

Annexure-I

Pro-forma for furnishing Actual annual performance/operational data for the coal/lignite based thermal generating stations for the 5-year period from 2017-18 to 2021-22

S.N	Particulars	Units	2017-18	2018-19	2019-20	2020-21	2021-22	
1	Name of Company		NTPC Ltd.					
2	Name of Station/ Pit head or Non- Pit head		Barh STPS Stage-II (Non- pit head)					
	Stage		Single Stage					
3	Installed Capacity and Configuration	MW	2 X 660 = 1320 MW					
3.1	Date of Commercial Operation - Unit Wise		U4- 08-03-2016, U5- 18-02-2016					
3.2	Effective COD		U4- 08-03-2016,					
	Make of Turbine		Stage2 (BHEL-Seimens)					
4	Rated Steam Parameters (Also state the type of Steam turbine and Boiler)		BHEL Make Main Steam- 247 ksc /565 deg C Once through, Supercritical, Corner fired boiler					
5	Type of BFP		Turbine driven					
	Quantity		Each Unit : 2 Nos TDBFP (Normal Operation) + 1Nos MDBFP					
6	Circulating water system		Closed Cycle					
7	Any other Site specific feature							
	Design Unit heat rate	Kcal/Kwh	2196					
	Design Boiler efficiency	%	83.7					
	Design Turbine cycle heat rate	Kcal/Kwh	1838					
8	Fuels :							
8.1	Primary Fuel :		Coal					
8.1.1	Annual Allocation under FSA	MMT	FSA Unit-1 (CCL-3.33 MMT), Stage-II Linked with Chatti Bariatu Coal Mine					
	Annual Consumption	MT	6021680	5815402	5361077	5369581	4778067	
	Annual Requirement at NAPAF	MT	6275516	5716351	6273836	6609067	6153371	
8.1.2	Sources of supply/ procurement along with contracted quantity and grade of							
8.1.2.1	FSA	LoA MoU	MT MMT	Bidge linkage MoU- CCL (ACQ- 3.322 MMT, Grade- G8 to G13) & ECL (ACQ- 1.33 MMT, G3 to G13)	Bidge linkage MoU- CCL (ACQ- 3.349 MMT, Grade- G8 to G13) & ECL (ACQ- 1.33 MMT, G3 to G13)	Bidge linkage MoU- CCL (ACQ- 2.06 MMT, Grade- G8 to G13) & ECL (ACQ- 1.328 MMT, G3 to G13)	Bidge linkage MoU- CCL (ACQ- 0.43 MMT, Grade- G8 to G13) & ECL (ACQ- 1.328 MMT, G3 to G13)	Bidge linkage MoU- CCL (ACQ- 0.115 MMT, Grade- G8 to G13)) & FSA- CCL (ACQ U#1- 3.33 MMT, Grade-
8.1.2.2	Imported*		MMT	0.0178	0.0618	0	0	0
8.1.2.	Spot Market/e-auction*		MT					

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8.1.3	Transportation Distance of the station from the sources of supply	KM	CCL (341-427), ECL (219-309), BCCL (260-329), (PBCMP (319), IMPORT (855)	CCL (287-470), ECL (226-279), BCCL (302-358), NCL (506), (PBCMP (319), IMPORT (717 & 855)	CCL (287-470), ECL (226-279), BCCL (302-337), PBCMP (317)	CCL (287-470), ECL (226-279), BCCL (302-337), NCL (506), (PBCMP (317)	CCL (287-470), ECL (226-279), BCCL (302-337), (PBCMP (317)
8.1.4	Mode of Transport		Rail/RCR	Rail/RCR	Rail/RCR	Rail/RCR	Rail
8.1.5	Maximum Station capability to stock primary fuel (for days consider availability as NAPAF)	Days & MT	30 Days & 900000				
8.1.6	Maximum stock maintained for primary fuel	MT	137759	753143	826798	777803	396024
	Date		31.03.2018	31.03.2019	30.06.2019	30.06.2020	31.03.2022
8.1.7	Minimum Stock maintained for primary fuel	MT	0	17717	68001	257091	74794
	Date		31.12.2017	30.09.2018	30.09.2019	30.09.2020	30.09.2021
8.1.8	Average stock maintained for primary fuel	MT	80000	221000	556000	473000	236000
8.2	Secondary Fuel :						
8.2.1	Annual Allocation/ Requirement	KL	2569.28	3211.5	2114.56	2345.39	3216.31
8.2.2	Sources of supply		HPCL/BPCL/IOC L refineries	HPCL/BPCL/IOC L refineries	HPCL/BPCL/IOC L refineries	HPCL/BPCL/IOC L refineries	HPCL/BPCL/IOC L refineries
8.2.3	Transportation Distance of the station from the sources of supply	KM	750	750	750	750	750
8.2.4	Mode of Transport		Road	Road	Road	Rail & Road	Rail & Road
8.2.5	Maximum Station capability to stock secondary fuels	KL	9000	9000	9000	9000	9000
8.2.6	Maximum Stock of secondary oil actually maintained	KL	3515.5	2868.2	6982.8	6776.1	6356.4
8.2.7	Minimum Stock of secondary oil actually maintained	KL	2677.6	2529.1	2967.2	3246.3	4004.1
8.2.8	Average Stock of secondary oil actually maintained	KL	3173.3	2694.5	4992.9	4878.7	5316.3
9.	Cost of Spares :						
9.1	Cost of Spares capitalized in the books of accounts	(Rs. Lakh)	5852.22	5189.55	3605.27	1661.99	8705.18
9.2	Cost of spares included in capital cost for the purpose of tariff	(Rs. Lakh)					
9.3	Initial spares-list, quantity and cost	(Rs. Lakh)					5955.29
9.4	Maintenance spares - cost	(Rs. Lakh)	6155.516	5989.169	6172.288	4665.512	6615.939
9.5	Other spares procured with high lead procurement time	(Rs. Lakh)	473	2039	1298	2394	2291
10	Generation :						
10.1	-Actual Gross Generation at generator terminals	MU	9272.27	9845.23	8219.09	7803.80	7452.08
10.2	-Actual Net Generation Ex-bus	MU	8778.3	9333.7	7733.3	7336.4	6995.3
10.3	-Scheduled Generation Ex-bus	MU	8901.75	9388.89	7776.83	7451.36	7088.40
11	Average Declared Capacity (DC)	MW	1098.88	1121.39	1054.69	1187.97	1103.13
	DC Peak HD %	%				93.50	99.94
	DC Off Peak HD %	%				93.04	100.57
	DC Peak LD %	%				96.71	85.75
	DC Off Peak LD %	%				97.02	85.31
	Actual Declared Capacity	MU	9626.16	9823.35	9264.36	10406.58	9663.39
	Deemed Declared Capacity	MU	9626.16	9823.35	9264.36	10406.58	9663.39

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12	Actual Auxiliary Energy Consumption excluding colony	MU	470.07	487.03	445.62	459.72	450.16	
13	Actual Energy supplied to Colony from the station	MU	4.74	4.07	5.50	2.49	1.84	
	Actual energy supplied to construction activities	MU	19.17	20.44	34.69	5.17	4.78	
	Actual energy supplied to long term and medium term beneficiaries	MU	8859.50	9347.96	7826.10	8056.15	7375.92	
	Actual energy supplied in short term							
	Energy supplied under bilateral arrangements							
	Energy supplied through exchahnges							
	Energy supplied under DSM	MU	-123.46	-55.19	-43.55	-114.95	-93.10	
	Energy supplied SCED							
14	Primary Fuel :							
14.1	Consumption :							
14.1.1	Domestic coal							
	From Linked Mines	MT	0	0	0	0	388000	
	From Non-Linkd Mines	MT	6005469	5753652	5211256	4129800	4042110	
	From Integerated Mines	MT	0	0	149517	1239781	347957	
14.1.2	Imported coal	MT	16211	61750	305	0	0	
14.1.3	Spot market/e-auction coal	MT						
14.2	Gross Calorific Value (GCV) :							
14.2.1	Domestic Coal (for each type)	(As Billed) - EM Basis as per third party	kCal/kg	4608.36	4771.03	4627.02	4280.57	4286.31
		(As Received) - TM Basis as per third party	kCal/kg	3543.02	3804.61	3580.96	3427.46	3631.11
14.2.2	Imported Coal	(As Billed) - ADB Basis	kCal/kg	5700	5700	5517	0	0
		(As Received) - ADB Basis	kCal/kg	4797.76	4442.13	4561	0	0
14.2.3	Spot market/e- auction coal	(As Billed)	kCal/kg	0	0	0	0	0
		(As Received)	kCal/kg	0	0	0	0	0
14.2.4	Weighted Average Gross Calorific value (Domestic+Imported+Spot/e-auction) (As Billed)	kCal/kg	4611.49	4780.64	4627.5	4280.57	4286.31	
14.2.5	Weighted Average Gross Calorific value (Domestic+Imported+Spot/e-auction) (As Received)	kCal/kg	3585	3815	3580	3414	3623	
	Ash content in coal (%)		38.00%	38.00%	38.00%	38.00%	38.00%	
14.3	Price of coal :							
	Billed Cost (including adjustments)							
	Amount Charged by transporting agency upto delivery point							
14.3.1	Weighted Average Landed price of Domestic coal	(Rs/MT)	3417	3540	3896	3574	4228	
	Components of landed cost and break up	(Rs/MT)						
	1. Cost of coal,	(Rs/MT)	2375.34	2657.55	2608.38	2460.63	3188.53	
	2. Transportation	(Rs/MT)	994.74	859.59	1261.49	1080.64	1007.62	
	3. Other charges	(Rs/MT)	46.89	22.91	26.02	32.55	32.22	
14.3.2	Weighted Average Landed Price of Imported coal	(Rs/MT)	7271.88	7464.49	2662.50			
	Components of landed cost and break up							
14.3.3	Weighted Average Landed Price of Spot market / e-auction coal	(Rs/MT)	NA	NA	NA	NA	NA	

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S.N	Particulars	Units	2017-18	2018-19	2019-20	2020-21	2021-22
	Components of landed cost and break up						
14.3.4	Weighted Average Landed Price of all the Coals	(Rs/MT)	3428	3578	3896	3574	4228
14.4	Blending :	% and MT (of the total coal consumed)					
	Blending ratio of imported coal with domestic coal	Equivalent to domestic coal	0.30%	1.00%	0.01%	0.00%	0.00%
14.4.2	Proportion of e-auction coal in the blending	% & MT					
	Coal stockyard capacity	LMT	9	9	9	9	9
14.5	Actual daily Average Coal stock maintained	MT	80000	221000	556000	473000	236000
		Days	3.0	8.4	21.1	18.0	9.0
14.5	Actual Transit & Handling Losses for coal/Lignite						
14.5.1	Pit- Head Station						
14.5.1.1	Transit loss from linked mines	%	NA	NA	NA	NA	NA
14.5.1.2	Transit loss from non-linked mines including e-auction coal mines.	%	NA	NA	NA	NA	NA
14.5.1.3	Transit loss of imported coal	%	NA	NA	NA	NA	NA
14.5.2	Non-Pit Head station						
14.5.2.1	Transit loss from linked mines	%	NA	NA	NA	NA	NA
14.5.2.2	Transit loss from non-linked mines including e-auction coal mines.	%	0.798	0.695	0.547	0.788	0.782
14.5.2.3	Transit loss of imported coal	%	NA	NA	NA	NA	NA
15	Secondary Fuel Oil :						
15.1	Consumption	HFO	KL	0	0	0	0
		HSD	KL	2569.28	3211.5	2114.563	2345.39
15.2	Weighted Average Gross Calorific value (As received)	HFO	(kCal / Lit.)	0	0	0	0
		HSD	(kCal / Lit.)	9541	9520	9519	9504
15.3	Weighted Average Price	HFO	(Rs / KL)				
		LDO	(Rs / KL)	47296.2	58074.8	54315.3	48415.1
15.4	Actual Average stock maintained	HFO	KL			4000	3670
		HSD	KL	3405	2818	2972	2223
16	Weighted average duration of outages(unit-wise details):						
16.1	Planned Outages	(Days)	14.8	8.3	46.6	0.0	42.5
16.2	Forced Outages	(Days)	6.63	16.66	6.83	10.72	8.48
	Within control of generator	(Days)	0.0	0.0	0.0	0.1	0.0
	beyond control of generator	(Days)	6.6	16.7	6.8	10.6	8.5
16.3	Number of tripping	Nos.	18	21	13	19	15
16.4	Number of start-ups:	Nos.	18	21	12	20	15
16.4.1	Cold Start-up	Nos.	1	1	1	1	2
16.4.2	Warm Start-up	Nos.	5	13	6	9	11
16.4.3	Hot start-up	Nos.	12	7	5	10	2
17	NOx , SOx ,and other particulate matter emission in : at conditions specified by MoEF&CC						
17.1	Design value of emission control equipment (specify conditions)						

ECS under installation.

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S.N	Particulars	Units	2017-18	2018-19	2019-20	2020-21	2021-22
	FGD installation date						
	NOX Control system installation date						
17.2	Actual emission (Stage-I)	SPM					
		NOX					
		SOX					
	Actual emission (Stage-II)	SPM					
		NOX					
		SOX					
	Ash dyke capacity as on 31st March						
	Ash pond capacity as on 31st March						
	Fund available in Ash Fund Account as on 31st						
	Amount utilized from Ash Fund Account						
	Ash available as on 31st March	LMT	24.84	22.97	20.64	20.4	21.56
	Ash utilized for construction of ash dyke	LMT	0	0	0	0	0
	Ash utilized within plant premise, other than construction of ash dyke	LMT	0.02	0	0.02	0.02	1.01
	Ash transported	LMT	7	7.43	6.04	12.55	20.94
	Average Distance	Km	150	150	150	150	150
19	Detail of Ash utilization % of fly ash produced	(%)	39.27	50.07	67.08	108.04	158.12
19.1	Conversion of value added product	(%)	11.00	17.71	25.97	30.44	28.90
19.2	For making roads &embarkment	(%)	28.17	32.35	29.25	61.52	97.12
19.3	Land filling	(%)	0.10	0.01	0.00	7.99	10.85
19.4	Used in plant site in one or other form or used in some other site	(%)	0.00	0.00	0.00	0.00	0.00
19.5	Any other use , Please specify	(%)	0.00	0.00	11.87	8.09	21.24
20	Cost of spares actually consumed	(Rs. Lakh)	479.9	787	1643.17	502.28	
21	Average stock of spares	(Rs. Lakhs)	16319.6	19337.5	19863.7	21206.7	23951.3
22	Number of employees deployed in O&M						
22.1	- Executives	Nos.	302	267	270	297	305
22.2	- Non Executives	Nos.	110	100	92	95	95
22.3	- Corporate office	Nos.	2568	2241	2016	1815	1728
23	Man-MW ratio	Man/MW	0.31	0.28	0.27	0.30	0.20
	Total billed amount						
	Total received amount within due date						
	Total amount received beyond due date						
	Total amount pending						
	Total amount under dispute						
	Total rebate given						
	Total LPSC recovered						
24	Generation Switchyard Details						
	No. of Bays voltgewise				400kV-38bays 132kV-11bays		

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S.N	Particulars	Units	2017-18	2018-19	2019-20	2020-21	2021-22
	ICT - nos and rating		3no, 200MVA & 400/132kV				
	Dedicated transmission line - voltage and length		08 no transmission lines, Volatage-400kV, Bar-kahalgaon 1&2: 217km Barh-Patna-1&2: 94km Barh-Patna 3&4: 68km Barh-Motihari 1&2: 237km				

Notes: Ash available on 31st March indicated is total ash generated during the FY and distance indicated is Weighted average distance of ash transportation.

Annexure-VI (C)

DETAILS OF WATER CHARGES**Name of the Company:**

NTPC Ltd.

Name of the Power Station and Stage/Phase:

Barh Station

(Rs. In Lakhs)

Sl.No.	ITEM	2017-18	2018-19	2019-20	2020-21	2021-22*
1	2	3	4	5	6	7
(A)	Plant	Barh STPS Stage-II				
1	Type of Plant	Coal Based Plant				
2	Type of Cooling Tower	Induced draft counter flow cooling tower				
3	Type of Cooling Water System	Circulating Water Cooling System (Source river Ganga)				
4	Any Special Features which may increase/reduce water consumption					
(B)	Quantum of Water : (Cubic Meter)					
5	Contracted Quantum	160761256	160761256	161201698	160761256	160761256
6	Allocation of Water (m3)	160761256	160761256	161201699	160761256	160761256
7	Actual water Consumption (m3)	20816542	24770615	23048890	21277746	21841754
8.	Rate of Water Charges (Rs/m3)	3.96	3.96	3.96	3.96	3.96
9	Other charges/Fees , if paid as part of Water Charges					
10	Total water Charges Paid *	1272.52	1271.96	1275.44	1090.38	1149.92
	Barh stage-I U-1 commissioned in Nov-21.					
Note:	Minimum payment of 20% of allocation or actual consumption which ever is higher					

Annexure VI (D)**DETAILS OF OPERATIONS AND MAINTENANCE EXPENSES****Name of the Company: NTPC****Name of the Power Station or Transmission Region: Barh Station.**

(Rs. In Lakhs)

Sl. No.	ITEM	2017-18	2018-19	2019-20	2020-21	2021-22
1	2	3	4	5	6	7
(A)	Details of Capital Spares in opening Stock*	8466.70	13839.03	18241.58	20220.19	21379.90
(B)	Details of Capital Spares procured during the year	5852.22	5189.55	3605.27	1661.99	8705.18
(C)	Details of capital spares consumed during the year	479.90	787.00	1626.66	502.28	656.21
(D)	Details of capital spares closing at the end of the	13839.03	18241.58	20220.19	21379.90	29428.88
	# As per 2016-17 closing submitted data					

Annexure XVI A

Details of Incidental Expenses during Construction (IEDC) with break-up for the Generating stations for which COD is declared after 1.4.2017

Sl. No.	Item-wise details of expenditure with break-up	Expenditure as on SCOD	Expenditure as on actual COD of unit/station	Time Overrun
	NA			

DETAILS OF EMISSION CONTROL SYSTEM						
Generating company: NTPC						
Name of Generating station: Barh Stage-II						
Installed Capacity (MW) : 1320 MW						
Type of Emission Control System:						
Under Operation/Anticipated Operation Date:						
S.No.	Particulars	Units	2017-18	2018-19	2019-20	2020-21
A						
1	Gross Generation	MU	ECS system under installation			
2	Auxiliary Consumption - emission control	MU				
	Auxiliary Consumption - emission control	%				
3	Auxiliary Consumption (Normative)	%				
4	Hours of Operation	Hrs				
5	O&M Expenses (Actual) with Breakup as per format	Rs. Crore				
6	Other maintenace spares consumed^	Rs. Crore				
7	Initial Spares consumed*	Rs. Crore				

Pls. Note: Where the system is yet not operational guaranteed parameter along with spares cost as per awarded contract to be furnished

* Not part of O&M expenses and Pls specify list of the same

S.No.	Particulars	Units	Barh-II					
			Investment Approval	Approved*				
1	Capital Cost of Emission Control System							
1.1	Hard Cost	Rs. Crore	621.96	527.076				
1.1.1	Civil Works	Rs. Crore	Included in above					
1.1.2	Plant and Machinery and others	Rs. Crore	Included in above					
1.1.3	Initial Spares procured	Rs. Crore	Included in above					
1.2	IDC	Rs. Crore	39.23	39.24				
1.3	IEDC	Rs. Crore	18.65	18.65				
1.4	Others. Pls specify	Rs. Crore						
1.4	Completed Cost	Rs. Crore	679.84	584.966				

* As per inprinciple order.