

❖ Pollution Control Implementation Division – II

Thermal power Plants

Environmental Regulations

A : Coal Based Thermal Power Plants

Standards for discharge of liquid effluents

S. No.	Source	Pollutants	Concentration
(i)	Condenser cooling water (once through cooling system)	pH	6.5-8.5
		Temperature	More than 10°C than the intake water temperature
		Free available Chlorine	0.5 mg/l
(ii)	Boiler blow down	Suspended solids	100 mg/l
		Oil and grease	20 mg/l
		Copper (total)	1.0 mg/l
		Iron (total)	1.0 mg/l
(iii)	Cooling tower blow down	Free available Chlorine	0.5 mg/l
		Zinc	1.0 mg/l
		Chromium	0.2 mg/l
		Phosphate	5.0 mg/l
		Other corrosion inhibiting materials	Limit to be established on case by case basis
(iv)	Ash pond effluent	pH	6.5-8.5
		SS	100 mg/l
		Oil & grease	20 mg/l
			No limits for heavy metals are given at present

Temperature Limit for discharge of Condenser Cooling Water from Thermal Power plant

A. New thermal power plants commissioned after June 1, 1999.

New thermal power plants, which will be using water from rivers/lakes/reservoirs, shall install cooling towers irrespective of location and capacity. Thermal power plants which will use sea water for cooling purposes, the condition below will apply.

B. New projects in coastal areas using sea water

The thermal power plants using sea water should adopt suitable system to reduce water temperature at the final discharge point so that the resultant rise in the temperature of receiving water does not

Rise in temperature of condenser cooling water from inlet to the outlet of condenser shall not be more than 10° C.

D. Guidelines for discharge point:

1. The discharge point shall preferably be located at the bottom of the water body at mid-stream for proper dispersion of thermal discharge.
2. In case of discharge of cooling water into sea, proper marine outfall shall be designed to achieve the prescribed standards. The point of discharge may be selected in consultation with concerned State Authorities/NIO.
3. No cooling water discharge shall be permitted in estuaries or near ecologically sensitive areas such as mangroves, coral reefs/spawning and breeding grounds of aquatic flora and fauna.

(ii) Emission Standards

Power generation capacity (MW)	Particulate matter emission
Less than 210 MW	350 mg/Nm ³
210 MW or more	150 mg/Nm ³

Note:

Depending upon the requirement of local situations, which may warrant stricter standards as in case of protected areas the State Pollution Control Board and other implementing agencies within the provisions of the EPA, 1980 may prescribe limit of 150 mg/Nm³ irrespective of the generation capacity of the plant.

Andhra Pradesh Pollution Control Board and Delhi Pollution Control Committees have stipulated stringent standards of 115 and 50 mg/Nm³ respectively for control of particulate matter emission.

(iii) Stack Height Requirement

In order to proper dispersion of SO₂ emissions from thermal power plants, stack height criteria have been adopted in the country. However, for larger capacities of boilers (500 m and above), space provision for installing FGD system has been recommended;

Power generation capacity	Stack height (metre)
Less than 200/210 MW	H = 14(Q) ^{0.3} where Q is emission rate of SO ₂ in kg/hr, H = Stack height in metre
200/210 MW or less than 500 MW	220
500 MW and above	275

Note :

The power plants sanctioned by CEA earlier to July 1, 1994 may not be required to increase existing stack height as per regulation notified, vide Government of India notification no. GSR 742(E) dated August 30, 1990 subject to following conditions:

- The ambient sulphur dioxide and NO_x concentrations around the power plant is less than 1/3 th

prescribed ambient air quality standard for SO₂ and Nox for the concerned area.

- For (1) the power plant shall install adequate number of air quality monitoring stations in and around the power stations. The stations should be selected in consultation with the CPCB/SPCB.

(Vide office Memorandum No B-34011/1/01/PCI-II dated January 10, 1996)

(iv) Use of beneficiated coal

In order to minimize flyash generation, it was recommended to use beneficiated coal in the power plants. The Ministry of Environment & Forests, Govt. of India has promulgated Gazette Notification (GSR 560(E) & 378(E), dated September 19, 1997 and June 30, 1998 respectively) on use of beneficiated/blended coal containing ash not more than 34 percent w.e.f. June 2002 in the following power plants :

- any thermal power plant located beyond one thousand kilometers from the pit-head and
- any thermal power plant located in urban area or sensitive area or critically polluted area irrespective of their distance from pit-head except any pit-head power plant”.

The power plants using FBC(CFBC,PFBC & AFBC) and IGCC combustion technologies are exempted to use beneficiated coal irrespective of their locations.

(v) Utilisation of Flyash

In order to make mandatory use of flyash and flyash based products by the brick kilns, Thermal Power Stations and CPWD& State PWDs , vide notification no. S.O. 763(E) dated September 14, 1999, Ministry of Environment & Forests has issued directions under sub-rule 3 of rule 5 of EPA, 1986 that

- No person, located within 50 km radius of any Thermal Power Station, shall to manufacture clay bricks, tiles or blocks without mixing atleast 25% flyash or pond ash with soil.
- Thermal Power Plants shall submit action plan for hundred percent utilization.

New Plants

30% within three yrs
100% within 9 yrs

Existing Plants

20% within three yrs
100% within 15 yrs

Existing notification on utilisation of flyash was amended vide notification no S.O. **979(E)** , dated August 27, 2003 .by Ministry of Environment & Forests incorporating

- No person shall within a radius of 100 kms from thermal power plants, manufacture clay bricks, tiles or blocks without mixing atleast 25% of flyash or pond ash with soil.
- Every construction Agency including private sector builders within a radius of fifty to one hundred kilometers from coal or lignite based thermal power plant shall use minimum of following percentage of

ash based products such as: bricks, block & tiles in their construction work:

25% by 31 st August, 2004
50% by 31 st August, 2005
75% by 31 st August, 2006
100% by 31 st August, 2007

In respect of construction of buildings within a radius of fifty kilometers from coal or lignite based thermal power plant the following minimum percentage of use of bricks, blocks and tiles shall apply:

75% by 31 st August, 2004
100% by 31 st August, 2005

- Authority sanctioning or renewing mining lease shall not grant or extend the lease if the manufacturer does not use the 25% of the Flyash in the manufacturing of bricks, blocks and tiles.
- Utilisation of Flyash for reclamation of sea subject to compliance of the rules made under the EPA, 1986.

B: Gas/Naptha based Thermal Power Plants

(i) Emission standards for NOx

(a) For existing units 150 ppm (v/v) at 15% excess oxygen

(b) For new units with effect from 1-6-1999.

Generation capacity of gas turbine	Limit for NOx emission (v/v), at 15% excess oxygen)
(a) 400 MW and above	(i) 50 ppm for the units burning natural gas. (ii) 100 ppm for the units burning naphtha
(b) Less than 400 MW but upto 100 MW	(i) 75 ppm for the units burning natural gas (ii) 100 ppm for the units burning naphtha
(c) Less than 100 MW	100 ppm for units burning natural gas or naphtha as fuel
(d) For the plants burning gas in a conventional boiler.	100 ppm

(ii) Stack height H in m should be calculated using the formula $H = 14 Q^{0.3}$, where Q is the emission of SO₂ in kg/hr, subject to a minimum of 30 mts.

(iii) Liquid waste discharge limit

Parameter	Maximum limit of concentration (mg/l except for pH and temperature)
pH	6.5 - 8.5

Temperature	As applicable for other thermal power plants
Free available chlorine	0.5 100.0
Suspended solids	20.0
Oil & grease	1.0
Copper (total)	1.0
Iron (total)	1.0
Zinc	0.2
Chromium (total)	5.0
Phosphate	

C: Liquid fuel based Thermal Power Plants

(i) Emission Standards for Diesel Engines (Engine Rating more Than 0.8 Mw (800 Kw) for Power Plant, Generator Set applications and other requirements

Parameter	Area Category	Total engine rating of the plant (includes existing as well as new generator sets)	Generator sets commissioning date		
			Before 1/7/2003	Between 1/7/2003 and 1/7/2005	On or after 1/7/2005
Nox (as NO ₂) (at 15% O ₂), dry basis, in ppmv	A	Upto 75MW	1100	970	710
	B	Upto 150MW			
	A	More than 75MW	1100	710	360
	B	More than 150MW			
NMHC (as C) (at 15% O ₂), mg/Nm ³	Both A and B		150	100	
PM (at 15% O ₂), mg/Nm ³	Diesel Fuels - HSD & LDO	Both A and B	75	75	
	Furnace Oils - LSHS & FO	Both A and B	150	100	
CO (at 15% O ₂), mg/Nm ³	Both A and B		150	150	
Sulphur content in fuel	A		<2%		
	B		<4%		
Fuel specification	For A only	Up to 5MW	Only Diesel Fuels (HSD, LDO) shall be used.		
Stack height (for generator sets commissioned after 1/7/2003)	Stack height shall be maximum of the following, in meter: I. $14 Q^{0.3}$, Q = Total SO ₂ emission from the plant in kg/hr				

	II. inimum 6 m above the building where generator set is installed.
	III. 30 m.

Note: 1. Acronyms used

MW : Mega (10^6) Watt, FO : Furnace Oil, NO_x : Oxides of Nitrogen HSD : High Speed Diesel, NO_2 : Nitrogen Dioxide, LDO : Light Diesel Oil, O_2 : Oxygen , LSHS : Low Sulphur Heavy Stock, NMHC : Non- Methane Hydrocarbon kPa : Kilo Pascal, C : Carbon, mm : Milli (10^{-3}) metre, PM : Particulate Matter kg/hr : Kilo (10^3) gram per hour, CO : Carbon Monoxide, mg/Nm^3 : Milli (10^{-3}) gram per Normal metre cubic, SO_2 : Sulphur Dioxide , ppmv : part per million (10^6) by volume

2. Area categories A and B are defined as follows

Category A: Areas within the municipal limits of towns/cities having population more than 10 lakhs and also upto 5 km beyond the municipal limits of such towns/cities.

Category B: Areas not covered by category A.

3. The standards shall be regulated by the State Pollution Control Boards or Pollution Control Committees, as the case may be.
4. Individual units with engine ratings less than or equal to 800 KW are not covered by this notification.
5. Only following liquid fuels viz. High Speed Diesel, Light Diesel Oil, Low Sulphur Heavy Stock and Furnace Oil or liquid fuels with equivalent specifications shall be used in these power plants and generator sets.
6. For expansion project, stack height of new generator sets shall be as per total Sulphur Dioxide emission (including existing as well as additional load).
7. For multi engine plants, flues shall be grouped in cluster to get better plume rise and dispersion. Provision for any future expansion should be made in planning stage itself.
8. Particulate Matter, Non-Methane Hydrocarbon and percent moisture (dry basis). Carbon Monoxide results -are to be normalized to 25 0 C, 1.01 Kilo Pascal (760 mm of mercury) pressure and zero
9. Measurement shall be performed at steady load conditions of more than 85% of the rated load.
10. Continuous monitoring of Oxides of Nitrogen shall be done by the plants whose total engine capacity is more than 50 Mega Waft. However, minimum once in six month monitoring for other parameters shall be adopted by the plants.
11. Following methods may be adopted for the measurement of emission parameters,-

Sl.No.	Emission Parameters	Measurement Methods
1.	Particulates	Gravimetric
2.	SO_2	Barium Perchlorate- Thorin indicator method
3.	NO_x	Chemiluminescence, Non Dispersive Infra Red, Non Dispersive Ultra-violet (for continuous measurement),Phenol

		disulphonic method
4.	CO	Non Dispersive Infra Red
5.	O ₂	Paramagnetic, Electrochemical sensor
6.	NMHC	Gas Chromatograph - Flame Ionisation Detector

LIST OF THERMAL POWER PLANTS IN INDIA

S. No.	Name	State	Capacity (MW)
1.	Ramagundam, NTPC	Andhra Pradesh	2100
2.	Ramagundam 'B'	-do-	62.5
3.	Vijaywada	-do-	1260
4.	Rayalseema	-do-	420
5.	Simhadri, NTPC	-do-	1000
6.	Nellore	-do-	30
7.	Kothagudem	-do-	1210
8.	Bongaigaon	Assam	740
9.	Barauni	Bihar	320
10.	Kahalgoan	-do-	840
11.	Muzaffarpur	-do-	220
12.	Korba, NTPC	Chhattisgarh	2100
13.	Korba East	-do-	440
14.	Korba [West]	-do-	840
15.	Badarpur, NTPC	Delhi	705
16.	Rajghat	-do-	135
17.	I.P. Station	-do-	247.5
18.	Gandhinagar	Gujrat	870
19.	Utkai	-do-	850
20.	Wanakbori	-do-	1260
21.	Dhuvaran	-do-	534
22.	Sabarmati, AEC	-do-	400
23.	Sikka	-do-	240
24.	Kutch lignite	-do-,	215
25.	Surat Lignite	-do-	250
26.	Faridabad	Haryana	180
27.	Panipat	-do-	1150
28.	Raichur	Karnataka	1470

29.	Bokaro 'B'	Jharkhand	630
30.	Tenughat	-do-	420
31.	Patratu	-do-	840
32.	Bokaro (A)_ (Closed0	-do-	
33.	Chandrapura	-do-	750
34.	Amarkantak	Madhya Pradesh	290
35.	Birsinghpur	-do-	840
36.	Satpura	-do-	1142.5
37.	Vindhyachal, NTPC	-do-	2760
38.	Trombay	Maharashtra	1330(500)
39.	Khapakheda	-do-	840
40.	Nasik	-do-	910
41.	Koradi	-do-	1100
42.	Bhusawal	-do-	482.5
43.	Chandrapur	-do-	2340
44.	Paras	-do-	62.5
45.	Parli	-do-	690
46.	Ballarshah (closed)	-do-	
47.	Dahanu	-do-	500
48.	Talcher (N), NTPC	Orissa	3000
49.	Talcher (old),NTPC	-do-	470
50.	Ib Valley	-do-	420
51.	Bhatinda, GNTP	Punjab	440
52.	GGSSSTP,Ropar	-do-	1260
53.	GHTP (Lehra Mohabbat)	-do-	420
54.	Kota	Rajasthan	1045
55.	Suratgarh	-do-	1250
56.	Ennore	Tamilnadu	450
57.	Tuticorin	-do-	1050
58.	North Madras	-do-	630
59.	Mettur	-do-	840
60.	Neyveli-Lignite	-do-	2490
61.	Basin Bridge (Closed)	-do-	
62.	Singrauli, NTPC	Uttar Pradesh	2000
63.	Rihand, NTPC	-do-	1000
64.	Anpara	-do-	1630

65.	NCTPS – Dadri,NTPC	-do-	840
66.	Panki	-do-	210
67.	Unchahar, NTPC	-do-	840
68.	Tanda	-do-	440
69.	Paricha	-do-	220
70.	Obra A Obra B	-do	1482
71.	Harduaganj	-do-	515
72.	Farakka,NTPC	West Bengal	1600
73.	Budge-Budge, CESC	-do-	500
74.	Mezia, DVC	-do-	630
75.	Southern, CESC	-do-	135
76.	Barkeshwar	-do-	630
77.	Durgapur (DVC)	-do-	350
78.	Titagarh, CESC	-do-	240
79.	Santaldih	-do-	480
80.	DPL, Durgapur	-do-	395
81.	Kolaghat	-do-	1260
82.	Bandel	-do-	540
83.	Gauripore (closed)	-do-	

THERMAL POWER PLANTS REQUIRED TO USE BENEFICIATED COAL

A. EXISTING

S. No.	Name of Thermal Power Station	Capacity (MW)	Category +	Estimated Annual beneficiated Coal Requirement (MTPA)
1.	Badarpur	705	UA	2.75
2.	Indraprastha	278	UA	0.67
3.	Rajghat	135	UA	0.58
4.	Faridabad	165	UA	0.80*
5.	Panipat (Units 1-5)	650	>1000 km	3.60*
6.	Bhatinda (Units 1-4)	440	>1000 km	1.98
7.	Ropar (Units 1-6)	1260	>1000 km	5.08
8.	NCR Dadri	840	>1000 km	4.00
9.	Harduaganj	425	>1000 km	1.06
10.	Panki	274	U.A.	0.79

11.	Paricha	220	>1000 km	0.89
12.	Kota (Units 1-5)	850	U.A.	3.65
13.	Sabarmati	410	U.A.	1.32*
14.	Wanakbori (Units 1-6)	1260	>1000 km	6.06
15.	Gandhi Nagar	660	U.A.	3.00*
16.	Ukai	850	>1000 km	3.36*
17.	Sikka (Units 1-2)	240	>1000 km	1.00*
18.	Bhusawal	478	>1000 km	2.24
19.	Koradi	1080	U.A.	5.50*
20.	Nasik	910	>1000 km	3.60
21.	Trombay	1150	U.A.	Oil/Coal
22.	Dahanu	500	S.A.	2.01
23.	DPL	390	CPA	0.49
24.	Muddanur (Rayalaseema)	420	>1000 km	2.37
25.	North Chennai -I	630	U.A.	2.97
26.	Ennore	450	>1000 km	1.92*
27.	Raichur (1-4)	840	>1000 km	4.38
28.	Mettur	840	>1000 km	4.39
29.	Tuticorin (1-5)	1050	>1000 km	4.08*
30.	Bokaro	820	CPA	1.84
31.	Durgapur	350	CPA	1.00
Sub Total (A)		19570		77.37

B. IX Plan

S. No.	Name of Thermal Power Station	Capacity (MW)	Category +	Estimated Annual Coal Requirement (MTPA)
32.	Bhatinda-5&6	420	>1000 km	1.88*
33.	Wanakbori-7	210	>1000 km	1.00*
34.	Gandhinagar-7	210	>1000 km	0.95
35.	Raichur (5-6)	420	>1000 km	2.14
36.	North Chennai II	1050	U.A.	IC (Imported Coal)
37.	Mangalore	1000	>1000 km	IC
38.	Tranagallu	260	>1000 km	IC
39.	Suratgarh-I	500	>1000 km	IC

Sub Total (B)	4370	8.09
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Total coal consumption based on 1999-2000 data upto ix plan 85.46 mtpa

*** Revised based on data provided by SEBs/utilities**

UA : Urban Area, CPA : Critically Polluted Area, SA: Sensitive Area and

IC : Imported Coal

(Source : Central Electricity Authority)

THERMAL POWER PLANTS WHICH HAVE DRY FLYASH COLLECTION FACILITIES

1. Dahanu, Maharashtra
2. Sabarmati, Gujarat
3. Budge-Budge, West Bengal
4. Titagarh, West Bengal
5. Vizaywada, AP
6. Rayalseema, AP
7. Kothagundem, AP
8. Ramagundem 'B', AP
9. Nellore , AP
10. Rajghat, Delhi
11. Raichur, Karnataka
12. Singrauli NTPC, UP
13. Vindhyachal, MP
14. Ramagundem, AP
15. *Farakka, West Bengal
16. *Kahalgaon, Bihar
17. *Korba, Chhatisgarh
18. *Talcher (old), Orissa

19. Talcher (Kaniha N), Orissa
20. Badarpur, Delhi
21. Dadri, U.P.
22. Unchahar, U.P.
23. DPL, West Bengal
24. Nasik , Maharashtra
25. Chandrapur, Maharashtra
26. Kota , Rajasthan
27. Ropar, Punjab
28. Bhatinda, Punjab
29. Lehra Mohabbat, Punjab
30. Sabarmati, Gujrat
31. Suratgarh, Rajasthan
32. *Neyveli Lignite Corporation, TN
33. North - Chennai , TN
34. Ib Valley, Orissa
35. Meizia ,WB
36. ** Faridabad , Haryana
37. **Panipat, Haryana
- 38 Sikka, Gujrat

* : Facility is being provided

** : PFC has sanctioned the scheme, same is being developed

Flyash utilization during 2005-06

State	Name Capacity	Capacity (MW)	Coal Cons. (mta)	Ash Gen. (mta)	Ash Uti. (mta)	% utilisation

Andhra Pradesh	Nellore APGENCO	30	0.149	0.065	0.158	243
Andhra Pradesh	Ramagundam , APGENCO	62.5	0.283	0.106	0.073	68.9
Andhra Pradesh	Ramagundam, NTPC	2100	11.79	3.887	1.863	47.9
Andhra Pradesh	Rayalseema, APGENCO	420	1.519	0.603	0.386	61.3
Andhra Pradesh	Simhadri, NTPC	1000	4.98	1.765	0.856	48.5
Andhra Pradesh	Vijayawada , APGENCO	1260	6.81	2.646	1.501	56.7
Andhra Pradesh	Kothagudem APGENCO	1200	3.639	1.507	Nil	-
Assam	Bongaigaon , ASEB	710	Plant Closed			
Bihar	Barauni	240	0.131	0.052	0.058	111.5
Bihar	Muzaffarpur, BSEB	220	Nil	Nil		-
Bihar	Kahalgaon, NTPC	840	5.848	1.431	0.703	49.1
Chhattisgarh	Korba, NTPC	2100	11.66	4.832	2.288	47.4
Chhattisgarh	Korba West	840	3.975	1.75	0.589	33.6
Chhattisgarh	Korba East, ChEB	440	2.853	1.28	1.155	90.0
Delhi	I.P. .IPPGENCO	247.5	0.974	0.331	0.157	47.4
Delhi	Rajghat , IPPGENCO	135	0.501	0.172	0.157	91.3
Delhi	Badarpur, NTPC	705	3.77	0.128	0.608	475
Gujarat	Ukai, Gujarat Elect.Board,	850	3.54	1.157	0.471	40.7
Gujarat	Gandhi Nagar, GEB	870	3.17	0.916	0.597	65.2
Gujarat	Sikka , GEB	240	0.941	0.278	0.17	61.2
Gujarat	Sabarmati, AEC, Ahmedabad	400	1.773	0.323	0.304	94.1

Gujarat	Kutchlignite, Kutch	215	0.735	0.108	0.1.08	100
Gujarat	Surat Lignite,	250	0.766	0.303	0.303	100
Gujarat	Wanakbori	1470	6.85	2.445	1.546	63.2
Haryana	Panipat	1360	3.85	1.54	1.668	108.3
Haryana	Faridabd	165	0.798	0.231	0.029	12.6
Jharkhand	Patratu	840	0.812	0.32	0.122	38.1
Jharkhand	Chandrapura, DVC	750	1.396	0.592	0.675	114.0
Jharkhand	Bokaro 'B', DVC	630	2.18	0.715	0.688	96.2
Karnataka	Raichur, KPCL	1470	6.991	2.269	0.951	41.9
Madhya Pradesh	Satpura MPEB, (MP)	1142.5	6.936	2.463	0.105	4.3
Madhya Pradesh	Sanjay Gandhi ,MPEB	840	4.38	1.752	0.589	33.6
Madhya Pradesh	Amarkantak , Chachai, MPEB,	290	0.977	0.298	0.247	82.9
Madhya Pradesh	Vindhyachal NTPC	2260	11	3.111	1.463	47.0
Maharashtra	Trombey, Tata Poweri	1330	1.802	0.034	0.0384	112.9
Maharashtra	Koradi, MSEB	1100	4.914	1.744	0.175	10.0
Maharashtra	Parli , MSEB	690	3.799	1.578	0.376	23.8
Maharashtra	Bhusawal MSEB	482.5	2.394	0.797	0.462	57.9
Maharashtra	Dahanu , Relience Energy	500	2.37	0.585	0.147	25.1
Maharashtra	Khaperkheda, MSEB	840	4.47	1.668	0.634	38.0
Maharashtra	Paras	62.5	0.325	0.102	0.102	100
Maharashtra	Chandrapur	2340	9.557	3.966	0.453	11.4
Maharashtra	Nasik	840	3.463	1.247	0.13	10.4
Orissa	Talcher , Angul,NTPC	460	2.82	1.073	0.66	61.5
Orissa	lb. , OPGCL	420	2.605	1.057	0.07	6.6

Orissa	Talcher , Kaniha,NTPC	2500	13.87	4.982	1.232	24.7
Punjab	Gurunanak Dev, PSEB	440	1.747	0.539	0.223	41.3
Punjab	Lehra Mohabat, PSEB	420	1.83	0.62	0.445	71.8
Punjab	GurugobindSingh, PSEB	1260	6.29	2.158	1.626	75.3
Rajasthan	Kota	1045	5.325	1.506	1.198	79.5
Rajasthan	Suratgrah , RVUNL	1250	6.096	1.759	0.836	47.5
Tamilnadu	Tuticorin TNEB	1050	5.69	2.116	0.946	44.7
Tamilnadu	Mettur TNEB	840	4.18	1.514	1.304	86.1
Tamilnadu	North Chennai , TNEB	630	2.54	0.946	0.304	32.1
Tamilnadu	Ennore TNEB	450	0.58	0.233	0.061	26.2
Tamilnadu	NLC, Neyveli	2490	15.886	1.835	0.499	27.2
Tamil nadu	ST CMS Electric (P) Ltd.	250	1.442	0.067	0.052	77.6
Uttar Pradesh	Unchahar, NTPC	840	0.705	1.838	1.565	85.1
Uttar Pradesh	Dadari, NTPC	840	4.21	1.507	0.802	53.2
Uttar Pradesh	Rihand, NTPC	1000	4.75	1.407	0.73	51.9
Uttar Pradesh	Tanda, NTPC	440	2.56	0.842	0.402	47.7
Uttar Pradesh	Singrauli, NTPC	2000	10.2	3.123	1.468	47.0
Uttar Pradesh	Parichha ,UPVUNL	220	0.726	0.218	0.41	188.1
Uttar Pradesh	Obra , UPVUNL	1550	4.94	1.884	0.014	0.7
Uttar Pradesh	Anpara, UVUNL	1630	8.47	2.974	0.072	2.4
Uttar Pradesh	Panki, UVUNL	210	0.96	0.25	0.337	133.2
West Bengal	Meizia, DVC	630	3.32	1.32	0.0013	0.1
West Bengal	Durgapur , DVC	350	0.872	0.349	0.495	141.8
West Bengal	Durgapur Projects Ltd.	401	1.686	0.573	0.737	128.6
West Bengal	Santaldih, WBPDC	480	0.843	0.253	0.875	345.8498
West Bengal	Budge Budge,	500	2.52	0.908	0.908	100

	CESC					
West Bengal	Titagarh , CESC	240	1.17	0.33	0.33	100
West Bengal	Southern , CESC,	135	0.68	0.24 0.24		100
West Bengal	Kolaghat. WBPDC	1260	5.086	1.618	1.988	122.9
West Bengal	Farrakka, NTPC	1600	9.26	3.426	2.06	60.1
West Bengal	Bakreswar, WBPDC	630	2.487	0.689	0.242	35.1
West Bengal	Bandel, WBPDC	530	1.285	0.413	0.18	43.6
	Total	63738.5	285.742	95.414	45.9827	48.2

Captive Power plants

capative power plants	Name Capacity	Capacity (MW)	Coal Cons. (mta)	Ash Gen. (mta)	Ash Uti. (mta)	% utilisation
UP	Renusagar, HINDALCO	741.7	5.43	2.205	0.938	42.5
Orissa	NALCO	55.5	0.994	0.414	0.016	3.94
Gujarat	Tata Chemicals	70		0.077	0.034	44.2
Punjab	NFL, Bhatinda	*30	0.122	0.254		0
Karnataka	Rahshree Cemnet	38.2		0.096	0.305	317.7
Kerala	Hindustan News Print	*22	0.166	0.049	0.049	100
AP	Sirpur Paper Mill	*31.9	0.29	0.139		0
Tamilnadu	TCP Limited	63.75	0.373	0.068	0.073	107.4
AP	Nava Bharat Ferro alloy	50	0.276	0.137	0.014	10.2
Karnataka	Grasim Industries	10	0.089	0.027	0.025	92.6
Karnataka	Mysore PaperMills	41	0.217	0.05	0.034	68
Gujarat	JK Paper Ltd.	12	0.072	0.028	0.028	100
Orissa	NTPC-SAIL Power Co.	120	0.906	0.362	0.318	87.8
MP	Orient paper Mills	22	0.204	0.0632	0.068	107.6
Chattisgarh	Bhilai ESCPL	74	0.47	0.125	0.0048	3.84
UP	IFFCO	12.5				0

Uttanchal	CPP-Century Pulp & paper	27.8				0
Bihar	BCCL	30	0.164	0.068	0.068	100
AP	VSP	247.5	1.429	0.571	Nil	0
Karnataka	Vasavdatta			0.047	0.047	100
Orissa	Nava Bharat Ferro alloy	30	0.196	0.095	0.009	9.5
West Bengal	NTPC-SAIL Power Co.	120	0.639	0.25	0.0562	22.48
Jharkhand	Tata Steel	147.5	0.599	0.281	Nil	0
Maharashtra	Ballarpur	30	0.188	0.461	0.0462	10.0
		1943.45	12.824	5.8672	2.1332	42.5