



भारत सरकार



I.S.O.: 9001: 2015

Government of India
केन्द्रीय विद्युत प्राधिकरण

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: January - March, 2019

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Foreword

Renovation & Modernization (R&M) 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 31-03-2019. 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 submitted in June 2018. SCR Pilot test at NTPC's Sipat TPS is being carried out to meet the NO_x level as per new environmental norms. 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 current year from 24th October 2018 to 1st November 2018. Officers from MoP, DVC, NTPC, State Utilities and CEA visited the latest USC power stations at Japan. Flexibilisation study is being carried out by JCOAL at Anpara-B TPS, UPRVUNL and Vindhyachal TPS, NTPC to enhance the flexibility of thermal units.

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 was 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 final report of the committee was released by Secretary, Power, MoP. It was found in the report that thermal units have to be operated at less than 30% load during the peak RES generation in the year 2021-22. Various measures have been suggested to improve the situation. 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.

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: 25-04-2019



(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 31-03-2019

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. Anpara-B TPS of UPRVUNL and Vindhyachal TPS of NTPC is being conducted by JCOAL to improve the flexibility of the plants. Another Pilot test is being conducted at unit no. 1 of Mauda TPS, NTPC by BHEL.

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 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. 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 current year 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. 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.

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 30.09.2018 was 344718.61 MW of which thermal power plants contributed 221802.59 MW (64.34 %). The contribution of Coal, Gas and Diesel based thermal power plants of total installed capacity is 56.89 %, 7.21 % and 0.24 % 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 11th 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 31.03.2019

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 31.03.2019.

	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			
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 31.03.2019 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 31.03.2019:

i)	BHEL	:	Rs. 725.07 crores
ii)	KBUNL	:	Rs. 180.00 crores
iii)	NTPC	:	Rs. 20.11 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	15.11.20011	Completed	Unit was synchronized on 03.08.2016.
	6	15.11. 2009	15.06.2012	2019	BTPS has been transferred to NTPC on 15-12-2018. Unit#6 TG rolling was done by BHEL/ BSPGCL in July 2018. BHEL has stopped further works. BHEL is yet to resume work after payment of Rs. 8 Crores on 20-03-2019, for further balance works for synchronization, trial run and commercial operation schedule of unit No.#6. Boiler: 97% work completed, Turbine: 98% work completed PG Test for both units is pending.
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 10 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 *166917 as on 31-03-2019	414 *441

*Now the total capacity for monitoring the implementation of FGD as on 31-03-2019 is 166917 MW & no. of units are 441 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 Specifications Made	NIT Issued	Bids Awarded	FGD Commissioned
1	Central Sector	53350	53350	51510	50510	47960	12040	0
2	State Sector	51885	49025	38195	17475	11315	0	0
3	Private Sector	61737	59107	42080	33720	21150	1820	1820
	Total	166972	161482	131785	101705	80425	13860	1820

S.No.	Sector (No. of units)	FGD planned	Feasibility Study Started	Feasibility Study Completed	Tender Specifications Made	NIT Issued	Bids Awarded	FGD Commissioned
1	Central Sector	143	143	135	133	123	24	0
2	State Sector	164	152	126	60	44	0	0
3	Private Sector	134	128	82	62	37	3	3
	Total	441	423	343	255	204	27	3

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 Specificatio ns Made	NIT Issued	Bids Awarded	FGD Commi ssioned
1	Central Sector	29320	29320	29320	29320	29320	6620	0
2	State Sector	13980	13980	10680	3200	2000	0	0
3	Private Sector	13510	13510	9610	7370	4970	1320	1320
	Total	56810	56810	49610	39890	36290	7940	1320

S.No.	Sector (No. of units)	FGD planned	Feasibility Study Started	Feasibility Study Completed	Tender Specificatio ns Made	NIT Issued	Bids Awarded	FGD Commi ssioned
1	Central Sector	57	57	57	57	57	12	0
2	State Sector	25	25	20	6	4	0	0
3	Private Sector	22	22	16	12	8	2	2
	Total	104	104	93	75	69	14	2

NCR Summary

S.No.	Sector (Capacity in MW)	FGD planned	Feasibility Study Started	Feasibility Study Completed	Tender Specificatio ns Made	NIT Issued	Bids Awarded	FGD Commi ssioned
1	Central Sector	3320	3320	3320	3320	3320	1820	0
2	State Sector	4770	4560	2800	2800	500	0	0
3	Private Sector	4700	4700	4700	4700	4700	1320	1320
	Total	12790	12580	10820	10820	8520	3140	1320

S.No.	Sector (No. of units)	FGD planned	Feasibility Study Started	Feasibility Study Completed	Tender Specificatio ns Made	NIT Issued	Bids Awarded	FGD Commi ssioned
1	Central Sector	9	9	9	9	9	6	0
2	State Sector	17	16	8	8	2	0	0
3	Private Sector	7	7	7	7	7	2	2
	Total	33	32	24	24	18	8	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: Awarded on 29 June 18 for combustion modification ESP: Statutory limits being complied.
2	GHTP (Lehra Mohabbat), Punjab Unit 1-4(210X2 & 250X2 MW) PSPCL	31.12.2019	FGD: Work order cum contract agreement for consultancy services for preparation of TS issued to M/s NTPC 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: Bid opened. 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: FGD package retendered on 18 Oct 2018 DE-NOx: Awarded on 29 Oct 2018 ESP: Statutory limits being complied.
5	Mahatma Gandhi TPP, Haryana Unit-1-2(660x2 MW) CLP	31.12.2019	FGD: FGD Installed and is Under Renovation ESP: Statutory limits being complied. DE-Nox: A third party has been engaged to control NOX emission through combustion optimisation technique.
6	Panipat TPS, Haryana Unit-6 (1X210 MW) HPGCL	31.12.2019	FGD: Tender specification made ESP: SPM values are within limits. De-NOx: Low NOx burner to be installed
	Panipat TPS, Haryana Unit-7-8 (2X250 MW) HPGCL	31.12.2019	FGD: Tender specification made ESP: SPM values are within limits. De-NOx: Preliminary pilot study is being carried out by NTPC. Subsequent action will be taken thereafter.
7	Rajiv Gandhi TPS, Hisar, Haryana Unit-1(2X600 MW) HPGCL	31.12.2019	FGD: Tender specification made. ESP: Only revival and repair for Unit-1, RGTPP, Khedar, Hisar. Revival of 02 nos. ESP fields and overhauling of balance 62 nos. fields will be carried out in the forthcoming overhauling scheduled in Oct-Nov., 2019. De-NOx: Preliminary pilot study is being carried out by NTPC. Subsequent action will be taken thereafter.
8	Yamunanagar (DCTPS), Haryana Unit-1(2X300 MW) HPGCL	31.12.2019	FGD: Tender specification made ESP: Only revival and repair for Unit-1, RGTPP, Khedar, Hisar. Revival of 02 nos. ESP fields and overhauling of balance 62 nos. fields will be carried out in the forthcoming overhauling scheduled in Oct-Nov., 2019 De-NOx: Preliminary pilot study is being carried out by NTPC. Subsequent action will be taken thereafter.
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. PPA issue pending with regulator
10	Nabha Power Ltd, Rajpura, Punjab Unit-1-2(700x2 MW) GMR	31.12.2019	FGD: NIT issued. ESP: Statutory limits being complied. De-Nox: SNCR to be installed after results of NTPC pilots.
11	GSSTP Ropar (4x210 MW) PSPCL	31/12/2019	FGD: DSI technology has been proposed by consultant. Technical Specifications have been submitted and are under review. ESP: Statutory limits being complied. Need to be certified by state govt. 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.

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. Anpara-B TPS of UPRVUNL and Vindhyachal TPS of NTPC is being conducted by JCOAL to improve the flexibility of the plants. Another test is being conducted at unit no. 1 of Mauda TPS of NTPC by BHEL.

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 WBPDL, 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.

8.1.1 World Bank Funded Energy Efficiency Pilot R&M Projects

(A) Bandel TPS (Unit-5, 210 MW)

The total estimated cost of R&M project is around US \$ 107.38 Million comprising of loan of around US \$ 59, GEF Grant of around US \$ 12.45 million. In addition to above, Technical Assistance of US \$ 1.3 million under GEF Grant has been provided for consultancy. Further, additional US\$ 22.21 million comprising of IBRD loan of US\$ 18.01 million and GEF grant of US\$ 4.2 million due to restructuring of funds as a result of cancellation of R&M works in Panipat TPS have also been provided for Bandel TPS.

Status of Physical Progress

The unit- 5 was taken under S/D for R&M/LE works in November.2013 and the unit synchronized on coal on 21st September, 2015. The unit attained a load of 215 MW on 24th November, 2015.

(B) Koradi TPS (Unit-6, 210 MW)

Background

The total estimated cost of the project is around US\$ 110.5 Million and the fund allocation for the Koradi TPS is loan of around US \$ 59 million (Loan)), grant of around US \$ 12.45 million. In addition to above Technical Assistance of US \$ 3.3 million under GEF Grant has been provided for 10 consultancy studies.

The Commercial Operation Date of the unit is 30.03.1982 & the unit is about 34 years old. The estimated cost of the R&M project based on award of contract is Rs. 486 Crore. The zero date for R&M project is 3rd March, 2014. The unit was under shutdown from 20-07-2015 to 16-07-2018. LE work of unit#6 has been completed and unit synchronised on 16-07-2018 with oil & on 20-08-2018 with coal.

Status of Physical Progress

- i) **BTG Package:** Mahagenco issued that the Letter of Award to BHEL on May 31, 2013. The contract was signed on December 18, 2013. Overall 98.07% 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.
- iii) **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 supplied by M/s ABB at site & further supply is in progress. Major BTG works are completed except, HT Motor 4/29 balance (supply balance 1 no.), LT motors Supply bance 3 Nos., Replacement of 9 LT is balance, 30% Illumination work is balance and supply & installation of Hoists for PA and FD Fans is balance.

- iv) **C&I/Electrical System:** UPS- 98% completed. 24V charger & battery work is 95% completed & Pre- commissioning of system/ auxiliaries, BLU through new DCS.
- v) **BOP Package: 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 90% work is completed. Under Cooling Tower Plant Package overall 95% work completed. 99.67% of overall material has been supplied at site. Design Engg. work is completed of **Ash Handling Plant**. 95.87% material supplied at site overall 95% work completed. Overall material supplied at site is 100% Only Dump Test is balance for **Fire Detection, Protection & Inert Gas System Package**.

Various Revised Milestones for R&M work at Unit-6, Koradi TPS are as under:

S.No.	Milestone	Target Date	Revised Target Date	Actual Date
1.	Zero date R&M Project	03-03-2014	--	03-03-2014
2.	Date of Shut Down for R&M	25-08-2015	--	20-07-2015
3.	Synchronization	20-04-2016		16-07-2018 (with oil) 20-08-2018 (Coal Firing)
4.	Trial Run or Reliability Run	20-05-2016	--	--
5.	P.G. Test	18-08-2016	--	--

The unit is synchronized on 16-07-2018 with oil firing and run for @35 minutes with load upto 30 MW. The unit is synchronized on 20-08-2018 with coal firing and run with average loading of 50-60 MW and reaching maximum of 89 MW with difficulties in mill availability due to coal flow problems due to wet coal. Unit resynchronised on 13-10-2018 and tripped on the same day. Unit again synchronized on 14-10-2018 at 23:29 hrs and tripped at 23:56 hrs on 14-10-2018. Unit finally synchronized on 15-10-2018.

C) Panipat TPS (Unit-3&4, 2x110 MW)

The unit 3 & 4 of Panipat TPS was initially identified for R&M under World Bank Programme. A loan of 448.36 Crores was assigned under R&M of Unit 3&4, PTPS, Panipat. As per the final TAR of consultant R&M cost was 561.27 Crores which was not found financial viable due to high sensitivity of returns to Station Heat Rate and exceeding of estimated cost against available funds. Therefore, HPGCL requested World Bank for foreclosure of the Loan Agreement.

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 has been organised during the year 2018 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. 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.

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.
- Identification of issues to be addressed regarding both existing and upcoming facilities, and also operation and maintenance.
- Implementation of studies with priorities, but not limited to environmental technologies for coal fired power generation such as IGCC, IGFC.
- Flexibilization measures and biomass utilization are also of high priority.
Biomass study includes:
 - *Co firing of biomass pellets*
 - *Dedicated firing in Coal based plants*
 - *Dedicated biomass fired plants and*
 - *Waste to Energy Technologies*
- Study on Coal Washery and 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 31.03.2019)

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. Boiler: Work started from 01.10.2016. 100% work completed. Turbine. Work started on 03.07.2017. Nearly 95% work completed. Generator: 100% work completed. ESP foundation completed, Pass-A-100% completed, balance work of Pass-B is expected to be completed by 20-05-2019. Commissioning of Electrical and C&I system is expected to be completed by 31-12-2019 Ash Handling: (common for both unit-12 & unit-13) is expected to be completed by 30-09-2019. Switch Yard 400 kv CB- 100% work completed. Water treatment plant- 98% work completed. Coal Handling plant- nearly 50% work over.
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. R&M works started from 17-05-2018. Unit is under s/d from 16-05-2018 Boiler: Dismantling work completed. Boiler light up is expected on 11-03-2020. Turbine: Yet to start Generator: Yet to start. ESP: 95% (civil foundation only) work of Pass-A completed, expected date of handover to BHEL is 17-04-2019. Pass-B handed over to BHEL on 25-02-2019 and Ash Handling: -- Switchyard 400 kv CB: yet to start WTP: 98% work completed CHP: 60% work completed
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

S.No.	State	Name of Station	Unit No.	Year of Comm.	Cap. (MW)	Status
6.	Gujarat	Ukai	3	1979	200	<u>ESP R&M:</u> 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. <u>Turbine & Boiler R&M:</u> Turbine & boiler R&M work of UTPS Unit#3 is dropped. <u>C&I Up-gradation :-</u> 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 and scrutiny 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. <u>Boiler Back Pass Modification:</u> 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. PG test carried out and guaranty parameter achieved. <u>C&I Upgradation by utilizing R&M material of 2x120 MW GTPS unit no . 1&2.:</u> Order awarded to BHEL on 18-06-2015. Work completed and unit lit up on 04-05-2017. <u>Ash slurry pump house:-</u> - 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 and scrutiny is under progress.
8.	Gujarat	Ukai	5	1985	200	<u>ESP R&M:</u> ESP retrofitting of Ukai unit-5 completed and unit lit up on 29-03-2017. PG test of ESP has been completed. <u>Turbine &Boiler R&M</u> 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 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. Boiler back pass Modification work of UTPS unit#5 is dropped. 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 and scrutiny is under progress.

S.No.	State	Name of Station	Unit No.	Year of Comm.	Cap. (MW)	Status
9.	Gujarat	Wanakbori	1	1982	210	For implementation of DeNOx system, GSECL is awaiting the results of pilot projects of NTPC. 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. Boiler back pass Modification work of UTPS unit#5 is 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.
10.	Gujarat	Wanakbori	2	1983	210	
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 form 25.07.2017. ESP retrofitting unit -3 completed and unit lit up on 27-11-2017. PG test is planned in April 2018. 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 and expected to be synchronized on 18-02-2018. BTG Package: Mahagenco issued that the Letter of Award to BHEL on May 31, 2013. The contract was signed on December 18, 2013. Overall 98.07% 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.

S.No.	State	Name of Station	Unit No.	Year of Comm.	Cap. (MW)	Status
						Major BTG works are completed except following: - CPU erection and commissioning(50 T capacity) - SWAS System - EHG/ ATRS/ PAO demonstration. - Works identified as punch points such as grating, railings, drains etc. 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 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 bance 3 Nos. - Replacement of 9 LT is balance. - 30% Illumination work is balance. - 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 90% work is completed. Under Cooling Tower Plant Package overall 95% work completed. 99.67% of overall material has been supplied at site. Design Engg. work is completed of Ash Handling Plant. 95.87% material supplied at site overall 95% work completed. Overall material supplied at site is 100% Only Dump Test is balance for Fire Detection, Protection & Inert Gas System Package.
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

S.No.	State	Name of Station	Unit No.	Year of Comm.	Cap. (MW)	Status
						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. Approval of DPR is in progress. 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.
17.	Maharashtra	Nashik	5	1981	210	R&M/LE feasibility study completed. 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 is yet to resume work after payment of Rs. 8 Crores on 20-03-2019, for further balance works for synchronization, trial run and commercial operation schedule of unit No.#6. Boiler: 97% work completed, Turbine: 98% work completed PG Test for both units is pending.
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.
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

S.No.	State	Name of Station	Unit No.	Year of Comm.	Cap. (MW)	Status																								
						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. BOP: - Clarifloculator:- WBPDC Board has approved for retendering of new BTG package with higher capacity mills. Accordingly, earlier NIT is cancelled. ESP: U#3: Mechanical erection works is in progress. Major electrical equipment has been dispatched. U#1: Dismantling work completed. Civil pile work is under progress. AHP: U#3: Mechanical erection work is in progress. Electrical and Instrumentation: - Technical bids are submitted on 03-01-2018. <table><tr><th colspan="3">Electrical</th></tr><tr><td>1</td><td>GPR and 2 breaker Relay</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="3">Instrumentation</th></tr><tr><td>1</td><td>ESP</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><td>-do-</td></tr><tr><td>3</td><td>Governing System</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><td>-do-</td></tr><tr><td>5</td><td>Incorporation of ATRS</td><td>-do-</td></tr></table> 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.	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 ATRS	-do-
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5	Incorporation of ATRS	-do-																												

S.No.	State	Name of Station	Unit No.	Year of Comm.	Cap. (MW)	Status
						Total estimated cost of R&M/LE works is Rs. 1090 Crs for unit-1,2 & 3. Financial progress: ESP- Payment of Rs 40.50 crore was made for ESP up to 31-03-2019. AHP- Payment of Rs. 23.00 crore was made for AHP till 31-03-2019.
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.
31.	Karnataka	Raichur	1	1985	210	Actual date of start of R&M/LE is 207-18 and expected to be completed in 48 months from start of work. 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
32.	Karnataka	Raichur	2	1986	210	
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

S.No.	State	Name of Station	Unit No.	Year of Comm.	Cap. (MW)	Status
						the firm after completing some of the pending works of Energy Audit. M/s. Energo Engineers, Gugaon 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.
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. Lightup 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 82% work completed. TG: Nearly 82% work completed. Electrical & Instrumentation: Nearly 82% work completed. BOP: Nearly 82% work completed. - The R&M work would be carried out in AOH and are likely to be completed by 30-06-2019. 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. Replacement of old and obsolete HP Heaters of unit 1&2 has been completed. 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. Upgradation of wagon Trippler No.3 in coal handling plant of GGSSTP, magnetic separators on conveyors in CHP has been installed & commissioned. 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 next overhauling in 2018-19. Phase-II Migration of WDPF System to Ovation system on Unit-5 completed. Replacement of minimum oil circuit
7.	Punjab	Ropar	6	2001	210	

S.No.	State	Name of Station	Unit No.	Year of Comm.	Cap. (MW)	Status
						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 2019-20. Replacement of ESP controllers of stage 3 would 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. (extended upto 18-10-2018 for main package & 11-02-2019 for optional package. Work being executed through M/s Elcon EPC Project, Gujarat. - 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. 54 Crores under approval of BOD.</u> - Replacement of existing BHEL make Procontrol P-13 SG-TG system of unit#5. - Renovation of static excitation and AVR system of 210 MW unit#3 & 4 by digital AVR system. - Strengthening and repair of RCC & steel structure of crusher house. Structure of DM plant, RCC of acid alkali tank, SDG tank and plow feeder at KSTPS. - Strengthening and repair of RCC framed structure of IDCT Cooling Tower of unit #6. - Conversion of Relay logic control system of CHO into PLC based system. - Purchase of 3 nos of bulldozer. - Supply, Design, installation, testing and commissioning of online energy accounting and management system of KSTPS.
11.	Rajasthan	Kota	4	1989	210	
12.	Rajasthan	Kota	5	1994	125	
13.	Rajasthan	Suratgarh TPS	1	1998	250	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. - 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
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												
						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 being carried out. Unit No. 1: Erection work 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.</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.</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</td></tr><tr><td>4.</td><td>Installation of FGD System</td><td>DPR prepared. Tender for engagement of consultant for preparation of tender specification is under final stage.</td></tr></table>	1.	Augmentation, Renovation & Up-gradation of ESPs to maintain the stack Emission level 50mg/Nm³	Unit No.2: R&M work has been completed, PG Test is being carried out. Unit No. 1: Erection work 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.	2.	Augmentation of DDCMIS	Detailed order issued to BHEL for supply & services. Detailed Engineering work is under progress.	3.	Fire Protection System of Transformer & Oil handling tanks areas	LOI has been issued on 03-04-2019	4.	Installation of FGD System	DPR prepared. Tender for engagement of consultant for preparation of tender specification is under final stage.
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18.	Chhattisgarh	Korba (West)	2	1984	210													
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. - Boiler - TG - BOP - 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. 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-												
22.	M.P.	Sanjay Gandhi	2	1994	210													

S.No.	State	Name of Station	Unit No.	Year of Comm.	Cap. (MW)	Status
						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.
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. Bolier: Strengthening of weak insulation of Boiler-To be carried out during 2018-19. T.G.: -Minor repair works such as attending cracks in the Strengthening of weak insulation of Boiler carried out during 2017-18. 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 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. 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 is under progress. Administrative approval for Distributed Digital Control Monitoring and Information System (DDCMIS) accorded on 29-12-2015. Technical specification was approved by Board of TANGEDCO on 30-04-2018. Tender opened on 18-08-2018. Board approval was accorded on 28-02-2019. Bid price opened on 13-03-2019. Tender evaluation is under progress. Approval accorded on 05-03-2019 for installation of FGD. Tendering is under progress. 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

S.No.	State	Name of Station	Unit No.	Year of Comm.	Cap. (MW)	Status
						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. 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.
27.	Tamil Nadu	Tuticorin TPS	2	1980	210	Following R&M Works to be carried out during 2017-22 at unit#2. 1. Replacement of unit Auxiliary Transformer(2019-20) -Tender proposal has been lodged on 03-04-2019. 2. 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. 3. Retrofitting iof HP/ IP/ LP rotor in 210 MW LMW Turbine (2021-22). - 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. 4. Provision of Flue GAS Desulphurization Plant, FGD (2020-21) - Approval accorded on 05-03-2019 for installation of FGD. Tendering is under progress. 5. Upgradation of operating system along with PGP and computer. (2019-20) - Tender opening extended to 24.04.2019 6. Replacement of existing HT Mill motors by Energy efficient motors (7 NOS). (2021-22). 7. 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. 8. 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. 8. Main Condensate Pump Motor 220 KW/6.6KV (2021-22)
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. 3rd RLA study of Boiler -(2020-21) 2. 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 3. Complete replacement of platen water wall tubes and bends in boiler (2020-21) 4. Retrofitting of condenser (2020-21) 5. Augmenting the capacity of air evacuation system of condensers by replacing the existing steam

S.No.	State	Name of Station	Unit No.	Year of Comm.	Cap. (MW)	Status
						ejectors by vacuum pumps (2020-21) 6. 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. 7. Provision of Flue Gas Desulphurization Plant (FGD) (2020-21) 8. Replacing of 3 nos 1100KW, 6.6KV FD fan motors. (2019-20) 9. Distributed Digital Control Monitoring Information System (DDCMIS). (2020-21) 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.
29.	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) 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)
30.	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 on16-07-2018. 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) 4. Chemical cleaning of boiler (2020-21) 5. 2 nd 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) 9.Provision of Flue Gas Desulphurization Plant (FGD) (2021-22)
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 had to be installed in unit-4 due to available s/d and requirement of the unit. The supply order for one new vibration monitoring system already placed. Expected to be commissioned within May 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 2019-20 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) The supply order for one new vibration monitoring system already placed. Expected to be commissioned within May 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 unit 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. 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 Tubine 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. Expected to be commissioned within May 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 2019-20.

S. No		Name of Stn.	Unit No.	Year of Comm .	Capacity	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	WBPDCCL	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	WBPDCCL	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 (MM/DD/YY)	FGD Phasing Plan (DD/MM/YYYY)	FGD Status
1	NTPC	BARH II	Central Sector	Bihar	ER	4	660	11/20/2013	30/09/2021	Awarded on 18 Sept 2018
2	NTPC	BARH II	Central Sector	Bihar	ER	5	660	3/4/2015	31/03/2022	Awarded on 18 Sept 2018
3	NTPC	KAHALGAON TPS	Central Sector	Bihar	ER	1	210	3/31/1992	31/12/2022	NIT issued on 28 Sept 2018
4	NTPC	KAHALGAON TPS	Central Sector	Bihar	ER	2	210	3/17/1994	31/12/2022	NIT issued on 28 Sept 2018
5	NTPC	KAHALGAON TPS	Central Sector	Bihar	ER	3	210	3/24/1995	31/12/2022	NIT issued on 28 Sept 2018
6	NTPC	KAHALGAON TPS	Central Sector	Bihar	ER	4	210	3/18/1996	31/12/2022	NIT issued on 28 Sept 2018
7	NTPC	KAHALGAON TPS	Central Sector	Bihar	ER	5	500	3/31/2007	31/12/2022	NIT issued on 28 Sept 2018
8	NTPC	KAHALGAON TPS	Central Sector	Bihar	ER	6	500	3/16/2008	31/12/2022	NIT issued on 28 Sept 2018
9	NTPC	KAHALGAON TPS	Central Sector	Bihar	ER	7	500	7/31/2009	31/12/2022	NIT issued on 28 Sept 2018
10	NTPC	NABI NAGAR TPS	Central Sector	Bihar	ER	1	250	3/20/2016	31/12/2021	NIT issued on 30 June 2017
11	NTPC	NABI NAGAR TPS	Central Sector	Bihar	ER	2	250	4/4/2017	31/12/2022	NIT issued on 30 June 2017
12	NTPC & Bihar	MUZAFFARPUR	Central Sector	Bihar	ER	1	110	3/31/1985	12/31/2020	NIT issued on 28 Sept 2018
13	NTPC & Bihar	MUZAFFARPUR	Central Sector	Bihar	ER	2	110	3/17/1986	12/31/2020	NIT issued on 28 Sept 2018
14	NTPC & Bihar	MUZAFFARPUR	Central Sector	Bihar	ER	3	195	3/31/2015	31/12/2022	NIT issued on 31 Aug 18
15	NTPC & Bihar	MUZAFFARPUR	Central Sector	Bihar	ER	4	195	3/24/2017	31/12/2022	NIT issued on 31 Aug 18
16	Adhunik Power	MAHADEV PRASAD	Private Sector	Jharkhand	ER	1	270	11/19/2012	30/06/2022	Complies with new Norms as per developer
17	Adhunik Power	MAHADEV PRASAD	Private Sector	Jharkhand	ER	2	270	3/29/2013	30/06/2022	Complies with new Norms as per developer
18	D.V.C	BOKARO 'A' TPS	Central Sector	Jharkhand	ER	1	500	3/22/2016	30/06/2022	Award expected in Mar-19
19	D.V.C	CHANDRAPURA	Central Sector	Jharkhand	ER	7	250	11/4/2009	31/12/2022	NIT expected in June,19
20	D.V.C	CHANDRAPURA	Central Sector	Jharkhand	ER	8	250	3/31/2010	31/12/2022	NIT expected in June,19
21	D.V.C	KODARMA TPS	Central Sector	Jharkhand	ER	1	500	7/20/2011	31/12/2021	Award expected in Mar-19
22	D.V.C	KODARMA TPS	Central Sector	Jharkhand	ER	2	500	2/15/2013	31/12/2021	Award expected in Mar-19
23	TATA Power	JOJOBBERA TPS	Private Sector	Jharkhand	ER	2	120	1/2/2001	31/12/2020	Feasibility under process
24	TATA Power	JOJOBBERA TPS	Private Sector	Jharkhand	ER	3	120	1/2/2002	31/12/2020	Feasibility under process
25	TATA Power	MAITHON RB TPS	Private Sector	Jharkhand	ER	1	525	9/1/2011	30/09/2021	NIT Issued
26	TATA Power	MAITHON RB TPS	Private Sector	Jharkhand	ER	2	525	7/24/2012	6/30/2022	NIT Issued
27	TenughatVN	TENUGHAT TPS	State Sector	Jharkhand	ER	1	210	4/14/1994	31/12/2020	Feasibility Study Carried out. Preparation of DPR under process.
28	TenughatVN	TENUGHAT TPS	State Sector	Jharkhand	ER	2	210	10/10/1996	31/12/2020	Feasibility Study Carried out. Preparation of DPR under process.
29	GMR	KAMALANGA TPS	Private Sector	Odisha	ER	1	350	3/29/2013	31/12/2021	Feasibility Report submitted to CEA.
30	GMR	KAMALANGA TPS	Private Sector	Odisha	ER	2	350	9/28/2013	31/12/2021	Feasibility Report submitted to CEA.
31	GMR	KAMALANGA TPS	Private Sector	Odisha	ER	3	350	3/21/2014	30/09/2021	Feasibility Report submitted to CEA.

Sr. No.	Developer	Name of Project	Sector	State	Region	Unit No	Unit Capacity	DATE of COMMISSIONING (MM/DD/YY)	FGD Phasing Plan (DD/MM/YYYY)	FGD Status
32	Ind barath	IND BARATH TP	Private Sector	Odisha	ER	1	350	2/25/2016	31/03/2022	Feasibility Study under process
33	JIPL	DERANG TPP	Private Sector	Odisha	ER	1	600	4/10/2014	31/03/2021	Technical Bid evaluation
34	JIPL	DERANG TPP	Private Sector	Odisha	ER	2	600	1/24/2015	31/03/2021	Technical Bid evaluation
35	NTPC	TALCHER STPS	Central Sector	Odisha	ER	1	500	2/19/1995	31/12/2022	NIT issued on 28 Sept 2018
36	NTPC	TALCHER STPS	Central Sector	Odisha	ER	2	500	3/27/1996	31/12/2022	NIT issued on 28 Sept 2018
37	NTPC	TALCHER STPS	Central Sector	Odisha	ER	3	500	2/21/2003	31/12/2022	NIT issued on 28 Sept 2018
38	NTPC	TALCHER STPS	Central Sector	Odisha	ER	4	500	10/25/2003	31/12/2022	NIT issued on 28 Sept 2018
39	NTPC	TALCHER STPS	Central Sector	Odisha	ER	5	500	5/13/2004	31/12/2022	NIT issued on 28 Sept 2018
40	NTPC	TALCHER STPS	Central Sector	Odisha	ER	6	500	2/6/2005	31/12/2022	NIT issued on 28 Sept 2018
41	OPGCLtd	IB VALLEY TPS	State Sector	Odisha	ER	1	210	6/2/1994	30/09/2021	Tender specifications are under finalisation.
42	OPGCLtd	IB VALLEY TPS	State Sector	Odisha	ER	2	210	10/22/1995	30/09/2021	Tender specifications are under finalisation.
43	Sterlite Energy	STERLITE TPP	Private Sector	Odisha	ER	2	600	12/29/2010	31/03/2022	Feasibility Study under process
44	C.E.S.C. Pvt.	BUDGE BUDGE	Private Sector	West Bengal	ER	1	250	9/16/1997	31/12/2022	Feasibility under process
45	C.E.S.C. Pvt.	BUDGE BUDGE	Private Sector	West Bengal	ER	2	250	3/6/1999	31/12/2022	Feasibility under process
46	C.E.S.C. Pvt.	BUDGE BUDGE	Private Sector	West Bengal	ER	3	250	9/29/2009	31/12/2022	Feasibility under process
47	C.E.S.C. Pvt.	SOUTHERN REF	Private Sector	West Bengal	ER	1	68	4/10/1991	31/03/2022	Feasibility under process
48	C.E.S.C. Pvt.	SOUTHERN REF	Private Sector	West Bengal	ER	2	68	8/12/1990	31/12/2021	Feasibility under process
49	D.P.L.	D.P.L. TPS	State Sector	West Bengal	ER	6	110	7/3/1985	31/03/2022	Feasibility under process
50	D.P.L.	D.P.L. TPS	State Sector	West Bengal	ER	7	300	11/24/2007	30/06/2022	Feasibility under process
51	D.P.L.	D.P.L. TPS EXT.	State Sector	West Bengal	ER	8	250	3/31/2014	31/03/2022	Feasibility under process
52	D.V.C	DURGAPUR STE	Central Sector	West Bengal	ER	1	500	7/29/2011	30/06/2021	Award expected in Mar-19
53	D.V.C	DURGAPUR STE	Central Sector	West Bengal	ER	2	500	3/23/2012	30/06/2021	Award expected in Mar-19
54	D.V.C	MEJIA TPS	Central Sector	West Bengal	ER	1	210	3/1/1996	31/12/2022	NIT expected in June,19
55	D.V.C	MEJIA TPS	Central Sector	West Bengal	ER	2	210	3/24/1997	31/12/2022	NIT expected in June,19
56	D.V.C	MEJIA TPS	Central Sector	West Bengal	ER	3	210	3/25/1998	31/12/2022	NIT expected in June,19
57	D.V.C	MEJIA TPS	Central Sector	West Bengal	ER	4	210	10/12/2004	31/12/2022	NIT expected in June,19
58	D.V.C	MEJIA TPS	Central Sector	West Bengal	ER	5	250	10/1/2007	31/12/2022	NIT expected in June,19
59	D.V.C	MEJIA TPS	Central Sector	West Bengal	ER	6	250	3/31/2007	31/12/2022	NIT expected in June,19
60	D.V.C	MEJIA TPS	Central Sector	West Bengal	ER	7	500	9/30/2010	30/09/2021	Award expected in Mar-19
61	D.V.C	MEJIA TPS	Central Sector	West Bengal	ER	8	500	3/26/2011	30/09/2021	Award expected in Mar-19
62	D.V.C	RAGHUNATHPU	Central Sector	West Bengal	ER	1	600	8/24/2014	31/03/2022	Award expected in Mar-19
63	D.V.C	RAGHUNATHPU	Central Sector	West Bengal	ER	2	600	1/18/2016	31/03/2022	Award expected in Mar-19
64	M/s Haldia En	HALDIA TPP	Private Sector	West Bengal	ER	1	300	1/14/2015	31/12/2022	Feasibility Study under process
65	M/s Haldia En	HALDIA TPP	Private Sector	West Bengal	ER	2	300	2/16/2015	31/12/2022	Feasibility Study under process
66	Bishagarh Po	India Power TPP	Private Sector	West Bengal	ER	1	150	6/7/2017		Feasibility study under progress

Sr. No.	Developer	Name of Project	Sector	State	Region	Unit No	Unit Capacity	DATE of COMMISSIONING (MM/DD/YY)	FGD Phasing Plan (DD/MM/YYYY)	FGD Status
67	NTPC	FARAKKA STPS	Central Sector	West Bengal	ER	1	200	1/1/1986	31/12/2022	NIT issued on 28 Sept 2018
68	NTPC	FARAKKA STPS	Central Sector	West Bengal	ER	2	200	12/24/1986	31/12/2022	NIT issued on 28 Sept 2018
69	NTPC	FARAKKA STPS	Central Sector	West Bengal	ER	3	200	8/6/1987	31/12/2022	NIT issued on 28 Sept 2018
70	NTPC	FARAKKA STPS	Central Sector	West Bengal	ER	4	500	9/25/1992	31/12/2022	NIT issued on 28 Sept 2018
71	NTPC	FARAKKA STPS	Central Sector	West Bengal	ER	5	500	2/16/1994	31/12/2022	NIT issued on 28 Sept 2018
72	NTPC	FARAKKA STPS	Central Sector	West Bengal	ER	6	500	3/7/2011	31/12/2022	NIT issued on 28 Sept 2018
73	WBPDC	KOLAGHAT TPS	State Sector	West Bengal	ER	1	210	1/16/1993	30/06/2022	Tendering Process to be initiated in October 2018
74	WBPDC	KOLAGHAT TPS	State Sector	West Bengal	ER	2	210	8/13/1990	31/03/2021	Tendering Process to be initiated in July 2020
75	WBPDC	KOLAGHAT TPS	State Sector	West Bengal	ER	3	210	12/16/1985	30/09/2021	Tendering Process to be initiated in July 2020
76	WBPDC	KOLAGHAT TPS	State Sector	West Bengal	ER	4	210	1/24/1984	31/03/2022	Tendering Process to be initiated in March 2021
77	WBPDC	KOLAGHAT TPS	State Sector	West Bengal	ER	5	210	12/28/1993	30/06/2021	Tendering Process to be initiated in March 2021
78	WBPDC	KOLAGHAT TPS	State Sector	West Bengal	ER	6	210	3/17/1991	31/12/2021	Tendering Process to be initiated in March 2021
79	WBPDC	SAGARDIGHI TPS	State Sector	West Bengal	ER	1	300	7/20/2008	31/12/2020	Tendering Process to be initiated in July 2018
80	WBPDC	SAGARDIGHI TPS	State Sector	West Bengal	ER	2	300	12/21/2007	31/03/2021	Tendering Process to be initiated in July 2018
81	WBPDC	SAGARDIGHI TPS	State Sector	West Bengal	ER	3	500	12/14/2015	31/03/2022	Feasibility Study completed. Preparation of tender specification in progress.
82	WBPDC	SAGARDIGHI TPS	State Sector	West Bengal	ER	4	500	12/15/2016	31/03/2020	Feasibility Study completed. Preparation of tender specification in progress.
83	WBPDC	SANTALDIH TPS	State Sector	West Bengal	ER	5	250	11/7/2007	31/03/2021	Tendering Process to be initiated in July 2019
84	WBPDC	SANTALDIH TPS	State Sector	West Bengal	ER	6	250	6/29/2011	31/12/2021	Tendering Process to be initiated in July 2019
85	CHINA LIGHT	MAHATMA GANDHI	Private Sector	Haryana	NR	1	660	1/12/2012	31/12/2019	FGD Installed and is Under Renovation
86	CHINA LIGHT	MAHATMA GANDHI	Private Sector	Haryana	NR	2	660	4/11/2012	31/12/2019	FGD Installed and is Under Renovation
87	HGPCorpn	PANIPAT TPS	State Sector	Haryana	NR	6	210	3/31/2001	31/12/2019	Feasibility study under consideration
88	HGPCorpn	PANIPAT TPS	State Sector	Haryana	NR	7	250	9/28/2004	31/12/2019	Tender specification made
89	HGPCorpn	PANIPAT TPS	State Sector	Haryana	NR	8	250	1/28/2005	31/12/2019	Tender specification made
90	HGPCorpn	RAJIV GANDHI TPS	State Sector	Haryana	NR	1	600	3/31/2010	31/12/2019	Tender specification made
91	HGPCorpn	RAJIV GANDHI TPS	State Sector	Haryana	NR	2	600	10/1/2010	31/12/2019	Tender specification made
92	HGPCorpn	YAMUNA NAGAR	State Sector	Haryana	NR	1	300	11/1/2007	31/12/2019	Tender specification made
93	HGPCorpn	YAMUNA NAGAR	State Sector	Haryana	NR	2	300	3/29/2008	31/12/2019	Tender specification made
94	NTPC	INDIRA GANDHI	Central Sector	Haryana	NR	1	500	10/31/2010	31/12/2019	Retendered on 18-10-2018
95	NTPC	INDIRA GANDHI	Central Sector	Haryana	NR	2	500	11/5/2011	31/12/2019	Retendered on 18-10-2018

Sr. No.	Developer	Name of Project	Sector	State	Region	Unit No	Unit Capacity	DATE of COMMISSIONING (MM/DD/YY)	FGD Phasing Plan (DD/MM/YYYY)	FGD Status
96	NTPC	INDIRA GANDHI	Central Sector	Haryana	NR	3	500	11/7/2012	31/12/2019	Retendered on 18-10-2018
97	GVK Power Ltd	GOINDWAL S&P	Private Sector	Punjab	NR	1	270	2/14/2016	30/04/2020	EOI was invited vide newspaper advrt. On 18.06.2018
98	GVK Power Ltd	GOINDWAL S&P	Private Sector	Punjab	NR	2	270	3/15/2016	28/02/2020	EOI was invited vide newspaper advrt. On 18.06.2018
99	L&T Power Development	Nabha TPP (Rajp)	Private Sector	Punjab	NR	1	700	1/24/2014	31/12/2019	NIT issued
100	L&T Power Development	Nabha TPP (Rajp)	Private Sector	Punjab	NR	2	700	7/6/2014	31/12/2019	NIT issued
101	PSEB	GH TPS (LEH.M)	State Sector	Punjab	NR	1	210	12/29/1997	31/12/2019	Work order cum contract agreement for consultancy services for preparation of TS issued to M/s NTPC
102	PSEB	GH TPS (LEH.M)	State Sector	Punjab	NR	2	210	10/16/1998	31/12/2019	Work order cum contract agreement for consultancy services for preparation of TS issued to M/s NTPC
103	PSEB	GH TPS (LEH.M)	State Sector	Punjab	NR	3	250	1/3/2008	31/12/2019	Work order cum contract agreement for consultancy services for preparation of TS issued to M/s NTPC
104	PSEB	GH TPS (LEH.M)	State Sector	Punjab	NR	4	250	7/31/2008	31/12/2019	Work order cum contract agreement for consultancy services for preparation of TS issued to M/s NTPC
105	Talwandi Sahib	TALWANDI SAB	Private Sector	Punjab	NR	1	660	6/17/2014	31/12/2019	Technical bids opened
106	Talwandi Sahib	TALWANDI SAB	Private Sector	Punjab	NR	2	660	10/25/2015	31/12/2019	Technical bids opened
107	Talwandi Sahib	TALWANDI SAB	Private Sector	Punjab	NR	3	660	3/29/2016	31/12/2019	Technical bids opened
108	Adani Power	KAWAI TPS	Private Sector	Rajasthan	NR	1	660	5/28/2013	31/08/2020	NIT to be issued soon.
109	Adani Power	KAWAI TPS	Private Sector	Rajasthan	NR	2	660	12/24/2013	30/06/2020	NIT to be issued soon.
110	RRVUNL	CHHABRA TPP	State Sector	Rajasthan	NR	1	250	10/30/2009	31/12/2021	Tender Specification under process
111	RRVUNL	CHHABRA TPP	State Sector	Rajasthan	NR	2	250	5/4/2010	31/10/2021	Tender Specification under process
112	RRVUNL	CHHABRA TPP	State Sector	Rajasthan	NR	3	250	9/14/2013	31/08/2021	Tender Specification under process
113	RRVUNL	CHHABRA TPP	State Sector	Rajasthan	NR	4	250	6/30/2014	31/08/2021	Tender Specification under process
114	RRVUNL	CHHABRA TPP	State Sector	Rajasthan	NR	5	660	4/4/2017	30/04/2020	Tender Specification made
115	RRVUNL	KALISINDH TPS	State Sector	Rajasthan	NR	1	600	5/2/2014	30/06/2021	NIT under process
116	RRVUNL	KALISINDH TPS	State Sector	Rajasthan	NR	2	600	6/6/2015	30/04/2021	NIT under process
117	RRVUNL	KOTA TPS	State Sector	Rajasthan	NR	5	210	3/26/1994	31/12/2022	Tender Specification under process
118	RRVUNL	KOTA TPS	State Sector	Rajasthan	NR	6	195	7/30/2003	31/12/2022	Tender Specification under process
119	RRVUNL	KOTA TPS	State Sector	Rajasthan	NR	7	195	8/30/2009	31/10/2022	Tender Specification under process
120	RRVUNL	SURATGARH TPP	State Sector	Rajasthan	NR	1	250	5/10/1998	31/12/2022	Tender Specification made

Sr. No.	Developer	Name of Project	Sector	State	Region	Unit No	Unit Capacity	DATE of COMMISSIONING (MM/DD/YY)	FGD Phasing Plan (DD/MM/YYYY)	FGD Status
121	RRVUNL	SURATGARH TPS	State Sector	Rajasthan	NR	2	250	3/28/2000	31/10/2022	Tender Specification made
122	RRVUNL	SURATGARH TPS	State Sector	Rajasthan	NR	3	250	10/29/2001	31/08/2022	Tender Specification made
123	RRVUNL	SURATGARH TPS	State Sector	Rajasthan	NR	4	250	3/25/2002	30/06/2022	Tender Specification made
124	RRVUNL	SURATGARH TPS	State Sector	Rajasthan	NR	5	250	6/30/2003	30/04/2022	Tender Specification made
125	RRVUNL	SURATGARH TPS	State Sector	Rajasthan	NR	6	250	8/29/2009	28/02/2022	Tender Specification made
126	Lalitpur Power	LALITPUR TPS	Private Sector	Uttar Pradesh	NR	2	660	1/8/2016	28/02/2021	Petition was filed with UPERC for approval capital cost for installation of FGD and other associated systems. UPERC directed to approach CEA.
127	Lalitpur Power	LALITPUR TPS	Private Sector	Uttar Pradesh	NR	3	660	4/1/2016	31/10/2021	Petition was filed with UPERC for approval capital cost for installation of FGD and other associated systems. UPERC directed to approach CEA.
128	Lalitpur Power	LALITPUR TPS	Private Sector	Uttar Pradesh	NR	1	660	3/26/2016	31/12/2020	Petition was filed with UPERC for approval capital cost for installation of FGD and other associated systems. UPERC directed to approach CEA.
129	Lanko Anpara	ANPARA C TPS	Private Sector	Uttar Pradesh	NR	1	600	10/12/2011	31/08/2022	Tender Specification made
130	Lanko Anpara	ANPARA C TPS	Private Sector	Uttar Pradesh	NR	2	600	1/18/2012	30/06/2022	Tender Specification made
131	NTPC	DADRI (NCTPP)	Central Sector	Uttar Pradesh	NR	1	210	12/21/1991	31/12/2019	Awarded on 26 Oct 18. Work in progress
132	NTPC	DADRI (NCTPP)	Central Sector	Uttar Pradesh	NR	2	210	12/18/1992	31/12/2019	Awarded on 26 Oct 18. Work in progress
133	NTPC	DADRI (NCTPP)	Central Sector	Uttar Pradesh	NR	3	210	3/23/1993	31/12/2019	Awarded on 26 Oct 18. Work in progress
134	NTPC	DADRI (NCTPP)	Central Sector	Uttar Pradesh	NR	4	210	3/24/1994	31/12/2019	Awarded on 26 Oct 18. Work in progress
135	NTPC	DADRI (NCTPP)	Central Sector	Uttar Pradesh	NR	5	490	1/25/2010	31/12/2019	Awarded on 01 Feb 18. Work in progress
136	NTPC	DADRI (NCTPP)	Central Sector	Uttar Pradesh	NR	6	490	7/16/2010	31/12/2019	Awarded on 01 Feb 18. Work in progress
137	NTPC	RIHAND STPS	Central Sector	Uttar Pradesh	NR	1	500	3/31/1988	28/02/2022	NIT issued on 28 Sept 2018
138	NTPC	RIHAND STPS	Central Sector	Uttar Pradesh	NR	2	500	7/5/1989	31/12/2021	NIT issued on 28 Sept 2018
139	NTPC	RIHAND STPS	Central Sector	Uttar Pradesh	NR	3	500	1/31/2005	30/10/2021	Awarded on 18 Sept 2018
140	NTPC	RIHAND STPS	Central Sector	Uttar Pradesh	NR	4	500	9/24/2005	30/04/2021	Awarded on 18 Sept 2018
141	NTPC	RIHAND STPS	Central Sector	Uttar Pradesh	NR	5	500	5/25/2012	28/02/2021	Awarded on 18 Sept 2018

Sr. No.	Developer	Name of Project	Sector	State	Region	Unit No	Unit Capacity	DATE of COMMISSIONING (MM/DD/YY)	FGD Phasing Plan (DD/MM/YYYY)	FGD Status
142	NTPC	RIHAND STPS	Central Sector	Uttar Pradesh	NR	6	500	10/17/2013	31/12/2020	Awarded on 18 Sept 2018
143	NTPC	SINGRAULI STP	Central Sector	Uttar Pradesh	NR	1	200	2/14/1982	31/12/2021	NIT issued on 28 Sept 2018
144	NTPC	SINGRAULI STP	Central Sector	Uttar Pradesh	NR	2	200	11/25/1982	31/12/2021	NIT issued on 28 Sept 2018
145	NTPC	SINGRAULI STP	Central Sector	Uttar Pradesh	NR	3	200	3/28/1983	31/08/2021	NIT issued on 28 Sept 2018
146	NTPC	SINGRAULI STP	Central Sector	Uttar Pradesh	NR	4	200	11/2/1983	31/08/2021	NIT issued on 28 Sept 2018
147	NTPC	SINGRAULI STP	Central Sector	Uttar Pradesh	NR	5	200	2/26/1984	30/04/2021	NIT issued on 28 Sept 2018
148	NTPC	SINGRAULI STP	Central Sector	Uttar Pradesh	NR	6	500	12/23/1986	28/02/2021	NIT issued on 28 Sept 2018
149	NTPC	SINGRAULI STP	Central Sector	Uttar Pradesh	NR	7	500	11/24/1987	31/12/2020	NIT issued on 28 Sept 2018
150	NTPC	UNCHAHAH TPS	Central Sector	Uttar Pradesh	NR	1	210	11/21/1988	31/12/2022	NIT issued on 28 Sept 2018
151	NTPC	UNCHAHAH TPS	Central Sector	Uttar Pradesh	NR	2	210	3/22/1989	31/12/2022	NIT issued on 28 Sept 2018
152	NTPC	UNCHAHAH TPS	Central Sector	Uttar Pradesh	NR	3	210	1/27/1999	31/10/2022	NIT issued on 28 Sept 2018
153	NTPC	UNCHAHAH TPS	Central Sector	Uttar Pradesh	NR	4	210	10/22/1999	31/10/2022	NIT issued on 28 Sept 2018
154	NTPC	UNCHAHAH TPS	Central Sector	Uttar Pradesh	NR	5	210	9/28/2006	30/04/2022	NIT issued on 28 Sept 2018
155	NTPC	UNCHAHAH TPS	Central Sector	Uttar Pradesh	NR	6	500	3/31/2017	8/31/2020	Awarded on 17 Oct 2018
156	Prayagraj Power	PRAYAGRAJ TP	Private Sector	Uttar Pradesh	NR	1	660	12/25/2016	30/04/2020	Feasibility Study is under process. Requested for FGD implementation date to be postponed by 5-6 years.
157	Prayagraj Power	PRAYAGRAJ TP	Private Sector	Uttar Pradesh	NR	2	660	9/6/2015	30/06/2020	Feasibility Study is under process. Requested for FGD implementation date to be postponed by 5-6 years.
158	Prayagraj Power	PRAYAGRAJ TP	Private Sector	Uttar Pradesh	NR	3	660	5/22/2017	29/02/2020	Feasibility Study under progress
159	Rosa Power	ROSA TPP Ph-I	Private Sector	Uttar Pradesh	NR	1	300	2/10/2010	31/12/2021	Tendering Under Process
160	Rosa Power	ROSA TPP Ph-I	Private Sector	Uttar Pradesh	NR	2	300	6/26/2010	31/12/2021	Tendering Under Process
161	Rosa Power	ROSA TPP Ph-I	Private Sector	Uttar Pradesh	NR	3	300	12/28/2011	31/10/2021	Tendering Under Process
162	Rosa Power	ROSA TPP Ph-I	Private Sector	Uttar Pradesh	NR	4	300	3/28/2012	31/10/2021	Tendering Under Process
163	UPRVUNL	ANPARA TPS	State Sector	Uttar Pradesh	NR	1	210	3/24/1986	31/10/2022	NIT issued
164	UPRVUNL	ANPARA TPS	State Sector	Uttar Pradesh	NR	2	210	2/28/1987	31/08/2022	NIT issued
165	UPRVUNL	ANPARA TPS	State Sector	Uttar Pradesh	NR	3	210	3/12/1988	30/06/2022	NIT issued

Sr. No.	Developer	Name of Project	Sector	State	Region	Unit No	Unit Capacity	DATE of COMMISSIONING (MM/DD/YY)	FGD Phasing Plan (DD/MM/YYYY)	FGD Status
166	UPRVUNL	ANPARA TPS	State Sector	Uttar Pradesh	NR	4	500	7/19/1993	30/04/2022	NIT issued
167	UPRVUNL	ANPARA TPS	State Sector	Uttar Pradesh	NR	5	500	7/4/1994	28/02/2022	NIT issued
168	UPRVUNL	ANPARA TPS	State Sector	Uttar Pradesh	NR	6	500	6/8/2015	30/06/2021	Bids opened
169	UPRVUNL	ANPARA TPS	State Sector	Uttar Pradesh	NR	7	500	3/6/2016	30/04/2021	Bids opened
170	UPRVUNL	HARDUAGANJ T	State Sector	Uttar Pradesh	NR	8	250	9/27/2011	31/12/2019	Bid opened
171	UPRVUNL	HARDUAGANJ T	State Sector	Uttar Pradesh	NR	9	250	5/25/2012	31/12/2019	Bid opened
172	UPRVUNL	OBRA TPS	State Sector	Uttar Pradesh	NR	9	200	10/26/1980	31/08/2022	NIT refloated for feasibility study
173	UPRVUNL	OBRA TPS	State Sector	Uttar Pradesh	NR	10	200	1/14/1979	31/10/2022	NIT refloated for feasibility study
174	UPRVUNL	OBRA TPS	State Sector	Uttar Pradesh	NR	11	200	12/31/1977	31/12/2022	NIT refloated for feasibility study
175	UPRVUNL	OBRA TPS	State Sector	Uttar Pradesh	NR	12	200	3/28/1981	30/06/2022	NIT refloated for feasibility study
176	UPRVUNL	OBRA TPS	State Sector	Uttar Pradesh	NR	13	200	7/21/1982	30/04/2022	NIT refloated for feasibility study
177	UPRVUNL	PARICHHA TPS	State Sector	Uttar Pradesh	NR	3	210	3/29/2006	30/04/2022	Bid opened
178	UPRVUNL	PARICHHA TPS	State Sector	Uttar Pradesh	NR	4	210	12/28/2006	30/04/2022	Bid opened
179	UPRVUNL	PARICHHA TPS	State Sector	Uttar Pradesh	NR	5	250	5/24/2012	28/02/2022	Bid opened
180	UPRVUNL	PARICHHA TPS	State Sector	Uttar Pradesh	NR	6	250	3/11/2013	31/12/2021	Bid opened
181	APGENCO	Dr. N.TATA RAO	State Sector	Andhra Pradesh	SR	7	500	10/8/2009	31/12/2020	Feasibility studies are in progress through M/s BHEL.
182	APGENCO	RAYALASEEMA	State Sector	Andhra Pradesh	SR	1	210	3/31/1994	31/12/2021	Complies with new Norms as per developer
183	APGENCO	RAYALASEEMA	State Sector	Andhra Pradesh	SR	2	210	2/25/1995	30/09/2021	Complies with new Norms as per developer
184	APGENCO	RAYALASEEMA	State Sector	Andhra Pradesh	SR	3	210	1/25/2007	30/09/2020	Complies with new Norms as per developer
185	APGENCO	RAYALASEEMA	State Sector	Andhra Pradesh	SR	4	210	11/20/2007	30/06/2021	Complies with new Norms as per developer
186	APGENCO	RAYALASEEMA	State Sector	Andhra Pradesh	SR	5	210	12/31/2010	30/06/2020	Complies with new Norms as per developer
187	APPDCL	DAMODARAM S	State Sector	Andhra Pradesh	SR	1	800	8/28/2014	31/12/2020	Feasibility studies are in progress through M/s BHEL.
188	APPDCL	DAMODARAM S	State Sector	Andhra Pradesh	SR	2	800	3/17/2015	31/12/2019	Feasibility studies are in progress through M/s BHEL.
189	HNPCL	VIZAG TPP	Private Sector	Andhra Pradesh	SR	1	520	12/27/2015	31/12/2022	Feasibility Study completed. Preparation of tender specification in progress.
190	HNPCL	VIZAG TPP	Private Sector	Andhra Pradesh	SR	2	520	3/30/2016	31/12/2022	Feasibility Study completed. Preparation of tender specification in progress.
191	NTPC	SIMHADRI	Central Sector	Andhra Pradesh	SR	1	500	2/22/2002	31/03/2022	NIT issued on 31 Aug 18
192	NTPC	SIMHADRI	Central Sector	Andhra Pradesh	SR	2	500	8/24/2002	30/06/2022	NIT issued on 31 Aug 18

Sr. No.	Developer	Name of Project	Sector	State	Region	Unit No	Unit Capacity	DATE of COMMISSIONING (MM/DD/YY)	FGD Phasing Plan (DD/MM/YYYY)	FGD Status
193	NTPC	SIMHADRI	Central Sector	Andhra Pradesh	SR	3	500	3/29/2011	30/09/2022	NIT issued on 31 Aug 18
194	NTPC	SIMHADRI	Central Sector	Andhra Pradesh	SR	4	500	3/30/2012	31/12/2022	NIT issued on 31 Aug 18
195	Sembcorp Gas	Sembcorp Gayatri	Private Sector	Andhra Pradesh	SR	1	660	11/12/2016	31/12/2021	Pilot plant trials under progress. Technology Finalization will be done in few months.
196	Sembcorp Gas	Sembcorp Gayatri	Private Sector	Andhra Pradesh	SR	2	660	2/15/2017	30/09/2021	Feasibility study under progress
197	THERMAL POWER	PAINAMPURAM	Private Sector	Andhra Pradesh	SR	1	660	2/7/2015	31/12/2021	Pilot plant trials under progress. Technology Finalization will be done in few months.
198	THERMAL POWER	PAINAMPURAM	Private Sector	Andhra Pradesh	SR	2	660	9/3/2015	30/09/2021	Pilot plant trials under progress. Technology Finalization will be done in few months.
199	Adani Power	UDUPI TPP	Private Sector	Karnataka	SR	1	600	7/23/2010	31/03/2022	Existing FGD to be dismantled and new FGD to be installed. NIT to be issued soon.
200	Adani Power	UDUPI TPP	Private Sector	Karnataka	SR	2	600	4/16/2011	30/06/2022	Existing FGD to be dismantled and new FGD to be installed. NIT to be issued soon.
201	Jindal (Pvt Co)	TORANGALLU TPP	Private Sector	Karnataka	SR	1	300	4/23/2009	30/06/2022	Discussions with vendor is in progress
202	Jindal (Pvt Co)	TORANGALLU TPP	Private Sector	Karnataka	SR	2	300	8/24/2009	30/09/2022	Discussions with vendor is in progress
203	KPCL	BELLARY TPS	State Sector	Karnataka	SR	1	500	12/3/2007	31/12/2020	NIT issued
204	KPCL	BELLARY TPS	State Sector	Karnataka	SR	2	500	3/23/2012	30/06/2021	NIT issued
205	KPCL	BELLARY TPS	State Sector	Karnataka	SR	3	700	3/1/2016	31/12/2021	NIT issued
206	KPCL	RAICHUR TPS	State Sector	Karnataka	SR	1	210	3/29/1985	31/03/2021	NIT issued
207	KPCL	RAICHUR TPS	State Sector	Karnataka	SR	2	210	3/2/1986	30/06/2021	NIT issued
208	KPCL	RAICHUR TPS	State Sector	Karnataka	SR	3	210	3/30/1991	30/09/2021	NIT issued
209	KPCL	RAICHUR TPS	State Sector	Karnataka	SR	4	210	9/29/1994	31/12/2021	NIT issued
210	KPCL	RAICHUR TPS	State Sector	Karnataka	SR	5	210	1/31/1999	31/03/2022	NIT issued
211	KPCL	RAICHUR TPS	State Sector	Karnataka	SR	6	210	7/22/1999	30/06/2022	NIT issued
212	KPCL	RAICHUR TPS	State Sector	Karnataka	SR	7	210	12/11/2002	30/09/2022	NIT issued
213	KPCL	RAICHUR TPS	State Sector	Karnataka	SR	8	250	6/26/2010	31/12/2022	NIT issued
214	KPCL	YERMARUS TPP	State Sector	Karnataka	SR	1	800	3/29/2016	31/12/2021	Feasibility study under process
215	KPCL	YERMARUS TPP	State Sector	Karnataka	SR	2	800	3/29/2017	31/12/2022	Feasibility study under process
216	NTPC	KUDGI	Central Sector	Karnataka	SR	1	800	12/25/2016	30/06/2022	Awarded on 31st July 18.
217	NTPC	KUDGI	Central Sector	Karnataka	SR	2	800	3/23/2017	30/09/2022	Awarded on 31st July 18.
218	Coastal Energy	MUTHIARA TPP	Private Sector	Tamil Nadu	SR	1	600	12/2/2014	30/09/2022	Feasibility Study Completed
219	Coastal Energy	MUTHIARA TPP	Private Sector	Tamil Nadu	SR	2	600	1/2/2016	31/12/2022	Feasibility Study Completed
220	NEYVELI LIGNITE	NEYVELI (EXT)	Central Sector	Tamil Nadu	SR	1	210	10/21/2002	30/06/2021	Technical specification under scrutiny.

Sr. No.	Developer	Name of Project	Sector	State	Region	Unit No	Unit Capacity	DATE of COMMISSIONING (MM/DD/YY)	FGD Phasing Plan (DD/MM/YYYY)	FGD Status
221	NEYVELI LIG	NEYVELI (EXT)	Central Sector	Tamil Nadu	SR	2	210	7/22/2003	31/12/2021	Technical specification under scrutiny.
222	NEYVELI LIG	NEYVELI TPS- II	Central Sector	Tamil Nadu	SR	1	210	1/17/1988	31/12/2021	Technical specification under scrutiny.
223	NEYVELI LIG	NEYVELI TPS- II	Central Sector	Tamil Nadu	SR	2	210	2/6/1987	30/09/2021	Technical specification under scrutiny.
224	NEYVELI LIG	NEYVELI TPS- II	Central Sector	Tamil Nadu	SR	3	210	3/29/1987	30/06/2021	Technical specification under scrutiny.
225	NEYVELI LIG	NEYVELI TPS- II	Central Sector	Tamil Nadu	SR	4	210	3/30/1991	31/03/2022	Technical specification under scrutiny.
226	NEYVELI LIG	NEYVELI TPS- II	Central Sector	Tamil Nadu	SR	5	210	12/31/1991	30/06/2022	Technical specification under scrutiny.
227	NEYVELI LIG	NEYVELI TPS- II	Central Sector	Tamil Nadu	SR	6	210	10/30/1992	30/09/2022	Technical specification under scrutiny.
228	NEYVELI LIG	NEYVELI TPS- II	Central Sector	Tamil Nadu	SR	7	210	6/19/1993	31/12/2022	Technical specification under scrutiny.
229	NTEC LTD.	VALLUR TPP	Central Sector	Tamil Nadu	SR	1	500	3/28/2012	12/31/2021	NIT issued on 31 Aug 18
230	NTEC LTD.	VALLUR TPP	Central Sector	Tamil Nadu	SR	2	500	2/28/2013	12/31/2021	NIT issued on 31 Aug 18
231	NTEC LTD.	VALLUR TPP	Central Sector	Tamil Nadu	SR	3	500	2/28/2014	12/31/2021	NIT issued on 31 Aug 18
232	NLC + TANG	TUTICORIN (JV)	Central Sector	Tamil Nadu	SR	1	500	3/10/2015	31/12/2021	Feasibility Study completed. Preparation of tender specification in progress.
233	NLC + TANG	TUTICORIN (JV)	Central Sector	Tamil Nadu	SR	2	500	7/9/2015	30/06/2020	Feasibility Study completed. Preparation of tender specification in progress.
234	TAQA, Neyve	TAQA, Neyveli	Private Sector	Tamil Nadu	SR	2	250	10/21/2002	30/06/2020	Feasibility Study Under Progress
235	TANGEDCO	NORTH CHENNA	State Sector	Tamil Nadu	SR	4	600	3/9/2013	31/12/2019	Requested for FGD implementation date to be revised as 31.12.2021
236	TANGEDCO	NORTH CHENNA	State Sector	Tamil Nadu	SR	5	600	9/13/2013	30/09/2020	Requested for FGD implementation date to be revised as 30.09.2022
237	TANGEDCO	NORTH CHENNA	State Sector	Tamil Nadu	SR	1	210	10/25/1994	31/12/2022	Budgetary offer awaited from M/s. BHEL
238	TANGEDCO	NORTH CHENNA	State Sector	Tamil Nadu	SR	2	210	3/27/1995	30/06/2022	Budgetary offer awaited from M/s. BHEL
239	TANGEDCO	NORTH CHENNA	State Sector	Tamil Nadu	SR	3	210	2/24/1996	31/03/2022	Budgetary offer awaited from M/s. BHEL
240	NTPC	RAMAGUNDEM	Central Sector	Telangana	SR	1	200	10/27/1983	31/03/2022	NIT issued on 28 Sept 2018
241	NTPC	RAMAGUNDEM	Central Sector	Telangana	SR	2	200	5/29/1984	31/03/2022	NIT issued on 28 Sept 2018
242	NTPC	RAMAGUNDEM	Central Sector	Telangana	SR	3	200	12/13/1984	30/06/2022	NIT issued on 28 Sept 2018
243	NTPC	RAMAGUNDEM	Central Sector	Telangana	SR	4	500	6/26/1988	30/06/2022	NIT issued on 28 Sept 2018
244	NTPC	RAMAGUNDEM	Central Sector	Telangana	SR	5	500	3/26/1989	30/09/2022	NIT issued on 28 Sept 2018
245	NTPC	RAMAGUNDEM	Central Sector	Telangana	SR	6	500	10/16/1989	30/09/2022	NIT issued on 28 Sept 2018
246	NTPC	RAMAGUNDEM	Central Sector	Telangana	SR	7	500	9/26/2004	31/12/2022	NIT issued on 15 June 2018
247	Singareni Co	SINGARENI TPP	State Sector	Telangana	SR	1	600	3/13/2016	31/12/2019	Tender has been floated and technical evaluation of bids is under process.

Sr. No.	Developer	Name of Project	Sector	State	Region	Unit No	Unit Capacity	DATE of COMMISSIONING (MM/DD/YY)	FGD Phasing Plan (DD/MM/YYYY)	FGD Status
248	Singareni Co	SINGARENI TPP	State Sector	Telangana	SR	2	600	11/25/2016	30/09/2019	Tender has been floated and technical evaluation of bids is under process.
249	TSGENCO	KAKATIYA TPS	State Sector	Telangana	SR	1	500	5/27/2010	31/03/2020	Feasibility Study Under Progress
250	TSGENCO	KAKATIYA TPS	State Sector	Telangana	SR	2	600	12/31/2015	30/06/2020	Feasibility Study Under Progress
251	TSGENCO	KOTHAGUDEM	State Sector	Telangana	SR	11	500	6/26/2011	30/09/2019	Feasibility Study Under Progress
252	Bharat Alumi	BALCO TPS	Private Sector	Chhatisgarh	WR	1	300	6/4/2015	30/09/2021	Feasibility Study under progress.
253	Bharat Alumi	BALCO TPS	Private Sector	Chhatisgarh	WR	2	300	3/24/2016	30/06/2021	Feasibility Study under progress.
254	CSEB	MARWA TPS	State Sector	Chhatisgarh	WR	1	500	3/30/2014	30/06/2021	Feasibility Study Carried out
255	CSEB	MARWA TPS	State Sector	Chhatisgarh	WR	2	500	7/15/2016	31/03/2021	Feasibility Study Carried out
256	CSPGCL	DSPM TPS	State Sector	Chhatisgarh	WR	1	250	3/30/2007	30/06/2021	Feasibility Study Carried out
257	CSPGCL	DSPM TPS	State Sector	Chhatisgarh	WR	2	250	12/11/2007	30/09/2021	Feasibility Study Carried out
258	CSPGCL	KORBA-WEST E	State Sector	Chhatisgarh	WR	5	500	3/22/2013	30/09/2021	Feasibility Study Carried out
259	DB Power	BARADARHA TP	Private Sector	Chhatisgarh	WR	1	600	2/23/2014	30/06/2021	NIT issued
260	DB Power	BARADARHA TP	Private Sector	Chhatisgarh	WR	2	600	3/24/2015	30/09/2020	NIT issued
261	GMR	RAIKHEDA TPP	Private Sector	Chhatisgarh	WR	1	685	2/24/2015	30/06/2020	GCEL is under stressed assets. No Long Term PPA. Under resolution process for Sale
262	GMR	RAIKHEDA TPP	Private Sector	Chhatisgarh	WR	2	685	3/28/2016	30/09/2020	GCEL is under stressed assets. No Long Term PPA. Under resolution process for Sale
263	KORBA-WES	AVANTHA BHAN	Private Sector	Chhatisgarh	WR	1	600	3/31/2014	31/03/2022	Feasibility Study carried out. Tender specification prepared.
264	KSK Mahana	AKALTARA TPS	Private Sector	Chhatisgarh	WR	1	600	8/13/2013	30/06/2022	Feasibility Study completed. Preparation of tender specification in progress.
265	KSK Mahana	AKALTARA TPS	Private Sector	Chhatisgarh	WR	2	600	8/22/2014	31/03/2022	Feasibility Study completed. Preparation of tender specification in progress.
266	M/s Lanko Ar	PATHADI TPP	Private Sector	Chhatisgarh	WR	1	300	6/4/2009	31/03/2021	Tender Specification made
267	M/s Lanko Ar	PATHADI TPP	Private Sector	Chhatisgarh	WR	2	300	3/25/2010	31/03/2021	Tender Specification made
268	M/s O.P.Jindal	OP JINDAL TPS	Private Sector	Chhatisgarh	WR	1	250	9/2/2007	31/03/2022	Issuance of Bid document on Nov 2017
269	M/s O.P.Jindal	OP JINDAL TPS	Private Sector	Chhatisgarh	WR	2	250	2/10/2008	31/03/2022	Issuance of Bid document on Nov 2017
270	M/s O.P.Jindal	OP JINDAL TPS	Private Sector	Chhatisgarh	WR	3	250	3/6/2008	30/06/2022	Issuance of Bid document on Nov 2017
271	M/s O.P.Jindal	OP JINDAL TPS	Private Sector	Chhatisgarh	WR	4	250	6/17/2008	30/06/2022	Issuance of Bid document on Nov 2017
272	M/s O.P.Jindal	TAMNAR TPP	Private Sector	Chhatisgarh	WR	1	600	3/10/2014	31/03/2021	Issuance of Bid document on Nov 2017

Sr. No.	Developer	Name of Project	Sector	State	Region	Unit No	Unit Capacity	DATE of COMMISSIONING (MM/DD/YY)	FGD Phasing Plan (DD/MM/YYYY)	FGD Status
273	M/s O.P.Jindal	TAMNAR TPP	Private Sector	Chhatisgarh	WR	2	600	3/30/2014	31/12/2021	Issuance of Bid document on Nov 2017
274	M/s O.P.Jindal	TAMNAR TPP	Private Sector	Chhatisgarh	WR	3	600	1/7/2015	31/03/2022	Issuance of Bid document on Nov 2017
275	M/s O.P.Jindal	TAMNAR TPP	Private Sector	Chhatisgarh	WR	4	600	3/28/2015	30/06/2022	Issuance of Bid document on Nov 2017
276	NTPC	KORBA STPS	Central Sector	Chhatisgarh	WR	1	200	2/28/1983	31/12/2022	NIT issued on 28 Sep 18
277	NTPC	KORBA STPS	Central Sector	Chhatisgarh	WR	2	200	10/31/1983	31/12/2022	NIT issued on 28 Sep 18
278	NTPC	KORBA STPS	Central Sector	Chhatisgarh	WR	3	200	3/17/1984	31/12/2022	NIT issued on 28 Sep 18
279	NTPC	KORBA STPS	Central Sector	Chhatisgarh	WR	4	500	5/31/1987	31/12/2022	NIT issued on 28 Sep 18
280	NTPC	KORBA STPS	Central Sector	Chhatisgarh	WR	5	500	3/25/1988	31/12/2022	NIT issued on 28 Sep 18
281	NTPC	KORBA STPS	Central Sector	Chhatisgarh	WR	6	500	2/26/1989	31/12/2022	NIT issued on 28 Sep 18
282	NTPC	KORBA STPS	Central Sector	Chhatisgarh	WR	7	500	11/25/2010	31/12/2022	NIT issued on 28 Sep 18
283	NTPC	SIPAT STPS	Central Sector	Chhatisgarh	WR	4	500	6/20/2008	31/12/2021	NIT ISSUED ON 15.06.2018.
284	NTPC	SIPAT STPS	Central Sector	Chhatisgarh	WR	5	500	1/1/2009	31/12/2021	NIT ISSUED ON 15.06.2018.
285	NTPC	SIPAT STPS	Central Sector	Chhatisgarh	WR	1	660	10/1/2011	31/12/2022	NIT issued on 31 Aug 18
286	NTPC	SIPAT STPS	Central Sector	Chhatisgarh	WR	2	660	5/25/2012	31/12/2022	NIT issued on 31 Aug 18
287	NTPC	SIPAT STPS	Central Sector	Chhatisgarh	WR	3	660	1/8/2012	31/12/2021	NIT issued on 31 Aug 18
288	NTPC & Sail	BHILAI TPS	Central Sector	Chhatisgarh	WR	1	250	4/20/2008	31/12/2022	NIT issued on 28 Sept 2018
289	NTPC & Sail	BHILAI TPS	Central Sector	Chhatisgarh	WR	2	250	7/12/2009	31/12/2022	NIT issued on 28 Sept 2018
290	RKM Power	UCHPINDA TPP	Private Sector	Chhatisgarh	WR	1	360	10/28/2015	31/03/2022	Technical discussion with various vendors is under progress.
291	RKM Power	UCHPINDA TPP	Private Sector	Chhatisgarh	WR	3	360	1/28/2016	31/12/2021	Technical discussion with various vendors is under progress.
292	SKS Power	Binjkote TPP	Private Sector	Chhatisgarh	WR	1	300	4/25/2017	30/09/2020	Feasibility study under progress
293	TRN Energy	NAWAPARA TPP	Private Sector	Chhatisgarh	WR	2	300	4/18/2017	30/09/2020	Already meeting the environmental norms.
294	Adani Power	MUNDRA TPS	Private Sector	Gujarat	WR	1	330	8/4/2009	31/12/2022	NIT is to be issued soon.
295	Adani Power	MUNDRA TPS	Private Sector	Gujarat	WR	2	330	3/17/2010	31/12/2022	NIT is to be issued soon.
296	Adani Power	MUNDRA TPS	Private Sector	Gujarat	WR	3	330	8/2/2010	30/09/2022	NIT is to be issued soon.
297	Adani Power	MUNDRA TPS	Private Sector	Gujarat	WR	4	330	12/20/2010	30/09/2022	NIT is to be issued soon.
298	Adani Power	MUNDRA TPS	Private Sector	Gujarat	WR	5	660	12/26/2010	30/06/2022	NIT is to be issued soon.
299	Adani Power	MUNDRA TPS	Private Sector	Gujarat	WR	6	660	7/20/2011	31/03/2022	NIT is to be issued soon.
300	Essar Gujarat	SALAYA TPP	Private Sector	Gujarat	WR	1	600	1/4/2012	30/06/2021	Feasibility study under process

Sr. No.	Developer	Name of Project	Sector	State	Region	Unit No	Unit Capacity	DATE of COMMISSIONING (MM/DD/YY)	FGD Phasing Plan (DD/MM/YYYY)	FGD Status
301	Essar Gujarat	SALAYA TPP	Private Sector	Gujarat	WR	2	600	6/15/2012	31/03/2021	Feasibility study under process
302	GSECL	GANDHI NAGAR	State Sector	Gujarat	WR	3	210	3/20/1990	31/12/2021	Lol Placed
303	GSECL	GANDHI NAGAR	State Sector	Gujarat	WR	4	210	7/20/1991	31/12/2021	Lol Placed
304	GSECL	GANDHI NAGAR	State Sector	Gujarat	WR	5	210	3/17/1998	31/12/2021	Lol Placed
305	GSECL	KUTCH LIG. TPS	State Sector	Gujarat	WR	1	70	3/29/1990	31/12/2021	Lol Placed
306	GSECL	KUTCH LIG. TPS	State Sector	Gujarat	WR	2	70	3/25/1991	31/12/2021	Lol Placed
307	GSECL	KUTCH LIG. TPS	State Sector	Gujarat	WR	3	75	3/31/1997	31/12/2021	Lol Placed
308	GSECL	SIKKA REP. TPS	State Sector	Gujarat	WR	3	250	3/29/2015	31/01/2022	Bidding Under Progress
309	GSECL	SIKKA REP. TPS	State Sector	Gujarat	WR	4	250	9/25/2015	31/01/2022	Bidding Under Progress
310	GSECL	UKAI TPS	State Sector	Gujarat	WR	3	200	1/21/1979	31/12/2021	Lol Placed
311	GSECL	UKAI TPS	State Sector	Gujarat	WR	4	200	3/28/1979	31/12/2021	Lol Placed
312	GSECL	UKAI TPS	State Sector	Gujarat	WR	5	210	1/30/1985	31/12/2021	Lol Placed
313	GSECL	UKAI TPS	State Sector	Gujarat	WR	6	500	3/5/2013	31/03/2022	Call tender for EPC floated & technical bid opening is
314	GSECL	WANAKBORI TP	State Sector	Gujarat	WR	1	210	3/23/1982	31/12/2021	Lol Placed
315	GSECL	WANAKBORI TP	State Sector	Gujarat	WR	2	210	1/15/1983	31/12/2021	Lol Placed
316	GSECL	WANAKBORI TP	State Sector	Gujarat	WR	3	210	3/15/1984	31/12/2021	Lol Placed
317	GSECL	WANAKBORI TP	State Sector	Gujarat	WR	4	210	3/9/1986	31/12/2021	Lol Placed
318	GSECL	WANAKBORI TP	State Sector	Gujarat	WR	5	210	9/23/1986	31/12/2021	Lol Placed
319	GSECL	WANAKBORI TP	State Sector	Gujarat	WR	6	210	11/18/1987	31/12/2021	Lol Placed
320	GSECL	WANAKBORI TP	State Sector	Gujarat	WR	7	210	12/31/1998	31/12/2021	Feasibility Study Under Progress
321	Tata Power (I)	MUNDRA UMTPI	Private Sector	Gujarat	WR	1	800	3/7/2012	30/06/2020	Feasibility Study Carried Out
322	Tata Power (I)	MUNDRA UMTPI	Private Sector	Gujarat	WR	2	800	7/30/2012	31/03/2021	Feasibility Study Carried Out
323	Tata Power (I)	MUNDRA UMTPI	Private Sector	Gujarat	WR	3	800	10/27/2012	30/06/2021	Feasibility Study Carried Out
324	Tata Power (I)	MUNDRA UMTPI	Private Sector	Gujarat	WR	4	800	1/21/2013	31/03/2022	Feasibility Study Carried Out
325	Tata Power (I)	MUNDRA UMTPI	Private Sector	Gujarat	WR	5	800	3/22/2013	31/03/2022	Feasibility Study Carried Out
326	Torrent Power	SABARMATI	Private Sector	Gujarat	WR	1	120	10/12/1978	31/12/2022	Feasibility Study under process
327	Torrent Power	SABARMATI	Private Sector	Gujarat	WR	2	121	12/31/1984	31/12/2022	Feasibility Study under process
328	Torrent Power	SABARMATI	Private Sector	Gujarat	WR	3	121	9/28/1988	31/12/2022	Feasibility Study under process
329	ESSAR power	MAHAN TPP	Private Sector	Madhya Pradesh	WR	1	600	2/24/2013	31/12/2020	Feasibility study under process
330	Jaiprakash Power	NIGRI TPP	Private Sector	Madhya Pradesh	WR	1	660	8/29/2014	30/06/2020	Feasibility Study is under process. Requested for FGD implementation date to be postponed by 5-6 years.
331	Jaiprakash Power	NIGRI TPP	Private Sector	Madhya Pradesh	WR	2	660	2/27/2015	30/09/2020	Feasibility Study is under process. Requested for FGD implementation date to be postponed by 5-6 years.
332	Jhabua Power	SEIONI TPP	Private Sector	Madhya Pradesh	WR	1	600	3/22/2016	31/03/2020	Feasibility Study under progress.
333	MB Power	ANUPPUR TPP	Private Sector	Madhya Pradesh	WR	1	600	4/20/2015	31/03/2022	Technical Bid under evaluation
334	MB Power	ANUPPUR TPP	Private Sector	Madhya Pradesh	WR	2	600	3/30/2016	30/06/2022	Technical Bid under evaluation
335	MPPGCL	AMARKANTAK B	State Sector	Madhya Pradesh	WR	5	210	6/15/2008	31/03/2021	Feasibility Study Under Progress

Sr. No.	Developer	Name of Project	Sector	State	Region	Unit No	Unit Capacity	DATE of COMMISSIONING (MM/DD/YY)	FGD Phasing Plan (DD/MM/YYYY)	FGD Status
336	MPPGCL	SANJAY GANDH	State Sector	Madhya Pradesh	WR	1	210	3/26/1993	31/03/2021	Feasibility Study Under Progress
337	MPPGCL	SANJAY GANDH	State Sector	Madhya Pradesh	WR	2	210	3/27/1993	31/03/2021	Feasibility Study Under Progress
338	MPPGCL	SANJAY GANDH	State Sector	Madhya Pradesh	WR	3	210	2/28/1999	30/06/2021	Feasibility Study Under Progress
339	MPPGCL	SANJAY GANDH	State Sector	Madhya Pradesh	WR	4	210	11/23/1999	30/06/2021	Feasibility Study Under Progress
340	MPPGCL	SANJAY GANDH	State Sector	Madhya Pradesh	WR	5	500	6/18/2007	31/03/2021	Feasibility Study Under Progress
341	MPPGCL	SATPURA TPS	State Sector	Madhya Pradesh	WR	10	250	3/22/2013	31/03/2021	Feasibility Study Under Progress
342	MPPGCL	SATPURA TPS	State Sector	Madhya Pradesh	WR	11	250	12/25/2013	31/03/2021	Feasibility Study Under Progress
343	MPPGCL	SHRI SINGHAJI	State Sector	Madhya Pradesh	WR	1	600	11/18/2013	31/03/2021	NIT to be floated in May 2018
344	MPPGCL	SHRI SINGHAJI	State Sector	Madhya Pradesh	WR	2	600	10/15/2014	31/03/2021	NIT to be floated in May 2018
345	NTPC	VINDHYACHAL	Central Sector	Madhya Pradesh	WR	1	210	10/10/1987	31/12/2022	NIT issued on 28 Sept 2018
346	NTPC	VINDHYACHAL	Central Sector	Madhya Pradesh	WR	2	210	7/23/1988	31/12/2022	NIT issued on 28 Sept 2018
347	NTPC	VINDHYACHAL	Central Sector	Madhya Pradesh	WR	3	210	2/3/1989	31/12/2022	NIT issued on 28 Sept 2018
348	NTPC	VINDHYACHAL	Central Sector	Madhya Pradesh	WR	4	210	12/26/1989	31/12/2022	NIT issued on 28 Sept 2018
349	NTPC	VINDHYACHAL	Central Sector	Madhya Pradesh	WR	5	210	3/31/1990	31/12/2022	NIT issued on 28 Sept 2018
350	NTPC	VINDHYACHAL	Central Sector	Madhya Pradesh	WR	6	210	2/1/1991	31/12/2022	NIT issued on 28 Sept 2018
351	NTPC	VINDHYACHAL	Central Sector	Madhya Pradesh	WR	7	500	3/3/1999	30/06/2021	NIT issued on 28 Sept 2018
352	NTPC	VINDHYACHAL	Central Sector	Madhya Pradesh	WR	8	500	2/26/2000	30/06/2021	NIT issued on 28 Sept 2018
353	NTPC	VINDHYACHAL	Central Sector	Madhya Pradesh	WR	9	500	7/27/2006	30/09/2021	Awarded on 18 Sept 2018
354	NTPC	VINDHYACHAL	Central Sector	Madhya Pradesh	WR	10	500	3/8/2007	30/09/2021	Awarded on 18 Sept 2018
355	NTPC	VINDHYACHAL	Central Sector	Madhya Pradesh	WR	11	500	6/14/2012	31/12/2021	Awarded on 18 Sept 2018
356	NTPC	VINDHYACHAL	Central Sector	Madhya Pradesh	WR	12	500	3/22/2013	31/12/2021	Awarded on 18 Sept 2018
357	Reliance Power	SASAN UMTTP	Private Sector	Madhya Pradesh	WR	1	660	5/30/2013	30/09/2021	Tender Floated
358	Reliance Power	SASAN UMTTP	Private Sector	Madhya Pradesh	WR	2	660	12/18/2013	30/06/2021	Tender Floated
359	Reliance Power	SASAN UMTTP	Private Sector	Madhya Pradesh	WR	3	660	5/21/2014	31/03/2022	Tender Floated
360	Reliance Power	SASAN UMTTP	Private Sector	Madhya Pradesh	WR	4	660	3/25/2014	31/03/2022	Tender Floated
361	Reliance Power	SASAN UMTTP	Private Sector	Madhya Pradesh	WR	5	660	8/24/2014	31/12/2021	Tender Floated
362	Reliance Power	SASAN UMTTP	Private Sector	Madhya Pradesh	WR	6	660	3/19/2015	30/09/2021	Tender Floated
363	Adani Power	TIRORA TPS	Private Sector	Maharashtra	WR	1	660	9/11/2012	31/03/2022	NIT to be issued soon.
364	Adani Power	TIRORA TPS	Private Sector	Maharashtra	WR	2	660	3/25/2013	31/12/2021	NIT to be issued soon.
365	Adani Power	TIRORA TPS	Private Sector	Maharashtra	WR	3	660	6/10/2013	31/09/2021	NIT to be issued soon.
366	Adani Power	TIRORA TPS	Private Sector	Maharashtra	WR	4	660	3/23/2014	31/06/2021	NIT to be issued soon.
367	Adani Power	TIRORA TPS	Private Sector	Maharashtra	WR	5	660	9/25/2014	31/03/2021	NIT to be issued soon.

Sr. No.	Developer	Name of Project	Sector	State	Region	Unit No	Unit Capacity	DATE of COMMISSIONING (MM/DD/YY)	FGD Phasing Plan (DD/MM/YYYY)	FGD Status
368	Dhariwal Infra	DHARIWAL TPP	Private Sector	Maharashtra	WR	1	300	11/3/2013	31/03/2022	Feasibility Study under process
369	Dhariwal Infra	DHARIWAL TPP	Private Sector	Maharashtra	WR	2	300	5/28/2014	31/03/2022	Feasibility Study under process
370	GMR emco E	EMCO WARORA	Private Sector	Maharashtra	WR	1	300	2/7/2013	31/03/2022	Feasibility Report submitted to CEA.
371	GMR emco E	EMCO WARORA	Private Sector	Maharashtra	WR	2	300	8/27/2013	31/03/2022	Feasibility Report submitted to CEA.
372	MAHAGENC	BHUSAWAL TPS	State Sector	Maharashtra	WR	3	210	9/18/1982	31/03/2021	Feasibility Study Carried Out
373	MAHAGENC	BHUSAWAL TPS	State Sector	Maharashtra	WR	4	500	3/7/2012	31/03/2021	Feasibility Study Carried Out
374	MAHAGENC	BHUSAWAL TPS	State Sector	Maharashtra	WR	5	500	3/30/2012	31/03/2021	Feasibility Study Carried Out
375	MAHAGENC	CHANDRAPUR S	State Sector	Maharashtra	WR	3	210	5/3/1985	31/03/2021	Feasibility Study Carried Out
376	MAHAGENC	CHANDRAPUR S	State Sector	Maharashtra	WR	4	210	3/8/1986	31/03/2021	Feasibility Study Carried Out
377	MAHAGENC	CHANDRAPUR S	State Sector	Maharashtra	WR	5	500	3/22/1991	31/03/2021	Feasibility Study Carried Out
378	MAHAGENC	CHANDRAPUR S	State Sector	Maharashtra	WR	6	500	3/11/1992	31/03/2021	Feasibility Study Carried Out
379	MAHAGENC	CHANDRAPUR S	State Sector	Maharashtra	WR	7	500	10/1/1997	31/03/2021	Feasibility Study Carried Out
380	MAHAGENC	CHANDRAPUR S	State Sector	Maharashtra	WR	8	500	3/29/2015	31/03/2021	Feasibility Study Carried Out
381	MAHAGENC	CHANDRAPUR S	State Sector	Maharashtra	WR	9	500	3/21/2016	31/03/2020	Feasibility Study Carried Out
382	MAHAGENC	KHAPARKHEDA	State Sector	Maharashtra	WR	1	210	3/26/1989	31/03/2021	Feasibility Study Carried Out
383	MAHAGENC	KHAPARKHEDA	State Sector	Maharashtra	WR	2	210	1/8/1990	31/03/2021	Feasibility Study Carried Out
384	MAHAGENC	KHAPARKHEDA	State Sector	Maharashtra	WR	3	210	5/31/2000	31/03/2021	Feasibility Study Carried Out
385	MAHAGENC	KHAPARKHEDA	State Sector	Maharashtra	WR	4	210	1/7/2001	31/03/2021	Feasibility Study Carried Out
386	MAHAGENC	KHAPARKHEDA	State Sector	Maharashtra	WR	5	500	8/5/2011	31/03/2021	Feasibility Study Carried Out
387	MAHAGENC	KORADI TPS	State Sector	Maharashtra	WR	6	210	3/30/1982	31/03/2021	Feasibility Study Carried Out
388	MAHAGENC	KORADI TPS	State Sector	Maharashtra	WR	7	210	1/13/1983	31/03/2021	Feasibility Study Carried Out
389	MAHAGENC	KORADI TPS	State Sector	Maharashtra	WR	8	660	3/30/2015	31/03/2021	Feasibility Study Carried Out
390	MAHAGENC	KORADI TPS	State Sector	Maharashtra	WR	9	660	3/15/2016	31/03/2021	Feasibility Study Carried Out
391	MAHAGENC	KORADI TPS	State Sector	Maharashtra	WR	10	660	12/28/2016	31/12/2020	Feasibility Study Carried Out
392	MAHAGENC	NASIK TPS	State Sector	Maharashtra	WR	3	210	4/26/1979	31/03/2021	Feasibility Study Carried Out
393	MAHAGENC	NASIK TPS	State Sector	Maharashtra	WR	4	210	7/10/1980	31/03/2021	Feasibility Study Carried Out
394	MAHAGENC	NASIK TPS	State Sector	Maharashtra	WR	5	210	1/30/1981	31/03/2021	Feasibility Study Carried Out
395	MAHAGENC	PARLI TPS	State Sector	Maharashtra	WR	4	210	3/26/1985	31/03/2021	Feasibility Study Carried Out
396	MAHAGENC	PARLI TPS	State Sector	Maharashtra	WR	5	210	12/31/1987	31/03/2021	Feasibility Study Carried Out
397	MAHAGENC	PARLI TPS	State Sector	Maharashtra	WR	6	250	2/16/2007	31/03/2021	Feasibility Study Carried Out

Sr. No.	Developer	Name of Project	Sector	State	Region	Unit No	Unit Capacity	DATE of COMMISSIONING (MM/DD/YY)	FGD Phasing Plan (DD/MM/YYYY)	FGD Status
398	MAHAGENC	PARLI TPS	State Sector	Maharashtra	WR	7	250	2/10/2010	31/03/2021	Feasibility Study Carried Out
399	MAHAGENC	PARLI TPS	State Sector	Maharashtra	WR	8	250	3/30/2016	31/03/2021	Feasibility Study Carried Out
400	NTPC	MOUDA TPS	Central Sector	Maharashtra	WR	1	500	4/19/2012	31/12/2022	Awarded on 18 Sept 2018
401	NTPC	MOUDA TPS	Central Sector	Maharashtra	WR	2	500	3/29/2013	31/12/2022	Awarded on 18 Sept 2018
402	NTPC	MOUDA TPS	Central Sector	Maharashtra	WR	3	660	3/28/2016	31/12/2022	Awarded on 31st July 18.
403	NTPC	MOUDA TPS	Central Sector	Maharashtra	WR	4	660	3/18/2017	31/12/2020	Awarded on 31st July 18.
404	NTPC	SOLAPUR	Central Sector	Maharashtra	WR	1	660	4/7/2017	31/12/2020	Awarded on 31st July 18.
405	Ratan Power	NASIK (P) TPS	Private Sector	Maharashtra	WR	1	270	2/25/2014	31/03/2021	Bids under Evaluation
406	Ratan Power	NASIK (P) TPS	Private Sector	Maharashtra	WR	2	270	2/15/2017	31/03/2021	Feasibility study under progress
407	Ratan Power	NASIK (P) TPS	Private Sector	Maharashtra	WR	3	270	4/14/2017	31/12/2022	Feasibility study under progress
408	Ratan Power	NASIK (P) TPS	Private Sector	Maharashtra	WR	4	270	5/19/2017	31/12/2022	Feasibility study under progress
409	Ratan Power	NASIK (P) TPS	Private Sector	Maharashtra	WR	5	270	5/30/2017	31/12/2022	Feasibility study under progress
410	TATA Power	TROMBAY TPS	Private Sector	Maharashtra	WR	5	500	1/25/1984	31/03/2018	Sea water FGD is installed at Unit#5 and is already in operation to meet the SO2 emissions norms.
411	Vidarbha Ind	BUTIBORI TPP	Private Sector	Maharashtra	WR	1	300	8/17/2012	30/06/2021	Reliance Power has floated the International Competitive Bidding for implementation of FGD and technical offers have been received which are under evaluation.
412	Vidarbha Ind	BUTIBORI TPP	Private Sector	Maharashtra	WR	2	300	3/19/2013	31/03/2021	Reliance Power has floated the International Competitive Bidding for implementation of FGD and technical offers have been received which are under evaluation.
413	Wardha P C	WARDHA WARD	Private Sector	Maharashtra	WR	1	135	6/5/2010	30/09/2021	Feasibility Study completed. Preparation of tender specification in progress.
414	Wardha P C	WARDHA WARD	Private Sector	Maharashtra	WR	2	135	10/10/2010	30/09/2021	Feasibility Study completed. Preparation of tender specification in progress.
415	Wardha P C	WARDHA WARD	Private Sector	Maharashtra	WR	3	135	1/21/2011	31/12/2021	Feasibility Study completed. Preparation of tender specification in progress.
416	Wardha P C	WARDHA WARD	Private Sector	Maharashtra	WR	4	135	4/30/2011	31/12/2021	Feasibility Study completed. Preparation of tender specification in progress.

Sr. No.	Developer	Name of Project	Sector	State	Region	Unit No	Unit Capacity	DATE of COMMISSIONING (MM/DD/YY)	FGD Phasing Plan (DD/MM/YYYY)	FGD Status
417	NTPC	KUDGI	Central Sector	Karnataka	SR	3	800	3/12/2018	31/12/2022	Awarded on 31st July 18.
418	NTPC	Lara STPP	Central Sector	Chhatisgarh	WR	1	800	3/23/2018		Price bid submitted on 25.06.2018.
419	NTPC	Meja STPP	Central Sector	Uttar Pradesh	NR	1	660	3/30/2018		FGD will award in LOT-1A of NTPC
420	APGENCO	Rayalaseema TP	State Sector	Andhra Pradesh	SR	6	600	3/12/2018		Commitment yet to received
421	NTPC	Barauni TPS Extra	State Sector	Bihar	ER	8	250	1/11/2018		Feasibility examining under process
422	NTPC	Barauni TPS Extra	State Sector	Bihar	ER	9	250	3/31/2018		Feasibility examining under process
423	KSK Mahand	Akaltara TPP (Na	Private Sector	Chhatisgarh	WR	3	600	1/18/2018		Feasibility Study completed. Preparation of tender specification in progress.
424	SKS Power G	Binjote TPP	Private Sector	Chhatisgarh	WR	2	300	3/28/2018	9/30/2020	Feasibility study under progress
425	RKM Powerg	Uchpinda TPP	Private Sector	Chhatisgarh	WR	3	360	9/12/2017	3/31/2022	Feasibility study under progress
426	Shirpur Powe	Shirpur TPP	Private Sector	Maharashtra	WR	1	150	9/28/2017		Feasibility study under progress
427	India Power C	India Power TPP	Private Sector	West Bengal	ER	2	150	12/31/2017		Feasibility study under progress
428	PSEB	ROPAR TPS	State Sector	Punjab	NR	3	210	3/31/1988	31/12/2019	DSI technology has been proposed by consultant. Technical Specifications have been submitted and are under review.
429	PSEB	ROPAR TPS	State Sector	Punjab	NR	4	210	1/29/1989	31/12/2019	DSI technology has been proposed by consultant. Technical Specifications have been submitted and are under review.
430	PSEB	ROPAR TPS	State Sector	Punjab	NR	6	210	3/30/1993	31/12/2019	DSI technology has been proposed by consultant. Technical Specifications have been submitted and are under review.
431	PSEB	ROPAR TPS	State Sector	Punjab	NR	5	210	3/29/1992	31/12/2019	DSI technology has been proposed by consultant. Technical Specifications have been submitted and are under review.
432	NTPC	TANDA TPS	Central Sector	Uttar Pradesh	NR	1	110	3/21/1988	12/31/2020	Awarded on 02 Nov 2018
433	NTPC	TANDA TPS	Central Sector	Uttar Pradesh	NR	2	110	3/11/1989	1/1/2021	Awarded on 02 Nov 2018
434	NTPC	TANDA TPS	Central Sector	Uttar Pradesh	NR	3	110	3/28/1990	1/2/2021	NIT issued on 28 Sept 2018
435	NTPC	TANDA TPS	Central Sector	Uttar Pradesh	NR	4	110	2/20/1998	1/3/2021	NIT issued on 28 Sept 2018
436	NTPC	TALCHER (OLD)	Central Sector	Odisha	ER	1	60	12/17/1967	12/31/2021	NIT issued on 31 Aug 18
437	NTPC	TALCHER (OLD)	Central Sector	Odisha	ER	2	60	3/28/1968	1/1/2022	NIT issued on 31 Aug 18
438	NTPC	TALCHER (OLD)	Central Sector	Odisha	ER	3	60	7/11/1968	1/2/2022	NIT issued on 31 Aug 18
439	NTPC	TALCHER (OLD)	Central Sector	Odisha	ER	4	60	4/11/1969	1/3/2022	NIT issued on 31 Aug 18
440	NTPC	TALCHER (OLD)	Central Sector	Odisha	ER	5	110	3/24/1982	1/4/2022	NIT issued on 31 Aug 18
441	NTPC	TALCHER (OLD)	Central Sector	Odisha	ER	6	110	3/24/1983	1/5/2022	NIT issued on 31 Aug 18