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Central Electricity Authority

तापीय परियोजना नवीनीकरण एवं आधुनिकीकरण प्रभाग

Thermal Projects Renovation & Modernisation Division



R&M of Unit-6 (210 MW) of Kordi TPS of MAHAGENCO

Quarterly Review Report Renovation & Modernisation of Thermal Power Stations

Quarter: July - Sept, 2019

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Foreword

Renovation & Modernization (R&M)/Life Extension (LE) has been recognized as one of the cost effective options for obtaining the additional generation and better outputs from the existing old thermal power units. The R&M of such units is very essential for performance improvement of the units as well as to comply the stricter environmental norms for improving environmental conditions. On the other hand, the Life Extension (LE) of the old thermal power units is carried out with an aim to extend their useful life 15 to 20 years beyond the original design economical life.

The Thermal Projects Renovation & Modernization (TPR&M) Division is entrusted with the responsibility of monitoring the progress of R&M/LE activities in thermal power generating units in the country under Section 73(f) of the Electricity Act, 2003. Based on the interaction and information received from various utilities, the Quarterly Review Report (QRR) is prepared highlighting the latest status of the physical progress of R&M/LE works at various thermal units.

R&M/LE works in 06 units of capacity of 887 MW have been completed upto 30-06-2019. At present, 3 coal based generating units with aggregate capacity of 410 MW are under shut down for carrying out the R&M/LE works.

Under the Indo-Japan Co-operation, 3rd Phase MoU between CEA and JCOAL, Japan has conducted a study on O&M enhancement of existing unit no.-1 of DTPS, DVC. Final Report has been submitted at DVC in May 2018 by JCOAL. A diagnostic study for optimal environmental measures in Dadri TPS was carried out in February 2018 and report was submitted in June 2018. SCR Pilot test at NTPC's Sipat TPS has been carried out to meet the NO_x level as per new environmental norms and the report has also been submitted. One-day workshop on " Project on Efficiency and Environmental Improvement for Sustainable, Stable and Low-carbon Supply of Electricity" was held on 16th Nov 2018 at New Delhi by CEA and JCOAL. Under Clean Coal Technology (CCT) Programme a study tour to Japan was organised during the year 2019-20 from 14th October 2019 to 22nd October 2019. Officers from MoP, DVC, NTPC, State Utilities and CEA visited the latest USC power stations at Japan. Flexibilisation study was carried out by JCOAL during the 2018-19 at Anpara-B TPS, UPRVUNL and Vindhyachal TPS, NTPC to enhance the flexibility of thermal units and reports have been submitted.

To ensure compliance of the new Environmental Norms notified by Ministry of Environment, Forest & Climate Change (MoEF&CC) on 7th Dec. 2015, phasing plan for FGD installation/ ESP –upgradation have prepared and concerned utilities are requested to furnish the details of action taken for timely compliance of these norms.

A committee has been constituted under the aegis of CEA to oversee pilot tests for flexible operation of coal-fired power plant. A pilot test of 40% minimum load and 3% ramp up/ ramp down (i.e. 15 MW/ Min) has been successfully conducted in Dadri TPS and similar pilots are planned in other utilities. BHEL has conducted flexible operation pilot tests at Mauda TPS of NTPC and Sagardighi TPS of WBPDC and a brief report has been included in the report. Further, the flexibilisation study has also been conducted at Vindhyachal STPS, NTPC and at Anpara B TPS, UPRVUNL by JCOAL, Japan.

Finally, I would like to express my sincere thanks and gratitude to the Utilities and other stakeholders for obeying CEA's guidelines during implementation of R&M/LE works at old thermal power plant and furnishing status of R&M. I would also like to thank for timely submission of status of installation of FGD/ upgradations of ESP to comply with new environmental norms thus helping us to prepare & publish quarterly review report.

Dated: 25-10-2019



(B.C. Mallick)
CE (TPR&M)

Highlights

1. LE/ R&M Achievements during 12th Plan (2012-17)

Sl. No.	Particulars	State Sector		Central Sector		Total (State + Central)	
		No. of units	Capacity (MW)	No. of units	Capacity (MW)	No. of units	Capacity (MW)
A)	LE works						
1.	Completed during 12 th Plan	10	1380	11	1261.76	21	2641.76
B)	R&M works						
2.	Completed during 12 th Plan	05	850	11	3710.5	16	4560.5
	TOTAL	15	2230	22	4972.26	37	7202.26

2. LE / R&M Programme during (2017 - 22)

Category	LE/R&M works identified during 2017-22 No. of units & capacity (MW)		Total (State Sector + Central Sector)
	State Sector	Central Sector	
LE	34 (7570)	--	34 (7570)
R&M	30 (7135)	07 (224)	37 (7359)
Total	64 (14705)	07 (224)	71 (14929)

3. Achievements of R&M and LE Projects upto 30-09-2019

Sl. No.	Particulars	LE/R&M works completed No. of units & capacity (MW)		Total (State Sector + Central Sector) MW
		State Sector	Central Sector	
1	LE	04(820)	--	04(820)
2	R&M	--	02(67)	02(67)
	Total	04(820)	02(67)	6(887)

4. Implementation of Phasing Plan for FGD installation/ ESP upgradation in respect of new Environmental Norms notified by MoEF&CC on 7th Dec. 2015.

Ministry of Environment, Forest & Climate Change (MoEF&CC) notified “Environment (Protection) Amendment Rules, 2015” for thermal power stations on 07.12.2015. As per notification existing stations were required to comply with the new Standards within 2 years (i.e. by Dec. 2017) and the new stations including all station presently under construction were required to meet the new norms by 06-12-2017.

To review the various issues arising out of new environmental norms for thermal power stations, a meeting was held on 01.09.2017 in MoEF &CC among Secretary MoEF & CC,

Secretary, MoP and Chairperson, CEA and it was decided that the action plan submitted by MoP to MoEF & CC extending up- to 2024 should commence from 2018 and implemented before 2022. Further the implementation of measure to the thermal plants situated in NCR region for compliance of new environmental shall be complied by December 2019. In this regard utilities were requested to furnish the details of action taken and a report has been prepared and submitted to MoP on the status of phasing plan of FGD installation/ ESP upgradation at TPS.

5. Flexible Operation of Thermal Power Stations

A committee has been constituted in CEA under the chairmanship of Chief Engineer (TPRM) to find out the level of flexibilization required from thermal power stations and future roadmap for integration of 175 MW RES generation capacity into Indian grid by 2022. The committee has come up with the findings of the quantum of flexibilization, minimum thermal load, and ramp rate required in its interim report in June 2018. The final report of the committee was released by Secretary (Power) on 18th March 2019. The report has been shared with the stakeholders of power sector. A pilot test of 40% minimum load operation and 3% ramp up/ ramp down (i.e. 15 MW/ Min) has been successfully conducted in Dadri TPS of NTPC. Study at Anpara-B TPS of UPRVUNL and Vindhyachal TPS of NTPC is being conducted by JCOAL to improve the flexibility of the plants. BHEL has conducted flexible operation pilot tests at Mauda TPS of NTPC and Sagardighi TPS of WBPDC. The salient outcome of the pilot tests are as follows:

A) Mouda TPS, NTPC, Nagpur, Maharashtra:

- i) Test Date : 29-09-2019
- ii) Unit No. : 2
- iii) Capacity : 500 MW
- iv) Following tests were conducted:

<u>Test</u>	<u>Target</u>	<u>Achieved</u>
a. Minimum Load Test at 40%	200 MW	200 MW
b. Ramp Test (3%)	3%/ mini	~1.1%/min
c. Ramp Test (1%)	1%/ mini	~0.55%/min

The list of important parameters was logged and taken by BHEL for further analysis and recommendation. The final analysis and recommendations are under finalization with BHEL.

B) Sagardighi TPS, WBPDC, Musheerabad, West Bengal:

- i) Test Date : 27-06-2019
- ii) Unit No. : 3
- iii) Unit Capacity : 500 MW
- iv) Following tests were conducted:

<u>Test</u>	<u>Target</u>	<u>Achieved</u>
a. Minimum Load Test at 40%	200 MW	200 MW
b. Ramp Up Test (3%)	3%/ mini	~1.6%/min
c. Ramp Down Test (3%)	3%/ mini	~2.6%/min
d. Ramp UpTest (3%)	1%/ mini	~1.1%/min
e. Ramp Down Test (3%)	1%/ mini	~0.67%/min

The flexibilisation test was conducted by BHEL team and was witnessed by representative from TPRM Division, CEA. BHEL will submit the detailed report after analyzing the test result.

6. External Co-operation for R&M/LE of TPS

The status of activities under external co-operation for R&M/LE of TPS is furnished below: -

(A) Indo-Japan Co-operation for Project on Efficiency & Environment Improvement for Sustainable, Stable and Low Carbon Supply of Electricity of Coal Fired Stations.

The 3rd Memorandum of Understanding (MoU) on Indo – Japan Cooperation for Project on Efficiency & Environment Improvement for Sustainable, Stable and Low Carbon Supply of Electricity between CEA and JCOAL was signed on 22nd January, 2016. The objective of the MoU is to address issues and barriers in promoting sustainable, stable and low-carbon thermal power development in India. Under this MoU, JCOAL has carried out feasibility study for replacement of Badarpur TPS by new units based on SC/USC technologies. RLA study of unit-3 (210 MW), Dadari TPS has been carried out by JCOAL. The feasibility study for Singrauli STPS Stg. I & II units (5x200 MW+2x200 MW) of NTPC has been carried out during December 2016 to March 2017. An Environmental Study through Combustion Test of Indian Coal has also been carried out by JCOAL. 25 tonnes, G12 grade coal was sent to Japan from Talcher coal mine for Combustion test. The combustion test was done at Akitsu Works, MHPS, Japan and report was submitted in January 2017. The report of the study would be submitted in February 2019. A study on best O&M practices of thermal power unit has been carried out by JCOAL at unit-1, DTPS, DVC in 2017-18. Final Report was submitted in May 2018 by JCOAL. Mini-workshops were organized on 30-1-2018 at GSECL(Gujrat) and on 01-02-2018 at APGENCO (Andhra Pradesh) respectively for 2017-18 period under CEA-JCOAL Cooperation. SCR Pilot test at NTPC's Sipat TPS is being carried out to meet the NOx level in the flue gas as per new environmental norms. A diagnostic study for optimal environmental measures at Dadri TPS was conducted in February, 2018 and debriefing meeting was held in June 2018. One-day workshop on " Project on Efficiency and Environmental Improvement for Sustainable, Stable and Low-carbon Supply of Electricity" was held on 16th Nov 2018 at New Delhi by CEA and JCOAL. Under Clean Coal Technology (CCT) Programme a study tour to Japan has been organised during the year 2018-19 from 24th October 2018 to 1st November 2018. Officers from MoP, DVC, NTPC, State Utilities and CEA had visited the latest USC power stations at Japan. During current year a study tour is to be organized for which nominations from concerned utilities have been received. Flexibilisation Study has been carried out by JCOAL at unit 4&5 of 500 MW of Anpara-B TPS of UPRVUNL in November and December 2018 and Vindhyachal STPS of NTPC from 04-03-2019 to 09-03-2019 to enhance the flexible operation of the unit. Flexibilisation Study report in respect of Anpara-B TPS of UPRVUNL has been submitted on 4th of July 2019 by JCOAL. A Debriefing meeting on flexibilisation Study at VSTPS, NTPC was held at NTPC Bhawan on 12th of June 2019. Report to be submitted by JCOAL.

Quarterly Review Report on Renovation, Modernisation and Life Extension of Thermal Power Plants

1.0 Introduction

At the time of independence, the total installed capacity in the power sector was 1362 MW of which steam power plants contributed 756 MW. The installed generation capacity has since grown manifold. The total installed capacity as on 30.09.2019 was 363369.59 MW of which thermal power plants contributed 228601.42 MW (62.91 %). The contribution of Coal, Gas and Diesel based thermal power plants of total installed capacity is 54.19 %, 6.86 % and 0.14 % respectively.

Renovation & Modernization (R&M) is seen as a cost-effective option for additional generation from the existing thermal power stations and better asset management due to its low cost and short gestation period. Besides generation improvement and improvement in availability, other benefits achieved from R&M / LE include life extension, improved safety, reliability & environmental conditions.

Many of the thermal power plants are not operating to their full potential and large numbers of thermal units including 200/210 MW units are old and outlived their normal economical design life. The 66 LMZ units of 200/210 MW Capacity are potential target for Energy Efficiency R&M (EE R&M).

2.0 Objective of R&M Programme

The main objective of Renovation & Modernisation (R&M) of thermal generating units is to make the operating units well equipped with modified / augmented with latest technology with a view to improve their performance in terms of output, reliability, availability, reduction of outage time, ease of maintenance and minimizing inefficiencies.

3.0 Objective of Life Extension Programme

The R&M programme is primarily aimed at generation sustenance and overcoming problems. The life extension (LE) programme on the other hand focuses on plant operation beyond their original design life after carrying out specific life assessment studies of critical components with an aim to increase the life beyond the design economic life of 25 years.

4.0 Renovation and Modernisation (R&M) and Life Extension Programme (LEP) from 7th Plan onwards till 12th Plan

R&M Programme in a structured manner was initiated in 1984 as a centrally sponsored programme during 7th Plan and the programme continued during the two Annual Plans 1990-91 & 1991-92. The Plan wise details are given below: -

S. No.	Five Year Plan	Year	No. of TPS / No. of Units	Capacity (MW)	Additional Generation Achieved MU/ Annum*	Equivalent MW**
1	7 th Plan & 2 Annual Plans	85-86 to 89-90 & 90-91, 91-92	34 / 163	13570	10000	2000
2	8 th Plan (R&M) (LEP)	1992 to 1997	44 / 198 43/(194) 1/(4)	20869 (20569) (300)	5085	763
3	9 th Plan (R&M) (LEP)	1997 to 2002	37 / 152 29/ (127) 8/ (25)	18991 (17306) (1685)	14500	2200
4	10 th Plan (R&M) (LEP)	2002 to 2007	9/25 5/(14) 4/(11)	3445 (2460) (985)	2000	300
5	11 th Plan (R&M) (LEP)	2007 to 2012	21/72 15/(59) 6/(13)	16146 (14855) (1291)	5400	820
6	12 th Plan (R&M) (LEP)	2012 to 2017	18/37 8/16 10/21	7202.5 4560.50 2641.76	----	----

*Tentative figure.

** Equivalent MW has been worked out assuming PLF prevailing during that period.

5.0 R&M/ LE Programme during (2017 - 22)

The Summary of R&M/ LE Programme to be implemented during 2017-22 is given below. The status of implementation of the R&M/LE works at various units is furnished at Annexure-1.

Category	LE/R&M works identified during 2017-22 No. of units & capacity (MW)		Total (State Sector + Central Sector)
	State Sector	Central Sector	
LE	34 (7570)	--	34 (7570)
R&M	30 (7135)	07 (224)	37 (7359)
Total	64 (14705)	07 (224)	71 (14929)

The Summary of achievements of R&M/ LE Projects is given below:

As on 30.09.2019

Year	LE No. of units (MW)		R & M No. of units (MW)		Total (state + central) No. of units (MW)		Total LE and R&M No. of units (MW)
	State	Central	State	Central	State	Central	
2017-18	02(410)	--	--	02(67)	02(410)	02(67)	04(477)
2018-19	02(410)	--	--	--	2(410)	--	02(410)
Total No. of units (MW)	04(820)	--	--	02(67)	04(820)	02(67)	06(887)
	04(820)		02(67)		06(887)		

5.1 Details Achievements of LE and R&M Programme during 2017-22 upto 30.09.2019.

	Name of the TPS	Unit No.	Date of S/D	Capacity (MW)	Utility	Sector	Date of Achievement
1. 2017-18							
LE	Ukai TPS	4	07-12-2016	200	GSECL	State	17.05.2017
	Wanakbori TPS	3		210	GSECL	State	27-11-2017
R&M	Kathalguri CCGT	3	--	33.5	NEEPCO	Central	20-07-2018
	Kathalguri CCGT	6	--	33.5	NEEPCO	Central	31-03-2018
Sub Total		4 (Units)		477.00			
2. 2018-19							
LE	Koradi TPS	6	25-08-2015	210	MAHAGENCO	State	16-07-2018(oil firing) 20-08-2018(coal firing)
	Obra TPS	12	01-10-2016	200	UPRVUNL	State	24-09-2018
R&M	--	--		--	---	--	--
Sub Total		02(unit)		410			
3. 2019-20							
LE	---	--	--	--	--	--	--
R&M	---	--	--	--	--	--	--
Total LE	04 (820)	State	04(unit)		820		
		Centre	--		--		
Total R&M	02 (67)	State	--		--		
		Centre	02(unit)		67		
Grand Total		06(units)		887.00			

Details of thermal power units where the R&M/ LE Works have been completed during 2017-22 up to 30.09.2019 are given at **Annexure 2& 3**.

5.2 Details of thermal units under shut down for R&M and LE works

The following 3 units are under shut down for R&M and Life Extension works.

Sl.No.	Name of Project	Utility	State	Unit No.	Capacity (MW)
1.	Obra TPS	UPRVUNL	U.P.	7	100
2.	Barauni TPS	BSPGCL	Bihar	6	110
3.	Obra TPS	UPRVUNL	U.P.	13	200
Total					410

5.3 Status of R&M activities under Backward Region Grant Fund (BRGF) Scheme.

Under RSVY (now BRGF), Planning Commission in a meeting held on 10.05.2005 identified Barauni TPS, units 6&7 and Muzaffarpur TPS units 1&2 for carrying out Life Extension (LE) works. Subsequently, a five party agreement between the Government of India, Govt. of Bihar, BSEB, BHEL and NTPC was signed on 29.5.2006.

Planning Commission vide their letter dated 16.11.2009 approved Rs. 1053 crores including consultancy charges under the Special Plan for Bihar for LE works of Barauni TPS (Unit 6&7) and Muzaffarpur TPS (Unit 1&2) as per details given below:

Barauni TPS Unit (6&7)	:	Rs. 554.16 crores
Muzaffarpur TPS (1&2)	:	Rs. 471.80 Croes
Consultancy charges to NTPC(for Barauni TPS only):		Rs. 27.04 Crores

TOTAL	:	Rs. 1053.00 Crores
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Details of Funds released by Planning Commission upto 2014-15:

i)	BHEL	:	Rs. 725.07 crores
ii)	KBUNL	:	Rs. 180.00 crores
iii)	NTPC	:	Rs. 20.13 crores
	Total	:	Rs. 925.18 crores

The remaining amount of Rs. 127.80 Crs has been released by the Govt. of India to BSPGCL. Now BSPGCL is releasing money directly to the vendors.

Name of TPS	Unit No.	Zero Date	Contractual Completion Date	Anticipated Completion Date	Present physical status as on 31.12.2015
Barauni TPS	7	15.11.2009	15.11.2011	Completed	Unit was synchronized on 03.08.2016. <i>COD of Unit no. 7 achieved on 04.11. 2016.. Unit # 7 resynchronised on 12 .05.2019 and generated 8.88 MU in May. Available coal is exhausted. Load could not be raised above 60 MW due to Condenser Vacuum problem. . Scaling of condenser tubes is observed. Acid cleaning of condenser is planned in July. ECL coal agreement is pending due to ECL pending claims for 21.91Cr .</i>
	6	15.11. 2009	15.06.2012	31-10-2019	<i>Unit # 6 TG rolling was done by BHEL/ BSPGCL in July 2018. Balance works for synchronization, trial run and commercial operation schedule of Unit no. 6 is pending.</i> <i>Following works are pending in CHP area a) Dust suppression system b) Belt Weigher c) Chute flap gate operation d) Zero speed switches to be commissioned e) Fire sprinkler to conveyors</i> <i>Following works are pending in AHP a) Unit # 6 AHP Plc and UPS commissioning b) 3 nos of Vacuum Pumps 3) Dry Ash Buffer hopper evacuation system</i> <i>Fire Detection system and Protection works is pending.sExpected date of Commissioning is 31-12-2019.</i> <i>4) PG tests for both units are to be completed.</i>
Muzaffarpur TPS	1	15.04. 2010	15.04.2012	Completed	Unit synchronised on 05.07.2013.
	2	15.04. 2010	15.08.2012	Completed	Unit synchronised on 30.09.2014.

6. Implementation of Phasing Plan for FGD installation/ ESP upgradation in respect of new Environmental Norms notified by MoEF&CC on 7th Dec. 2015.

Ministry of Environment, Forest & Climate Change (MoEF&CC) notified “Environment (Protection) Amendment Rules, 2015” for thermal power stations on 07.12.2015. All existing stations are required to comply with the new Standards within 2 years (i.e. by Dec. 2017) and the new stations including all station presently under construction are required to meet the new norms by 01-01-2017.

To review the various issues arising out of new environmental norms for thermal power stations, a meeting was held on 01.09.2017 in MoEF&CC among Secretary MoEF & CC, Secretary, MoP and Chairperson, CEA and it was decided that the action plan submitted by

MoP to MoEF & CC extending up- to 2024 should commence from 2018 and implemented before 2022.

The MOEFCC gave its concurrence to the revised implementation plan for FGD installation/ESP upgradation vide letter no. F. No. Q-15017/40/2007-CPW dated 07.12.2017.

Further, it has been decided that the target date for environmental compliance in respect of thermal plant located in NCR is December, 2019. The progress report of installation of measures of 11 nos. thermal power plant situated in NCR region is given separately.

The implementation plan including units commissioned up- to 31.08.2017 is enclosed at Annexure 5. The year-wise FGD Phasing Plan and ESP Upgradation Plan are given below.

i) Year wise FGD Phasing Plan

Year	Capacity (MW)	No. of Units
2018	500	1
2019	4940	8
2020	26330	53
2021	64268	174
2022	64055	178
Total	160092 as on 31-08-2017	414
	166917 as on 31-03-2019	441
	*166472 as on 30-09-2019	*440

*Now the total capacity for monitoring the implementation of FGD as on 31-09-2019 is 166472 MW & no. of units are 440 after including the units commissioned after 31-08-2017.

ii) Year wise ESP Upgradation Plan

Year	Capacity (MW)	No. of Units
2018	500	1
2019	1300	2
2020	10405	27
2021	23495	97
2022	27725	93
Total	63425	220

To ensure compliance of the new Environmental Norms letters have been issued to concerned utilities for furnishing the details of action taken till date and further plan for FGD installation/ ESP – upgradation.

In view of the above CEA has started the monitoring of the implementation of the revised implementation plan.

6.1 Summary of Current Status of Implementation of phasing plan for FGD Installation

General Summary

S.No.	Sector (Capacity in MW)	FGD planned	Feasibility Study Started	Feasibility Study Completed	Tender Spec Made	NIT Issued	Bids Awarded	FGD Commissioned
1	Central Sector	53350	53350	53350	51510	51510	32840	0
2	State Sector	51885	50235	43965	23145	18625	1000	0
3	Private Sector	61237	58607	44080	32930	29060	1320	1320
	Total	166472	162192	141395	107585	99195	35160	1320

S.No.	Sector (No. of units)	FGD planned	Feasibility Study Started	Feasibility Study Completed	Tender Spec Made	NIT Issued	Bids Awarded	FGD Commissioned
1	Central Sector	143	143	143	135	135	73	0
2	State Sector	164	158	144	80	62	2	0
3	Private Sector	133	127	88	60	52	2	2
	Total	440	428	375	275	249	77	2

500 MW Critical Units

Units > 500 MW & located in areas either critically polluted or having population density > 400/km²

S.No.	Sector (Capacity in MW)	FGD planned	Feasibility Study Started	Feasibility Study Completed	Tender Spec Made	NIT Issued	Bids Awarded	FGD Commissioned
1	Central Sector	29320	29320	29320	29320	29320	19820	0
2	State Sector	13980	13980	12280	4800	4800	1000	0
3	Private Sector	13510	13510	9610	7370	4970	1320	1320
	Total	56810	56810	51210	41490	39090	22140	1320

S.No.	Sector (No. of units)	FGD planned	Feasibility Study Started	Feasibility Study Completed	Tender Spec Made	NIT Issued	Bids Awarded	FGD Commissioned
1	Central Sector	57	57	57	57	57	38	0
2	State Sector	25	25	22	8	8	2	0
3	Private Sector	22	22	16	12	8	2	2
	Total	104	104	95	77	73	42	2

NCR Summary

S.No.	Sector (Capacity in MW)	FGD planned	Feasibility Study Started	Feasibility Study Completed	Tender Spec Made	NIT Issued	Bids Awarded	FGD Commissioned
1	Central Sector	3320	3320	3320	3320	3320	3320	0
2	State Sector	4770	4770	4770	4770	4770	0	0
3	Private Sector	4700	4700	4700	4700	4700	1320	1320
	Total	12790	12790	12790	12790	12790	4640	1320

S.No.	Sector (No. of units)	FGD planned	Feasibility Study Started	Feasibility Study Completed	Tender Spec Made	NIT Issued	Bids Awarded	FGD Commissioned
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1	Central Sector	9	9	9	9	9	9	0
2	State Sector	17	17	17	17	17	0	0
3	Private Sector	7	7	7	7	7	2	2
	Total	33	33	33	33	33	11	2

6.2 FGD- ESP Phasing Plan of Thermal Power Plants located in Delhi NCR

Sl. No	Name of Thermal Power Station	Timeline for FGD	Current Status
1	Dadri (NCTPP), U.P Unit 1-4 (210X4 MW) NTPC	31.12.2019	FGD: Awarded on 26 Oct 18. Work in progress. DE-NOx: Statutory limits being complied. ESP: Statutory limits being complied.
	Dadri (NCTPP), U.P Unit 5-6 (490X2 MW) NTPC	31.12.2019	FGD: Awarded on 01 Feb 18. Work in progress DE-NOx: Combustion modification implemented. ESP: Statutory limits being complied.
2	GHTP (Lehra Mohabbat), Punjab Unit 1-4 (210X2 & 250X2 MW) PSPCL	31.12.2019	FGD: NIT issued. ESP: Matter being taken up with BHEL. De-NOx: Matter being taken up with BHEL.
3	Harduaganj, U.P Unit-8&9 (250X2 MW) UPRVNL	31.12.2019	FGD: NIT issued. ESP: Order has been placed to M/s NTPC on 29.11.18 for pre-award services. De-NOx: NIT floated on 08.03.2019.
4	Indira Gandhi STPP, Haryana Unit 1-3 (500X3 MW) NTPC	31.12.2019	FGD: Bid awarded. ESP: Statutory limits being complied. De-NOx: Awarded on 29 Oct 2018.
5	Mahatma Gandhi TPP, Haryana Unit-1-2 (660x2 MW) CLP	31.12.2019	FGD: Operation of FGD started. ESP: Statutory limits being complied. De-NOx: Combustion modification completed.
6	Panipat TPS, Haryana Unit-6 (1X210 MW) HPGCL	31.12.2019	FGD: NIT issued. ESP: SPM values are within limits. De-NOx: Combustion modification planned.
	Panipat TPS, Haryana Unit-7-8 (2X250 MW) HPGCL	31.12.2019	FGD: NIT issued. ESP: SPM values are within limits. De-NOx: Combustion modification planned.
7	Rajiv Gandhi TPS, Hisar, Haryana Unit-1 (2X600 MW) HPGCL	31.12.2019	FGD: NIT issued. ESP: Repair for ESP fields during overhauling in Oct- Nov. 2019. De-NOx: Combustion modification planned
8	Yamunanagar (DCTPS), Haryana Unit-1 (2X300 MW) HPGCL	31.12.2019	FGD: NIT issued. ESP: Repair for ESP fields during overhauling in Oct- Nov. 2019. De-NOx: Combustion modification planned.
9	Talwandi Sabo TPS, Mansa, Punjab Unit-1-3(660x3 MW) TSPL	31.12.2019	FGD: Technical bids opened. ESP: SPM are within the limits. Need to be certified by state govt. De-NOx: NIT issued for combustion modification.
10	Nabha Power Ltd, Rajpura, Punjab, Unit-1-2(700x2 MW) GMR	31.12.2019	FGD: Bid awarded. ESP: Statutory limits being complied. De-NOx: Low NOx burners installed.
11	GGSSTP Ropar (4x210 MW) PSPCL	31/12/2019	FGD: NIT issued. ESP: Already installed in Units 3 & 4, and to be upgraded in Unit 5 & 6 in 2019-20. De-NOx: NOx values are below specified limits.
	Total	12790 MW	

7.0 Flexible Operation of Thermal Power Stations

India's Intended Nationally Determined Contributions (INDCs) include a reduction in the emissions intensity of its GDP by 33 to 35 percent by 2030 from 2005 level, and to create an additional carbon sink of 2.5 to 3 billion tonnes of CO₂ equivalent. Generating power from renewable sources of energy is of cardinal importance if India is to meet its INDC targets. With the aim to ensure future security & reliability of power supply and stability of electricity grids while maximizing generation from renewables flexibilization of existing coal-fired power plants is an important measure.

7.1 A committee has been constituted in CEA to find out the level of flexibilization required from thermal power stations and future roadmap for integration of 175 MW RES generation into Indian grid by 2022. The committee has come up with the findings of the quantum of flexibilization, minimum thermal load, and ramp rate required in its interim report in June 2018. The final report of the committee was released by Secretary (Power) on 18th March 2019. The report has been shared with the stakeholders of power sector. A pilot test of 40% minimum load operation and 3% ramp up/ ramp down (i.e. 15 MW/ Min) has been successfully conducted in Dadri TPS of NTPC. Study at Anpara-B TPS of UPRVUNL and Vindhyachal TPS of NTPC is being conducted by JCOAL to improve the flexibility of the plants.

7.2 Another committee headed by Chief Engineer (TPRM), CEA was constituted to oversee the implementation of measures for flexible operation of TPPs on the basis of the pilot test. Based on the findings of CEA's flexibilisation report, the committee shall identify the thermal units in consultation of State/ Central utilities for the flexibilisation. The identified units shall undergo the pilot tests to ascertain their capability, do gap analysis and carry out modifications, if required. BHEL has conducted flexible operation pilot tests at Mouda TPS of NTPC and Sagardighi TPS of WBPDC. The salient outcome of the pilot tests are as follows:

A) Mouda TPS, NTPC, Nagpur, Maharashtra:

- i) Test Date : 29-09-2019
- ii) Unit No. : 2
- iii) Capacity : 500 MW
- iv) Following tests were conducted:

<u>Test</u>	<u>Target</u>	<u>Achieved</u>
a. Minimum Load Test at 40%	200 MW	200 MW
b. Ramp Test (3%)	3%/ mini	~1.1%/min
c. Ramp Test (1%)	1%/ mini	~0.55%/min

The list of important parameters was logged and taken by BHEL for further analysis and recommendation. The final analysis and recommendations are under finalization with BHEL.

B) Sagardighi TPS, WBPDC, Musheerabad, West Bengal:

- i) Test Date : 27-06-2019
- ii) Unit No. : 3
- iii) Unit Capacity : 500 MW
- iv) Following tests were conducted:

<u>Test</u>	<u>Target</u>	<u>Achieved</u>
a. Minimum Load Test at 40%	200 MW	200 MW
b. Ramp Up Test (3%)	3%/ min	~1.6%/min
c. Ramp Down Test (3%)	3%/ min	~2.6%/min
d. Ramp UpTest (3%)	1%/ min	~1.1%/min
e. Ramp Down Test (3%)	1%/ min	~0.67%/min

The flexibilisation test was conducted by BHEL team and was witnessed by representative from TPRM Division, CEA. BHEL will submit the detailed report after analyzing the test result.

C) Vindhyachal STPS, NTPC, Singrauli, Madhya Pradesh :

JCOAL selected NTPC's Vindhyachal Super Thermal Power Station (VSTPS) for flexibilisation study, based on the recommendation of Ministry of Power and Central Electricity Authority. JERA Co., Inc and Mitsubishi Research Institute, Inc have investigated concerning improvement of operational flexibility of No.11 unit

- i) Test Date : 06-03-2019
- ii) Unit No. : 11
- iii) Capacity : 500 MW
- iv) Following tests were conducted:

<u>Test</u>	<u>Target</u>	<u>Achieved</u>
f. Minimum Load Test at 40%	200 MW	275 MW
g. Ramp Up Test (3%)	3%/ min	~1.25%/min
h. Ramp Down Test (3%)	3%/ min	~1.67%/min
i. Ramp UpTest (3%)	1.5%/ min	~1.0%/min
j. Ramp Down Test (3%)	1.5%/ min	~0.7%/min

D) Anpara B TPS, Sonbhadra, Uttar Pradesh :

Study on Flexibilization has been carried out by JCOAL during the year 2018-19 at Anpara B (Unit 4&5 of 2*500MW) power plant of UPRVUNL in the state of Uttar Pradesh as a model of the possibility of introducing a system that can improve the efficiency of electric power infrastructure in India by utilizing IoT / AI which demonstrated the superiority of Japanese technology.

Anpara B power plant was operated at a load ramp rate of 0.47 to 1%. On the other hand, there is also a record of 23 MW/min (4.6%/min.) at the time of load down from the operation data. At the time of load up, confirmation including auxiliary equipment is necessary, but it has the potential to achieve 15 MW/min. (3%/min.), and the IoT/AI technology can extract the potential safely by applying it. In this clause, as a system stabilization measure of the power grid assumed to be necessary along with the increase of renewable energy in India, the feasibility of Plant loading (startup/ramping/shutdown) optimization technology using IoT/AI is examined. The plant load ramp rate at the Anpara B power plant has been proved at the time of construction at 1%/min, but since

then 1%/min load ramp rate was not necessary in the subsequent base load operation. Considering the current state of plant deterioration, it is recommended to use IoT / AI technology to confirm and operate with sufficient safety even though design capability is possible.

In addition, for application of load ramp rate 3%/min of CEA target, safety confirmation including auxiliaries such as mill and boiler feed water pump is necessary. The condition monitoring under IoT/AI technical monitoring can support the sufficient confirmation including design specifications.

8.1 “Coal-Fired Generation Rehabilitation Project-India” funded by World Bank.

The World Bank has financed the “Coal-Fired Generation Rehabilitation Project-India” for demonstrating Energy Efficiency Rehabilitation & Modernization (EE R&M) at coal fired generating units through rehabilitation of 640 MW of capacity across three States-West Bengal, Haryana and Maharashtra. The above project has two components: -

Component-1. Energy Efficiency R&M at Pilot Projects

This component would fund implementation of Energy Efficient R&M of 640 MW capacity comprising Bandel TPS Unit-5(210 MW) of WBPDC, Koradi TPS Unit-6(210 MW) of Mahagenco and Panipat TPS Unit-3&4 (2x110 MW) of HPGCL. The World Bank has earmarked US \$ 180 million of IBRD loan and US \$ 37.9 million of GEF grants for the Component-1.

Component-2. Technical Assistance to CEA and Utilities

The Technical Assistance component of the project is aimed at providing support in implementation of EE R&M pilots, developing a pipeline of EE R&M interventions, addressing barriers to EE R&M projects and strengthening institutional capacities of implementing agencies for improved operation and maintenance practices. The World Bank has earmarked US \$ 7.5 million GEF grant for the Component-2.

8.2 Japan-India Co-operation for Study on Efficiency and Environmental Improvement of Coal Fired Stations

A MOU between Central Electricity Authority and Japan Coal Energy Centre (JCOAL) for preliminary study of Efficiency and Environment improvement study in coal fired power plants was signed on 30.4.2010 to carryout necessary diagnostic activities in few coal-fired power plants pertaining to Energy Efficient Renovation & Modernisation works and suggest measures to overcome barriers for promoting R&M, measurement for environmental improvement of coal-fired power plants in India. Accordingly, generating units are selected from Ukai and Wanakbori TPS (GSECL), Ramagundem STPS (NTPC) and Vijaywada TPS (APGENCO) for pre – primary studies. After Pre-Primary Studies, JCOAL finalized 3 units viz., Vijaywada TPS Unit-1 (210MW) of APGENCO, Wanakbori TPS Unit-1 (200 MW) of GSECL and Kahelgaon STPS Unit-2 (210 MW) of NTPC for full-fledged diagnosis. The final report had been submitted in December 2012.

The 2nd Phase MOU between CEA and JCOAL was signed on 11.06.2012 for carrying out detail diagnostic study for energy efficiency oriented R&M activities in three nos. of units. Durgapur

TPS unit no.4 (210 MW LMZ Unit) of DVC and one unit each from Badarpur TPS and Unchahar TPS of NTPC were selected for studies during the 2nd phase. JCOAL team visited these stations during December, 2012. The final study report for energy efficiency oriented R&M activities was submitted on 15th April, 2013.

The 3rd Memorandum of Understanding (MoU) on India – Japan Cooperation for Project on Efficiency & Environment Improvement for Sustainable, Stable and Low Carbon Supply of Electricity was signed on 22nd January, 2016.

Under Clean Coal Technology (CCT) Programme a study tour to Japan was organised during the year 2018-19 from 24th October, 2018 to 1st November, 2018. 10 participants from CEA, MoP, DVC, NTPC and State Utilities visited the latest USC power stations at Japan. During current year 2019-20 a CCT training programme is to be organized for which nominations from concerned utilities have been received. The total 99 officers from MoP, CEA and different power utilities were participated till date in the study tour under CCT Training Programme.

Under CEA- JCOAL Co-operation a study on replacement of old units of Badarpur TPS by highly efficient super critical units of higher size has been carried out. JCOAL team has carried out three site surveys and investigations in the month of Nov, 2015, Jan, 2016 and in March, 2016. The report on the study has been submitted in June, 2016 by JCOAL.

JCOAL has also carried out feasibility study on replacement of Singrauli STPS Stg. I & II units (5x200 MW+2x200 MW) of NTPC between December, 2016 to March, 2017.

Unit-3 of Dadri TPS of NTPC was identified for implementation of full-fledged diagnosis study i.e. Residual Life Assessment (RLA) study. JCOAL team has conducted RLA/Diagnostic Study at Unit-3 Dadri TPS of NTPC from 30th November, 2015 to 10th of December, 2015. The report on RLA/CA study of Unit-3 of Dadri TPS has been submitted by JCOAL. The objective of the RLA Study is to identify the remaining life and the current condition of Unit -3, to constitute the base for formulation of the plan of R&M implementation that is tentatively scheduled in 2018.

One-day workshop on " Project on Efficiency and Environmental Improvement for Sustainable, Stable and Low-carbon Supply of Electricity" was held on 11th Nov, 2016 and 10th Nov 2017 at New Delhi by CEA and JCOAL. Various stake holders from Central/State/Private in power sector participated in the workshop.

A Meeting on Study on O&M enhancement of existing units of DSTPS, DVC under CEA-JCOAL Cooperation was held among NEDO, JCOAL, CEA and DVC on 13th October 2017 at Kolkata in order to share O&M and safety related best practices. The expert team from Japan also visited DSTPS, DVC and collected required data for the purpose of O&M Study from 11.12.2017 to 14.12.2017.

Interim Report of the Study was submitted by JCOAL on 15th Dec 2017. Final Report has been prepared and was submitted in May 2018.

Mini-workshops were organized on 30-1-2018 at GSECL(Gujrat) and on 01-02-2018 at APGENCO (Andhra Pradesh) respectively for the year 2017-18 under CEA-JCOAL Cooperation for the project on Efficiency and Environment improvement of Coal Fired Power Stations in India.

Under CEA- JCOAL Co-operation a study is being carried out by JCOAL on adoption of available technologies to meet new environment standards and the economic viability of using such technologies in existing power plants. Combustion test of Indian Coal has been done at Japan. The Report of Combustion test of Indian Coal has been submitted. SCR Pilot test at NTPC's Sipat TPS is being carried out to meet the NO_x level in the flue gas as per new environmental norms. A diagnostic study for optimal environmental measures at Dadri TPS was conducted in February, 2018 and debriefing meeting was held in June 2018.

Study on Flexibilisation has been carried out by JCOAL during the year 2018-19 at the following thermal power stations to enhance the flexible operation of the unit.

1. Anpara-B TPS of UPRVUNL: Unit 4&5 (2x 500 MW) in November and December 2018
2. Vindhyachal STPS of NTPC: Kick-off was held on 04-03-2019. Study carried out from 04-03-2019 to 09-03-2019.

Study report in respect of Anpara-B TPS of UPRVUNL has been submitted on 4th of July 2019 by JCOAL. A Debriefing meeting on flexibilisation Study at VSTPS, NTPC was held at NTPC Bhawan on 12th of June 2019. Report to be submitted by the JCOAL.

4th MoU to be signed between CEA and JCOAL is under process. The purpose of this MoU is to address issues and barriers in expediting sustainable, stable and low carbon thermal power development by means of studies, training program and knowledge-sharing activities, outcomes of which are to be conducive to overall power development in India as well as to expedite relevant policy implementation by the Government of India. Following activities to be carried out under 4th MoU:

- Update on the current and future policy trend in the Indian power sector.
- Consideration of the identified issues/barriers to find out those which could be addressed through mutual collaboration.
- Studies on implementation of environmental technologies at coal fired power generating units to comply with new environmental norms.
- Flexibilization measures at thermal generating units considering large scale intergration of renewable generation.
- Study on utilization of Biomass includes:
 - *Co firing of biomass pellets*
 - *Waste to Energy Technologies*
- Study on Coal GCV loss in power plant and its remedies
- Implementation of an annual workshop in India and CCT Training Programme in Japan
- Hold a joint meeting

**Status of units where Life Extension/ Renovation & Modernisation works have been taken up
for implementation during 2017-22**

STATE SECTOR LE Works

(as on 30.09.2019)

S.No.	State	Name of Station	Unit No.	Year of Comm.	Cap. (MW)	Status
1.	U.P.	Obra	12	1981	200	Unit is under s/d since 01-10-2016 for R&M works. LE Works started on 01.10.2016. Unit- 12 is synchronized on 24-09-2018. (Runs nearly at 125 MW, ESP pass-B incomplete) Due to fire incidence on 14-10-2018 in Obra TPS, unit #12 is under shut down. Restoration of the unit is under progress by BHEL. Expected to be resynchronised on 14-12-2019. Coal firing and full loading is expected on 15-12-2019. Pipe line work below ESP Hoppers in under progress. PLC activity has started & will be completed by 30th Nov 2019. Ash Slurry Pump: Foundation of 1st Series will be completed by end of Oct 2019. Commissioning of 2nd Series will be completed by 15-11-2019.
2.	U.P.	Obra	13	1982	200	Date of commissioning earlier given by M/s. BHEL was 31-12-2018. Revised date of commissioning given by BHEL is 15-05-2020 (Due to major fire incidence took place on 14-10-2018). R&M works started from 17-05-2018. Unit is under s/d from 16-05-2018 Boiler: 32% work completed. Boiler light up is expected on 11-03-2020. Turbine: 10% work completed. HP rotor blades to be replaced and likely to be dispatched from Haridwar by 1st week of Nov. Generator: 10% work completed. ESP: Pass A: 0%. BHEL has started mechanical erection on 11-10-2019. UNL told that there was no space constraint and requested to augment manpower and work in 2 shifts to meet the schedule. Pass B: 25% work completed. Manpower increased to 92 nos. and resources are already augmented, expected to complete by mid Dec,19. Ash Handling: 20% work completed. Switchyard 400 kV CB: yet to start WTP: 98% work completed CHP: 60% work completed Erection work in cooling tower is in progress and is likely to be completed by Dec 2019. O/H of 3 nos. SF₆ (400kV) transmission CBs.

S.No.	State	Name of Station	Unit No.	Year of Comm.	Cap. (MW)	Status
3.	U.P.	Anpara TPS	1	1986	210	LE works yet to be decided by the utility
4.	U.P.	Anpara TPS	2	1987	210	LE works yet to be decided by the utility
5.	U.P.	Anpara TPS	3	1988	210	LE works yet to be decided by the utility
6.	Gujarat	Ukai	3	1979	200	ESP R&M: ESP retrofitting of unit-3 has been completed and unit lit up on 26-04-2016. PG test has been carried out and guarantee parameter achieved. Turbine & Boiler R&M: Turbine & boiler R&M work of UTPS Unit#3 has been dropped. C&I Up-gradation: - Order of awarded for C&I upgradation to BHEL on 18.06.2015. C&I upgradation of Unit-3 has been completed and unit lit up 26-04-2016. Ash slurry pump house: - LOI issued to M/s Deccan Mechanical & Chemical Industries Pvt. Ltd., Pune on 29-05-2018 at the cost of Rs. 13.87 Crs .was cancelled. Tender re-invited for subject work, offers received. Technical scrutiny completed and price bid opened on 24-04-2019. Order awarded to M/s Mecgale Pneumatics Pvt. Ltd., Nagpur. Geo-technical survey completed and design engineering work is under progress.
7.	Gujarat	Ukai	4	1979	200	Ukai TPS Unit -4 was taken under S/D on 07-12-2016, unit lit up on 04-05-2017 and synchronised on 17.05.2017 and COD achieved on 24.05.2017. PG test for retrofitted ESP, Boiler after modification and retrofitted Turbine was completed on 17-06-2017, 23-08-2017 and 02-11-2017 respectively. Guaranty parameters achieved. Boiler Back Pass Modification: Order awarded to BHEL for availability & efficiency improvement through modification in Boiler Back Pass and replacement of APH. Work completed and unit lit up on 04-05-2017 and synchronized on 17-05-2017. PG test carried out and guaranty parameter achieved. C&I Upgradation by utilizing R&M material of 2x120 MW GTPS unit no . 1&2.: Order awarded to BHEL on 18-06-2015. Work completed and unit lit up on 04-05-2017. LOI issued to M/s Deccan Mechanical & Chemical Industries Pvt. Ltd., Pune on 29-05-2018 at the cost of Rs. 13.87 Crs .was cancelled. Tender re-invited for subject work, offers received. Technical scrutiny completed and price bid opened on 24-04-2019. Order awarded to M/s Mecgale Pneumatics Pvt. Ltd., Nagpur. Geo-technical survey completed and design engineering work is under progress.
8.	Gujarat	Ukai	5	1985	200	ESP R&M: ESP retrofitting of Ukai unit-5 completed and unit lit up on 29-03-2017. PG test of ESP has been completed. Turbine & Boiler R&M It is decided to carry out turbine R&M of UTPS#5 only at present. Hence consultancy order for R&M of turbine & boiler and its auxiliaries considering heat rate (efficiency) improvement with ramping up/ down of the load and PG test of

S.No.	State	Name of Station	Unit No.	Year of Comm.	Cap. (MW)	Status
						is amended for consultancy of turbine R&M of UTPS Unit#5 only. Tender is floated on 04-11-2018 and pre bid meeting held on 18-12-2018. Technical bids are opened on 08-05-2019 and offer under technical scrutiny. Price bids are opened on 25-07-2019 and file is under approval. Boiler back pass Modification work of UTPS unit#5 is dropped. LOI issued to M/s Deccan Mechanical & Chemical Industries Pvt. Ltd., Pune on 29-05-2018 at the cost of Rs. 13.87 Crs .was cancelled. Tender re-invited for subject work, offers received. Technical scrutiny completed and price bid opened on 24-04-2019. Order awarded to M/s Mecgale Pneumatics Pvt. Ltd., Nagpur. Geo-technical survey completed and design engineering work is under progress.
9.	Gujarat	Wanakbori	1	1982	210	For implementation of DeNOx system, GSECL is awaiting the results of pilot projects of NTPC.
10.	Gujarat	Wanakbori	2	1983	210	ESP R&M: The order for retrofitting is issued to BHEL on 18.03.2016 and Zero date started from 14-01-2016. ESP retrofitting of unit-1 &2 completed and units lit up on 07-03-2017 and 07-04-2018 respectively. PG test of WTPS units#1&2 completed. Turbine & Boiler R&M: Turbine & boiler R&M work of UTPS Unit#1&2 has been dropped. C&I Upgradation: Energy efficiency Improvement done through up-gradation of C&I in unit#1&2. C&I work completed on 11-03-2017 in unit#1 and 17-07-2012 in unit#2. Boiler back pass Modification work of UTPS unit#1&2 has been dropped. Meanwhile, GSECL has initiated feasibility study for replacement of WTPS 2x 210 MW Units by 1x800 MW Super Critical Units. Pending work of Unit-1&2, Bus coupler will be carried out in available shutdown.

S.No.	State	Name of Station	Unit No.	Year of Comm.	Cap. (MW)	Status
11.	Gujarat	Wanakbori	3		210	LE work completed and unit synchronised on 05-12-2017. ESP Retrofitting work Shutdown of WTPS Unit No. 3 is commenced from 25.07.2017. ESP retrofitting unit -3 completed and unit lit up on 27-11-2017. PG test completed and guaranty parameters achieved. Turbine R&M:- Order awarded to M/s NASL Noida on 29-04-2015 and zero date started from 10.03.2015. Turbine R&M of Wankbori Unit -3 completed and unit lit up 27-11-2017 and 72 hrs. Trial run on full load completed successfully on 5-12-2017. PG test carried out on 10-03-2018 and guaranteed parameters achieved. Boiler Back Pass Modification: - Order awarded to M/s BHEL for availability & efficiency improvement through modification in Boiler back pass and replacement of APH. Boiler back pass modification and APH replacement work completed and unit lit up on 27-11.2017 and synchronized on 01.12.2017. PG test carried out on 09-03-2018 and guaranteed parameters achieved.
11.	Maharashtra	Koradi	6	1982	210	LE work completed and unit synchronised on 16-07-2018 with oil & 20-08-2018 with coal. The unit is being taken up by WB funded project. The total cost of the project including IDC is 636.93 crores. The unit is under shutdown since 25th August, 2015 BTG Package: Mahagenco issued that the Letter of Award to BHEL on May 31, 2013. The contract was signed on December 18, 2013. Overall 99.25% material has been supplied at site. Overall (physical progress) 96% work of BTG package completed. Approximately 98.34% of the material (on Amount basis) is supplied by BHEL at site & further supply is in progress. Major BTG works are completed except CPU erection and commissioning (50 T capacity), SWAS System, EHG/ ATRS/ PAO demonstration and works identified as punch points such as grating, railings, drains etc. Civil work of ESP 98% completed. C&I/Electrical System: UPS- 98% completed. 24V charger& battery work is 95% completed & Pre- commissioning of system/ auxiliaries, BLU through new DCS. Electrical Package: Mahagenco issued the Letter of Award to M/s ABB Ltd on March 19, 2012 and the final contract was signed on May 25, 2012. Later on the package price escalation issue was resolved & M/s ABB restarted the work at site from 07.10.2015. Overall 92% work of Electrical package completed. Approximately 92% of the material (on Amount basis) is

S.No.	State	Name of Station	Unit No.	Year of Comm.	Cap. (MW)	Status
						supplied by M/s ABB at site & further supply is in progress. Following works are balance: - HT Motor 4/29 balance (supply balance 1 no.), LT motors Supply balance 3 Nos. - Replacement of 9 LT is balance. - Illumination works-Boiler: 90% completed, Turbine Floor area: 80% completed. Turbine Hall lower elevations: 30% completed. - Supply & installation of Hoists for PA and FD Fans is balance. BOP Package: Letter of Award (LOA) for Cooling Tower Plant Package, Ash Handling Plant package and Fire Detection, Protection & Inert Gas System Package are issued and contract is signed on 23.09.2016, 26.10.2016 & 05.11.2016 respectively. DM Plant & Pre-Treatment System Package has been cancelled. The need based refurbishment of 2 streams of DM is in progress. Orders for 87.27 Lakh are placed and work is almost completed. Under Cooling Tower Plant Package overall 95% work completed and 99.67% of overall material has been supplied at site. PG test of Cooling Tower and Aux. Tower completed from 19-04-2019 to 26-04-2019. Design Engg. work is completed of Ash Handling Plant. 97.96% material supplied at site, overall 95% work completed. For Fire Detection, Protection & Inert Gas System Package, overall material supplied at site is 100% and Installation and civil works completed. Only Dump Test is balance.
12.	Maharashtra	Koradi	7	1983	210	R&M/LE study not carried out
13.	Maharashtra	Bhusawal	2	1979	210	All studies Completed, Final DPR received from M/s Energo Engg Ltd has been approved by MSPGCL Board in May, 2016. Further, MSPGCL Board directed that no other R&M work shall be taken up without monitoring results of Koradi U-6. This unit is permanently decommissioned on 01-04-2017.
14.	Maharashtra	Bhusawal	3	1982	210	RLA/ Feasibility study for EER&M has not been carried out.
15.	Maharashtra	Nashik	3	1979	210	DPR finalised, Govt. of Maharashtra has approved 20% equity. The unit-3 was to be taken up under KfW funded project. All studies completed, and DPR has been prepared. Also Tender documents have been prepared. But Nasik Unit-3 R&M project withheld and Nasik Unit -4 R&M shall be taken up on priority. Further, MSPGCL Board directed that no other R&M work shall be taken up without monitoring results of Koradi U-6.
16.	Maharashtra	Nashik	4	1980	210	All studies Completed, Final DPR is submitted by M/s Steag. MSPGCL Board approved the DPR. Nasik Unit -4 R&M shall be taken up on priority. Further, MSPGCL Board directed that no other R&M work shall be taken up without monitoring results of Koradi U-6.

S.No.	State	Name of Station	Unit No.	Year of Comm.	Cap. (MW)	Status
17.	Maharashtra	Nashik	5	1981	210	All studies Completed, Final DPR is submitted by M/s Steag. MSPGCL. Board approved the DPR. MSPGCL Board directed that no other R&M work shall be taken up without monitoring results of Koradi U-6.
18.	Maharashtra	Parli	4	1985	210	RLA/Feasibility study for EER&M not carried out.
19.	Maharashtra	Parli	5	1987	210	RLA/Feasibility study for EER&M not carried out.
20.	Maharashtra	Chandrapur	3	1983	210	RLA/Feasibility study for EER&M not carried out.
21.	Maharashtra	Chandrapur	4	1984	210	RLA/Feasibility study for EER&M not carried out.
22.	Maharashtra	Chandrapur	5	1983	500	Feasibility study for EER&M not carried out.
23.	Maharashtra	Chandrapur	6	1984	500	Feasibility study for EER&M not carried out.
24.	Maharashtra	Khaperkheda	1	1989	210	RLA/Feasibility study for EER&M not carried out.
25.	Maharashtra	Khaperkheda	2	1990	210	RLA/Feasibility study for EER&M not carried out.
26.	Bihar	Barauni	6	1983	110	BTPS has been transferred to NTPC on 15-12-2018. COD of unit#7 achieved on 04-11-2016. Equipment Trials and recommissioning is in progress. ECL coal agreement is pending due to ECL pending claims for 21.91 Cr. Unit # 6 TG rolling was done by BHEL/ BSPGCL in July 2018. BHEL has stopped further works. BHEL resumed work after payment of 8 crores on 20.03.2019 but BHEL has not started CHP and AHP area works. BSPGCL has withheld RS 16.93 crores against railway siding works of BHEL executed by RITES as BHEL was not ready to complete railway line R&M works. BHEL has agreed for a deduction of 2 crores and requested for release of payment to complete the payment to BHEL sub contractors. Balance works for synchronization, trial run and commercial operation schedule of Unit no. 6 is pending. Following works are pending in CHP area a) Dust suppression system b) Belt Weigher c)Chute flap gate operation d) Zero speed switches to be commissioned e) Fire sprinkler to conveyors Following works are pending in AHP a) Unit # 6 AHP Plc and UPS commissioning b) 3 nos of Vacuum Pumps 3) Dry Ash Buffer hopper evacuation system Fire Detection system and Protection works is pending.s ID FAN and FD fan started and Gas Distribution tested done recently. - PG tests for both units are to be completed. Expected date of Commissioning is 31-12-2019.
27.	W.Bengal	Kolaghat	1	1990	210	DPR has been prepared and accepted. After successful completion of the unit-3 work the R&M works of the Unit -1&2 will be taken up.

S.No.	State	Name of Station	Unit No.	Year of Comm.	Cap. (MW)	Status																												
28.	W.Bengal	Kolaghat	2	1985	210	DPR has been prepared and accepted. After successful completion of the unit No. 3 work the R&M works of the Unit No 1&2 will be taken up.																												
29.	W.Bengal	Kolaghat	3	1984	210	Estimated cost of L.E.of Unit# 1,2&3: 1090 Crs U# 1, 2 & 3: There are 3 packages (ESP, AHP & BTG). ESP (1,2,3) : LOA placed on M/s KCIN. Starting date is 22.03.17. (Schedule is 35 months from LOA). ESP (unit- 3): Mechanical erection work is in progress. ESP (unit- 1): Dismantling work under progress. AHP (1,2,3): LOA placed on M/s Indure. Starting date 26/07/2017. (schedule is 29 months from LOA) Unit#3 Dismantling work is completed. BTG (1,2,3): WBPDC Board has approved for retendering of new BTG package with higher capacity mills. Accordingly, earlier NIT is cancelled. Boiler & Auxiliary System: - DPR is ready. WBPDC Board has approved for retendering of new BTG package with higher capacity mills. Accordingly, earlier NIT is cancelled. Re-tendering is under process.NIT floated BOP: - Clarifloculator:- WBPDC Board has approved for retendering of new BTG package with higher capacity mills. Accordingly, earlier NIT is cancelled. Under preparation of bid documents. ESP: U#3: Hot gas commissioning was done on 14-09-2019. Further tuning and stabilization cannot be done due to boiler tube package. U#1: Dismantling work completed. Civil pile work completed. Pile cap work is under progress. AHP: U#3: Commissioning done in wet mode. U#1: Civil pile work (FAE tower) completed .Pile cap work is under progress. Electrical and Instrumentation: - Technical bids are submitted on 03-01-2018. <table><tr><th colspan="2">Electrical</th></tr><tr><td>1</td><td>GPR and 2 breaker Relay</td></tr><tr><td></td><td>WBPDC Board has approved for retendering of new BTG package with higher capacity mills. Accordingly, earlier NIT is cancelled.</td></tr><tr><th colspan="2">Instrumentation</th></tr><tr><td>1</td><td>ESP</td></tr><tr><td></td><td>Engg. going on. C&I : No material has been received at site and no erection has been started.</td></tr><tr><td>2</td><td>AHP</td></tr><tr><td></td><td>-do-</td></tr><tr><td>3</td><td>Governing System</td></tr><tr><td></td><td>WBPDC Board has approved for retendering of new BTG package with higher capacity mills. Accordingly, earlier NIT is cancelled.</td></tr><tr><td>4</td><td>Upgradation/ replacement of instrumentation system as per mechanical scope of work.</td></tr><tr><td></td><td>-do-</td></tr><tr><td>5</td><td>Incorporation of</td></tr><tr><td></td><td>-do-</td></tr></table>	Electrical		1	GPR and 2 breaker Relay		WBPDC Board has approved for retendering of new BTG package with higher capacity mills. Accordingly, earlier NIT is cancelled.	Instrumentation		1	ESP		Engg. going on. C&I : No material has been received at site and no erection has been started.	2	AHP		-do-	3	Governing System		WBPDC Board has approved for retendering of new BTG package with higher capacity mills. Accordingly, earlier NIT is cancelled.	4	Upgradation/ replacement of instrumentation system as per mechanical scope of work.		-do-	5	Incorporation of		-do-
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S.No.	State	Name of Station	Unit No.	Year of Comm.	Cap. (MW)	Status
						ATRS NOTE: Shutdown of ESP and AHP shall be matched. BTG package of Unit-1 and 2 shall be matched with respective ESP and AHP. BTG Package of unit-3 shall start last if situation permits. Total estimated cost of R&M/LE works is Rs. 1090 Crs for unit-1,2 & 3. Financial progress: ESP (unit#1,2&3)- Payment of Rs 51.67 crore was made for ESP up to 30-09-2019. AHP (unit#1,2&3)- Payment of Rs. 31.76 crore was made for AHP till 30-09-2019.
30.	W.Bengal	Kolaghat	5	1991	210	Estimated cost of LE of Unit#4, 5&6 is 25 Crs. U# 4, 5 & 6 : Only 1 package for ESP ESP Package: LOA is placed on M/s Soil & Enviro Industries Pvt. Ltd to achieve ESP O/L dust burden to 50mg/Nm³ from 200mg/Nm³ by replacement of controller/ TR Set and addition of filter column. ESP #6: Payment of Rs. 5 Crs. was made for unit#6 ESP. Hot gas commissioning was done on 11-09-2019.
31.	Karnataka	Raichur	1	1985	210	Actual date of start of R&M/LE (unit#1,2&3) is 2017-18 and expected to be completed in 48 months from start of work. LE works to be carried out in following two phases: Phase 1: BTG, Retrofitting of ESP & Electrical package Phase-2: BOP- Non BHEL package. Replacement of APH module, TG (C&I) and station (C&I) works completed. DPR is being revised, duly incorporating additional works in the R&M/LE scope of work is put up for Head Office approval. Once the DPR is approved, same will be submitted to KERC for approval. Project cost is Rs. 1240.18 crores (for phase 1,2&3). Expenditure incurred till date is 261.208 Crs. However, all the efforts are being made to reduce the R&M expenditure to minimum considering essential works required for enhancing performance/ Heat Rate. KPCL has engaged a consultant to explore the technologies/ possibilities to meet the new environmental norms. Consultant has submitted feasibility reports/DPR. The same has been put up to HO. After finalization of DPR, KPCL will take decision on comprehensive R&M Works of unit 1&2 according to the recommendations of DPR. FGD tender was published in Karnataka e-portal website on 21-12-2018 and 09.03.2019. R&M of unit #1&2: Letter of award for retrofitting of 03Nos. Microprocessor Controller based Rotary Type Gravimetric Coal Feeder for RTPS, 2X210 MW issued on 01-03-2019.
32.	Karnataka	Raichur	2	1986	210	

S.No.	State	Name of Station	Unit No.	Year of Comm.	Cap. (MW)	Status
33.	Karnataka	Raichur	3	1991	210	M/s Energo Engineers Projects limited., Gurgaon is appointed as consultant for conducting Feasibility studies, Preparation of DPR, Technical Specifications & Bid Document and assisting KPCL in selection of EPC contractor for R&M of 210 MW Coal fired TPS Unit-3, at RTPS. As a part of Comprehensive R&M of unit-3 consultant conducted Energy Audit during the month of Feb-17 & Condition assessment during the month of March-17, and carried out RLA studies of Boiler in month of June-2017. Awaiting for EA & RLA reports form the consultant. The reports will be submitted by the firm after completing some of the pending works of Energy Audit. M/s. Energo Engineers, Gurgaon has not completed the work as per the contract terms and conditions. Also, it is learnt from Public Announcement that M/s. Energo Engineers was declared insolvency on 21-08-2018 and referred to National Company Law Tribunal (NCLT), New Delhi. Therefore, offers were obtained from CEA empaneled agencies for conducting RLA/ CA studies of BTG etc. The offers are under scrutiny. Preparation of tender document for R&M works for Turbine is under progress. LOA has been placed for R&M of I&C system pertaining of BTG package.
Sub Total State Sector (LE)			34		7570	

**STATE SECTOR
(R&M Programme)**

S.No.	State	Name of Station	Unit No.	Year of Comm.	Cap. (MW)	Status
1.	U.P.	Obra	7	1974	100	- Work is being executed by BHEL. - Zero date of the scheme is 04.12.2009. Unit was scheduled on 23 months from zero date i.e Nov 2011. The revised cost of R&M scheme for unit 7 is 144.11 crores. All mechanical works completed. Light up of unit was withheld due to fire in 6.6 kV breaker in Nov., 2016. BHEL and Scheider experts are called to assess the extent of damage and submit list of required spares for revival of switchgear of the unit. Erection work has been completed. Boiler: 100% work completed (steam blowing done). Turbine: 100% work completed (Only rolling pending). Generator: 99% work completed (Only H₂ filling pending) BoP: 100% work completed (only mill-7A trial pending. Reserve supply required) Restoration of electrical supply in S/G room is under progress.
2.	U.P.	Anpara'B	4	1993	500	R&M works is being executed by BHEL & M/s MITSUI & Toshiba OEM, Japan. – Total cost of scheme is Rs. 691.97 cr. Total expenditure upto 31.03.2019 is 485.00 crs. Boiler: Nearly 85% work completed. TG: Nearly 85% work completed. Electrical +& Instrumentation: Nearly 85% work completed. BOP: Nearly 85% work completed. - The R&M work would be carried out in AOH and are likely to be completed by 30-09-2019. Utility decided to carry out Feasibility Study to meet the environmental norms.
3.	U.P.	Anpara'B	5	1994	500	
4.	Punjab	Ropar	1	1984	210	Retired from 01-01-2018
5.	Punjab	Ropar	2	1985	210	
6.	Punjab	Ropar	5	1992	210	RLA/CA Study already stands conducted. The consultant M/S NTPC had prepared the DPR on the basis of RLA/CA study & submitted it to GGSSTP, Rupnagar. Further GGSSTP has submitted the same to the erstwhile PSEB for approval of the major R&M/LE Works. R&M scheme are categorised into four groups as under: Breakers have been fitted & commissioned in the 220KV Switch yard. Work New Replacement of steam & water analysis system have been installed & commissioned on unit 1-6. All the requisitioned valves have been retrofitted & commissioned, while on unit-2, 90% of valves has been retrofitted. The electro Mechanical Vibratory Feeders at ERH in CHP has been installed & commissioned in units 3 to 6. Upgradation of wagon Tripper No.3 in coal handling plant of GGSSTP, magnetic separators on conveyors in CHP has been installed & commissioned. Replacement of High impedance bus bar protection with numerical type relays. Material has been supplied by BHEL for the replacement of existing APH with modified design24 Sector APH on unit 1 & 2. But due to Punjab Govt. decision to permanently close unit 1& 2 of Ropar TPS, APH would be installed on unit 6 during
7.	Punjab	Ropar	6	2001	210	

S.No.	State	Name of Station	Unit No.	Year of Comm.	Cap. (MW)	Status
						next overhauling in November & December 2019. Phase-II Migration of WDPF System to Ovation system on Unit-5 completed. Replacement of minimum oil circuit breakers (MOCBs) with vacuum circuit breakers of units 3,4,5 &6 would be carried out during the Year 2018-19. Replacement of Fire Detection & Annunciation system at various locations including cable galleries of Ropar TPS would be carried out in the year 2020-21. Replacement of ESP controllers of stage 3 would be taken up in 2019-20. Replacement of MCC Panels & Control Desks of 3 Nos. of stacker Reclaimers of CHP would be carried out in 20120-21. Procurement, Installation and commissioning of Air Born Dust Suppression system based on water mist technology for Wagon trippler 1&2 will taken up in 2020-21. Erection & commissioning of cooling water supply system for Air Compressors installed for dry fly ash handling system & to provide DM water will be taken up in 2019-20.
8.	Punjab	GH TPS (Leh. Moh.)	1	1997	210	PSPCL has intimated that none of 4 units of GHTP, Lehra Mohabbat has been included in the list of potential units requiring R&M/ LE during 2017-22. FGD: Order for consultancy for preparation of tender specification has been placed on NTPC, Noida on 18-10-2018. Consultant has submitted DFR and on this basis agenda is being prepared for the administrative approval of BODs.
9.	Punjab	GH TPS (Leh. Moh.)	2	1997	210	
10.	Rajasthan	Kota	3	1988	210	Total 14 activities sanctioned for R&M. Estimated cost of R&M is Rs. 356.13 crores. Expenditure incurred till date is Rs.196 Crs. - 11 nos of works fully completed. - R&M work of CHP system is under progress. Order placed to M/s. Energo Engineering Projects Ltd. is terminated. Preparation of NIT is in progress for balance work of CHP- R&M. - Installation of Vacuum pump is under progress, placed to M/s. Millenium Impex Pvt. Ltd. - 01 no. work of Air Compressor replacement has been dropped due to technical reasons. - E- Tender for VFD cancelled due to technical reasons. <u>Proposal for additional capitalisation during the year 2017-22 amounting to approx. Rs. 24 Crores under approval of BOD.</u> - Replacement of existing BHEL make Procontrol P-13 SG-TG system of unit#5. (12.97 Crs) -Supply and ETC of vatable frequency drive on ID fan motor(4nos.) of unit#6&7 (8.75 Crs.) - Supply, Design, installation, testing and ommissioning of online energy accounting and management system of KSTPS (22.4 Crs.)
11.	Rajasthan	Kota	4	1989	210	
12.	Rajasthan	Kota	5	1994	125	
13.	Rajasthan	Suratgarh TPS	1	1998	250	Estimated cost of RLA of Boilers of unit 1-5 is .291 Crs.. Executing agency is IRC Engineering Services India Pvt. Ltd., New Delhi. Total 16 activities sanctioned for R&M/ LE works. - 13 activities have been completed. - Old NIT is dropped & New NIT will be floated for providing Dense Phase Conveying System from existing intermediate Silo System of ESP. - Activity dropped for Valve Less Auto-wash Gravity Filter & Automatic self-cleaning Filter for unit No. 1&2.
14.	Rajasthan	Suratgarh TPS	2	2000	250	
15.	Rajasthan	Suratgarh TPS	3	2001	250	
16.	Rajasthan	Suratgarh TPS	4	2002	250	

S.No.	State	Name of Station	Unit No.	Year of Comm.	Cap. (MW)	Status												
						- Activity dropped for Installation of Belt Wash System of conveyer of CHP. -Modification in ACW system of Unit 1& 2 has been completed on 28.01.2017. -Augmentation of DMCCW system of Unit 1 &2 completed in September, 2016 -Blow down system for cooling Tower of Unit 2,3, 4&5 completed in 2015. -Replacement of LR beam of ESO on Unit-1 completed in financial year 2018-19. -SOx, NOx & CO Analyser for Unit 2,3 &4 has been completed on 15.02.2017 -Upgradation of HMI system of unit 2 completed on 06.09.2016. -Upgradation of workshop completed.												
17.	Chhattisgarh	Korba (West)	1	1983	210	CSPGCL has taken-up need based R&M for life extension on the basis of R&LA studies and also taken up R&M plan for compliance of new environmental norms. The CSERC in its order dated 61-03-2016 has approved such scheme under capital investment plan for financial year 2016-17 to 2020-21. RLA studies done by M/s Evonik. Scope of work of Boiler, Turbine, Electrical Instrumentation, Civil and BOP is being finalised. <table><tr><td>1.</td><td>Augmentation, Renovation & Up-gradation of ESPs to maintain the stack Emission level 50mg/Nm³</td><td>Unit No.2: R&M work has been completed, PG Test is to be carried out. Unit No. 1: R&M work of CD Pass has been completed and erection work of 1 AB Pass is under progress. Unit No. 3: Civil work has been completed & erection of new ESP is under progress. Unit No. 4: Civil work has been completed. Erection of new ESP is under progress.</td></tr><tr><td>2.</td><td>Augmentation of DDCMIS</td><td>Detailed order issued to BHEL for supply & services. Detailed Engineering work is under progress. Supply commenced site mobilization started from 29-08-2019.</td></tr><tr><td>3.</td><td>Fire Protection System of Transformer & Oil handling tanks areas</td><td>LOI has been issued on 03-04-2019. Detailed order has been issued on dated 04-05-2019.Retendering to be done.</td></tr><tr><td>4.</td><td>Installation of FGD System</td><td>DPR prepared. Detailed order has been issued to M/S. DCPL, as consultant for preparation of Tender Specifications. NIT Expected by 20-10-2019.</td></tr></table>	1.	Augmentation, Renovation & Up-gradation of ESPs to maintain the stack Emission level 50mg/Nm ³	Unit No.2: R&M work has been completed, PG Test is to be carried out. Unit No. 1: R&M work of CD Pass has been completed and erection work of 1 AB Pass is under progress. Unit No. 3: Civil work has been completed & erection of new ESP is under progress. Unit No. 4: Civil work has been completed. Erection of new ESP is under progress.	2.	Augmentation of DDCMIS	Detailed order issued to BHEL for supply & services. Detailed Engineering work is under progress. Supply commenced site mobilization started from 29-08-2019.	3.	Fire Protection System of Transformer & Oil handling tanks areas	LOI has been issued on 03-04-2019. Detailed order has been issued on dated 04-05-2019.Retendering to be done.	4.	Installation of FGD System	DPR prepared. Detailed order has been issued to M/S. DCPL, as consultant for preparation of Tender Specifications. NIT Expected by 20-10-2019.
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19.	Chhattisgarh	Korba (West)	3	1985	210													
20.	Chhattisgarh	Korba (West)	4	1986	210													
21.	M.P.	Sanjay Gandhi	1	1993	210	Unit-1 –The consultant has completed RLA/CA Studies of unit#1 & 2 in Dec 2014 and August 2016 respectively submitted the DPR in March 2015 and January 2017. Executing Agency will be finalised through open tendering process in due course of time. The R&M work has been divided into 4 no of packages. 1. Boiler 2. TG 3. BOP 4. R&M of Electrical & C&I To capitalise the expenditure proposed to be incurred in these R&M works of SGTPS, Birsingpur, a petition was filed before Hon’ble MPERC in the month of April 2017. After exchange of various correspondences, the Hon’ble commission vide order dated 27-12 2017 refused to consider the proposal because of various objections raised by stake holders.												
22.	M.P.	Sanjay Gandhi	2	1994	210													

S.No.	State	Name of Station	Unit No.	Year of Comm.	Cap. (MW)	Status
						However, the commission stated in the order that MPPGCL is at liberty to approach them with a fresh proposal considering the objection & observation of stake holders. After detailes analysis, aproposal was submitted before BOD of MPPGCL in the meeting held on 12-09-2018 for dropping the proposal of carrying out comprehensive R&M work in 210 MW units of SGTPS and availing the special allowance till MoE&F permits. After detailed deliberations, the BoD resolved to constitute a committee to analyse the above proposal. Accordingly, a sub-committee has been formed. A meeting of committee was held on 11-01-2019 at Jabalpur. Next meeting will be held shortly. After deliberations, the committee will submit its recommendations. M/s FICHTNER consulting Engineers (India) Ltd. appointed as consultant to carry out feasibility study and preparation of tender document for installation of FGD & other equipment in April 2018. Recommendation cum DPR submitted by consultant. Has been accepted by MPPGCL. Technical and commercial specification are under preparation. Placement of order will be done by June 2019 and installation of FGD completed by September 2021-March 2022. i) Boiler- Replacement of Pendent Reheater coils and APH tubes with plates, replacement of all safety valves and hangers, re-insulation work after replacement/repairing of boiler pressure parts. ii) TG- Replacement of HP, IP and LP Turbine modules with new improved design. iii) BOP- Replacement of Hydrogen Generation Plant, Complete rehabilitation of almost one non-working stream and refurbishment of damaged parts of one working stream in Ash Handling System, rehabilitation of Fire Fighting system piping, CW System, ACW System, Raw Water System and Fuel oil handling system etc. iv) Electrical and CI-Retrofitting of old 6.6kV SF₆ CB, SFU of LT boards with draw based protection etc. Replacement of 6.6kV energy efficient motors for coal mills and PA Fans. Replacement of complete of complete C&I system to DCS from old analog system.
23.	Maharashtra	Chandrapur	7	1997	500	RLA/Feasibility study for EER&M not carried out.
24.	Maharashtra	Khaperkheda	3	2000	210	RLA/Feasibility study for EER&M not carried out.
25.	Maharashtra	Khaperkheda	4	2001	210	RLA/Feasibility study for EER&M not carried out.
26.	Tamil Nadu	Tuticorin TPS	1	1978	210	1st and 2nd RLA already completed. T.G.: -. Strengthening of weak insulation of Boiler work completed (1066 m²) during 2018-19, balance work (650 m²) will carried out during 2019-20. All diaphragm in HP, IP & LP had been renewed & work completed during 2009-10. Electrical & C&I: - Existing 3 nos. single phase GT were replaced by new one during 2012-13. BOP: -Replacement of complete ESP internals. Modification of APH sealing system by double sealing completed during 2009-10. Complete replacement of economizer coils assembly, LTSH supply tubes and straight tubes panels for super heater rear wall near economizer- P.O. placed on

S.No.	State	Name of Station	Unit No.	Year of Comm.	Cap. (MW)	Status
						Micro Spares, Chennai on 21-08-2018. Delivery period is within 60 days and erection will be done within 20 days from handing over of site. Supply of material completed on 05-01-2019. Works completed on 22-08-2019. P O placed to BHEL for Retrofitting of condenser on 25-05-2018. Delivery period is within 8 months and erection will be done within 60 days from the date of handing over of site (July to August 2019). Material supply has been completed. Erection works under progress from 26-07-2019. Administrative approval for Distributed Digital Control Monitoring and Information System (DDCMIS) accorded on 29-12-2015. P.O. proposal sent to HQ on 14-05-2019. Reply to remarks of sent to HQ on 21-06-2019. Approval accorded on 05-03-2019 for installation of FGD. Letter of acceptance sent to M/s. MECON Ltd., Ranchi on 16-04-2019 for consultancy. Inspection done for feasibility study for installation of FGD. Report awaited. Administrative approval accorded on 29-12-2018 for Augmentation of ESP. Tender specification sent to HQ on 04-03-2019 for BLTC approval. Administrative approval accorded for Replacement of 2 nos of Primary Air Fan motors with journals bearing by new motors with antifriction bearings in units I, II & III. Tender opened on 03-07-2018. Price bid open on 20-02-2019. Tender evaluation is under progress. P O issued on 21-06-2019. Supply of materials: 4 months from the date of receipt of P O. Erection: within 60 days from the date of handing over of site. Purchase order issued to BHEL, Chennai on 25-05-2018 for retrofitting of 210 MW, LMW surface condenser in any one of the unit-1, 2 & 3 TPS. Material to be supplied. Delivery period is 8 months. Replacement of unit auxiliary transformer in unit 1&2 - Administrative approval proposal is under process. Replacement of existing 6.6KV PILC cables into latest version 6.6KV XLPE FRLS cable for HT motors and HT transformers. P O issued on 05-03-2019. Materials received on 29-07-2019. Erection under progress. Replacement of 2nos. 15MVA, 15.75 KV/7KV UAT. Tender opened on 12-12-2018. Tender lodged on 03-04-2019. Re- tender to be floated. Under process. <u>R&M work common to Station</u> - Installation of 10 MLD Desalination plant: DPR prepared by M/s. Fichner, Chennai on 19-07-2018 which is under scrutiny Study on environmental impact assessment is under progress. - Retrofitting of HP/ IP/ LP rotor of 210 MW LMW turbine: Proposal sent to HQ for approval on 22-04-2019. Clarification received from HQ, reply to be sent.

S.No.	State	Name of Station	Unit No.	Year of Comm.	Cap. (MW)	Status
						- Common effluent treatment Plant: M/s/ TWIC is preparing DPR. Letter issued on 25-06-2019. - Erection of 1000 MT Ash Silo unit#1 to 5: Budgetary offers received from 3 firms. Revised proposal sent to HQ on 03-05-2019 for approval, which under progress. - R&M of ESP: Administrative approval accorded on 29-12-2018. Approval for tender specification under process.
27.	Tamil Nadu	Tuticorin TPS	2	1980	210	Following R&M Works to be carried out during 2017-22 at unit#2. - Strengthening of weak insulation of Boiler work completed during 2018-19. - Replacement of unit Auxiliary Transformer (2019-20) - Tender proposal has been lodged on 03-04-2019. - Replacement of existing Journal bearing FD fan 3 Nos. motorsin to antifriction bearing fan motors in boiler (2021-22) - Administrative approval accorded for Replacement of 2 nos of Primary Air Fan motors with journals bearing by new motors with antifriction bearings in units I, II & III. Tender opened on 03-07-2018. Price bid open on 20-02-2019. Tender evaluation is under progress. - Provision of Flue GAS Desulphurization Plant, FGD (2020-21) - Approval accorded on 05-03-2019 for installation of FGD. Tendering is under progress. - Upgradation of operating system along with PGP and computer. (2019-20) - Tender opening extended to 24.04.2019 - Replacement of existing HT Mill motors by Energy efficient motors (7 NOS). (2021-22). - Augmentation of ESP to meet the new environmental norms of MoEF&CC.(2020-21) - Administrative approval accorded on 29-12-2018 for Augmentation of ESP. Tender specification sent to HQ on 04-03-2019 for BLTC approval. - Erection of 1 no 1000 MT Ash Silo at Unit1, 2 & 3 1 no at unit 4&5. - Budgetary offer received from 3firms proposal for getting Administrative approval under preparation. - Main Condensate Pump Motor 220 KW/6.6KV (2021-22) R&M of ESP: Adm. approval accorded on 03-07-2019. Preparation of technical specification under process at TTPS. <u>R&M work common to Station</u> - Installation of 10 MLD Desalination plant: DPR prepared by M/s. Fichner, Chennai on 19-07-2018 which is under scrutiny Study on environmental impact assessment is under progress. - Retrofitting of HP/ IP/ LP rotor of 210 MW LMW turbine: Proposal sent to HQ for approval on 22-04-2019. Clarification received from HQ , reply to be sent.
28.	Tamil Nadu	Tuticorin TPS	3	1982	210	1st and 2nd RLA already completed. Following R&M Works to be carried out during 2017-22 at unit#3. 1. Strengthening of weak insulation of Boiler work completed during 2017-18. 2. 3rd RLA study of Boiler -(2020-21) 3. Augmentation of ESP to meet the new

S.No.	State	Name of Station	Unit No.	Year of Comm.	Cap. (MW)	Status
						environmental norms of MoEF&CC. (2020-21) - Administrative approval accorded on 29-12-2018 for Augmentation of ESP. Tender specification sent to HQ on 04-03-2019 for BLTC approval 4. Complete replacement of platen water wall tubes and bends in boiler (2020-21) 5. Retrofitting of condenser (2020-21) 6. Augmenting the capacity of air evacuation system of condensers by replacing the existing steam ejectors by vacuum pumps (2020-21) 7. Retrofitting of HP/IP/LP rotor in 210 mw LMW Turbine” (2020-21) - Budgetary offers were requested from M/s. GE Power India Ltd., M/s. Doosan Power System India Ltd. And M/s. TOSHIBA JSW Power System India Ltd. Reply awaited. 8. Provision of Flue Gas Desulphurization Plant (FGD) (2020-21) 9. Replacing of 3 nos 1100KW, 6.6KV FD fan motors. (2019-20) 10. Distributed Digital Control Monitoring Information System (DDCMIS). (2020-21). Administrative approval proposal is to be revised based on Unit 1 DCS approved rates. Administrative approval accorded for Replacement of 2 nos of Primary Air Fan motors with journals bearing by new motors with antifriction bearings in units I,II &III. Tender opened on 03-07-2018. Price bid open on 20-02-2019. Tender evaluation is under progress. <u>R&M work common to Station</u> - Installation of 10 MLD Desalination plant: DPR prepared by M/s. Fichner, Chennai on 19-07-2018 which is under scrutiny Study on environmental impact assessment is under progress. - Retrofitting of HP/ IP/ LP rotor of 210 MW LMW turbine: Proposal sent to HQ for approval on 22-04-2019. Clarification received from HQ , reply to be sent. R&M of ESP in Unit# 3, 4&5: Budgetory offers called from GE Power, Chennai, L&T Boilers, Vadodara, TATA Projects, BHEL, Chennai and M/s. K.C. Cottrell India, Gurgaon. Offers not yet received. Reminders sent to firms on 30-04-2019.
2.	Tamil Nadu	Tuticorin TPS	4	1992	210	Following R&M Works to be carried out during 2017-22 at unit#4. 1. Modification of SWAS System.(2021-22) 2. Replacement of existing outdated static type FSSS and SBC (Soot Blower Controls) system and its allied components into latest version system (2020-21) 3. Upgradation of Pro- control system (STC, SADC, PRDS& EAST) & Iskamatic (Turbine Control System).(2020-21) 4. Complete replacement of Hot Re- heater Coil (2019-20)- P.O. Placed to BHEL, Chennai on 30-05-2019. Erection will be done within 20 days of handing over of site. Works to be carried out in Nov 2019. 5. RLA study of Hot Reheater in Boiler (2019-20) 6. Augmentation of ESP to meet the new environmental norms of MoEF &CC (2020-21) 7. Provision of Flue Gas Desulphurization Plant (FGD) (2021-22) <u>R&M work common to Station</u> - Installation of 10 MLD Desalination plant: DPR

S.No.	State	Name of Station	Unit No.	Year of Comm.	Cap. (MW)	Status
						prepared by M/s. Fichner, Chennai on 19-07-2018 which is under scrutiny Study on environmental impact assessment is under progress. - Retrofitting of HP/ IP/ LP rotor of 210 MW LMW turbine: Proposal sent to HQ for approval on 22-04-2019. Clarification received from HQ , reply to be se R&M of ESP in Unit# 3, 4&5: Budgetory offers called from GE Power, Chennai, L&T Boilers, Vadodara, TATA Projects, BHEL, Chennai and M/s. K.C. Cottrell India, Gurgaon. Offers not yet received. Reminders sent to firms on 30-04-2019. nt.
3.	Tamil Nadu	Tuticorin TPS	5	1991	210	Ist RLA completed. Following R&M Works to be carried out during 2017-22 at unit#5. Work of retrofitting of 6.6 KV MOCB by SF6 breaker at AHP Stage-I has been completed and commissioned on 16-07-2018. 1. Modernization of raw coal feeder system (2020-21) 2. Modernization of FSSS, SBC, SADC, PRDS& Scanners. (2019-20) - Tender opened on 04-05-2018. Price opened on 26-02-2019. Unit rate called for from othermal stations. 3. Replacement of Steam Water Analysis System.(2019-20). Retender floated and lodged on 25-02-2019. Retender floated and opened on 10-07-2019. 4. Chemical cleaning of boiler (2020-21) 5. 2nd RLA study of Boiler & Turbine(2020-21) 6. Augmentation of ESP to meet the new environmental norms of MoEF&CC.(2021-22) 7. Retrofitting of 6.6KV HT breaker system with new advanced Breaker.(2020-21) 8. Completer replacement of Hot Reheater coil (2020-21)- P.O. placed on BHEL, Chennai, on 30-05-2019. - Material supply will be completed within 60 days from the date of receipt of this order. - Erection: within 20 days from the date of handing over of site. 9. Provision of Flue Gas Desulphurization Plant (FGD) (2021-22) 10. Complete replacement of Hot Re-heater Assembly. Order issued to M/s/ NDE Inspections, Trichy. Works under progress from 04-09-2019. <u>R&M work common to Station</u> - Installation of 10 MLD Desalination plant: DPR prepared by M/s. Fichner, Chennai on 19-07-2018 which is under scrutiny Study on environmental impact assessment is under progress. - Retrofitting of HP/ IP/ LP rotor of 210 MW LMW turbine: Proposal sent to HQ for approval on 22-04-2019. Clarification received from HQ, reply to be sent. R&M of ESP in Unit# 3, 4&5: Budgetary offers called from GE Power, Chennai, L&T Boilers, Vadodara, TATA Projects, BHEL, Chennai and M/s. K.C. Cottrell India, Gurgaon. Offers not yet received. Reminders sent to firms on 30-04-2019. P.O proposal for replacement of existing outdated Pro-control system in FSSS, SBC, APRDS, STC, SADC and scanner system by latest version of DCS in unit#5

S.No.	State	Name of Station	Unit No.	Year of Comm.	Cap. (MW)	Status
						sent to HQ on 17-05-2019. Reply to queries sent to HQ on 21-06-2019. Proposal for placing of PO approved by BLTC of TANGEDCO. Issue of PO under process at TTPS.
Sub Total State Sector (R&M)				30	7135	
	Total State Sector (LE+R&M)			64	14705	

CENTRAL SECTOR R&M (Gas Based)

S.No.	Utility	Name of Station	Unit No.	Year of Comm.	Cap. (MW)	Status
1	NEEPCO	Kathalguri CCGT	GT-1	1995	33.50	GT#1 (a) Order for supply of M/s MHI make MEGAC V, Diasys Netmation System for Up gradation and replacement of old controller MACTUS 620 sequencer and MEGAC III analog Governor already placed with the OEM, M/s MHI, Japan on 26.03.2015. Work completed on 15-02-2017. (b) The new vibration monitoring system procured against unit-1 has installed in unit-4 due to available s/d and requirement of the unit. Vibrating monitoring system of GT, unit#1 has been commissioned on 19-06-2019. (c) Order for Compressor Rotor Refurbishment (CRR) and Comprehensive Rotor Inspection (CRI) for unit#1 to unit #4 have already been placed with the OEM, M/s MHI, Japan on 28.05.2013 and unit is planned in 2021-22 as per the maintenance schedule of OEM.
2		Kathalguri CCGT	GT-2	1995	33.50	GT#2 : (a) Order for supply and commissioning of M/s MHI make MEGAC V, Diasys Netmation System for Up gradation and replacement of old controller MACTUS 620 sequencer and MEGAC III analog Governor already placed with the OEM, M/s MHI, Japan on 26.03.2015. The upgradation of controller already commissioned on 31-07-2016. (b) Vibrating monitoring system of GT, unit#1 has been commissioned on 20-06-2019. (c) Order for Compressor Rotor Refurbishment (CRR) and Comprehensive Rotor Inspection (CRI) for unit#1 to unit #4 have already been placed with the OEM, M/s MHI, Japan on 28.05.2013 and this GT of unit#1 is planned in 2019-20 (October 2019) as per the maintenance schedule of OEM. .
3		Kathalguri CCGT	GT-3	1995	33.50	(a) Up gradation and replacement of old controllers MACTUS 620 sequencer and MEGA III analog Governor of M/s MHI make Gas Turbine unit# 3&4 by MEGAC V, Diasys Netmation System have already been completed in 12-11-2013. (b) Compressor Rotor Refurbishment (CRR) and comprehensive Rotor Inspection of MHI is completed on 20-07-2017. (c) Order for Compressor Rotor Refurbishment (CRR) and Comprehensive Rotor Inspection (CRI) for unit#1 to unit #4 have already been placed with the OEM, M/s MHI, Japan on 28.05.2013 and the rotor after CRR/CRI in Japan already reached the Plant site. The above works for GT 3 executed w.e.f. 19-06-2017 and completed on 20-07-2017. The order for procurement of new vibration monitoring system is already placed and installed in July 2017 along with major overhauling of Gas Turbine planned in July 2017.
4		Kathalguri CCGT	GT-6	1996	33.5	Upgradation and replacement of Mark IV control system M/s. BHEL make Gas Turbine Unit 6 with Mark Vie Control System has been completed on 31-03-2018.
5		Kathalguri CCGT	ST-1	1998	30.00	a) Upgradation of Programmer/ EPROM writer for Procontrol-13 Control System: already completed. b) Upgradation of AVR (Automatic Voltage Regulator): LOI for upgradation of AVR is placed on M/s.ABB. Upgradation of AVR to DVAR completed and commissioned on 26-09-2018. c) P.O. for upgradation of Vibration and Temperature monitoring System placed on 22-11-2018. Material received. Expected to be commissioned within September 2019. d) The OEM, M/s. BHEL has been requested to study the Governor system and submit a comprehensive offer for upgradation of the system. Got delayed as the new available system with the OEM, M/s. BHEL is not compatible for retrofitting into the existing system. Expected execution of the works by 2020-21. e) Up gradation of Electro-hydraulic governor (SR-IV)

S. No.		Name of Stn.	Unit No.	Year of Comm .	Cap. (MW)	Status
6		Kathalguri CCGT	ST-2	1998	30.00	Upgradation of 3300-series, BENTLEY-NEVADA- make vibration system: P.O. for upgradation of Vibration and Temperature monitoring System placed on 22-11-2018. Expected to be commissioned in FY 2018-19. P.O. placed on 23-11-2018 for Upgradation of AVR (Automatic Voltage Regulator) to to DVAR. Expected to be commissioned in May 2019.
7		Kathalguri CCGT	ST-3	1998	30.00	a) Upgradation of 3300-series, BENTLEY-NEVADA- make vibration system: Tendering process is under progress. Expected to be executed in October 2019. b) PO placed for upgradation of AVR on M/s.ABB. Upgradation of AVR (Automatic Voltage Regulator) to to DVAR is completed and commissioned on 11-09-2018.
Total Central Sector- Gas (R&M)			7		224	
Total R&M/LE (State+ Centre)			70		14929	

Details of Thermal Power Units where the Life Extension (LE) Works have been Completed During 2017-22

Sl. No.	Name of the TPS	Unit No.	Capacity MW	Utility	State/Central Sector	Date of Synchronisation after LE Works
1.	Ukai	4	200	GSECL	State Sector	17-05-2017
2.	Wanakabori	3	210	GSECL	State Sector	27-11-2017
3.	Koradi	6	210	MAHAGENCO	State Sector	20-08-2018
4.	Obra	12	200	UPRVUNL	State Sector	24-09-2018

Total (State) - 04 Units 820.00 MW

Details of Thermal Power Units where the R&M Works have been Completed During 2017-22

Sl. No.	Name of the TPS	Unit No.	Capacity MW	Utility	State/Central Sector	Date of completion of R&M works
1	Kathalguri CCGT	6	33.5	NEEPCO	Central	31-03-2018
2.	Kathalguri CCGT	3	33.5	NEEPCO	Central	20-07-2018

Total (Central) - 02 Unit 67.00 MW

Details of Thermal Power Units where the Renovation & Modernisation (R&M)/Life Extension (LE) Works have been Completed During 12th Plan

Sl. No.	Name of the TPS	Unit No.	Capacity MW	Utility	State/Central Sector	Date of Synchronisation after LE Works
Units where Life Extension Works completed during 12 th Plan						
1.	Bathinda	3	110	PSPCL	State Sector	05.08.2012
2.	Kawas	GT-1A	106	NTPC	Central Sector	21.01.2013
3.	Parichha	2	110	UPRVUNL	State Sector	05.05.2013
4.	Muzafarpur	1	110	KBUNL	Joint venture of BSPGCL & NTPC	05.07.2013
5.	Kawas	GT-1B	106	NTPC	Central Sector	28.08. 2013
6.	Gandhar	GT – 3	131	NTPC	Central Sector	29.09. 2013
7.	Kawas	GT-2B	106	NTPC	Central Sector	05.03.2014
8.	Bathinda	4	110	PSPCL	State Sector	10.07. 2014
9.	Muzafarpur	2	110	KBUNL	Joint venture of BSPGCL & NTPC	30.09.2014
10.	Auraiya	GT-1	111.19	NTPC	Central Sector	22.06. 2014
11.	Gandhar	GT-1	131	NTPC	Central Sector	06.07.2014
12.	Kawas	GT-2A	106	NTPC	Central Sector	22.08.2014
13.	Auraiya	GT-2	111.19	NTPC	Central Sector	28.10.2014
14.	Auraiya	GT-3	111.19	NTPC	Central Sector	25.12.2014
15.	Auraiya	GT-4	111.19	NTPC	Central Sector	02.03.2014
16.	Harduaganj	7	110	UPRVUNL	State Sector	01.05. 2015
17.	Bandel	5	210	WBPDC	State Sector	21.09.2015
18.	Gandhar	GT-2	131	NTPC	Central Sector	15.04.2015
19.	Obra	10	200	UPRVUNL	State Sector	08.04.2016
20.	Barauni	7	110	BSPGCL	State Sector	03.08.2016
21.	Obra	11	200	UPRVUNL	State Sector	31.12.2016
Total State Sector		10 units	1380.00 MW			
Total Central Sector		11 units	1261.76 MW			
Total LE (Central +State)		21 units	2641.76 MW			
Units where Renovation & Modernisation Works completed during 12 th Plan						
1.	DPL	6	110	WBPDC	State Sector	07.05.2012
2.	Patratu	10	110	JSEB	State Sector	24.05.2012
3.	Anpara’A	1	210	UPRVUNL	State Sector	21.03.2013
4.	Anpara’A	2	210	UPRVUNL	State Sector	21.03.2013
5.	Anpara’A	3	210	UPRVUNL	State Sector	21.03.2013
6.	Tanda	2	110	NTPC	Central Sector	15.09.2012

7.	Kathalguri	GT-3	33.5	NTPC	Central Sector	31.03.2014
8.	Kathalguri	GT-4	33.5	NTPC	Central Sector	31.03.2014
9.	Kathalguri	GT-5	33.5	NTPC	Central Sector	31.03.2014
10.	Simhadri	1	500	NTPC	Central	31.03.2016
11.	Simhadri	2	500	NTPC	Central	31.03.2016
12.	Ramagundam	4	500	NTPC	Central	March, 2017
13.	Ramagundam	5	500	NTPC	Central	March, 2017
14.	Ramagundam	6	500	NTPC	Central	March, 2017
15.	Rihand STPS	1	500	NTPC	Central	March, 2017
16.	Rihand STPS	2	500	NTPC	Central	March, 2017
Total R&M State Sector		05 units	850.00 MW			
Total R&M Central Sector		11 units	3710.50 MW			
Total R&M (Central +State)		16 units	4560.50 MW			
Total (R&M+LE)		37 units	7202.26			

Annexure-5

Summary of implementation for phasing plan for FGD installation/ESP Upgradation

Sl. No.	Description	Capacity (MW)	Units
1.	Total Capacity Considered	196667	650
2.	Capacity retired/identified for retirement	8967	82
3.	Capacity after Retirement (1-2)	187700	568
4.	Capacity already having FGD capable of meeting new Sox norms	6130	15
5.	Capacity with CFBC Boilers	5524	48
6.	Capacity taken for analysis (3-4-5)	176046	505
7.	FGD Implementation Plan		
a)	Capacity which claims to be Sox complaint	5115	23
b)	Balance Capacity (6-7 (a))	170931	482
c)	Capacity where FGD has been planned (Annexure-6)	161552	415
d)	Capacity where FGD implementation plan available	161402	414
e)	Capacity where FGD implementation plan not submitted by developer	150	1
f)	TOTAL CAPAICTY WHICH WOULD BE FGD NON COMPLAINT f (i) + f(ii)	9379	67
(i)	Capacity where FGD installation is being explored	690	7
(ii)	Capacity where FGD cannot be installed	8689	60
8.	ESP IMPLEMENTATION PLAN		
(i)	Capacity which is SPM non- complaint	72659	273
(ii)	Capacity which would be Sox non- complaint	6344	38
(iii)	Capacity FGD installation being Explored	390	4
(iv)	Balance Capacity (i-ii-iii) where ESP upgradation considered	65925	231
(v)	Capacity where ESP Implementation plan available	64525	222
(vi)	Capacity where ESP Implementation plan not submitted by developer	1400	9

Annexure-6

Status of Installation of FGD

Sr. No.	Developer	Name of Project	Sector	State	Region	Unit No	Unit Capacity	Date of Commissioning	FGD Phasing Plan	FGD Status
1	NTPC	BARH II	Central	Bihar	ER	4	660	20/11/13	30/09/21	Bid Awarded
2	NTPC	BARH II	Central	Bihar	ER	5	660	04/03/15	31/03/22	Bid Awarded
3	NTPC	KAHALGAON TPS	Central	Bihar	ER	1	210	31/03/92	31/12/22	NIT issued
4	NTPC	KAHALGAON TPS	Central	Bihar	ER	2	210	17/03/94	31/12/22	NIT issued
5	NTPC	KAHALGAON TPS	Central	Bihar	ER	3	210	24/03/95	31/12/22	NIT issued
6	NTPC	KAHALGAON TPS	Central	Bihar	ER	4	210	18/03/96	31/12/22	NIT issued
7	NTPC	KAHALGAON TPS	Central	Bihar	ER	5	500	31/03/07	31/12/22	NIT issued
8	NTPC	KAHALGAON TPS	Central	Bihar	ER	6	500	16/03/08	31/12/22	NIT issued
9	NTPC	KAHALGAON TPS	Central	Bihar	ER	7	500	31/07/09	31/12/22	NIT issued
10	NTPC	NABI NAGAR TPP	Central	Bihar	ER	1	250	20/03/16	31/12/21	Bid Awarded
11	NTPC	NABI NAGAR TPP	Central	Bihar	ER	2	250	04/04/17	31/12/22	Bid Awarded
12	NTPC & Bihar	MUZAFFARPUR TPS	Central	Bihar	ER	1	110	31/03/85	31/12/20	NIT issued
13	NTPC & Bihar	MUZAFFARPUR TPS	Central	Bihar	ER	2	110	17/03/86	31/12/20	NIT issued
14	NTPC & Bihar	MUZAFFARPUR TPS	Central	Bihar	ER	3	195	31/03/15	31/12/22	NIT issued
15	NTPC & Bihar	MUZAFFARPUR TPS	Central	Bihar	ER	4	195	24/03/17	31/12/22	NIT issued
16	Adhunik Power&Natural Gas	MAHADEV PRASAD STPP	Private	Jharkhand	ER	1	270	19/11/12	30/06/22	Complies with new Norms
17	Adhunik Power&Natural Gas	MAHADEV PRASAD STPP	Private	Jharkhand	ER	2	270	29/03/13	30/06/22	Complies with new Norms
18	D.V.C	BOKARO `A` TPS	Central	Jharkhand	ER	1	500	22/03/16	30/06/22	Bid Awarded
19	D.V.C	CHANDRAPURA(DVC)	Central	Jharkhand	ER	7	250	04/11/09	31/12/22	Feasibility study completed
20	D.V.C	CHANDRAPURA(DVC)	Central	Jharkhand	ER	8	250	31/03/10	31/12/22	Feasibility study completed
21	D.V.C	KODARMA TPP	Central	Jharkhand	ER	1	500	20/07/11	31/12/21	Bid Awarded
22	D.V.C	KODARMA TPP	Central	Jharkhand	ER	2	500	15/02/13	31/12/21	Bid Awarded
23	TATA Power Co.	JOJOBERA TPS	Private	Jharkhand	ER	2	120	02/01/01	31/12/20	NIT issued
24	TATA Power Co.	JOJOBERA TPS	Private	Jharkhand	ER	3	120	02/01/02	31/12/20	NIT issued
25	TATA Power Co. MPL	MAITHON RB TPP	Private	Jharkhand	ER	1	525	01/09/11	30/09/21	Bid opened
26	TATA Power Co.MPL	MAITHON RB TPP	Private	Jharkhand	ER	2	525	24/07/12	30/06/22	Bid opened
27	TenughatVN Ltd	TENUGHAT TPS	State Sector	Jharkhand	ER	1	210	14/04/94	31/12/20	Feasibility Study Completed
28	TenughatVN Ltd	TENUGHAT TPS	State Sector	Jharkhand	ER	2	210	10/10/96	31/12/20	Feasibility Study Completed
29	GMR	KAMALANGA TPS	Private	Odisha	ER	1	350	29/03/13	31/12/21	Feasibility study completed
30	GMR	KAMALANGA TPS	Private	Odisha	ER	2	350	28/09/13	31/12/21	Feasibility study completed
31	GMR	KAMALANGA TPS	Private	Odisha	ER	3	350	21/03/14	30/09/21	Feasibility study completed
32	Ind barath	IND BARATH TPP	Private	Odisha	ER	1	350	25/02/16	31/03/22	Feasibility Study started
33	JIPL	DERANG TPP	Private	Odisha	ER	1	600	10/04/14	31/03/21	Technical Bid evaluation
34	JIPL	DERANG TPP	Private	Odisha	ER	2	600	24/01/15	31/03/21	Technical Bid evaluation
35	NTPC	TALCHER STPS	Central	Odisha	ER	1	500	19/02/95	31/12/22	NIT issued
36	NTPC	TALCHER STPS	Central	Odisha	ER	2	500	27/03/96	31/12/22	NIT issued
37	NTPC	TALCHER STPS	Central	Odisha	ER	3	500	21/02/03	31/12/22	NIT issued
38	NTPC	TALCHER STPS	Central	Odisha	ER	4	500	25/10/03	31/12/22	NIT issued
39	NTPC	TALCHER STPS	Central	Odisha	ER	5	500	13/05/04	31/12/22	NIT issued
40	NTPC	TALCHER STPS	Central	Odisha	ER	6	500	06/02/05	31/12/22	NIT issued
41	OPGCLtd	IB VALLEY TPS	State Sector	Odisha	ER	1	210	02/06/94	30/09/21	Feasibility study completed

Sr. No.	Developer	Name of Project	Sector	State	Region	Unit No	Unit Capacity	Date of Commissioning	FGD Phasing Plan	FGD Status
42	OPGCLtd	IB VALLEY TPS	State Se	Odisha	ER	2	210	22/10/95	30/09/21	Feasibility study completed
43	Sterlite Energy Ltd	STERLITE TPP	Private	Odisha	ER	2	600	29/12/10	31/03/22	Feasibility Study started
44	C.E.S.C. Pvt.	BUDGE BUDGE TPS	Private	West Bengal	ER	1	250	16/09/97	31/12/22	Feasibility Study started
45	C.E.S.C. Pvt.	BUDGE BUDGE TPS	Private	West Bengal	ER	2	250	06/03/99	31/12/22	Feasibility Study started
46	C.E.S.C. Pvt.	BUDGE BUDGE TPS	Private	West Bengal	ER	3	250	29/09/09	31/12/22	Feasibility Study started
47	C.E.S.C. Pvt.	SOUTHERN REPL. TPS	Private	West Bengal	ER	1	68	10/04/91	31/03/22	Feasibility Study started
48	C.E.S.C. Pvt.	SOUTHERN REPL. TPS	Private	West Bengal	ER	2	68	12/08/90	31/12/21	Feasibility Study started
49	D.P.L.	D.P.L. TPS	State Se	West Bengal	ER	6	110	03/07/85	31/03/22	Feasibility Study started
50	D.P.L.	D.P.L. TPS	State Se	West Bengal	ER	7	300	24/11/07	30/06/22	Feasibility Study started
51	D.P.L.	D.P.L. TPS EXT.	State Se	West Bengal	ER	8	250	31/03/14	31/03/22	Feasibility Study started
52	D.V.C	DURGAPUR STEEL TPS	Central	West Bengal	ER	1	500	29/07/11	30/06/21	Bid Awarded
53	D.V.C	DURGAPUR STEEL TPS	Central	West Bengal	ER	2	500	23/03/12	30/06/21	Bid Awarded
54	D.V.C	MEJIA TPS	Central	West Bengal	ER	1	210	01/03/96	31/12/22	Feasibility study completed
55	D.V.C	MEJIA TPS	Central	West Bengal	ER	2	210	24/03/97	31/12/22	Feasibility study completed
56	D.V.C	MEJIA TPS	Central	West Bengal	ER	3	210	25/03/98	31/12/22	Feasibility study completed
57	D.V.C	MEJIA TPS	Central	West Bengal	ER	4	210	12/10/04	31/12/22	Feasibility study completed
58	D.V.C	MEJIA TPS	Central	West Bengal	ER	5	250	01/10/07	31/12/22	Feasibility study completed
59	D.V.C	MEJIA TPS	Central	West Bengal	ER	6	250	31/03/07	31/12/22	Feasibility study completed
60	D.V.C	MEJIA TPS	Central	West Bengal	ER	7	500	30/09/10	30/09/21	Bid Awarded
61	D.V.C	MEJIA TPS	Central	West Bengal	ER	8	500	26/03/11	30/09/21	Bid Awarded
62	D.V.C	RAGHUNATHPUR TPP	Central	West Bengal	ER	1	600	24/08/14	31/03/22	Bid Awarded
63	D.V.C	RAGHUNATHPUR TPP	Central	West Bengal	ER	2	600	18/01/16	31/03/22	Bid Awarded
64	M/s Haldia Energy Lim	HALDIA TPP	Private	West Bengal	ER	1	300	14/01/15	31/12/22	Feasibility Study started
65	M/s Haldia Energy Lim	HALDIA TPP	Private	West Bengal	ER	2	300	16/02/15	31/12/22	Feasibility Study started
66	Bishagarh Power Co.	India Power TPP	Private	West Bengal	ER	1	150	07/06/17	31/12/22	Feasibility Study started
67	NTPC	FARAKKA STPS	Central	West Bengal	ER	1	200	01/01/86	31/12/22	NIT issued
68	NTPC	FARAKKA STPS	Central	West Bengal	ER	2	200	24/12/86	31/12/22	NIT issued
69	NTPC	FARAKKA STPS	Central	West Bengal	ER	3	200	06/08/87	31/12/22	NIT issued
70	NTPC	FARAKKA STPS	Central	West Bengal	ER	4	500	25/09/92	31/12/22	NIT issued
71	NTPC	FARAKKA STPS	Central	West Bengal	ER	5	500	16/02/94	31/12/22	NIT issued
72	NTPC	FARAKKA STPS	Central	West Bengal	ER	6	500	07/03/11	31/12/22	NIT issued
73	WBPDC	KOLAGHAT TPS	State Se	West Bengal	ER	1	210	16/01/93	30/06/22	Feasibility study completed
74	WBPDC	KOLAGHAT TPS	State Se	West Bengal	ER	2	210	13/08/90	31/03/21	Feasibility study completed
75	WBPDC	KOLAGHAT TPS	State Se	West Bengal	ER	3	210	16/12/85	30/09/21	Feasibility study completed
76	WBPDC	KOLAGHAT TPS	State Se	West Bengal	ER	4	210	24/01/84	31/03/22	Feasibility study completed
77	WBPDC	KOLAGHAT TPS	State Se	West Bengal	ER	5	210	28/12/93	30/06/21	Feasibility study completed
78	WBPDC	KOLAGHAT TPS	State Se	West Bengal	ER	6	210	17/03/91	31/12/21	Feasibility study completed
79	WBPDC	SAGARDIGHI TPS	State Se	West Bengal	ER	1	300	20/07/08	31/12/20	Feasibility study completed
80	WBPDC	SAGARDIGHI TPS	State Se	West Bengal	ER	2	300	21/12/07	31/03/21	Feasibility study completed
81	WBPDC	SAGARDIGHI TPS	State Se	West Bengal	ER	3	500	14/12/15	31/03/22	Feasibility Study completed.
82	WBPDC	SAGARDIGHI TPS	State Se	West Bengal	ER	4	500	15/12/16	31/03/20	Feasibility Study completed.

Sr. No.	Developer	Name of Project	Sector	State	Region	Unit No	Unit Capacity	Date of Commissioning	FGD Phasing Plan	FGD Status
83	WPDC	SANTALDIH TPS	State Se	West Bengal	ER	5	250	07/11/07	31/03/21	Feasibility study completed
84	WPDC	SANTALDIH TPS	State Se	West Bengal	ER	6	250	29/06/11	31/12/21	Feasibility study completed
85	CHINA LIGHT POWER	MAHATMA GANDHI TPS	Private	Haryana	NR	1	660	12/01/12	31/12/19	FGD operational. Meeting new norms
86	CHINA LIGHT POWER	MAHATMA GANDHI TPS	Private	Haryana	NR	2	660	11/04/12	31/12/19	FGD operational. Meeting new norms
87	HGPCorpn	PANIPAT TPS	State Se	Haryana	NR	6	210	31/03/01	31/12/19	Bid opened
88	HGPCorpn	PANIPAT TPS	State Se	Haryana	NR	7	250	28/09/04	31/12/19	Bid opened
89	HGPCorpn	PANIPAT TPS	State Se	Haryana	NR	8	250	28/01/05	31/12/19	Bid opened
90	HGPCorpn	RAJIV GANDHI TPS	State Se	Haryana	NR	1	600	31/03/10	31/12/19	Bid opened
91	HGPCorpn	RAJIV GANDHI TPS	State Se	Haryana	NR	2	600	01/10/10	31/12/19	Bid opened
92	HGPCorpn	YAMUNA NAGAR TPS	State Se	Haryana	NR	1	300	01/11/07	31/12/19	NIT issued
93	HGPCorpn	YAMUNA NAGAR TPS	State Se	Haryana	NR	2	300	29/03/08	31/12/19	NIT issued
94	NTPC	INDIRA GANDHI STPP	Central	Haryana	NR	1	500	31/10/10	31/12/19	Bid Awarded
95	NTPC	INDIRA GANDHI STPP	Central	Haryana	NR	2	500	05/11/11	31/12/19	Bid Awarded
96	NTPC	INDIRA GANDHI STPP	Central	Haryana	NR	3	500	07/11/12	31/12/19	Bid Awarded
97	GVK Power Ltd.	GOINDWAL SAHIB	Private	Punjab	NR	1	270	14/02/16	30/04/20	Feasibility study completed
98	GVK Power Ltd.	GOINDWAL SAHIB	Private	Punjab	NR	2	270	15/03/16	28/02/20	Feasibility study completed
99	L&T Power Developme	Nabha TPP (Rajpura TPP)	Private	Punjab	NR	1	700	24/01/14	31/12/19	NIT issued
100	L&T Power Developme	Nabha TPP (Rajpura TPP)	Private	Punjab	NR	2	700	06/07/14	31/12/19	NIT issued
101	PSEB	GH TPS (LEH.MOH.)	State Se	Punjab	NR	1	210	29/12/97	31/12/19	NIT issued
102	PSEB	GH TPS (LEH.MOH.)	State Se	Punjab	NR	2	210	16/10/98	31/12/19	NIT issued
103	PSEB	GH TPS (LEH.MOH.)	State Se	Punjab	NR	3	250	03/01/08	31/12/19	NIT issued
104	PSEB	GH TPS (LEH.MOH.)	State Se	Punjab	NR	4	250	31/07/08	31/12/19	NIT issued
105	Talwandi Sabo Power	TALWANDI SABO TPP	Private	Punjab	NR	1	660	17/06/14	31/12/19	Technical bids opened
106	Talwandi Sabo Power	TALWANDI SABO TPP	Private	Punjab	NR	2	660	25/10/15	31/12/19	Technical bids opened
107	Talwandi Sabo Power	TALWANDI SABO TPP	Private	Punjab	NR	3	660	29/03/16	31/12/19	Technical bids opened
108	Adani Power Ltd.	KAWAI TPS	Private	Rajasthan	NR	1	660	28/05/13	31/08/20	NIT issued
109	Adani Power Ltd.	KAWAI TPS	Private	Rajasthan	NR	2	660	24/12/13	30/06/20	NIT issued
110	RRVUNL	CHHABRA TPP	State Se	Rajasthan	NR	1	250	30/10/09	31/12/21	Tender specification made
111	RRVUNL	CHHABRA TPP	State Se	Rajasthan	NR	2	250	04/05/10	31/10/21	Tender specification made
112	RRVUNL	CHHABRA TPP	State Se	Rajasthan	NR	3	250	14/09/13	31/08/21	Tender specification made
113	RRVUNL	CHHABRA TPP	State Se	Rajasthan	NR	4	250	30/06/14	31/08/21	Tender specification made
114	RRVUNL	CHHABRA TPP	State Se	Rajasthan	NR	5	660	04/04/17	30/04/20	NIT issued
115	RRVUNL	KALISINDH TPS	State Se	Rajasthan	NR	1	600	02/05/14	30/06/21	NIT issued
116	RRVUNL	KALISINDH TPS	State Se	Rajasthan	NR	2	600	06/06/15	30/04/21	NIT issued
117	RRVUNL	KOTA TPS	State Se	Rajasthan	NR	5	210	26/03/94	31/12/22	Feasibility Study completed.
118	RRVUNL	KOTA TPS	State Se	Rajasthan	NR	6	195	30/07/03	31/12/22	Feasibility Study completed.
119	RRVUNL	KOTA TPS	State Se	Rajasthan	NR	7	195	30/08/09	31/10/22	Feasibility Study completed.
120	RRVUNL	SURATGARH TPS	State Se	Rajasthan	NR	1	250	10/05/98	31/12/22	Tender Specification made
121	RRVUNL	SURATGARH TPS	State Se	Rajasthan	NR	2	250	28/03/00	31/10/22	Tender Specification made

Sr. No.	Developer	Name of Project	Sector	State	Region	Unit No	Unit Capacity	Date of Commissioning	FGD Phasing Plan	FGD Status
122	RRVUNL	SURATGARH TPS	State Se	Rajasthan	NR	3	250	29/10/01	31/08/22	Tender Specification made
123	RRVUNL	SURATGARH TPS	State Se	Rajasthan	NR	4	250	25/03/02	30/06/22	Tender Specification made
124	RRVUNL	SURATGARH TPS	State Se	Rajasthan	NR	5	250	30/06/03	30/04/22	Tender Specification made
125	RRVUNL	SURATGARH TPS	State Se	Rajasthan	NR	6	250	29/08/09	28/02/22	Tender Specification made
126	Lalitpur Power Gen. Co	LALITPUR TPS	Private	Uttar Pradesh	NR	2	660	08/01/16	28/02/21	Petition was filed with UPERC for approval capital cost for
127	Lalitpur Power Gen. Co	LALITPUR TPS	Private	Uttar Pradesh	NR	3	660	01/04/16	31/10/21	Petition was filed with UPERC for approval capital cost for
128	Lalitpur Power Gen. Co	LALITPUR TPS	Private	Uttar Pradesh	NR	1	660	26/03/16	31/12/20	Petition was filed with UPERC for approval capital cost for
129	Lanko Anpara Pow Ltd	ANPARA C TPS	Private	Uttar Pradesh	NR	1	600	12/10/11	31/08/22	Tender Specification made
130	Lanko Anpara Pow Ltd	ANPARA C TPS	Private	Uttar Pradesh	NR	2	600	18/01/12	30/06/22	Tender Specification made
131	NTPC	DADRI (NCTPP)	Central	Uttar Pradesh	NR	1	210	21/12/91	31/12/19	Bid awarded
132	NTPC	DADRI (NCTPP)	Central	Uttar Pradesh	NR	2	210	18/12/92	31/12/19	Bid awarded
133	NTPC	DADRI (NCTPP)	Central	Uttar Pradesh	NR	3	210	23/03/93	31/12/19	Bid awarded
134	NTPC	DADRI (NCTPP)	Central	Uttar Pradesh	NR	4	210	24/03/94	31/12/19	Bid awarded
135	NTPC	DADRI (NCTPP)	Central	Uttar Pradesh	NR	5	490	25/01/10	31/12/19	Bid awarded
136	NTPC	DADRI (NCTPP)	Central	Uttar Pradesh	NR	6	490	16/07/10	31/12/19	Bid awarded
137	NTPC	RIHAND STPS	Central	Uttar Pradesh	NR	1	500	31/03/88	28/02/22	NIT issued
138	NTPC	RIHAND STPS	Central	Uttar Pradesh	NR	2	500	05/07/89	31/12/21	NIT issued
139	NTPC	RIHAND STPS	Central	Uttar Pradesh	NR	3	500	31/01/05	30/10/21	Bid awarded
140	NTPC	RIHAND STPS	Central	Uttar Pradesh	NR	4	500	24/09/05	30/04/21	Bid awarded
141	NTPC	RIHAND STPS	Central	Uttar Pradesh	NR	5	500	25/05/12	28/02/21	Bid awarded
142	NTPC	RIHAND STPS	Central	Uttar Pradesh	NR	6	500	17/10/13	31/12/20	Bid awarded
143	NTPC	SINGRAULI STPS	Central	Uttar Pradesh	NR	1	200	14/02/82	31/12/21	NIT issued
144	NTPC	SINGRAULI STPS	Central	Uttar Pradesh	NR	2	200	25/11/82	31/12/21	NIT issued
145	NTPC	SINGRAULI STPS	Central	Uttar Pradesh	NR	3	200	28/03/83	31/08/21	NIT issued
146	NTPC	SINGRAULI STPS	Central	Uttar Pradesh	NR	4	200	02/11/83	31/08/21	NIT issued
147	NTPC	SINGRAULI STPS	Central	Uttar Pradesh	NR	5	200	26/02/84	30/04/21	NIT issued
148	NTPC	SINGRAULI STPS	Central	Uttar Pradesh	NR	6	500	23/12/86	28/02/21	NIT issued
149	NTPC	SINGRAULI STPS	Central	Uttar Pradesh	NR	7	500	24/11/87	31/12/20	NIT issued
150	NTPC	UNCHAHAH TPS	Central	Uttar Pradesh	NR	1	210	21/11/88	31/12/22	NIT issued
151	NTPC	UNCHAHAH TPS	Central	Uttar Pradesh	NR	2	210	22/03/89	31/12/22	NIT issued
152	NTPC	UNCHAHAH TPS	Central	Uttar Pradesh	NR	3	210	27/01/99	31/10/22	NIT issued
153	NTPC	UNCHAHAH TPS	Central	Uttar Pradesh	NR	4	210	22/10/99	31/10/22	NIT issued
154	NTPC	UNCHAHAH TPS	Central	Uttar Pradesh	NR	5	210	28/09/06	30/04/22	NIT issued
155	NTPC	UNCHAHAH TPS	Central	Uttar Pradesh	NR	6	500	31/03/17	31/08/20	Bid awarded
156	Prayagraj Power Gene	PRAYAGRAJ TPP	Private	Uttar Pradesh	NR	1	660	25/12/16	30/04/20	Feasibility Study started
157	Prayagraj Power Gene	PRAYAGRAJ TPP	Private	Uttar Pradesh	NR	2	660	06/09/15	30/06/20	Feasibility Study started
158	Prayagraj Power Gene	PRAYAGRAJ TPP	Private	Uttar Pradesh	NR	3	660	22/05/17	29/02/20	Feasibility Study started
159	Rosa Power Supply Co	ROSA TPP Ph-I	Private	Uttar Pradesh	NR	1	300	10/02/10	31/12/21	Tendering Under Process

Sr. No.	Developer	Name of Project	Sector	State	Region	Unit No	Unit Capacity	Date of Commissioning	FGD Phasing Plan	FGD Status
160	Rosa Power Supply Co	ROSA TPP Ph-I	Private	Uttar Pradesh	NR	2	300	26/06/10	31/12/21	Tendering Under Process
161	Rosa Power Supply Co	ROSA TPP Ph-I	Private	Uttar Pradesh	NR	3	300	28/12/11	31/10/21	Tendering Under Process
162	Rosa Power Supply Co	ROSA TPP Ph-I	Private	Uttar Pradesh	NR	4	300	28/03/12	31/10/21	Tendering Under Process
163	UPRVUNL	ANPARA TPS	State Se	Uttar Pradesh	NR	1	210	24/03/86	31/10/22	Bids opened
164	UPRVUNL	ANPARA TPS	State Se	Uttar Pradesh	NR	2	210	28/02/87	31/08/22	Bids opened
165	UPRVUNL	ANPARA TPS	State Se	Uttar Pradesh	NR	3	210	12/03/88	30/06/22	Bids opened
166	UPRVUNL	ANPARA TPS	State Se	Uttar Pradesh	NR	4	500	19/07/93	30/04/22	Bids opened
167	UPRVUNL	ANPARA TPS	State Se	Uttar Pradesh	NR	5	500	04/07/94	28/02/22	Bids opened
168	UPRVUNL	ANPARA TPS	State Se	Uttar Pradesh	NR	6	500	08/06/15	30/06/21	Bids awarded
169	UPRVUNL	ANPARA TPS	State Se	Uttar Pradesh	NR	7	500	06/03/16	30/04/21	Bids awarded
170	UPRVUNL	HARDUAGANJ TPS	State Se	Uttar Pradesh	NR	8	250	27/09/11	31/12/19	NIT issued
171	UPRVUNL	HARDUAGANJ TPS	State Se	Uttar Pradesh	NR	9	250	25/05/12	31/12/19	NIT issued
172	UPRVUNL	OBRA TPS	State Se	Uttar Pradesh	NR	9	200	26/10/80	31/08/22	Feasibility study completed
173	UPRVUNL	OBRA TPS	State Se	Uttar Pradesh	NR	10	200	14/01/79	31/10/22	Feasibility study completed
174	UPRVUNL	OBRA TPS	State Se	Uttar Pradesh	NR	11	200	31/12/77	31/12/22	Feasibility study completed
175	UPRVUNL	OBRA TPS	State Se	Uttar Pradesh	NR	12	200	28/03/81	30/06/22	Feasibility study completed
176	UPRVUNL	OBRA TPS	State Se	Uttar Pradesh	NR	13	200	21/07/82	30/04/22	Feasibility study completed
177	UPRVUNL	PARICHHA TPS	State Se	Uttar Pradesh	NR	3	210	29/03/06	30/04/22	Tender Specification made
178	UPRVUNL	PARICHHA TPS	State Se	Uttar Pradesh	NR	4	210	28/12/06	30/04/22	Tender Specification made
179	UPRVUNL	PARICHHA TPS	State Se	Uttar Pradesh	NR	5	250	24/05/12	28/02/22	Tender Specification made
180	UPRVUNL	PARICHHA TPS	State Se	Uttar Pradesh	NR	6	250	11/03/13	31/12/21	Tender Specification made
181	APGENCO	Dr. N.TATA RAO TPS	State Se	Andhra Pradesh	SR	7	500	08/10/09	31/12/20	Feasibility Study started
182	APGENCO	RAYALASEEMA TPS	State Se	Andhra Pradesh	SR	1	210	31/03/94	31/12/21	Complies with new Norms as per developer
183	APGENCO	RAYALASEEMA TPS	State Se	Andhra Pradesh	SR	2	210	25/02/95	30/09/21	Complies with new Norms as per developer
184	APGENCO	RAYALASEEMA TPS	State Se	Andhra Pradesh	SR	3	210	25/01/07	30/09/20	Complies with new Norms as per developer
185	APGENCO	RAYALASEEMA TPS	State Se	Andhra Pradesh	SR	4	210	20/11/07	30/06/21	Complies with new Norms as per developer
186	APGENCO	RAYALASEEMA TPS	State Se	Andhra Pradesh	SR	5	210	31/12/10	30/06/20	Complies with new Norms as per developer
187	APPDCL	DAMODARAM SANJEEVAIA	State Se	Andhra Pradesh	SR	1	800	28/08/14	31/12/20	Feasibility Study started
188	APPDCL	DAMODARAM SANJEEVAIA	State Se	Andhra Pradesh	SR	2	800	17/03/15	31/12/19	Feasibility Study started
189	HNPCL	VIZAG TPP	Private	Andhra Pradesh	SR	1	520	27/12/15	6/30/2020	Feasibility Study completed
190	HNPCL	VIZAG TPP	Private	Andhra Pradesh	SR	2	520	30/03/16	9/30/2019	Feasibility Study completed
191	NTPC	SIMHADRI	Central	Andhra Pradesh	SR	1	500	22/02/02	31/03/22	Bid awarded
192	NTPC	SIMHADRI	Central	Andhra Pradesh	SR	2	500	24/08/02	30/06/22	Bid awarded
193	NTPC	SIMHADRI	Central	Andhra Pradesh	SR	3	500	29/03/11	30/09/22	Bid awarded
194	NTPC	SIMHADRI	Central	Andhra Pradesh	SR	4	500	30/03/12	31/12/22	Bid awarded

Sr. No.	Developer	Name of Project	Sector	State	Region	Unit No	Unit Capacity	Date of Commissioning	FGD Phasing Plan	FGD Status
195	Sembcorp Gayatri Pvt.	Sembcorp Gayatri P.Ltd.	Private	Andhra Pradesh	SR	1	660	12/11/16	31/12/21	Pilot plant trials under progress. Technology Finalization will be done in few months.
196	Sembcorp Gayatri Pvt.	Sembcorp Gayatri P.Ltd.	Private	Andhra Pradesh	SR	2	660	15/02/17	30/09/21	Feasibility study under progress
197	THERMAL POWER T	PAINAMPURAM TPP	Private	Andhra Pradesh	SR	1	660	07/02/15	31/12/21	Pilot plant trials under progress. Technology Finalization will be done in few months.
198	THERMAL POWER T	PAINAMPURAM TPP	Private	Andhra Pradesh	SR	2	660	03/09/15	30/09/21	Pilot plant trials under progress. Technology Finalization will be done in few months.
199	Adani Power Ltd.	UDUPI TPP	Private	Karnataka	SR	1	600	23/07/10	31/03/22	NIT issued
200	Adani Power Ltd.	UDUPI TPP	Private	Karnataka	SR	2	600	16/04/11	30/06/22	NIT issued
201	Jindal (Pvt Co)	TORANGALLU TPS EXT	Private	Karnataka	SR	1	300	23/04/09	30/06/22	Discussions with vendor is in progress
202	Jindal (Pvt Co)	TORANGALLU TPS EXT	Private	Karnataka	SR	2	300	24/08/09	30/09/22	Discussions with vendor is in progress
203	KPCL	BELLARY TPS	State Se	Karnataka	SR	1	500	03/12/07	31/12/20	NIT issued
204	KPCL	BELLARY TPS	State Se	Karnataka	SR	2	500	23/03/12	30/06/21	NIT issued
205	KPCL	BELLARY TPS	State Se	Karnataka	SR	3	700	01/03/16	31/12/21	NIT issued
206	KPCL	RAICHUR TPS	State Se	Karnataka	SR	1	210	29/03/85	31/03/21	NIT issued
207	KPCL	RAICHUR TPS	State Se	Karnataka	SR	2	210	02/03/86	30/06/21	NIT issued
208	KPCL	RAICHUR TPS	State Se	Karnataka	SR	3	210	30/03/91	30/09/21	NIT issued
209	KPCL	RAICHUR TPS	State Se	Karnataka	SR	4	210	29/09/94	31/12/21	NIT issued
210	KPCL	RAICHUR TPS	State Se	Karnataka	SR	5	210	31/01/99	31/03/22	NIT issued
211	KPCL	RAICHUR TPS	State Se	Karnataka	SR	6	210	22/07/99	30/06/22	NIT issued
212	KPCL	RAICHUR TPS	State Se	Karnataka	SR	7	210	11/12/02	30/09/22	NIT issued
213	KPCL	RAICHUR TPS	State Se	Karnataka	SR	8	250	26/06/10	31/12/22	NIT issued
214	KPCL	YERMARUS TPP	State Se	Karnataka	SR	1	800	29/03/16	31/12/21	NIT issued
215	KPCL	YERMARUS TPP	State Se	Karnataka	SR	2	800	29/03/17	31/12/22	NIT issued
216	NTPC	KUDGI	Central	Karnataka	SR	1	800	25/12/16	30/06/22	Bid awarded
217	NTPC	KUDGI	Central	Karnataka	SR	2	800	23/03/17	30/09/22	Bid awarded
218	Coastal Energen Pvt. L	MUTHIARA TPP	Private	Tamil Nadu	SR	1	600	02/12/14	30/09/22	Feasibility Study Completed
219	Coastal Energen Pvt. L	MUTHIARA TPP	Private	Tamil Nadu	SR	2	600	02/01/16	31/12/22	Feasibility Study Completed
220	NEYVELI LIGNITE	NEYVELI (EXT) TPS	Central	Tamil Nadu	SR	1	210	21/10/02	30/06/21	Bid opened
221	NEYVELI LIGNITE	NEYVELI (EXT) TPS	Central	Tamil Nadu	SR	2	210	22/07/03	31/12/21	Bid opened
222	NEYVELI LIGNITE	NEYVELI TPS- II	Central	Tamil Nadu	SR	1	210	17/01/88	31/12/21	Bid opened
223	NEYVELI LIGNITE	NEYVELI TPS- II	Central	Tamil Nadu	SR	2	210	06/02/87	30/09/21	Bid opened

Sr. No.	Developer	Name of Project	Sector	State	Region	Unit No	Unit Capacity	Date of Commissioning	FGD Phasing Plan	FGD Status
224	NEYVELI LIGNITE	NEYVELI TPS- II	Central	Tamil Nadu	SR	3	210	29/03/87	30/06/21	Bid opened
225	NEYVELI LIGNITE	NEYVELI TPS- II	Central	Tamil Nadu	SR	4	210	30/03/91	31/03/22	Bid opened
226	NEYVELI LIGNITE	NEYVELI TPS- II	Central	Tamil Nadu	SR	5	210	31/12/91	30/06/22	Bid opened
227	NEYVELI LIGNITE	NEYVELI TPS- II	Central	Tamil Nadu	SR	6	210	30/10/92	30/09/22	Bid opened
228	NEYVELI LIGNITE	NEYVELI TPS- II	Central	Tamil Nadu	SR	7	210	19/06/93	31/12/22	Bid opened
229	NTEC LTD.	VALLUR TPP	Central	Tamil Nadu	SR	1	500	28/03/12	31/12/21	NIT issued
230	NTEC LTD.	VALLUR TPP	Central	Tamil Nadu	SR	2	500	28/02/13	31/12/21	NIT issued
231	NTEC LTD.	VALLUR TPP	Central	Tamil Nadu	SR	3	500	28/02/14	31/12/21	NIT issued
232	NLC + TANGEDCO	TUTICORIN (JV) TPP	Central	Tamil Nadu	SR	1	500	10/03/15	31/12/21	NIT issued
233	NLC + TANGEDCO	TUTICORIN (JV) TPP	Central	Tamil Nadu	SR	2	500	09/07/15	30/06/20	NIT issued
234	TAQA, Neyveli	TAQA, Neyveli	Private	Tamil Nadu	SR	2	250	21/10/02	30/06/20	Bid opened
235	TANGEDCO	NORTH CHENNAI Ext. TPS	State Se	Tamil Nadu	SR	4	600	09/03/13	31/12/19	Requested for FGD implementation date to be revised as 31.12.2021
236	TANGEDCO	NORTH CHENNAI Ext. TPS	State Se	Tamil Nadu	SR	5	600	13/09/13	30/09/20	Requested for FGD implementation date to be revised as 30.09.2022
237	TANGEDCO	NORTH CHENNAI TPS	State Se	Tamil Nadu	SR	1	210	25/10/94	31/12/22	Budgetary offer awaited from M/s. BHEL
238	TANGEDCO	NORTH CHENNAI TPS	State Se	Tamil Nadu	SR	2	210	27/03/95	30/06/22	Budgetary offer awaited from M/s. BHEL
239	TANGEDCO	NORTH CHENNAI TPS	State Se	Tamil Nadu	SR	3	210	24/02/96	31/03/22	Budgetary offer awaited from M/s. BHEL
240	NTPC	RAMAGUNDEM STPS	Central	Telangana	SR	1	200	27/10/83	31/03/22	Bid awarded
241	NTPC	RAMAGUNDEM STPS	Central	Telangana	SR	2	200	29/05/84	31/03/22	Bid awarded
242	NTPC	RAMAGUNDEM STPS	Central	Telangana	SR	3	200	13/12/84	30/06/22	Bid awarded
243	NTPC	RAMAGUNDEM STPS	Central	Telangana	SR	4	500	26/06/88	30/06/22	Bid awarded
244	NTPC	RAMAGUNDEM STPS	Central	Telangana	SR	5	500	26/03/89	30/09/22	Bid awarded
245	NTPC	RAMAGUNDEM STPS	Central	Telangana	SR	6	500	16/10/89	30/09/22	Bid awarded
246	NTPC	RAMAGUNDEM STPS	Central	Telangana	SR	7	500	26/09/04	31/12/22	NIT issued
247	Singareni Collieries Co	SINGARENI TPP	State Se	Telangana	SR	1	600	13/03/16	31/12/19	Feasibility study completed
248	Singareni Collieries Co	SINGARENI TPP	State Se	Telangana	SR	2	600	25/11/16	30/09/19	Feasibility study completed
249	TSGENCO	KAKATIYA TPS	State Se	Telangana	SR	1	500	27/05/10	31/03/20	Feasibility Study started
250	TSGENCO	KAKATIYA TPS	State Se	Telangana	SR	2	600	31/12/15	30/06/20	Feasibility Study started
251	TSGENCO	KOTHAGUDEM TPS (NEW)	State Se	Telangana	SR	11	500	26/06/11	30/09/19	Feasibility Study started
252	Bharat Aluminium Co.	BALCO TPS	Private	Chhatisgarh	WR	1	300	04/06/15	30/09/21	Feasibility Study started
253	Bharat Aluminium Co.	BALCO TPS	Private	Chhatisgarh	WR	2	300	24/03/16	30/06/21	Feasibility Study started
254	CSEB	MARWA TPS	State Se	Chhatisgarh	WR	1	500	30/03/14	30/06/21	Feasibility Study Completed
255	CSEB	MARWA TPS	State Se	Chhatisgarh	WR	2	500	15/07/16	31/03/21	Feasibility Study Completed
256	CSPGCL	DSPM TPS	State Se	Chhatisgarh	WR	1	250	30/03/07	30/06/21	Feasibility Study Completed
257	CSPGCL	DSPM TPS	State Se	Chhatisgarh	WR	2	250	11/12/07	30/09/21	Feasibility Study Completed

Sr. No.	Developer	Name of Project	Sector	State	Region	Unit No	Unit Capacity	Date of Commissioning	FGD Phasing Plan	FGD Status
258	CSPGCL	KORBA-WEST Ext. TPS	State Se	Chhatisgarh	WR	5	500	22/03/13	30/09/21	Feasiblity Study Completed
259	DB Power	BARADARHA TPS	Private	Chhatisgarh	WR	1	600	23/02/14	30/06/21	NIT issued
260	DB Power	BARADARHA TPS	Private	Chhatisgarh	WR	2	600	24/03/15	30/09/20	NIT issued
261	GMR	RAIKHEDA TPP	Private	Chhatisgarh	WR	1	685	24/02/15	30/06/20	GCEL is under stressed
262	GMR	RAIKHEDA TPP	Private	Chhatisgarh	WR	2	685	28/03/16	30/09/20	GCEL is under stressed
263	KORBA-WEST TPS P	AVANTHA BHANDAR	Private	Chhatisgarh	WR	1	600	31/03/14	31/03/22	Feasiblity Study Completed
264	KSK Mahanadi Power	AKALTARA TPS	Private	Chhatisgarh	WR	1	600	13/08/13	30/06/22	Feasiblity Study Completed
265	KSK Mahanadi Power	AKALTARA TPS	Private	Chhatisgarh	WR	2	600	22/08/14	31/03/22	Feasiblity Study Completed
266	M/s Lanko Amarkantak	PATHADI TPP	Private	Chhatisgarh	WR	1	300	04/06/09	31/03/21	Tender Specification made
267	M/s Lanko Amarkantak	PATHADI TPP	Private	Chhatisgarh	WR	2	300	25/03/10	31/03/21	Tender Specification made
268	M/s O.P.Jindal	OP JINDAL TPS	Private	Chhatisgarh	WR	1	250	02/09/07	31/03/22	NIT issued
269	M/s O.P.Jindal	OP JINDAL TPS	Private	Chhatisgarh	WR	2	250	10/02/08	31/03/22	NIT issued
270	M/s O.P.Jindal	OP JINDAL TPS	Private	Chhatisgarh	WR	3	250	06/03/08	30/06/22	NIT issued
271	M/s O.P.Jindal	OP JINDAL TPS	Private	Chhatisgarh	WR	4	250	17/06/08	30/06/22	NIT issued
272	M/s O.P.Jindal	TAMNAR TPP	Private	Chhatisgarh	WR	1	600	10/03/14	31/03/21	NIT issued
273	M/s O.P.Jindal	TAMNAR TPP	Private	Chhatisgarh	WR	2	600	30/03/14	31/12/21	NIT issued
274	M/s O.P.Jindal	TAMNAR TPP	Private	Chhatisgarh	WR	3	600	07/01/15	31/03/22	NIT issued
275	M/s O.P.Jindal	TAMNAR TPP	Private	Chhatisgarh	WR	4	600	28/03/15	30/06/22	NIT issued
276	NTPC	KORBA STPS	Central	Chhatisgarh	WR	1	200	28/02/83	31/12/22	Bid awarded
277	NTPC	KORBA STPS	Central	Chhatisgarh	WR	2	200	31/10/83	31/12/22	Bid awarded
278	NTPC	KORBA STPS	Central	Chhatisgarh	WR	3	200	17/03/84	31/12/22	Bid awarded
279	NTPC	KORBA STPS	Central	Chhatisgarh	WR	4	500	31/05/87	31/12/22	Bid awarded
280	NTPC	KORBA STPS	Central	Chhatisgarh	WR	5	500	25/03/88	31/12/22	Bid awarded
281	NTPC	KORBA STPS	Central	Chhatisgarh	WR	6	500	26/02/89	31/12/22	Bid awarded
282	NTPC	KORBA STPS	Central	Chhatisgarh	WR	7	500	25/11/10	31/12/22	Bid awarded
283	NTPC	SIPAT STPS	Central	Chhatisgarh	WR	4	500	20/06/08	31/12/21	NIT ISSUED
284	NTPC	SIPAT STPS	Central	Chhatisgarh	WR	5	500	01/01/09	31/12/21	NIT ISSUED
285	NTPC	SIPAT STPS	Central	Chhatisgarh	WR	1	660	01/10/11	31/12/22	Bid awarded
286	NTPC	SIPAT STPS	Central	Chhatisgarh	WR	2	660	25/05/12	31/12/22	Bid awarded
287	NTPC	SIPAT STPS	Central	Chhatisgarh	WR	3	660	08/01/12	31/12/21	Bid awarded
288	NTPC & Sail	BHILAI TPS	Central	Chhatisgarh	WR	1	250	20/04/08	31/12/22	Bid awarded
289	NTPC & Sail	BHILAI TPS	Central	Chhatisgarh	WR	2	250	12/07/09	31/12/22	Bid awarded
290	RKM Powergen Private	UCHPINDA TPP	Private	Chhatisgarh	WR	1	360	28/10/15	31/03/22	Feasibility study completed
291	RKM Powergen Private	UCHPINDA TPP	Private	Chhatisgarh	WR	3	360	28/01/16	31/12/21	Feasibility study completed
292	SKS Power Gen. (CG	Binjkote TPP	Private	Chhatisgarh	WR	1	300	25/04/17	30/09/20	Feasability study started
293	TRN Energy Private Lt	NAWAPARA TPP	Private	Chhatisgarh	WR	2	300	18/04/17	30/09/20	Already meeting the environmental norms.
294	Adani Power Ltd.	MUNDRA TPS	Private	Gujarat	WR	1	330	04/08/09	31/12/22	NIT issued
295	Adani Power Ltd.	MUNDRA TPS	Private	Gujarat	WR	2	330	17/03/10	31/12/22	NIT issued
296	Adani Power Ltd.	MUNDRA TPS	Private	Gujarat	WR	3	330	02/08/10	30/09/22	NIT issued
297	Adani Power Ltd.	MUNDRA TPS	Private	Gujarat	WR	4	330	20/12/10	30/09/22	NIT issued

Sr. No.	Developer	Name of Project	Sector	State	Region	Unit No	Unit Capacity	Date of Commissioning	FGD Phasing Plan	FGD Status
298	Adani Power Ltd.	MUNDRA TPS	Private	Gujarat	WR	5	660	26/12/10	30/06/22	NIT issued
299	Adani Power Ltd.	MUNDRA TPS	Private	Gujarat	WR	6	660	20/07/11	31/03/22	NIT issued
300	Essar Gujarat	SALAYA TPP	Private	Gujarat	WR	1	600	04/01/12	30/06/21	Feasibility study under process
301	Essar Gujarat	SALAYA TPP	Private	Gujarat	WR	2	600	15/06/12	31/03/21	Feasibility study under process
302	GSECL	GANDHI NAGAR TPS	State Se	Gujarat	WR	3	210	20/03/90	31/12/21	Lol Placed
303	GSECL	GANDHI NAGAR TPS	State Se	Gujarat	WR	4	210	20/07/91	31/12/21	Lol Placed
304	GSECL	GANDHI NAGAR TPS	State Se	Gujarat	WR	5	210	17/03/98	31/12/21	Lol Placed
305	GSECL	KUTCH LIG. TPS	State Se	Gujarat	WR	1	70	29/03/90	31/12/21	Lol Placed
306	GSECL	KUTCH LIG. TPS	State Se	Gujarat	WR	2	70	25/03/91	31/12/21	Lol Placed
307	GSECL	KUTCH LIG. TPS	State Se	Gujarat	WR	3	75	31/03/97	31/12/21	Lol Placed
308	GSECL	SIKKA REP. TPS	State Se	Gujarat	WR	3	250	29/03/15	31/01/22	Bidding Under Progresse
309	GSECL	SIKKA REP. TPS	State Se	Gujarat	WR	4	250	25/09/15	31/01/22	Bidding Under Progresse
310	GSECL	UKAI TPS	State Se	Gujarat	WR	3	200	21/01/79	31/12/21	Lol Placed
311	GSECL	UKAI TPS	State Se	Gujarat	WR	4	200	28/03/79	31/12/21	Lol Placed
312	GSECL	UKAI TPS	State Se	Gujarat	WR	5	210	30/01/85	31/12/21	Lol Placed
313	GSECL	UKAI TPS	State Se	Gujarat	WR	6	500	05/03/13	31/03/22	e-tender for EPC floated & technical bid opening is scheduled on 29.05.2018.
314	GSECL	WANAKBORI TPS	State Se	Gujarat	WR	1	210	23/03/82	31/12/21	Lol Placed
315	GSECL	WANAKBORI TPS	State Se	Gujarat	WR	2	210	15/01/83	31/12/21	Lol Placed
316	GSECL	WANAKBORI TPS	State Se	Gujarat	WR	3	210	15/03/84	31/12/21	Lol Placed
317	GSECL	WANAKBORI TPS	State Se	Gujarat	WR	4	210	09/03/86	31/12/21	Lol Placed
318	GSECL	WANAKBORI TPS	State Se	Gujarat	WR	5	210	23/09/86	31/12/21	Lol Placed
319	GSECL	WANAKBORI TPS	State Se	Gujarat	WR	6	210	18/11/87	31/12/21	Lol Placed
320	GSECL	WANAKBORI TPS	State Se	Gujarat	WR	7	210	31/12/98	31/12/21	Feasibility Study Under Progress
321	Tata Power (CGPL)	MUNDRA UMTTP	Private	Gujarat	WR	1	800	07/03/12	30/06/20	Bid opened
322	Tata Power (CGPL)	MUNDRA UMTTP	Private	Gujarat	WR	2	800	30/07/12	31/03/21	Bid opened
323	Tata Power (CGPL)	MUNDRA UMTTP	Private	Gujarat	WR	3	800	27/10/12	30/06/21	Bid opened
324	Tata Power (CGPL)	MUNDRA UMTTP	Private	Gujarat	WR	4	800	21/01/13	31/03/22	Bid opened
325	Tata Power (CGPL)	MUNDRA UMTTP	Private	Gujarat	WR	5	800	22/03/13	31/03/22	Bid opened
326	Torrent Power Genera	SABARMATI	Private	Gujarat	WR	1	120	12/10/78	31/12/22	Feasibility Study under process
327	Torrent Power Genera	SABARMATI	Private	Gujarat	WR	2	121	31/12/84	31/12/22	Feasibility Study under process
328	Torrent Power Genera	SABARMATI	Private	Gujarat	WR	3	121	28/09/88	31/12/22	Feasibility Study under process
329	ESSAR power	MAHAN TPP	Private	Madhya Prad	WR	1	600	24/02/13	31/12/20	Feasibility study under process

Sr. No.	Developer	Name of Project	Sector	State	Region	Unit No	Unit Capacity	Date of Commissioning	FGD Phasing Plan	FGD Status
330	Jaiprakash Power Ventu	NIGRI TPP	Private	Madhya Prad	WR	1	660	29/08/14	30/06/20	Feasibility Study is under
331	Jaiprakash Power Ventu	NIGRI TPP	Private	Madhya Prad	WR	2	660	27/02/15	30/09/20	Feasibility Study is under
332	Jhabua Power Ltd.	SEIONI TPP	Private	Madhya Prad	WR	1	600	22/03/16	31/03/20	Feasibility Study completed
333	MB Power	ANUPPUR TPP	Private	Madhya Prad	WR	1	600	20/04/15	31/03/22	Technical Bid under evaluation
334	MB Power	ANUPPUR TPP	Private	Madhya Prad	WR	2	600	30/03/16	30/06/22	Technical Bid under evaluation
335	MPPGCL	AMARKANTAK EXT TPS	State Se	Madhya Prad	WR	5	210	15/06/08	31/03/21	Feasibility Study Under Progress
336	MPPGCL	SANJAY GANDHI TPS	State Se	Madhya Prad	WR	1	210	26/03/93	31/03/21	Feasibility Study Under Progress
337	MPPGCL	SANJAY GANDHI TPS	State Se	Madhya Prad	WR	2	210	27/03/93	31/03/21	Feasibility Study Under Progress
338	MPPGCL	SANJAY GANDHI TPS	State Se	Madhya Prad	WR	3	210	28/02/99	30/06/21	Feasibility Study Under Progress
339	MPPGCL	SANJAY GANDHI TPS	State Se	Madhya Prad	WR	4	210	23/11/99	30/06/21	Feasibility Study Under Progress
340	MPPGCL	SANJAY GANDHI TPS	State Se	Madhya Prad	WR	5	500	18/06/07	31/03/21	Feasibility Study Under Progress
341	MPPGCL	SATPURA TPS	State Se	Madhya Prad	WR	10	250	22/03/13	31/03/21	Feasibility Study Under Progress
342	MPPGCL	SATPURA TPS	State Se	Madhya Prad	WR	11	250	25/12/13	31/03/21	Feasibility Study Under Progress
343	MPPGCL	SHRI SINGHAJI TPP	State Se	Madhya Prad	WR	1	600	18/11/13	31/03/21	NIT issued
344	MPPGCL	SHRI SINGHAJI TPP	State Se	Madhya Prad	WR	2	600	15/10/14	31/03/21	NIT issued
345	NTPC	VINDHYACHAL STPS	Central	Madhya Prad	WR	1	210	10/10/87	31/12/22	Bid awarded
346	NTPC	VINDHYACHAL STPS	Central	Madhya Prad	WR	2	210	23/07/88	31/12/22	Bid awarded
347	NTPC	VINDHYACHAL STPS	Central	Madhya Prad	WR	3	210	03/02/89	31/12/22	Bid awarded
348	NTPC	VINDHYACHAL STPS	Central	Madhya Prad	WR	4	210	26/12/89	31/12/22	Bid awarded
349	NTPC	VINDHYACHAL STPS	Central	Madhya Prad	WR	5	210	31/03/90	31/12/22	Bid awarded
350	NTPC	VINDHYACHAL STPS	Central	Madhya Prad	WR	6	210	01/02/91	31/12/22	Bid awarded
351	NTPC	VINDHYACHAL STPS	Central	Madhya Prad	WR	7	500	03/03/99	30/06/21	Bid awarded
352	NTPC	VINDHYACHAL STPS	Central	Madhya Prad	WR	8	500	26/02/00	30/06/21	Bid awarded
353	NTPC	VINDHYACHAL STPS	Central	Madhya Prad	WR	9	500	27/07/06	30/09/21	Bid awarded
354	NTPC	VINDHYACHAL STPS	Central	Madhya Prad	WR	10	500	08/03/07	30/09/21	Bid awarded
355	NTPC	VINDHYACHAL STPS	Central	Madhya Prad	WR	11	500	14/06/12	31/12/21	Bid awarded
356	NTPC	VINDHYACHAL STPS	Central	Madhya Prad	WR	12	500	22/03/13	31/12/21	Bid awarded
357	Reliance Power Ltd	SASAN UMTTP	Private	Madhya Prad	WR	1	660	30/05/13	30/09/21	Tender Floated
358	Reliance Power Ltd	SASAN UMTTP	Private	Madhya Prad	WR	2	660	18/12/13	30/06/21	Tender Floated
359	Reliance Power Ltd	SASAN UMTTP	Private	Madhya Prad	WR	3	660	21/05/14	31/03/22	Tender Floated
360	Reliance Power Ltd	SASAN UMTTP	Private	Madhya Prad	WR	4	660	25/03/14	31/03/22	Tender Floated
361	Reliance Power Ltd	SASAN UMTTP	Private	Madhya Prad	WR	5	660	24/08/14	31/12/21	Tender Floated

Sr. No.	Developer	Name of Project	Sector	State	Region	Unit No	Unit Capacity	Date of Commissioning	FGD Phasing Plan	FGD Status
362	Reliance Power Ltd	SASAN UMTTP	Private	Madhya Pradesh	WR	6	660	19/03/15	30/09/21	Tender Floated
363	Adani Power Maharashtra	TIRORA TPS	Private	Maharashtra	WR	1	660	11/09/12	31/03/22	NIT issued
364	Adani Power Maharashtra	TIRORA TPS	Private	Maharashtra	WR	2	660	25/03/13	31/12/21	NIT issued
365	Adani Power Maharashtra	TIRORA TPS	Private	Maharashtra	WR	3	660	10/06/13	01/10/21	NIT issued
366	Adani Power Maharashtra	TIRORA TPS	Private	Maharashtra	WR	4	660	23/03/14	01/07/21	NIT issued
367	Adani Power Maharashtra	TIRORA TPS	Private	Maharashtra	WR	5	660	25/09/14	31/03/21	NIT issued
368	Dhariwal Infrastructure	DHARIWAL TPP	Private	Maharashtra	WR	1	300	03/11/13	31/03/22	Feasibility Study under process
369	Dhariwal Infrastructure	DHARIWAL TPP	Private	Maharashtra	WR	2	300	28/05/14	31/03/22	Feasibility Study under process
370	GMR emco ENERGY	EMCO WARORA TPS	Private	Maharashtra	WR	1	300	07/02/13	31/03/22	Feasibility study completed
371	GMR emco ENERGY	EMCO WARORA TPS	Private	Maharashtra	WR	2	300	27/08/13	31/03/22	Feasibility study completed
372	MAHAGENCO	BHUSAWAL TPS	State S	Maharashtra	WR	3	210	18/09/82	31/03/21	Feasibility Study Carried Out
373	MAHAGENCO	BHUSAWAL TPS	State S	Maharashtra	WR	4	500	07/03/12	31/03/21	Feasibility Study Carried Out
374	MAHAGENCO	BHUSAWAL TPS	State S	Maharashtra	WR	5	500	30/03/12	31/03/21	Feasibility Study Carried Out
375	MAHAGENCO	CHANDRAPUR STPS	State S	Maharashtra	WR	3	210	03/05/85	31/03/21	Feasibility Study Carried Out
376	MAHAGENCO	CHANDRAPUR STPS	State S	Maharashtra	WR	4	210	08/03/86	31/03/21	Feasibility Study Carried Out
377	MAHAGENCO	CHANDRAPUR STPS	State S	Maharashtra	WR	5	500	22/03/91	31/03/21	Feasibility Study Carried Out
378	MAHAGENCO	CHANDRAPUR STPS	State S	Maharashtra	WR	6	500	11/03/92	31/03/21	Feasibility Study Carried Out
379	MAHAGENCO	CHANDRAPUR STPS	State S	Maharashtra	WR	7	500	01/10/97	31/03/21	Feasibility Study Carried Out
380	MAHAGENCO	CHANDRAPUR STPS	State S	Maharashtra	WR	8	500	29/03/15	31/03/21	Feasibility Study Carried Out
381	MAHAGENCO	CHANDRAPUR STPS	State S	Maharashtra	WR	9	500	21/03/16	31/03/20	Feasibility Study Carried Out
382	MAHAGENCO	KHAPARKHEDA TPS	State S	Maharashtra	WR	1	210	26/03/89	31/03/21	Feasibility Study Carried Out
383	MAHAGENCO	KHAPARKHEDA TPS	State S	Maharashtra	WR	2	210	08/01/90	31/03/21	Feasibility Study Carried Out
384	MAHAGENCO	KHAPARKHEDA TPS	State S	Maharashtra	WR	3	210	31/05/00	31/03/21	Feasibility Study Carried Out
385	MAHAGENCO	KHAPARKHEDA TPS	State S	Maharashtra	WR	4	210	07/01/01	31/03/21	Feasibility Study Carried Out
386	MAHAGENCO	KHAPARKHEDA TPS	State S	Maharashtra	WR	5	500	05/08/11	31/03/21	Feasibility Study Carried Out
387	MAHAGENCO	KORADI TPS	State S	Maharashtra	WR	6	210	30/03/82	31/03/21	Feasibility Study Carried Out
388	MAHAGENCO	KORADI TPS	State S	Maharashtra	WR	7	210	13/01/83	31/03/21	Feasibility Study Carried Out
389	MAHAGENCO	KORADI TPS	State S	Maharashtra	WR	8	660	30/03/15	31/03/21	Feasibility Study Carried Out
390	MAHAGENCO	KORADI TPS	State S	Maharashtra	WR	9	660	15/03/16	31/03/21	Feasibility Study Carried Out
391	MAHAGENCO	KORADI TPS	State S	Maharashtra	WR	10	660	28/12/16	31/12/20	Feasibility Study Carried Out
392	MAHAGENCO	NASIK TPS	State S	Maharashtra	WR	3	210	26/04/79	31/03/21	Feasibility Study Carried Out
393	MAHAGENCO	NASIK TPS	State S	Maharashtra	WR	4	210	10/07/80	31/03/21	Feasibility Study Carried Out
394	MAHAGENCO	NASIK TPS	State S	Maharashtra	WR	5	210	30/01/81	31/03/21	Feasibility Study Carried Out
395	MAHAGENCO	PARLI TPS	State S	Maharashtra	WR	4	210	26/03/85	31/03/21	Feasibility Study Carried Out
396	MAHAGENCO	PARLI TPS	State S	Maharashtra	WR	5	210	31/12/87	31/03/21	Feasibility Study Carried Out
397	MAHAGENCO	PARLI TPS	State S	Maharashtra	WR	6	250	16/02/07	31/03/21	Feasibility Study Carried Out
398	MAHAGENCO	PARLI TPS	State S	Maharashtra	WR	7	250	10/02/10	31/03/21	Feasibility Study Carried Out
399	MAHAGENCO	PARLI TPS	State S	Maharashtra	WR	8	250	30/03/16	31/03/21	Feasibility Study Carried Out
400	NTPC	MOUDA TPS	Central	Maharashtra	WR	1	500	19/04/12	31/12/22	Bid awarded

Sr. No.	Developer	Name of Project	Sector	State	Region	Unit No	Unit Capacity	Date of Commissioning	FGD Phasing Plan	FGD Status
401	NTPC	MOUDA TPS	Central	Maharashtra	WR	2	500	29/03/13	31/12/22	Bid awarded
402	NTPC	MOUDA TPS	Central	Maharashtra	WR	3	660	28/03/16	31/12/22	Bid awarded
403	NTPC	MOUDA TPS	Central	Maharashtra	WR	4	660	18/03/17	31/12/20	Bid awarded
404	NTPC	SOLAPUR	Central	Maharashtra	WR	1	660	07/04/17	31/12/20	Bid awarded
405	Ratan Power	NASIK (P) TPS	Private	Maharashtra	WR	1	270	25/02/14	31/03/21	Bids under Evaluation
406	Ratan Power	NASIK (P) TPS	Private	Maharashtra	WR	2	270	15/02/17	31/03/21	Feasability study under progress
407	Ratan Power	NASIK (P) TPS	Private	Maharashtra	WR	3	270	14/04/17	31/12/22	Feasability study under progress
408	Ratan Power	NASIK (P) TPS	Private	Maharashtra	WR	4	270	19/05/17	31/12/22	Feasability study under progress
409	Ratan Power	NASIK (P) TPS	Private	Maharashtra	WR	5	270	30/05/17	31/12/22	Feasability study under progress
410	Vidarbha Industries Ltd	BUTIBORI TPP	Private	Maharashtra	WR	1	300	17/08/12	30/06/21	Reliance Power has floated the
411	Vidarbha Industries Ltd	BUTIBORI TPP	Private	Maharashtra	WR	2	300	19/03/13	31/03/21	Reliance Power has floated the
412	Wardha P C P L	WARDHA WARORA TPP	Private	Maharashtra	WR	1	135	05/06/10	30/09/21	Feasibility Study completed. Preparation of tender specification in progress.
413	Wardha P C P L	WARDHA WARORA TPP	Private	Maharashtra	WR	2	135	10/10/10	30/09/21	Feasibility Study completed. Preparation of tender specification in progress.
414	Wardha P C P L	WARDHA WARORA TPP	Private	Maharashtra	WR	3	135	21/01/11	31/12/21	Feasibility Study completed. Preparation of tender specification in progress.
415	Wardha P C P L	WARDHA WARORA TPP	Private	Maharashtra	WR	4	135	30/04/11	31/12/21	Feasibility Study completed. Preparation of tender specification in progress.
416	NTPC	KUDGI	Central	Karnataka	SR	3	800	12/03/18	31/12/22	Bid awarded
417	NTPC	Lara STPP	Central	Chhatisgarh	WR	1	800	23/03/18	31/12/22	Bid awarded
418	NTPC	Meja STPP	Central	Uttar Pradesh	NR	1	660	30/03/18	31/12/22	Bid awarded
419	APGENCO	Rayalaseema TPP St-IV	State Se	Andhra Pradesh	SR	6	600	12/03/18	31/12/22	Commitment yet to received
420	NTPC	Barauni TPS Extn.	State Se	Bihar	ER	8	250	11/01/18	31/12/22	NIT issued
421	NTPC	Barauni TPS Extn.	State Se	Bihar	ER	9	250	31/03/18	31/12/22	NIT issued
422	KSK Mahandi Power Co	Akaltara TPP (Naiyara)	Private	Chhatisgarh	WR	3	600	18/01/18	31/12/22	Feasibility Study completed. Preparation of tender specification in progress.
423	SKS Power Gen. (CG)	Binjkote TPP	Private	Chhatisgarh	WR	2	300	28/03/18	30/09/20	Feasability study under progress
424	RKM Powergen. Pvt. L	Uchpinda TPP	Private	Chhatisgarh	WR	3	360	12/09/17	31/03/22	Feasability study under progress

Sr. No.	Developer	Name of Project	Sector	State	Region	Unit No	Unit Capacity	Date of Commissioning	FGD Phasing Plan	FGD Status
425	Shirpur Power Pvt. Ltd	Shirpur TPP	Private	Maharashtra	WR	1	150	28/09/17	31/12/22	Feasability study under progress
426	India Power Corporation	India Power TPP	Private	West Bengal	ER	2	150	31/12/17	31/12/22	Feasability study under progress
427	PSEB	ROPAR TPS	State S	Punjab	NR	3	210	31/03/88	31/12/19	NIT issued
428	PSEB	ROPAR TPS	State S	Punjab	NR	4	210	29/01/89	31/12/19	NIT issued
429	PSEB	ROPAR TPS	State S	Punjab	NR	6	210	30/03/93	31/12/19	NIT issued
430	PSEB	ROPAR TPS	State S	Punjab	NR	5	210	29/03/92	31/12/19	NIT issued
431	NTPC	TANDA TPS	Central	Uttar Pradesh	NR	1	110	21/03/88	31/12/20	Bid awarded
432	NTPC	TANDA TPS	Central	Uttar Pradesh	NR	2	110	11/03/89	01/01/21	Bid awarded
433	NTPC	TANDA TPS	Central	Uttar Pradesh	NR	3	110	28/03/90	01/01/21	NIT issued
434	NTPC	TANDA TPS	Central	Uttar Pradesh	NR	4	110	20/02/98	01/01/21	NIT issued
435	NTPC	TALCHER (OLD) TPS	Central	Odisha	ER	1	60	17/12/67	31/12/21	NIT issued
436	NTPC	TALCHER (OLD) TPS	Central	Odisha	ER	2	60	28/03/68	01/01/22	NIT issued
437	NTPC	TALCHER (OLD) TPS	Central	Odisha	ER	3	60	11/07/68	01/01/22	NIT issued
438	NTPC	TALCHER (OLD) TPS	Central	Odisha	ER	4	60	11/04/69	01/01/22	NIT issued
439	NTPC	TALCHER (OLD) TPS	Central	Odisha	ER	5	110	24/03/82	01/01/22	NIT issued
440	NTPC	TALCHER (OLD) TPS	Central	Odisha	ER	6	110	24/03/83	01/01/22	NIT issued
						440	166472			