



DECARBONIZING THE COAL-BASED THERMAL POWER SECTOR IN INDIA

CSE ANALYSIS



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Table 1: CSE Analysis: Performance of Subcritical units operating in India using CEA’s CO₂ database, 2022-23, version 19

Units operating with Imported coal

Units operating with PLF below 50 per cent

Units operating with Lignite fuel

Sr. No.	Name	Unit no.	Company	Sector	Age	Average GCV	Average GCV Range	Fuel	Capacity	Emission factor (ton/MWh)	PLF (per cent)	SHR (kcal/kWh)	Efficiency (per cent)	Auxiliary Consumption (per cent)	Net generation (GWh)	CO ₂ emissions (MT)
1	Torangallu Imp	1	JSW Energy	Private	25.2	5251.3	(5000, 6000)	Coal	130	0.74	84.4	2060.6	41.7	7.3	961.2	0.71
2	Torangallu Imp	2	JSW Energy	Private	25.2	5516.7	(5000, 6000)	Coal	130	0.82	64.2	2281.1	37.7	8.4	730.8	0.60
3	Torangallu Ext	1	JSW Energy Ltd	Private	15.3	5344.1	(5000, 6000)	Coal	300	0.87	54.0	2425.1	35.5	7.6	1418.9	1.23
4	Mundra TPP	2	Adani Power Ltd	Private	14.4	4089.0	(4000, 4500)	Coal	330	0.87	10.3	2427.4	35.4	8.5	298.4	0.26
5	Mundra TPP	1	Adani Power Ltd	Private	15.0	4089.0	(4000, 4500)	Coal	330	0.87	12.5	2426.6	35.4	8.5	361.0	0.31
6	Trombay_Coal	1	TATA Power	Private	40.5	4445.0	(4000, 4500)	Coal	500	0.89	57.2	2495.6	34.5	6.1	2507.0	2.24
7	Trombay_Coal	2	TATA Power	Private	14.9	4420.0	(4000, 4500)	Coal	250	0.90	62.6	2524.5	34.1	7.1	1372.0	1.24
8	Torangallu Ext	2	JSW Energy Ltd	Private	15.0	5272.3	(5000, 6000)	Coal	300	0.90	16.7	2525.1	34.1	9.1	439.1	0.40
9	K_Gudem New	4	TSGENCO	State	13.1	3774.0	(3500, 4000)	Coal	500	0.91	78.8	2404.0	35.8	5.2	3452.2	3.15
10	Haldia	2	Haldia Energy Ltd.	Private	9.5	3185.0	(3000, 3500)	Coal	300	0.92	74.0	2416.2	35.6	5.1	1945.0	1.78
11	Tamnar TPP	3	OP Jindal	Private	10.4	2927.8	(2000, 3000)	Coal	600	0.92	49.3	2424.2	35.5	5.3	2591.7	2.38
12	Tamnar TPP	1	OP Jindal	Private	10.4	2993.3	(2000, 3000)	Coal	600	0.92	59.1	2433.0	35.3	5.3	3108.9	2.86
13	Korba Stps	7	NTPC	Centre	13.6	3374.0	(3000, 3500)	Coal	500	0.92	78.9	2427.7	35.4	5.2	3455.1	3.18
14	Mundra TPP	3	Adani Power Ltd	Private	14.0	4089.0	(4000, 4500)	Coal	330	0.92	16.1	2583.3	33.3	8.5	466.5	0.43
15	Budge Budge	1	CESC	Private	26.9	3761.0	(3500, 4000)	Coal	250	0.93	69.6	2437.7	35.3	7.9	1523.9	1.41
16	Budge Budge	2	CESC	Private	25.4	3761.0	(3500, 4000)	Coal	250	0.93	73.2	2437.9	35.3	7.9	1602.5	1.48
17	Mundra TPP	4	Adani Power Ltd	Private	13.6	4089.0	(4000, 4500)	Coal	330	0.93	18.2	2589.7	33.2	8.5	526.7	0.49
18	Tamnar TPP	4	OP Jindal	Private	9.4	2935.5	(2000, 3000)	Coal	600	0.93	62.9	2443.9	35.2	5.3	3305.2	3.06
19	Anpara	6	UPRVUNL	State	9.2	3590.0	(3500, 4000)	Coal	500	0.93	89.3	2445.2	35.2	5.6	3909.6	3.63
20	R_Gudem Stps	7	NTPC	Centre	19.9	3494.4	(3000, 3500)	Coal	500	0.93	64.4	2451.0	35.1	6.7	2822.3	2.62
21	Anpara	7	UPRVUNL	State	8.4	3590.0	(3500, 4000)	Coal	500	0.93	87.7	2446.3	35.1	5.5	3841.1	3.57
22	Singareni TPP		Singareni Collieries	State	8.4	4002.0	(4000, 4500)	Coal	600	0.93	86.6	2446.5	35.1	6.2	4554.0	4.23
23	Chandrapur_Coal	8	MAHAGENCO	State	9.4	3235.1	(3000, 3500)	Coal	500	0.93	70.1	2474.7	34.7	5.3	3072.6	2.85
24	Salaya TPP	1	Essar Energy Ltd	Private	12.5	5291.0	(5000, 6000)	Coal	600	0.93	15.4	2603.3	33.0	7.0	807.2	0.75
25	Anapara "C"	2	Lanco Anapara Power	Private	12.7	3661.0	(3500, 4000)	Coal	600	0.93	68.9	2454.8	35.0	5.2	3622.2	3.37
26	Anapara "C"	1	Lanco Anapara Power	Private	12.7	3661.0	(3500, 4000)	Coal	600	0.93	77.6	2454.8	35.0	5.2	4080.8	3.80
27	Chandrapur_Coal	9	MAHAGENCO	State	8.4	3204.5	(3000, 3500)	Coal	500	0.93	73.7	2488.9	34.5	5.7	3228.3	3.01
28	Singareni TPP	2	Singareni Collieries	State	7.7	3997.0	(3500, 4000)	Coal	600	0.93	79.7	2458.2	35.0	5.9	4187.0	3.91

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Sr. No.	Name	Unit no.	Company	Sector	Age	Average GCV	Average GCV Range	Fuel	Capacity	Emission factor (ton/MWh)	PLF (per cent)	SHR (kcal/kWh)	Efficiency (per cent)	Auxiliary Consumption (per cent)	Net generation (GWh)	CO ₂ emissions (MT)
29	Kakatiya TPP (Stage-II)	2	TSGENCO	State	8.6	3992.0	(3500, 4000)	Coal	600	0.94	79.3	2462.7	34.9	5.4	4166.0	3.90
30	Sipat Stps	2	NTPC	Centre	15.6	3474.3	(3000, 3500)	Coal	500	0.94	86.6	2475.0	34.7	6.1	3792.6	3.55
31	JSW Ratnagiri TPP	1	JSW Energy	Private	14.0	5300.0	(5000, 6000)	Coal	300	0.94	23.5	2622.0	32.8	8.6	6178	0.58
32	Vindh_Chal Stps	11	NTPC	Centre	12.1	3698.2	(3500, 4000)	Coal	500	0.94	91.2	2470.7	34.8	5.5	3996.1	3.75
33	ITPCL TPP	1	IL&FS TN Power Corp Ltd	Private	8.9	4015.0	(4000, 4500)	Coal	600	0.94	29.2	2623.9	32.8	8.2	1535.0	1.44
34	Vindh_Chal Stps	12	NTPC	Centre	11.4	3696.5	(3500, 4000)	Coal	500	0.94	90.5	2472.1	34.8	5.4	3964.2	3.72
35	Udupi TPP	2	Upcl	Private	13.3	5142.0	(5000, 6000)	Coal	600	0.94	11.6	2628.4	32.7	10.0	611.7	0.57
36	Mouda Stps	2	NTPC	Centre	11.4	3365.3	(3000, 3500)	Coal	500	0.94	73.8	2500.4	34.4	5.3	3233.2	3.04
37	Udupi TPP	1	Upcl	Private	14.0	5131.0	(5000, 6000)	Coal	600	0.94	12.5	2633.5	32.6	10.1	657.8	0.62
38	Korba Stps	4	NTPC	Centre	37.2	3400.0	(3000, 3500)	Coal	500	0.94	88.6	2481.5	34.7	5.8	3881.0	3.65
39	Dhanu	1	Rel	Private	29.6	3557.5	(3500, 4000)	Coal	250	0.94	73.6	2501.3	34.4	9.8	1611.2	1.52
40	Amaravati TPP	5	India Bulls	Private	9.4	3654.7	(3500, 4000)	Coal	270	0.94	63.4	2483.9	34.6	7.7	1499.1	1.41
41	Maithon Rb TPP	1	DVC-TATA JV	Private	12.9	4074.0	(4000, 4500)	Coal	525	0.94	73.3	2486.1	34.6	5.6	3373.3	3.18
42	Maithon Rb TPP	2	DVC-TATA JV	Private	12.0	4074.0	(4000, 4500)	Coal	525	0.94	81.7	2486.1	34.6	5.6	3756.8	3.54
43	R_Gundem Stps	6	NTPC	Centre	34.8	3497.5	(3000, 3500)	Coal	500	0.94	71.3	2499.5	34.4	6.6	3121.7	2.95
44	Kamalanga	2	GMR.K Ltd	Private	11.1	3232.2	(3000, 3500)	Coal	350	0.94	71.4	2493.1	34.5	6.7	2187.7	2.06
45	Kakatiya TPP (Stage-I)	1	TSGENCO	State	14.2	4006.0	(4000, 4500)	Coal	500	0.94	68.0	2486.4	34.6	5.9	2979.0	2.81
46	Tamnar TPP	2	OP Jindal	Private	10.4	2975.2	(2000, 3000)	Coal	600	0.94	62.4	2497.7	34.4	5.3	3277.3	3.10
47	Korba Stps	6	NTPC	Centre	35.5	3394.0	(3000, 3500)	Coal	500	0.95	82.4	2492.2	34.5	5.5	3609.2	3.41
48	Dhanu	2	Rel	Private	29.4	3553.6	(3500, 4000)	Coal	250	0.95	70.4	2511.0	34.2	9.9	1542.7	1.46
49	Vindh_Chal Stps	13	NTPC	Centre	9.0	3693.2	(3500, 4000)	Coal	500	0.95	85.1	2493.4	34.5	6.4	3727.0	3.53
50	Sipat Stps	1	NTPC	Centre	17.2	3454.5	(3000, 3500)	Coal	500	0.95	76.3	2502.7	34.4	5.9	3344.1	3.17
51	Avantha Bhandar TPP	1	Korba West Power Co Ltd	Private	7.3	3117.9	(3000, 3500)	Coal	600	0.95	70.6	2495.9	34.4	6.5	3710.3	3.51
52	Baradarha TPP	2	Db Power Ltd	Private	9.4	3334.6	(3000, 3500)	Coal	600	0.95	64.5	2496.8	34.4	5.4	3391.0	3.21
53	Kamalanga	1	GMR.K Ltd	Private	11.5	3197.0	(3000, 3500)	Coal	350	0.95	71.5	2501.8	34.4	6.9	2191.5	2.08
54	Salaya TPP	2	Essar Energy Ltd	Private	12.1	5060.0	(5000, 6000)	Coal	600	0.95	21.0	2650.0	32.4	7.0	1104.8	1.05
55	Mouda Stps	1	NTPC	Centre	12.3	3372.0	(3000, 3500)	Coal	500	0.95	63.0	2515.8	34.2	6.2	2760.1	2.62
56	Kahalgaon	7	NTPC	Centre	15.1	3494.5	(3000, 3500)	Coal	500	0.95	80.4	2509.1	34.3	5.4	3522.5	3.34
57	Vindh_Chal Stps	10	NTPC	Centre	17.4	3707.1	(3500, 4000)	Coal	500	0.95	78.4	2500.8	34.4	5.6	3433.4	3.26
58	Sagardighi TPP	1	WBPDC	State	16.6	3797.0	(3500, 4000)	Coal	300	0.95	78.1	2501.3	34.4	10.6	2052.9	1.95
59	Sagardighi TPP	2	WBPDC	State	16.0	3797.0	(3500, 4000)	Coal	300	0.95	76.8	2501.3	34.4	10.6	2018.8	1.92
60	Dadri (NcTPP)	6	NTPC	Centre	14.0	3805.9	(3500, 4000)	Coal	490	0.95	56.4	2527.4	34.0	5.9	2420.8	2.30

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61	Kamalanga	3	GMR.K Ltd	Private	10.4	3223.6	(3000, 3500)	Coal	350	0.95	72.2	2508.7	34.3	7.1	2212.7	2.10
62	Budge Budge	3	CESC	Private	15.1	3761.0	(3500, 4000)	Coal	250	0.95	81.4	2502.6	34.4	7.9	1783.4	1.69
63	Kahalgaon	6	NTPC	Centre	16.4	3506.3	(3500, 4000)	Coal	500	0.95	75.2	2512.2	34.2	5.7	3293.2	3.13
64	Vindh_Chal Stps	9	NTPC	Centre	18.0	3691.8	(3500, 4000)	Coal	500	0.95	81.9	2503.7	34.3	5.5	3585.8	3.41
65	Simhadri	4	NTPC	Centre	12.4	3056.2	(3000, 3500)	Coal	500	0.95	62.9	2518.8	34.1	6.0	2755.6	2.62
66	Korba Stps	5	NTPC	Centre	36.4	3404.0	(3000, 3500)	Coal	500	0.95	90.7	2506.8	34.3	5.6	3972.4	3.78
67	Talcher Stps	4	NTPC	Centre	20.8	3368.1	(3000, 3500)	Coal	500	0.95	89.9	2511.6	34.2	5.5	3939.0	3.75
68	Tuticorin JV Stage- IV	1	SEPC	Private	2.7	4788.7	(4500, 5000)	Coal	525	0.95	18.7	2639.9	32.6	6.6	861.9	0.82
69	Rosa TPP Ph - I	1	Rosa Power Company	Private	14.5	3835.0	(3500, 4000)	Coal	300	0.95	65.8	2510.3	34.3	8.3	1728.6	1.65
70	Vindh_Chal Stps	8	NTPC	Centre	24.4	3705.2	(3500, 4000)	Coal	500	0.95	79.3	2511.9	34.2	6.1	3473.6	3.31
71	R_Gundem Stps	5	NTPC	Centre	35.4	3507.3	(3500, 4000)	Coal	500	0.95	62.5	2530.1	34.0	7.0	2735.4	2.61
72	Baradarha TPP	1	Db Power Ltd	Private	10.5	3339.0	(3000, 3500)	Coal	600	0.96	72.6	2521.3	34.1	5.7	3818.0	3.65
73	Talcher Stps	6	NTPC	Centre	19.5	3361.8	(3000, 3500)	Coal	500	0.96	79.4	2520.0	34.1	5.5	3479.2	3.32
74	Derang	1	JIPL	Private	10.2	3379.7	(3000, 3500)	Coal	600	0.96	80.9	2523.1	34.1	5.6	4254.6	4.07
75	Derang	2	JIPL	Private	9.5	3379.7	(3000, 3500)	Coal	600	0.96	60.3	2523.1	34.1	5.6	3170.1	3.04
76	Simhadri	3	NTPC	Centre	13.4	3101.8	(3000, 3500)	Coal	500	0.96	72.7	2543.0	33.8	5.7	3186.4	3.05
77	Vindh_Chal Stps	7	NTPC	Centre	25.4	3695.5	(3500, 4000)	Coal	500	0.96	87.4	2527.0	34.0	6.3	3829.6	3.67
78	Emco GMR Warora TPP	1	Emco Energy (GMR)	Private	11.5	3665.6	(3500, 4000)	Coal	300	0.96	77.7	2531.6	34.0	7.4	2042.8	1.96
79	R_Gundem Stps	4	NTPC	Centre	36.1	3493.0	(3000, 3500)	Coal	500	0.96	73.5	2541.4	33.8	6.5	3220.8	3.09
80	Vallur NTPC/Ntecl	3	NTPC/Ntecl	Centre	9.4	3159.6	(3000, 3500)	Coal	500	0.96	64.8	2530.3	34.0	4.9	2840.1	2.73
81	Vallur NTPC/Ntecl	1	NTPC/Ntecl	Centre	12.4	3159.6	(3000, 3500)	Coal	500	0.96	64.7	2530.3	34.0	4.9	2833.0	2.72
82	Vallur NTPC/Ntecl	2	NTPC/Ntecl	Centre	10.9	3159.6	(3000, 3500)	Coal	500	0.96	78.3	2530.3	34.0	4.9	3428.0	3.30
83	Itpcl TPP	2	IL&FS TN Power Corp Ltd	Private	8.3	3965.0	(3500, 4000)	Coal	600	0.96	10.8	2691.6	31.9	10.1	567.5	0.55
84	Dhariwal Inf TPP	2	Dhariwal Infra Private Ltd	Private	10.0	3384.0	(3000, 3500)	Coal	300	0.96	81.4	2538.0	33.9	7.7	2140.2	2.06
85	Simhadri	2	NTPC	Centre	22.0	3192.1	(3000, 3500)	Coal	500	0.96	62.2	2554.6	33.7	5.8	2723.8	2.62
86	Amaravati TPP	3	India Bulls	Private	9.5	3655.4	(3500, 4000)	Coal	270	0.96	61.9	2535.9	33.9	7.7	1465.0	1.41
87	Kahalgaon	5	NTPC	Centre	17.4	3494.8	(3000, 3500)	Coal	500	0.96	64.3	2543.2	33.8	6.6	2815.1	2.71
88	Talcher Stps	5	NTPC	Centre	20.2	3377.6	(3000, 3500)	Coal	500	0.96	80.8	2540.7	33.8	5.6	3538.1	3.41
89	Emco GMR Warora TPP	2	Emco Energy (GMR)	Private	10.9	3666.1	(3500, 4000)	Coal	300	0.96	74.1	2540.3	33.8	7.8	1946.7	1.87
90	K_Gudem New	2	TSGENCO	State	27.4	2893.0	(2000, 3000)	Coal	250	0.96	70.8	2535.2	33.9	10.0	1549.7	1.49
91	Rosa TPP	4	Rosa Power Company	Private	12.4	3835.0	(3500, 4000)	Coal	300	0.96	62.1	2542.0	33.8	7.0	1632.7	1.57
92	Rihand	5	NTPC	Centre	12.2	3937.4	(3500, 4000)	Coal	500	0.96	89.8	2543.6	33.8	5.3	3931.8	3.79

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93	Simhadri	1	NTPC	Centre	22.5	31274	(3000, 3500)	Coal	500	0.96	73.9	2560.0	33.6	5.8	3235.1	3.12
94	Talcher Stps	3	NTPC	Centre	21.6	3369.8	(3000, 3500)	Coal	500	0.97	86.8	2548.4	33.7	6.2	3803.3	3.67
95	Rihand	6	NTPC	Centre	10.8	3980.6	(3500, 4000)	Coal	500	0.97	78.3	2544.5	33.8	5.2	3429.1	3.31
96	Yamunanagar TPP	2	HPGCL	State	16.7	3377.4	(3000, 3500)	Coal	300	0.97	71.4	2543.8	33.8	8.5	1875.7	1.81
97	Raghunathpur TPP Ph-I	2	DVC	Centre	8.6	3651.6	(3500, 4000)	Coal	600	0.97	56.9	2556.1	33.6	6.1	2988.7	2.89
98	Durgapur Steel Tps	1	DVC	Centre	13.0	3753.0	(3500, 4000)	Coal	500	0.97	72.2	2564.9	33.5	5.3	3164.1	3.06
99	Royal Seema	6	APGENCO	State	6.4	3346.0	(3000, 3500)	Coal	600	0.97	54.2	2543.0	33.8	6.4	2851.2	2.76
100	Durgapur Steel Tps	2	DVC	Centre	12.4	3758.0	(3500, 4000)	Coal	500	0.97	81.3	2567.4	33.5	5.2	3559.7	3.44
101	Korba Stps	2	NTPC	Centre	40.8	3404.0	(3000, 3500)	Coal	200	0.97	89.5	2549.9	33.7	8.3	1567.5	1.52
102	Rajiv Gandhi Tps Hisar	2	HPGCL	State	13.8	3291.1	(3000, 3500)	Coal	600	0.97	55.1	2570.8	33.4	5.8	2897.5	2.81
103	Yamunanagar TPP	1	HPGCL	State	16.7	3383.3	(3000, 3500)	Coal	300	0.97	75.8	2551.2	33.7	8.5	1991.5	1.93
104	Rosa TPP	3	Rosa Power Company	Private	12.6	3835.0	(3500, 4000)	Coal	300	0.97	65.3	2552.3	33.7	7.0	1716.8	1.66
105	Mahadev Prasad STPP	1	Adahunik Power	Private	11.7	3478.0	(3000, 3500)	Coal	270	0.97	72.6	2553.7	33.7	8.5	1717.5	1.66
106	Rihand	3	NTPC	Centre	19.5	3940.8	(3500, 4000)	Coal	500	0.97	89.6	2553.8	33.7	5.7	3925.3	3.80
107	Rihand	4	NTPC	Centre	18.9	3938.2	(3500, 4000)	Coal	500	0.97	89.7	2554.6	33.7	5.6	3927.3	3.81
108	Amaravati TPP	2	India Bulls	Private	10.5	3654.2	(3500, 4000)	Coal	270	0.97	79.6	2556.4	33.6	7.7	1882.0	1.83
109	R_Gundem Stps	1	NTPC	Centre	40.7	3489.1	(3000, 3500)	Coal	200	0.97	51.8	2548.0	33.7	10.5	906.8	0.88
110	Rihand	2	NTPC	Centre	35.1	3894.1	(3500, 4000)	Coal	500	0.97	75.1	2553.0	33.7	8.0	3289.1	3.19
111	Haldia	1	Haldia Energy Ltd.	Private	9.6	3205.0	(3000, 3500)	Coal	300	0.97	74.0	2561.5	33.6	10.4	1945.0	1.89
112	Amaravati TPP	1	India Bulls	Private	11.4	3652.0	(3500, 4000)	Coal	270	0.97	76.0	2561.6	33.6	7.7	1796.8	1.75
113	Talcher Stps	2	NTPC	Centre	28.4	3377.7	(3000, 3500)	Coal	500	0.97	74.6	2563.7	33.5	6.9	3265.9	3.18
114	Unchahar	6	NTPC	Centre	7.4	3829.9	(3500, 4000)	Coal	500	0.97	55.6	2590.3	33.2	6.8	2436.4	2.37
115	Korba Stps	3	NTPC	Centre	40.4	3405.0	(3000, 3500)	Coal	200	0.97	89.4	2566.3	33.5	8.3	1567.0	1.53
116	Anpara	5	UPRVUNL	State	29.8	3611.0	(3500, 4000)	Coal	500	0.97	82.2	2565.2	33.5	8.0	3601.8	3.51
117	Farakka Stps	5	NTPC	Centre	30.5	3926.3	(3500, 4000)	Coal	500	0.97	50.3	2568.1	33.5	7.6	2203.7	2.15
118	Rihand	1	NTPC	Centre	36.4	3932.8	(3500, 4000)	Coal	500	0.97	77.5	2564.7	33.5	8.2	3392.8	3.31
119	R_Gundem Stps	3	NTPC	Centre	39.6	3502.9	(3500, 4000)	Coal	200	0.97	72.2	2564.9	33.5	10.8	1265.4	1.23
120	Raghunathpur TPP Ph-I	1	DVC	Centre	10.0	3651.6	(3500, 4000)	Coal	600	0.98	43.6	2575.6	33.4	6.8	2293.0	2.24
121	Dadri (NcTPP)	5	NTPC	Centre	14.5	3779.5	(3500, 4000)	Coal	490	0.98	68.2	2596.8	33.1	6.3	2928.3	2.86
122	Talcher Stps	1	NTPC	Centre	29.5	3365.2	(3000, 3500)	Coal	500	0.98	85.9	2574.1	33.4	7.4	3762.8	3.67
123	Farakka Stps	6	NTPC	Centre	13.4	3917.1	(3500, 4000)	Coal	500	0.98	58.9	2579.5	33.3	6.3	2578.3	2.52
124	Sanjay Gandhi	5	MPGPCL	State	15.9	3828.0	(3500, 4000)	Coal	500	0.98	84.2	2572.9	33.4	6.1	3689.9	3.60
125	Mejia Tps Ext	1	DVC	Centre	13.9	3603.2	(3500, 4000)	Coal	500	0.98	80.5	2592.6	33.2	5.4	3526.3	3.45

**DECARBONIZING THE COAL-BASED THERMAL
POWER SECTOR IN INDIA: CSE ANALYSIS**

Sr. No.	Name	Unit no.	Company	Sector	Age	Average GCV	Average GCV Range	Fuel	Capacity	Emission factor (ton/MWh)	PLF (per cent)	SHR (kcal/kWh)	Efficiency (per cent)	Auxiliary Consumption (per cent)	Net generation (GWh)	CO ₂ emissions (MT)
126	Rajiv Gandhi Tps Hisar	1	HPGCL	State	14.4	3302.3	(3000, 3500)	Coal	600	0.98	63.7	2593.1	33.2	6.0	3347.7	3.27
127	Singrauli Stps	7	NTPC	Centre	36.7	3771.2	(3500, 4000)	Coal	500	0.98	85.4	2577.0	33.4	6.8	3742.4	3.66
128	Singrauli Stps	6	NTPC	Centre	37.6	3775.5	(3500, 4000)	Coal	500	0.98	78.4	2577.8	33.4	6.7	3433.5	3.36
129	Vizag TPP	2	Hinduja National Power Corp Ltd	Private	8.4	3010.0	(3000, 3500)	Coal	520	0.98	47.4	2579.1	33.3	6.2	2158.5	2.11
130	Vizag TPP	1	Hinduja National Power Corp Ltd	Private	8.6	3115.0	(3000, 3500)	Coal	520	0.98	52.1	2579.4	33.3	6.5	2373.2	2.32
131	Raigarh TPP(OP Jindal Tps)	2	JSW Energy	Private	16.4	2891.6	(2000, 3000)	Coal	250	0.98	58.1	2585.2	33.3	10.3	1272.4	1.25
132	Akaltara TPP /Nariyara TPP	1	Ksk Mahanadi Power	Private	11.0	3710.0	(3500, 4000)	Coal	600	0.98	60.6	2579.6	33.3	7.3	3185.0	3.12
133	Sagardighi TPP	3	WBPDC	State	8.6	3826.0	(3500, 4000)	Coal	500	0.98	87.0	2580.2	33.3	5.5	3812.0	3.73
134	Sagardighi TPP	4	WBPDC	State	7.6	3826.0	(3500, 4000)	Coal	500	0.98	85.1	2580.6	33.3	5.5	3727.9	3.65
135	Dhariwal Inf TPP	1	Dhariwal Infra Private Ltd	Private	10.8	3831.0	(3500, 4000)	Coal	300	0.98	67.1	2588.3	33.2	7.7	1762.8	1.73
136	Singrauli Stps	1	NTPC	Centre	42.5	3768.6	(3500, 4000)	Coal	200	0.98	74.9	2578.7	33.3	8.8	1311.4	1.28
137	Korba Stps	1	NTPC	Centre	41.4	3439.0	(3000, 3500)	Coal	200	0.98	80.8	2581.6	33.3	8.6	1416.4	1.39
138	Barauni (Ext)	8	BSEB	State	6.6	3489.0	(3000, 3500)	Coal	250	0.98	72.2	2585.9	33.3	9.1	1581.1	1.56
139	Bhilai TPP	1	NTPC/Sail	Centre	16.3	3281.1	(3000, 3500)	Coal	250	0.98	82.7	2583.2	33.3	8.6	1810.6	1.78
140	Bhilai TPP	2	NTPC/Sail	Centre	15.1	3281.1	(3000, 3500)	Coal	250	0.98	75.5	2583.2	33.3	8.6	1654.3	1.62
141	Raigarh TPP(OP Jindal Tps)	4	JSW Energy	Private	16.1	2891.4	(2000, 3000)	Coal	250	0.98	52.6	2589.6	33.2	10.3	1152.1	1.13
142	Mejia Tps Ext	2	DVC	Centre	13.4	3603.2	(3500, 4000)	Coal	500	0.98	76.3	2598.5	33.1	5.6	3341.0	3.28
143	Bokaro A "Exp"	1	DVC	Centre	8.4	4212.3	(4000, 4500)	Coal	500	0.98	81.7	2593.9	33.1	5.8	3577.2	3.51
144	Bakreswar	5	WBPDC	State	15.2	4253.0	(4000, 4500)	Coal	210	0.98	76.5	2585.6	33.3	8.5	1408.0	1.38
145	Amaravati TPP	4	India Bulls	Private	9.4	3653.8	(3500, 4000)	Coal	270	0.98	75.2	2593.5	33.2	7.7	1779.3	1.75
146	Barauni	3	BSEB	State	41.3	3484.5	(3000, 3500)	Coal	105	0.98	4.3	2583.1	33.3	9.6	39.7	0.04
147	Raigarh TPP(OP Jindal Tps)	1	JSW Energy	Private	16.7	2888.2	(2000, 3000)	Coal	250	0.98	65.4	2600.3	33.1	10.3	1433.3	1.41
148	Kota	7	RRVUNL	State	15.2	3424.1	(3000, 3500)	Coal	195	0.98	75.1	2591.4	33.2	11.2	1282.9	1.26
149	Kota	6	RRVUNL	State	21.0	3409.2	(3000, 3500)	Coal	195	0.98	81.9	2592.4	33.2	10.8	1398.3	1.38
150	Mettur Tps Ext	1	TNEB	State	11.8	3072.5	(3000, 3500)	Coal	600	0.98	52.7	2617.6	32.8	7.7	2770.3	2.73
151	Indra Gandhi STPP	1	NTPC/Apcpl JV	Centre	13.8	3772.7	(3500, 4000)	Coal	500	0.98	57.2	2592.0	33.2	6.1	2507.5	2.47
152	Indra Gandhi STPP	2	NTPC/Apcpl JV	Centre	12.8	3772.7	(3500, 4000)	Coal	500	0.98	53.0	2592.0	33.2	6.1	2321.0	2.29
153	Indra Gandhi STPP	3	NTPC/Apcpl JV	Centre	12.1	3772.7	(3500, 4000)	Coal	500	0.98	67.0	2592.0	33.2	6.1	2934.1	2.89
154	Satpura	11	MPGPCL	State	10.6	3924.0	(3500, 4000)	Coal	250	0.99	88.3	2601.7	33.0	8.0	1933.8	1.91
155	Korba-V(Dspm Tps)	7	CSEB	State	17.4	3379.0	(3000, 3500)	Coal	250	0.99	72.2	2599.9	33.1	8.2	1580.3	1.56
156	Satpura	10	MPGPCL	State	11.4	3924.0	(3500, 4000)	Coal	250	0.99	78.2	2602.7	33.0	8.2	1713.4	1.69

**DECARBONIZING THE COAL-BASED THERMAL
POWER SECTOR IN INDIA: CSE ANALYSIS**

Sr. No.	Name	Unit no.	Company	Sector	Age	Average GCV	Average GCV Range	Fuel	Capacity	Emission factor (ton/MWh)	PLF (per cent)	SHR (kcal/kWh)	Efficiency (per cent)	Auxiliary Consumption (per cent)	Net generation (GWh)	CO ₂ emissions (MT)
157	Barauni (Ext)	9	BSEB	State	6.4	3490.5	(3000, 3500)	Coal	250	0.99	75.6	2601.2	33.1	9.4	1655.8	1.64
158	Akaltara TPP /Nariyara TPP	2	Ksk Mahanadi Power	Private	10.0	3708.0	(3500, 4000)	Coal	600	0.99	59.6	2603.1	33.0	7.2	3134.0	3.10
159	K_Gudem New	3	TSGENCO	State	26.4	2884.0	(2000, 3000)	Coal	250	0.99	74.6	2600.0	33.1	10.7	1633.9	1.61
160	Anpara	4	UPRVUNL	State	30.6	3611.0	(3500, 4000)	Coal	500	0.99	45.3	2605.1	33.0	8.5	1984.3	1.96
161	Akaltara TPP /Nariyara TPP	3	Ksk Mahanadi Power	Private	6.5	3695.0	(3500, 4000)	Coal	600	0.99	65.0	2605.7	33.0	10.5	3417.0	3.38
162	Vijaywada TPP-Iv	1	APGENCO	State	14.8	3419.0	(3000, 3500)	Coal	500	0.99	73.6	2604.8	33.0	5.3	3225.0	3.19
163	Seioni TPP	1	Jhabua Power Ltd	Private	8.4	3346.0	(3000, 3500)	Coal	600	0.99	66.6	2609.6	32.9	6.1	3501.8	3.47
164	Bakreswar	4	WBPDC	State	16.6	4253.0	(4000, 4500)	Coal	210	0.99	88.3	2612.0	32.9	8.5	1625.0	1.61
165	Torr Power(Sabarmati)	5	Torr Power	Private	35.9	4661.5	(4500, 5000)	Coal	121	0.99	81.7	2626.8	32.7	8.4	866.0	0.86
166	Vindh_Chal Stps	4	NTPC	Centre	34.6	3684.3	(3500, 4000)	Coal	210	0.99	77.6	2618.6	32.8	8.5	1428.1	1.42
167	Chandrapura	8	DVC	Centre	14.4	3786.5	(3500, 4000)	Coal	250	0.99	73.9	2634.6	32.6	9.5	1619.0	1.61
168	Raigarh TPP(OP Jindal Tps)	3	JSW Energy	Private	16.5	2882.4	(2000, 3000)	Coal	250	0.99	69.2	2626.2	32.7	10.3	1515.5	1.51
169	Farakka Stps	4	NTPC	Centre	31.9	3939.0	(3500, 4000)	Coal	500	0.99	71.8	2628.1	32.7	6.7	3144.0	3.13
170	Korba-V(Dspm Tps)	8	CSEB	State	16.7	3379.0	(3000, 3500)	Coal	250	0.99	81.0	2620.6	32.8	7.9	1774.4	1.77
171	Mahadev Prasad STPP	2	Adahunik Power	Private	11.4	3482.0	(3000, 3500)	Coal	270	1.00	62.9	2626.2	32.7	8.5	1488.3	1.48
172	Nabi Nagar TPP (Brbcl)	2	NTPC JV	Centre	7.3	3435.0	(3000, 3500)	Coal	250	1.00	65.2	2626.3	32.7	7.7	1427.2	1.42
173	Nabi Nagar TPP (Brbcl)	3	NTPC JV	Centre	5.4	3435.0	(3000, 3500)	Coal	250	1.00	65.2	2626.3	32.7	7.7	1427.0	1.42
174	Nabi Nagar TPP (Brbcl)	4	NTPC JV	Centre	2.7	3435.0	(3000, 3500)	Coal	250	1.00	80.3	2626.3	32.7	7.7	1758.6	1.75
175	Nabi Nagar TPP (Brbcl)	1	NTPC JV	Centre	8.4	3435.0	(3000, 3500)	Coal	250	1.00	81.4	2626.3	32.7	7.7	1783.4	1.78
176	Vindh_Chal Stps	6	NTPC	Centre	33.5	3699.6	(3500, 4000)	Coal	210	1.00	89.4	2626.0	32.7	8.5	1645.0	1.64
177	Anuppur TPP	1	Mb Power (Mp)	Private	9.3	3418.0	(3000, 3500)	Coal	600	1.00	65.0	2631.2	32.7	6.1	3417.3	3.41
178	Anuppur TPP	2	Mb Power (Mp)	Private	8.4	3418.0	(3000, 3500)	Coal	600	1.00	69.3	2631.2	32.7	6.1	3641.9	3.63
179	Singrauli Stps	2	NTPC	Centre	41.7	3757.9	(3500, 4000)	Coal	200	1.00	75.8	2623.3	32.8	8.9	1327.2	1.32
180	Santaldih	5	WBPDC	State	16.7	3402.2	(3000, 3500)	Coal	250	1.00	89.4	2627.3	32.7	8.1	1958.4	1.95
181	Vindh_Chal Stps	5	NTPC	Centre	34.4	3703.0	(3500, 4000)	Coal	210	1.00	81.7	2628.4	32.7	8.5	1502.1	1.50
182	Torr Power(Sabarmati)	4	Torr Power	Private	39.6	4650.9	(4500, 5000)	Coal	121	1.00	82.9	2650.9	32.4	8.0	879.0	0.88
183	Ukai_Coal	6	GSECL	State	11.4	3552.0	(3500, 4000)	Coal	500	1.00	56.3	2569.3	33.5	7.3	2465.0	2.46
184	Vindh_Chal Stps	2	NTPC	Centre	36.0	3700.0	(3500, 4000)	Coal	210	1.00	84.4	2629.3	32.7	8.5	1553.1	1.55
185	Bongaigaon TPP	1	NTPC	Centre	9.1	4053.6	(4000, 4500)	Coal	250	1.00	65.9	2633.0	32.7	8.6	1444.0	1.44
186	Iepl ,Bela TPP	1	Iepl	Private	11.4	3551.0	(3500, 4000)	Coal	270	1.00	29.3	2621.4	32.8	8.8	692.3	0.69
187	Singrauli Stps	4	NTPC	Centre	40.8	3737.2	(3500, 4000)	Coal	200	1.00	77.0	2630.5	32.7	9.1	1348.5	1.35
188	Bongaigaon TPP	2	NTPC	Centre	7.4	4064.5	(4000, 4500)	Coal	250	1.00	75.9	2639.9	32.6	8.6	1662.2	1.66

DECARBONIZING THE COAL-BASED THERMAL POWER SECTOR IN INDIA: CSE ANALYSIS

Sr. No.	Name	Unit no.	Company	Sector	Age	Average GCV	Average GCV Range	Fuel	Capacity	Emission factor (ton/MWh)	PLF (per cent)	SHR (kcal/kWh)	Efficiency (per cent)	Auxiliary Consumption (per cent)	Net generation (GWh)	CO ₂ emissions (MT)
189	Singrauli Stps	3	NTPC	Centre	41.4	3761.2	(3500, 4000)	Coal	200	1.00	88.2	2634.2	32.6	9.1	1544.5	1.54
190	Muzaffarpur Exp	4	JV NTPC & BSEB	Centre	7.4	3614.1	(3500, 4000)	Coal	195	1.00	76.3	2637.1	32.6	9.2	1303.6	1.31
191	Bongaigaon TPP	3	NTPC	Centre	5.4	4092.8	(4000, 4500)	Coal	250	1.00	67.9	2645.1	32.5	8.6	1487.1	1.49
192	Muzaffarpur Exp	3	JV NTPC & BSEB	Centre	9.4	3601.5	(3500, 4000)	Coal	195	1.00	82.3	2641.2	32.6	9.6	1406.3	1.41
193	Torr Power(Sabarmati)	3	Torr Power	Private	45.8	4631.7	(4500, 5000)	Coal	120	1.00	78.1	2674.1	32.2	8.6	821.0	0.82
194	Singrauli Stps	5	NTPC	Centre	40.4	3763.0	(3500, 4000)	Coal	200	1.00	81.0	2645.9	32.5	9.0	1419.7	1.43
195	Santaldih	6	WBPDC	State	13.1	3402.2	(3000, 3500)	Coal	250	1.01	78.4	2649.8	32.4	8.1	1717.7	1.73
196	Kahalgaon	4	NTPC	Centre	28.4	3512.3	(3500, 4000)	Coal	210	1.01	65.2	2662.1	32.3	9.2	1199.5	1.21
197	Rosa TPP Ph - 1	2	Rosa Power Company	Private	14.1	3835.0	(3500, 4000)	Coal	300	1.01	70.7	2654.5	32.4	8.3	1856.8	1.87
198	Koderma	1	DVC	Centre	13.0	4007.1	(4000, 4500)	Coal	500	1.01	81.4	2674.0	32.2	5.2	3565.0	3.59
199	Vindh_Chal Stps	3	NTPC	Centre	35.5	3686.3	(3500, 4000)	Coal	210	1.01	73.6	2655.4	32.4	9.1	1354.3	1.37
200	Farakka Stps	1	NTPC	Centre	38.6	3934.4	(3500, 4000)	Coal	200	1.01	68.7	2682.3	32.1	9.5	1203.5	1.21
201	Shri Singaji Malwa TPP	1	Mppgcl	State	10.7	3331.0	(3000, 3500)	Coal	600	1.01	56.5	2656.9	32.4	6.2	2970.0	3.00
202	Kahalgaon	3	NTPC	Centre	29.4	3526.0	(3500, 4000)	Coal	210	1.01	60.8	2679.5	32.1	9.7	1118.2	1.13
203	Kahalgaon	1	NTPC	Centre	32.4	3497.9	(3000, 3500)	Coal	210	1.01	75.5	2681.6	32.1	9.6	1388.9	1.41
204	Koderma	2	DVC	Centre	11.5	4004.7	(4000, 4500)	Coal	500	1.02	75.8	2695.4	31.9	5.4	3321.8	3.37
205	Vindh_Chal Stps	1	NTPC	Centre	36.8	3714.1	(3500, 4000)	Coal	210	1.02	75.5	2674.7	32.1	9.4	1389.6	1.41
206	Dadri (NcTPP)	1	NTPC	Centre	32.6	3782.4	(3500, 4000)	Coal	210	1.02	61.2	2699.6	31.9	8.1	1125.4	1.14
207	Kahalgaon	2	NTPC	Centre	30.4	3469.6	(3000, 3500)	Coal	210	1.02	62.2	2690.6	32.0	10.2	1143.5	1.16
208	Paricha	5	UPRVUNL	State	12.2	3401.0	(3000, 3500)	Coal	250	1.02	62.2	2677.4	32.1	9.0	1363.0	1.39
209	Anpara	1	UPRVUNL	State	37.6	3216.0	(3000, 3500)	Coal	210	1.02	76.1	2681.2	32.1	9.9	1399.6	1.42
210	Dadri (NcTPP)	2	NTPC	Centre	31.6	3783.4	(3500, 4000)	Coal	210	1.02	65.4	2707.2	31.8	8.8	1203.4	1.23
211	Dadri (NcTPP)	3	NTPC	Centre	32.1	3787.4	(3500, 4000)	Coal	210	1.02	65.9	2707.8	31.8	8.0	1212.9	1.24
212	Sterlite TPP(Vedanta)	2	Sterlite Energy	Private	13.8	3165.0	(3000, 3500)	Coal	600	1.02	58.0	2685.1	32.0	8.3	3046.3	3.10
213	Suratgarh	6	RRVUNL	State	14.9	3330.0	(3000, 3500)	Coal	250	1.02	59.5	2672.7	32.2	8.9	1303.8	1.33
214	Ukai_Coal	4	GSECL	State	45.4	3465.0	(3000, 3500)	Coal	200	1.02	54.9	2585.2	33.3	9.8	961.0	0.98
215	Korba-West Ext	5	CSEB	State	11.4	3640.0	(3500, 4000)	Coal	500	1.02	84.8	2687.6	32.0	5.1	3715.0	3.79
216	Uchpinda TPP	2	Rkm Powergen Private Ltd.	Private	8.5	3044.0	(3000, 3500)	Coal	360	1.02	44.7	2691.4	31.9	10.1	1408.4	1.44
217	Uchpinda TPP	4	Rkm Powergen Private Ltd.	Private	5.4	3044.0	(3000, 3500)	Coal	360	1.02	20.1	2694.3	31.9	10.1	633.9	0.65
218	Suratgarh	5	RRVUNL	State	21.1	3305.0	(3000, 3500)	Coal	250	1.02	49.2	2675.1	32.1	9.5	1078.1	1.11
219	Anpara	2	UPRVUNL	State	37.6	3216.0	(3000, 3500)	Coal	210	1.03	70.0	2699.0	31.9	10.4	1287.1	1.32
220	Bakreswar	1	WBPDC	State	25.1	4253.0	(4000, 4500)	Coal	210	1.03	88.7	2702.4	31.8	8.5	1632.0	1.67

**DECARBONIZING THE COAL-BASED THERMAL
POWER SECTOR IN INDIA: CSE ANALYSIS**

Sr. No.	Name	Unit no.	Company	Sector	Age	Average GCV	Average GCV Range	Fuel	Capacity	Emission factor (ton/MWh)	PLF (per cent)	SHR (kcal/kWh)	Efficiency (per cent)	Auxiliary Consumption (per cent)	Net generation (GWh)	CO ₂ emissions (MT)
221	Mettur	1	TNEB	State	37.6	3063.0	(3000, 3500)	Coal	210	1.03	78.1	2704.7	31.8	8.6	1437.3	1.48
222	Suratgarh	4	RRVUNL	State	22.4	3304.0	(3000, 3500)	Coal	250	1.03	53.7	2690.7	32.0	9.2	1175.0	1.21
223	Melamaruthur (Muthiara)	2	Coastal Energen	Private	8.6	3990.0	(3500, 4000)	Coal	600	1.03	39.0	2871.6	29.9	6.9	2048.2	2.11
224	Anpara	3	UPRVUNL	State	35.3	3216.0	(3000, 3500)	Coal	210	1.03	52.0	2708.1	31.8	10.3	957.0	0.98
225	Shri Singaji Malwa TPP	2	Mppgcl	State	9.6	3331.0	(3000, 3500)	Coal	600	1.03	64.2	2708.2	31.7	6.0	3375.0	3.47
226	Mejia	4	DVC	Centre	19.8	3430.8	(3000, 3500)	Coal	210	1.03	68.7	2705.7	31.8	11.0	1263.3	1.30
227	Dadri (NcTPP)	4	NTPC	Centre	30.4	3783.4	(3500, 4000)	Coal	210	1.03	56.7	2733.8	31.5	9.0	1042.8	1.07
228	Sikka Extn	3	GSECL	State	9.4	5011.0	(5000, 6000)	Coal	250	1.03	35.5	2866.2	30.0	10.4	778.0	0.80
229	Bakreswar	2	WBPDCL	State	24.2	4253.0	(4000, 4500)	Coal	210	1.03	89.4	2714.7	31.7	8.5	1645.0	1.69
230	Mejia	5	DVC	Centre	17.4	3552.1	(3500, 4000)	Coal	250	1.03	76.7	2721.2	31.6	9.8	1678.7	1.73
231	Paricha	6	UPRVUNL	State	11.4	3401.0	(3000, 3500)	Coal	250	1.03	55.3	2720.8	31.6	10.4	1210.0	1.25
232	Uchpinda TPP	1	Rkm Powergen Private Ltd.	Private	8.8	3044.0	(3000, 3500)	Coal	360	1.03	51.3	2721.9	31.6	10.1	1617.5	1.67
233	Suratgarh	1	RRVUNL	State	26.2	3347.0	(3000, 3500)	Coal	250	1.03	30.5	2711.7	31.7	10.4	668.0	0.69
234	Mejia	2	DVC	Centre	27.4	3430.8	(3000, 3500)	Coal	210	1.04	53.1	2717.3	31.6	11.4	977.5	1.01
235	Bhadradri TPP	3	TSGENCO	State	3.4	3450.0	(3000, 3500)	Coal	270	1.04	47.9	2696.1	31.9	9.1	1133.5	1.18
236	Bhadradri TPP	4	TSGENCO	State	2.6	3450.0	(3000, 3500)	Coal	270	1.04	49.0	2696.1	31.9	9.1	1159.6	1.20
237	Bhadradri TPP	1	TSGENCO	State	4.2	3450.0	(3000, 3500)	Coal	270	1.04	91.1	2696.1	31.9	9.1	2155.0	2.23
238	Bhadradri TPP	2	TSGENCO	State	3.7	3450.0	(3000, 3500)	Coal	270	1.04	50.1	2696.1	31.9	9.1	1185.6	1.23
239	Kota	3	RRVUNL	State	35.9	3481.4	(3000, 3500)	Coal	210	1.04	28.6	2729.3	31.5	13.0	526.8	0.55
240	Nawapara	1	Trn Energy	Private	8.0	3097.0	(3000, 3500)	Coal	300	1.04	53.3	2731.6	31.5	9.5	1401.1	1.45
241	Paricha	4	UPRVUNL	State	17.6	3401.0	(3000, 3500)	Coal	210	1.04	50.1	2729.7	31.5	10.3	922.0	0.96
242	Tuticorin JV	1	Ntpl(JV Of NLC & Tangedco)	Centre	9.4	3596.7	(3500, 4000)	Coal	500	1.04	59.8	2775.0	31.0	6.8	2618.7	2.72
243	Tuticorin JV	2	Ntpl(JV Of NLC & Tangedco)	Centre	9.1	3596.7	(3500, 4000)	Coal	500	1.04	66.3	2775.0	31.0	6.8	2905.3	3.02
244	Paras	3	MAHAGENCO	State	14.4	3154.0	(3000, 3500)	Coal	250	1.04	58.3	2722.5	31.6	11.1	1277.8	1.33
245	R_Gundem Stps	2	NTPC	Centre	40.2	3540.8	(3500, 4000)	Coal	200	1.04	44.4	2720.8	31.6	11.2	778.6	0.81
246	Mejia	3	DVC	Centre	26.4	3430.8	(3000, 3500)	Coal	210	1.04	60.4	2715.6	31.7	11.3	1110.7	1.15
247	Mettur	3	TNEB	State	35.4	3035.0	(3000, 3500)	Coal	210	1.04	58.5	2731.4	31.5	8.7	1076.4	1.12
248	North Chennai Extension	2	TNEB	State	10.9	3065.2	(3000, 3500)	Coal	600	1.04	56.5	2752.0	31.2	7.4	2970.0	3.09
249	Mejia	1	DVC	Centre	28.6	3430.8	(3000, 3500)	Coal	210	1.04	56.3	2719.3	31.6	11.4	1035.6	1.08
250	Mettur	2	TNEB	State	36.7	3032.0	(3000, 3500)	Coal	210	1.04	67.9	2735.1	31.4	8.8	1249.8	1.30
251	Mejia	6	DVC	Centre	16.8	3552.1	(3500, 4000)	Coal	250	1.04	65.3	2747.0	31.3	10.6	1429.8	1.49

**DECARBONIZING THE COAL-BASED THERMAL
POWER SECTOR IN INDIA: CSE ANALYSIS**

Sr. No.	Name	Unit no.	Company	Sector	Age	Average GCV	Average GCV Range	Fuel	Capacity	Emission factor (ton/MWh)	PLF (per cent)	SHR (kcal/kWh)	Efficiency (per cent)	Auxiliary Consumption (per cent)	Net generation (GWh)	CO ₂ emissions (MT)
252	Pathadi Tps Ph -I	2	Lanco Amarkantak	Private	14.4	3395.6	(3000, 3500)	Coal	300	1.04	57.6	2755.0	31.2	8.6	1513.4	1.58
253	Paras	2	MAHAGENCO	State	16.4	3126.0	(3000, 3500)	Coal	250	1.04	66.4	2736.8	31.4	10.9	1454.9	1.52
254	H_Ganj B	8	UPRVUNL	State	12.9	3483.0	(3000, 3500)	Coal	250	1.04	51.7	2750.7	31.3	8.9	1132.0	1.18
255	Paricha	3	UPRVUNL	State	18.4	3401.0	(3000, 3500)	Coal	210	1.05	63.8	2757.3	31.2	11.2	1173.0	1.23
256	Mahan TPP	2	Bpscl	Private	5.8	3622.2	(3500, 4000)	Coal	600	1.05	34.7	2765.4	31.1	7.8	1825.4	1.91
257	Bina TPP	2	Bina Power Supply	Private	11.4	3592.0	(3500, 4000)	Coal	250	1.05	56.3	2756.6	31.2	8.4	1234.0	1.29
258	Binjkote	2	Sks Power Generation	Private	7.3	3297.0	(3000, 3500)	Coal	300	1.05	36.0	2762.7	31.1	10.7	946.1	0.99
259	Mettur	4	TNEB	State	34.5	3031.0	(3000, 3500)	Coal	210	1.05	62.9	2754.7	31.2	9.1	1157.8	1.22
260	Uchpinda TPP	3	Rkm Powergen Private Ltd.	Private	6.9	3044.0	(3000, 3500)	Coal	360	1.05	54.9	2766.8	31.1	10.1	1730.6	1.82
261	Jojbera	2	TATA Power	Private	23.8	3820.0	(3500, 4000)	Coal	120	1.05	76.7	2770.9	31.0	8.5	806.3	0.85
262	Jojbera	3	TATA Power	Private	22.9	3797.0	(3500, 4000)	Coal	120	1.05	78.9	2770.4	31.0	8.6	829.0	0.87
263	Chandrapura	7	DVC	Centre	14.8	3778.8	(3500, 4000)	Coal	250	1.05	69.3	2785.9	30.9	10.2	1516.6	1.60
264	Bina TPP	1	Bina Power Supply	Private	12.0	3561.0	(3500, 4000)	Coal	250	1.05	68.4	2771.3	31.0	8.3	1497.0	1.57
265	H_Ganj B	9	UPRVUNL	State	12.2	3483.0	(3000, 3500)	Coal	250	1.05	41.8	2771.2	31.0	9.7	915.0	0.96
266	Kota	4	RRVUNL	State	35.3	3360.0	(3000, 3500)	Coal	210	1.05	73.1	2774.8	31.0	11.3	1344.5	1.42
267	Vijaywada (Dr. N.TATA Rao Tps)	5	APGENCO	State	30.4	2946.0	(2000, 3000)	Coal	210	1.05	62.4	2771.5	31.0	9.6	1148.0	1.21
268	Mahan TPP	1	Bpscl	Private	11.4	3623.7	(3500, 4000)	Coal	600	1.05	31.7	2782.1	30.9	7.8	1663.8	1.75
269	Farakka Stps	2	NTPC	Centre	37.6	3935.3	(3500, 4000)	Coal	200	1.06	60.1	2805.8	30.6	9.8	1052.4	1.11
270	Suratgarh	2	RRVUNL	State	24.4	3277.0	(3000, 3500)	Coal	250	1.06	41.2	2770.6	31.0	10.5	901.4	0.95
271	Royal Seema	3	APGENCO	State	17.5	3247.0	(3000, 3500)	Coal	210	1.06	67.0	2780.0	30.9	8.8	1231.7	1.30
272	Balco TPP	2	Balco India Private Ltd.	Private	8.4	3532.9	(3500, 4000)	Coal	300	1.06	28.7	2792.1	30.8	6.8	753.0	0.80
273	Wardha Warora (Sai Wardha Power)	1	Sai Wardha Power Ltd.	Private	14.3	3710.2	(3500, 4000)	Coal	135	1.06	44.0	2787.8	30.8	10.1	520.4	0.55
274	Wardha Warora (Sai Wardha Power)	2	Sai Wardha Power Ltd.	Private	14.2	3710.2	(3500, 4000)	Coal	135	1.06	50.3	2787.8	30.8	10.1	595.3	0.63
275	Wardha Warora (Sai Wardha Power)	3	Sai Wardha Power Ltd.	Private	13.8	3710.2	(3500, 4000)	Coal	135	1.06	53.3	2787.8	30.8	10.1	630.1	0.67
276	Wardha Warora (Sai Wardha Power)	4	Sai Wardha Power Ltd.	Private	13.3	3710.2	(3500, 4000)	Coal	135	1.06	64.0	2787.8	30.8	10.1	757.2	0.80
277	Farakka Stps	3	NTPC	Centre	37.0	3954.9	(3500, 4000)	Coal	200	1.06	72.0	2816.9	30.5	9.9	1261.0	1.34
278	Unchahar	5	NTPC	Centre	17.9	3779.7	(3500, 4000)	Coal	210	1.06	69.3	2817.3	30.5	9.4	1274.7	1.35
279	Sikka Extn	4	GSECL	State	8.9	4988.0	(4500, 5000)	Coal	250	1.06	28.2	2942.7	29.2	31.1	617.0	0.65
280	Bandakhar TPP	1	Maruti Clean Coal Ch. Ltd	Private	9.1	3485.0	(3000, 3500)	Coal	300	1.06	52.5	2790.0	30.8	8.9	1379.0	1.46
281	Tenughat	1	Tvnl	State	30.3	3469.0	(3000, 3500)	Coal	210	1.06	62.5	2793.1	30.8	10.4	1149.7	1.22

DECARBONIZING THE COAL-BASED THERMAL
POWER SECTOR IN INDIA: CSE ANALYSIS

Sr. No.	Name	Unit no.	Company	Sector	Age	Average GCV	Average GCV Range	Fuel	Capacity	Emission factor (ton/MWh)	PLF (per cent)	SHR (kcal/kWh)	Efficiency (per cent)	Auxiliary Consumption (per cent)	Net generation (GWh)	CO ₂ emissions (MT)
282	Suratgarh	3	RRVUNL	State	22.8	3268.0	(3000, 3500)	Coal	250	1.06	32.4	2768.5	31.1	11.7	709.8	0.75
283	Kota	5	RRVUNL	State	30.4	3357.0	(3000, 3500)	Coal	210	1.07	67.0	2808.4	30.6	11.3	1232.2	1.31
284	India Power TPP (Haldia, Hiranmaye)	2	Hiranmaye Energy Ltd	Private	6.6	3287.0	(3000, 3500)	Coal	150	1.07	65.7	2812.8	30.6	9.4	862.8	0.92
285	Unchahar	2	NTPC	Centre	35.4	3831.3	(3500, 4000)	Coal	210	1.07	50.9	2837.1	30.3	10.3	936.2	1.00
286	Kalisindh	1	RRVUNL	State	10.3	3902.6	(3500, 4000)	Coal	600	1.07	57.6	2812.5	30.6	7.3	3029.4	3.24
287	Parli	6	MAHAGENCO	State	17.5	3234.0	(3000, 3500)	Coal	250	1.07	59.5	2797.2	30.7	11.5	1303.0	1.39
288	Kalisindh	2	RRVUNL	State	9.2	3865.6	(3500, 4000)	Coal	600	1.07	50.5	2817.5	30.5	6.6	2654.9	2.84
289	Chhabra Tps	3	RRVUNL	State	10.9	3768.1	(3500, 4000)	Coal	250	1.07	73.1	2818.6	30.5	9.9	1601.5	1.71
290	Raichur	7	KPCL	State	21.7	3099.5	(3000, 3500)	Coal	210	1.07	40.8	2803.8	30.7	11.3	751.3	0.80
291	Unchahar	4	NTPC	Centre	24.8	3703.6	(3500, 4000)	Coal	210	1.07	68.7	2818.2	30.5	10.1	1263.0	1.35
292	Raichur	3	KPCL	State	33.4	3097.3	(3000, 3500)	Coal	210	1.07	51.4	2802.1	30.7	11.3	945.3	1.01
293	India Power TPP (Haldia, Hiranmaye)	1	Hiranmaye Energy Ltd	Private	7.2	3212.0	(3000, 3500)	Coal	150	1.07	63.9	2822.2	30.5	9.4	839.5	0.90
294	Raichur	8	KPCL	State	14.1	2942.8	(2000, 3000)	Coal	250	1.07	46.3	2805.0	30.7	11.3	1013.6	1.09
295	Raichur	6	KPCL	State	25.0	3115.3	(3000, 3500)	Coal	210	1.07	41.8	2810.4	30.6	11.3	769.0	0.83
296	Raichur	1	KPCL	State	39.4	3213.0	(3000, 3500)	Coal	210	1.07	11.4	2815.6	30.5	11.3	209.8	0.23
297	Raichur	5	KPCL	State	25.5	3122.8	(3000, 3500)	Coal	210	1.08	44.9	2803.5	30.7	11.3	825.7	0.89
298	D.P.L.	8	Dpl	State	10.4	3909.0	(3500, 4000)	Coal	250	1.08	75.3	2834.5	30.3	10.8	1648.0	1.77
299	Royal Seema	4	APGENCO	State	16.7	3257.0	(3000, 3500)	Coal	210	1.08	67.5	2832.6	30.4	9.1	1242.2	1.34
300	Raichur	4	KPCL	State	29.9	3126.7	(3000, 3500)	Coal	210	1.08	45.3	2806.9	30.6	11.3	834.2	0.90
301	Marwa TPP	2	Cspgcl	State	8.4	3472.0	(3000, 3500)	Coal	500	1.08	42.0	2835.7	30.3	6.6	1839.0	1.98
302	Unchahar	3	NTPC	Centre	25.5	3732.0	(3500, 4000)	Coal	210	1.08	61.1	2827.0	30.4	10.0	1123.2	1.21
303	Chhabra Tps	1	RRVUNL	State	14.8	3671.3	(3500, 4000)	Coal	250	1.08	69.9	2839.1	30.3	10.4	1531.2	1.65
304	North Chennai Extension	1	TNEB	State	11.4	3085.1	(3000, 3500)	Coal	600	1.08	38.7	2844.2	30.2	8.9	2033.4	2.19
305	Panipat	7	HPGCL	State	19.9	3712.7	(3500, 4000)	Coal	250	1.08	76.6	2856.0	30.1	9.2	1678.5	1.81
306	Vijaywada (Dr. N.TATA Rao Tps)	6	APGENCO	State	29.4	2945.0	(2000, 3000)	Coal	210	1.08	69.5	2836.8	30.3	10.2	1279.0	1.38
307	Chhabra Tps	4	RRVUNL	State	10.1	3612.7	(3500, 4000)	Coal	250	1.08	22.6	2831.7	30.4	11.7	495.5	0.53
308	Bakreswar	3	WBPDC	State	23.4	4253.0	(4000, 4500)	Coal	210	1.08	79.7	2849.8	30.2	8.5	1467.0	1.59
309	Tuticorin	1	TNEB	State	45.1	2850.0	(2000, 3000)	Coal	210	1.08	67.3	2842.0	30.3	8.7	1237.3	1.34
310	Parli	7	MAHAGENCO	State	14.5	3268.0	(3000, 3500)	Coal	250	1.08	53.5	2810.3	30.6	11.4	1171.0	1.27
311	Pathadi Tps Ph -I	1	Lanco Amarkantak	Private	15.2	3387.4	(3000, 3500)	Coal	300	1.08	54.9	2856.7	30.1	8.7	1443.1	1.56
312	Panipat	8	HPGCL	State	19.5	3718.8	(3500, 4000)	Coal	250	1.09	69.4	2873.3	29.9	9.4	1520.5	1.65

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Sr. No.	Name	Unit no.	Company	Sector	Age	Average GCV	Average GCV Range	Fuel	Capacity	Emission factor (ton/MWh)	PLF (per cent)	SHR (kcal/kWh)	Efficiency (per cent)	Auxiliary Consumption (per cent)	Net generation (GWh)	CO ₂ emissions (MT)
313	Chhabra Tps	2	RRVUNL	State	14.3	3670.2	(3500, 4000)	Coal	250	1.09	60.7	2862.2	30.0	10.5	1329.2	1.45
314	Raichur	2	KPCL	State	38.4	3138.4	(3000, 3500)	Coal	210	1.09	26.5	2816.8	30.5	11.3	488.2	0.53
315	Wanakbori	3	GSECL	State	40.4	3630.4	(3500, 4000)	Coal	210	1.09	46.0	27479	31.3	9.8	847.0	0.92
316	Gandhi Nagar	3	GSECL	State	34.4	3653.3	(3500, 4000)	Coal	210	1.09	66.3	28379	30.3	10.5	1220.0	1.33
317	Royal Seema	5	APGENCO	State	13.6	3234.0	(3000, 3500)	Coal	210	1.09	66.2	2876.4	29.9	10.6	1218.5	1.33
318	Tenughat	2	Tvnl	State	27.8	3469.0	(3000, 3500)	Coal	210	1.09	63.4	2876.8	29.9	10.4	1165.7	1.27
319	Goindwal Sahib TPP	1	GVK Power Ltd.	Private	8.4	3722.9	(3500, 4000)	Coal	270	1.09	41.7	2876.7	29.9	9.6	986.1	1.08
320	Tuticorin	4	TNEB	State	32.5	2835.0	(2000, 3000)	Coal	210	1.09	56.7	2861.7	30.0	9.7	1043.5	1.14
321	Vijaywada (Dr. N.TATA Rao Tps)	4	APGENCO	State	34.0	2867.0	(2000, 3000)	Coal	210	1.10	66.4	2874.0	29.9	10.1	1222.0	1.34
322	Marwa TPP	1	Cspgcl	State	10.4	3472.0	(3000, 3500)	Coal	500	1.10	51.7	2887.7	29.8	6.0	2264.0	2.48
323	Vijaywada (Dr. N.TATA Rao Tps)	2	APGENCO	State	43.8	2829.0	(2000, 3000)	Coal	210	1.10	65.3	2880.8	29.8	10.0	1202.0	1.32
324	Tuticorin	3	TNEB	State	42.3	2840.0	(2000, 3000)	Coal	210	1.10	54.7	2868.3	30.0	9.1	1006.2	1.10
325	Amar Kantak Ext	5	MPGPCL	State	16.1	4189.0	(4000, 4500)	Coal	210	1.10	70.6	2891.8	29.7	9.4	1299.1	1.43
326	D.P.L.	7	Dpl	State	16.7	3872.0	(3500, 4000)	Coal	300	1.10	29.2	2887.6	29.8	10.8	767.0	0.84
327	Tuticorin	2	TNEB	State	43.6	2840.0	(2000, 3000)	Coal	210	1.10	51.0	2864.7	30.0	8.7	938.3	1.03
328	Tuticorin	5	TNEB	State	33.4	2835.0	(2000, 3000)	Coal	210	1.10	52.6	2871.9	29.9	9.9	966.9	1.06
329	Unchahar	1	NTPC	Centre	35.7	3796.4	(3500, 4000)	Coal	210	1.10	43.7	2912.6	29.5	10.4	803.8	0.88
330	Obra-A	12	UPRVUNL	State	43.4	3430.0	(3000, 3500)	Coal	200	1.10	70.3	2892.2	29.7	9.0	1231.0	1.35
331	Panipat	6	HPGCL	State	23.3	3775.7	(3500, 4000)	Coal	210	1.10	65.5	2914.0	29.5	9.6	1204.7	1.33
332	Vijaywada (Dr. N.TATA Rao Tps)	3	APGENCO	State	34.8	2858.0	(2000, 3000)	Coal	210	1.10	55.7	2894.2	29.7	10.2	1025.0	1.13
333	Royal Seema	1	APGENCO	State	30.3	3240.0	(3000, 3500)	Coal	210	1.10	63.3	2901.8	29.6	11.6	1165.2	1.29
334	K_Kheda Ii	5	MAHAGENCO	State	13.0	3464.8	(3000, 3500)	Coal	500	1.10	73.9	2928.6	29.4	5.9	3237.0	3.57
335	I.B.Valley	2	OPGC	State	28.8	2901.0	(2000, 3000)	Coal	210	1.10	63.0	2904.4	29.6	12.1	1159.8	1.28
336	Wanakbori	7	GSECL	State	25.6	3650.0	(3500, 4000)	Coal	210	1.10	61.8	2880.5	29.9	10.5	1136.0	1.25
337	Vijaywada (Dr. N.TATA Rao Tps)	1	APGENCO	State	44.8	2819.0	(2000, 3000)	Coal	210	1.11	57.7	2898.6	29.7	10.7	1062.0	1.17
338	Nawapara	2	Trn Energy	Private	7.3	3099.0	(3000, 3500)	Coal	300	1.11	35.5	2904.3	29.6	10.4	932.4	1.03
339	Gandhi Nagar	5	GSECL	State	26.4	3626.9	(3500, 4000)	Coal	210	1.11	60.6	2846.8	30.2	11.5	1114.0	1.23
340	Binjkote	1	Sks Power Generation	Private	6.4	3199.0	(3000, 3500)	Coal	300	1.11	13.7	2915.2	29.5	12.6	360.5	0.40
341	Chandrapur_Coal	6	MAHAGENCO	State	32.4	3050.8	(3000, 3500)	Coal	500	1.11	51.7	2914.9	29.5	9.5	2263.5	2.51
342	Obra-A	11	UPRVUNL	State	46.6	3430.0	(3000, 3500)	Coal	200	1.11	69.5	2914.7	29.5	9.0	1218.0	1.35
343	Parli	8	MAHAGENCO	State	8.4	3228.0	(3000, 3500)	Coal	250	1.11	44.7	2878.5	29.9	13.6	979.0	1.09

**DECARBONIZING THE COAL-BASED THERMAL
POWER SECTOR IN INDIA: CSE ANALYSIS**

Sr. No.	Name	Unit no.	Company	Sector	Age	Average GCV	Average GCV Range	Fuel	Capacity	Emission factor (ton/MWh)	PLF (per cent)	SHR (kcal/kWh)	Efficiency (per cent)	Auxiliary Consumption (per cent)	Net generation (GWh)	CO ₂ emissions (MT)
344	Obra-A	13	UPRVUNL	State	42.0	3430.0	(3000, 3500)	Coal	200	1.11	34.2	2904.1	29.6	8.8	600.0	0.67
345	Gandhi Nagar	4	GSECL	State	33.0	3667.0	(3500, 4000)	Coal	210	1.12	51.6	2876.4	29.9	11.5	949.0	1.06
346	Korba-West	1	CSEB	State	41.1	3640.0	(3500, 4000)	Coal	210	1.12	73.0	2940.2	29.2	8.8	1342.0	1.50
347	Obra-A	10	UPRVUNL	State	45.6	3430.0	(3000, 3500)	Coal	200	1.13	55.7	2959.1	29.1	10.0	976.0	1.10
348	I.B.Valley	1	OPGC	State	30.2	2901.0	(2000, 3000)	Coal	210	1.13	69.6	2966.7	29.0	12.5	1279.5	1.44
349	Ghtp (Leh.Moh.)	4	PSEB	State	16.0	4264.4	(4000, 4500)	Coal	250	1.13	64.2	2978.4	28.9	7.7	1406.0	1.59
350	Korba-West	3	CSEB	State	39.4	3640.0	(3500, 4000)	Coal	210	1.13	76.3	2978.4	28.9	9.4	1403.0	1.59
351	Royal Seema	2	APGENCO	State	29.4	3238.0	(3000, 3500)	Coal	210	1.13	40.9	2956.6	29.1	13.2	752.1	0.85
352	Kolaghat	6	WBPDC	State	31.6	3313.0	(3000, 3500)	Coal	210	1.13	62.1	2979.7	28.9	11.1	1143.0	1.29
353	Chandrapur_Coal	5	MAHAGENCO	State	33.4	3033.6	(3000, 3500)	Coal	500	1.13	45.7	2982.5	28.8	11.4	2002.9	2.27
354	Wanakbori	4	GSECL	State	38.4	3799.1	(3500, 4000)	Coal	210	1.14	23.8	2995.0	28.7	10.1	437.0	0.50
355	Goindwal Sahib TPP	2	GVK Power Ltd.	Private	8.5	3722.9	(3500, 4000)	Coal	270	1.14	40.0	2988.7	28.8	9.8	946.9	1.08
356	Wanakbori	6	GSECL	State	36.7	3626.2	(3500, 4000)	Coal	210	1.14	65.0	2978.6	28.9	10.9	1195.0	1.36
357	Wanakbori	5	GSECL	State	37.9	3551.5	(3500, 4000)	Coal	210	1.14	60.4	2979.3	28.9	9.8	1111.0	1.26
358	Sanjay Gandhi	3	MPGPCL	State	25.4	3723.0	(3500, 4000)	Coal	210	1.14	60.8	2995.2	28.7	9.3	1118.0	1.27
359	Sanjay Gandhi	4	MPGPCL	State	24.7	3723.0	(3500, 4000)	Coal	210	1.14	60.2	3001.2	28.7	9.6	1107.7	1.26
360	Surat Lignite	4	Gipcl	Private	14.3	2611.7	(2000, 3000)	Lignite	125	1.14	59.7	3055.0	28.1	13.3	654.0	0.75
361	Kolaghat	4	WBPDC	State	30.6	3295.0	(3000, 3500)	Coal	210	1.14	60.3	3009.8	28.6	11.1	1109.0	1.27
362	Bhusawal	5	MAHAGENCO	State	10.6	3531.2	(3500, 4000)	Coal	500	1.14	61.1	3027.3	28.4	6.4	2677.0	3.06
363	Bandel	5	WBPDC	State	41.8	3579.0	(3500, 4000)	Coal	210	1.14	76.5	3009.2	28.6	9.5	1407.0	1.61
364	Chandrapur_Coal	4	MAHAGENCO	State	38.4	3069.9	(3000, 3500)	Coal	210	1.14	47.8	2989.8	28.8	11.2	880.1	1.01
365	Ukai_Coal	3	GSECL	State	45.5	3516.0	(3500, 4000)	Coal	200	1.15	40.4	2865.4	30.0	10.6	708.0	0.81
366	Surat Lignite	1	Gipcl	Private	24.6	2631.3	(2000, 3000)	Lignite	125	1.15	49.0	3111.5	27.6	13.8	537.0	0.62
367	Bhusawal	4	MAHAGENCO	State	12.4	3538.9	(3500, 4000)	Coal	500	1.15	69.7	3042.7	28.3	6.3	3053.0	3.51
368	Chandrapur_Coal	3	MAHAGENCO	State	39.3	3100.2	(3000, 3500)	Coal	210	1.15	50.5	3009.9	28.6	11.9	929.4	1.07
369	Korba-West	4	CSEB	State	38.4	3640.0	(3500, 4000)	Coal	210	1.15	68.9	3034.3	28.3	9.6	1268.0	1.46
370	Kolaghat	5	WBPDC	State	33.4	3277.0	(3000, 3500)	Coal	210	1.15	56.8	3035.5	28.3	11.1	1045.0	1.21
371	Kasaipalli	2	Acb India Ltd	Private	12.1	2643.0	(2000, 3000)	Coal	135	1.16	43.4	3043.1	28.3	11.9	512.7	0.59
372	Obra-A	9	UPRVUNL	State	44.5	3430.0	(3000, 3500)	Coal	200	1.16	58.8	3037.4	28.3	10.9	1031.0	1.19
373	Kolaghat	3	WBPDC	State	40.0	3303.0	(3000, 3500)	Coal	210	1.16	61.0	3055.7	28.1	11.0	1122.0	1.30
374	Kasaipalli	1	Acb India Ltd	Private	12.6	2643.0	(2000, 3000)	Coal	135	1.16	41.3	3060.9	28.1	12.4	488.7	0.57
375	Chandrapur_Coal	7	MAHAGENCO	State	26.8	2972.0	(2000, 3000)	Coal	500	1.16	32.1	3028.1	28.4	12.6	1404.9	1.64
376	Southern Repl.	1	CESC	Private	34.0	4677.0	(4500, 5000)	Coal	67.5	1.17	51.0	3075.5	28.0	8.5	301.6	0.35

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Sr. No.	Name	Unit no.	Company	Sector	Age	Average GCV	Average GCV Range	Fuel	Capacity	Emission factor (ton/MWh)	PLF (per cent)	SHR (kcal/kWh)	Efficiency (per cent)	Auxiliary Consumption (per cent)	Net generation (GWh)	CO ₂ emissions (MT)
377	Bellary Tps	2	KPCL	State	12.4	3676.7	(3500, 4000)	Coal	500	1.17	42.4	3078.9	279	7.2	1856.0	2.17
378	Surat Lignite	3	Gipcl	Private	14.3	2585.1	(2000, 3000)	Lignite	125	1.17	62.1	3064.1	28.1	13.3	680.0	0.80
379	Southern Repl.	2	CESC	Private	33.3	4677.0	(4500, 5000)	Coal	675	1.17	47.3	3078.6	279	8.5	279.8	0.33
380	Sanjay Gandhi	2	MPGPCL	State	30.4	3723.0	(3500, 4000)	Coal	210	1.17	57.1	3083.5	279	9.5	1049.6	1.23
381	North Chennai	2	TNEB	State	29.4	3111.0	(3000, 3500)	Coal	210	1.17	54.3	3068.9	28.0	9.2	998.2	1.17
382	Melamaruthur (Muthiara)	1	Coastal Energen	Private	9.7	4158.0	(4000, 4500)	Coal	600	1.18	2.3	3263.9	26.3	18.4	122.6	0.14
383	Ghtp (Leh.Moh.)	1	PSEB	State	26.6	4262.7	(4000, 4500)	Coal	210	1.18	53.6	3104.1	27.7	9.0	986.0	1.16
384	Sanjay Gandhi	1	MPGPCL	State	31.4	3723.0	(3500, 4000)	Coal	210	1.18	59.4	3098.9	27.7	9.9	1093.0	1.29
385	Neyveli New TPP	1	NLC	Centre	4.6	2640.0	(2000, 3000)	Lignite	500	1.18	77.4	2798.3	30.7	6.1	3388.9	4.00
386	Neyveli New TPP	2	NLC	Centre	3.5	2640.0	(2000, 3000)	Lignite	500	1.18	76.0	2800.5	30.7	6.1	3330.5	3.93
387	Ukai_Coal	5	GSECL	State	39.5	3549.0	(3500, 4000)	Coal	210	1.18	44.4	3013.2	28.5	10.8	816.0	0.97
388	Ghtp (Leh.Moh.)	3	PSEB	State	16.6	4258.1	(4000, 4500)	Coal	250	1.19	48.6	3126.6	27.5	8.7	1065.0	1.26
389	Nashik	4	MAHAGENCO	State	44.1	2842.0	(2000, 3000)	Coal	210	1.19	41.4	3121.7	27.5	12.4	762.0	0.91
390	Surat Lignite	2	Gipcl	Private	24.8	2588.2	(2000, 3000)	Lignite	125	1.19	58.4	3118.0	27.6	13.9	640.0	0.76
391	Nashik	3	MAHAGENCO	State	45.4	2792.0	(2000, 3000)	Coal	210	1.20	38.2	3105.8	27.7	12.6	703.0	0.84
392	Jallippa Kapurdi TPP	5	Raj West Power Ltd (JSW)	Private	11.5	3115.2	(3000, 3500)	Lignite	135	1.20	69.7	2850.6	30.2	10.2	823.9	0.99
393	Jallippa Kapurdi TPP	4	Raj West Power Ltd (JSW)	Private	12.7	3127.8	(3000, 3500)	Lignite	135	1.20	71.9	2850.9	30.2	10.2	850.7	1.02
394	Jallippa Kapurdi TPP	6	Raj West Power Ltd (JSW)	Private	11.4	3121.3	(3000, 3500)	Lignite	135	1.20	72.7	2851.4	30.2	10.2	859.5	1.03
395	Jallippa Kapurdi TPP	3	Raj West Power Ltd (JSW)	Private	12.8	3128.8	(3000, 3500)	Lignite	135	1.20	62.2	2851.5	30.2	10.2	736.0	0.88
396	Jallippa Kapurdi TPP	2	Raj West Power Ltd (JSW)	Private	14.1	3119.2	(3000, 3500)	Lignite	135	1.20	67.5	2852.3	30.1	10.2	797.9	0.96
397	Jallippa Kapurdi TPP	8	Raj West Power Ltd (JSW)	Private	11.4	3111.8	(3000, 3500)	Lignite	135	1.20	71.2	2852.4	30.1	10.2	841.8	1.01
398	Jallippa Kapurdi TPP	1	Raj West Power Ltd (JSW)	Private	14.8	3111.6	(3000, 3500)	Lignite	135	1.20	67.7	2852.6	30.1	10.2	800.5	0.96
399	Jallippa Kapurdi TPP	7	Raj West Power Ltd (JSW)	Private	11.4	3126.5	(3000, 3500)	Lignite	135	1.20	70.5	2853.0	30.1	10.2	834.1	1.00
400	North Chennai	1	TNEB	State	29.8	3120.8	(3000, 3500)	Coal	210	1.20	50.0	3100.1	27.7	10.4	920.5	1.11
401	Nashik	5	MAHAGENCO	State	43.5	2800.0	(2000, 3000)	Coal	210	1.21	40.4	3165.1	27.2	13.0	744.0	0.90
402	Kundarki TPP	1	Bajaj Energy Private	Private	12.6	3475.0	(3000, 3500)	Coal	45	1.21	42.1	3185.8	27.0	9.3	166.1	0.20
403	Kundarki TPP	2	Bajaj Energy Private	Private	12.4	3475.0	(3000, 3500)	Coal	45	1.21	31.3	3185.8	27.0	9.3	123.5	0.15
404	North Chennai	3	TNEB	State	28.4	3116.0	(3000, 3500)	Coal	210	1.21	49.4	3125.0	27.5	9.8	909.6	1.10
405	Utraula TPP	2	Bajaj Energy Private	Private	12.4	3432.0	(3000, 3500)	Coal	45	1.21	33.2	3195.2	26.9	9.3	130.8	0.16

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Sr. No.	Name	Unit no.	Company	Sector	Age	Average GCV	Average GCV Range	Fuel	Capacity	Emission factor (ton/MWh)	PLF (per cent)	SHR (kcal/kWh)	Efficiency (per cent)	Auxiliary Consumption (per cent)	Net generation (GWh)	CO ₂ emissions (MT)
406	Utraula TPP	1	Bajaj Energy Private	Private	12.5	3432.0	(3000, 3500)	Coal	45	1.21	31.9	3195.2	26.9	9.3	125.6	0.15
407	R_Gundem - B	1	TSGENCO	State	54.2	3664.0	(3500, 4000)	Coal	62.5	1.21	42.4	3168.4	27.1	14.4	232.2	0.28
408	Koradi	6	MAHAGENCO	State	42.4	3227.0	(3000, 3500)	Coal	210	1.22	63.4	3160.6	27.2	11.5	1167.0	1.42
409	Maqsoodpur Ipp	1	Bajaj Energy Private	Private	12.8	3546.0	(3500, 4000)	Coal	45	1.22	32.0	3208.0	26.8	6.5	126.0	0.15
410	Barkhera TPP	1	Bajaj Energy Private	Private	12.8	3441.0	(3000, 3500)	Coal	45	1.22	33.8	3209.1	26.8	9.6	133.3	0.16
411	Barkhera TPP	2	Bajaj Energy Private	Private	12.5	3441.0	(3000, 3500)	Coal	45	1.22	32.9	3209.0	26.8	9.6	129.5	0.16
412	Ropar	3	PSEB	State	36.4	3867.4	(3500, 4000)	Coal	210	1.22	43.6	3192.2	26.9	9.6	801.4	0.98
413	Ropar	6	PSEB	State	31.4	3867.4	(3500, 4000)	Coal	210	1.22	49.7	3192.2	26.9	9.6	914.9	1.11
414	Ropar	5	PSEB	State	32.4	3867.4	(3500, 4000)	Coal	210	1.22	35.7	3192.2	26.9	9.6	656.7	0.80
415	Ropar	4	PSEB	State	35.5	3867.4	(3500, 4000)	Coal	210	1.22	44.6	3192.3	26.9	9.6	820.7	1.00
416	Khamberkhera Ipp	1	Bajaj Energy Private	Private	13.0	3496.0	(3000, 3500)	Coal	45	1.22	34.3	3213.1	26.8	9.7	135.3	0.16
417	Maqsoodpur Ipp	2	Bajaj Energy Private	Private	12.5	3546.0	(3500, 4000)	Coal	45	1.22	35.0	3213.3	26.8	6.5	137.9	0.17
418	Khamberkhera Ipp	2	Bajaj Energy Private	Private	12.7	3496.0	(3000, 3500)	Coal	45	1.22	25.8	3213.1	26.8	9.7	101.5	0.12
419	Barsingar Ligniteite	1	NLC	Centre	14.1	2912.0	(2000, 3000)	Lignite	125	1.22	63.2	2895.2	29.7	12.6	692.0	0.84
420	Barsingar Ligniteite	2	NLC	Centre	13.5	2912.0	(2000, 3000)	Lignite	125	1.22	73.8	2908.4	29.6	12.6	808.0	0.99
421	Ratija TPP	2	Scpl Ltd	Private	7.7	2156.0	(2000, 3000)	Coal	50	1.23	56.0	3251.1	26.4	11.9	245.4	0.30
422	Bellary Tps	1	KPCL	State	16.7	3651.5	(3500, 4000)	Coal	500	1.24	45.2	3251.7	26.4	8.0	1980.0	2.45
423	Korba-West	2	CSEB	State	40.4	3640.0	(3500, 4000)	Coal	210	1.24	65.7	3263.7	26.3	10.5	1209.0	1.50
424	Wanakbori	2	GSECL	State	41.6	3648.5	(3500, 4000)	Coal	210	1.24	35.7	3142.0	27.4	10.6	657.0	0.82
425	Neyveli Tps(Z)	1	Taqa	Private	21.8	2815.9	(2000, 3000)	Lignite	250	1.25	51.1	2966.1	29.0	8.0	1119.5	1.40
426	Neyveli Fst Ext	2	NLC	Centre	21.0	2653.0	(2000, 3000)	Lignite	210	1.25	71.3	2975.9	28.9	9.0	1310.9	1.64
427	Neyveli Fst Ext	1	NLC	Centre	21.8	2653.0	(2000, 3000)	Lignite	210	1.25	82.7	2975.9	28.9	9.0	1521.3	1.91
428	Neyveli Tps Exp -Ii	1	NLC	Centre	12.5	2587.0	(2000, 3000)	Lignite	250	1.27	47.5	2995.2	28.7	15.0	1041.0	1.32
429	Wanakbori	1	GSECL	State	42.4	3603.2	(3500, 4000)	Coal	210	1.27	33.4	3213.5	26.8	11.9	614.0	0.78
430	K_Kheda Ii	3	MAHAGENCO	State	24.2	3434.2	(3000, 3500)	Coal	210	1.29	63.2	3407.6	25.2	10.6	1162.0	1.50
431	Neyveli Tps Exp -Ii	2	NLC	Centre	9.5	2587.0	(2000, 3000)	Lignite	250	1.30	28.4	3054.5	28.2	16.8	622.8	0.81
432	Niwari TPP	2	BLA Power Ltd	Private	5.2	3120.0	(3000, 3500)	Coal	45	1.30	55.4	3433.0	25.0	12.3	218.2	0.28
433	K_Kheda Ii	4	MAHAGENCO	State	23.6	3429.2	(3000, 3500)	Coal	210	1.30	50.8	3410.8	25.2	11.3	934.0	1.22
434	Niwari TPP	1	BLA Power Ltd	Private	10.7	2760.0	(2000, 3000)	Coal	45	1.31	15.5	3456.9	24.9	12.8	60.9	0.08
435	K_Kheda Ii	2	MAHAGENCO	State	34.6	3403.5	(3000, 3500)	Coal	210	1.32	49.1	3441.2	25.0	10.9	903.0	1.19
436	Ratija TPP	1	Scpl Ltd	Private	11.5	2175.6	(2000, 3000)	Coal	50	1.35	49.6	3549.3	24.2	16.0	217.3	0.29
437	K_Kheda Ii	1	MAHAGENCO	State	35.4	3382.5	(3000, 3500)	Coal	210	1.35	46.2	3513.8	24.5	12.4	850.0	1.15
438	Chakabura TPP	2	Acb India Ltd	Private	10.4	2095.0	(2000, 3000)	Coal	30	1.36	64.3	3580.5	24.0	13.5	168.8	0.23

**DECARBONIZING THE COAL-BASED THERMAL
POWER SECTOR IN INDIA: CSE ANALYSIS**

Sr. No.	Name	Unit no.	Company	Sector	Age	Average GCV	Average GCV Range	Fuel	Capacity	Emission factor (ton/MWh)	PLF (per cent)	SHR (kcal/kWh)	Efficiency (per cent)	Auxiliary Consumption (per cent)	Net generation (GWh)	CO ₂ emissions (MT)
439	Ghtp (Leh.Moh.)	2	PSEB	State	25.8	4206.0	(4000, 4500)	Coal	210	1.37	6.4	3600.1	23.9	18.1	118.0	0.16
440	Neyveli St Ii	4	NLC	Centre	33.4	2556.0	(2000, 3000)	Lignite	210	1.37	59.6	3248.8	26.5	7.1	1096.1	1.50
441	Neyveli St Ii	5	NLC	Centre	32.6	2556.0	(2000, 3000)	Lignite	210	1.42	56.2	3373.1	25.5	10.7	1033.0	1.47
442	Neyveli St Ii	3	NLC	Centre	38.4	2556.0	(2000, 3000)	Lignite	210	1.44	57.7	3418.6	25.2	11.8	1060.7	1.53
443	Neyveli St Ii	7	NLC	Centre	31.1	2556.0	(2000, 3000)	Lignite	210	1.45	61.6	3436.5	25.0	10.7	1133.5	1.64
444	Neyveli St Ii	1	NLC	Centre	36.6	2556.0	(2000, 3000)	Lignite	210	1.45	52.1	3435.4	25.0	11.7	958.4	1.39
445	Neyveli St Ii	6	NLC	Centre	31.8	2556.0	(2000, 3000)	Lignite	210	1.45	55.6	3443.1	25.0	12.3	1023.4	1.49
446	Neyveli St Ii	2	NLC	Centre	37.5	2556.0	(2000, 3000)	Lignite	210	1.45	45.5	3442.5	25.0	11.1	836.6	1.22
447	Akrimota Lig	1	GMDCL	State	19.4	3293.7	(3000, 3500)	Lignite	125	1.51	30.0	3589.1	24.0	19.8	328.0	0.50
448	Akrimota Lig	2	GMDCL	State	18.6	3264.1	(3000, 3500)	Lignite	125	1.56	30.1	3700.6	23.2	20.0	330.0	0.52
449	Balco TPP	1	Balco India Private Ltd.	Private	9.2	3533.0	(3500, 4000)	Coal	300	1.57	60.5	4162.9	20.7	8.4	1590.4	2.50
450	Bhavnagar TPP	1	BECL	State	8.2	2773.0	(2000, 3000)	Lignite	250	1.58	27.7	3723.2	23.1	20.9	607.0	0.96
451	Durgapur	2	DVC	Centre	42.7	2865.0	(2000, 3000)	Coal	210	1.58	5.9	4145.3	20.7	19.0	109.4	0.17
452	Bhavnagar TPP	2	BECL	State	7.4	2758.0	(2000, 3000)	Lignite	250	1.59	20.7	3756.5	22.9	20.9	453.0	0.72
453	Bhusawal	3	MAHAGENCO	State	42.3	3506.3	(3500, 4000)	Coal	210	1.66	32.9	4351.1	19.8	15.4	606.0	1.00
454	Kutch Lignite	3	GSECL	State	27.3	2247.0	(2000, 3000)	Lignite	75	1.75	47.0	4035.9	21.3	14.2	309.0	0.54
455	Kutch Lignite	4	GSECL	State	14.6	2303.0	(2000, 3000)	Lignite	75	2.00	34.9	4696.5	18.3	23.7	229.0	0.46

DECARBONIZING THE COAL-BASED THERMAL POWER SECTOR IN INDIA: CSE ANALYSIS

Table 2: CSE Analysis: Performance of Supercritical and Ultra Super Critical units operating in India using CEA's CO2 database, 2022-23, version 19

: Units operating with Imported coal
 : Units operating with PLF below 50 per cent

S. no.	Name	Unit no.	Company	Sector	Age	Avg. GCV	Avg GCV Range	Fuel	Capacity	Emission factor (ton/MWh)	PLF (per cent)	SHR (kcal/kWh)	Efficiency (per cent)	Auxiliary Consumption (per cent)	Net generation (GWh)	CO ₂ emissions (MT)
1	North Karanpura	1	NTPC	Centre	1.5	3345.0	(3000, 3500)	Coal	660	0.59	10.4	1538.7	55.9	4.2	600.0	0.35
2	Mundra Umpp	2	TATA POWER	Private	12.0	5341.0	(5000, 6000)	Coal	800	0.83	27.3	2323.7	37.0	8.4	1911.6	1.59
3	Kudgi	1	NTPC	Centre	7.6	3346.9	(3000, 3500)	Coal	800	0.83	56.9	2206.2	39.0	5.8	3990.4	3.31
4	Kudgi	2	NTPC	Centre	7.4	3339.0	(3000, 3500)	Coal	800	0.83	50.3	2209.1	38.9	6.1	3527.0	2.93
5	Mundra Umpp	5	TATA POWER	Private	11.4	5202.0	(5000, 6000)	Coal	800	0.83	43.8	2332.8	36.9	8.4	3072.1	2.56
6	Mundra Umpp	1	TATA POWER	Private	12.4	5201.0	(5000, 6000)	Coal	800	0.83	50.9	2334.8	36.8	8.4	3566.7	2.97
7	Mundra Umpp	3	TATA POWER	Private	11.8	5061.0	(5000, 6000)	Coal	800	0.84	31.3	2348.8	36.6	8.4	2194.6	1.84
8	Rajpura Tpp	2	NABHA POWER LTD	Private	10.1	3812.9	(3500, 4000)	Coal	700	0.84	82.6	2228.8	38.6	4.6	5066.3	4.28
9	Kudgi	3	NTPC	Centre	6.4	3402.3	(3000, 3500)	Coal	800	0.85	44.7	2271.9	37.8	6.2	3129.4	2.67
10	Rajpura Tpp	1	NABHA POWER LTD	Private	10.5	3814.1	(3500, 4000)	Coal	700	0.85	78.8	2256.2	38.1	4.6	4832.9	4.13
11	K_Gudem New	1	TSGENCO	State	5.6	4069.0	(4000, 4500)	Coal	800	0.86	57.3	2257.1	38.1	4.7	4013.0	3.45
12	I.B.Valley	4	OPGC	State	5.0	3088.0	(3000, 3500)	Coal	660	0.86	71.4	2265.3	38.0	5.2	4130.5	3.55
13	Darlipalli Stpp St-I	1	NTPC	Centre	4.6	2887.5	(2000, 3000)	Coal	800	0.86	69.0	2271.4	37.9	6.1	4833.6	4.18
14	Lara	2	NTPC	Centre	4.1	2959.2	(2000, 3000)	Coal	800	0.87	79.0	2286.9	37.6	5.7	5534.7	4.80
15	Darlipalli Stpp St-I	2	NTPC	Centre	3.0	2886.9	(2000, 3000)	Coal	800	0.87	82.5	2283.8	37.7	6.3	5782.3	5.02
16	Nabi Nagar Stpp (New)	3	NTPC JV/NPGCL	Centre	3.4	3747.0	(3500, 4000)	Coal	660	0.88	65.2	2313.6	37.2	5.2	3769.1	3.30
17	H_Ganj B Exp-Ii	1	UPRVUNL	State	2.5	3607.0	(3500, 4000)	Coal	660	0.88	50.1	2273.4	37.8	7.4	2894.0	2.53
18	Sembcorp Gayatri (Sgpl Tpp)	1	SGPL	Private	7.7	3874.5	(3500, 4000)	Coal	660	0.88	70.7	2417.8	35.6	5.3	4090.3	3.58
19	Painampuram(Sgpl P1)	1	Sembcorp Energy India Ltd-P1	Private	9.5	3546.7	(3500, 4000)	Coal	660	0.88	76.2	2358.6	36.5	5.3	4404.8	3.87
20	Solapur Stpp	2	NTPC	Centre	5.4	3537.8	(3500, 4000)	Coal	660	0.88	46.0	2331.7	36.9	6.5	2661.2	2.34
21	Khargone Stpp St-I	2	NTPC	Centre	4.4	3473.7	(3000, 3500)	Coal	660	0.88	38.2	2338.4	36.8	7.1	2208.4	1.94
22	Painampuram(Sgpl P1)	2	Sembcorp Energy India Ltd-P1	Private	8.9	3550.2	(3500, 4000)	Coal	660	0.88	69.5	2357.3	36.5	5.3	4019.6	3.54
23	I.B.Valley	3	OPGC	State	5.1	3088.0	(3000, 3500)	Coal	660	0.88	74.3	2323.6	37.0	6.0	4297.8	3.79
24	Sembcorp Gayatri (Sgpl Tpp)	2	SGPL	Private	7.5	3862.0	(3500, 4000)	Coal	660	0.88	61.9	2431.2	35.4	5.3	3581.0	3.16
25	Lara	1	NTPC	Centre	6.4	2959.8	(2000, 3000)	Coal	800	0.88	77.8	2333.0	36.9	6.2	5454.8	4.82
26	Mahatma Gandhi Tpp	1	JHAJJAR POWER LTD	Private	12.6	3552.0	(3500, 4000)	Coal	660	0.89	63.9	2343.7	36.7	6.0	3692.8	3.27
27	Gadarwara	1	NTPC	Centre	6.4	3557.3	(3500, 4000)	Coal	800	0.89	63.7	2354.8	36.5	5.9	4464.8	3.96
28	Kawai Tpp	1	ADANI POWER LTD	Private	11.2	3963.5	(3500, 4000)	Coal	660	0.89	75.5	2368.5	36.3	5.4	4362.4	3.88

DECARBONIZING THE COAL-BASED THERMAL POWER SECTOR IN INDIA: CSE ANALYSIS

S. no.	Name	Unit no.	Company	Sector	Age	Avg. GCV	Avg GCV Range	Fuel	Capacity	Emission factor (ton/ MWh)	PLF (per cent)	SHR (kcal/ kWh)	Efficiency (per cent)	Auxiliary Consumption (per cent)	Net generation (GWh)	CO ₂ emissions (MT)
29	Gadarwara	2	NTPC	Centre	3.5	3549.0	(3500, 4000)	Coal	800	0.89	61.9	2360.9	36.4	6.7	4336.2	3.86
30	Nabi Nagar Stpp (New)	1	NTPC JV/NPGCL	Centre	5.1	3745.7	(3500, 4000)	Coal	660	0.89	65.2	2356.4	36.5	5.1	3769.7	3.36
31	Pryagraj (Bara) Tpp	2	TATA POWER	Private	7.9	3641.1	(3500, 4000)	Coal	660	0.89	68.0	2350.3	36.6	5.6	3930.6	3.51
32	Mouda Stps	4	NTPC	Centre	7.4	3404.4	(3000, 3500)	Coal	660	0.89	69.3	2372.9	36.2	5.0	4008.4	3.58
33	Pryagraj (Bara) Tpp	1	TATA POWER	Private	8.6	3641.1	(3500, 4000)	Coal	660	0.89	70.0	2353.7	36.5	5.7	4048.7	3.62
34	Kawai Tpp	2	ADANI POWER LTD	Private	10.6	3969.3	(3500, 4000)	Coal	660	0.89	70.4	2385.5	36.0	5.5	4071.2	3.64
35	Mahatma Gandhi Tpp	2	JHAJJAR POWER LTD	Private	12.3	3596.1	(3500, 4000)	Coal	660	0.90	68.2	2375.8	36.2	6.5	3941.4	3.53
36	Lalitpur Tpp	3	LALITPUR P GEN CO LTD	Private	8.4	3605.0	(3500, 4000)	Coal	660	0.90	64.0	2359.8	36.4	5.2	3703.0	3.32
37	Lalitpur Tpp	1	LALITPUR P GEN CO LTD	Private	9.2	3605.0	(3500, 4000)	Coal	660	0.90	64.5	2359.9	36.4	5.2	3732.0	3.34
38	Tirora Tpp-I	2	ADANI POWER LTD	Private	11.4	3511.0	(3500, 4000)	Coal	660	0.90	72.1	2363.3	36.4	5.4	4169.0	3.74
39	Nigrie	1	JP VENTURE LTd.	Private	9.9	3751.0	(3500, 4000)	Coal	660	0.90	71.2	2363.6	36.4	5.4	4116.8	3.70
40	Nabi Nagar Stpp (New)	2	NTPC JV/NPGCL	Centre	3.4	3740.0	(3500, 4000)	Coal	660	0.90	81.3	2373.1	36.2	5.5	4700.2	4.22
41	Nigrie	2	JP VENTURE LTd.	Private	9.5	3751.0	(3500, 4000)	Coal	660	0.90	60.3	2365.4	36.4	5.5	3484.6	3.13
42	Lalitpur Tpp	2	LALITPUR P GEN CO LTD	Private	8.6	3605.0	(3500, 4000)	Coal	660	0.90	57.2	2366.3	36.3	5.4	3306.0	2.97
43	Tirora Tpp-I	1	ADANI POWER LTD	Private	11.9	3511.0	(3500, 4000)	Coal	660	0.90	78.7	2369.5	36.3	5.4	4548.7	4.09
44	Raikheda	1	Raipur Energen Limited	Private	9.4	3023.4	(3000, 3500)	Coal	685	0.90	48.8	2383.7	36.1	9.7	2929.6	2.63
45	Tanda St-Ii	5	NTPC	Centre	4.9	3698.1	(3500, 4000)	Coal	660	0.90	71.4	2384.8	36.1	5.7	4125.7	3.71
46	Pryagraj (Bara) Tpp	3	TATA POWER	Private	7.2	3641.1	(3500, 4000)	Coal	660	0.90	65.9	2371.2	36.3	6.0	3810.9	3.43
47	Tanda St-Ii	6	NTPC	Centre	3.4	3705.3	(3500, 4000)	Coal	660	0.90	64.4	2388.0	36.0	5.9	3726.0	3.36
48	Khargone Stpp St-I	1	NTPC	Centre	4.9	3450.1	(3000, 3500)	Coal	660	0.90	52.1	2401.8	35.8	7.1	3012.8	2.72
49	Sipat Stps	4	NTPC	Centre	12.6	3497.0	(3000, 3500)	Coal	660	0.90	75.4	2387.5	36.0	5.4	4356.5	3.94
50	Sasan Umpp	5	RELIANCE POWER	Private	10.0	4140.0	(4000, 4500)	Coal	660	0.91	93.6	2389.4	36.0	6.0	5410.9	4.90
51	Mouda Stps	3	NTPC	Centre	8.4	3410.0	(3000, 3500)	Coal	660	0.91	67.8	2409.1	35.7	5.5	3921.7	3.56
52	Sasan Umpp	2	RELIANCE POWER	Private	11.2	4076.0	(4000, 4500)	Coal	660	0.91	89.6	2391.4	36.0	6.0	5179.0	4.70
53	Sasan Umpp	6	RELIANCE POWER	Private	9.4	4013.0	(4000, 4500)	Coal	660	0.91	90.9	2392.7	35.9	6.0	5258.0	4.77
54	Sasan Umpp	3	RELIANCE POWER	Private	10.4	4070.0	(4000, 4500)	Coal	660	0.91	92.1	2393.9	35.9	6.0	5324.6	4.84
55	Tirora Tpp-Ii	3	ADANI POWER LTD	Private	11.2	3511.0	(3500, 4000)	Coal	660	0.91	73.9	2394.6	35.9	5.4	4270.8	3.88
56	Sipat Stps	3	NTPC	Centre	13.1	3500.5	(3500, 4000)	Coal	660	0.91	59.3	2397.3	35.9	6.1	3431.1	3.12
57	Barh Stpp Ii	2	NTPC	Centre	9.4	3555.1	(3500, 4000)	Coal	660	0.91	70.2	2399.1	35.8	5.4	4057.0	3.69
58	Mundra Tpp	5	ADANI POWER LTD	Private	13.6	4089.0	(4000, 4500)	Coal	660	0.91	29.6	2552.1	33.7	8.5	1713.1	1.56
59	Mundra Tpp	9	ADANI POWER LTD	Private	12.4	4089.0	(4000, 4500)	Coal	660	0.91	30.5	2553.3	33.7	8.5	1762.1	1.61
60	Sasan Umpp	4	RELIANCE POWER	Private	10.2	4051.0	(4000, 4500)	Coal	660	0.91	89.9	2402.9	35.8	6.0	5197.6	4.74

**DECARBONIZING THE COAL-BASED THERMAL
POWER SECTOR IN INDIA: CSE ANALYSIS**

S. no.	Name	Unit no.	Company	Sector	Age	Avg. GCV	Avg GCV Range	Fuel	Capacity	Emission factor (ton/ MWh)	PLF (per cent)	SHR (kcal/ kWh)	Efficiency (per cent)	Auxiliary Consumption (per cent)	Net generation (GWh)	CO ₂ emissions (MT)
61	Tirora Tpp-li	5	ADANI POWER LTD	Private	9.9	3529.7	(3500, 4000)	Coal	660	0.91	71.6	2408.5	35.7	5.4	4140.0	3.78
62	Tirora Tpp-li	4	ADANI POWER LTD	Private	10.4	3529.0	(3500, 4000)	Coal	660	0.91	73.4	2408.7	35.7	5.4	4245.8	3.88
63	Sasan Umpp	1	RELIANCE POWER	Private	10.6	3975.0	(3500, 4000)	Coal	660	0.91	27.7	2406.3	35.7	6.0	1599.2	1.46
64	Mundra Tpp	6	ADANI POWER LTD	Private	13.0	4089.0	(4000, 4500)	Coal	660	0.91	31.8	2558.7	33.6	8.5	1840.7	1.68
65	Shri Singaji Malwa Tpp	3	MPPGCL	State	5.7	3391.0	(3000, 3500)	Coal	660	0.92	47.6	2404.9	35.8	6.3	2751.0	2.52
66	Yermarus Tpp	2	KPCL	State	7.4	3418.0	(3000, 3500)	Coal	800	0.92	38.5	2407.8	35.7	7.8	2699.7	2.48
67	Wanakbori	8	GSECL	State	4.8	3631.0	(3500, 4000)	Coal	800	0.92	56.2	2422.9	35.5	5.2	3935.0	3.64
68	Sipat Stps	5	NTPC	Centre	12.2	3452.9	(3000, 3500)	Coal	660	0.92	87.0	2442.7	35.2	5.4	5030.9	4.65
69	Talwandi Sabo	2	Talwandi Sabo Power	Private	8.8	3270.0	(3000, 3500)	Coal	660	0.93	60.3	2445.7	35.2	6.6	3487.0	3.23
70	Raikheda	2	Raipur Energen Limited	Private	8.4	3011.7	(3000, 3500)	Coal	685	0.93	57.6	2459.6	35.0	9.9	3456.7	3.21
71	Barh Stpp li	1	NTPC	Centre	10.7	3568.7	(3500, 4000)	Coal	660	0.93	78.2	2456.6	35.0	5.5	4521.0	4.20
72	Solapur Stpp	1	NTPC	Centre	7.3	3513.5	(3500, 4000)	Coal	660	0.93	49.1	2466.6	34.9	6.4	2837.7	2.64
73	Mundra Tpp	7	ADANI POWER LTD	Private	12.7	4089.0	(4000, 4500)	Coal	660	0.93	15.8	2616.9	32.9	8.5	911.6	0.85
74	Talwandi Sabo	1	Talwandi Sabo Power	Private	10.1	3260.0	(3000, 3500)	Coal	660	0.93	64.7	2464.0	34.9	7.0	3739.0	3.49
75	Yermarus Tpp	1	KPCL	State	8.4	3472.0	(3000, 3500)	Coal	800	0.94	23.8	2471.1	34.8	7.8	1668.0	1.58
76	Mundra Tpp	8	ADANI POWER LTD	Private	12.4	4089.0	(4000, 4500)	Coal	660	0.95	13.7	2649.9	32.4	8.5	789.4	0.75
77	Shri Singaji Malwa Tpp	4	MPPGCL	State	5.4	3391.0	(3000, 3500)	Coal	660	0.95	56.6	2484.7	34.6	5.9	3270.0	3.09
78	Meja Stpp	1	JV NTPC &UPRVUNL	Centre	6.4	3661.2	(3500, 4000)	Coal	660	0.95	69.6	2508.2	34.3	5.9	4025.0	3.84
79	Meja Stpp	2	JV NTPC &UPRVUNL	Centre	3.6	3661.2	(3500, 4000)	Coal	660	0.95	50.3	2508.2	34.3	5.9	2910.1	2.77
80	Suratgarh	7	RRVUNL	State	4.4	3583.5	(3500, 4000)	Coal	660	0.96	25.3	2526.5	34.0	7.0	1461.7	1.40
81	Talwandi Sabo	3	Talwandi Sabo Power	Private	8.4	3270.7	(3000, 3500)	Coal	660	0.96	60.9	2524.0	34.1	6.9	3522.0	3.37
82	Barh Stpp I	1	NPGCL	Centre	2.8	3534.1	(3500, 4000)	Coal	660	0.96	65.6	2531.9	34.0	6.8	3793.7	3.66
83	Suratgarh	8	RRVUNL	State	2.8	3703.9	(3500, 4000)	Coal	660	0.97	50.1	2546.3	33.8	6.9	2897.7	2.80
84	Chhabra Tps	5	RRVUNL	State	7.3	3983.2	(3500, 4000)	Coal	660	1.02	59.2	2708.4	31.7	6.3	3425.2	3.51
85	Damodaram Sanjeevaiah	2.00-3.00	APPDCL	State	9.4	3932.3	(3500, 4000)	Coal	1600	1.03	18.2	2724.3	31.6	7.7	2557.5	2.64
86	Chhabra Tps	6	RRVUNL	State	5.4	3975.9	(3500, 4000)	Coal	660	1.04	58.8	2745.3	31.3	5.9	3400.6	3.53
87	Damodaram Sanjeevaiah	1	APPDCL	State	9.9	3938.9	(3500, 4000)	Coal	800	1.04	41.2	2751.8	31.2	7.1	2890.4	3.02
88	Koradi Extn.	8	MAHAGENCO	State	9.4	3824.9	(3500, 4000)	Coal	660	1.14	62.0	3014.2	28.5	6.6	3586.0	4.09
89	Bellary Tps	3	KPCL	State	8.4	3651.5	(3500, 4000)	Coal	700	1.15	44.5	3017.3	28.5	7.2	2731.0	3.14
90	Koradi Extn.	9	MAHAGENCO	State	8.4	3823.0	(3500, 4000)	Coal	660	1.16	54.1	3070.6	28.0	7.9	3130.0	3.64
91	Koradi Extn.	10	MAHAGENCO	State	7.6	3836.9	(3500, 4000)	Coal	660	1.19	61.4	3154.2	27.3	7.5	3552.0	4.24

As India's demand for electricity soars, the coal-based power sector is poised to meet a major chunk of this growth. With India's coal capacity slated to go beyond 280 GW in the near future, it is imperative to decarbonize the sector.

This report highlights the technical and systematic challenges that influence the emissions of the sector. It analyses the emission intensity of the current fleet to contextualize its performance and provide future pathways for emission reduction.



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