 30th day of June following the financial year to which that return relates.

CHAPTER - V

PACKAGING, LABELLING, AND TRANSPORT OF HAZARDOUS AND OTHER WASTES.

17. Packaging and Labelling.- (1) Any occupier handling hazardous or other wastes and operator of the treatment, storage and disposal facility shall ensure that the hazardous and other wastes are packaged in a manner suitable for safe handling, storage and transport as per the guidelines issued by the Central Pollution Control Board from time to time. The labelling shall be done as per **Form 8.**

(2) The label shall be of non-washable material, weather proof and easily visible.

18. Transportation of hazardous and other wastes.- (1) The transport of the hazardous and other waste shall be in accordance with the provisions of these rules and the rules made by the Central Government under the Motor Vehicles Act, 1988 and the guidelines issued by the Central Pollution Control Board from time to time in this regard.

(2) The occupier shall provide the transporter with the relevant information in **Form 9,** regarding the hazardous nature of the wastes and measures to be taken in case of an emergency and shall label the hazardous and other wastes containers as per **Form 8**.

(3) In case of transportation of hazardous and other waste for final disposal to a facility existing in a State other than the State where the waste is generated, the sender shall obtain 'No Objection Certificate' from the State Pollution Control Board of both the States.

(4) In case of transportation of hazardous and other waste for recycling or utilisation including co-processing, the sender shall intimate both the State Pollution Control Boards before handing over the waste to the transporter.

(5) In case of transit of hazardous and other waste for recycling, utilisation including co-processing or disposal through a State other than the States of origin and destination, the sender shall give prior intimation to the concerned State Pollution Control Board of the States of transit before handing over the wastes to the transporter.

(6) In case of transportation of hazardous and other waste, the responsibility of safe transport shall be either of the sender or the receiver whosoever arranges the transport and has the necessary authorisation for transport from the concerned State Pollution Control Board. This responsibility should be clearly indicated in the manifest.

(7) The authorisation for transport shall be obtained either by the sender or the receiver on whose behalf the transport is being arranged.

19. Manifest system (Movement Document) for hazardous and other waste to be used within the country only.- (1) The sender of the waste shall prepare seven copies of the manifest in **Form 10** comprising of colour code indicated below and all seven copies shall be signed by the sender:

Copy number with colour code	Purpose
(1)	(2)
Copy 1 (White)	To be forwarded by the sender to the State Pollution Control Board after signing all the seven copies.
Copy 2 (Yellow)	To be retained by the sender after taking signature on it from the transporter and the rest of the five signed copies to be carried by the transporter.
Copy 3 (Pink)	To be retained by the receiver (actual user or treatment storage and disposal facility operator) after receiving the waste and the remaining four copies are to be duly signed by the receiver.
Copy 4 (Orange)	To be handed over to the transporter by the receiver after accepting waste.
Copy 5 (Green)	To be sent by the receiver to the State Pollution Control Board.
Copy 6 (Blue)	To be sent by the receiver to the sender.
Copy 7 (Grey)	To be sent by the receiver to the State Pollution Control Board of the sender in case the sender is in another State.

(2) The sender shall forward copy 1 (white) to the State Pollution Control Board, and in case the hazardous or other wastes is likely to be transported through any transit State, the sender shall intimate State Pollution Control Boards of transit States about the movement of the waste.

(3) No transporter shall accept waste from the sender for transport unless it is accompanied by signed copies 3 to 7 of the manifest.

(4) The transporter shall submit copies 3 to 7 of the manifest duly signed with date to the receiver along with the waste consignment.

(5) The receiver after acceptance of the waste shall hand over copy 4 (orange) to the transporter and send copy 5 (green) to his State Pollution Control Board and send copy 6 (blue) to the sender and the copy 3 (pink) shall be retained by the reciever.

(6) The copy 7 (grey) shall only be sent to the State Pollution Control Board of the sender, if the sender is in another State.

CHAPTER VI
MISCELLANIOUS

20. Records and returns.- (1) The occupier handling hazardous or other wastes and operator of disposal facility shall maintain records of such operations in **Form 3.**

(2) The occupier handling hazardous and other wastes and operator of disposal facility shall send annual returns to the State Pollution Control Board in **Form 4.**

(3) The State Pollution Control Board based on the annual returns received from the occupiers and the operators of the facilities for disposal of hazardous and other wastes shall prepare an annual inventory of the waste generated; waste recycled, recovered, utilised including co-processed; waste re-exported and waste disposed and submit to the Central Pollution Control Board by the 30th day of September every year. The State Pollution Control Board shall also prepare the inventory of hazardous waste generators, actual users, and common and captive

disposal facilities and shall submit the information to Central Pollution Control Board every two years.

(4) The Central Pollution Control Board shall prepare the consolidated review report on management of hazardous and other wastes and forward it to the Ministry of Environment, Forest and Climate Change, along with its recommendations before the 30th day of December once in every year.

21. Responsibility of authorities. - The authority specified in column (2) of Schedule VII shall perform the duties as specified in column (3) of the said Schedule subject to the provisions of these rules.

22. Accident reporting. - Where an accident occurs at the facility of the occupier handling hazardous or other wastes and operator of the disposal facility or during transportation, the occupier or the operator or the transporter shall immediately intimate the State Pollution Control Board through telephone, e-mail about the accident and subsequently send a report in **Form 11.**

23. Liability of occupier, importer or exporter and operator of a disposal facility.-

(1) The occupier, importer or exporter and operator of the disposal facility shall be liable for all damages caused to the environment or third party due to improper handling and management of the hazardous and other waste.

(2) The occupier and the operator of the disposal facility shall be liable to pay financial penalties as levied for any violation of the provisions under these rules by the State Pollution Control Board with the prior approval of the Central Pollution Control Board.

24. Appeal.- (1) Any person aggrieved by an order of suspension or cancellation or refusal of authorisation or its renewal passed by the State Pollution Control Board may, within a period of thirty days from the date on which the order is communicated to him, prefer an appeal in **Form 12** to the Appellate Authority, namely, the Environment Secretary of the State.

(2) The Appellate Authority may entertain the appeal after expiry of the said period of thirty days, if it is satisfied that the appellant was prevented by sufficient cause from filing the appeal in time.

(3) Every appeal filed under this rule shall be disposed of within a period of sixty days from the date of its filing.

SCHEDULE I

[See rule 3 (1) (17) (i)]

List of processes generating hazardous wastes

S.No.	Processes	Hazardous Waste*
(1)	(2)	(3)
1.	Petrochemical processes and pyrolytic operations	1.1 Furnace or reactor residue and debris 1.2 Tarry residues and still bottoms from distillation 1.3 Oily sludge emulsion 1.4 Organic residues 1.5 Residues from alkali wash of fuels

(1)	(2)	(3)
		1.6 Spent catalyst and molecular sieves 1.7 Oil from wastewater treatment
2.	Crude oil and natural gas production	2.1 Drill cuttings excluding those from water based mud 2.2 Sludge containing oil 2.3 Drilling mud containing oil
3.	Cleaning, emptying and maintenance of petroleum oil storage tanks including ships	3.1 cargo residue, washing water and sludge containing oil 3.2 cargo residue and sludge containing chemicals 3.3 Sludge and filters contaminated with oil 3.4 Ballast water containing oil from ships
4.	Petroleum refining or re-processing of used oil or recycling of waste oil	4.1 Oil sludge or emulsion 4.2 Spent catalyst 4.3 Slop oil 4.4 Organic residue from processes 4.5 Spent clay containing oil
5.	Industrial operations using mineral or synthetic oil as lubricant in hydraulic systems or other applications	5.1 Used or spent oil 5.2 Wastes or residues containing oil 5.3 Waste cutting oils
6.	Secondary production and / or industrial use of zinc	6.1 Sludge and filter press cake arising out of production of Zinc Sulphate and other Zinc Compounds. 6.2 Zinc fines or dust or ash or skimmings in dispersible form 6.3 Other residues from processing of zinc ash or skimmings 6.4 Flue gas dust and other particulates
7.	Primary production of zinc or lead or copper and other non-ferrous metals except aluminium	7.1 Flue gas dust from roasting 7.2 Process residues 7.3 Arsenic-bearing sludge 7.4 Non-ferrous metal bearing sludge and residue. 7.5 Sludge from scrubbers
8.	Secondary production of copper	8.1 Spent electrolytic solutions 8.2 Sludge and filter cakes 8.3 Flue gas dust and other particulates
9.	Secondary production of lead	9.1 Lead bearing residues 9.2 Lead ash or particulate from flue gas 9.3 Acid from used batteries
10.	Production and/or industrial use of cadmium and arsenic and their compounds	10.1 Residues containing cadmium and arsenic
11.	Production of primary and secondary aluminum	11.1 Sludges from off-gas treatment 11.2 Cathode residues including pot lining wastes 11.3 Tar containing wastes 11.4 Flue gas dust and other particulates 11.5 Drosses and waste from treatment of salt sludge

(1)	(2)	(3)
		11.6 Used anode butts 11.7 Vanadium sludge from alumina refineries
12.	Metal surface treatment, such as etching, staining, polishing, galvanizing, cleaning, degreasing, plating, etc.	12.1 Acidic and alkaline residues 12.2 Spent acid and alkali 12.3 Spent bath and sludge containing sulphide, cyanide and toxic metals 12.4 Sludge from bath containing organic solvents 12.5 Phosphate sludge 12.6 Sludge from staining bath 12.7 Copper etching residues 12.8 Plating metal sludge
13.	Production of iron and steel including other ferrous alloys (electric furnace; steel rolling and finishing mills; Coke oven and by products plant)	13.1 Spent pickling liquor 13.2 Sludge from acid recovery unit 13.3 Benzol acid sludge 13.4 Decanter tank tar sludge 13.5 Tar storage tank residue 13.6 Residues from coke oven by product plant.
14.	Hardening of steel	14.1 Cyanide-, nitrate-, or nitrite -containing sludge 14.2 Spent hardening salt
15.	Production of asbestos or asbestos-containing materials	15.1 Asbestos-containing residues 15.2 Discarded asbestos 15.3 Dust or particulates from exhaust gas treatment.
16.	Production of caustic soda and chlorine	16.1 Mercury bearing sludge generated from mercury cell process 16.2 Residue or sludges and filter cakes 16.3 Brine sludge
17.	Production of mineral acids	17.1 Process acidic residue, filter cake, dust 17.2 Spent catalyst
18.	Production of nitrogenous and complex fertilizers	18.1 Spent catalyst 18.2 Carbon residue 18.3 Sludge or residue containing arsenic 18.4 Chromium sludge from water cooling tower
19.	Production of phenol	19.1 Residue or sludge containing phenol 19.2 Spent catalyst
20.	Production and/or industrial use of solvents	20.1 Contaminated aromatic, aliphatic or napthenic solvents may or may not be fit for reuse. 20.2 Spent solvents 20.3 Distillation residues 20.4 Process Sludge
21.	Production and/or industrial use of paints, pigments, lacquers, varnishes and inks	21.1 Process wastes, residues and sludges 21.2 Spent solvent
22.	Production of plastics	22.1 Spent catalysts 22.2 Process residues
23.	Production and /or industrial use of glues, organic cements,	23.1 Wastes or residues (not made with vegetable or animal materials)

(1)	(2)	(3)
	adhesive and resins	23.2 Spent solvents
24.	Production of canvas and textiles	24.1 Chemical residues
25.	Industrial production and formulation of wood preservatives	25.1 Chemical residues 25.2 Residues from wood alkali bath
26.	Production or industrial use of synthetic dyes, dye-intermediates and pigments	26.1 Process waste sludge/residues containing acid, toxic metals, organic compounds 26.2 Dust from air filtration system 26.3 Spent acid 26.4 Spent solvent 26.5 Spent catalyst
27.	Production of organic-silicone compound	27.1 Process residues
28.	Production/formulation of drugs/pharmaceutical and health care product	28.1 Process Residue and wastes 28.2 Spent catalyst 28.3 Spent carbon 28.4 Off specification products 28.5 Date-expired products 28.6 Spent solvents
29.	Production, and formulation of pesticides including stock-piles	29.1 Process wastes or residues 29.2 Sludge containing residual pesticides 29.3 Date-expired and off-specification pesticides 29.4 Spent solvents 29.5 Spent catalysts 29.6 Spent acids
30.	Leather tanneries	30.1 Chromium bearing residue and sludge
31.	Electronic Industry	31.1 Process residue and wastes 31.2 Spent etching chemicals and solvents
32.	Pulp and Paper Industry	32.1 Spent chemicals 32.2 Corrosive wastes arising from use of strong acid and bases 32.3 Process sludge containing adsorbable organic halides(AO_X)
33.	Handling of hazardous chemicals and wastes	33.1 Empty barrels/containers/liners contaminated with hazardous chemicals /wastes 33.2 Contaminated cotton rags or other cleaning materials
34.	De-contamination of barrels / containers used for handling of hazardous wastes/chemicals	34.1 Chemical-containing residue arising from decontamination. 34.2 Sludge from treatment of waste water arising out of cleaning / disposal of barrels / containers
35.	Purification and treatment of exhaust air/gases, water and waste water from the processes in this schedule and common industrial effluent treatment plants (CETP's)	35.1 Exhaust Air or Gas cleaning residue 35.2 Spent ion exchange resin containing toxic metals 35.3 Chemical sludge from waste water treatment 35.4 Oil and grease skimming 35.5 Chromium sludge from cooling water
36.	Purification process for organic	36.1 Any process or distillation residue

(1)	(2)	(3)
	compounds/solvents	36.2 Spent carbon or filter medium
37.	Hazardous waste treatment processes, e.g. pre-processing, incineration and concentration	37.1 Sludge from wet scrubbers 37.2 Ash from incinerator and flue gas cleaning residue 37.3 Concentration or evaporation residues
38.	Chemical processing of Ores containing heavy metals such as Chromium, Manganese, Nickel, Cadmium etc.	38.1 Process residues 38.2 Spent acid

* **The inclusion of wastes contained in this Schedule does not preclude the use of Schedule II to demonstrate that the waste is not hazardous. In case of dispute, the matter would be referred to the Technical Review Committee constituted by Ministry of Environment, Forest and Climate Change.**

Note: *The high volume low effect wastes such as fly ash, Phosphogypsum, red mud, jarosite, Slags from pyrometallurgical operations, mine tailings and ore beneficiation rejects are excluded from the category of hazardous wastes. Separate guidelines on the management of these wastes shall be issued by Central Pollution Control Board.*

To

NTPC Limited (A Government of India Enterprise)
NTPC Jhanor Unit

Sub: Notification on the drive life cycle – LCIMEGADRIVE

This is with reference to the below LCIMEGADRIVE installed at NTPC Jhanor.

Customer	Type Code	S/Nr first part	S/Nr running number
NTPC	LCI.ST-BR1-A0606-253R344	3BHB9110	118
NTPC	LCI.ST-BR1-A0606-253R344	3BHB9110	174

Current life cycle status
The above MEGADRIVE-LCI (PSR2 light) is in the Obsolete life cycle phase since 01.01.2021 according to the ABB life cycle management model.

Life cycle plan
The Obsolete life cycle phase represents the last life cycle phase of the ABB life cycle management model where no services are available.

Product availability in Obsolete life cycle phase
Manufacturing of this product subtype has stopped, and it is not available for sale

Recommended actions
In Obsolete life cycle phase no services are available other than end-of-life services; but in this case ABB offers the possibility to apply a Control Upgrade (PEC3) Service (refer to Control Upgrade service product description). After this Control Upgrade service, the drive installation will return to the Classic life cycle phase where complete life cycle services will be available (refer to Life Cycle Status Statement of MEGADRIVE-LCI (PSR) after Control Upgrade (PEC3))

Service availability in Obsolete life cycle phase
Available Services
Lifecycle upgrade (Control Upgrade PEC3)
Disposal and recycling
Replacement

Justification for Upgradation of Turbine Blading and Combustion Chamber of GT # 2 at Gandhar GPS
(Capitalization claimed as per Form-9 for FY 26-27)

It is submitted that at Gandhar GPS, General Electric (GE) (OEM) make three number Gas Turbines (GT) of model 13E1 and rating 144.3 MW each are installed. It is pertinent to note that the OEM vide its letter dated 21.04.2017 **(copy attached underneath)** intimated about the discontinuation of GT13E1 Standard Turbine Blading (which is under use at Gandhar GPS) and its replacement with a superseding alternative.

As per the said letter dated 21.04.2017, OEM intimated that continuous development of the GT13E1 platform has progressively led to technically improved blading variants. More specific, for the GT13E1 Standard blading, alternative improved parts are available, which are currently installed or being installed in the majority of the GT13E1 and GT13E2 Gas based units in operation worldwide. Further, due to the remaining limited number of units still in operation with standard E1 Blading, the volume of spare parts has continuously decreased and is at a level where the OEM is facing increasing difficulties to maintain the supply chain and lead times to fulfil the customer requirements. To resolve this issue and ensure the continued, good support for units, the OEM has developed a transition to MXL blading. The OEM further intimated that upgraded MXL blading is a proven product with millions of operating hours worldwide and has the potential to improve plant performance also.

OEM vide the said letter dated 21.04.2017 further intimated that reconditioning and scarp replacement will be continued on the GT13E1 standard turbine blading. Accordingly, the instant Station was able to maintain the turbine blading requirement for its 3 nos. Gas Turbines with the inventory available with the Station, inventory available with the OEM and use of reconditioned blading from the GTs.

Further, vide letter dated 28.03.2019 **(copy attached underneath)**, the OEM reiterated that several of the GT13E1 standard turbines parts are discontinued and proposed for a collaborative working on a transition plan to a current GT13E1 configuration with MXL upgradation for turbine blading.

Subsequently, vide its letter dated 14.04.2021 **(copy attached underneath)**, the OEM intimated that after working collaboratively with the Petitioner, a Roll-in Roll-out plan which ensures optimum utilization of as installed parts in GTs, available inventory with the instant Station and inventory with the OEM, was prepared, based on which required parts were procured by Gandhar GPS from the OEM. At the same time, the OEM reiterated its concern with regard to spare parts availability for standard turbine blading for GT13E1 configuration, its declining inventory and once again recommended planning for complete upgradation to MXL variant of turbine blading.

It is also pertinent to note that as per the Detailed Assessment Report provided by the OEM in June 2023 with respect to Turbine Blading of GT # 1 **(copy attached underneath)**, the OEM intimated that out of 63 no. blades submitted for reconditioning, 51 nos. were beyond repair and would have to be scrapped and only 12 nos. were reconditionable. Also, the inner liner

set was rejected by the OEM for reconditioning citing that the condition of the Liner was beyond repair and does not meet the reconditioning criteria.

It is submitted that the increasing trend of start/stop of the instant Gas based station is causing thermal stresses and contributing towards high rejection rate of the turbine blading components making them unfit for reconditioning. In recent years, the number of start-ups has been on an increasing trend, which is evident from the table mentioned below:

FY	2020-21	2021-22	2022-23	2023-24	2024-25 (up to July'24)
Number of Start-ups	54	221	435	530	174
PLF (%)	14.4	6.88	4.65	11.84	22.74

It is evident that although in FY 21-22 and FY 22-23, the overall PLF of the Station was low, however, the number of start-ups were very high. It is relevant to mention that the instant Gas Station, in the recent years, has been directed on regular basis from beneficiaries and various statutory authorities such as Ministry of Power (GoI), CEA, NLDC GRID-INDIA, etc. to ensure generation from the instant Station, some of which are as detailed below:

1. Almost daily instructions in recent period from NLDC, GRID-INDIA to bring on bar all the Gas units in view of higher All India evening peak demand and lack of ramping-up reserve (a copy of some of such communications and Open cycle generation details during July'24 is **attached underneath** for reference)
2. Ministry of Power, GoI vide Order dated 12.04.2024 (**copy attached underneath**), under Section 11 of the Electricity Act 2003, issued directions to Gas Based Generating Stations including the instant Station to ensure maximum generation to meet high electricity demand during the summer season.
3. The instant station was also mandated to run to support the requirement of higher electricity demand during April-May 2023 (MoP's minutes of meeting dated 10.01.2023 in this regard **annexed underneath**)

In view of the above, it is evident that the instant Station has been running on regular basis to support the requirement of power of the beneficiaries as well as to support the grid, requiring several start-stops. The same has contributed towards degradation of turbine blading leading to higher rejection rate for reconditioning during inspections. Further, as mentioned above, the OEM has declared the standard variant of the Turbine Blading as obsolete since April 2017 and the inventory of the same available with the OEM has been declining ever since. In fact, the OEM vide communication dated 19.08.2024 **(annexed underneath)** intimated that there is no inventory left for the standard turbine blading variant of GT13E1. Furthermore, as the turbine blading already in use are increasingly getting degraded and are being declared beyond repair and unfit for reconditioning, the re-use of already installed blading is also on decline. At the time of inspection, it is necessary that for

the blades which are getting rejected there must be replacement either through inventory with the OEM or through make-up from reconditioned blades. However, in the said scenario, the Petitioner is looking at an imminent possibility in the near future when there would be no replacement for turbine blading getting rejected, leading to grave possibility of non-availability of the GTs.

In view of the above, it has become imperative for the Petitioner to undertake upgradation of turbine blading to MXL variant as also being recommended repeatedly by the OEM. At the same time, Petitioner is conscious of the burden on beneficiaries on account of the same and will make prudent efforts to minimize the same. Therefore, the Petitioner in the 2024-29 period has planned only for upgradation of Turbine Blading and necessary associated hardware of GT # 2 during its next C-type inspection due in FY 26-27. Accordingly, based on indicative proposal received from the OEM vide its letter dated 16.08.2024 **(copy attached underneath),** the Petitioner has claimed capitalization on projected basis of Rs 229.65 Cr in FY 26-27. It is pertinent to note that after the said upgradation in GT # 2, the reconditioned standard variant turbine blading from GT # 2 will be used as inventory for replacement of degraded/ non-reconditionable turbine blading in GT # 1 and GT # 3 and thereby would avoid upgradation and burden on beneficiaries for upgradation of turbine blading to MXL variant in GT # 1 and GT # 3 in the near future.

In view of the above, the Hon'ble Commission may be pleased to allow the projected capitalization of Rs 229.65 Cr in FY 26-27 on behalf of above-described requirement of upgradation of turbine blading and associated hardware of GT # 2.

Jhanor/MECH MAINT/2021-22/DS/~~1460~~ 190694

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Mr. B. Basu - General Manager
NTPC Jhanor
Post Urja Nagar, Bharuch Pin: 392215

0505100000008447

Baden, April 21st 2017

000021

Subject: **GT13E1 Standard Turbine Blading**

Dear Mr. Basu,

This letter is to inform GT13E1 customers about the discontinuation of components for which a superseding alternative is available.

Background
Continuous development of the GT13E1 platform has progressively led to technically improved blading variants. More specific, for the GT13E1 Standard blading, alternative improved parts are available, which are currently installed or being installed in the majority of the GT13E1 and GT13E2 units in operation.
Due to the remaining limited number of units still in operation with Standard E1 Blading, the volume of spare parts has continuously decreased and is at a level where we face increasing difficulties to maintain the supply chain and lead times to fulfill our customer requirements.
To resolve this issue and ensure the continued, good support for units, GE has developed a transition to our current standard MXL blading. This proven product has now many millions of operating hours and this MXL blading is available for installation during a C-Inspection.

Compatibility
The MXL blading is fully compatible with the GT13E1 combustion system and compressor installed. A stepwise upgrade of the turbine is feasible allowing an upgrade of the stage 1 or stages 1-3 of the turbine. This can be a viable alternative if there is remaining lifetime on stages 4 and 5.

Benefits
This blading has the potential to increase your plant performance in terms of power output and efficiency but can also be installed performance neutral if desired. There is also a substantial increase in inspection intervals offered with the MXL blading.

Reconditioning
Reconditioning and scrap replacement will be continued on the GT13E1 standard turbine blading. An upgrade from GT13E1 standard blading to MXL during reconditioning is not possible due to the different designs.

Your customer sales representative will be available to discuss next steps and support decision on the different opportunities.

Best Regards

Harold Kissel

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Mr. B.L. Sharma , General Manager
NTPC Jhanor
Post Urja Nagar, Bharuch Pin: 392215

Baden, March 28, 2019

Subject: **GT13E1 Standard Turbine Parts Discountinuation**

Attachment: GE Technical Customer Information. GT13E1 Standard Turbine Blading

Dear Mr. Sharma,

In reference to the letter attached, dated April 21th, 2017, we would like to reiterate that several GT13E1 parts, currently installed in your machine, are discontinued. Therefore, we propose to work collaboratively on a transition plan to a current GT13E1 configuration (with MXL hardware). Please note that within the past 6 years, all GT13E1 units have been converted to an MXL configuration, the last units being currently in this process.
As of now, the following parts of GT13E1 variant are no longer produced or supplied:

No	Affected Part		Replacement	
	Part	Rating	Part	Rating
1	Blade Stage 1	E1 variant	Blade Stage 1	MXL variant
2	Vane Stage 1	E1 variant	Vane Stage 1	MXL variant
3	SHSS A	E1 variant	SHSS A	MXL variant
4	Blade Stage 2	E1 variant	Blade Stage 2	MXL variant
5	Vane Stage 2	E1 variant	Vane Stage 2	MXL variant
6	SHSS B	E1 variant	SHSS B	MXL variant
7	Blade Stage 3	E1 variant	Blade Stage 3	MXL variant
8	Vane Stage 3	E1 variant	Vane Stage 3	MXL variant
9	SHSS C	E1 variant	SHSS C	MXL variant
10	HGC*	E1 variant	HGC	MXL variant
11	CCI**	E1 variant	Insert	MXL variant
12	ILS***	E1 variant	ILS	Improved Design

Table 1. List of GT13E1 Standard Parts Discontinued and Replacement rating

* HGC: Hot Gas Casing
** CCI: Combustion Chamber Inserts
** ILS : Inlet Segment

Important notes :

- Parts (within the same turbine stage, but also on different stages) have interdependencies which should be carefully considered when planning. For example, blade 1 of MXL variant cannot be installed with Vane 1 of standard E1 variant. Similarly, vane 2 of MXL variant cannot be installed with Blade 3 of standard E1 variant.
- As of now, standard turbine Stage 4 (Blade 4, vane 4, SHS-D, RHS-C) and stage 5 (Blade 5, vane 5, SHS-E, RHS-D) hardware are still available for ordering.

Reconditioning
As stated previously, GE will continue reconditioning GT13E1 parts where possible (if parts available for scrap replacement). Therefore, to allow for a smooth transition, we would highly recommend planning as early as possible. We are fully dedicated to support and collaborate with your team in defining the most economical option for your plant (modular upgrade, use of refurbished hardware, ...).

Should you have further questions about this matter, please feel free to contact us.

Yours faithfully,

Youssef Chkoubi
GT13E1 Product Manager

Brown Boveri Strasse 7,
5400 Baden, Switzerland
+41 79 765 76 80
youssef.chkoubi@ge.com

April 14, 2021

Mr. Anil Kumar Pandey
NTPC LTD
2nd Floor, Samrudhi Venture Park,
M. I. D. C Marol, Andheri East, Chakala,
Mumbai, Maharashtra 400093

Subject: Tender ID 2021_NTPC_47410_1 (9900216738) for M01898 Spare of Std Variant components for 13E1 Jhaonr.

Reference:
1. GE's letter dated 21st April 2017 for GT13E1 Standard Turbine Parts Discountinuation.
2. GE's letter dated 28th March 2019 for rema??inder Standard Turbine Parts Discountinuation.
3. GE's budgetary quote 1547603 dated 23.09.2020 last chance buy of available inventory.
4. GE's Firm bid Submission dated 01st March 2021

Attachment: GE Technical Customer Information. GT13E1 Standard Turbine Blading

Dear Mr. Pandey,

In reference to the letter, dated 21st April 2017 and 28th March 2019e would like to reiterate that several GT13E1 parts, currently installed in your machine, are discontinued.

Therefore, we had worked collaboratively and transparently with NTPC and after various joint workouts between teams of both companies we have prepared Roll -in Roll out plan which ensures optimum utilization of as installed parts in GTs, available inventory with NTPC Jhanor site and inventory with GE power (subjected to prior sales).

Based on Roll-in Roll Out plan we received the formal NTPC tender Tender ID 2021_NTPC_47410_1 (9900216738) for M01898 for below parts.

Tender S.No	Item Description	Part Number	Tender qty.
480	TURBINE ROTOR BLADE STAGE 4	GMD5442361P0003	12
490	TURBINE ROTOR BLADE STAGE 5	GMD5442024P0004	67
500	STATOR VANE STAGE 4	HTCT155356R0011	6
510	STATOR VANE STAGE 5	HTCT255102R0001	50
520	HEAT SHIELD SEGMENT STAGE 3	GMD5443560R0001	28
530	HEAT SHIELD SEGMENT STAGE 4	GMD5443557P0001	12
540	HEAT SHIELD SEGMENT STAGE 5	GMD5443018P0001	3

We have few parts available in inventory which are sold to our global customer based on the first come first serve basis. With the latest update on inventory from our global sourcing chain, Stator Heat Shield Segment at above Row # 4 is sold out and is not available in inventory and not in manufacturing anymore.

We have therefore quoted for parts except Stator Heat Shield # D (Row#4) for availability till 15.05.2021 beyond which we will review the inventory status and inform you accordingly.

Further, on a transition plan to a current GT13E1 configuration (with MXL hardware) please note that in the past 6 years, almost all GT13E1 units have been converted to an MXL configuration, the last units being currently in this process.

As of now, the following parts of GT13E1 variant are no longer produced nor being supplied:

No	Affected Part		Replacement	
	Part	Rating	Part	Rating
1	Blade Stage 1	E1 variant	Blade Stage 1	MXL variant
2	Vane Stage 1	E1 variant	Vane Stage 1	MXL variant
3	SHSS A	E1 variant	SHSS A	MXL variant
4	Blade Stage 2	E1 variant	Blade Stage 2	MXL variant
5	Vane Stage 2	E1 variant	Vane Stage 2	MXL variant
6	SHSS B	E1 variant	SHSS B	MXL variant
7	Blade Stage 3	E1 variant	Blade Stage 3	MXL variant
8	Vane Stage 3	E1 variant	Vane Stage 3	MXL variant
9	SHSS C	E1 variant	SHSS C	MXL variant
10	HGC*	E1 variant	HGC	MXL variant
11	CCI**	E1 variant	Insert	MXL variant
12	ILS***	E1 variant	ILS	Improved Design

Table 1. List of GT13E1 Standard Parts Discontinued and Replacement rating

* HGC: Hot Gas Casing
** CCI: Combustion Chamber Inserts
** ILS: Inlet Segment

Important notes :

- Parts (within the same stages, but also on different stages) have interdependencies which should be carefully considered when planning. For example, blade 1 of MXL variant cannot be installed with Vane 1 of standard E1 variant. Similarly, vane 2 of MXL variant cannot be installed with Blade 3 of standard E1 variant.
- Last chance buy, standard turbine Stage 4 (Blade 4, vane 4, SHS-D, RHS-C) and stage 5 (Blade 5, vane 5, SHS-E, RHS-D) hardware is only available as per inventory attached.

Background

Continuous development of the GT13E2 and GT13E1 platforms has progressively led to technically improved blading* variants. More specifically, for Standard Turbine blading (see Impacted components below), alternative improved parts are available, which are currently installed or being installed in the majority of the GT13E1 and GT13E2 units in operation. Due to the remaining limited number of units still in operation with Standard Turbine Blading hardware, the volume of available spare parts has continuously decreased and is at a level where we face increasing difficulties to maintain the supply chain and lead times. To resolve this issue and ensure the continued and good support for units, GE has developed a transition to our current standard MXL blading. This proven product has now accumulated millions of operating hours and is available for installation during a standard C-Inspection. GT13E2 customers would also have the option to directly upgrade their units, from any starting configuration, to MXL2 configurations.

* Please be noted that "blading" refers to blades (Buckets), Vanes (Nozzles), Stator Heat Shields, and Rotor Heat Shields.

Impacted components
All variants which have been developed prior to MXL configuration (also commonly called E1, E2, V96, VA, XL, and any combination of those). All turbine stages (stage 1, 2, 3, 4 and 5) are affected.

Compatibility
The MXL blading is fully compatible with any GT13E1 and GT13E2 combustion system and compressor. A stepwise implementation of the MXL blading is possible conditional upon remaining lifetime on stage 4 and 5.

Benefits
MXL configuration has extensively demonstrated its reliability since its first installation in 2002. It has since accumulated millions of operating hours, over 120'000 starts and sees in average 20 C-inspections per year (and over 40 minor outages). In addition to being more reliable, the MXL configuration comes with a substantial increase in inspection intervals (up to 50%). The MXL blading also has the potential to increase your plant performance (Power output and heat rate, depending on starting configuration) but can, if desired, be installed with neutral performance. (benefits subject to running/operating the equipment/parts as per OEM recommendations and guidelines)

Reconditioning
As stated previously, GE will continue reconditioning GT13E1 parts where possible (if parts available for scrap replacement). Therefore, to allow for a smooth transition, we would highly recommend planning as early as possible. We are fully dedicated to support and collaborate with your team in defining the most economical option for your plant (modular upgrade, use of refurbished hardware.

Should you have further questions about this matter, please feel free to contact us.

Yours faithfully,

Arvind Acharya
Senior Sales Manager.

CC: 1. Mr. Kulwinder Singh – HOP , NTPC Jhanor, Post Urja Nagar, Bharuch Pin: 392215
2. Mr. D Paul, CGM – SSC Kawas, NTPC Kawas. Address: P.O. Aditya Nagar,Dist. Surat -394 516
3. Sandeep Gupta – GM OS Gas Turbine.

Origin Unit: GANDHAR NTPC GT-1

Origin Turbine Type: GT13E1

Detailed Assessment Report (DAR)

Order End-Customer: --

Order Local Service Center: 4102326334

TURB. BLADE 1

June 2023

Doc. N°: DAR_41148641

Table of Contents **Page**

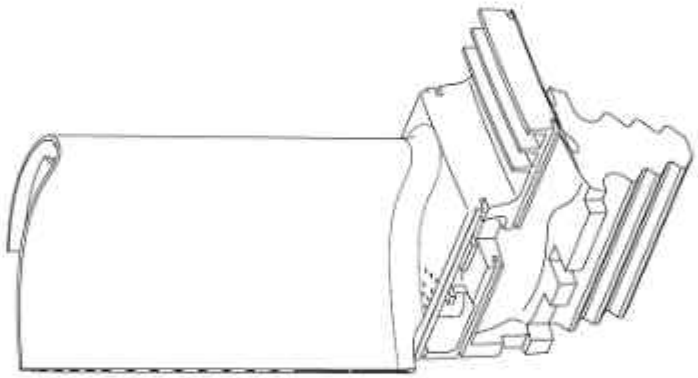
1. Background

1.1. Component Allocation

Origin Plant / Unit	Origin GT- Type	Component Name	Outage Code
GANDHAR NTPC GT-1	GT13E1	TURB. BLADE 1	G00116

Table 1: *Description of the inspected object*

1.2. Overview picture



Overview of TURB. BLADE 1

1.3. Operating Data

EOH[1]	OH[2]	Starts	Trips
24301	20861	172	N/A

Table 2: *Operating data of the inspected component*

[1] Equivalent Operating Hours
[2] Operating Hours

1.4. Additional Information

Detailed Assessment Report No:	DAR_41148641
Production Order No for DAR:	41148641
Actual RDAS No:	28466
Internal SD Order No:	668413

2. Detailed Assessment

2.1. Summary

The table below summarises the number of received parts (in relation to the set quantity) per Part Identification Incoming No:

Component Name	Part Identification Incoming No	Set quantity	Received quantity	Scrap / Fallout quantity	Reconditionable quantity	Estimated additional scrap/fallout*
TURB. BLADE 1 (Standard)	HTCZ300720P0008	63	63	51	12	6
TOTAL		**63**	**63**	**51**	**12**	**6**

Table 3: *Summary of the numbers of required and received parts*

*Estimated additional scrap/fallout: Please note that the number of recondition able components is only a preliminary assessment and can change during the reconditioning process, in particular while stripping and crack testing of the complete rows.

2.2. *Detailed Assessment Procedures*

The aforementioned components arrived in March 2023 at the Reconditioning Workshop. A detailed assessment has been carried out according to the GE operation plan, which consists of:

Process	Scope[3]
Receive customer material	L M H
Material check-in and part identification	L M H
Visual assessment	L M H
Embossing of reconditioning number	L M H
Stress relief heat treatment	L M H
Removal of coating (chemical stripping)	L M H
Heat tint test	L M H
Removal of residual surface oxidation and corrosion	L M H
Certified Fluorescent Penetrant Inspection (crack inspection)	L M H
Detailed incoming assessment including geometry measurements	L M H
Kick-Off Meeting including creation of Incoming Inspection Report	L M H

[3] L = Light; M = Medium; H = Heavy

Subject:	Detailed Assessment Report	**RDAS No:**	28466
Origin Plant/Unit:	GANDHAR NTPC GT-1	**Component:**	TURB. BLADE 1
Origin Turbine Type:	GT13E1	**Doc. N°.:**	DAR_41148641

2.3. Mapping of damages on individual parts

-	-	Coating defects			Cracks / Porosity / Roughness						Oxidation, Corrosion						FOD / Broken off material						Rubbing / Fretting						-	-
Position	Serial No.	Inner diameter (platform, foot)	Airfoil (pressure- & suction side)	Leading edge	Outer diameter (platform, foot)	Inner diameter (platform, foot)	Airfoil (pressure- & suction side)	Leading edge	Trailing edge	Fillet, Tip (inner, outer)	Outer diameter (platform, foot)	Inner diameter (platform, foot)	Airfoil (pressure- & suction side)	Leading edge	Trailing edge	Fillet, Tip (inner, outer)	Outer diameter (platform, foot)	Inner diameter (platform, foot)	Airfoil (pressure- & suction side)	Leading edge	Trailing edge	Fillet, Tip (inner, outer)	Outer diameter (platform, foot)	Inner diameter (platform, foot)	Airfoil (pressure- & suction side)	Leading edge	Trailing edge	Fillet, Tip (inner, outer)	Comment	Repair
001	HDCMF71C	-	-	-	-	X	-	-	X	X	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	X	Cracks beyond repair limit	S
002	HDCME95C	-	-	-	-	X	-	-	X	X	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	X	Cracks beyond repair limit	S
003	HDCMG42C	-	-	-	-	X	-	-	X	X	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	X	Cracks beyond repair limit	S
004	HDCMF51C	-	-	-	-	X	-	-	X	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	X	Cracks beyond repair limit	S
005	HDCMG02C	-	-	-	-	X	-	-	X	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	X	-	H
006	HDCMF57C	-	-	-	-	X	-	-	X	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	X	-	H
007	HDCMG20C	-	-	-	-	X	-	-	-	X	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	X	Cracks beyond repair limit	S
008	HDCMG22C	-	-	-	-	X	-	-	X	X	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	Cracks beyond repair limit	S
009	HDCMF72C	-	-	-	-	X	-	-	X	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	X	Cracks beyond repair limit	S
010	HDCMF39C	-	-	-	-	X	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	Wallthickness below repair limit	S
011	HDCMG16C	-	-	-	-	X	-	-	X	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	X	-	H
012	HDCMG54C	-	-	-	-	X	-	-	X	X	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	Cracks beyond repair limit	S
013	HDCMF50C	-	-	-	-	X	-	-	X	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	X	Cracks beyond repair limit	S
014	HDCMF62C	-	-	-	-	X	-	-	X	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	X	Cracks beyond repair limit	S
015	HDCMF54C	-	-	-	-	X	-	-	X	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	X	Cracks beyond repair limit	S
016	HDCMF26C	-	-	-	-	X	-	-	X	X	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	X	Cracks beyond repair limit	S

GE POWER

Subject:	Detailed Assessment Report	**RDAS No:**	28466
Origin Plant/Unit:	GANDHAR NTPC GT-1	**Component:**	TURB. BLADE 1
Origin Turbine Type:	GT13E1	**Doc. N°.:**	DAR_41148641

-	-	Coating defects			Cracks / Porosity / Roughness						Oxidation, Corrosion						FOD / Broken off material						Rubbing / Fretting						-	-
Position	Serial No.	Inner diameter (platform, foot)	Airfoil (pressure- & suction side)	Leading edge	Outer diameter (platform, foot)	Inner diameter (platform, foot)	Airfoil (pressure- & suction side)	Leading edge	Trailing edge	Fillet, Tip (inner, outer)	Outer diameter (platform, foot)	Inner diameter (platform, foot)	Airfoil (pressure- & suction side)	Leading edge	Trailing edge	Fillet, Tip (inner, outer)	Outer diameter (platform, foot)	Inner diameter (platform, foot)	Airfoil (pressure- & suction side)	Leading edge	Trailing edge	Fillet, Tip (inner, outer)	Outer diameter (platform, foot)	Inner diameter (platform, foot)	Airfoil (pressure- & suction side)	Leading edge	Trailing edge	Fillet, Tip (inner, outer)	Comment	Repair
017	HDCMG21C	-	-	-	-	X	-	-	X	X	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	X	Cracks beyond repair limit	S
018	HDCMF60C	-	-	-	-	X	-	X	X	X	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	X	Cracks beyond repair limit	S
019	HDCMG41C	-	-	-	-	X	-	-	X	X	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	X	Cracks beyond repair limit	S
020	HDCMF82C	-	-	-	-	X	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	X	-	H
021	HDCMF61C	-	-	-	-	X	-	-	X	X	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	X	Cracks beyond repair limit	S
022	HDCMG08C	-	-	-	-	X	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	X	-	-	-	X	-	H
023	HDCMG26C	-	-	-	-	X	X	-	X	X	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	Cracks beyond repair limit	S
024	HDCMF48C	-	-	-	-	X	-	-	X	-	-	-	-	-	-	X	-	-	-	-	-	-	-	X	-	-	-	X	-	H
025	HDCMF52C	-	-	-	-	X	X	-	X	-	-	-	-	-	-	X	-	-	-	-	-	-	-	X	-	-	-	-	Cracks beyond repair limit	S
026	HDCMF31C	-	-	-	-	X	-	-	X	X	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	X	Cracks beyond repair limit	S
027	HDCMF35C	-	-	-	-	X	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	X	-	-	-	X	Cracks beyond repair limit	S
028	HDCMF77C	-	-	-	-	X	-	-	X	X	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	Cracks beyond repair limit	S
029	HDCMG03C	-	-	-	-	X	-	-	X	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	X	Cracks beyond repair limit	S
030	HDCMF44C	-	-	-	-	X	X	-	X	X	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	X	Cracks beyond repair limit	S
031	HDCMF69C	-	-	-	-	X	-	-	X	X	-	-	-	-	-	X	-	-	X	-	-	-	-	-	-	-	-	X	Cracks beyond repair limit	S
032	HDCMF42C	-	-	-	-	X	-	-	X	X	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	Cracks beyond repair limit	S
033	HDCMF81C	-	-	-	-	X	-	-	X	X	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	X	Cracks beyond repair limit	S
034	HDCMF53C	-	-	-	-	X	-	-	X	X	-	-	-	-	-	X	-	-	-	-	-	-	-	X	-	-	-	X	Cracks beyond repair limit	S
035	HDCMG32C	-	-	-	-	X	-	-	X	X	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	X	Cracks beyond repair limit	S
036	HDCMG04C	-	-	-	-	X	-	-	-	X	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	X	Cracks beyond repair limit	S

GE POWER

Subject:	Detailed Assessment Report	**RDAS No:**	28466
Origin Plant/Unit:	GANDHAR NTPC GT-1	**Component:**	TURB. BLADE 1
Origin Turbine Type:	GT13E1	**Doc. N°.:**	DAR_41148641

-	-	Coating defects			Cracks / Porosity / Roughness						Oxidation, Corrosion						FOD / Broken off material						Rubbing / Fretting						-	-
Position	Serial No.	Inner diameter (platform, foot)	Airfoil (pressure- & suction side)	Leading edge	Outer diameter (platform, foot)	Inner diameter (platform, foot)	Airfoil (pressure- & suction side)	Leading edge	Trailing edge	Fillet, Tip (inner, outer)	Outer diameter (platform, foot)	Inner diameter (platform, foot)	Airfoil (pressure- & suction side)	Leading edge	Trailing edge	Fillet, Tip (inner, outer)	Outer diameter (platform, foot)	Inner diameter (platform, foot)	Airfoil (pressure- & suction side)	Leading edge	Trailing edge	Fillet, Tip (inner, outer)	Outer diameter (platform, foot)	Inner diameter (platform, foot)	Airfoil (pressure- & suction side)	Leading edge	Trailing edge	Fillet, Tip (inner, outer)	Comment	Repair
037	HDCMF76C	-	-	-	-	X	-	-	X	X	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	X	Cracks beyond repair limit	S
038	HDCMF33C	-	-	-	-	X	-	-	X	X	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	X	Cracks beyond repair limit	S
039	HDCMF89C	-	-	-	-	X	-	-	X	X	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	X	Cracks beyond repair limit	S
040	HDCMF32C	-	-	-	-	X	X	-	-	X	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	X	Cracks beyond repair limit	S
041	HDCMF68C	-	-	-	-	X	-	-	X	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	X	-	H
042	HDCMG01C	-	-	-	-	X	-	-	X	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	X	-	H
043	HDCMG15C	-	-	-	-	X	-	-	X	X	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	Cracks beyond repair limit	S
044	HDCMG10C	-	-	-	-	X	-	-	X	X	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	X	Cracks beyond repair limit	S
045	HDCMG19C	-	-	-	-	X	-	-	X	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	X	-	H
046	HDCMF70C	-	-	-	-	X	-	-	X	-	-	-	-	-	-	X	-	-	-	-	-	-	-	X	-	-	-	X	Cracks beyond repair limit	S
047	HDCMF34C	-	-	-	-	X	-	-	X	X	-	-	-	-	-	X	-	-	-	-	-	-	-	X	-	-	-	-	Cracks beyond repair limit	S
048	HDCMF27C	-	-	-	-	X	-	-	X	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	Cracks beyond repair limit	S
049	HDCMG31C	-	-	-	-	X	-	-	X	X	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	Cracks beyond repair limit	S
050	HDCMF85C	-	-	-	-	X	X	-	X	X	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	X	Cracks beyond repair limit	S
051	HDCMF38C	-	-	-	-	X	-	-	X	-	-	-	-	-	-	X	-	-	-	-	-	-	-	X	-	-	-	X	-	H
052	HDCMG23C	-	-	-	-	X	-	-	X	X	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	X	Cracks beyond repair limit	S
053	HDCMG06C	-	-	-	-	X	-	-	X	X	-	-	-	-	-	X	-	-	-	-	-	-	-	X	-	-	-	-	Wallthickness below repair limit	S
054	HDCMF55C	-	-	-	-	X	-	-	X	X	-	-	-	-	-	X	-	-	-	-	-	-	-	X	-	-	-	X	Cracks beyond repair limit	S
055	HDCMG37C	-	-	-	-	X	X	-	X	X	-	-	-	-	-	X	-	-	-	-	-	-	-	X	-	-	-	X	Cracks beyond repair limit	S
056	HDCMG18C	-	-	-	-	X	-	-	X	X	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	Cracks beyond repair limit	S

GE POWER

Subject:	Detailed Assessment Report	**RDAS No:**	28466
Origin Plant/Unit:	GANDHAR NTPC GT-1	**Component:**	TURB. BLADE 1
Origin Turbine Type:	GT13E1	**Doc. N°.:**	DAR_41148641

-	-	Coating defects			Cracks / Porosity / Roughness						Oxidation, Corrosion						FOD / Broken off material						Rubbing / Fretting						-	-
Position	Serial No.	Inner diameter (platform, foot)	Airfoil (pressure- & suction side)	Leading edge	Outer diameter (platform, foot)	Inner diameter (platform, foot)	Airfoil (pressure- & suction side)	Leading edge	Trailing edge	Fillet, Tip (inner, outer)	Outer diameter (platform, foot)	Inner diameter (platform, foot)	Airfoil (pressure- & suction side)	Leading edge	Trailing edge	Fillet, Tip (inner, outer)	Outer diameter (platform, foot)	Inner diameter (platform, foot)	Airfoil (pressure- & suction side)	Leading edge	Trailing edge	Fillet, Tip (inner, outer)	Outer diameter (platform, foot)	Inner diameter (platform, foot)	Airfoil (pressure- & suction side)	Leading edge	Trailing edge	Fillet, Tip (inner, outer)	Comment	Repair
057	HDCMG17C	-	-	-	-	X	-	-	X	X	-	-	-	-	-	X	-	-	-	-	-	-	-	X	-	-	-	X	Cracks beyond repair limit	S
058	HDCMG24C	-	-	-	-	X	-	-	X	X	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	X	Cracks beyond repair limit	S
059	HDCMF56C	-	-	-	-	X	-	-	X	X	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	X	-	H
060	HDCMF83C	-	-	-	-	X	-	-	X	X	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	X	Cracks beyond repair limit	S
061	HDCMF45C	-	-	-	-	X	-	-	X	X	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	X	Cracks beyond repair limit	S
062	HDCMF29C	-	-	-	-	X	-	-	X	X	-	-	-	-	-	X	-	-	-	-	-	-	-	X	-	-	-	X	Cracks beyond repair limit	S
063	HDCME16C	-	-	-	-	X	X	-	X	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	X	-	H

Sum Scrap	51	Sum Light	0	Sum Medium	0	Sum Heavy	12

Table 4: Summary of findings for each component

2.4. *Findings during Detailed Assessment*

Findings	N° of parts affected	See figure N°
Cracks / Porosity / Roughness - Inner diameter (platform, foot)	63	3
Cracks / Porosity / Roughness - Airfoil (pressure- & suction side)	7	-
Cracks / Porosity / Roughness - Leading edge	1	-
Cracks / Porosity / Roughness - Trailing edge	57	4
Cracks / Porosity / Roughness - Fillet, Tip (inner, outer)	41	5
Oxidation, Corrosion - Fillet, Tip (inner, outer)	62	6
FOD / Broken off material - Airfoil (pressure- & suction side)	1	-
Rubbing / Fretting - Inner diameter (platform, foot)	13	-
Rubbing / Fretting - Fillet, Tip (inner, outer)	51	-

***Table 5**: Summary of findings*

2.5. *Metallurgical Investigation*

☒ No metallurgical investigation has been performed.

2.6. *Scrap / Fallout*

☒ The following scrap/fallout parts were detected during Detailed Assessment (incl. Incoming Inspection) Procedures.

51 Parts are SCRAP

Acc. Point 2.3.Mapping of damages on individual parts

3. Reconditioning Scope

3.1. Recommendation for Reconditioning

Process	Scope[4]
Grind out cracks, impact damages, erosion	L M H
Manual welding of damages	M H
Recontouring of welding seams	M H
Automated welding of blade tip crown	M H
Re-machining of blade tip length and geometry	M H
Ultrasonic cleaning	H
Post repair stress relief heat treatment (optional)	M H
Fluoride Ion Cleaning	H
High Temperature Diffusion Brazing (crack / sheet / putty)	H
Recontouring after Diffusion Brazing	H
Certified Fluorescent Penetrant Inspection (crack inspection)	L M H
Ultrasonic cleaning	L M H
Application of MCrAlY-coating	L M H
Diffusion annealing	L M H
Application of TBC coating	L M H
Precipitation hardening	L M H
Reopening of clogged cooling air exits	L M H
Flow test	L M H

Note: Listed is the standard reconditioning scope of work for this component. Depending on damages of the parts or other order-specific exceptions, GE reserves the right to adapt the actual repair process accordingly at any time without further notice.

[4] L = Light; M = Medium; H = Heavy

3.2. *Recommendation for Reconditioning*

Process	Scope[5]
Weighing of blades (calculation of momentum)	L M H
Creation of blade distribution protocol	L M H
Final quality assessment including creation of Final Reconditioning Report	L M H
Packing	L M H

Note: Listed is the standard reconditioning scope of work for this component. Depending on damages of the parts or other order-specific exceptions, GE reserves the right to adapt the actual repair process accordingly at any time without further notice.

3.3. *Modification during Reconditioning*

☒ No Modification is necessary according to the above listed recommendation.

[5] L = Light; M = Medium; H = Heavy

3.4. Definition of Repair Scopes

Compressor and Turbine Blading

The applied repair processes affect the classification of the repair scope, see following indicative table.

Process / Classification	Grinding	Welding[6]	High Temperature Diffusion Brazing[7]	Honeycomb Brazing	Coating removal and re-coating
L (Light)	**YES**	NO	NO	**YES** (if required)	**YES** (if required)
M (Medium)	**YES**	**YES**	NO	**YES** (if required)	**YES** (if required)
H (Heavy)	**YES**	**YES**	**YES**	**YES** (if required)	**YES** (if required)

[6] in case of welding the extent of work affect the work scope too (medium to heavy scope)

[7] including Fluoride Ion Cleaning prior to High Temperature Diffusion Brazing

4. Pictures of components

4.1. Incoming condition

Fig. 1: TURB. BLADE 1
OVERVIEW

Fig. 2: TURB. BLADE 1
OVERVIEW

Fig. 3: TURB. BLADE 1
Cracks / Porosity / Roughness - Inner diameter (platform, foot)

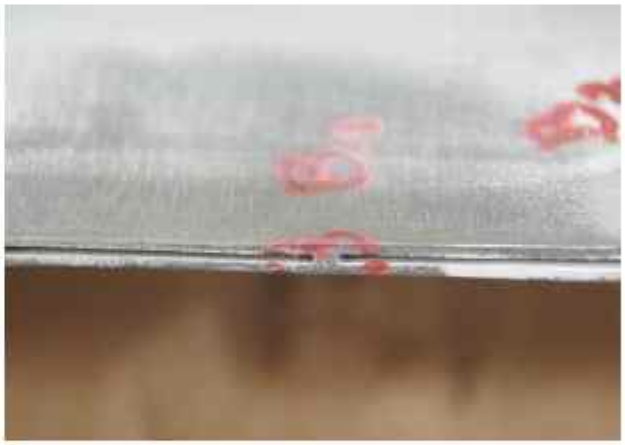


Fig. 4: TURB. BLADE 1
Cracks / Porosity / Roughness - Trailing edge

Subject:	Detailed Assessment Report	**RDAS No:**	28466
Origin Plant/Unit:	GANDHAR NTPC GT-1	**Component:**	TURB. BLADE 1
Origin Turbine Type:	GT13E1	**Doc. N°.:**	DAR_41148641

Fig. 5: TURB. BLADE 1
Cracks / Porosity / Roughness - Fillet, Tip (inner, outer) - SCRAP

Fig. 6: TURB. BLADE 1
Oxidation, Corrosion - Fillet, Tip (inner, outer)

(B) Gandhar Gas Power Station :

Sr. No.	Unit	Date	Time	Date	Time	Hrs	MU	Remarks
J1	GT#1	01-07-2024	20:40	01-07-2024	0:00	3:20	0.383	UNIT RUNNING ON OPEN CYCLE MODE
J1	GT#2	01-07-2024	20:48	01-07-2024	0:00	3:12	0.347	UNIT RUNNING ON OPEN CYCLE MODE
J1	GT#3	01-07-2024	21:22	01-07-2024	0:00	2:38	0.327	UNIT RUNNING ON OPEN CYCLE MODE
J1	GT#1	02-07-2024	00:00	02-07-2024	0:09	0:09	0.364	UNIT SHUTDOWN AS PER GRID INSTRUCTION
J2	GT#1	02-07-2024	20:31	02-07-2024	0:00	3:29		UNIT RUNNING ON OPEN CYCLE MODE
J1	GT#2	02-07-2024	00:00	02-07-2024	0:14	0:14	0.331	UNIT SHUTDOWN AS PER GRID INSTRUCTION
J2	GT#2	02-07-2024	20:48	02-07-2024	0:00	3:12		UNIT RUNNING ON OPEN CYCLE MODE
J1	GT#3	02-07-2024	00:00	02-07-2024	0:19	0:19	0.287	UNIT SHUTDOWN AS PER GRID INSTRUCTION
J2	GT#3	02-07-2024	21:22	02-07-2024	0:00	2:38		UNIT RUNNING ON OPEN CYCLE MODE
J2	GT#1	03-07-2024	00:00	03-07-2024	0:08	0:08	0.005	UNIT RUNNING ON OPEN CYCLE MODE
J2	GT#2	03-07-2024	00:00	03-07-2024	0:14	0:14	0.013	UNIT RUNNING ON OPEN CYCLE MODE
J2	GT#3	03-07-2024	00:00	03-07-2024	0:19	0:19	0.019	UNIT RUNNING ON OPEN CYCLE MODE
J3	GT#1	04-07-2024	18:28	04-07-2024	0:00	5:32	0.706	UNIT RUNNING ON OPEN CYCLE MODE
J3	GT#2	04-07-2024	18:59	04-07-2024	0:00	5:01	0.630	UNIT RUNNING ON OPEN CYCLE MODE
J3	GT#3	04-07-2024	19:48	04-07-2024	0:00	4:12	0.544	UNIT RUNNING ON OPEN CYCLE MODE
J3	GT#1	05-07-2024	00:00	05-07-2024	0:56	0:56	0.146	UNIT SHUTDOWN AS PER GRID INSTRUCTION
J4	GT#1	05-07-2024	19:05	05-07-2024	19:53	0:48		UNIT RUNNING ON OPEN CYCLE MODE
J3	GT#2	05-07-2024	00:00	05-07-2024	0:38	0:38	0.107	UNIT SHUTDOWN AS PER GRID INSTRUCTION
J4	GT#2	05-07-2024	19:19	05-07-2024	19:59	0:40		UNIT RUNNING ON OPEN CYCLE MODE
J3	GT#3	05-07-2024	00:00	05-07-2024	0:47	0:47	0.175	UNIT SHUTDOWN AS PER GRID INSTRUCTION
J4	GT#3	05-07-2024	18:43	05-07-2024	20:09	1:26		UNIT RUNNING ON OPEN CYCLE MODE
J5	GT#1	08-07-2024	19:06	08-07-2024	23:51	4:45	0.579	UNIT RUNNING ON OPEN CYCLE MODE
J5	GT#2	08-07-2024	19:22	08-07-2024	23:42	4:20	0.521	UNIT RUNNING ON OPEN CYCLE MODE
J5	GT#3	08-07-2024	19:35	08-07-2024	23:58	4:23	0.485	UNIT RUNNING ON OPEN CYCLE MODE
J6	GT#1	09-07-2024	19:15	09-07-2024	0:00	4:45	0.601	UNIT RUNNING ON OPEN CYCLE MODE
J6	GT#2	09-07-2024	19:31	09-07-2024	0:00	4:29	0.576	UNIT RUNNING ON OPEN CYCLE MODE
J6	GT#3	09-07-2024	19:00	09-07-2024	0:00	5:00	0.625	UNIT RUNNING ON OPEN CYCLE MODE
J6	GT#1	10-07-2024	00:00	10-07-2024	0:16	0:16	0.641	UNIT SHUTDOWN AS PER GRID INSTRUCTION
J7	GT#1	10-07-2024	18:44	10-07-2024	23:41	4:57		UNIT RUNNING ON OPEN CYCLE MODE
J6	GT#2	10-07-2024	00:00	10-07-2024	0:29	0:29	0.647	UNIT SHUTDOWN AS PER GRID INSTRUCTION
J7	GT#2	10-07-2024	18:55	10-07-2024	23:50	4:55		UNIT RUNNING ON OPEN CYCLE MODE
J6	GT#3	10-07-2024	00:00	10-07-2024	0:06	0:06	0.686	UNIT SHUTDOWN AS PER GRID INSTRUCTION
J7	GT#3	10-07-2024	18:34	10-07-2024	23:56	5:22		UNIT RUNNING ON OPEN CYCLE MODE
J8	GT#1	11-07-2024	18:29	11-07-2024	23:28	4:59	0.514	UNIT RUNNING ON OPEN CYCLE MODE
J8	GT#2	11-07-2024	19:00	11-07-2024	23:52	4:52	0.490	UNIT RUNNING ON OPEN CYCLE MODE
J8	GT#3	11-07-2024	18:44	11-07-2024	23:57	5:13	0.522	UNIT RUNNING ON OPEN CYCLE MODE
J9	GT#1	13-07-2024	20:22	13-07-2024	22:55	2:33	0.272	UNIT RUNNING ON OPEN CYCLE MODE
J9	GT#2	13-07-2024	20:31	13-07-2024	23:08	2:37	0.276	UNIT RUNNING ON OPEN CYCLE MODE
J9	GT#3	13-07-2024	20:53	13-07-2024	23:30	2:37	0.283	UNIT RUNNING ON OPEN CYCLE MODE
J10	GT#1	16-07-2024	19:30	16-07-2024	23:48	4:18	0.544	UNIT RUNNING ON OPEN CYCLE MODE
J10	GT#2	16-07-2024	19:40	16-07-2024	23:52	4:12	0.526	UNIT RUNNING ON OPEN CYCLE MODE
J10	GT#3	16-07-2024	19:59	16-07-2024	23:59	4:00	0.507	UNIT RUNNING ON OPEN CYCLE MODE
J11	GT#1	22-07-2024	19:28	22-07-2024	23:53	4:25	0.473	UNIT RUNNING ON OPEN CYCLE MODE
J11	GT#2	22-07-2024	19:46	22-07-2024	0:00	4:14	0.456	UNIT RUNNING ON OPEN CYCLE MODE
J11	GT#3	22-07-2024	20:09	22-07-2024	0:00	3:51	0.432	UNIT RUNNING ON OPEN CYCLE MODE
J12	GT#1	23-07-2024	19:28	23-07-2024	22:59	3:31	0.375	UNIT RUNNING ON OPEN CYCLE MODE
J11	GT#2	23-07-2024	00:00	23-07-2024	0:03	0:03	0.401	UNIT SHUTDOWN AS PER GRID INSTRUCTION
J12	GT#2	23-07-2024	19:13	23-07-2024	23:07	3:54		UNIT RUNNING ON OPEN CYCLE MODE
J11	GT#3	23-07-2024	00:00	23-07-2024	0:12	0:12	0.444	UNIT SHUTDOWN AS PER GRID INSTRUCTION
J12	GT#3	23-07-2024	18:59	23-07-2024	23:13	4:14		UNIT RUNNING ON OPEN CYCLE MODE
J13	GT#1	26-07-2024	18:59	26-07-2024	23:51	4:52	0.456	UNIT RUNNING ON OPEN CYCLE MODE
J13	GT#2	26-07-2024	19:23	26-07-2024	23:53	4:30	0.396	UNIT RUNNING ON OPEN CYCLE MODE
J13	GT#3	26-07-2024	19:11	26-07-2024	23:58	4:47	0.437	UNIT RUNNING ON OPEN CYCLE MODE
J14	GT#1	27-07-2024	19:19	27-07-2024	22:48	3:29	0.271	UNIT RUNNING ON OPEN CYCLE MODE
J14	GT#2	27-07-2024	19:30	27-07-2024	22:53	3:23	0.258	UNIT RUNNING ON OPEN CYCLE MODE
J14	GT#3	27-07-2024	19:00	27-07-2024	22:56	3:56	0.323	UNIT RUNNING ON OPEN CYCLE MODE
J15	GT#1	29-07-2024	18:26	29-07-2024	0:00	5:34	0.714	UNIT RUNNING ON OPEN CYCLE MODE
J15	GT#2	29-07-2024	18:44	29-07-2024	0:00	5:16	0.676	UNIT RUNNING ON OPEN CYCLE MODE
J15	GT#3	29-07-2024	18:15	29-07-2024	0:00	5:45	0.737	UNIT RUNNING ON OPEN CYCLE MODE
J15	GT#1	30-07-2024	00:00	30-07-2024	3:49	3:49	1.248	UNIT RUNNING ON OPEN CYCLE MODE
J16	GT#1	30-07-2024	17:59	30-07-2024	0:00	6:01		UNIT SHUTDOWN AS PER GRID INSTRUCTION
J15	GT#2	30-07-2024	00:00	30-07-2024	3:53	3:53	1.205	UNIT RUNNING ON OPEN CYCLE MODE
J16	GT#2	30-07-2024	18:31	30-07-2024	0:00	5:29		UNIT SHUTDOWN AS PER GRID INSTRUCTION
J15	GT#3	30-07-2024	00:00	30-07-2024	3:58	3:58	1.298	UNIT RUNNING ON OPEN CYCLE MODE
J16	GT#3	30-07-2024	18:14	30-07-2024	0:00	5:46		UNIT SHUTDOWN AS PER GRID INSTRUCTION
J16	GT#1	31-07-2024	00:00	31-07-2024	1:33	1:33	0.355	UNIT RUNNING ON OPEN CYCLE MODE
J17	GT#1	31-07-2024	20:17	31-07-2024	0:00	3:43		UNIT SHUTDOWN AS PER GRID INSTRUCTION
J16	GT#2	31-07-2024	00:00	31-07-2024	1:35	1:35	0.216	UNIT RUNNING ON OPEN CYCLE MODE
J17	GT#2	31-07-2024	18:31	31-07-2024	19:29	0:58		UNIT SHUTDOWN AS PER GRID INSTRUCTION
J16	GT#3	31-07-2024	00:00	31-07-2024	1:41	1:41	0.254	UNIT RUNNING ON OPEN CYCLE MODE
J17	GT#3	31-07-2024	18:15	31-07-2024	19:33	1:18		UNIT SHUTDOWN AS PER GRID INSTRUCTION
Open Cycle Generation:							25.067	
Total Generation of Gandhar Gas Power Station during the month:						Jul-24	25.067	

On the basis of the details given above, the POCM data for the month of July'24 is given as under:

Station	Open Cycle Generation (MUs)	Total Generation (MUs)	POCM (%)
KGPP	24.194	24.194	100.00
JGGPP	25.067	25.067	100.00

FW: Bringing Gas units on bar under TRAS support from 18:30hrs of 08.08.2024

WRLDC Control Room <wrldccr@grid-india.in>
Thu 8/8/2024 10:03 PM
To:CCRKAWAS <ccrkawas@ntpc.co.in>;Sce Jggpp <scejggpp@ntpc.co.in>

Sir,

FKIP

Regards,
WRLDC CR

From: NLDC Control Room (एन.एल.डी.सी. कंट्रोल रूम) <nldccr@grid-india.in>
Sent: 08 August 2024 22:03
To: WRLDC Control Room <wrldccr@grid-india.in>; ccrkawas <ccrkawas@ntpc.co.in>; scejggpp <scejggpp@ntpc.co.in>
Cc: S Usha (एस उषा) <susha@grid-india.in>; Suhas Dambhare (सुहास धमभरे) <suhasd@grid-india.in>; Vivek Pandey (विवेक पांडे) <vivek.pandey@grid-india.in>
Subject: RE: Bringing Gas units on bar under TRAS support from 18:30hrs of 08.08.2024

Sir,

It is requested to desync gas (under TRAS) immediately.

- Kawas Generating station
- Gandhar Generating station

Regards,
SCE NLDC

From: NLDC Control Room (एन.एल.डी.सी. कंट्रोल रूम)
Sent: 08 August 2024 15:23
To: NRLDC SO <nrldcso@grid-india.in>; 'ntpcanta@gmail.com' <ntpcanta@gmail.com>; 'ntpcdgps@gmail.com' <ntpcdgps@gmail.com>; ccrauraiya <ccrauraiya@ntpc.co.in>; WRLDC Control Room <wrldccr@grid-india.in>; ccrkawas <ccrkawas@ntpc.co.in>; scejggpp <scejggpp@ntpc.co.in>
Cc: S Usha (एस उषा) <susha@grid-india.in>; Suhas Dambhare (सुहास धमभरे) <suhasd@grid-india.in>; Vivek Pandey (विवेक पांडे) <vivek.pandey@grid-india.in>
Subject: Bringing Gas units on bar under TRAS support from 18:30hrs of 08.08.2024

Madam/Sir,

In view of higher All India evening peak demand and lack of ramping up reserve, it is requested to bring on bar all the Gas Units of the below-mentioned gas plants in **open cycle** (except liquid fuel) **from 18:30 hrs** of 08.08.2024 :

- Anta generating station
- Auraiya Generating Station
- Kawas Generating station
- Gandhar Generating station

Technical minimum support shall be provided under TRAS till further instruction from NLDC.

Regards,
Shift Incharge
National Load Dispatch Center
Grid Controller of India Limited
(Formerly Power System Operation Corporation)
Government of India Enterprise
B-9 Qutub Institutional Area
Katwaria Sarai , New Delhi -110016

Follow Grid-India on:

Follow Grid-India on:

Re: Request to schedule power in Comm Gas in Kawas & Gandhar stations for dated 09.08.2024

Sce Jggpp <scejggpp@ntpc.co.in>
Fri 8/9/2024 7:02 PM

To:SE LMCell Kalwa <selmkalwa@gmail.com>;WRLDC MUMBAI <wrldccr@posoco.in>;wrldccr <wrldccr@gmail.com>
Cc:scheduling.sldc <scheduling.sldc@gmail.com>;scheduling <scheduling@mahasldc.in>;Chief Engineer <ceppmsedcl@gmail.com>;cepp <cepp@mahadiscom.in>;Manish Meshram <MANISHMESHRAM@NTPC.CO.IN>;Rakesh Kumar Sharma <RAKESHSHARMA05@NTPC.CO.IN>;Rochak Saxena <ROCHAKSAXENA@NTPC.CO.IN>;NISAR AHMAD MANSOOR <NISARAHMADMANSOOR@NTPC.CO.IN>

महोदय / Sir,

As per the trailing mail for 1 GT in open cycle requirement unit GT1 synchronised at 19:00 hrs.

This is for your kind information

धन्यवाद / Regards,
पाली प्रभारी / Shift Charge Engineer
एनटीपीसी , झनोर / NTPC Jhanor
झनोर गांधार जी पी पी / Jhanor Gandhar GPP
पोस्ट: ऊर्जानगर / Post: Urjanagar
डिस्ट्रिक्ट: भरूच / Dt: Bharuch
गुजरात / Gujarat
दूरभाष/Contact No.- 09426811596, 02642-287450
फैक्स/ Fax No.- 02642-287068
ऑरेंज सिस्टम / Orange Hotline - 20221482
ई मेल/Email: scejggpp@ntpc.co.in, scejggpp@gmail.com

From: SE LMCell Kalwa <selmkalwa@gmail.com>
Sent: Friday, August 9, 2024 4:54 PM
To: WRLDC MUMBAI <wrldccr@posoco.in>; wrldccr <wrldccr@gmail.com>; CCRKAWAS <ccrkawas@ntpc.co.in>; Sce Jggpp <scejggpp@ntpc.co.in>
Cc: scheduling.sldc <scheduling.sldc@gmail.com>; scheduling <scheduling@mahasldc.in>; Chief Engineer <ceppmsedcl@gmail.com>; cepp <cepp@mahadiscom.in>
Subject: Request to schedule power in Comm Gas in Kawas & Gandhar stations for dated 09.08.2024

Respected Sir,

It is requested to schedule power in the following stations to MSEB Beneficiary in the block mentioned as below :

Kawas CRF

Date	Block	OFF Bar Requisiton in MW
09.08.2024	77	100

09.08.2024	78	100
09.08.2024	79	100
09.08.2024	80	100

Gandhar CRF

Date	Block	OFF Bar Requisiton in MW
09.08.2024	77	100
09.08.2024	78	100
09.08.2024	79	100
09.08.2024	80	100

Thanks & Regards,

--

Load Management Cell,
MSEDCL,Old SLDC Building,
Power House, Sector-1, Airoli.
Navi Mumbai -400708
Control Room Mobile No: 9833383880
Control Room Fax No: 022-27602220

RE: Bringing Gas units on bar under TRAS support from 18:00hrs of 12.08.2024

NLDC Control Room (एन.एल.डी.सी. कंट्रोल रूम) <nldccr@grid-india.in>
Mon 8/12/2024 4:19 PM

To:NRLDC SO <nrldcso@grid-india.in>;'ntpcanta@gmail.com' <ntpcanta@gmail.com>;'ntpcdgps@gmail.com' <ntpcdgps@gmail.com>;CCRAURAIYA <ccrauraiya@ntpc.co.in>;WRLDC Control Room <wrldccr@grid-india.in>;CCRKAWAS <ccrkawas@ntpc.co.in>;Sce Jggpp <scejggpp@ntpc.co.in>;dadrigas@gmail.com <dadrigas@gmail.com>
Cc:S Usha (एस उषा) <susha@grid-india.in>;Suhas Dambhare (सुहास धमभरे) <suhasd@grid-india.in>;Vivek Pandey (विवेक पांडे) <vivek.pandey@grid-india.in>

Madam/Sir,

Kindly Consider Time as 18:00 hrs for bringing gas on bar.

Regards
SCE-NLDC

From: NLDC Control Room (एन.एल.डी.सी. कंट्रोल रूम)
Sent: 12 August 2024 16:14
To: NRLDC SO <nrldcso@grid-india.in>; 'ntpcanta@gmail.com' <ntpcanta@gmail.com>; 'ntpcdgps@gmail.com' <ntpcdgps@gmail.com>; ccrauraiya <ccrauraiya@ntpc.co.in>; WRLDC Control Room <wrldccr@grid-india.in>; ccrkawas <ccrkawas@ntpc.co.in>; scejggpp <scejggpp@ntpc.co.in>; dadrigas@gmail.com
Cc: S Usha (एस उषा) <susha@grid-india.in>; Suhas Dambhare (सुहास धमभरे) <suhasd@grid-india.in>; Vivek Pandey (विवेक पांडे) <vivek.pandey@grid-india.in>
Subject: Bringing Gas units on bar under TRAS support from 18:30hrs of 12.08.2024

Madam/Sir,

In view of higher All India evening peak demand and lack of ramping up reserve, it is requested to bring on bar all the Gas Units of the below-mentioned gas plants in **open cycle** (except liquid fuel) **from 18:00 hrs** of 12.08.2024 :

- Anta generating station
- Auraiya Generating Station
- Dadri Generating Station
- Kawas Generating station
- Gandhar Generating station

Technical minimum support shall be provided under TRAS till further instruction from NLDC.

Regards,
Shift Incharge
National Load Dispatch Center
Grid Controller of India Limited
(Formerly Power System Operation Corporation)
Government of India Enterprise
B-9 Qutub Institutional Area
Katwaria Sarai , New Delhi -110016

Follow Grid-India on:

Bringing Gas units on bar under TRAS support of 20.08.2024

NLDC Control Room (एन.एल.डी.सी. कंट्रोल रूम) <nldccr@grid-india.in>

Tue 8/20/2024 11:48 AM

To:'ntpcanta@gmail.com' <ntpcanta@gmail.com>;CCRAURAIYA <ccrauraiya@ntpc.co.in>;'dadrigas@gmail.com' <dadrigas@gmail.com>;WRLDC Control Room <wrldccr@grid-india.in>;'wrldccr@gmail.com' <wrldccr@gmail.com>;Sce Jggpp <scejggpp@ntpc.co.in>;scejggpp1 <scejggpp@gmail.com>;CCRKAWAS <ccrkawas@ntpc.co.in>;NRLDC SO <nrldcso@grid-india.in>
Cc:S Usha (एस उषा) <susha@grid-india.in>;Suhas Dambhare (सुहास धमभरे) <suhasd@grid-india.in>

Madam/Sir,

In view of higher All India evening peak demand, low wind generation and lack of ramping up reserve, it is requested to bring on bar all the Gas Units of the below-mentioned gas plants in closed cycle (except liquid fuel) of 20.08.2024 as soon as possible:

- Anta generating station
- Auraiya Generating Station
- Dadri Generating Station
- Kawas Generating Station
- Gandhar Generating Station

Technical minimum support shall be provided under TRAS till further instruction from NLDC.

Regards,
Shift Incharge
National Load Dispatch Center
Grid Controller of India Limited
(Formerly Power System Operation Corporation)
Government of India Enterprise
B-9 Qutub Institutional Area
Katwaria Sarai , New Delhi -110016

Follow Grid-India on:

Bringing Gas units on bar under TRAS support of 31.08.2024

NLDC Control Room (एन.एल.डी.सी. कंट्रोल रूम) <nldccr@grid-india.in>

Sat 8/31/2024 3:26 PM

To:'ntpcanta@gmail.com' <ntpcanta@gmail.com>;WRLDC Control Room <wrldccr@grid-india.in>;'wrldccr@gmail.com' <wrldccr@gmail.com>;Sce Jggpp <scejggpp@ntpc.co.in>;scejggpp1 <scejggpp@gmail.com>;NRLDC SO <nrldcso@grid-india.in>;CCRAURAIYA <ccrauraiya@ntpc.co.in>;CCRKAWAS <ccrkawas@ntpc.co.in>;'ntpcdgps@gmail.com' <ntpcdgps@gmail.com>
Cc:S Usha (एस उषा) <susha@grid-india.in>;Suhas Dambhare (सुहास धमभरे) <suhasd@grid-india.in>

Madam/Sir,

In view of higher All India evening peak demand and lack of ramping up reserve, it is requested to bring on bar all the Gas Units of the below-mentioned gas plants in **open cycle** (except liquid fuel) by 18:15 hrs of 31.08.2024:

- Anta generating station
- Dadri Generating Station
- Auraiya Generating station
- Kawas Generating station
- Gandhar Generating Station

Technical minimum support shall be provided under TRAS till further instruction from NLDC.

Regards,
Shift Incharge
National Load Dispatch Center
Grid Controller of India Limited
(Formerly Power System Operation Corporation)
Government of India Enterprise
B-9 Qutub Institutional Area
Katwaria Sarai , New Delhi -110016

Follow Grid-India on:

Bringing Gas units on bar under TRAS support of 03.09.2024

NLDC Control Room (एन.एल.डी.सी. कंट्रोल रूम) <nldccr@grid-india.in>

Tue 9/3/2024 10:47 AM

To:'ntpcanta@gmail.com' <ntpcanta@gmail.com>;WRLDC Control Room <wrldccr@grid-india.in>;'wrldccr@gmail.com' <wrldccr@gmail.com>;Sce Jggpp <scejggpp@ntpc.co.in>;scejggpp1 <scejggpp@gmail.com>;NRLDC SO <nrldcso@grid-india.in>;CCRAURAIYA <ccrauraiya@ntpc.co.in>;CCRKAWAS <ccrkawas@ntpc.co.in>;'ntpcdgps@gmail.com' <ntpcdgps@gmail.com>
Cc:S Usha (एस उषा) <susha@grid-india.in>;Suhas Dambhare (सुहास धमभरे) <suhasd@grid-india.in>

Madam/Sir,

In view of higher All India evening peak demand and lack of ramping up reserve, it is requested to bring on bar all the Gas Units of the below-mentioned gas plants in **open cycle** (except liquid fuel) by 18:15 hrs of 03.09.2024:

- Anta generating station
- Dadri Generating Station
- Auraiya Generating station
- Kawas Generating station
- Gandhar Generating Station

Technical minimum support shall be provided under TRAS till further instruction from NLDC.

Regards,
Shift Incharge
National Load Dispatch Center
Grid Controller of India Limited
(Formerly Power System Operation Corporation)
Government of India Enterprise
B-9 Qutub Institutional Area
Katwaria Sarai , New Delhi -110016

Follow Grid-India on:

Outlook

FW: Reg: Maximization of Gas generation in Gandhar

From WRLDC Control Room <wrldccr@grid-india.in>
Date Wed 9/4/2024 7:33 PM
To Sce Jggpp <scejggpp@ntpc.co.in>

From: NLDC Control Room (एन.एल.डी.सी. कंट्रोल रूम) <nldccr@grid-india.in>
Sent: 04 September 2024 19:33
To: WRLDC Control Room <wrldccr@grid-india.in>
Subject: RE: Reg: Maximization of Gas generation in Gandhar

Sir,

Kindly instruct plant to follow the schedule with immediate effect .

Regards,
NLDC

From: NLDC Control Room (एन.एल.डी.सी. कंट्रोल रूम)
Sent: 04 September 2024 19:18
To: WRLDC Control Room <wrldccr@grid-india.in>
Subject: Reg: Maximization of Gas generation in Gandhar

Sir,

Kindly maximize the generation in Gandhar from the current block (78) till further instructions .

Regards
SCE-NLDC

Follow Grid-India on:

Follow Grid-India on:

Outlook

Regarding Power Schedule of Gandhar GTs for Dt. 12.09.2024

From SE LMCell Kalwa <selmkalwa@gmail.com>
Date Thu 9/12/2024 4:18 PM
To Sce Jggpp <scejggpp@ntpc.co.in>
Cc scheduling <scheduling@mahasldc.in>; wrldccr <wrldccr@gmail.com>

Dear Sir,

Regarding the above subject Kindly allot Maharashtra's share from Gandhar GT as follows.

18:30 to 20:30:- Full own share.

18:45 to 20:15:-URS.

Necessary requisition given through new website.

Regards,

--
Load Management Cell,
MSEDCL,Old SLDC Building,
Power House, Sector-1, Airoli.
Navi Mumbai -400708

Control Room Mobile No: 9833383880
Control Room Fax No: 022-27602220

Outlook

FW: Bringing Gas units on bar under TRAS support of 19.09.2024

From WRLDC Control Room <wrldccr@grid-india.in>
Date Thu 9/19/2024 2:31 PM
To CCRKAWAS <ccrkawas@ntpc.co.in>; Sce Jggpp <scejggpp@ntpc.co.in>

From: NLDC Control Room (एन.एल.डी.सी. कंट्रोल रूम) <nldccr@grid-india.in>
Sent: 19 September 2024 14:31
To: NRLDC SO <nrldcso@grid-india.in>; WRLDC Control Room <wrldccr@grid-india.in>
Cc: S Usha (एस उषा) <susha@grid-india.in>; Suhas Dambhare (सुहास धमभरे) <suhasd@grid-india.in>
Subject: Bringing Gas units on bar under TRAS support of 19.09.2024

Madam/Sir,

In view of higher All India evening peak demand and lack of ramping up reserve, it is requested to bring on bar all the Gas Units of the below-mentioned gas plants in **open cycle** (except liquid fuel) by 17:30 hrs of 19.09.2024:

- Anta generating station
- Dadri Generating Station
- Auraiya Generating station
- Kawas Generating station
- Ghandhar Generating station

Regards,
Shift Incharge
National Load Dispatch Center
Grid Controller of India Limited
(Formerly Power System Operation Corporation)
Government of India Enterprise
B-9 Qutub Institutional Area
Katwaria Sarai , New Delhi -110016

Follow Grid-India on:

Follow Grid-India on:

Outlook

Regarding Power Schedule of Gandhar GTs for Dt. 19.09.2024

From SE LMCell Kalwa <selmkalwa@gmail.com>
Date Thu 9/19/2024 2:59 AM
To Sce Jggpp <scejggpp@ntpc.co.in>
Cc scheduling <scheduling@mahasldc.in>; wrldccr <wrldccr@gmail.com>

Dear Sir,

Regarding the above subject Kindly allot Maharashtra's share from Gandhar GT as follows.

05:00 to 07:30:- Full own share.
05:30 to 07:15:- URS.

--
Load Management Cell,
MSEDCL,Old SLDC Building,
Power House, Sector-1, Airoli.
Navi Mumbai -400708
Control Room Mobile No: 9833383880
Control Room Fax No: 022-27602220

Outlook

FW: Bringing Gas units on bar under TRAS support of 21.09.2024

From WRLDC Control Room <wrldccr@grid-india.in>
Date Sat 9/21/2024 3:01 PM
To CCRKAWAS <ccrkawas@ntpc.co.in>; Sce Jggpp <scejggpp@ntpc.co.in>; sce.rgppl <sce.rgppl@gmail.com>

Sir,

As per trailing mail, bring on bar all the Gas Units of the below-mentioned gas plants in closed cycle (except liquid fuel) so as to maximized by 18:00 hrs of 21.09.2024:

Regards,
WRLDC CR

From: NLDC Control Room (एन.एल.डी.सी. कंट्रोल रूम) <nldccr@grid-india.in>
Sent: 21 September 2024 14:59
To: NRLDC SO <nrldcso@grid-india.in>; WRLDC Control Room <wrldccr@grid-india.in>
Cc: S Usha (एस उषा) <susha@grid-india.in>; Suhas Dambhare (सुहास धमभरे) <suhasd@grid-india.in>; Vivek Pandey (विवेक पांडे) <vivek.pandey@grid-india.in>
Subject: Bringing Gas units on bar under TRAS support of 21.09.2024

Madam/Sir,

In view of higher All India evening peak demand and lack of ramping up reserve, it is requested to bring on bar all the Gas Units of the below-mentioned gas plants in **closed cycle** (except liquid fuel) so as to maximized by 18:00 hrs of 21.09.2024:

- Anta generating station
- Dadri Generating Station
- Auraiya Generating station
- Kawas Generating station

- Ghandhar Generating station
- RGPPL

Regards,
Shift Incharge
National Load Dispatch Center
Grid Controller of India Limited
(Formerly Power System Operation Corporation)
Government of India Enterprise
B-9 Qutub Institutional Area
Katwaria Sarai , New Delhi -110016

Follow Grid-India on:

Follow Grid-India on:

Outlook

Regarding Power Schedule of Gandhar GTs for Dt. 21.09.2024

From SE LMCell Kalwa <selmkalwa@gmail.com>
Date Sat 9/21/2024 3:56 AM
To Sce Jggpp <scejggpp@ntpc.co.in>
Cc scheduling <scheduling@mahasldc.in>; wrldccr <wrldccr@gmail.com>

Dear Sir,

Regarding the above subject Kindly allot Maharashtra's share from Gandhar GT as follows.

04:00 Hrs to 08:30 Hrs- Full own share.
04:00 Hrs to 08:00 Hrs:- URS.

Requisition punched accordingly in Web based software

--
Load Management Cell,
MSEDCL,Old SLDC Building,
Power House, Sector-1, Airoli.
Navi Mumbai -400708
Control Room Mobile No: 9833383880
Control Room Fax No: 022-27602220

Outlook

Regarding Power Schedule of Gandhar GTs for Dt. 22.09.2024

From SE LMCell Kalwa <selmkalwa@gmail.com>
Date Sun 9/22/2024 3:00 AM
To Sce Jggpp <scejggpp@ntpc.co.in>
Cc scheduling <scheduling@mahasldc.in>; wrldccr <wrldccr@gmail.com>

Dear Sir,

Regarding the above subject Kindly allot Maharashtra's share from Gandhar GT as follows.

4:30 Hrs to 07:30 Hrs- Full own share.
05:00 Hrs to 7:00 Hrs:- URS.

Requisition punched accordingly in Web based software

--
Load Management Cell,
MSEDCL,Old SLDC Building,
Power House, Sector-1, Airoli.
Navi Mumbai -400708
Control Room Mobile No: 9833383880
Control Room Fax No: 022-27602220

FW: Bringing Gas units on bar under TRAS support of 26.08.2024

WRLDC Control Room <wrldccr@grid-india.in>

Mon 8/26/2024 3:53 PM

To:CCRKAWAS <ccrkawas@ntpc.co.in>;Sce Jggpp <scejggpp@ntpc.co.in>

From: NLDC Control Room (एन.एल.डी.सी. कंट्रोल रूम) <nldccr@grid-india.in>
Sent: 26 August 2024 15:30
To: 'ntpcanta@gmail.com' <ntpcanta@gmail.com>; WRLDC Control Room <wrldccr@grid-india.in>; 'wrldccr@gmail.com' <wrldccr@gmail.com>; scejggpp <scejggpp@ntpc.co.in>; scejggpp1 <scejggpp@gmail.com>; NRLDC SO <nrldcso@grid-india.in>; ccrauraiya <ccrauraiya@ntpc.co.in>; ccrkawas <ccrkawas@ntpc.co.in>; 'ntpcdgps@gmail.com' <ntpcdgps@gmail.com>
Cc: S Usha (एस उषा) <susha@grid-india.in>; Suhas Dambhare (सुहास धमभरे) <suhasd@grid-india.in>
Subject: Bringing Gas units on bar under TRAS support of 26.08.2024

Madam/Sir,

In view of higher All India evening peak demand and lack of ramping up reserve, it is requested to bring on bar all the Gas Units of the below-mentioned gas plants in **open cycle** (except liquid fuel) by 18:30hrs of 26.08.2024:

- Anta generating station
- Dadri Generating Station
- Auraiya Generating station
- Kawas Generating station
- Gandhar Generating Station

Technical minimum support shall be provided under TRAS till further instruction from NLDC.

Regards,
Shift Incharge
National Load Dispatch Center
Grid Controller of India Limited
(Formerly Power System Operation Corporation)
Government of India Enterprise
B-9 Qutub Institutional Area
Katwaria Sarai , New Delhi -110016

Follow Grid-India on:

Follow Grid-India on:

Outlook

FW: Bringing Gas units on bar under TRAS support of 30.09.2024

From WRLDC Control Room <wrldccr@grid-india.in>
Date Mon 9/30/2024 9:01 AM
To CCRKAWAS <ccrkawas@ntpc.co.in>; Sce Jggpp <scejggpp@ntpc.co.in>

Sir,

FKI and NA.

Regards
WRLDCCR

From: NLDC Control Room (एन.एल.डी.सी. कंट्रोल रूम) <nldccr@grid-india.in>
Sent: 30 September 2024 09:00
To: NRLDC SO <nrldcso@grid-india.in>; WRLDC Control Room <wrldccr@grid-india.in>
Cc: S Usha (एस उषा) <susha@grid-india.in>; Suhas Dambhare (सुहास धमभरे) <suhasd@grid-india.in>; Vivek Pandey (विवेक पांडे) <vivek.pandey@grid-india.in>
Subject: RE: Bringing Gas units on bar under TRAS support of 30.09.2024

Madam/Sir,

In view of higher All India evening peak demand, it is requested to bring on bar all the Gas Units of the

below-mentioned gas plants in **closed cycle** (except liquid fuel) so as to **maximized by 17:15 hrs of 30.09.2024**:

- Anta generating station
- Dadri Generating Station
- Auraiya Generating station

- Gandhar Generating station
- Kawas Generating station

Regards,
Shift Incharge
National Load Dispatch Center
Grid Controller of India Limited
(Formerly Power System Operation Corporation)
Government of India Enterprise
B-9 Qutub Institutional Area
Katwaria Sarai , New Delhi -110016

From: NLDC Control Room (एन.एल.डी.सी. कंट्रोल रूम)
Sent: 30 September 2024 06:25
To: NRLDC SO <nrldcso@grid-india.in>; WRLDC Control Room <wrldccr@grid-india.in>
Cc: S Usha (एस उषा) <susha@grid-india.in>; Suhas Dambhare (सुहास धमभरे) <suhasd@grid-india.in>; Vivek Pandey (विवेक पांडे) <vivek.pandey@grid-india.in>
Subject: Bringing Gas units on bar under TRAS support of 30.09.2024

Madam/Sir,

In view of higher All India evening peak demand, it is requested to bring on bar all the Gas Units of the

below-mentioned gas plants in **closed cycle** (except liquid fuel) so as to maximized by 18:00 hrs of 30.09.2024:

- Anta generating station
- Dadri Generating Station
- Auraiya Generating station
- Gandhar Generating station
- Kawas Generating station

Regards,
Shift Incharge
National Load Dispatch Center
Grid Controller of India Limited
(Formerly Power System Operation Corporation)

Government of India Enterprise
B-9 Qutub Institutional Area
Katwaria Sarai , New Delhi -110016

Follow Grid-India on:

Follow Grid-India on:

No. 23/05/2024-R&R
Government of India
Ministry of Power
***

Shram Shakti Bhawan, Rafi Marg,
New Delhi, 12th April, 2024

ORDER

Subject: Directions to Gas Based Generating Stations (GBSs) under Section 11 of the Electricity Act, 2003 – regarding.

India's electricity demand is rapidly rising, driven by economic growth, particularly during hot weather and high demand periods. Also, the Indian Meteorological Department (IMD) has predicted above-normal maximum temperatures over most parts of the country during the 2024 hot weather season (till June' 2024).

2. It is essential in the public interest to ensure that the demand is met. Presently, 85% of demand during non-solar hours is being met through coal & lignite generation. A significant portion of the gas-based generation capacity is currently unutilized primarily due to commercial considerations. It is necessary to ensure that the operational capacity of the Gas-Based Generating Stations (GBSs) is utilized during the crunch period to optimise the availability of power during ensuing high demand period. Direction under Section – 11, has been given to Imported Coal-Based Generating Stations (ICBs) to ensure that they are running, and their capacity is on bar, vide order dtd. 20thFebruary, 2023, which has been extended till 30thJune, 2024 vide order dated 23rd October, 2023. Based on the current supply and demand scenario, the expected rise in demand in the near future, and ensuring continuous supply of electricity in the public interest while maintaining the grid security, Central Government, after careful consideration, hereby issue the following directions under Section 11 of the Electricity Act, 2003, to ensure maximum generation from GBSs.

3. Requisition of power

a) Based on the monthly demand assessment, GRID-INDIA will inform the Gas-based Generating Stations about the expected high demand and stress days in advance so that the Gencos can arrange for the natural gas as required. GRID-

INDIA shall notify to the GBSs the number of days they are required to generate during a week, at least fourteen (14) days in advance. The GBSs notified and scheduled by GRID-INDIA on D-1 basis shall be guaranteed for dispatch at a minimum of 50% capacity round-the-clock during the designated high-demand period.

b) GBSs shall first offer their power to the PPA holders as per the terms and conditions of the PPA. In cases where a GBS has PPAs with multiple Distribution Licensees, if one of the Distribution Licensee fails to schedule any portion of the power as per its PPA, the unutilized power will first be offered to other PPA holders. If the power is not scheduled by any of the PPA holders, any other Distribution Licensee may schedule such capacity. If no Distribution Licensee schedules the power, the GBS shall then offer such power in the power market. Any surplus capacity shall be made available to GRID-INDIA to provide grid support.

4. Tariff

a) GBSs holding PPAs with Distribution Licensees shall offer their capacity on the basis of the Energy Charge Rate (ECR) determined by the Appropriate Commission.

b) GBSs not tied to PPAs must offer their capacity on the basis of the benchmark ECR determined by the following Committee, unless there is a mutually agreed price:

i. Chairperson (CEA).....Chairman
ii. Member (E&C), CEA.....Member
iii. Joint Secretary (Thermal & OM), MoP.....Member
iv. ED (Marketing), GAIL.....Member
v. Chief Engineer (F & CA), CEA.....Member Convener

The Committee may co-opt additional members as necessary. The Committee's responsibility shall be to ensure that the benchmark rates for procured power cover all prudent costs incurred by GBSs, including natural gas price, transportation costs, boil-off charges, LC charges, customs duties, insurance, re-gasification charges, VAT/local taxes etc. The benchmark rates shall be reviewed every 15 days, taking into consideration the change in the price of natural gas, transport

costs etc. The Committee may also make recommendations for effective implementation of these directions.

c) The GBSs shall offer the power in the power exchanges/other market segments or for dispatch by GRID-INDIA for grid support at a rate not more than hundred and twenty percent of the ECR plus intra-state transmission charges as applicable. In case of the GBSs with PPAs, the realization above the ECR shall first go to meet the fixed costs. Therefore, the PPA holders shall not be required to pay the fixed costs for the power sold in the market or dispatched for grid support. In other cases, the liability for payment of fixed cost shall remain with the PPA holder(s) as per the PPA.

d) If the GBSs are scheduled for grid support, they shall be compensated at the offer price.

5. Miscellaneous

a) The Payment Security Mechanism prescribed under the Late Payment Surcharge Rules, 2022 shall apply. Payments will be made on a weekly basis by the procurer. Rebate will be admissible in accordance with CERC norms or as stipulated in the PPA, whichever is higher.

b) Payment for the power dispatched by GRID-INDIA shall be paid from the statutory pool as per CERC regulations.

c) The GBSs shall operate as per these directions, notwithstanding any prior outstanding dues of the generating company. Such outstanding dues shall be dealt with separately.

6. The above provisions shall apply not withstanding any provisions to the contrary in any PPA or any other agreement.

7. The Generator shall submit a weekly report to GRID-INDIA for the generation and sale of power from the GBSs.

8. GRID-INDIA shall notify the detailed procedure for implementing these directions within seven (7) days of issue of these directions.

9. This Order shall remain valid for generation and supply of power from 01.05.2024 to 30.06.2024.

(Manish Mishra)
Director

To,

All Gas Based Generating Companies
(As per list attached)

Copy to:

1. The Chairperson, CEA
2. Secretary, CERC/FOR, New Delhi.
3. Secretary (Energy/Power), All State Governments/UTs.
4. CMD/MD of the Distribution Companies
5. All State Electricity Regulatory Commission.
6. CMD, GRID-INDIA, New Delhi
7. Executive Director (Marketing), GAIL

Copy for information to:

PS to Hon'ble Minister of Power & NRE,
APS to Hon'ble MoSP,
Sr. PPS to Secretary (Power),
All Additional Secretaries/Joint Secretaries/EA/CE, Ministry of Power
All Directors/Deputy Secretaries, Ministry of Power

List of Gas Based Generating Stations

List of Gas based generating stations having PPAs			
Sl. No.	**Plant Name**	**Utility**	**State**
Central sector			
1	FARIDABAD CCPP	NTPC	HARYANA
2	ANTA CCPP	NTPC	RAJASTHAN
3	AURAIYA CCPP	NTPC	UTTAR PRADESH
4	DADRI CCPP	NTPC	UTTAR PRADESH
5	GANDHAR (JHANORE) CCPP	NTPC	GUJARAT
6	KAWAS CCPP	NTPC	GUJARAT
7	RATNAGIRI CCPP	RGPPL	MAHARASHTRA
State sector			
8	I.P. CCPP	IPGCL	DELHI
9	PRAGATI CCGT-III	Pragati Power Corp. Ltd.	DELHI
10	PRAGATI CCPP	Pragati Power Corp. Ltd.	DELHI
11	DHOLPUR CCPP	RRVUNL	RAJASTHAN
12	PIPAVAV CCPP	GPPC (GSPC-Pipavav Power Comp. Ltd.)	GUJARAT
13	DHUVARAN CCPP (STAGE II and III)	GSECL	GUJARAT
14	HAZIRA CCPP	GSEG	GUJARAT
15	HAZIRA CCPP EXT	GSEG	GUJARAT
16	UTRAN CCPP	GSECL	GUJARAT
17	URAN CCPP	MAHAGENCO	MAHARASHTRA
18	GODAVARI (JEGURUPADU)	APEPDCL	ANDHRA PRADESH
IPP			
19	GAMA CCPP	Gama Infraprop Pvt. Ltd.	UTTARAKHAND
20	SRAVANTHI CCPP	Sravanthi Energy Pvt. Ltd.	UTTARAKHAND
21	TROMBAY CCPP	Tata Power Comp. Ltd.	MAHARASHTRA
22	SUGEN CCPP	Torrent Power Ltd.	GUJARAT

23	UNOSUGEN CCPP	Torrent Power Ltd.	GUJARAT
List of Gas based generating stations having no-PPAs			
1	DGEN Mega CCPP	Torrent Power Ltd.	GUJARAT
2	KONDAPALLI EXTN CCPP	LANCO Kondapalli Power Pvt. Ltd.	ANDHRA PRADESH
3	DHUVARAN CCPP (STAGE I)	GSECL	GUJARAT

ANNEXURE-A

No. 11/29/2020-Th.I –Part(1)
Government of India
Ministry of Power
***

Shram Shakti Bhawan, Rafi Marg,
New Delhi, dated 30th January, 2023

OFFICE MEMORANDUM

Subject: Minutes of the Meeting held on 10.01.2023, under the Chairmanship of Hon'ble Minister of Power & NRE, to discuss the Gas availability to NTPC Gas based Power Stations during crunch period - reg

The undersigned is directed to forward herewith Minutes of the Meeting, held under the Chairmanship of Hon'ble, Minister of Power and NRE, on 10.01.2023, at 11:00 AM, to discuss the Gas availability to NTPC Gas based Power Stations during crunch period, for information and necessary action please.

30/1/23

(J.Misra)
Under Secretary to Government of India
Tele: 23063746

To,

1. Secretary, Ministry of Petroleum & Natural Gas
2. Secretary,Department of Fertilizers, Ministry of Chemicals & Fertilizers.
3. Chairperson, Central Electricity Authority(CEA)
4. CMD, NTPC Ltd.
5. CMD, Grid India
6. CMD, GAIL

Copy to:

PS to Hon'ble Minister of Power & NRE/ Sr. PPS to Secretary (Power)/ PS to JS (Th)/DS(Th)

Minutes of the Meeting, held on 10.01.2023, under the Chairmanship of Hon'ble Minister of Power & NRE to discuss the Gas availability to NTPC Gas based Power Stations, during crunch period

List of participants is given at **Annexure.**

2. At the outset, Secretary (Power) welcomed the Hon'ble Minister of Power & NRE and all the participants and stated that considering the projection of Grid India that electricity demand could soar to 230 GW during April-May, Ministry of Power was making all required arrangements to meet this demand. To this direction, it was decided that about 5000 MW of gas based capacity of NTPC would be kept available for generation during this crunch period, by arranging RLNG, with gap being funded from PSDF.

3. With the permission of the Chair, NTPC made a brief presentation on operation of Gas based Power Plants during Peak Demand Months (Summer Crunch Period). NTPC explained the details of Gas supply contract with GAIL.

4. It was informed that the total gas requirement during Peak Demand Months (April-May,2023) is 248 MMSCM (for 18 days) i.e. 13.8 MMSCMD to run 4849 MW in peak hours and 1556 MW in off-peak hours at Technical Minimum. It was also informed that GAIL has agreed to supply 120 MMSCM Gas under LT-RLNG during the crunch period and the remaining 128 MMSCM would be arranged through SPOT Market.

5. It was informed that in the above arrangement, the ECR would be Rs 17.02 /unit and the compensation requirement would be around Rs 576 Cr. Power during the crunch period from the above arrangement will be sold in HP –DAM. It was also informed that the ECR would be Rs 13/unit if 248 MMSCM of RLNG could be made available under long term contract during the crunch period.

6. Chairperson, CEA informed that HP-DAM will be operational in February, 2023. It was further informed that Gas based power, Imported Coal Based (ICB) Power & Storage Power will be traded in HP-DAM without any ceiling price.

6.1 Hon'ble Minister queried regarding the requirement of selling ICB based power in HP-DAM instead of DAM. Secretary(Power) informed that most of the time, Average Clearing Price (ACP) in the DAM is less than the ECR of ICB Plants. Further, due to capping in DAM, the maximum clearing price cannot be go beyond Rs. 12/unit which results in lower ACP. As ICB plants

are not being able to recover their per unit cost in DAM, it has been observed that ICB plants prefer to keep their units shut down rather than trade in the DAM as it is unviable for them to operate. In case of the HP-DAM, maximum clearing price may go beyond Rs. 12/Unit and the ACP may be higher and viable for ICB Plants

6.2 Hon'ble Minister directed Grid India & CEA to submit a detailed analysis of the ACP & Maximum Clearing Price (MCP) over the past year in power exchange and submit a comparative analysis on the ACP with the present capping of MCP of Rs. 12/unit and without capping to the Ministry.

7. Hon'ble Minister asked GAIL about constraints in rescheduling Monthly Contracted Quantity (MCQ) of LT-RLNG to make arrangement of whole requirement of 248 MMSCM during the said crunch period.

7.1 GAIL informed that they have to make scheduling arrangement of RLNG from Upstream supplier. The supplier has to agree for such high variation of supply quantity. On the basis of discussion held with upstream supplier, they could manage to secure 120 MMSCM Gas on best effort basis during the said period.

7.2 Hon'ble Minister directed GAIL to again take-up the matter with the Upstream supplier. If required, GAIL may take up the matter through MoPNG with higher authority or at Government level of Upstream supplier. GAIL need to ensure that total estimated quantity of 248 MMSCM Gas required during the crunch period shall be arranged from LT-RLNG.

7.3 Further, it was informed that RGPPL, being a JV of NTPC, may not be able to utilize the contracted LT-RLNG quantity during the crunch period, as it was not provided in the current agreement.

7.4 Hon'ble Minister directed NTPC & GAIL to make suitable amendment in the existing contract accordingly.

8. Joint Secretary, Department of Fertilizers informed that fertilizer industries requires 52 MMSCM Gas per day of RLNG for the production of Urea i.e approx total consumption of gas is 1500 MMSCM per month in fertilizer sector. The subsidy of around Rs. 1,25,000 Cr is incurred by the Government on Urea only.

8.1 Hon'ble Minister mentioned that remaining required quantity (i.e 128 MMSCM) may be diverted from the Fertilizer Sector (LT-RLNG quantity) to the Power Sector during the projected crunch period of 18 days during April – May 2023 with swapping arrangement. The fertilizer plants may increase

the production (equivalent to diverted RLNG to Power Sector) before the crunch period. In comparison to monthly requirement of Fertilizer Sector, diverted quantity is approx. 8-8.5%.

8.2 It was also suggested that some of the fertilizer industries may schedule a plant overhauling during the crunch period.

8.3 Hon'ble Minister advised the Department of Fertilizers may make a plan and reschedule consumption of gas as per the discussions held in this meeting. However, the diversion of gas from Fertilizer Sector will be a contingency plan.

9. After deliberations, the following directions were given: -

(i) Grid India & CEA to submit a detailed analysis of the ACP & MCP over the past year and submit a comparative analysis on the ACP with the present capping of Rs 12/unit and without capping to the Ministry.

(ii) GAIL to take-up with supplier of RLNG and to ensure arrangement for total quantity of 248 MMSCM Gas during the crunch period.

(iii). GAIL and NTPC to include RGPPL in the existing LT-RLNG contract to utilize contracted LT-RLNG in RGPPL.

(iv) Department of Fertilizers to make a plan for the diversion of the required quantity (128 MMSCM) of domestic gas/LT-RLNG to Power sector during crunch period.

(v) The next meeting on this issue will be convened by 31.01.2023, to finalize the above arrangements.

The Meeting ended with a vote of thanks to the Chair

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Annexure

List of participants

Sl no	Name	Organisation
1	Shri R.K Singh	Hon'ble Minister of Power & NRE..... in Chair
2	Shri. Alok Kumar	Secretary, Ministry of Power
3	Shri . Piyush Singh	Joint Secretary (Thermal), Ministry of Power
4	Dr Navneet Mohan Kothari	Joint Secretary(GP), Ministry of Petroleum & Natural Gas
5	Ms. Aneeta C Meshram	Joint Secretary, Department of Fertilizers, Ministry of Chemicals & Fertilizers
6	Shri. Ghanshyam Prasad	Chairperson, Central Electricity Authority
7	Shri Suman Majumdar	Deputy Secretary (DVC/Thermal), Ministry of Power
8	Shri Jitendra Mishra	Under Secretary (DVC/Thermal), Ministry of Power
9	Shri Chandra Prakash	Chief Engineer(FM), CEA
10	Shri M.M Dhakate	Chief Engineer(GM), CEA
11	Shri Kumar Saurabh	Deputy Director(FM), CEA
12	Shri Gurdeep Singh	CMD, NTPC Ltd
13	Shri. Ramesh Babu V	Director (Operations), NTPC
14	Shri SPS Virk	GM(FM), NTPC
15	Shri Gurpreet Singh	AGM(FM), NTPC
16	Shri C K SAMANTA	CGM(OS), NTPC
17	Shri S. R Narasimhan	CMD, Grid India
18	Shri S C Sexena	ED, Grid India
19	Shri Ashok Kumar	GM, NLDC
20	Shri M. V. Iyer	Director(BD), GAIL
21	Shri A Kaviraj	ED, GAIL
22	Shri Anuj Agarwal	GM(Mkt), GAIL

ANNEXURE-B

GRID CONTROLLER OF INDIA LIMITED

(Formerly known as POWER SYSTEM OPERATION CORPORATION LIMITED)

NATIONAL LOAD DESPATCH CENTRE, NEW DELHI

30th January 2023

Subject: Identification of days for dispatching gas-based generation in crunch period during April-23 to May-23

Section-I: Background

In view of forecasted demand and likely resource adequacy scenario in the upcoming summer months (especially from 10th April-23 to 10th May-23), various decisions are being taken at the highest level for secure and reliable power supply throughout the country. Some of the major initiatives are as follows:

1. Exploring possibilities to run gas-based plants and arrangement of necessary fuels during the crunch period in coordination with MoPNG.
2. Revival of stressed plants from various disputes such as NCLT, PPA disputes etc.
3. Running of untied capacity of Imported Coal Based (ICB) plants as firm generations during the crunch period
4. Directions are being issued under various clauses of electricity act to imported coal-based plants and domestic coal-based plants
5. It was directed that no planned outage of thermal units should be allowed from April-23 to 15th of May-23.
6. Changing of peak demand months from regional peak to national peak for tariff regulation of thermal(coal) plants

In view of the likely scenario during the April to May, an exercise has been carried out by GRID-INDIA (erstwhile POSOCO) to find the reasonable period in the above-mentioned months, wherein likely critical days may occur. Based on the frequency, all India energy consumption and peak demand met from 2018 to 2022, it is inferred that 18 days are reasonable from March-23 to May-23. Communication sent to MoP is attached as **Annexe.**

Now, it is envisaged to identify the 18 days based on the historical data. So that adequate generation from different resources can be ensured on the identified crunch days.

Section-II: Exercise on qualification of crunch days

An exercise has been carried out as mentioned in the section-I with following assumptions:

- Daily maximum and average temperature data pertaining to Delhi (Safdarjung) from 2016 to 2022(Mar to June every year) has been utilized.

Methodology for identification of days are as follows:

- Based on blockwise demand met and thermal generation contribution (MW):

Criteria:

a) Identification of days having maximum and average temperature greater than 35 degree Celsius and 30 degree Celsius respectively
b) Days will be qualified as a crunch day if mode of seven samples (one sample for each year since 2016) are high
c) Sunday and Holidays (14.04.23 & 01.05.23) have been excluded from qualified list

Based on the above criteria deliberated, simultaneous days of maximum and average temperature days may be considered as a crunch days when full availability from all the resources would be required for secure grid operation and to contain frequency with in IEGC band and adequate supply to the consumers. Results based on the above criteria is given below:

Table 1: Identified crunch dates during April-23 to May-23

13-04-23	15-04-23	17-04-23	25-04-23
26-04-23	27-04-23	28-04-23	29-04-23
02-05-23	03-05-23	04-05-23	05-05-23
06-05-23	08-05-23	09-05-23	10-05-23
11-05-23	12-05-23		

Section-III: Conclusion

As per the Table-1, it is inferred that tentative crunch days would be come in period from 10.04.23 to 15.05.23 barring Sunday/holidays/extreme weather condition. Further, actual date of despatch schedule for gas based plants shall be communicated in three-day advance(D-3) to plants.

Tentative generation profile for gas-based plants is mentioned as under:

Table 2:Tentative gas generation profile

From(hrs)	To(hrs)	Tentative MW despatch
0000	0300	4849
0300	1900	1556
1900	2400	4849

X------X------X

No. 11/29/2020-Th.I-Part(1)
Government of India
Ministry of Power
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Shram Shakti Bhawan, Rafi Marg,
New Delhi, dated 09th January, 2023

OFFICE MEMORANDUM

Subject: Minutes of meeting held on 04.01.2023 at 12:00 PM under the Chairmanship of Secretary, Ministry of Power with Ministry of Petroleum & Natural Gas to discuss Gas supply to NTPC Gas based power plants -reg

The undersigned is directed to forward here with Minutes of Meeting held on 04.01.2023 at 12:00 PM under the Chairmanship of Secretary, Ministry of Power with Ministry of Petroleum & Natural Gas to discuss Gas supply to NTPC Gas based power plants for information and for further necessary action.

9/1/23

(J.Misra)
Under Secretary to Government of India.
Tele:23063746

1. Secretary, Ministry of Petroleum & Natural Gas
2. Chairperson, CEA
3. CMD, NTPC Ltd.
4. CMD, GAIL
5. CMD, Grid India

Copy to:

Sr. PPS to Secretary (Power)/PS to JS(Th)/DS(DVC/Th)

Minutes of meeting held on 04.01.2023 at 12:00 PM under the Chairmanship of Secretary, Ministry of Power with Ministry of Petroleum & Natural Gas to discuss Gas supply to NTPC Gas based power plants

List of participants is annexed.

2. At the outset, Joint Secretary (Thermal), Ministry of Power welcomed Secretary, Ministry of Power, Additional Secretary, MoPNG and all the participants and initiated the meeting.

3. With the permission of the Chair, NTPC made a brief presentation on mechanism and scheduling for operation of Gas based Power Plant during Peak Demand Months (Summer Crunch Period).

4. NTPC informed that total requirement to meet the above demand is 248 MMSCM during April-May,2023 (for 18 days) i.e. 13.8 MMSCMD to run 4849 MW in peak hours and 1556 MW in off-peak hours at Technical Minimum.

5. It emerged during the discussion that GAIL has agreed to supply 120 MMSCM under LTRLNG during the crunch period and remaining 128 MMSCM would be arranged through SPOT Market. The compensation requirement for the above arrangement may come around Rs 576 Cr.

It was further discussed that Compensation amount might come down depending on demand pattern, power cleared in DAM, RTM, scheduling in RRAS, and GAIL being able to dispose off unused Gas. ToP (Take or Pay) liability about 9.6 Cr/MMSCM for unused gas @ US$ 30 per MMBtu delivered price).

6. **Financial Implication** of the above arrangement:-

- Power will be offered /traded in HP -DAM at MCP of Rs 12.
- ECR - Rs 17.02 approx.,
- Gas Required- 248 MMSCM
    - LTRLNG:120 MMSCM (@18 USD/MMBTU)
    - Spot :128 MMSCM (@30 USD/MMBTU (Delivered))
- Compensation required Rs 576Cr. Approx
- ToP liability 9.6 Cr/MMSCM for unused gas.

No. of Days	Gen. per day (MU)	Total Gen (MU)	**Total Gas Req (MMSCM)**	HP-DAM MCP (Rs/Unit)	Revenue (Market) /Day (Rs Cr)	Total Revenue (Market) (Rs Cr)	ECR Rs/Kwh	Compensation (ECR- MCP) (Rs/unit)	Compensation / day (Cr)	**Total Compensation (Cr)**
1	2	3(1*2)	4	5	6(5*2)	7(6*1)	8	9 (8-5)	10(9*1)	**11(10*1)**
18	63.8	1148.4	**248.4**	12	76.5	1378	17.02	5.02	32.0	**576.4**

7. It was informed by NTPC that as LTRLNG contract cannot be extended to RGPPL (JV of NTPC), the requirement of RGPPL (around 61 MMSCMD) will be met through the Spot RLNG.

8. GAIL to make 248 MMSCM arrangement of RLNG gas (120 MMSCM LTRLNG & 128 MMSCM spot RLNG). Further, GAIL requested NTPC to inform them about Day wise firm requirement for the period latest by 31 January, 2023 so that cargo procurement, regassification slot booking etc: can be planned for smooth pipeline operations during the crunch period.

8.1 Secretary(Power) advised Grid India to furnish the day wise power requirement during the crunch period so that GAIL can be informed about firm volume requirement by 31 Jan.

9. NTPC informed that they are also considering registering with IGX to meet the extra requirements of RLNG.

10. NTPC informed that Grid India will provide the schedule on day ahead basis and advise for selling in DAM and RTM. Grid India may schedule the balance power, if required, through Ancillary Services. Grid-India mentioned that during summer, the gas stations are expected to run at full load from 1900-0300 hours (8 hours). It was confirmed that there would be no gas pipeline constraint for this type of duty cycle.

11. NTPC suggested that the power scheduled in RRAS to be paid as per actual ECR as presently energy scheduled under RRAS is paid on previous month's ECR.

12. Secretary(Power) appreciated the efforts of NTPC & GAIL for planning & making arrangements for gas based power generation as contingency plan to the power sector during the peak demand period.

13. After deliberation, following was recommended:-

(i) Grid India to furnish likely scenario of the availability of the Power Capacity from each sources during the crunch period 15th April to 15th May, 2023. Generation not cleared in DAM and not required in RRAS, would be disposed off in RTM to bring down support from PSDF.

(ii) Grid India to provide day wise power requirement during the crunch period ,So that GAIL can be informed about firm volume requirement by 31 Jan.

(iii) Modalities for Compensation towards differential price of scheduled energy or TOP liability to be issued

(iv) Power scheduled in RRAS to be paid as per actual ECR as presently energy scheduled under RRAS is paid on previous month ECR

(v) A firm understanding between NTPC & GAIL may be prepared, after approval from Ministry of Power.

(vi) Thermal division to inform NTPC of the decisions taken after approval of the Competent Authority.

The meeting ended with a vote of thanks to the chair

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Annexure

List of participants

Sl no	Name	Organisation
1	Shri. Alok Kumar	Secretary, Ministry of Power..... in Chair
2	Shri Praveen Khanooja	Additional Secretary, Ministry of Petroleum & Natural Gas
3	Shri. Piyush Singh	Joint Secretary (Thermal), Ministry of Power
4	Shri Suman Majumdar	Deputy Secretary (DVC/Thermal), Ministry of Power
5	Shri Jitendra Mishra	Under Secretary (DVC/Thermal), Ministry of Power
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8	Shri Kumar Saurabh	Deputy Director(FM), CEA
9	Shri Gurdeep Singh	CMD, NTPC Ltd
10	Shri. Ramesh Babu V	Director (Operations), NTPC
11	Shri SPS Virk	GM(FM), NTPC
12	Shri Gurpreet Singh	AGM(FM), NTPC
13	Shri C K SAMANTA	CGM(OS), NTPC
14	Shri S. R Narasimhan	CMD, Grid India
15	Shri Sumit Kishore	ED(Mkt), GAIL
16	Shri A Kaviraj	ED, GAIL

Outlook

RE: Original standard (E1) Variant inventory list

From Prusty, Indrajit (GE Vernova) <Indrajit.Prusty@ge.com>
Date Mon 8/19/2024 7:03 AM
To Jitendra Kr <JITENDRAKUMAR06@NTPC.CO.IN>
Cc Acharya, Arvind (GE Vernova) <Arvind.Acharya@ge.com>

Sir,

Checked with our team , there is no inventory for 13E1 as the parts are being obsolete.

Regards,
Indrajit Prusty

From: Jitendra Kr <JITENDRAKUMAR06@NTPC.CO.IN>
Sent: Friday, August 16, 2024 7:28 PM
To: Prusty, Indrajit (GE Vernova) <indrajit.Prusty@ge.com>
Subject: EXT: Re: Original standard (E1) Variant inventory list

Sir,

In continuation to trailing mail, You are once again requested to submit the inventory available in stock for the standard variant components.

सादर /Regards:

जितेंद्र कुमार / Jitendra Kumar

वरिष्ठ प्रबंधक / Senior Manager,

यांत्रिक रखरखाव /Mechanical Maintenance Department,

झनोर गांधार गैस पावर प्लांट / Jhanor Gandhar Gas Power Plant

एनटीपीसी लिमिटेड / NTPC Limited

संपर्क /Contact: 8275045412

From: Jitendra Kr
Sent: Tuesday, May 28, 2024 4:51 PM
To: Prusty, Indrajit (GE Gas Power) <Indrajit.Prusty@ge.com>
Subject: Original standard (E1) Variant inventory list

Sir,

We received a proposal: 1547603 Rev: 0, dated: 23rd Sep 2020 for the supply of standard variant parts. In same line, You are requested once again to submit the list of inventory available in stock along with budgetary offer.

सादर /Regards:

जितेंद्र कुमार / Jitendra Kumar

वरिष्ठ प्रबंधक / Senior Manager,

यांत्रिक रखरखाव /Mechanical Maintenance Department,

झनोर गांधार गैस पावर प्लांट / Jhanor Gandhar Gas Power Plant

एनटीपीसी लिमिटेड / NTPC Limited

संपर्क /Contact: 8275045412

GE VERNOVA

GE Vernova's Gas Power Business

Indrajit Prusty
Sales Manager

Phone: 8451946336
Indrajit.Prusty@ge.com

INDICATIVE PROPOSAL: 1677327
16th Aug, 2024
NTPC Limited
Jhanor Gandhar Gas Power Project
Unit Serial: G00118

Subject: GT13E1 5/5 MXL Upgrade

Regarding the above subject, GE Vernova, is pleased to submit the following Indicative Proposal for GT13E1 5/5 MXL Upgrade for the above unit at Jhanor site.

Scope of Service

GT13E1 5/5 MXL Upgrade for NTPC Gandhar.

Expected Cycle: 24 Months from receipt of Purchase order.
Plant capability check with lead time (PO to report) of 24 weeks, if all 3 units are having same plant configuration.

Budgetary Price:

The Indicative Proposal price is as below.

Scope-
GT13E1 5/5 MXL Upgrade for NTPC Gandhar as per the Scope of Supply for NTPC Gandha Unit Serial: G00118----------Quantity 1 .....$ 27,340,000 USD

Amount in Words: Twenty seven Million Three Hundred Forty Thousand Dollars.

Notes:

1. This Indicative Proposal is not a quotation nor an offer for the sale of parts and/or services described herein. The information contained herein is subject to change and/or revision without prior notice. For a formal proposal, please contact your GEV Sales Representative, and reference this Indicative Proposal.
2. This Indicative Proposal assumes Purchase order within 60 days of the issuance of this Indicative proposal. For Purchase order beyond this range, an adjustment in price and cycle will take place. A new Indicative Proposal will be provided upon request.
3. Any civil foundation work /site installation work is not included in this supply proposal.
4. *COVID-19 VIRUS:* The COVID-19 epidemic and government actions in response to it have affected and will continue to affect GE's ability to deliver goods and services around the world and the impacts of this should also be considered with regard to price and cycle time estimate.

We appreciate having the opportunity to provide the budgetary quote for the above scope of work and look forward to handling your valued order. Should questions arise, please feel free to contact me.

Sincerely,

Indrajit Prusty

GE VERNOVA

GT13E1 5/5 MXL Upgrade

NTPC Limited

Site: NTPC Gandhar

Unit Serial: SY0047638 (G00116), SY0047639 (G00117), SY0047640 (G00118)

Quote Number: 1677327

Revision: 0

Proposal Date: 31-May-2024

Proposal Type: Indicative Budgetary

GE VERNOVA

Table of Contents

GE VERNOVA

Offer Summary

The GT13E1 MXL upgrade is the next evolutionary step in the development of the 13E1 Combined Cycle power plant technology and is available as a fully retrofittable solution for GT13E1 engines. The main feature of this upgrade is the full 5 stage application of the proven MXL turbine technology. This technology has collected millions of operating hours in the GT13E2 fleet.

The GT13E1 MXL with the full 5 stage MXL turbine can be operated in two modes

- MXL mode with the same TIT as in the GT13E1 and extended service interval of 36k EOH
- MCL mode with increased TIT and the same service interval of 24k EOH as in GT13E1

Customers can switch the operation between MXL and MCL operation modes, which give flexibility to the operation modes depending on the market demand.

Benefits

Key benefits of MXL upgrade are as below:

- Reduced fuel cost via increased efficiency
- Increased revenue through higher power output
- Reduced maintenance cost through extended inspection intervals
- Fully retrofittable with current GT13E1 configuration

If a stepwise upgrade approach is deemed necessary, this is possible via the following steps:

1. Upgrade of Turbine Stage 1 only (configuration GT13E1 MXL 1/5)
2. Additional upgrade of stages 2 &3 (configuration GT13E1 MXL 3/5)
3. Replacement of stages 4 & 5 (configuration GT13E1 MXL)

This flexible strategy allows customers to fully utilize any remaining available parts life.

Combustor chamber upgrade is required together with turbine section upgrade to allow for the extended 36k EOH interval and increase firing temperature by applying thermal barrier coating (TBC).

The available compressor upgrade can be done independently (GT13E1 C) or combined with the turbine upgrade (GT13E1 MXLC) to further improve Plant Performance. This could be prepared if required.

Indicative unconstraint delta base load performance for MXL upgrade is as below. This performance number is based on following boundary conditions:

- 3-1 combined cycle operation
- GT13E1 as baseline configuration
- ISO condition
- Unconstraint operation which does not consider any plant limitation.

Parameter	Config	MXL 5/5	MXLC 5/5

		M-mode	XL-mode	M-mode	XL-mode
Output (MW)	1-1 CC	6.7	1.3	20.8	12.9
	3-1 CC	20.1	3.9	62.4	38.7
Eff (%)	1-1 CC	0.6	0.1	0.7	0.2
	3-1 CC	0.6	0.1	0.7	0.2

Fig.1 View of GT13E1 thermal block.

This indicative performance is for reference only. A full plant capability check is required prior to any firm proposal. GE engineering team would need to perform a plant capability check to ensure the plant can take this additional MW.

Scope of Supply

Turbine Hardware (1 unit of GT)

- One (1) set of vane 1 to vane 5
- One (1) set of SHS A, B, C, D and E
- One (1) set of blade 1 to blade 5
- One (1) set of RHS D
- One (1) set of on-site reworks of turbine vane carrier (TVC) and compressor diffusor
- One (1) set of turbine assembly material for hardware above

Notes:

- Existing RHS A, B and C are compatible with MXL upgrade. It can be included if required.

Combustor Hardware (1 unit of GT)

- One (1) set of hot gas casing (HGC) with TBC
- One (1) set of upper combustion chamber insert (UCCI) lower cone
- One (1) set of new tile carriers row 1 to 6, including spring-loaded tiles
- One (1) set of enhanced inner liner (LCCI) with TBC
- One (1) set of redesigned belt seal

Engineering

- Engineering required for definition, procurement and erection of scope of supply.
- Engineering required for the modified GT control software with updated operation concept and controls required for all other necessary adaptations.
- Engineering for preparation of FMIs (Field Modification Instructions), or other equivalent quality documentation, for the erection and commissioning of the scope of supply.
- Engineering related to updating of operation and maintenance manuals.
- Engineering required for updating the O&M documentation including IGL.

Plant Capability Check

Engineering Plant Capability Check due to MXL Upgrade (pre-requisite for firm MXL upgrade proposal)

- Engineering study to check the capability of the equipment / system as below:
  - GT accessories
  - Air inlet filter system
  - Electrical BOP (generator main step-up transformer, static excitation system, excitation transformer, generator breaker, isolated phase bus duct and static starting device)
  - Generator
  - HRSG
  - Water steam cycle equipment (Feedwater, condensate, condenser, ST by-pass systems)
  - BOP fuel gas system
  - Closed cooling water system
  - Steam turbine and steam turbine valves
  - GT structural parts

Exclusion

- Engineering for plant capability check
- Mitigation for any plant limitation
- Grid compliance activities (if any)
- Typical C-inspection parts
- Installation services.

Annexure-A/5

FläktGroup India Private Limited
HO & Factory
3B, Udyog Vihar, Ecotech-II
Greater Noida, 201306 (U.P.) India
CIN: U31103DL2012PTC239785
Tel: +91 120 4982050 Fax: +91 120 4982099
Email: info.in@flaktgroup.com
www.flaktgroup.com

Date :- 25-08-22

To,

Mr JITENDRA KUMAR
MANAGER (O&M-MMD)
NTPC JHANOR

Sub:- Condition of the existing air washer system at NTPC Jhanor.

Dear Sir,

As per our site inspection, we observed that the existing air washer system of GT (1,60,000 CFM x 2 Qty) and ST (2,65,000 CFM x 1 Qty)area is obsolete now. Spares for the existing system can not be provided as it is supplied in year 1993 and condition of existing system is beyond the repair. The existing units were supplied by the M/s. Flaktgroup in the year 1993 which are now rusted as it was open to atmosphere, fans and other parts are not working so recommend you to replace the existing air washer system with new air washer with close casing type air washer which will save parts from rusting.

Thanks, and Regards

For FlaktGroup India Pvt Ltd

25/8

Annexure-A/6

AUTRONICA

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Fire and gas detection systems > Obsolete fire detection systems > Analogue addressable > BS-100

BS-100

Our analogue addressable fire detection system BS-100 is intended for medium and larger size installations. The system is now obsolete.

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Documents

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- Installation handbook
- Operator handbook
- Wallchart
- Menu structure
- Expansion modules

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OFFICE OF THE DEPUTY COMMANDANT
CENTRAL INDUSTRIAL SECURIYT FORCE
(MINISTRY OF HOME AFFAIRS

Unit: JGGPP, Jhanor
Dist: Bharuch (Gujrat)

No. E-42099/CISF/JGGPP (J)/FW/Fire wing./2024- 746 Date: 19/10/2024

To,
The AGM/O&M/MM
JGGPP/ NTPC Jhanor

Subject:- Replacement of existing fire pipelines and equipments for firefighting system: Reg.

It is brought to your kind notice that the existing fire pipelines and equipments for firefighting system at NTPC Jhanor is very old and same is installed since inception of the station, frequent leakages in the pipelines which are installed in the trenches are getting damaged and corroded. Due to leakages, surface hydrant and spray hydrant system is being remained unavailable for firefighting system. During repair time and pipeline replacement period the SH and spray system remain unavailable. Due to this, any fire emergency may lead to major fire incident at Jhanor.

In view of above old fire pipelines in the trenches, surface may be replaced with new pipelines and underground pipelines at many locations to be made on ground for preventive erosion and corrosion. Further in this regard it was observed the said fire pipelines has been punctured **(11 times)** during the last one year the period from dated 13.09.2023 to 16.08.2024.

Therefore, it is requested to please replace the existing fire pipelines and equipments with new one for firefighting system on top priority basis so that it may be used to handle any Fire emergency tactfully as well as avoid any untoward incident.

19.10.2024
(RAJESH KUMAR SHIVHARE)
DEPUTY COMMANDANT
CISF UNIT JGGPP JHANOR

Copy To:-

01. The CGM/HOP NTPC/JGGPP Jhanor : For kind information please.
02. The HO/HR NTPC/JGGPP Jhanor : For kind information please.
03. The Sr. Manager/MM NTPC/JGGPP Jhanor : For kind information & necessary action please.
04. The Sr. Mgr / Safety NTPC/JGGPP Jhanor : For kind information please.

उप कमाण्डेन्ट का कार्यालय
केन्द्रीय औद्योगिक सुरक्षा बल
(गृह मंत्रालय)

केऔसुब इकाई जेजीजीपीपी
झनोर भरूच, गुजरात

आईसी–42099 / केऔसुब / जेजीजीपीपी(झ) / आसूचना / प्रबं.पत्रा / 2024– दिनांक 22 / 10 / 2024

सेवा में, 8679

अपर महाप्रबंधक, मानव संसाधन.
एनटीपीसी जेजीपीपी, झनोर, गुजरात

विषय– एनटीपीसी संयंत्र की बाउण्ड्री वाल को नया बनवाने के संबंध में।

महोदय,

कृपया, उपरोक्त विषयांतर्गत अवगत कराया जाता है कि एनटीपीसी संयंत्र की बाउण्ड्री वाल काफी पुरानी हो चुकी है जिसमें कई जगह पर दरारें (Cracks) हो चुकीं है तथा पूर्व में बाउण्ड्री वाल के कई पैनल गिर भी चुके है जिसकी प्रबंधन द्वारा समय–समय पर मरम्मत कराई जाती रही है इसके अलावा बाउण्ड्री वाल के उपर लगी कँटीली तार (Barbed wire) भी पूरी तरह क्षतिग्रस्त हो चुकी है जिसकी भी पूर्व में प्रबंधन द्वारा कई बार मरम्मत करवायी जा चुकी है फिर भी आए दिन यह देखने में आता है कि बाउण्ड्री वाल किसी न किसी जगह क्षतिग्रस्त हो जाती है। बाउण्ड्री वाल की जर्जर अवस्था को देखकर ऐंसा प्रतीत होता है कि वह अपनी आयु पूर्ण कर चुकी है। चूंकि एनटीपीसी संयंत्र बहुत ही सवेंदनशील संयंत्र है अतः इसकी बाउण्ड्री वाल का क्षतिग्रस्त रहना संयंत्र की सुरक्षा की दृष्टि से सही नहीं है।

उक्त क्रम में यह भी अवगत कराया जाता है कि संयंत्र के बाहर का तीन तरफ का क्षेत्र आसपास के ग्राम की कृषि भूमि से लगा हुआ है जिसमें सिविल आदमी कृषि कार्य करते है, अर्थात संयंत्र के बाहर की तरफ CISF को पैट्रोलिंग करने के लिए कोई रोड उपलब्ध नहीं है जिससे बाहर की तरफ से भी पूरा क्षेत्र असुरक्षित है ऐंसी परिस्थिति में बाउण्ड्री वाल का सुरक्षा मापदंड के मानकों के अनुसार सही होना आवश्यक है।

अतः आपसे अनुरोध है की पुरानी बाउण्ड्री वाल को हटाकर इसकी जगह सुरक्षा मापदंड के मानकों का पालन करते हुए नयी बाउण्ड्री वाल बनवाने का कष्ट करें ताकि संयंत्र की सुरक्षा व्यवस्था को और ज्यादा पुख्ता किया जा सके।

22/10/24

उप कमाण्डेन्ट
केऔसुब इकाई, जेजीजीपीपी झनोर

प्रतिलिपीः–

1. मुख्य महाप्रबंधक (HOP), एनटीपीसी झनोर – कृपया सूचनार्थ एवं आवश्यक कार्यवाही हेतु ।
2. अपर महाप्रबंधक (O&M), एनटीपीसी झनोर – –तदैव–
3. वरिष्ट प्रबंधक (Civil), एनटीपीसी झनोर – –तदैव–

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

भारत का राजपत्र
The Gazette of India

असाधारण
EXTRAORDINARY
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PART II—Section 3—Sub-section (ii)
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PUBLISHED BY AUTHORITY

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पर्यावरण, वन और जलवायु परिवर्तन मंत्रालय

अधिसूचना

नई दिल्ली, 8 अप्रैल, 2016

का.आ. 1357(अ).—ठोस अपशिष्ट प्रबंधन नियम, 2015 का प्ररुप भारत सरकार के पर्यावरण, वन और जलवायु परिवर्तन मंत्रालय की अधिसूचना सं. सा.का.नि.451 (अ) तारीख 3 जून, 2015 को भारत के राजपत्र भाग II, खंड-3, उप खंड (i) में उसी तारीख को प्रकाशित किए गए थे, जिसमें उनसे प्रभावित होने वाले संभावित व्यक्तियों से नगरीय ठोस अपशिष्ट (प्रबंधन और हथालन) नियम 2000 को अधिक्रांत करते हुए उक्त अधिसूचना के द्वारा ठोस अपशिष्ट प्रबंधन नियम, 2015 के प्रकाशन की तारीख से साठ दिनों की अवधि की समाप्ति से पूर्व आक्षेप और सुझाव आमंत्रित किए थे।

उक्त राजपत्र की प्रतियां जनता को तारीख 3 जून, 2015 को उपलब्ध कराई गई थीं;

निर्धारित अवधि के भीतर उक्त प्रारूप नियमों पर प्राप्त आपत्तियों तथा टिप्पणियों पर केन्द्र सरकार द्वारा सम्यक रूप से विचार किया गया था;

पर्यावरण (संरक्षण) अधिनियम, 1986 (1986 का 29) की धारा 3, 6 और 25 द्वारा प्रदत्त शक्तियों का प्रयोग करते हुए और नगरीय ठोस अपशिष्ट (प्रबंधन और हथालन) नियम, 2000, उन बातों के सिवाय अधिक्रांत करते हुए जिन्हें ऐसे अधिक्रमणों से पहले किया गया है या किए जाने का लोप किया गया है, केन्द्रीय सरकार ठोस अपशिष्टों का प्रबंधन करने के लिए निम्नलिखित नियम बनाती है अर्थात् :

1. संक्षिप्त नाम और प्रारंभ.–

(1) इन नियमों का संक्षिप्त नाम ठोस अपशिष्ट प्रबंधन नियम, 2016 है।

(2) ये राजपत्र में इनके प्रकाशन की तारीख से प्रवृत्त होंगे।

नगरपालिकाओं की कुल संख्या:

प्रस्तुत की गई कार्य योजना की संख्या:

प्ररुप-VI

[नियम 25 देखें]

दुर्घटना का प्रतिवेदन

1.	दुर्घटना की तारीख और समय	:	
2.	दुर्घटना के लिए कारकों का अनुक्रम	:	
3.	दुर्घटना में शामिल अपशिष्ट	:	
4.	मानव स्वास्थ्य और पर्यावरण पर दुर्घटनाओं के प्रभावों का मूल्यांकन	:	
5.	किए गए आपातकालीन उपाय	:	
6.	दुर्घटनाओं के प्रभावों को कम करने के लिए उठाए गए कदम	:	
7.	ऐसी किसी दुर्घटना की पुनरावृत्ति को रोकने के लिए उठाए गए कदम	:	
तारीख		हस्ताक्षर	
स्थान		पदनाम	

[फा. सं.18-3/2004-एचएसएमडी]

विश्वनाथ सिन्हा, संयुक्त सचिव

MINISTRY OF ENVIRONMENT, FOREST AND CLIMATE CHANGE

NOTIFICATION

New Delhi, the 8th April, 2016

S.O. 1357(E).—Whereas the draft of the Solid Waste Management Rules, 2015 were published under the notification of the Government of India in the Ministry of Environment, Forest and Climate Change number G.S.R. 451 (E), dated the 3rd June, 2015 in the Gazette of India, part II, Section3, sub- section (i) of the same date inviting objections or suggestions from the persons likely to be affected thereby, before the expiry of the period of sixty days from the publication of the said notification on the Solid Waste Management Rules, 2015 in supersession of the Municipal Solid Waste (Management and Handling) Rules, 2000;

And whereas, copies of the said Gazette were made available to the public on the 3rd June, 2015;

And whereas, the objections or comments received within the stipulated period were duly considered by the Central Government;

Now, therefore, in exercise of the powers conferred by sections 3, 6 and 25 of the Environment (Protection) Act, 1986 (29 of 1986) and in supersession of the Municipal Solid Waste (Management and Handling) Rules, 2000, except as respect things done or omitted to be done before such supersession, the Central Government hereby makes the following rules for management of Solid Waste, namely:-

1. **Short title and commencement.-**

(1) These rules may be called the Solid Waste Management Rules, 2016.

(2) They shall come into force on the date of their publication in the Official Gazette.

2. **Application.-** These rules shall apply to every urban local body, outgrowths in urban agglomerations, census towns as declared by the Registrar General and Census Commissioner of India, notified areas, notified industrial townships, areas under the control of Indian Railways, airports, airbases, Ports and harbours, defence establishments, special economic zones, State and Central government organisations, places of pilgrims, religious and historical importance as may be notified by respective State government from time to time and to every domestic, institutional, commercial and any other non residential solid waste generator situated in the areas except industrial waste, hazardous waste, hazardous chemicals, bio medical wastes, e-waste, lead acid batteries and radio-active waste, that are covered under separate rules framed under the Environment (Protection) Act, 1986.

3. **Definitions** –(1) In these rules, unless the context otherwise requires,- (1) **"aerobic composting"** means a controlled process involving microbial decomposition of organic matter in the presence of oxygen;

2. **"anaerobic digestion"** means a controlled process involving microbial decomposition of organic matter in absence of oxygen;

3. **"authorisation"** means the permission given by the State Pollution Control Board or Pollution Control Committee, as the case may be, to the operator of a facility or urban local suthority, or any other agency responsible for processing and disposal of solid waste;

4. **"biodegradable waste "** means any organic material that can be degraded by micro-organisms into simpler stable compounds;

5. **"bio-methanation"** means a process which entails enzymatic decomposition of the organic matter by microbial action to produce methane rich biogas;

6. **"brand owner"** means a person or company who sells any commodity under a registered brand label.

7. "**buffer zone**" means zone of no development to be maintained around solid waste processing and disposal facility, exceeding 5 TPD of installed capacity. This will be maintained within total and area allotted for the solid waste processing and disposal facility.

8. **"bulk waste generator"** means and includes buildings occupied by the Central government departments or undertakings, State government departments or undertakings, local bodies, public sector undertakings or private companies, hospitals, nursing homes, schools, colleges, universities, other educational institutions, hostels, hotels, commercial establishments, markets, places of worship, stadia and sports complexes having an average waste generation rate exceeding 100kg per day;

9. **"bye-laws"** means regulatory framework notified by local body, census town and notified area townships for facilitating the implementation of these rules effectively in their jurisdiction.

10. **"census town"** means an urban area as defined by the Registrar General and Census Commissioner of India;

11. **"combustible waste"** means non-biodegradable, non-recyclable, non-reusable, non hazardous solid waste having minimum calorific value exceeding 1500 kcal/kg and excluding chlorinated materials like plastic, wood pulp, etc;

12. **"composting"** means a controlled process involving microbial decomposition of organic matter;

13. "**contractor**" means a person or firm that undertakes a contract to provide materials or labour to perform a service or do a job for service providing authority;

14. **"co-processing"** means use of non-biodegradable and non recyclable solid waste having calorific value exceeding 1500k/cal as raw material or as a source of energy or both to replace or supplement the natural mineral resources and fossil fuels in industrial processes;

15. **"decentralised processing"** means establishment of dispersed facilities for maximizing the processing of bio-degradable waste and recovery of recyclables closest to the source of generation so as to minimize transportation of waste for processing or disposal;

16. "**disposal**" means the final and safe disposal of post processed residual solid waste and inert street sweepings and silt from surface drains on land as specified in Schedule I to prevent contamination of ground water, surface water, ambient air and attraction of animals or birds;

17. **"domestic hazardous waste"** means discarded paint drums, pesticide cans, CFL bulbs, tube lights, expired medicines, broken mercury thermometers, used batteries, used needles and syringes and contaminated gauge, etc., generated at the household level;

18. **"door to door collection"** means collection of solid waste from the door step of households, shops, commercial establishments , offices , institutional or any other non residential premises and includes collection of such waste from entry gate or a designated location on the ground floor in a housing society , multi storied building or apartments , large residential, commercial or institutional complex or premises;.

19. **"dry waste"** means waste other than bio-degradable waste and inert street sweepings and includes recyclable and non recyclable waste, combustible waste and sanitary napkin and diapers, etc;

20. **"dump sites"** means a land utilised by local body for disposal of solid waste without following the principles of sanitary land filling;

21. **"extended producer responsibility" (EPR)** means responsibility of any producer of packaging products such as plastic, tin, glass and corrugated boxes, etc., for environmentally sound management, till end-of-life of the packaging products;

22. **"facility"** means any establishment wherein the solid waste management processes namely segregation, recovery, storage, collection, recycling, processing, treatment or safe disposal are carried out;

23. **"fine" means** penalty imposed on waste generators or operators of waste processing and disposal facilities under the bye-laws for non-compliance of the directions contained in these rules and/or bye- laws

24. **"Form"** means a F8orm appended to these rules;

25. **"handling"** includes all activities relating to sorting, segregation, material recovery, collection, secondary storage, shredding, baling, crushing, loading, unloading, transportation, processing and disposal of solid wastes;

26. **"inerts"** means wastes which are not bio-degradable, recyclable or combustible street sweeping or dust and silt removed from the surface drains;

27. **"incineration"** means an engineered process involving burning or combustion of solid waste to thermally degrade waste materials at high temperatures;

28. **"informal waste collector"** includes individuals, associations or waste traders who are involved in sorting, sale and purchase of recyclable materials;

29. **"leachate"** means the liquid that seeps through solid waste or other medium and has extracts of dissolved or suspended material from it;

30. **" local body"** for the purpose of these rules means and includes the municipal corporation, nagar nigam, municipal council, nagarpalika, nagar Palikaparishad, municipal board, nagar panchayat and town panchayat, census towns, notified areas and notified industrial townships with whatever name they are called in different States and union territories in India;

31. **"materials recovery facility" (MRF)** means a facility where non-compostable solid waste can be temporarily stored by the local body or any other entity mentioned in rule 2 or any person or agency authorised by any of them to facilitate segregation, sorting and recovery of recyclables from various components of waste by authorised informal sector of waste pickers, informal recyclers or any other work force engaged by the local body or entity mentioned in rule 2for the purpose before the waste is delivered or taken up for its processing or disposal;

32. **"non-biodegradable waste"** means any waste that cannot be degraded by micro organisms into simpler stable compounds;

33. **"operator of a facility"** means a person or entity, who owns or operates a facility for handling solid waste which includes the local body and any other entity or agency appointed by the local body;

34. **primary collection"** means collecting, lifting and removal of segregated solid waste from source of its generation including households, shops, offices and any other non-residential premises or from any collection points or any other location specified by the local body;

35. **"processing"** means any scientific process by which segregated solid waste is handled for the purpose of reuse, recycling or transformation into new products**;**

36. **"recycling"** means the process of transforming segregated non-biodegradable solid waste into new material or product or as raw material for producing new products which may or may not be similar to the original products;

37. **"redevelopment"** means rebuilding of old residential or commercial buildings at the same site, where the existing buildings and other infrastructures have become dilapidated;

38. **"refused derived fuel"**(RDF) means fuel derived from combustible waste fraction of solid waste like plastic, wood, pulp or organic waste, other than chlorinated materials, in the form of pellets or fluff produced by drying, shredding, dehydrating and compacting of solid waste ;

39. **"residual solid waste"** means and includes the waste and rejects from the solid waste processing facilities which are not suitable for recycling or further processing;

40. **"sanitary land filling "** means the final and safe disposal of residual solid waste and inert wastes on land in a facility designed with protective measures against pollution of ground water, surface water and fugitive air dust, wind-blown litter, bad odour, fire hazard, animal menace, bird menace, pests or rodents, greenhouse gas emissions, persistent organic pollutants slope instability and erosion;

41. **"sanitary waste"** means wastes comprising of used diapers, sanitary towels or napkins, tampons, condoms, incontinence sheets and any other similar waste;

42. **"Schedule"** means the Schedule appended to these rules;

43. **"secondary storage"** means the temporary containment of solid waste after collection at secondary waste storage depots or MRFs or bins for onward transportation of the waste to the processing or disposal facility;

44. **"segregation"** means sorting and separate storage of various components of solid waste namely biodegradable wastes including agriculture and dairy waste, non biodegradable wastes including recyclable waste, non-recyclable combustible waste, sanitary waste and non recyclable inert waste, domestic hazardous wastes, and construction and demolition wastes;

45. **"service provider"** means an authority providing public utility services like water, sewerage, electricity, telephone, roads, drainage, etc;

46. **"solid waste"** means and includes solid or semi-solid domestic waste, sanitary waste, commercial waste, institutional waste, catering and market waste and other non residential wastes, street sweepings, silt removed or collected from the surface drains, horticulture waste, agriculture and dairy waste, treated bio-medical waste excluding industrial waste, bio-medical waste and e-waste, battery waste, radio-active waste generated in the area under the local authorities and other entities mentioned in rule 2;

47. **"sorting"** means separating various components and categories of recyclables such as paper, plastic, card-boards, metal, glass, etc., from mixed waste as may be appropriate to facilitate recycling;

48. **"stabilising"** means the biological decomposition of biodegradable wastes to a stable state where it generates no leachate or offensive odours and is fit for application to farm land ,soil erosion control and soil remediation;

49. **"street vendor"** means any person engaged in vending of articles, goods, wares, food items or merchandise of everyday use or offering services to the general public, in a street, lane, side walk, footpath, pavement, public park or any other public place or private area, from a temporary built up structure or by moving from place to place and includes hawker, peddler, squatter and all other synonymous terms which may be local or region specific; and the words "street vending" with their grammatical variations and cognate expressions, shall be construed accordingly;

50. **"tipping fee"** means a fee or support price determined by the local authorities or any state agency authorised by the State government to be paid to the concessionaire or operator of waste processing facility or for disposal of residual solid waste at the landfill;

51. **"transfer station"** means a facility created to receive solid waste from collection areas and transport in bulk in covered vehicles or containers to waste processing and, or, disposal facilities;

52. **"transportation"** means conveyance of solid waste, either treated, partly treated or untreated from a location to another location in an environmentally sound manner through specially designed and covered transport system so as to prevent the foul odour, littering and unsightly conditions;

53. **"treatment"** means the method, technique or process designed to modify physical, chemical or biological characteristics or composition of any waste so as to reduce its volume and potential to cause harm;

54. **"user fee"** means a fee imposed by the local body and any entity mentioned in rule 2 on the waste generator to cover full or part cost of providing solid waste collection, transportation, processing and disposal services.

55. **"vermi composting"** means the process of conversion of bio-degradable waste into compost using earth worms;

56. **"waste generator"** means and includes every person or group of persons, every residential premises and non residential establishments including Indian Railways, defense establishments, which generate solid waste;

57. **"waste hierarchy"** means the priority order in which the solid waste is to should be managed by giving

emphasis to prevention, reduction, reuse, recycling, recovery and disposal, with prevention being the most preferred option and the disposal at the landfill being the least;

58. **"waste picker"** means a person or groups of persons informally engaged in collection and recovery of reusable and recyclable solid waste from the source of waste generation the streets, bins, material recovery facilities, processing and waste disposal facilities for sale to recyclers directly or through intermediaries to earn their livelihood.

(2) Words and expressions used herein but not defined, but defined in the Environment (Protection) Act, 1986, the Water (Prevention and Control of Pollution) Act, 1974, Water (Prevention and Control of Pollution) Cess Act, 1977 and the Air (prevention and Control of Pollution) Act, 1981 shall have the same meaning as assigned to them in the respective Acts.

4 Duties of waste generators.- (1) Every waste generator shall,-

(a) segregate and store the waste generated by them in three separate streams namely bio-degradable, non bio-degradable and domestic hazardous wastes in suitable bins and handover segregated wastes to authorised waste pickers or waste collectors as per the direction or notification by the local authorities from time to time;

(b) wrap securely the used sanitary waste like diapers, sanitary pads etc., in the pouches provided by the manufacturers or brand owners of these products or in a suitable wrapping material as instructed by the local authorities and shall place the same in the bin meant for dry waste or non- bio-degradable waste;

(c) store separately construction and demolition waste, as and when generated, in his own premises and shall dispose off as per the Construction and Demolition Waste Management Rules, 2016; and

(d) store horticulture waste and garden waste generated from his premises separately in his own premises and dispose of as per the directions of the local body from time to time.

(2) No waste generator shall throw, burn or burry the solid waste generated by him, on streets, open public spaces outside his premises or in the drain or water bodies.

(3) All waste generators shall pay such user fee for solid waste management, as specified in the bye-laws of the local bodies.

(4) No person shall organise an event or gathering of more than one hundred persons at any unlicensed place without intimating the local body, at least three working days in advance and such person or the organiser of such event shall ensure segregation of waste at source and handing over of segregated waste to waste collector or agency as specified by the local body.

(5) Every street vendor shall keep suitable containers for storage of waste generated during the course of his activity such as food waste, disposable plates, cups, cans, wrappers, coconut shells, leftover food, vegetables, fruits, etc., and shall deposit such waste at waste storage depot or container or vehicle as notified by the local body.

(6) All resident welfare and market associations shall, within one year from the date of notification of these rules and in partnership with the local body ensure segregation of waste at source by the generators as prescribed in these rules, facilitate collection of segregated waste in separate streams, handover recyclable material to either the authorised waste pickers or the authorised recyclers. The bio-degradable waste shall be processed, treated and disposed off through composting or bio-methanation within the premises as far as possible. The residual waste shall be given to the waste collectors or agency as directed by the local body.

(7) All gated communities and institutions with more than 5,000 sqm area shall, within one year from the date of notification of these rules and in partnership with the local body, ensure segregation of waste at source by the generators as prescribed in these rules, facilitate collection of segregated waste in separate streams, handover recyclable material to either the authorised waste pickers or the authorizsd recyclers. The bio-degradable waste shall be processed, treated and disposed off through composting or bio-methanation within the premises as far as possible. The residual waste shall be given to the waste collectors or agency as directed by the local body.

(8) All hotels and restaurants shall, within one year from the date of notification of these rules and in partnership with the local body ensure segregation of waste at source as prescribed in these rules, facilitate collection of segregated waste in separate streams, handover recyclable material to either the authorised waste pickers or the authorised recyclers. The bio-degradable waste shall be processed, treated and disposed off through composting or bio-methanation within the premises as far as possible. The residual waste shall be given to the waste collectors or agency as directed by the local body.

5. Duties of Ministry of Environment, Forest and Climate Change.- (1) The Ministry of Environment, Forest and Climate Change shall be responsible for over all monitoring the implementation of these rules in the country. It shall constitute a Central Monitoring Committee under the Chairmanship of Secretary, Ministry of Environment, Forest and Climate Change comprising officer not below the rank of Joint Secretary or Advisor from the following namely,-

1) Ministry of Urban Development

2) Ministry of Rural Development

3) Ministry of Chemicals and Fertilizers

4) Ministry of Agriculture

5) Central Pollution Control Board

6) Three State Pollution Control Boards or Pollution Control Committees by rotation

7) Urban Development Departments of three State Governments by rotation

8) Rural Development Departments from two State Governments by rotation

9) Three Urban Local bodies by rotation

10) Two census towns by rotation

11) FICCI, CII

12) Two subject experts

2. This Central Monitoring Committee shall meet at least once in a year to monitor and review the implementation of these rules. The Ministry of Environment, Forest and Climate Change may co-opt other experts, if needed. The Committee shall be renewed every three years.

6. Duties of Ministry of Urban Development.- (1) The Ministry of Urban Development shall coordinate with State Governments and Union territory Administrations to,-

(a) take periodic review of the measures taken by the states and local bodies for improving solid waste management practices and execution of solid waste management projects funded by the Ministry and external agencies at least once in a year and give advice on taking corrective measures;

(b) formulate national policy and strategy on solid waste management including policy on waste to energy in consultation with stakeholders within six months from the date of notification of these rules;

(c) facilitate States and Union Territories in formulation of state policy and strategy on solid management based on national solid waste management policy and national urban sanitation policy;

(d) promote research and development in solid waste management sector and disseminate information to States and local bodies;

(e) undertake training and capacity building of local bodies and other stakeholders;and

(f) provide technical guidelines and project finance to states, Union territories and local bodies on solid waste management to facilitate meeting timelines and standards.

7. Duties of Department of Fertilisers, Ministry of Chemicals and Fertilisers.- (1) The Department of Fertilisers through appropriate mechanisms shall,-

(a) provide market development assistance on city compost; and

(b) ensure promotion of co-marketing of compost with chemical fertilisers in the ratio of 3 to 4 bags: 6 to 7 bags by the fertiliser companies to the extent compost is made availablefor marketing to the companies.

8. Duties of Ministry of Agriculture, Government of India.- The Ministry of Agriculture through appropriate mechanisms shall,-

(a) provide flexibility in Fertiliser Control Order for manufacturing and sale of compost;

(b) propagate utlisation of compost on farm land;

(c) set up laboratories to test quality of compost produced by local authorities or their authorised agencies; and

(d) issue suitable guidelines for maintaining the quality of compost and ratio of use of compost visa-a-vis chemical fertilizers while applying compost to farmland.

9. Duties of the Ministry of Power.-The Ministry of Power through appropriate mechanisms shall,-

(a) decide tariff or charges for the power generated from the waste to energy plants based on solid waste.

(b) compulsory purchase power generated from such waste to energy plants by distribution company.

10. Duties of Ministry of New and Renewable Energy Sources- The Ministry of New and Renewable Energy Sources through appropriate mechanisms shall,-

(a) facilitate infrastructure creation for waste to energy plants; and

(b) provide appropriate subsidy or incentives for such waste to energy plants.

11. Duties of the Secretary–in-charge, Urban Development in the States and Union territories.- (1) The Secretary, Urban Development Department in the State or Union territory through the Commissioner or Director of Municipal Administration or Director of local bodies shall,-

(a) prepare a state policy and solid waste management strategy for the state or the union territory in consultation with stakeholders including representative of waste pickers, self help group and similar groups working in the field of waste management consistent with these rules, national policy on solid waste management and national urban sanitation policy of the ministry of urban development, in a period not later than one year from the date of notification of these rules;

(b) while preparing State policy and strategy on solid waste management, lay emphasis on waste reduction, reuse, recycling, recovery and optimum utilisation of various components of solid waste to ensure minimisation of waste going to the landfill and minimise impact of solid waste on human health and environment;

(c) state policies and strategies should acknowledge the primary role played by the informal sector of waste pickers, waste collectors and recycling industry in reducing waste and provide broad guidelines regarding integration of waste picker or informal waste collectors in the waste management system.

(d) ensure implementation of provisions of these rules by all local authorities;

(e) direct the town planning department of the State to ensure that master plan of every city in the State or Union territory provisions for setting up of solid waste processing and disposal facilities except for the cities who are members of common waste processing facility or regional sanitary landfill for a group of cities; and

(f) ensure identification and allocation of suitable land to the local bodies within one year for setting up of processing and disposal facilities for solid wastes and incorporate them in the master plans (land use plan) of the State or as the case may be, cities through metropolitan and district planning committees or town and country planning department;

(h) direct the town planning department of the State and local bodies to ensure that a separate space for segregation, storage, decentralised processing of solid waste is demarcated in the development plan for group housing or commercial, institutional or any other non-residential complex exceeding 200 dwelling or having a plot area exceeding 5,000 square meters;

(i) direct the developers of Special Economic Zone, Industrial Estate, Industrial Park to earmark at least five percent of the total area of the plot or minimum five plots or sheds for recovery and recycling facility.

(j) facilitate establishment of common regional sanitary land fill for a group of cities and towns falling within a distance of 50 km (or more) from the regional facility on a cost sharing basis and ensure professional management of such sanitary landfills;

(k) arrange for capacity building of local bodies in managing solid waste, segregation and transportation or processing of such waste at source;

(l) notify buffer zone for the solid waste processing and disposal facilities of more than five tons per day in consultation with the State Pollution Control Board; and

(m) start a scheme on registration of waste pickers and waste dealers.

12. Duties of District Magistrate or District Collector or Deputy Commissioner.- The District Magistrate or District Collector or as the case may be , the Deputy Commissioner shall, -

(a) facilitate identification and allocation of suitable land as per clause (f) of rules 11 for setting up solid waste processing and disposal facilities to local authorities in his district in close coordination with the Secretary-in-charge of State Urban Development Department within one year from the date of notification of these rules;

(b) review the performance of local bodies, at least once in a quarter on waste segregation, processing, treatment and disposal and take corrective measures in consultation with the Commissioner or Director of Municipal Administration or Director of local bodies and secretary-in-charge of the State Urban Development.

13. Duties of the Secretary–in-charge of Village Panchayats or Rural Development Department in the State and Union territory.- (1) The Secretary–in-charge of Village Panchayats or Rural Development Department in the State and Union territory shall have the same duties as the Secretary–in-charge, Urban Development in the States and Union territories, for the areas which are covered under these rules and are under their jurisdictions.

14. Duties of Central Pollution Control Board.-The Central Pollution Control Board shall, -

(a) co-ordinate with the State Pollution Control Boards and the Pollution Control Committees for implementation of these rules and adherence to the prescribed standards by local authorities;

(b) formulate the standards for ground water, ambient air, noise pollution, leachate in respect of all solid waste processing and disposal facilities;

(c) review environmental standards and norms prescribed for solid waste processing facilities or treatment technologies and update them as and when required;

(d) review through State Pollution Control Boards or Pollution Control Committees, at least once in a year, the implementation of prescribed environmental standards for solid waste processing facilities or treatment technologies and compile the data monitored by them;

(e) review the proposals of State Pollution Control Boards or Pollution Control Committees on use of any new technologies for processing, recycling and treatment of solid waste and prescribe performance standards, emission norms for the same within 6 months;

(f) monitor through State Pollution Control Boards or Pollution Control Committees the implementation of these rules by local bodies;

(g) prepare an annual report on implementation of these rules on the basis of reports received from State Pollution Control Boards and Committees and submit to the Ministry of Environment, Forest and Climate Change and the report shall also be put in public domain;

(h) publish guidelines for maintaining buffer zone restricting any residential, commercial or any other construction activity from the outer boundary of the waste processing and disposal facilities for different sizes of facilities handling more than five tons per day of solid waste;

(i) publish guidelines, from time to time, on environmental aspects of processing and disposal of solid waste to enable local bodies to comply with the provisions of these rules; and

(j) provide guidance to States or Union territories on inter-state movement of waste.

15. Duties and responsibilities of local authorities and village Panchayats of census towns and urban agglomerations.- The local authorities and Panchayats shall,-

(a) prepare a solid waste management plan as per state policy and strategy on solid waste management within six months from the date of notification of state policy and strategy and submit a copy to respective departments of State Government or Union territory Administration or agency authorised by the State Government or Union territory Administration;

(b) arrange for door to door collection of segregated solid waste from all households including slums and informal settlements, commercial, institutional and other non residential premises. From multi-storage buildings, large commercial complexes, malls, housing complexes, etc., this may be collected from the entry gate or any other designated location;

(c) establish a system to recognise organisations of waste pickers or informal waste collectors and promote and establish a system for integration of these authorised waste-pickers and waste collectors to facilitate their participation in solid waste management including door to door collection of waste;

(d) facilitate formation of Self Help Groups, provide identity cards and thereafter encourage integration in solid waste management including door to door collection of waste;

(e) frame bye-laws incorporating the provisions of these rules within one year from the date of notification of these rules and ensure timely implementation;

(f) prescribe from time to time user fee as deemed appropriate and collect the fee from the waste generators on its own or through authorised agency;

(g) direct waste generators not to litter i.e throw or dispose of any waste such as paper, water bottles, liquor bottles, soft drink canes, tetra packs, fruit peel, wrappers, etc., or burn or burry waste on streets, open public spaces, drains, waste bodies and to segregate the waste at source as prescribed under these rules and hand over the segregated waste to authorised the waste pickers or waste collectors authorised by the local body;

(h) setup material recovery facilities or secondary storage facilities with sufficient space for sorting of recyclable materials to enable informal or authorised waste pickers and waste collectors to separate recyclables from the waste and provide easy access to waste pickers and recyclers for collection of segregated recyclable waste such as paper, plastic, metal, glass, textile from the source of generation or from material recovery facilities; Bins for storage of bio-degradable wastes shall be painted green, those for storage of recyclable wastes shall be printed white and those for storage of other wastes shall be printed black;

(i) establish waste deposition centres for domestic hazardous waste and give direction for waste generators to deposit domestic hazardous wastes at this centre for its safe disposal. Such facility shall be established in a city or town in a manner that one centre is set up for the area of twenty square kilometers or part thereof and notify the timings of receiving domestic hazardous waste at such centres;

(j) ensure safe storage and transportation of the domestic hazardous waste to the hazardous waste disposal facility or as may be directed by the State Pollution Control Board or the Pollution Control Committee;

(k) direct street sweepers not to burn tree leaves collected from street sweeping and store them separately and handover to the waste collectors or agency authorised by local body;

(l) provide training on solid waste management to waste-pickers and waste collectors;

(m) collect waste from vegetable, fruit, flower, meat, poultry and fish market on day to day basis and promote setting up of decentralised compost plant or bio-methanation plant at suitable locations in the markets or in the vicinity of markets ensuring hygienic conditions;

(n) collect separately waste from sweeping of streets, lanes and by-lanes daily, or on alternate days or twice a week depending on the density of population, commercial activity and local situation;

(o) set up covered secondary storage facility for temporary storage of street sweepings and silt removed from surface drains in cases where direct collection of such waste into transport vehicles is not convenient. Waste so collected shall be collected and disposed of at regular intervals as decided by the local body;

(p) collect horticulture, parks and garden waste separately and process in the parks and gardens, as far as possible;

(q) transport segregated bio-degradable waste to the processing facilities like compost plant, bio-methanation plant or any such facility. Preference shall be given for on site processing of such waste;

(r) transport non-bio-degradable waste to the respective processing facility or material recovery facilities or secondary storage facility;

(s) transport construction and demolition waste as per the provisions of the Construction and Demolition Waste management Rules, 2016;

(t) involve communities in waste management and promotion of home composting, bio-gas generation, decentralised processing of waste at community level subject to control of odour and maintenance of hygienic conditions around the facility;

(u) phase out the use of chemical fertilizer in two years and use compost in all parks, gardens maintained by the local body and wherever possible in other places under its jurisdiction. Incentives may be provided to recycling initiatives by informal waste recycling sector.

(v) facilitate construction, operation and maintenance of solid waste processing facilities and associated infrastructure on their own or with private sector participation or through any agency for optimum utilisation of various components of solid waste adopting suitable technology including the following technologies and adhering to the guidelines issued by the Ministry of Urban Development from time to time and standards prescribed by the Central Pollution Control Board. Preference shall be given to decentralised processing to minimize transportation cost and environmental impacts such as-

a) bio-methanation, microbial composting, vermi-composting, anaerobic digestion or any other appropriate processing for bio-stabilisation of biodegradable wastes;

b) waste to energy processes including refused derived fuel for combustible fraction of waste or supply as feedstock to solid waste based power plants or cement kilns;

(w) undertake on their own or through any other agency construction, operation and maintenance of sanitary landfill and associated infrastructure as per Schedule I for disposal of residual wastes in a manner prescribed under these rules;

(x) make adequate provision of funds for capital investments as well as operation and maintenance of solid waste management services in the annual budget ensuring that funds for discretionary functions of the local body have been allocated only after meeting the requirement of necessary funds for solid waste management and other obligatory functions of the local body as per these rules;

(y) make an application in Form-I for grant of authorisation for setting up waste processing, treatment or disposal facility, if the volume of waste is exceeding five metric tones per day including sanitary landfills from the State Pollution Control Board or the Pollution Control Committee, as the case may be;

(z) submit application for renewal of authorisation at least sixty days before the expiry of the validity of authorisation;

(za) prepare and submit annual report in Form IV on or before the 30th April of the succeeding year to the Commissioner or Director, Municipal Administration or designated Officer;

(zb) the annual report shall then be sent to the Secretary -in-Charge of the State Urban Development Department or village panchayat or rural development department and to the respective State Pollution Control Board or Pollution Control Committee by the 31st May of every year;

(zc) educate workers including contract workers and supervisors for door to door collection of segregated waste and transporting the unmixed waste during primary and secondary transportation to processing or disposal facility;

(zd) ensure that the operator of a facility provides personal protection equipment including uniform, fluorescent jacket, hand gloves, raincoats, appropriate foot wear and masks to all workers handling solid waste and the same are used by the workforce;

(ze) ensure that provisions for setting up of centers for collection, segregation and storage of segregated wastes, are incorporated in building plan while granting approval of building plan of a group housing society or market complex; and

(zf) frame bye-laws and prescribe criteria for levying of spot fine for persons who litters or fails to comply with the provisions of these rules and delegate powers to officers or local bodies to levy spot fines as per the bye laws framed; and

(zg) create public awareness through information, education and communication campaign and educate the waste generators on the following; namely:-

(i) not to litter;

(ii) minimise generation of waste;

(iii) reuse the waste to the extent possible;

(iv) practice segregation of waste into bio–degradable, non-biodegradable (recyclable and combustible), sanitary waste and domestic hazardous wastes at source;

(v) practice home composting, vermi-composting, bio-gas generation or community level composting;

(vi) wrap securely used sanitary waste as and when generated in the pouches provided by the brand owners or a suitable wrapping as prescribed by the local body and place the same in the bin meant for non-biodegradable waste;

(vii) storage of segregated waste at source in different bins;

(viii) handover segregated waste to waste pickers, waste collectors, recyclers or waste collection agencies; and

(ix) pay monthly user fee or charges to waste collectors or local bodies or any other person authorised by the local body for sustainability of solid waste management.

(zh) stop land filling or dumping of mixed waste soon after the timeline as specified in rule 23 for setting up and operationalisation of sanitary landfill is over;

(zi) allow only the non-usable, non-recyclable, non-biodegradable, non-combustible and non-reactive inert waste and pre-processing rejects and residues from waste processing facilities to go to sanitary landfill and the sanitary landfill sites shall meet the specifications as given in Schedule–I, however, every effort shall be made to recycle or reuse the rejects to achieve the desired objective of zero waste going to landfill;

(zj) investigate and analyse all old open dumpsites and existing operational dumpsites for their potential of bio-mining and bio-remediation and wheresoever feasible, take necessary actions to bio-mine or bio-remediate the sites;

(zk) in absence of the potential of bio-mining and bio-remediation of dumpsite, it shall be scientifically capped as per landfill capping norms to prevent further damage to the environment.

16. Duties of State Pollution Control Board or Pollution Control Committee.- (1) The State Pollution Control Board or Pollution Control Committee shall,-

(a) enforce these rules in their State through local bodies in their respective jurisdiction and review implementation of these rules at least twice a year in close coordination with concerned Directorate of Municipal Administration or Secretary-in-charge of State Urban Development Department;

(b) monitor environmental standards and adherence to conditions as specified under the Schedule I and Schedule II for waste processing and disposal sites;

(c) examine the proposal for authorisation and make such inquiries as deemed fit, after the receipt of the application for the same in Form I from the local body or any other agency authorised by the local body;

(d) while examining the proposal for authorisation, the requirement of consents under respective enactments and views of other agencies like the State Urban Development Department, the Town and Country Planning Department, District Planning Committee or Metropolitan Area Planning Committee, as may be applicable, Airport or Airbase Authority, the Ground Water Board, Railways, power distribution companies, highway department and other relevant agencies shall be taken into consideration and they shall be given four weeks time to give their views, if any;

(e) issue authorisation within a period of sixty days in Form II to the local body or an operator of a facility or any other agency authorised by local body stipulating compliance criteria and environmental standards as specified in Schedules I and II including other conditions, as may be necessary;

(f) synchronise the validity of said authorisation with the validity of the consents;

(g) suspend or cancel the authorization issued under clause (a) any time, if the local body or operator of the facility fails to operate the facility as per the conditions stipulated:

provided that no such authorization shall be suspended or cancelled without giving notice to the local body or operator, as the case may be; and

(h) on receipt of application for renewal, renew the authorisation for next five years, after examining every application on merit and subject to the condition that the operator of the facility has fulfilled all the provisions of the rules, standards or conditions specified in the authorisation, consents or environment clearance.

(2) The State Pollution Control Board or Pollution Control Committee shall, after giving reasonable opportunity of being heard to the applicant and for reasons thereof to be recorded in writing, refuse to grant or renew an authorisation.

(3) In case of new technologies, where no standards have been prescribed by the Central Pollution Control Board, State Pollution Control Board or Pollution Control Committee, as the case may be, shall approach Central Pollution Control Board for getting standards specified.

(4) The State Pollution Control Board or the Pollution Control Committee, as the case may be, shall monitor the compliance of the standards as prescribed or laid down and treatment technology as approved and the conditions stipulated in the authorisation and the standards specified in Schedules I and II under these rules as and when deemed appropriate but not less than once in a year.

(5) The State Pollution Control Board or the Pollution Control Committee may give directions to local bodies for safe handling and disposal of domestic hazardous waste deposited by the waste generators at hazardous waste deposition facilities.

(6) The State Pollution Control Board or the Pollution Control Committee shall regulate Inter-State movement of waste.

17. Duty of manufacturers or brand owners of disposable products and sanitary napkins and diapers.- (1) All manufacturers of disposable products such as tin, glass, plastics packaging, etc., or brand owners who introduce such products in the market shall provide necessary financial assistance to local authorities for establishment of waste management system.

(2) All such brand owners who sell or market their products in such packaging material which are non-biodegradable shall put in place a system to collect back the packaging waste generated due to their production.

(3) Manufacturers or brand owners or marketing companies of sanitary napkins and diapers shall explore the possibility of using all recyclable materials in their products or they shall provide a pouch or wrapper for disposal of each napkin or diapers along with the packet of their sanitary products.

(4) All such manufacturers, brand owners or marketing companies shall educate the masses for wrapping and disposal of their products.

18. Duties of the industrial units located within one hundred km from the refused derived fuel and waste to energy plants based on solid waste- All industrial units using fuel and located within one hundred km from a solid waste based refused derived fuel plant shall make arrangements within six months from the date of notification of these rules to replace at least five percent of their fuel requirement by refused derived fuel so produced.

19. Criteria for Duties regarding setting-up solid waste processing and treatment facility.- (1) The department in- charge of the allocation of land assignment shall be responsible for providing suitable land for setting up of the solid waste processing and treatment facilities and notify such sites by the State Government or Union territory Administration.

(2) The operator of the facility shall design and set up the facility as per the technical guidelines issued by the Central Pollution Control Board in this regard from time to time and the manual on solid waste management prepared by the Ministry of Urban Development.

(3) The operator of the facility shall obtain necessary approvals from the State Pollution Control Board or Pollution Control Committee.

(4) The State Pollution Control Board or Pollution Control Committee shall monitor the environment standards of the operation of the solid waste processing and treatment facilities.

(5) The operator of the facility shall be responsible for the safe and environmentally sound operations of the solid waste processing and or treatment facilities as per the guidelines issued by the Central Pollution Control Board from time to time and the Manual on Municipal Solid Waste Management published by the Ministry of Urban Development and updated from time to time.

(6) The operator of the solid waste processing and treatment facility shall submit annual report in Form III each year by 30th April to the State Pollution Control Board or Pollution Committee and concerned local body.

20. Criteria and actions to be taken for solid waste management in hilly areas.- In the hilly areas, the duties and responsibilities of the local authorities shall be the same as mentioned in rule 15 with additional clauses as under:

(a) Construction of landfill on the hill shall be avoided. A transfer station at a suitable enclosed location shall be setup to collect residual waste from the processing facility and inert waste. A suitable land shall be identified in the plain areas down the hill within 25 kilometers for setting up sanitary landfill. The residual waste from the transfer station shall be disposed of at this sanitary landfill.

(b) In case of non-availability of such land, efforts shall be made to set up regional sanitary landfill for the inert and residual waste.

(c) Local body shall frame Bye-laws and prohibit citizen from littering wastes on the streets and give strict direction to the tourists not to dispose any waste such as paper, water bottles, liquor bottles, soft drink canes, tetra packs, any other plastic or paper waste on the streets or down the hills and instead direct to deposit such waste in the litter bins that shall be placed by the local body at all tourist destinations.

(d) Local body shall arrange to convey the provisions of solid waste management under the bye-laws to all tourists visiting the hilly areas at the entry point in the town as well as through the hotels, guest houses or like where they stay and by putting suitable hoardings at tourist destinations.

(e) Local body may levy solid waste management charge from the tourist at the entry point to make the solid waste management services sustainable.

(f) The department in- charge of the allocation of land assignment shall identify and allot suitable space on the hills for setting up decentralised waste processing facilities. Local body shall set up such facilities. Step garden system may be adopted for optimum utilisation of hill space.

21. Criteria for waste to energy process.- (1) Non recyclable waste having calorific value of 1500 K/cal/kg or more shall not be disposed of on landfills and shall only be utilised for generating energy either or through refuse derived fuel or by giving away as feed stock for preparing refuse derived fuel.

(2) High calorific wastes shall be used for co-processing in cement or thermal power plants.

(3) The local body or an operator of facility or an agency designated by them proposing to set up waste to energy plant of more than five tones per day processing capacity shall submit an application in Form-I to the State Pollution Control Board or Pollution Control Committee, as the case may be, for authorisation.

(4) The State Pollution Control Board or Pollution Control Committee, on receiving such application for setting up waste to energy facility, shall examine the same and grant permission within sixty days.

22. Time frame for implementation.- Necessary infrastructure for implementation of these rules shall be created by the local bodies and other concerned authorities, as the case may be, on their own, by directly or engaging agencies within the time frame specified below:

Sl. No.	Activity	Time limit from the date of notification of rules
(1)	(2)	(3)
1.	identification of suitable sites for setting up solid waste processing facilities	1 year

2.	identification of suitable sites for setting up common regional sanitary landfill facilities for suitable clusters of local authorities under 0.5 million population and for setting up common regional sanitary landfill facilities or stand alone sanitary landfill facilities by all local authorities having a population of 0.5 million or more .	1 year
3.	procurement of suitable sites for setting up solid waste processing facility and sanitary landfill facilities	2 years
4.	enforcing waste generators to practice segregation of bio degradable, recyclable, combustible, sanitary waste domestic hazardous and inert solid wastes at source ,	2 years
5.	Ensure door to door collection of segregated waste and its transportation in covered vehicles to processing or disposal facilities.	2 years
6.	ensure separate storage, collection and transportation of construction and demolition wastes	2 years
7.	setting up solid waste processing facilities by all local bodies having 100000 or more population	2 years
8.	Setting up solid waste processing facilities by local bodies and census towns below 100000 population.	3 years
9	setting up common or stand alone sanitary landfills by or for all local bodies having 0.5 million or more population for the disposal of only such residual wastes from the processing facilities as well as untreatable inert wastes as permitted under the Rules	3 years
10.	setting up common or regional sanitary landfills by all local bodies and census towns under 0.5 million population for the disposal of permitted waste under the rules	3years
11.	bio-remediation or capping of old and abandoned dump sites	5years

23. State Level Advisory Body. – (1) Every Department in-charge of local bodies of the concerned State Government or Union territory administration shall constitute a State Level Advisory Body within six months from the date of notification of these rules comprising the following members, namely:-

Sl. No	Designation	Member
(1)	(2)	(3)
1.	Secretary, Department of Urban Development orLocal self government department of the State	Chairperson, ex-officio
2.	One representative of Panchayats or Rural development Department not below the rank of Joint Secretary to State Government	Member, ex-officio
3.	one representative of Revenue Department of State Government	Member,ex-officio
4.	One representative from Ministry of Environment, Forest and Climate Change Government of India	Member, ex-officio

5.	One representative from Ministry of Urban Development, Government of India	Member, ex-officio
6.	One representative from Ministry of Rural Development, Government of India	Member, ex-officio
7.	One representative from the Central Pollution Control Board	Member, ex-officio
8.	One representative from the State Pollution Control Board or Pollution Control Committee	Member, ex-officio
9.	One representative from Indian Institute of Technology or National Institute of Technology	Member,Ex-officio
10.	Chief town planner of the state	Member
11.	Three representatives from the local bodies by rotation	Member
12.	Two representatives from census towns or urban agglomerations by rotation.	Member
13.	One representative from reputed Non-Governmental Organisation or Civil Society working for the waste pickers or informal recycler or solid waste management	Member
14.	One representative from a body representing Industries at the State or Central level	Member
15.	one representative from waste recycling industry	member
16.	Two subject experts	Member
17.	Co-opt one representative each from agriculture department, and labour department of State Government.	Member

(2) The State Level Advisory Body shall meet at least one in every six months to review the matters related to implementation of these rules, state policy and strategy on solid waste management and give advice to state government for taking measures that are necessary for expeditious and appropriate implementation of these rules.

(3) The copies of the review report shall be forwarded to the State Pollution Control Board or Pollution Control Committee for necessary action.

24. Annual report.- (1) The operator of facility shall submit the annual report to the local body in Form-III on or before the 30th day of April every year.

(2) The local body shall submit its annual report in Form-IV to State P Control Board or P Committee and the Secretary-in-Charge of the Department of Urban Development of the concerned State or Union Territory in case of metropolitan city and to the Director of Municipal Administration or Commissioner of Municipal Administration or Officer in -Charge of Urban local bodies in the state in case of all other local bodies of state on or before the 30th day of June every year

(3) Each State Pollution Control Board or Pollution Control Committee as the case may be, shall prepare and submit the consolidated annual report to the Central Pollution Control Board and Ministry of Urban Development on the implementation of these rules and action taken against non complying local body by the 31stday of July of each year in Form-V.

(4) The Central Pollution Control Board shall prepare a consolidated annual review report on the status of implementation of these rules by local bodies in the country and forward the same to the Ministry of Urban Development

and Ministry of Environment, Forest and Climate Change, along with its recommendations before the 31st day of August each year.

(5) The annual report shall be reviewed by the Ministry of Environment, Forest and Climate Change during the meeting of Central Monitoring Committee.

25. Accident reporting- In case of an accident at any solid waste processing or treatment or disposal facility or landfill site, the Officer- in- charge of the facility shall report to the local body in Form-VI and the local body shall review and issue instructions if any, to the in- charge of the facility.

SCHEDULE I

[see rule 15 (w),(zi), 16 (1) (b) (e), 16 (4)]

Specifications for Sanitary Landfills

(A) Criteria for site selection.-

(i) The department in the business allocation of land assignment shall provide suitable site for setting up of the solid waste processing and treatment facilities and notify such sites.

(ii) The sanitary landfill site shall be planned, designed and developed with proper documentation of construction plan as well as a closure planin a phased manner. In case a new landfill facility is being established adjoining an existing landfill site, the closure plan of existing landfill should form a part of the proposal of such new landfill.

(iii) The landfill sites shall be selected to make use of nearby wastes processing facilities. Otherwise, wastes processing facility shall be planned as an integral part of the landfill site.

(iv) Landfill sites shall be set up as per the guidelines of the Ministry of Urban Development, Government of India and Central Pollution Control Board.

(v) The existing landfill sites which are in use for more than five years shall be improved in accordance with the specifications given in this Schedule.

(vi) The landfill site shall be large enough to last for at least 20-25 years and shall develop 'landfill cells' in a phased manner to avoid water logging and misuse.

(vii) The landfill site shall be 100 meter away from river, 200 meter from a pond, 200 meter from Highways, Habitations, Public Parks and water supply wells and 20 km away from Airports or Airbase. However in a special case, landfill site may be set up within a distance of 10 and 20 km away from the Airport/Airbase after obtaining no objection certificate from the civil aviation authority/ Air force as the case may be. The Landfill site shall not be permitted within the flood plains as recorded for the last 100 years, zone of coastal regulation, wetland, Critical habitat areas, sensitive eco-fragile areas..

(viii) The sites for landfill and processing and disposal of solid waste shall be incorporated in the Town Planning Department's land-use plans.

(ix) A buffer zone of no development shall be maintained around solid waste processing and disposal facility, exceeding five Tonnes per day of installed capacity. This will be maintained within the total area of the solid waste processing and disposal facility. The buffer zone shall be prescribed on case to case basis by the local body in consultation with concerned State Pollution Control Board.

(x) The biomedical waste shall be disposed of in accordance with the Bio-medical Waste Management Rules, 2016, as amended from time to time . The hazardous waste shall be managed in accordance with the Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016, as amended from time to time. The E-waste shall be managed in accordance with the e-Waste (Management) Rules, 2016 as amended from time to time.

(xi) Temporary storage facility for solid waste shall be established in each landfill site to accommodate the waste in case of non- operation of waste processing and during emergency or natural calamities.

(B) Criteria for development of facilities at the sanitary landfills.-

(i) Landfill site shall be fenced or hedged and provided with proper gate to monitor incoming vehicles, to prevent entry of unauthorised persons and stray animals

(ii) The approach and / internal roads shall be concreted or paved so as to avoid generation of dust particles due to vehicular movement and shall be so designed to ensure free movement of vehicles and other machinery.

(iii) The landfill site shall have waste inspection facility to monitor waste brought in for landfilling h, office facility for record keeping and shelter for keeping equipment and machinery including pollution monitoring equipment. The operator of the facility shall maintain record of waste received, processed and disposed.

(iv) Provisions like weigh bridge to measure quantity of waste brought at landfill site, fire protection equipment and other facilities as may be required shall be provided.

(v) Utilities such as drinking water and sanitary facilities (preferably washing/bathing facilities for workers) and lighting arrangements for easy landfill operations during night hours shall be provided.

(vi) Safety provisions including health inspections of workers at landfill sites shall be carried out made.

(vii) Provisions for parking, cleaning, washing of transport vehicles carrying solid waste shall be provided. The wastewater so generated shall be treated to meet the prescribed standards.

(C) Criteria for specifications for land filling operations and closure on completion of land filling.-

(i) Waste for land filling shall be compacted in thin layers using heavy compactors to achieve high density of the waste. In high rainfall areas where heavy compactors cannot be used, alternative measures shall be adopted.

(ii) Till the time waste processing facilities for composting or recycling or energy recovery are set up, the waste shall be sent to the sanitary landfill. The landfill cell shall be covered at the end of each working day with minimum 10 cm of soil, inert debris or construction material..

(iii) Prior to the commencement of monsoon season, an intermediate cover of 40-65 cm thickness of soil shall be placed on the landfill with proper compaction and grading to prevent infiltration during monsoon. Proper drainage shall be constructed to divert run-off away from the active cell of the landfill.

(iv) After completion of landfill, a final cover shall be designed to minimise infiltration and erosion. The final cover shall meet the following specifications, namely :--

a) The final cover shall have a barrier soil layer comprising of 60 cm of clay or amended soil with permeability coefficient less than 1×10^{-7} cm/sec.

b) On top of the barrier soil layer, there shall be a drainage layer of 15 cm.

c) On top of the drainage layer, there shall be a vegetative layer of 45 cm to support natural plant growth and to minimise erosion.

(D) Criteria for pollution prevention.-In order to prevent pollution from landfill operations, the following provisions shall be made, namely:-

(i) The storm water drain shall be designed and constructed in such a way that the surface runoff water is diverted from the landfilling site and leachates from solid waste locations do not get mixed with the surface runoff water. Provisions for diversion of storm water discharge drains shall be made to minimise leachate generation and prevent pollution of surface water and also for avoiding flooding and creation of marshy conditions.

(ii) Non-permeable lining system at the base and walls of waste disposal area. For landfill receiving residues of waste processing facilities or mixed waste or waste having contamination of hazardous materials (such as aerosols, bleaches, polishes, batteries, waste oils, paint products and pesticides) shall have liner of composite barrier of 1.5 mm thick high density polyethylene (HDPE) geo-membrane or geo-synthetic liners, or equivalent, overlying 90 cm of soil (clay or amended soil) having permeability coefficient not greater than 1 x 10-7 cm/sec. The highest level of water table shall be at least two meter below the base of clay or amended soil barrier layer provided at the bottom of landfills.

(iii) Provisions for management of leachates including its collection and treatment shall be made. The treated leachate shall be recycled or utilized as permitted, otherwise shall be released into the sewerage line, after meeting the standards specified in Schedule- II. In no case, leachate shall be released into open environment.

(iv) Arrangement shall be made to prevent leachate runoff from landfill area entering any drain, stream, river, lake or pond. In case of mixing of runoff water with leachate or solid waste, the entire mixed water shall be treated by the concern authority.

(E) Criteria for water quality monitoring.-

(i) Before establishing any landfill site, baseline data of ground water quality in the area shall be collected and kept in record for future reference. The ground water quality within 50 meter of the periphery of landfill site shall be periodically monitored covering different seasons in a year that is, summer, monsoon and post-monsoon period to ensure that the ground water is not contaminated.

(ii) Usage of groundwater in and around landfill sites for any purpose (including drinking and irrigation) shall be considered only after ensuring its quality. The following specifications for drinking water quality shall apply for monitoring purpose, namely :-

S. No.	Parameters	IS 10500:2012, Edition 2.2(2003-09) Desirable limit (mg/l except for pH)
(1)	(2)`	(3)
	Arsenic	0.01
	Cadmium	0.01
	Chromium(as Cr^{6+})	0.05
	Copper	0.05
	Cyanide	0.05
	Lead	0.05
	Mercury	0.001
	Nickel	-
	Nitrate as NO_3	45.0
	pH	6.5-8.5
	Iron	0.3
	Total hardness (as $CaCO_3$)	300.0
	Chlorides	250
	Dissolved solids	500
	Phenolic compounds (as C_6H_5OH)	0.001
	Zinc	5.0
	Sulphate (as SO_4)	200

(F) Criteria for ambient air quality monitoring.-

(i) Landfill gas control system including gas collection system shall be installed at landfill site to minimize odour, prevent off-site migration of gases, to protect vegetation planted on the rehabilitated landfill surface. For enhancing landfill gas recovery, use of geomembranes in cover systems along with gas collection wells should be considered.

(ii) The concentration of methane gas generated at landfill site shall not exceed 25 per cent of the lower explosive limit (LEL).

(iii) The landfill gas from the collection facility at a landfill site shall be utilized for either direct thermal applications or power generation, as per viability. Otherwise, landfill gas shall be burnt (flared) and shall not be allowed to escape directly to the atmosphere or for illegal tapping. Passive venting shall be allowed in case if its utilisation or flaring is not possible.

(iv) Ambient air quality at the landfill site and at the vicinity shall be regularly monitored. Ambient air quality shall

meet the standards prescribed by the Central Pollution Control Board for Industrial area.

G. Criteria for plantation at landfill Site.- A vegetative cover shall be provided over the completed site in accordance with the following specifications, namely:-

(a) Locally adopted non-edible perennial plants that are resistant to drought and extreme temperatures shall be planted;

(b) The selection of plants should be of such variety that their roots do not penetrate more than 30 cms. This condition shall apply till the landfill is stabilized;

(c) Selected plants shall have ability to thrive on low-nutrient soil with minimum nutrient addition;

(d) Plantation to be made in sufficient density to minimise soil erosion.

(e) Green belts shall be developed all around the boundary of the landfill in consultation with State Pollution Control Boards or Pollution Control Committees .

H. Criteria for post-care of landfill site.- (1) The post-closure care of landfill site shall be conducted for at least fifteen years and long term monitoring or care plan shall consist of the following, namely :-'

(a) Maintaining the integrity and effectiveness of final cover, making repairs and preventing run-on and run-off from eroding or otherwise damaging the final cover;

(b) Monitoring leachate collection system in accordance with the requirement;

(c) Monitoring of ground water in and around landfill;

(d) Maintaining and operating the landfill gas collection system to meet the standards.

(2) Use of closed landfill sites after fifteen years of post-closure monitoring can be considered for human settlement or otherwise only after ensuring that gaseous emission and leachate quality analysis complies with the specified standards and the soil stability is ensured.

I. Criteria for special provisions for hilly areas.-Cities and towns located on hills shall have location-specific methods evolved for final disposal of solid waste by the local body with the approval of the concerned State Pollution Control Board or the Pollution Control Committee. The local body shall set up processing facilities for utilisation of biodegradable organic waste. The non-biodegradable recyclable materials shall be stored and sent for recycling periodically. The inert and non-biodegradable waste shall be used for building roads or filling-up of appropriate areas on hills. In case of constraints in finding adequate land in hilly areas, waste not suitable for road-laying or filling up shall be disposed of in regional landfills in plain areas.

J. Closure and Rehabilitation of Old Dumps- Solid waste dumps which have reached their full capacity or those which will not receive additional waste after setting up of new and properly designed landfills should be closed and rehabilitated by examining the following options:

(i) Reduction of waste by bio mining and waste processing followed by placement of residues in new landfills or capping as in (ii) below.

(i). Capping with solid waste cover or solid waste cover enhanced with geomembrane to enable collection and flaring / utilisation of greenhouse gases.

(iii) Capping as in (ii) above with additional measures (in alluvial and other coarse grained soils) such as cut-off walls and extraction wells for pumping and treating contaminated ground water.

(iv) Any other method suitable for reducing environmental impact to acceptable level.

SCHEDULE II

[see rule 16 (1), (b), (e), 16 (4))

Standards of processing and treatment of solid waste

A. Standards for composting.- The waste processing facilities shall include composting as one of the technologies for processing of bio degradable waste. In order to prevent pollution from compost plant, the following shall be complied with namely :-

(a) The incoming organic waste at site shall be stored properly prior to further processing. To the extent possible, the waste storage area should be covered. If, such storage is done in an open area, it shall be provided with impermeable base with facility for collection of leachate and surface water run-off into lined drains leading to a leachate treatment and disposal facility;

(b) Necessary precaution shall be taken to minimise nuisance of odour, flies, rodents, bird menace and fire hazard;

(c) In case of breakdown or maintenance of plant, waste intake shall be stopped and arrangements be worked out for diversion of waste to the temporary processing site or temporary landfill sites which will be again reprocessed when plant is in order;

(d) Pre-process and post-process rejects shall be removed from the processing facility on regular basis and shall not be allowed to pile at the site. Recyclables shall be routed through appropriate vendors. The non-recyclable high calorific fractions to be segregated and sent to waste to energy or for RDF production, co-processing in cement plants or to thermal power plants. Only rejects from all processes shall be sent for sanitary landfill site(s).

(e) The windrow area shall be provided with impermeable base. Such a base shall be made of concrete or compacted clay of 50 cm thick having permeability coefficient less than 10^{-7} cm/sec. The base shall be provided with 1 to 2 per cent slope and circled by lined drains for collection of leachate or surface run-off;

(f) Ambient air quality monitoring shall be regularly carried out. Odurnuisance at down-wind direction on the boundary of processing plant shall also be checked regularly.

(g) Leachate shall be re-circulated in compost plant for moisture maintenance.

(h) The end product compost shall meet the standards prescribed under Fertilizer Control Order notified from time to time.

(i) In order to ensure safe application of compost, the following specifications for compost quality shall be met, namely:-

Parameters	**Organic Compost (FCO 2009)**	**Phosphate Rich Organic Manure (FCO 2013)**
(1)	**(2)**	**(3)**
Arsenic (mg/Kg)	10.00	10.00
Cadmium (mg/Kg)	5.00	5.00
Chromium (mg/Kg)	50.00	50.00
Copper (mg/Kg)	300.00	300.00
Lead (mg/Kg)	100.00	100.00
Mercury (mg/Kg)	0.15	0.15
Nickel (mg/Kg)	50.00	50.00
Zinc (mg/Kg)	1000.00	1000.00
C/N ratio	<20	Less than 20:1
pH	6.5-7.5	(1:5 solution) maximum 6.7
Moisture, percent by weight, maximum	15.0-25.0	25.0
Bulk density (g/cm^3)	<1.0	Less than 1.6
Total Organic Carbon, per cent by weight, minimum	12.0	7.9

Total Nitrogen (as N), per cent by weight, minimum	0.8	0.4
Total Phosphate (as P_2O_5) percent by weight, minimum	0.4	10.4
Total Potassium (as K_20), percent by weight, minimum	0.4	-
Colour	Dark brown to black	-
Odour	Absence of foul Odor	-
Particle size	Minimum 90% material should pass through 4.0 mm IS sieve	Minimum 90% material should pass through 4.0 mm IS sieve
Conductivity (as dsm-1), not more than	4.0	8.2

* Compost (final product) exceeding the above stated concentration limits shall not be used for food crops. However, it may be utilized for purposes other than growing food crops.

B. Standards for treated leachates.-The disposal of treated leachates shall meet the following standards, namely:-

S. No	Parameter	Standards (Mode of Disposal)		
		Inland surface water	Public sewers	Land disposal
(1)	(2)	(3)	(4)	(5)
1.	Suspended solids, mg/l, max	100	600	200
2.	Dissolved solids (inorganic) mg/l, max.	2100	2100	2100
3	pH value	5.5 to 9.0	5.5 to 9.0	5.5 to 9.0
4	Ammonical nitrogen (as N), mg/l, max.	50	50	-
5	Total Kjeldahl nitrogen (as N), mg/l, max.	100	-	-
6	Biochemical oxygen demand (3 days at 27^0 C) max.(mg/l)	30	350	100
7	Chemical oxygen demand, mg/l, max.	250	-	-
8	Arsenic (as As), mg/l, max	0.2	0.2	0.2
9	Mercury (as Hg), mg/l, max	0.01	0.01	-
10	Lead (as Pb), mg/l, max	0.1	1.0	-
11	Cadmium (as Cd), mg/l, max	2.0	1.0	-

12	Total Chromium (as Cr), mg/l, max.	2.0	2.0	-
13	Copper (as Cu), mg/l, max.	3.0	3.0	-
14	Zinc (as Zn), mg/l, max.	5.0	15	-
15	Nickel (as Ni), mg/l, max	3.0	3.0	-
16	Cyanide (as CN), mg/l, max.	0.2	2.0	0.2
17	Chloride (as Cl), mg/l, max.	1000	1000	600
18	Fluoride (as F), mg/l, max	2.0	1.5	-
19	Phenolic compounds (as C_6H_5OH) mg/l, max.	1.0	5.0	-

Note : While discharging treated leachates into inland surface waters, quantity of leachates being discharged and the quantity of dilution water available in the receiving water body shall be given due consideration.

C. Standards for incineration: The Emission from incinerators /thermal technologies in Solid Waste treatment/disposal facility shall meet the following standards, namely:-

Parameter	**Emission standard**	
(1)	**(2)**	**(3)**
Particulates	50 mg/Nm^3	Standard refers to half hourly average value
HCl	50 mg/Nm^3	Standard refers to half hourly average value
SO2	200 mg/Nm^3	Standard refers to half hourly average value
CO	100 mg/Nm^3	Standard refers to half hourly average value
	50 mg/Nm^3	Standard refers to daily average value
Total Organic Carbon	20 mg/Nm^3	Standard refers to half hourly average value
HF	4 mg/Nm^3	Standard refers to half hourly average value
NOx (NO and NO2 expressed as NO2)	400 mg/Nm^3	Standard refers to half hourly average value
Total dioxins and furans	0.1 ng TEQ/Nm^3	Standard refers to 6-8 hours sampling. Please refer guidelines for 17 concerned congeners for toxic equivalence values to arrive at total toxic equivalence.
Cd + Th + their compounds	0.05 mg/Nm^3	Standard refers to sampling time anywhere between 30 minutes and 8 hours.
Hg and its compounds	0.05 mg/Nm^3	Standard refers to sampling time anywhere between 30 minutes and 8 hours.

Sb + As + Pb + Cr + Co + Cu + Mn + Ni + V + their compounds	0.5 mg/Nm^3	Standard refers to sampling time anywhere between 30 minutes and 8 hours.
Note.- *All values corrected to 11% oxygen on a dry basis.*		

Note:

(a) Suitably designed pollution control devices shall be installed or retrofitted with the incinerator to achieve the above emission limits..

(b) Waste to be incinerated shall not be chemically treated with any chlorinated disinfectants.

(c) Incineration of chlorinated plastics shall be phased out within two years.

(d) if the concentation of toxic metals in incineration ash exceeds the limits specified in the Hazardous Waste (Management, Handling and Trans boundary Movement) Rules, 2008, as amended from time to time, the ash shall be sent to the hazardous waste treatment, storage and disposal fcaility.

(e) Only low sulphur fuel like LDO, LSHS, Diesel, bio-mass, coal, LNG, CNG, RDF and bio-gas shall be used as fuel in the incinerator.

(f) The CO2 concentration in tail gas shall not be more than 7%.

(g) All the facilities in twin chamber incinerators shall be designed to achieve a minimum temperature of 950^0C in secondary combustion chamber and with a gas residence time in secondary combustion chamber not less than 2 (two) seconds.

(h) Incineration plants shall be operated (combustion chambers) with such temperature, retention time and turbulence, as to achieve total Organic Carbon (TOC) content in the slag and bottom ash less than 3%, or the loss on ignition is less than 5% of the dry weight.

(i) Odour from sites shall be managed as per guidelines of CPCB issued from time to time

FORM – I

[see rule 15 (y) 16 (1) (c), 21(3)]

Application for obtaining authorisation under solid waste management rules

for processing/recycling/treatment and disposal of solid waste

To,

The Member Secretary,

State Pollution Control Board or Pollution Control Committee,

of…....

Sir,

I/We hereby apply for authorisation under the Solid Waste Management Rules, 2016 for processing, recycling, treatment and disposal of solid waste.

1.	Name of the local body/agency appointed by them/ operator of facility	
2.	Correspondence address Telephone No. Fax No. ,e-mail:	

3.	Nodal Officer & designation(Officer authorised by the local body or agency responsible for operation of processing/ treatment or disposal facility)	
4.	Authorisation required for setting up and operation of the facility (Please tick mark)	waste processing recycling treatment disposal at landfill
5.	Attach copies of the Documents Site clearance (local body) Proof of Environmental Clearance Consent for establishment Agreement between municipal authority and operating agency Investment on the project and expected return	
6.	**Processing/recycling/treatment of solid waste** (i) Total Quantity of waste to be processed per day Quantity of waste to be recycled Quantity of waste to be treated Quantity of waste to be disposed into landfill (ii)Utilisation programme for waste processed (Product utilisation) (iii)Methodology for disposal (attach details) Quantity of leachate Treatment technology for leachate (iv)Measures to be taken for prevention and control of environmental pollution (v)Measures to be taken for safety of workers working in the plant (vi)Details on solid waste processing/recycling/ treatment/disposal facility (to be attached)	
7.	**Disposal of solid waste** Number of sites identified Quantity of waste to be disposed per day Details of methodology or criteria followed for site selection (attach) Details of existing site under operation Methodology and operational details of landfilling Measures taken to check environmental pollution	
8	Any other information.	

Date: Signature:

Place: Designation

Form- II

[see rule 16 (1) (e)]

Format for issue of authorisation

File No.: _____

Dated:_____

Authorisation No_____

To

Ref: Your application number _____dt. _____

The _____State Pollution Control Board/Pollution Control Committee after examining the proposal hereby authorises_____ having administrative office at _____to set up and operate waste processing/recycling/ treatment/disposal facility at_____

The authorisation is hereby granted to operate the facility for processing, recycling, treatment and disposal of solid waste.

The authorisation is subject to the terms and conditions stated below and such conditions as may be otherwise specified in these rules and the standards laid down in Schedules I and II under these rules.

The _____State Pollution Control Board/Pollution Control Committees of the UT may, at any time, revoke any of the conditions applicable under the authorisation and shall communicate the same in writing.

Any violation of the provision of the Solid Waste Management Rules, 2016will attract the penal provision of the Environment (Protection) Act, 1986 (29 of 1986).

(Member Secretary)

State Pollution Control Board/Pollution Control Committee of the UT

(Signature and designation)

Date:

Place:

Form – III

[see rule 19 (6), 24 (1)]

Format of annual report to be submitted by the operator of facility to the local body

1	Name of the City/Town and State	
2	Population	
3	Area in sq. kilometers	
4	Name & Address of the local body Telephone No. Fax No. E-mail:	
5	Name and address of operator of the facility	
6	Name of officer in-charge of the facility Phone No: Fax No: E-mail:	

7	Number of households in the city/town , Number of non-residential premises in the city Number of election/ administrative wards in the city/town	
8	Quantity of Solid waste	
	Estimated Quantity of solid waste generated in the local body area per day in metric tones	/tpd
	Quantity of solid waste collected per day	/tpd
	Per capita waste collected per day	/gm/day
	Quantity of solid waste processed	/tpd
	Quantity of solid waste disposed at landfill	/tpd
9	Status of Solid Waste Management (SWM) service	
	Segregation and storage of waste at source Whether solid waste is stored at source in domestic/commercial/ institutional bins If yes, Percentage of households practice storage of waste at source in domestic bins Percentage of non-residential premises practice storage of waste at source in commercial /institutional bins Percentage of households dispose of throw solid waste on the streets Percentage of non-residential premises dispose of throw solid waste on the streets Whether solid waste is stored at source in a segregated form If yes, Percentage of premises segregating the waste at source	 Yes/No % % % % Yes/No %
	Door to Door Collection of solid waste	
	Whether door to door collection (D2D) of solid waste is being done in the city/town	Yes/No
	if yes	
	Number of wards covered in D2D collection of waste	
	No. of households covered	
	No. of non-residential premises including commercial establishments ,hotels, restaurants educational institutions/ offices etc covered	

	Percentage of residential and non-residential premises covered in door to door collection through : Motorized vehicle Containerized tricycle/handcart Other device	% % %
	If not, method of primary collection adopted	
	Sweeping of streets	
	Length of roads, streets, lanes, bye-lanes in the city that need to be cleaned	km
	Frequency of street sweepings and percentage of population covered	frequency: Daily / Alternate days / Twice a week / Occasionally % of population covered
	Tools used Manual sweeping Mechanical sweeping Whether long handle broom used by sanitation workers Whether each sanitation worker is given handcart/tricycle for collection of waste Whether handcart / tricycle is containerized Whether the collection tool synchronizes with collection/ waste storage containers utilized	% % Yes/No Yes/No Yes/No Yes/No
	Secondary Waste Storage facilities	
	No. and type of waste storage depots in the city/town Open waste storage sites Masonry bins Cement concrete cylinder bins Dhalao/covered rooms/space Covered metal/plastic containers Upto 1.1 m^3 bins 2 to 5 m^3 bins Above 5m^3 containers Bin-less city	No. Capacity in m^3
	Bin/ population ratio	

	Ward wise details of waste storage depots (attach) : Ward No: Area: Population: No. of bins placed Total volume of bins placed		
	Total storage capacity of waste storage facilities in cubic meters		
	Total waste actually stored at the waste storage depots daily		
	Give frequency of collection of waste from the depots Number of bins cleared	Frequency	No. of bins
		Daily	
		Alternate day	
		Twice a week	
		Once a week	
		Occasionally	
	Whether storage depots have facility for storage of segregated waste in green, blue and black bins	Yes/ No (if yes, add details) No. of green bins: No. of blue bins: No. of black bins:	
	Whether lifting of solid waste from storage depots is manual or mechanical. Give percentage	(%) of Manual Lifting of SOLID WASTE	%
		(%) of Mechanical lifting	%
	If mechanical – specify the method used	front-end loaders/ Top loaders	
	Whether solid waste is lifted from door to door and transported to treatment plant directly in a segregated form	Yes/ No (if yes, specify)	

	Waste Transportation per day Type and Number of vehicles used (pl tick or add)	No. Trips made waste transported
	Animal cart Tractors Non tipping Truck Tipping Truck Dumper Placers Refuse collectors Compactors Others JCB/loader	
	Frequency of transportation of waste	Frequency (%) of waste transported Daily Alternate day Twice a week Once a week Occasionally
	Quantity of waste transported each day	/tpd
	Percentage of total waste transported daily	%
	Waste Treatment Technologies used	
	Whether solid waste is processed	Yes/No
	If yes, Quantity of waste processed daily	/tpd
	Land(s) available with the local body for waste processing (in Hectares)	
	Land currently utilized for waste processing	
	Solid waste processing facilities in operation	
	Solid waste processing facilities under construction	
	Distance of processing facilities from city/town boundary	
	Details of technologies adopted	

	Composting ,	Qty. raw material processed Qty. final product produced Qty. sold Qty. of residual waste landfilled
	vermi composting	Qty. raw material processed Qty. final product produced Qty. sold Quantity of residual waste landfilled
	Bio-methanation	Qty. raw material processed Qty. final product produced Qty. sold Quantity of residual waste landfilled
	Refuse Derived Fuel	Qty. raw material processed Qty. final product produced Qty. sold Quantity of residual waste landfilled
	Waste to Energy technology such as incineration, gasification, pyrolysis or any other technology (give detail)	Qty. raw material processed Qty. final product produced Qty. sold Quantity of residual waste landfilled
	Co-processing	Qty. raw material processed
	Combustible waste supplied to cement plant	
	Combustible waste supplied to solid waste based power plants	
	Others	Qty.
	Solid waste disposal facilities	
	No. of dumpsites sites available with the local body	
	No. of sanitary landfill sites available with the local body	
	Area of each such sites available for waste disposal	
	Area of land currently used for waste disposal	
	Distance of dumpsite/landfill facility from city/town	kms
	Distance from the nearest habitation	kms
	Distance from water body	kms

	Distance from state/national highway	kms
	Distance from Airport	kms
	Distance from important religious places or historical monument	kms
	Whether it falls in flood prone area	Yes/No
	Whether it falls in earthquake fault line area	Yes/No
	Quantity of waste landfilled each day	tpd
	Whether landfill site is fenced	Yes / No
	Whether Lighting facility is available on site	Yes / No
	Whether Weigh bridge facility available	Yes / No
	Vehicles and equipments used at landfill (specify)	Bulldozer, Compacters etc. available
	Manpower deployed at landfill site	Yes/No (if yes, attach details)
	Whether covering is done on daily basis	Yes/No
	If not, Frequency of covering the waste deposited at the landfill	
	Cover material used	
	Whether adequate covering material is available	Yes/No
	Provisions for gas venting provided	Yes/No, (if yes, attach technical data sheet)
	Provision for leachate collection	Yes/No, (if yes, attach technical data sheet)
10	Whether an Action Plan has been prepared for improving solid waste management practices in the city	Yes/No (if Yes attach Action Plan details)
11	What separate provisions are made for : Dairy related activities : Slaughter houses waste : C&D waste (construction debris) :	Attach details on Proposals, Steps taken, Yes/No Yes/No Yes/No
12	Details of Post Closure Plan	Attach Plan
13	How many slums are identified and whether these are provided with Solid Waste Management facilities :	Yes/ No (if Yes, attach details)
14	Give details of manpower deployed for collection including street sweeping, secondary storage, transportation, processing and disposal of waste	

15	Mention briefly, the difficulties being experienced by the local body in complying with provisions of these rules	
16	Mention briefly, if any innovative idea is implemented to tackle a problem related to solid waste, which could be replicated by other local bodies.	

Signature of Operator

Dated :

Place:

Form – IV

[see rules 15(za), 24(2)]

Format for annual report on solid waste management to be submitted by the local body

CALENDAR YEAR:	**DATE OF SUBMISSION OF REPORT:**

1	Name of the City/Town and State	
2	Population	
3	Area in sq. kilometers	
4	Name & Address of local body Telephone No. Fax No. E-mail:	
5	Name of officer in-charge dealing with solid waste management (SOLID WASTEM)Phone No: Fax No: E-mail:	
6	Number of households in the city/town Number of non-residential premises in the city Number of election/ administrative wards in the city/town	
7	Quantity of Solid waste (solid waste)	
	Estimated Quantity of solid waste generated in the local body area per day in metric tones	/tpd
	Quantity of solid waste collected per day	/tpd

	Per capita waste collected per day	/gm/day
	Quantity of solid waste processed	/tpd
	Quantity of solid waste disposed at dumpsite/ landfill	/tpd
8	Status of Solid Waste Management service	
	Segregation and storage of waste at source	
	Whether SOLID WASTE is stored at source in domestic/commercial/ institutional bins, If yes,	Yes/No
	Percentage of households practice storage of waste at source in domestic bins	%
	Percentage of non-residential premises practice storage of waste at source in commercial /institutional bins	%
	Percentage of households dispose or throw solid waste on the streets	%
	Percentage of non-residential premises dispose of throw solid waste on the streets	%
	Whether solid waste is stored at source in a segregated form, If yes,	Yes/No
	Percentage of premises segregating the waste at source	%
	Door to Door Collection of solid waste	
	Whether door to door collection (D2D) of solid waste is being done in the city/town	Yes/No
	if yes	
	Number of wards covered in D2D collection of waste	
	No. of households covered	
	No. of non-residential premises including commercial establishments ,hotels, restaurants educational institutions/ offices etc covered	
	Percentage of residential and non-residential premises covered in door to door collection through :	
	Motorized vehicle	%
	Containerized tricycle/handcart	%
	Other device	%
	If not, method of primary collection adopted	
	Sweeping of streets	
	Length of roads, streets, lanes, bye-lanes in the city that need to be cleaned	km

	Frequency of street sweepings and percentage of population covered	frequency	Daily	Alternate days	Twice a week	Occasionally
		% of population covered				
	Tools used					
	Manual sweeping	%				
	Mechanical sweeping	%				
	Whether long handle broom used by sanitation workers	Yes/No				
	Whether each sanitation worker is given handcart/tricycle for collection of waste	Yes/No				
	Whether handcart / tricycle is containerized	Yes/No				
	Whether the collection tool synchronizes with collection/ waste storage containers utilized	Yes/No				
	Secondary Waste Storage facilities					
	No. and type of waste storage depots in the city/town	No. Capacity in m^3				
	Open waste storage sites					
	Masonry bins					
	Cement concrete cylinder bins					
	Dhalao/covered rooms/space					
	Covered metal/plastic containers					
	Upto 1.1 m3 bins					
	2 to 5 m3 bins					
	Above 5m3 containers					
	Bin-less city					
	Bin/ population ratio					
	Ward wise details of waste storage depots (attach) :					
	Ward No:					
	Area:					
	Population:					
	No. of bins placed					
	Total volume of bins placed					
	Total storage capacity of waste storage facilities in cubic meters					
	Total waste actually stored at the waste storage depots daily					

	Give frequency of collection of waste from the depots Number of bins cleared	Frequency	No. of bins
		Daily	
		Alternate day	
		Twice a week	
		Once a week	
		Occasionally	
	Whether storage depots have facility for storage of segregated waste in green, blue and black bins	Yes/ No (if yes, add details) No. of green bins: No. of blue bins: No. of black bins:	
	Whether lifting of solid waste from storage depots is manual or mechanical. Give percentage (%) of Manual Lifting of solid waste (%) of Mechanical lifting	% %	
	If mechanical – specify the method used	front-end loaders/ Top loaders	
	Whether solid waste is lifted from door to door and transported to treatment plant directly in a segregated form	Yes/ No (if yes, specify)	
	Waste transportation per day Type and Number of vehicles used	No. Trips made waste transported	
	Animal cart Tractors Non tipping Truck Tipping Truck Dumper Placers Refuse collectors Compactors Others JCB/loader		

	Frequency of transportation of waste	Frequency (%) of waste transported Daily Alternate day Twice a week Once a week Occasionally
	Quantity of waste transported each day	/tpd
	Percentage of total waste transported daily	%
	Waste Treatment Technologies used	
	Whether solid waste is processed	Yes/No
	If yes, Quantity of waste processed daily	/tpd
	Whether treatment is done by local body or through an agency	
	Land(s) available with the local body for waste processing (in Hectares)	
	Land currently utilized for waste processing	
	Solid waste processing facilities in operation	
	Solid waste processing facilities under construction	
	Distance of processing facilities from city/town boundary	
	Details of technologies adopted	
	Composting ,	Qty. raw material processed Qty. final product produced Qty. sold Quantity of residual waste landfilled
	Vermi composting	Qty. raw material processed Qty. final product produced Qty. sold Quantity of residual waste landfilled
	Bio-methanation	Qty. raw material processed Qty. final product produced Qty. sold Quantity of residual waste landfilled

	Refuse Derived Fuel	Qty. raw material processed Qty. final product produced Qty. sold Quantity of residual waste landfilled
	Waste to Energy technology such as incineration, gasification, pyrolysis or any other technology (give detail)	Qty. raw material processed Qty. final product produced Qty. sold Quantity of residual waste landfilled
	Co-processing	Qty. raw material processed
	Combustible waste supplied to cement plant	
	Combustible waste supplied to solid waste based power plants	
	Others	Qty.
	Solid waste disposal facilities	
	No. of dumpsites sites available with the local body	
	No. of sanitary landfill sites available with the local body	
	Area of each such sites available for waste disposal	
	Area of land currently used for waste disposal	
	Distance of dumpsite/landfill facility from city/town	kms
	Distance from the nearest habitation	kms
	Distance from water body	kms
	Distance from state/national highway	kms
	Distance from Airport	kms
	Distance from important religious places or historical monument	kms
	Whether it falls in flood prone area	Yes/No
	Whether it falls in earthquake fault line area	Yes/No
	Quantity of waste landfilled each day	tpd
	Whether landfill site is fenced	Yes / No
	Whether Lighting facility is available on site	Yes / No

	Whether Weigh bridge facility available	Yes / No
	Vehicles and equipments used at landfill (specify)	Bulldozer, Compacters etc. available
	Manpower deployed at landfill site	Yes/No (if yes, attach details)
	Whether covering is done on daily basis	Yes/No
	If not, Frequency of covering the waste deposited at the landfill	
	Cover material used	
	Whether adequate covering material is available	Yes/No
	Provisions for gas venting provided	Yes/No (if yes, attach technical data sheet)
	Provision for leachate collection	Yes/No (if yes, attach technical data sheet)
9	Whether an Action Plan has been prepared for improving solid waste management practices in the city	Yes/No (if Yes attach Action Plan details)
10	What separate provisions are made for : Dairy related activities : Slaughter houses waste : C&D waste (construction debris) :	Attach details on Proposals,Steps taken, Yes/No Yes/No Yes/No
11	Details of Post Closure Plan	Attach Plan
12	How many slums are identified and whether these are provided with Solid Waste Management facilities :	Yes/ No (if Yes, attach details)
13	Give details of: Local body's own manpower deployed for collection including street sweeping, secondary storage, transportation, processing and disposal of waste	
14	Give details of: Contractor/ concessionaire's manpower deployed for collection including street sweeping, secondary storage, transportation, processing and disposal of waste	
15	Mention briefly, the difficulties being experienced by the local body in complying with provisions of these rules	

16	Mention briefly, if any innovative idea is implemented to tackle a problem related to solid waste, which could be replicated by other local bodies	

Signature of CEO/Municipal Commissioner/

Executive Officer/Chief Officer

Date:

Place:

Form – V

[see rule 24(3)]

Format of annual report to be submitted by the state pollution control board or pollution control committee committees to the central pollution control board

PART A

To,

The Chairman

Central Pollution Control Board

Parivesh Bhawan, East Arjun Nagar

DELHI- 110 0032

1.	Name of the State/Union territory	:	
2.	Name & address of the State Pollution Control	:	
3.	Number of local bodies responsible for management of solid waste in the State/Union territory under these rules	:	
4.	No. of authorisation application Received	:	
5.	A Summary Statement on progress made by local body in respect of solid waste management	:	Please attach as Annexure-I
6.	A Summary Statement on progress made by local bodies in respect of waste collection, segregation, transportation and disposal	:	Please attach as Annexure-II
7.	A summary statement on progress made by local bodies in respect of implementation of Schedule II	:	Please attach as Annexure-III

Date: …… Place: ……..	Chairman or the Member Secretary State Pollution Control Board/ Pollution Control Committee

PART B

Towns/cities

Total number of towns/cities

Total number of ULBs

Number of class I & class II cities/towns

Authorisation status (names/number)

Number of applications received

Number of authorisations granted

Authorisations under scrutiny

SOLID WASTE Generation status

Solid waste generation in the state (TPD)

collected

treated

landfilled

Compliance to Schedule I of SW Rules (Number/names of towns/capacity)

Good practices in cities/towns

House-to-house collection

Segregation

Storage

Covered transportation

Processing of SW (Number/names of towns/capacity)

Solid Waste processing facilities setup:

Sl. No.	Composting	Vermi-composting	Biogas	RDF/Pelletization

Processing facility operational:

Sl. No.	Composting	Vermi-composting	Biogas	RDF/Pelletization

Processing facility under installation/planned:

Sl. No.	Composting	Vermi-composting	Biogas	RDF/Pelletisation

Waste-to-Energy Plants: (Number/names of towns/capacity)

Sl. No.	Plant Location	Status of operation	Power generation (MW)	Remarks

Disposal of solid waste (number/names of towns/capacity):

Landfill sites identified

Landfill constructed

Landfill under construction

Landfill in operation

Landfill exhausted

Landfilled capped

Solid Waste Dumpsites (number/names of towns/capacity):

Total number of existing dumpsites

Dumpsites reclaimed/capped

Dumpsites converted to sanitary landfill

Monitoring at Waste processing/Landfills sites

Sl. No.	Name of facilities	Ambient air	Groundwater	Leachate quality	Compost quality	VOCs
1.						
2.						
3.						

Status of Action Plan prepared by Municipalities

Total number of municipalities:

Number of Action Plan submitted:

Form – VI

[see rule 25]

Accident Reporting

1.	Date and time of accident	:	
2.	Sequence of events leading to accident	:	
3.	The waste involved in accident	:	

4.	Assessment of the effects of the accidents on human health and the environment	:	
5.	Emergency measures taken	:	
6.	Steps taken to alleviate the effects of accidents	:	
7.	Steps taken to prevent the recurrence of such an accident	:	
Date:		Signature:.....	
Place:		Designation:	

[F. No. 18-3/2004-HSMD]

BISHWANATH SINHA, Jt. Secy.

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AW: Urgent:Regarding Obsolescence Status of ABB System at Jhanor

Alexander Schroeder <alexander.schroeder@de.abb.com>

Thu 8/15/2024 8:20 PM

To:Rakesh Kumar Sharma <RAKESHSHARMA05@NTPC.CO.IN>;Nicole Wessler <nicole.wessler@de.abb.com>
Cc:Rochak Saxena <ROCHAKSAXENA@NTPC.CO.IN>;Manish Meshram <MANISHMESHRAM@NTPC.CO.IN>;NISAR AHMAD MANSOOR <NISARAHMADMANSOOR@NTPC.CO.IN>;Om Pal <OPSINGH01@NTPC.CO.IN>;BISWAJIT SUTRADHAR <BSUTRADHAR01@NTPC.CO.IN>

Hello Mr. Rakesh,

Thank you for your email and happy Independence Day!

In general ABB will support the control system Procontrol P14 until at least 2035. Therefore, you will find support at ABB Germany (and hopefully with me) for more than a decade.

Going into details, I can give you following feedback to the systems:

1. P14 Systems in WHRBs and Balance of plant. These areas are having P14 Generation Modules like (83SR06, 83SR05, 81ET03,81EB01,81AA10,81EA03, 89NG03 etc).
   → Procontrol P14 is in active life cycle. The modules installed at your site are in all four life cycle phases (active, classic, limited and obsolete). Depending on the module type the life cycle is different. The modules you have listed here are mainly obsolete. We should also focus on a stepwise upgrade, same as we are doing in the GTs.
2. P13 DCS of ST control and protection system consists of 70 series modules.
   → Procontrol P13 is in limited life cycle. This means we still have Spare Parts available. ABB will not develop new module types and not use this system for new Power Station. Anyhow, the support, knowledge and Spare Parts are available with us.
3. POS-30 System
   - POS30 is also in life cycle phase "limited". The successor system is 800xA. Once you are planning in replacing the hardware with new one, we should also upgrade the software to 800xA. So, the trigger should be the age of the hardware (server of POS30 system). Knowledge for POS30 is still available at ABB Mannheim.

Please let me know, if you need any more information.

Best regards

—

Alexander Schröder
Project Management & Sales
Mobile: +49 151 72510481

Von: Rakesh Kumar Sharma <RAKESHSHARMA05@NTPC.CO.IN>
Gesendet: Mittwoch, 14. August 2024 17:26
An: Alexander Schroeder <alexander.schroeder@de.abb.com>; Nicole Wessler <nicole.wessler@de.abb.com>
Cc: Rochak Saxena <ROCHAKSAXENA@NTPC.CO.IN>; Manish Meshram <MANISHMESHRAM@NTPC.CO.IN>; NISAR AHMAD MANSOOR <NISARAHMADMANSOOR@NTPC.CO.IN>; Om Pal <OPSINGH01@NTPC.CO.IN>; BISWAJIT SUTRADHAR <BSUTRADHAR01@NTPC.CO.IN>
Betreff: Urgent:Regarding Obsolescence Status of ABB System at Jhanor

Dear Mr Alexander,

Following ABB systems are installed at site. We are planning to upgrade these systems in coming years in phased manners. Please confirm the present support from ABB for these systems spares . If some of the systems are obsolete , kindly confirm or if possible provide obsolescence certificates.

1. P14 Systems in WHRBs and Balance of plant. These areas are having P14 Generation Modules like (83SR06, 83SR05, 81ET03,81EB01,81AA10,81EA03, 89NG03 etc).
2. P13 DCS of ST control and protection system consists of 70 series modules.
3. POS-30 System

Thanks & Regds
RAKESH KUMAR SHARMA
DGM-C&I / OPN(I/C)
NTPC LTD
JHANOR GANDHAR GAS POWER PROJECT
POST-URJANAGAR
DISTRICT-BHARUCH (GUJARAT)
PIN-392215
MOB:9408708350 /9413354928

SULZER Valves
A technology acquired from Sulzer Limited

To whom it may concern

Announcement of Obsolence of Electro-Hydraulic Servovalves/Blocking unit, Types ST10/20&BL.

Dear Sir,

Since 1960, we made use of the Servovalves Type ST10/20 and Blocking unit BL combinationas control element for positioning the hydraulic actuators of valves and dampers. In 1994, we advanced into replacement of Servovalves/ Blocking units through utilisation of a single unit "Proportional Valves" Type PV4/6/10. Since then, production of Servovalves/ Blocking units had been continuing only as spare parts.

Now we would like to kindly inform you regarding the withdrawal of the Servovalves ST10/20 and Blocking unit BL from our production line and will be obsolete.

Based on our feedback from worldwide installations, the latest design Proportional Valves areeconomical,cheaper andless vulnerable to dirty hydraulic oil andare also mechanically designed to fit in place of the old Servovalves / Blocking units.More and more customersare replacing the Servovalves/ Blocking units by Proportional valves. Customers normally take this advancement step along with their decision for the upgrade of their AV5 or AV6 to AV6+ controller, however can also be done with the controls remaining as it is. As a result, the demand for Servovalves/ Blocking unit, mechanically controlled old units of 1960'stechnology, is continuously dropping and the cost for its production and logistics is sky rocketing.

Furthermore, CCI is an innovative company in the field of controllers for high-quality processes related to steam generation. We want to offer you the most up-to-date products so as to improve your system efficiency, reliability, reduce downtime, etc., and for that reason, we replace obsolete Servovalves ST and Blocking unit BLwith new Proportional Valves PV from time to time, which unfortunately is essential.

With the Proportional Valves PV being easily mountable on the existing actuators without any machining or field changes, the upgrade is very simple. Kindly refer enclosed a comparison of Servovalve ST and Proportional Valve PV technology, covering features of design as well as the advantages.

We trust that you will appreciate our continued effort to support you with better technology products and will consider the above approach in its correct perspective.

For any clarifications, please feel free to contact us or our local representative in your region (as attached).

Kind Regards,
CCI

Mirko Grossi
Control Upgrades Manager –Aftermarket EAME&I

Details of Sourcewise fuel for computation of Energy Charges

FORM -15

	Company		NTPC			
	Name of the generating Station		Jhanor Gandhar Gas power project			
	Month		Apr'23			
Sl	Particulars	Unit	Natural Gas APM	NON APM Gas	Committed Gas	RLNG
A)	OPENING QUANTITY					
1	Opening Stock of Gas	(1000 SCM)	0.00	0.00	0.00	0.00
2	Value of Stock	Rs	0.00	0.00	0.00	0.00
B)	QUANTITY					
3	Quantity of gas/RLNG/Liquid fuel supplied by gas company	(1000 SCM)	0.00	0.00	880.77	5,226.03
4	Adjustment (+/-) in quantity supplied made by Gas Company	(1000 SCM)	0.00	0.00	0.00	0.00
5	Gas supplied by Gas Company (3+4)	(1000 SCM)	0.00	0.00	880.77	5,226.03
6	Normative transit & Handling losses	(1000 SCM)	NA	NA	NA	NA
7	Net gas supplied (5 - 6)	(1000 SCM)	0.00	0.00	880.77	5,226.03
C)	PRICE					
8	Amount charged by the Gas/Oil Company	Rs	0.00	0.00	4,44,70,678.00	24,24,61,173.00
9	Adjustment (+ / -) in amount charged by Gas Company	Rs	0.00	0.00	0.00	0.00
10	Handling,Sampling and such other Similar charges	Rs	0.00	0.00	0.00	0.00
11	**Total Amount charged (8 +9+10)**	Rs	0.00	0.00	4,44,70,678.00	24,24,61,173.00
D)	TRANSPORTATION	Rs				
12	Transportation charges by Rail / Ship / Road Transport					
	By Rail	Rs	0.00	0.00	0.00	0.00
	By Road	Rs	0.00	0.00	0.00	0.00
	By Ship	Rs	0.00	0.00	0.00	0.00
	By Pipe	Rs	0.00	0.00	0.00	0.00
13	Adjustment (+/-) in amount charged by railways / transport company	Rs	0.00	0.00	0.00	0.00
14	Demurrage charges, if any	Rs	0.00	0.00	0.00	0.00
15	Cost of diesel in transporting Coal through MGR system, if applicable	Rs	NA	NA	NA	NA
16	Total transportation charges (12+/- 13 - 14 + 15)	Rs	0.00	0.00	0.00	0.00
17	Total amount charged for Gas/Oil supplied including transportation (11 + 16)	Rs	0.00	0.00	4,44,70,678.00	24,24,61,173.00
E)	TOTAL COST					
18	Landed Cost of Gas (2+17) / (1+7)	Rs/1000 SCM/MT	**0.00**	**0.00**	**50,490.80**	**46,394.89**
19	Blending Ratio (Domestic/Imported)				NA	
20	Weighted average cost of Gas				NA	
F)	QUALITY					
21	GCV of Gas of the opening coal stock as per bill of Gas company	(kcal/SCM)	NA		NA	NA
22	GCV of Gas supplied as per bill of Gas company	(kcal/SCM)	9407.89	0.00	9416.81	9532.94
23	GCV of Imported coal of the opening coal stock as per bill of Gas company	(kcal/SCM)				NA
24	GCV of Imported coal supplied as per bill of Gas company	(kcal/SCM)				
25	Weighted average GCV of Coal /Lignite as billed	(kcal/SCM)			NA	
26	GCV of Gas of the Opening stock as received at station	(kcal/SCM)	NA		NA	NA
27	GCV of Gas supplied as received at station	(kcal/SCM)	9407.89	0.00	9416.81	9532.94
28	GCV of Imported coal of the Opening stock as received at station	(kcal/SCM)				
29	GCV of Imported coal supplied as received at station	(kcal/SCM)				
30	Weighted average GCV of GAS as received	(kcal/SCM)	**9407.89**	0.00	**9416.81**	**9532.94**

Hemlata Gautam

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Details of Sourcewise fuel for computation of Energy Charges

FORM -15

	Company		NTPC			
	Name of the generating Station		Jhanor Gandhar Gas power project			
	Month		May'23			
SL	Particulars	Unit	Natural Gas APM	NON APM Gas	Committed Gas	RLNG
A)	**OPENING QUANTITY**					
1	Opening Stock of Gas	(1000 SCM)	0.00	0.00	0.00	0.00
2	Value of Stock	Rs	0.00	0.00	0.00	0.00
B)	**QUANTITY**					
3	Quantity of gas/RLNG/Liquid fuel supplied by gas company	(1000 SCM)	0.00	0.00	105.83	8,984.82
4	Adjustment (+/-) in quantity supplied made by Gas Company	(1000 SCM)	0.00	0.00	0.00	0.00
5	Gas supplied by Gas Company (3+4)	(1000 SCM)	0.00	0.00	105.83	8,984.82
6	Normative transit & Handling losses	(1000 SCM)	NA	NA	NA	NA
7	Net gas supplied (5 - 6)	(1000 SCM)	0.00	0.00	105.83	8,984.82
C)	**PRICE**					
8	Amount charged by the Gas/Oil Company	Rs	0.00	0.00	5,182,363.00	423,567,392.00
9	Adjustment (+ / -) in amount charged by Gas Company	Rs	0.00	0.00	0.00	0.00
10	Handling,Sampling and such other Similar charges	Rs	0.00	0.00	0.00	0.00
11	**Total Amount charged (8 +9+10)**	Rs	0.00	0.00	5,182,363.00	423,567,392.00
D)	**TRANSPORTATION**	Rs				
12	Transportation charges by Rail / Ship / Road Transport					
	By Rail	Rs	0.00	0.00	0.00	0.00
	By Road	Rs	0.00	0.00	0.00	0.00
	By Ship	Rs	0.00	0.00	0.00	0.00
	By Pipe	Rs	0.00	0.00	0.00	0.00
13	Adjustment (+/-) in amount charged by railways / transport company	Rs	0.00	0.00	0.00	0.00
14	Demurrage charges, if any	Rs	0.00	0.00	0.00	0.00
15	Cost of diesel in transporting Coal through MGR system, if applicable	Rs	NA	NA	NA	NA
16	Total transportation charges (12+/- 13 - 14 + 15)	Rs	0.00	0.00	0.00	0.00
17	Total amount charged for Gas/Oil supplied including transportation (11 + 16)	Rs	0.00	0.00	5,182,363.00	423,567,392.00
E)	**TOTAL COST**					
18	Landed Cost of Gas (2+17) / (1+7)	Rs/1000 SCM/MT	**0.00**	**0.00**	**48,969.46**	**47,142.56**
19	Blending Ratio (Domestic/Imported)				NA	
20	Weighted average cost of Gas				NA	
F)	**QUALITY**					
21	GCV of Gas of the opening coal stock as per bill of Gas company	(kcal/SCM)	NA		NA	NA
22	GCV of Gas supplied as per bill of Gas company	(kcal/SCM)	9407.89	0.00	9395.81	9560.25
23	GCV of Imported coal of the opening coal stock as per bill of Gas company	(kcal/SCM)				NA
24	GCV of Imported coal supplied as per bill of Gas company	(kcal/SCM)				
25	Weighted average GCV of Coal /Lignite as billed	(kcal/SCM)			NA	
26	GCV of Gas of the Opening stock as received at station	(kcal/SCM)	NA		NA	NA
27	GCV of Gas supplied as received at station	(kcal/SCM)	9407.89	0.00	9395.81	9560.25
28	GCV of Imported coal of the Opening stock as received at station	(kcal/SCM)				
29	GCV of Imported coal supplied as received at station	(kcal/SCM)				
30	Weighted average GCV of GAS as received	(kcal/SCM)	**9407.89**	0.00	**9395.81**	**9560.25**

Hemlata Gautam

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Details of Sourcewise fuel for computation of Energy Charges — FORM-15

	Company		NTPC			
	Name of the generating Station		Jhanor Gandhar Gas power project			
	Month		June'23			
SL	Particulars	Unit	Natural Gas APM	NON APM Gas	Committed Gas	RLNG
A)	**OPENING QUANTITY**					
1	Opening Stock of Gas	(1000 SCM)	0.00	0.00	0.00	0.00
2	Value of Stock	Rs	0.00	0.00	0.00	0.00
B)	**QUANTITY**					
3	Quantity of gas/RLNG/Liquid fuel supplied by gas company	(1000 SCM)	0.00	0.00	11,265.30	15,738.56
4	Adjustment (+/-) in quantity supplied made by Gas Company	(1000 SCM)	0.00	0.00	0.00	0.00
5	Gas supplied by Gas Company (3+4)	(1000 SCM)	0.00	0.00	11,265.30	15,738.56
6	Normative transit & Handling losses	(1000 SCM)	NA	NA	NA	NA
7	Net gas supplied (5 - 6)	(1000 SCM)	0.00	0.00	11,265.30	15,738.56
C)	**PRICE**					
8	Amount charged by the Gas/Oil Company	Rs	0.00	0.00	508,307,822.00	725,684,198.00
9	Adjustment (+ / -) in amount charged by Gas Company	Rs	0.00	0.00	0.00	0.00
10	Handling,Sampling and such other Similar charges	Rs	0.00	0.00	0.00	0.00
11	**Total Amount charged (8 +9+10)**	Rs	0.00	0.00	508,307,822.00	725,684,198.00
D)	**TRANSPORTATION**	Rs				
12	Transportation charges by Rail / Ship / Road Transport					
	By Rail	Rs	0.00	0.00	0.00	0.00
	By Road	Rs	0.00	0.00	0.00	0.00
	By Ship	Rs	0.00	0.00	0.00	0.00
	By Pipe	Rs	0.00	0.00	0.00	0.00
13	Adjustment (+/-) in amount charged by railways / transport company	Rs	0.00	0.00	0.00	0.00
14	Demurrage charges, if any	Rs	0.00	0.00	0.00	0.00
15	Cost of diesel in transporting Coal through MGR system, if applicable	Rs	NA	NA	NA	NA
16	Total transportation charges (12+/- 13 - 14 + 15)	Rs	0.00	0.00	0.00	0.00
17	Total amount charged for Gas/Oil supplied including transportation (11 + 16)	Rs	0.00	0.00	508,307,822.00	725,684,198.00
E)	**TOTAL COST**					
18	Landed Cost of Gas (2+17) / (1+7)	Rs/1000 SCM/MT	**0.00**	**0.00**	**45,121.54**	**46,108.67**
19	Blending Ratio (Domestic/Imported)				NA	
20	Weighted average cost of Gas				NA	
F)	**QUALITY**					
21	GCV of Gas of the opening coal stock as per bill of Gas company	(kcal/SCM)	NA		NA	NA
22	GCV of Gas supplied as per bill of Gas company	(kcal/SCM)	0.00	0.00	9358.92	9579.93
23	GCV of Imported coal of the opening coal stock as per bill of Gas company	(kcal/SCM)				NA
24	GCV of Imported coal supplied as per bill of Gas company	(kcal/SCM)				
25	Weighted average GCV of Coal /Lignite as billed	(kcal/SCM)			NA	
26	GCV of Gas of the Opening stock as received at station	(kcal/SCM)	NA		NA	NA
27	GCV of Gas supplied as received at station	(kcal/SCM)	0.00	0.00	9358.92	9579.93
28	GCV of Imported coal of the Opening stock as received at station	(kcal/SCM)				
29	GCV of Imported coal supplied as received at station	(kcal/SCM)				
30	Weighted average GCV of GAS as received	(kcal/SCM)	**0.00**	0.00	**9358.92**	**9579.93**

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Details of Sourcewise fuel for computation of Energy Charges

FORM -15

	Company		NTPC			
	Name of the generating Station		Jhanor Gandhar Gas power project			
	Month		July'23			
SL	Particulars	Unit	Natural Gas APM	NON APM Gas	Committed Gas	RLNG
A)	**OPENING QUANTITY**					
1	Opening Stock of Gas	(1000 SCM)	0.00	0.00	0.00	0.00
2	Value of Stock	Rs	0.00	0.00	0.00	0.00
B)	**QUANTITY**					
3	Quantity of gas/RLNG/Liquid fuel supplied by gas company	(1000 SCM)	0.00	0.00	6,003.94	7,864.66
4	Adjustment (+/-) in quantity supplied made by Gas Company	(1000 SCM)	0.00	0.00	0.00	0.00
5	Gas supplied by Gas Company (3+4)	(1000 SCM)	0.00	0.00	6,003.94	7,864.66
6	Normative transit & Handling losses	(1000 SCM)	NA	NA	NA	NA
7	Net gas supplied (5 - 6)	(1000 SCM)	0.00	0.00	6,003.94	7,864.66
C)	**PRICE**					
8	Amount charged by the Gas/Oil Company	Rs	0.00	0.00	301,617,725.00	356,416,038.00
9	Adjustment (+ / -) in amount charged by Gas Company	Rs	0.00	0.00	0.00	0.00
10	Handling,Sampling and such other Similar charges	Rs	0.00	0.00	0.00	0.00
11	**Total Amount charged (8 +9+10)**	Rs	0.00	0.00	301,617,725.00	356,416,038.00
D)	**TRANSPORTATION**	Rs				
12	Transportation charges by Rail / Ship / Road Transport					
	By Rail	Rs	0.00	0.00	0.00	0.00
	By Road	Rs	0.00	0.00	0.00	0.00
	By Ship	Rs	0.00	0.00	0.00	0.00
	By Pipe	Rs	0.00	0.00	0.00	0.00
13	Adjustment (+/-) in amount charged by railways / transport company	Rs	0.00	0.00	0.00	0.00
14	Demurrage charges, if any	Rs	0.00	0.00	0.00	0.00
15	Cost of diesel in transporting Coal through MGR system, if applicable	Rs	NA	NA	NA	NA
16	Total transportation charges (12+/- 13 - 14 + 15)	Rs	0.00	0.00	0.00	0.00
17	Total amount charged for Gas/Oil supplied including transportation (11 + 16)	Rs	0.00	0.00	301,617,725.00	356,416,038.00
E)	**TOTAL COST**					
18	Landed Cost of Gas (2+17) / (1+7)	Rs/1000 SCM/MT	**0.00**	**0.00**	**50,236.61**	**45,318.66**
19	Blending Ratio (Domestic/Imported)				NA	
20	Weighted average cost of Gas				NA	
F)	**QUALITY**					
21	GCV of Gas of the opening coal stock as per bill of Gas company	(kcal/SCM)	NA		NA	NA
22	GCV of Gas supplied as per bill of Gas company	(kcal/SCM)	0.00	0.00	9413.08	9549.93
23	GCV of Imported coal of the opening coal stock as per bill of Gas company	(kcal/SCM)				NA
24	GCV of Imported coal supplied as per bill of Gas company	(kcal/SCM)				
25	Weighted average GCV of Coal /Lignite as billed	(kcal/SCM)			NA	
26	GCV of Gas of the Opening stock as received at station	(kcal/SCM)	NA		NA	NA
27	GCV of Gas supplied as received at station	(kcal/SCM)	0.00	0.00	9413.08	9549.93
28	GCV of Imported coal of the Opening stock as received at station	(kcal/SCM)				
29	GCV of Imported coal supplied as received at station	(kcal/SCM)				
30	Weighted average GCV of GAS as received	(kcal/SCM)	**0.00**	0.00	**9413.08**	**9549.93**

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Details of Sourcewise fuel for computation of Energy Charges

FORM -15

	Company		NTPC			
	Name of the generating Station		Jhanor Gandhar Gas power project			
	Month		August'23			
SL	Particulars	Unit	Natural Gas APM	NON APM Gas	Committed Gas	RLNG
A)	OPENING QUANTITY					
1	Opening Stock of Gas	(1000 SCM)	0.00	0.00	0.00	0.00
2	Value of Stock	Rs	0.00	0.00	0.00	0.00
B)	QUANTITY					
3	Quantity of gas/RLNG/Liquid fuel supplied by gas company	(1000 SCM)	0.00	0.00	35,947.52	2,824.88
4	Adjustment (+/-) in quantity supplied made by Gas Company	(1000 SCM)	0.00	0.00	0.00	0.00
5	Gas supplied by Gas Company (3+4)	(1000 SCM)	0.00	0.00	35,947.52	2,824.88
6	Normative transit & Handling losses	(1000 SCM)	NA	NA	NA	NA
7	Net gas supplied (5 - 6)	(1000 SCM)	0.00	0.00	35,947.52	2,824.88
C)	PRICE					
8	Amount charged by the Gas/Oil Company	Rs	0.00	0.00	1,82,39,54,405.00	12,59,27,911.00
9	Adjustment (+ / -) in amount charged by Gas Company	Rs	0.00	0.00	0.00	0.00
10	Handling,Sampling and such other Similar charges	Rs	0.00	0.00	0.00	0.00
11	Total Amount charged (8 +9+10)	Rs	0.00	0.00	1,82,39,54,405.00	12,59,27,911.00
D)	TRANSPORTATION	Rs				
12	Transportation charges by Rail / Ship / Road Transport					
	By Rail	Rs	0.00	0.00	0.00	0.00
	By Road	Rs	0.00	0.00	0.00	0.00
	By Ship	Rs	0.00	0.00	0.00	0.00
	By Pipe	Rs	0.00	0.00	0.00	0.00
13	Adjustment (+/-) in amount charged by railways / transport company	Rs	0.00	0.00	0.00	0.00
14	Demurrage charges, if any	Rs	0.00	0.00	0.00	0.00
15	Cost of diesel in transporting Coal through MGR system, if applicable	Rs	NA	NA	NA	NA
16	Total transportation charges (12+/- 13 - 14 + 15)	Rs	0.00	0.00	0.00	0.00
17	Total amount charged for Gas/Oil supplied including transportation (11 + 16)	Rs	0.00	0.00	1,82,39,54,405.00	12,59,27,911.00
E)	TOTAL COST					
18	Landed Cost of Gas (2+17) / (1+7)	Rs/1000 SCM/MT	0.00	0.00	50,739.37	44,578.16
19	Blending Ratio (Domestic/Imported)		NA			
20	Weighted average cost of Gas		NA			
F)	QUALITY					
21	GCV of Gas of the opening coal stock as per bill of Gas company	(kcal/SCM)	NA		NA	NA
22	GCV of Gas supplied as per bill of Gas company	(kcal/SCM)	0.00	0.00	9463.00	9487.90
23	GCV of imported coal of the opening coal stock as per bill of Gas company	(kcal/SCM)				NA
24	GCV of imported coal supplied as per bill of Gas company	(kcal/SCM)				
25	Weighted average GCV of Coal /Lignite as billed	(kcal/SCM)	NA			
26	GCV of Gas of the Opening stock as received at station	(kcal/SCM)	NA		NA	NA
27	GCV of Gas supplied as received at station	(kcal/SCM)	0.00	0.00	9463.00	9487.90
28	GCV of imported coal of the Opening stock as received at station	(kcal/SCM)				
29	GCV of imported coal supplied as received at station	(kcal/SCM)				
30	Weighted average GCV of GAS as received	(kcal/SCM)	0.00	0.00	9463.00	9487.90

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Details of Sourcewise fuel for computation of Energy Charges

FORM -15

	Company		NTPC			
	Name of the generating Station		Jhanor Gandhar Gas power project			
	Month		September'23			
SL	Particulars	Unit	Natural Gas APM	NON APM Gas	Committed Gas	RLNG
A)	OPENING QUANTITY					
1	Opening Stock of Gas	(1000 SCM)	0.00	0.00	0.00	0.00
2	Value of Stock	Rs	0.00	0.00	0.00	0.00
B)	QUANTITY					
3	Quantity of gas/RLNG/Liquid fuel supplied by gas company	(1000 SCM)	0.00	0.00	12,344.17	9,295.96
4	Adjustment (+/-) in quantity supplied made by Gas Company	(1000 SCM)	0.00	0.00	0.00	0.00
5	Gas supplied by Gas Company (3+4)	(1000 SCM)	0.00	0.00	12,344.17	9,295.96
6	Normative transit & Handling losses	(1000 SCM)	NA	NA	NA	NA
7	Net gas supplied (5 - 6)	(1000 SCM)	0.00	0.00	12,344.17	9,295.96
C)	PRICE					
8	Amount charged by the Gas/Oil Company	Rs	0.00	0.00	63,87,60,344.00	42,66,07,587.00
9	Adjustment (+ / -) in amount charged by Gas Company	Rs	0.00	0.00	0.00	0.00
10	Handling,Sampling and such other Similar charges	Rs	0.00	0.00	0.00	0.00
11	Total Amount charged (8 +9+10)	Rs	0.00	0.00	63,87,60,344.00	42,66,07,587.00
D)	TRANSPORTATION	Rs				
12	Transportation charges by Rail / Ship / Road Transport					
	By Rail	Rs	0.00	0.00	0.00	0.00
	By Road	Rs	0.00	0.00	0.00	0.00
	By Ship	Rs	0.00	0.00	0.00	0.00
	By Pipe	Rs	0.00	0.00	0.00	0.00
13	Adjustment (+/-) in amount charged by railways / transport company	Rs	0.00	0.00	0.00	0.00
14	Demurrage charges, if any	Rs	0.00	0.00	0.00	0.00
15	Cost of diesel in transporting Coal through MGR system, if applicable	Rs	NA	NA	NA	NA
16	Total transportation charges (12+/- 13 - 14 + 15)	Rs	0.00	0.00	0.00	0.00
17	Total amount charged for Gas/Oil supplied including transportation (11 + 16)	Rs	0.00	0.00	63,87,60,344.00	42,66,07,587.00
E)	TOTAL COST					
18	Landed Cost of Gas (2+17) / (1+7)	Rs/1000 SCM/MT	0.00	0.00	51,745.90	45,891.74
19	Blending Ratio (Domestic/Imported)		NA			
20	Weighted average cost of Gas		NA			
F)	QUALITY					
21	GCV of Gas of the opening coal stock as per bill of Gas company	(kcal/SCM)	NA		NA	NA
22	GCV of Gas supplied as per bill of Gas company	(kcal/SCM)	0.00	0.00	9439.23	9603.50
23	GCV of imported coal of the opening coal stock as per bill of Gas company	(kcal/SCM)				NA
24	GCV of imported coal supplied as per bill of Gas company	(kcal/SCM)				
25	Weighted average GCV of Coal /Lignite as billed	(kcal/SCM)	NA			
26	GCV of Gas of the Opening stock as received at station	(kcal/SCM)	NA		NA	NA
27	GCV of Gas supplied as received at station	(kcal/SCM)	0.00	0.00	9439.23	9603.50
28	GCV of imported coal of the Opening stock as received at station	(kcal/SCM)				
29	GCV of imported coal supplied as received at station	(kcal/SCM)				
30	Weighted average GCV of GAS as received	(kcal/SCM)	0.00	0.00	9439.23	9603.50

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Details of Sourcewise fuel for computation of Energy Charges

FORM -15

	Company		NTPC			
	Name of the generating Station		Jhanor Gandhar Gas power project			
	Month		october'23			
SL	Particulars	Unit	Natural Gas APM	NON APM Gas	Committed Gas	RLNG
A)	OPENING QUANTITY					
1	Opening Stock of Gas	(1000 SCM)	0.00	0.00	0.00	0.00
2	Value of Stock	Rs	0.00	0.00	0.00	0.00
B)	QUANTITY					
3	Quantity of gas/RLNG/Liquid fuel supplied by gas company	(1000 SCM)	0.00	0.00	11,642.80	16,197.95
4	Adjustment (+/-) in quantity supplied made by Gas Company	(1000 SCM)	0.00	0.00	0.00	0.00
5	Gas supplied by Gas Company (3+4)	(1000 SCM)	0.00	0.00	11,642.80	16,197.95
6	Normative transit & Handling losses	(1000 SCM)	NA	NA	NA	NA
7	Net gas supplied (5 - 6)	(1000 SCM)	0.00	0.00	11,642.80	16,197.95
C)	PRICE					
8	Amount charged by the Gas/Oil Company	Rs	0.00	0.00	62,01,24,334.00	82,56,02,403.00
9	Adjustment (+ / -) in amount charged by Gas Company	Rs	0.00	0.00	0.00	0.00
10	Handling,Sampling and such other Similar charges	Rs	0.00	0.00	0.00	0.00
11	Total Amount charged (8 +9+10)	Rs	0.00	0.00	62,01,24,334.00	82,56,02,403.00
D)	TRANSPORTATION	Rs				
12	Transportation charges by Rail / Ship / Road Transport					
	By Rail	Rs	0.00	0.00	0.00	0.00
	By Road	Rs	0.00	0.00	0.00	0.00
	By Ship	Rs	0.00	0.00	0.00	0.00
	By Pipe	Rs	0.00	0.00	0.00	0.00
13	Adjustment (+/-) in amount charged by railways / transport company	Rs	0.00	0.00	0.00	0.00
14	Demurrage charges, if any	Rs	0.00	0.00	0.00	0.00
15	Cost of diesel in transporting Coal through MGR system, if applicable	Rs	NA	NA	NA	NA
16	Total transportation charges (12+/- 13 - 14 + 15)	Rs	0.00	0.00	0.00	0.00
17	Total amount charged for Gas/Oil supplied including transportation (11 + 16)	Rs	0.00	0.00	62,01,24,334.00	82,56,02,403.00
E)	TOTAL COST					
18	Landed Cost of Gas (2+17) / (1+7)	Rs/1000 SCM/MT	0.00	0.00	53,262.46	50,969.57
19	Blending Ratio (Domestic/Imported)		NA			
20	Weighted average cost of Gas		NA			
F)	QUALITY					
21	GCV of Gas of the opening coal stock as per bill of Gas company	(kcal/SCM)	NA		NA	NA
22	GCV of Gas supplied as per bill of Gas company	(kcal/SCM)	0.00	0.00	9440.86	9863.89
23	GCV of imported coal of the opening coal stock as per bill of Gas company	(kcal/SCM)				NA
24	GCV of imported coal supplied as per bill of Gas company	(kcal/SCM)				
25	Weighted average GCV of Coal /Lignite as billed	(kcal/SCM)	NA			
26	GCV of Gas of the Opening stock as received at station	(kcal/SCM)	NA		NA	NA
27	GCV of Gas supplied as received at station	(kcal/SCM)	0.00	0.00	9440.86	9863.89
28	GCV of imported coal of the Opening stock as received at station	(kcal/SCM)				
29	GCV of imported coal supplied as received at station	(kcal/SCM)				
30	Weighted average GCV of GAS as received	(kcal/SCM)	0.00	0.00	9440.86	9863.89

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Details of Sourcewise fuel for computation of Energy Charges

FORM -15

	Company		NTPC			
	Name of the generating Station		Jhanor Gandhar Gas power project			
	Month		november'23			
SL	Particulars	Unit	Natural Gas APM	NON APM Gas	Committed Gas	RLNG
A)	OPENING QUANTITY					
1	Opening Stock of Gas	(1000 SCM)	0.00	0.00	0.00	0.00
2	Value of Stock	Rs	0.00	0.00	0.00	0.00
B)	QUANTITY					
3	Quantity of gas/RLNG/Liquid fuel supplied by gas company	(1000 SCM)	0.00	0.00	4,871.91	0.00
4	Adjustment (+/-) in quantity supplied made by Gas Company	(1000 SCM)	0.00	0.00	0.00	0.00
5	Gas supplied by Gas Company (3+4)	(1000 SCM)	0.00	0.00	4,871.91	0.00
6	Normative transit & Handling losses	(1000 SCM)	NA	NA	NA	NA
7	Net gas supplied (5 - 6)	(1000 SCM)	0.00	0.00	4,871.91	0.00
C)	PRICE					
8	Amount charged by the Gas/Oil Company	Rs	0.00	0.00	33,31,84,098.00	0.00
9	Adjustment (+ / -) in amount charged by Gas Company	Rs	0.00	0.00	0.00	0.00
10	Handling,Sampling and such other Similar charges	Rs	0.00	0.00	0.00	0.00
11	Total Amount charged (8 +9+10)	Rs	0.00	0.00	33,31,84,098.00	0.00
D)	TRANSPORTATION	Rs				
12	Transportation charges by Rail / Ship / Road Transport					
	By Rail	Rs	0.00	0.00	0.00	0.00
	By Road	Rs	0.00	0.00	0.00	0.00
	By Ship	Rs	0.00	0.00	0.00	0.00
	By Pipe	Rs	0.00	0.00	0.00	0.00
13	Adjustment (+/-) in amount charged by railways / transport company	Rs	0.00	0.00	0.00	0.00
14	Demurrage charges, if any	Rs	0.00	0.00	0.00	0.00
15	Cost of diesel in transporting Coal through MGR system, if applicable	Rs	NA	NA	NA	NA
16	Total transportation charges (12+/- 13 - 14 + 15)	Rs	0.00	0.00	0.00	0.00
17	Total amount charged for Gas/Oil supplied including transportation (11 + 16)	Rs	0.00	0.00	33,31,84,098.00	0.00
E)	TOTAL COST					
18	Landed Cost of Gas (2+17) / (1+7)	Rs/1000 SCM/MT	0.00	0.00	68,388.80	0.00
19	Blending Ratio (Domestic/Imported)		NA			
20	Weighted average cost of Gas		NA			
F)	QUALITY					
21	GCV of Gas of the opening coal stock as per bill of Gas company	(kcal/SCM)	NA		NA	NA
22	GCV of Gas supplied as per bill of Gas company	(kcal/SCM)	0.00	0.00	9498.74	
23	GCV of imported coal of the opening coal stock as per bill of Gas company	(kcal/SCM)				NA
24	GCV of imported coal supplied as per bill of Gas company	(kcal/SCM)				
25	Weighted average GCV of Coal /Lignite as billed	(kcal/SCM)	NA			
26	GCV of Gas of the Opening stock as received at station	(kcal/SCM)	NA		NA	NA
27	GCV of Gas supplied as received at station	(kcal/SCM)	0.00	0.00	9498.74	0.00
28	GCV of imported coal of the Opening stock as received at station	(kcal/SCM)				
29	GCV of imported coal supplied as received at station	(kcal/SCM)				
30	Weighted average GCV of GAS as received	(kcal/SCM)	0.00	0.00	9498.74	0.00

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Details of Sourcewise fuel for computation of Energy Charges

FORM -15

	Company		NTPC			
	Name of the generating Station		Jhanor Gandhar Gas power project			
	Month		Decenber'23			
SL	Particulars	Unit	Natural Gas APM	NON APM Gas	Committed Gas	RLNG
A)	**OPENING QUANTITY**					
1	Opening Stock of Gas	(1000 SCM)	0.00	0.00	0.00	0.00
2	Value of Stock	Rs	0.00	0.00	0.00	0.00
B)	**QUANTITY**					
3	Quantity of gas/RLNG/Liquid fuel supplied by gas company	(1000 SCM)	0.00	0.00	6,496.29	0.00
4	Adjustment (+/-) in quantity supplied made by Gas Company	(1000 SCM)	0.00	0.00	0.00	0.00
5	Gas supplied by Gas Company (3+4)	(1000 SCM)	0.00	0.00	6,496.29	0.00
6	Normative transit & Handling losses	(1000 SCM)	NA	NA	NA	NA
7	Net gas supplied (5 - 6)	(1000 SCM)	0.00	0.00	6,496.29	0.00
C)	**PRICE**					
8	Amount charged by the Gas/Oil Company	Rs	0.00	0.00	39,02,91,262.20	0.00
9	Adjustment (+ / -) in amount charged by Gas Company	Rs	0.00	0.00	0.00	0.00
10	Handling,Sampling and such other Similar charges	Rs	0.00	0.00	0.00	0.00
11	**Total Amount charged (8 +9+10)**	Rs	0.00	0.00	39,02,91,262.20	0.00
D)	**TRANSPORTATION**	Rs				
12	Transportation charges by Rail / Ship / Road Transport					
	By Rail	Rs	0.00	0.00	0.00	0.00
	By Road	Rs	0.00	0.00	0.00	0.00
	By Ship	Rs	0.00	0.00	0.00	0.00
	By Pipe	Rs	0.00	0.00	0.00	0.00
13	Adjustment (+/-) in amount charged by railways / transport company	Rs	0.00	0.00	0.00	0.00
14	Demurrage charges, if any	Rs	0.00	0.00	0.00	0.00
15	Cost of diesel in transporting Coal through MGR system, if applicable	Rs	NA	NA	NA	NA
16	Total transportation charges (12+/- 13 - 14 + 15)	Rs	0.00	0.00	0.00	0.00
17	Total amount charged for Gas/Oil supplied including transportation (11 + 16)	Rs	0.00	0.00	39,02,91,262.20	0.00
E)	**TOTAL COST**					
18	Landed Cost of Gas (2+17) / (1+7)	Rs/1000 SCM/MT	**0.00**	**0.00**	**60,079.10**	**0.00**
19	Blending Ratio (Domestic/Imported)				NA	
20	Weighted average cost of Gas				NA	
F)	**QUALITY**					
21	GCV of Gas of the opening coal stock as per bill of Gas company	(kcal/SCM)	NA		NA	NA
22	GCV of Gas supplied as per bill of Gas company	(kcal/SCM)	0.00	0.00	9679.42	
23	GCV of Imported coal of the opening coal stock as per bill of Gas company	(kcal/SCM)				NA
24	GCV of Imported coal supplied as per bill of Gas company	(kcal/SCM)				
25	Weighted average GCV of Coal /Lignite as billed	(kcal/SCM)			NA	
26	GCV of Gas of the Opening stock as received at station	(kcal/SCM)	NA		NA	NA
27	GCV of Gas supplied as received at station	(kcal/SCM)	0.00	0.00	9679.42	0.00
28	GCV of Imported coal of the Opening stock as received at station	(kcal/SCM)				
29	GCV of Imported coal supplied as received at station	(kcal/SCM)				
30	Weighted average GCV of GAS as received	(kcal/SCM)	**0.00**	0.00	**9679.42**	**0.00**

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Details of Sourcewise fuel for computation of Energy Charges

FORM -15

	Company		NTPC			
	Name of the generating Station		Jhanor Gandhar Gas power project			
	Month		January'24			
SL	Particulars	Unit	Natural Gas APM	NON APM Gas	Committed Gas	RLNG
A)	**OPENING QUANTITY**					
1	Opening Stock of Gas	(1000 SCM)	0.00	0.00	0.00	0.00
2	Value of Stock	Rs	0.00	0.00	0.00	0.00
B)	**QUANTITY**					
3	Quantity of gas/RLNG/Liquid fuel supplied by gas company	(1000 SCM)	0.00		12,418.95	3,596.91
4	Adjustment (+/-) in quantity supplied made by Gas Company	(1000 SCM)	0.00	0.00	0.00	0.00
5	Gas supplied by Gas Company (3+4)	(1000 SCM)	0.00	0.00	12,418.95	3,596.91
6	Normative transit & Handling losses	(1000 SCM)	NA	NA	NA	NA
7	Net gas supplied (5 - 6)	(1000 SCM)	0.00	0.00	12,418.95	3,596.91
C)	**PRICE**					
8	Amount charged by the Gas/Oil Company	Rs	0.00		61,56,05,254.00	18,24,75,384.00
9	Adjustment (+ / -) in amount charged by Gas Company	Rs	0.00	0.00	0.00	0.00
10	Handling,Sampling and such other Similar charges	Rs	0.00	0.00	0.00	0.00
11	**Total Amount charged (8 +9+10)**	Rs	0.00	0.00	61,56,05,254.00	18,24,75,384.00
D)	**TRANSPORTATION**	Rs				
12	Transportation charges by Rail / Ship / Road Transport					
	By Rail	Rs	0.00	0.00	0.00	0.00
	By Road	Rs	0.00	0.00	0.00	0.00
	By Ship	Rs	0.00	0.00	0.00	0.00
	By Pipe	Rs	0.00	0.00	0.00	0.00
13	Adjustment (+/-) in amount charged by railways / transport company	Rs	0.00	0.00	0.00	0.00
14	Demurrage charges, if any	Rs	0.00	0.00	0.00	0.00
15	Cost of diesel in transporting Coal through MGR system, if applicable	Rs	NA	NA	NA	NA
16	Total transportation charges (12+/- 13 - 14 + 15)	Rs	0.00	0.00	0.00	0.00
17	Total amount charged for Gas/Oil supplied including transportation (11 + 16)	Rs	0.00	0.00	61,56,05,254.00	18,24,75,384.00
E)	**TOTAL COST**					
18	Landed Cost of Gas (2+17) / (1+7)	Rs/1000 SCM/MT	**0.00**	**0.00**	**49,569.82**	**50,731.15**
19	Blending Ratio (Domestic/Imported)				NA	
20	Weighted average cost of Gas				NA	
F)	**QUALITY**					
21	GCV of Gas of the opening coal stock as per bill of Gas company	(kcal/SCM)	NA		NA	NA
22	GCV of Gas supplied as per bill of Gas company	(kcal/SCM)	0.00	0.00	9754.46	9861.78
23	GCV of Imported coal of the opening coal stock as per bill of Gas company	(kcal/SCM)				NA
24	GCV of Imported coal supplied as per bill of Gas company	(kcal/SCM)				
25	Weighted average GCV of Coal /Lignite as billed	(kcal/SCM)			NA	
26	GCV of Gas of the Opening stock as received at station	(kcal/SCM)	NA		NA	NA
27	GCV of Gas supplied as received at station	(kcal/SCM)	0.00	0.00	9754.46	9861.78
28	GCV of Imported coal of the Opening stock as received at station	(kcal/SCM)				
29	GCV of Imported coal supplied as received at station	(kcal/SCM)				
30	Weighted average GCV of GAS as received	(kcal/SCM)	**0.00**	0.00	**9754.46**	**9861.78**

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Details of Sourcewise fuel for computation of Energy Charges

FORM -15

	Company		NTPC			
	Name of the generating Station		Jhanor Gandhar Gas power project			
	Month		February'24			
SL	Particulars	Unit	Natural Gas APM	NON APM Gas	Committed Gas	RLNG
A)	**OPENING QUANTITY**					
1	Opening Stock of Gas	(1000 SCM)	0.00	0.00	0.00	0.00
2	Value of Stock	Rs	0.00	0.00	0.00	0.00
B)	**QUANTITY**					
3	Quantity of gas/RLNG/Liquid fuel supplied by gas company	(1000 SCM)	0.00		5,803.95	1,159.45
4	Adjustment (+/-) in quantity supplied made by Gas Company	(1000 SCM)	0.00	0.00	0.00	0.00
5	Gas supplied by Gas Company (3+4)	(1000 SCM)	0.00	0.00	5,803.95	1,159.45
6	Normative transit & Handling losses	(1000 SCM)	NA	NA	NA	NA
7	Net gas supplied (5 - 6)	(1000 SCM)	0.00	0.00	5,803.95	1,159.45
C)	**PRICE**					
8	Amount charged by the Gas/Oil Company	Rs	0.00		23,04,91,273.93	5,45,42,665.00
9	Adjustment (+ / -) in amount charged by Gas Company	Rs	0.00	0.00	0.00	0.00
10	Handling,Sampling and such other Similar charges	Rs	0.00	0.00	0.00	0.00
11	**Total Amount charged (8 +9+10)**	Rs	0.00	0.00	23,04,91,273.93	5,45,42,665.00
D)	**TRANSPORTATION**	Rs				
12	Transportation charges by Rail / Ship / Road Transport					
	By Rail	Rs	0.00	0.00	0.00	0.00
	By Road	Rs	0.00	0.00	0.00	0.00
	By Ship	Rs	0.00	0.00	0.00	0.00
	By Pipe	Rs	0.00	0.00	0.00	0.00
13	Adjustment (+/-) in amount charged by railways / transport company	Rs	0.00	0.00	0.00	0.00
14	Demurrage charges, if any	Rs	0.00	0.00	0.00	0.00
15	Cost of diesel in transporting Coal through MGR system, if applicable	Rs	NA	NA	NA	NA
16	Total transportation charges (12+/- 13 - 14 + 15)	Rs	0.00	0.00	0.00	0.00
17	Total amount charged for Gas/Oil supplied including transportation (11 + 16)	Rs	0.00	0.00	23,04,91,273.93	5,45,42,665.00
E)	**TOTAL COST**					
18	Landed Cost of Gas (2+17) / (1+7)	Rs/1000 SCM/MT	**0.00**	**0.00**	**39,712.86**	**47,042.05**
19	Blending Ratio (Domestic/Imported)				NA	
20	Weighted average cost of Gas				NA	
F)	**QUALITY**					
21	GCV of Gas of the opening coal stock as per bill of Gas company	(kcal/SCM)	NA		NA	NA
22	GCV of Gas supplied as per bill of Gas company	(kcal/SCM)	0.00	0.00	9,570.70	9,591.12
23	GCV of Imported coal of the opening coal stock as per bill of Gas company	(kcal/SCM)				NA
24	GCV of Imported coal supplied as per bill of Gas company	(kcal/SCM)				
25	Weighted average GCV of Coal /Lignite as billed	(kcal/SCM)			NA	
26	GCV of Gas of the Opening stock as received at station	(kcal/SCM)	NA		NA	NA
27	GCV of Gas supplied as received at station	(kcal/SCM)	0.00	0.00	9570.70	9591.12
28	GCV of Imported coal of the Opening stock as received at station	(kcal/SCM)				
29	GCV of Imported coal supplied as received at station	(kcal/SCM)				
30	Weighted average GCV of GAS as received	(kcal/SCM)	**0.00**	0.00	**9570.70**	**9591.12**

Details of Sourcewise fuel for computation of Energy Charges

FORM -15

	Company		NTPC			
	Name of the generating Station		Jhanor Gandhar Gas power project			
	Month		mar'24			
SL	Particulars	Unit	Natural Gas APM	NON APM Gas	Committed Gas	RLNG
A)	**OPENING QUANTITY**					
1	Opening Stock of Gas	(1000 SCM)	0.00	0.00	0.00	0.00
2	Value of Stock	Rs	0.00	0.00	0.00	0.00
B)	**QUANTITY**					
3	Quantity of gas/RLNG/Liquid fuel supplied by gas company	(1000 SCM)	0.00		4.42	1,390.91
4	Adjustment (+/-) in quantity supplied made by Gas Company	(1000 SCM)	0.00	0.00	0.00	0.00
5	Gas supplied by Gas Company (3+4)	(1000 SCM)	0.00	0.00	4.42	1,390.91
6	Normative transit & Handling losses	(1000 SCM)	NA	NA	NA	NA
7	Net gas supplied (5 - 6)	(1000 SCM)	0.00	0.00	4.42	1,390.91
C)	**PRICE**					
8	Amount charged by the Gas/Oil Company	Rs	0.00		1,60,637.00	6,70,11,841.00
9	Adjustment (+ / -) in amount charged by Gas Company	Rs	0.00	0.00	0.00	0.00
10	Handling,Sampling and such other Similar charges	Rs	0.00	0.00	0.00	0.00
11	**Total Amount charged (8 +9+10)**	Rs	0.00	0.00	1,60,637.00	6,70,11,841.00
D)	**TRANSPORTATION**	Rs				
12	Transportation charges by Rail / Ship / Road Transport					
	By Rail	Rs	0.00	0.00	0.00	0.00
	By Road	Rs	0.00	0.00	0.00	0.00
	By Ship	Rs	0.00	0.00	0.00	0.00
	By Pipe	Rs	0.00	0.00	0.00	0.00
13	Adjustment (+/-) in amount charged by railways / transport company	Rs	0.00	0.00	0.00	0.00
14	Demurrage charges, if any	Rs	0.00	0.00	0.00	0.00
15	Cost of diesel in transporting Coal through MGR system, if applicable	Rs	NA	NA	NA	NA
16	Total transportation charges (12+/- 13 - 14 + 15)	Rs	0.00	0.00	0.00	0.00
17	Total amount charged for Gas/Oil supplied including transportation (11 + 16)	Rs	0.00	0.00	1,60,637.00	6,70,11,841.00
E)	**TOTAL COST**					
18	Landed Cost of Gas (2+17) / (1+7)	Rs/1000 SCM/MT	**0.00**	**0.00**	**36,343.21**	**48,178.42**
19	Blending Ratio (Domestic/Imported)				NA	
20	Weighted average cost of Gas				NA	
F)	**QUALITY**					
21	GCV of Gas of the opening coal stock as per bill of Gas company	(kcal/SCM)	NA		NA	NA
22	GCV of Gas supplied as per bill of Gas company	(kcal/SCM)	0.00	0.00	9,652.81	9,783.96
23	GCV of Imported coal of the opening coal stock as per bill of Gas company	(kcal/SCM)				NA
24	GCV of Imported coal supplied as per bill of Gas company	(kcal/SCM)				
25	Weighted average GCV of Coal /Lignite as billed	(kcal/SCM)			NA	
26	GCV of Gas of the Opening stock as received at station	(kcal/SCM)	NA		NA	NA
27	GCV of Gas supplied as received at station	(kcal/SCM)	0.00	0.00	9652.81	9783.96
28	GCV of Imported coal of the Opening stock as received at station	(kcal/SCM)				
29	GCV of Imported coal supplied as received at station	(kcal/SCM)				
30	Weighted average GCV of GAS as received	(kcal/SCM)	**0.00**	0.00	**9652.81**	**9783.96**

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