



REPORT
ON
FLY ASH GENERATION
AT
COAL/LIGNITE BASED THERMAL POWER STATIONS
AND
ITS UTILIZATION IN THE COUNTRY
FOR
1ST HALF OF THE YEAR 2014-15
(April, 2014 to Sept., 2014)



CENTRAL ELECTRICITY AUTHORITY

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CENTRAL ELECTRICITY AUTHORITY
THERMAL CIVIL DESIGN DIVISION

FLY ASH GENERATION AT COAL/LIGNITE BASED THERMAL POWER STATIONS AND ITS UTILIZATION IN THE COUNTRY FOR THE 1ST HALF OF THE YEAR 2014-15 (APRIL TO SEPTEMBER, 2014)

1.0 BACKGROUND

The present report is for the period from April, 2014 to September, 2014 based on the data received from 146 Thermal Power Stations. Coal/Lignite based Thermal Power Generation has been the backbone of power capacity addition in the country. Indian coal is of low grade with ash content of the order of 30-45 % in comparison to imported coals which have low ash content of the order of 10-15%. Large quantity of ash is, thus being generated at coal/lignite based Thermal Power Stations in the country, which not only requires large area of precious land for its disposal but is also one of the sources of pollution of both air and water.

Central Electricity Authority (CEA) on behalf of Ministry of Power has been monitoring since 1996 the fly ash generation and its utilization at coal/ lignite based thermal power stations in the country. Data on fly ash generation and utilization including modes of utilization is obtained from thermal power stations on half yearly as well as yearly basis. The data thus obtained is analyzed and a report bringing out the status of fly ash generation and its utilization in the country is prepared. The said report is forwarded to Ministry of Power, Ministry of Environment and Forests and is also uploaded on the web site of CEA for bringing out the information in the public domain so that users of fly ash have access to the information on the availability of fly ash at different thermal power stations in the country.

To reduce the requirement of land for disposal of fly ash in ash ponds and to address the problem of pollution caused by fly ash, Ministry of Environment & Forests (MoEF) has issued various Notifications on fly ash utilization, first Notification was issued on 14th September, 1999 which was subsequently amended in 2003 and 2009 vide Notifications dated 27th August, 2003 and 3rd November, 2009 respectively. The latest Notification of 3rd November, 2009 prescribes targets of Fly Ash utilization in a phased manner for all Coal/Lignite based Thermal Power Stations in the country so as to achieve 100% utilization of fly ash.

The Thermal Power Stations in operation before the date of the Notification (i.e. 3rd November, 2009) are to achieve the target of fly ash utilization in successive 5 years - 50% in first year; 60% in second year; 75% in third year; 90% in fourth year and 100% in fifth year. The new Thermal Power Stations coming into operation after the MoEF's notification (i.e. 3rd November, 2009) are to achieve the target of fly ash utilization as 50% in the first year, 70% during two years, 90% during three years and 100% during four years depending upon their date of commissioning.

The report on fly ash generation and its utilization at coal/lignite based thermal power stations provides factual information and the status of fly ash utilization in the country. It also facilitates to ascertain the level of fly ash utilization achieved by various power stations in relation to targets prescribed in MoEF's notification of 3rd November, 2009 and to take corrective measures in cases of Thermal Power Stations that are lagging behind achieving the prescribed targets of fly ash utilization.

2.0 ASH GENERATION & UTILIZATION DURING THE 1ST HALF OF THE YEAR 2014-15

2.1 A Brief Summary

Fly ash generation & utilization data for the 1st half of the Year 2014-15 (April, 2014 to Sept., 2014) has been received from **146** (One hundred forty six) coal/lignite based thermal power stations of various power utilities in the country.

Data received has been analyzed to derive conclusions on present status of fly ash generation and its utilization in the country as a whole. A brief summary of status is given in Table-I below:

TABLE-I
SUMMARY OF FLY ASH GENERATION AND UTILIZATION DURING THE 1ST HALF OF THE YEAR 2014-15

Description		1 st Half Year 2014-15
• Nos. of Thermal Power Stations from which data was received	:	146
• Installed capacity (MW)	:	1,33,708.80
• Coal consumed (Million tons)	:	272.70
• Average Ash Content (%)	:	33.65
• Fly Ash Generation (Million tons)	:	91.77
• Fly Ash Utilization (Million tons)	:	48.65
• Percentage Utilization	:	53.01

Power Station wise fly ash generation & its utilization status including modes of utilization for the 1st half of the Year 2014-15 for all the **146** thermal power stations is given in the statement at **Annex-I**.

2.2 Power Utility wise Status of Fly Ash Generation & its Utilization during the 1st Half of the Year 2014-15

The status of fly ash generation & utilization for the 1st half of the year 2014-15 for various power utilities in the country has been assessed based on data received from Thermal Power Stations and the same is given in Table-II:

TABLE-II
POWER UTILITY WISE FLY ASH GENERATION AND UTILIZATION FOR THE 1ST HALF OF THE YEAR 2014-15

Sl. No.	Name of Power Utility	Nos. of TPS	Installed Capacity (MW)	Fly Ash Generation (Million-ton)	Fly Ash Utilization (Million-ton)	% age
1	2	3	4	5	6	7
1	Andhra Pradesh Power Generation Corporation (A.P.GEN.CO)	2	2810.00	3.1124	1.9733	63.40
2	ACBPL (Chhattisgarh)	1	270.00	0.4879	0.4423	90.65
3	APL (Gujarat)	1	4620.00	0.7710	0.6190	80.29
4	APCPL (Haryana)	1	1500.00	0.9038	0.1230	13.60
5	AMNEPL (Maharastra)	1	246.00	0.0000	0.0000	-

Sl. No.	Name of Power Utility	Nos. of TPS	Installed Capacity (MW)	Fly Ash Generation (Million-ton)	Fly Ash Utilization (Million-ton)	% age
1	2	3	4	5	6	7
6	BEPL (UP)	5	450.00	0.6393	0.6051	94.64
7	Bihar State Power Generation Co. Ltd.	1	220.00	0.0000	0.0000	-
8	C.E.S.C. Ltd.	4	1285.00	1.1898	1.1898	100.00
9	C.G.P.L (Gujarat)	1	4000.00	0.3080	0.0290	9.42
10	Chattisgarh State Power Generation Company Ltd. (C.S.P.G.C.L.)	4	2280.00	2.2045	0.2310	10.48
11	Damoadar Valley Corporation (D.V.C.)	6	6210.00	4.3475	3.5713	82.15
12	Durgapur Projects Ltd. (D.P.L.)	1	641.00	0.2433	0.1624	66.73
13	D.P.S.C.Ltd. (W.B)	2	42.00	0.0204	0.0204	100.00
14	E.P.G.L (Gujarat)	1	1200.00	0.1330	0.1330	100.00
15	Gujarat Industries Power Corporation Ltd. (G.I.P.C.L.)	1	500.00	0.2123	0.2123	100.00
16	Gujarat Mineral Development Corporation Ltd. (G.M.D.C.L.)	1	250.00	0.0716	0.0772	107.83
17	G.S.E.C.L. (Gujarat)	5	4220.00	2.2710	1.4020	61.73
18	Haryana Power Generation Cor. Ltd. (H.P.G.C.L.)	3	3167.80	1.9074	1.2712	66.64
19	Inderprastha Power Generation Company Ltd. (.I.P.G.C.L)	1	135.00	0.1029	0.0760	73.84
20	Jharkhand Urja Utpadan Nigam Limited (J.U.U.N.L.)	1	770.00	0.1408	0.0140	9.95
21	J.H.P.L (HR)	1	1320.00	0.5773	0.4726	81.86
22	J.P.L (Chhatisgarh)	2	2200.00	1.6260	0.7948	48.88
23	JSW Energy Ltd.	2	2060.00	0.2801	0.2453	87.57
24	Karnataka Power Corporation Ltd. (K.P.C.L.)	2	2720.00	1.6005	0.7306	45.651
25	Kanti Bijlee Utpadan Nigam Ltd.(K.B.U.N.L.)	1	220.00	0.1199	0.0000	0.00
26	Lanco Power Ltd.	2	1800.00	1.2310	0.2227	18.093
27	Madhya Pradesh Power Generation Corporation Ltd. (M.P.P.G.C.L.)	4	3720.00	2.7155	1.5024	55.327
28	M.P.L (Jharkhand)	1	1050.00	0.8480	1.1616	136.98
29	Maharashtra State Power Generation	8	6980.00	5.8097	3.2256	55.52

Sl. No.	Name of Power Utility	Nos. of TPS	Installed Capacity (MW)	Fly Ash Generation (Million-ton)	Fly Ash Utilization (Million-ton)	% age
1	2	3	4	5	6	7
	Corporation Ltd. (M.S.P.G.C.L)					
30	Neyvelli Lignite Corporation Ltd. (N.L.C.LTD)	5	2990.00	0.6859	0.6376	92.95
31	NSPCL (Chhatisgarh)	1	500.00	0.5183	0.3372	65.06
32	N.T.P.C.LTD.	16	32355.00	29.8650	11.7840	39.46
33	NTECL (Tamil Nadu)	1	1000.00	0.0455	0.0090	19.78
34	Orissa Power Generation Corporation Ltd. (O.P.G.C.L.)	1	420.00	0.4856	0.0949	19.55
35	Punjab State Power Corporation Ltd. (P.S.P.C.L).	3	2640.00	1.8273	1.3793	75.48
36	Rajasthan Rajya Vidyut Utpadan Nigam Ltd. (R.R.V.U.N.L.)	4	3740.00	2.7495	2.3072	83.91
37	Reliance Infrastructure Limited (R.I.L)	1	500.00	0.3790	0.3857	101.76
38	RPSCL (UP)	1	1200.00	0.7862	0.2897	36.85
39	R.W.P.L. (JSW)	1	1080.00	0.7067	0.5747	81.32
40	SEPL (AP)	1	450.00	0.0488	0.0482	98.91
41	SVPPL TPP	1	63.00	0.0000	0.0000	-
42	Taqa Neyveli Power Company Pvt.Ltd.	1	250.00	0.0738	0.0616	83.58
43	Tata Power Company (T.P.CO.)	2	1297.50	0.6618	0.5997	90.62
44	Tenughat Vidyut Nigam Ltd.(T.V.N.L.)	1	420.00	0.3511	0.1570	44.71
45	T.N.G & D Corporation (Tamil Nadu)	5	3460.00	2.2210	2.0116	90.57
46	Torent Power Ltd.	1	422.00	0.1900	0.1890	99.47
47	UPCL (Karnataka)	1	1200.00	0.0778	0.0631	81.08
48	TSGENCO (Telangana)	5	2282.50	3.0689	0.7238	23.59
49	Uttar Pradesh Rajya Vidyut Utpadan Nigam Ltd.(U.P.R.V.U.N.L.)	5	4844.00	3.7487	1.4014	37.38
50	West Bengal Power Development Corporation Ltd. (W.B.P.D.C. L)	5	3860.00	3.7094	2.4787	66.82
51	WPCL (Maharashtra)	1	540.00	0.1320	0.1320	100.00
52	Gupta Energy Pvt.	1	120.00	0.0000	0.0000	-

Sl. No.	Name of Power Utility	Nos. of TPS	Installed Capacity (MW)	Fly Ash Generation (Million-ton)	Fly Ash Utilization (Million-ton)	% age
1	2	3	4	5	6	7
	Ltd.(Maharastra)					
53	Jaypee Bina Thermal Power Plant (MP)	1	500.00	0.3679	0.2925	79.51
54	V.I.P Ltd.(Maharastra)	1	600.00	0.4243	0.0409	9.64
55	EMCO ENERGY Ltd. (Maharastra)	1	600.00	0.3778	0.3486	92.27
56	Spectrum Coal & Power Ltd.(Chhattisgarh)	1	50.00	0.1013	0.0803	79.26
57	Adani Power Maharastra Ltd.	1	2640.00	1.2700	0.3256	25.64
58	Adani Power Ltd. (Rajasthan)	1	1320.00	0.4350	0.3470	79.77
59	Indiabulls Power Ltd. (Maharastra)	1	540.00	0.2620	0.0986	37.62
60	Ideal Energy Projects Ltd.(Maharastra)	1	270.00	0.0000	0.0000	-
61	ESSAR POWER MP LTD.(M.P)	1	1200.00	0.1425	0.1081	75.82
62	Meenakshi Energy Pvt. Ltd. (A.P)	1	300.00	0.0192	0.0067	34.85
63	ACB (INDIA) Ltd. (Chhattishgarh)	2	60.00	0.1039	0.1039	100.00
64	GMR Kamalanga Energy Ltd (Odisha)	1	1050.00	0.4973	0.1285	25.85
65	INDIAN METALS & FERRO ALLOYS LTD. (Odisha)	1	258.00	0.1937	0.1939	100.11
66	NALCO (Odisha)	1	1200.00	1.0230	0.2290	22.39
67	WPCL (KSKEVL) (Chhatishgarh)	1	600.00	0.3528	0.1764	49.99
	GRAND TOTAL	146	133708.80	91.7778	48.6532	53.01

It may be seen from the Table-II above that:

The data of fly ash generation and utilization for the 1st half of the year 2014-15 was received from 67 Power Utilities out of which **10** Power Utilities have achieved fly ash utilization level of 100% or more and **21** Power Utilities have achieved fly ash utilization level in the range of less than 100% to 75%;

The performance of these power utilities in fly ash utilization has been excellent during the aforesaid period (i.e. during the 1st half of the year 2014-15).

2.3 State wise Status of Fly Ash Generation & its Utilization during the 1st half of the Year 2014-15

The state wise status of fly ash generation & utilization in the country based on data received from Thermal Power Stations/ Power Utilities has also been assessed and the same is given in Table-III below:

TABLE-III**STATE WISE FLY ASH GENERATION AND ITS UTILIZATION DURING THE 1ST HALF OF THE YEAR 2014-15**

Sl. No.	Name of State	Nos. of TPS	Installed Capacity (MW)	Fly Ash Generation (Million-ton)	Fly Ash Utilization (Million-ton)	% age
1	2	3	4	5	6	7
1	ANDHARAPRADESH	6	7610.00	6.9026	3.8474	55.74
2	BIHAR	3	2780.00	2.9449	0.7370	25.03
3	CHHATISGARH	16	12203.00	10.9829	4.0278	36.67
4	DELHI	2	840.00	0.6049	0.6200	102.49
5	GUJARAT	11	15212.00	3.9569	2.6615	67.26
6	HARYANA	5	5987.80	3.3885	1.8667	55.09
7	JHARKHAND	7	5307.50	3.3773	2.9420	87.11
8	KARNATAKA	4	4780.00	1.8430	0.9585	52.01
9	MADHYA PRADESH	7	9680.00	6.9349	3.1040	44.76
10	MAHARASHTRA	20	15986.00	9.1219	4.6612	51.10
11	ODISHA	6	6388.00	6.0227	2.5444	42.25
12	PUNJAB	3	2640.00	1.8273	1.3793	75.48
13	RAJASTHAN	7	6390.00	4.0315	3.3692	83.57
14	TAMILNADU	11	7450.00	2.8857	2.5795	89.39
15	TALANGANA	5	2832.50	3.6377	1.1927	32.79
16	UTTAR PRADESH	17	16004.00	13.3771	5.2860	39.52
17	WEST BENGAL	16	11618.00	9.9379	6.8761	69.19
	GRAND TOTAL	146	133708.80	91.7778	48.6532	53.01

It may be seen from Table-III above that:

- (i) 2 states namely Chhatisgarh and Uttar Pradesh have generated more than 10 million-ton of fly ash during the 1st half of the Year 2014-15 and the maximum fly ash of more than 13 million ton was generated in U.P. during the aforesaid period.
- (ii) During the 1st half of the Year 2014-15, the State of Delhi has achieved fly ash utilization level of more than 102 % and the States of Gujarat, Jharkhand, Punjab, Rajasthan, Tamilnadu and West Bengal have achieved the fly ash utilization level of more than 65%.

The performance of aforesaid states in fly ash utilization has been excellent during the aforesaid period.

3.0 PRESENT STATUS OF FLY ASH UTILIZATION AS PER MoEF'S NOTIFICATION OF 3rd NOVEMBER, 2009

Fly ash generation and utilization data received from Thermal Power Stations/Power Utilities in the country for the 1st half of the year 2014-15 has been compiled to see the fly ash utilization vis-à-vis the target of fly ash utilization as prescribed in MoEF's notification of 3rd November, 2009.

During the 1st half of the Year 2014-15, all those thermal power stations which were in operation on the date of issuance of MoEF's notification (i.e. 3rd November, 2009) should have achieved the target of fly ash utilization about 90% within four years from the date

of notification i.e. by 2nd November, 2013. All those thermal power stations which have come into operation after the date of issuance of MoEF's notification (i.e. 3rd November, 2009) should have achieved the target of fly ash utilization as 50% in the first year, 70% during two years, 90% during three years and 100% during four years depending upon their date of commissioning. However, it is seen that the target set by MoEF notification has not achieved as a whole.

3.1 Range of Fly Ash Utilization during the 1st Half of the Year 2014-15

Based on the fly ash utilization data received from Thermal Power Stations/Power Utilities, the thermal power stations have been grouped into 5 categories as noted below depending upon range of utilization of fly ash by the stations.

TABLE-IV

RANGE OF PERCENTAGE FLY ASH UTILIZATION DURING THE 1st HALF OF THE YEAR 2014-15

Sl. No.	Level of Fly Ash utilization	Nos. of Power Stations
(1)	(2)	(3)
1	100% and more than 100%	30
2	Less than 100% and up to 75%	32
3	Less than 75% and up to 60%	17
4	Less than 60%	61
5	Nos. of TPS which have not generated any significant fly ash or any fly ash	06
	Total	146

3.2 Thermal Power Stations that have achieved Fly Ash utilization level of 100% or more during the 1st half of the Year 2014-15

The following Thermal Power Stations as given in Table-V achieved the fly ash utilization level of 100% or more during the 1st half of the year 2014-15.

TABLE-V

THERMAL POWER STATIONS WITH FLY ASH UTILIZATION LEVEL OF 100% OR MORE DURING THE 1st HALF OF THE YEAR 2014-15

Sl.No.	Name of TPS	Power Utility	Installed Capacity	Fly ash Generation	Fly ash Utilization	% age
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1	RAMAGUNDAM' B'	TSGENCO (Telangana)	62.50	0.0597	0.1099	184.09
2	B.B.G.S.	C.E.S.C. (West Bengal)	750.00	0.7500	0.7500	100.00
3	S.G.S.	C.E.S.C. (West Bengal)	135.00	0.1600	0.1600	100.00
4	T.G.S	C.E.S.C. (West Bengal)	240.00	0.2630	0.2630	100.00

SI.No.	Name of TPS	Power Utility	Installed Capacity	Fly ash Generation	Fly ash Utilization	% age
(1)	(2)	(3)	(4)	(5)	(6)	(7)
5	NEW COSSIPORE	CESC (West.Bengal)	160.00	0.0168	0.0168	100.00
6	MEJIA	D.V.C. (West Bengal)	2340.00	1.9580	2.1240	108.48
7	DISHERGARH POWER STATION	DPSC (W.B)	12.00	0.0204	0.0204	100.00
8	SALAYA	EPGL (Gujarat)	1200.00	0.1330	0.1330	100.00
9	SURAT LIGNITE	G.I.P.C.L. (Gujarat)	500.00	0.2123	0.2123	100.00
10	AKRIMOTA	G.M.D.C.L. (Gujarat)	250.00	0.0716	0.0772	107.83
11	KUTCH LIGNITE	G.S.E.C.L. (Gujarat)	290.00	0.1400	0.1400	100.00
12	SIKKA	G.S.E.C.L. (Gujarat)	240.00	0.0820	0.0830	101.22
13	PANIPAT	H.P.G.C.L. (Haryana)	1367.80	0.6840	0.7002	102.37
14	VIJAYANAGAR	JSW Energy Limited (Karnataka)	860.00	0.1648	0.164769	100.00
15	MAITHON RBTPP	MPL (Jharkhand)	1050.00	0.8480	1.1616	136.98
16	NEYVELI-I EXPN	N.L.C.LTD (Tamilnadu)	420.00	0.1229	0.1229	100.00
17	BARSINGSAR LIGNITE	NLC (Rajsthan)	250.00	0.1404	0.1404	100.00
18	BADARPUR	N.T.P.C.LTD (Delhi).	705.00	0.5020	0.5440	108.37
19	TALCHAR(TPS)	N.T.P.C.LTD (Odisha).	460.00	0.5950	0.5950	100.00
20	DADRI	N.T.P.C.LTD. (U.P)	1820.00	1.3550	1.4360	105.98
21	KOTA	RRVUNL (Rajsthan)	1240.00	0.8796	0.9091	103.35
22	GIRAL	RRVUNL (Rajsthan)	250.00	0.0752	0.0752	100.00
23	DAHANU	Reliance Infrastructure Ltd. (Maharastra)	500.00	0.3790	0.3857	101.76
24	METTUR	T.N.G & D Corporation (Tamil Nadu)	840.00	0.6280	0.8969	142.81
25	PANKI	U.P.R.V.U.N.L. (U.P.)	210.00	0.1576	0.3083	195.66
26	BANDEL	W.B.P.D.C.L (W.B.)	450.00	0.1675	0.2766	165.13
27	WARDHA WARORA	WPCL (Maharastra)	540.00	0.1320	0.1320	100.00

Sl.No.	Name of TPS	Power Utility	Installed Capacity	Fly ash Generation	Fly ash Utilization	% age
(1)	(2)	(3)	(4)	(5)	(6)	(7)
28	CHAKABURA TPP	ACB (INDIA) Ltd. (Chhattishgarh)	30.00	0.0546	0.0546	100.00
29	CHAKABURA TPP (EXTN)	ACB (INDIA) Ltd. (Chhattishgarh)	30.00	0.0492	0.0492	100.00
30	INDIAN METALS & FERRO ALLOYS LTD.	INDIAN METALS & FERRO ALLOYS LTD. (Odisha)	258.00	0.1937	0.1939	100.11

It may be seen from Table-V above that:

During the 1st half of the Year 2014-15, **30** thermal power stations have achieved the fly ash utilization level of 100% or more including **14** thermal power stations which have achieved fly ash utilization level of more than 100%.

Power Stations which have achieved fly ash utilization level of more than 100% during the 1st half of the year 2014-15 have utilized the fly ash stored in ash ponds during earlier years.

3.3 Thermal Power Stations with Fly Ash Utilization Level of 75% to 100% during the 1st half of the Year 2014-15

The names of Thermal Power Stations which have achieved the fly ash utilization in the range of 75% to 100% during the 1st half year 2014-15 along with fly ash utilization level achieved by each of these power stations are given in Table-VI below:

TABLE-VI

THERMAL POWER STATIONS WITH FLY ASH UTILIZATION LEVEL OF 75% to 100% DURING THE 1st HALF OF THE YEAR 2014-15

Sl.No.	Name of TPS	Power Utility	Installed Capacity	Fly ash Generation	Fly ash Utilization	% age
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1	KASAI PALLI	ACBPL (Chhattishgarh)	270.00	0.4879	0.4423	90.65
2	MUNDRA TPS	APL (Gujrat)	4620.00	0.7710	0.6190	80.29
3	BARKHERA	BEPL (UP)	90.00	0.1406	0.1322	94.03
4	KHAMBER KHERA	BEPL (UP)	90.00	0.1358	0.1290	94.93
5	KUNDARKI	BEPL (UP)	90.00	0.1266	0.1202	94.95
6	MAQSOODPUR	BEPL (UP)	90.00	0.1137	0.1072	94.26
7	UTRAULA	BEPL (UP)	90.00	0.1226	0.1165	95.05
8	BOKARO 'B'	D.V.C. (Jharkhand)	630.00	0.3959	0.3697	93.37

Sl.No.	Name of TPS	Power Utility	Installed Capacity	Fly ash Generation	Fly ash Utilization	% age
(1)	(2)	(3)	(4)	(5)	(6)	(7)
9	MAHAN	ESSAR POWER MP LTD.(M.P)	1200.00	0.1425	0.1081	75.82
10	GANDHINAGAR	G.S.E.C.L. (Gujarat)	870.00	0.3390	0.2990	88.20
11	MAHATMA GANDHI	JHPL (Haryana)	1320.00	0.5773	0.4726	81.86
12	AMARKANTAK TPS	Lanco Amarkantak Power Ltd. (Chhattisgarh)	600.00	0.2641	0.2209	83.65
13	SANJAY GANDHI	M.P.P.G.C.L (MP)	1340.00	1.0267	0.9126	88.89
14	NASIK	M.S.P.G.C.L. (Maharashtra)	630.00	0.6467	0.5085	78.63
15	PARLI	M.S.P.G.C.L. (Maharashtra)	1130.00	0.7679	0.6778	88.27
16	NEYVELI – II	N.L.C.LTD (Tamilnadu)	1470.00	0.2801	0.2708	96.69
17	ROPAR	P.S.P.C.L. (Punjab)	1260.00	0.9817	0.8241	83.95
18	CHHABRA	RRVUNL (Rajsthan)	750.00	0.4549	0.4084	89.76
19	JALIIPA KAPURDI	RWPL (Rajsthan)	1080.00	0.7067	0.5747	81.32
20	SIMHAPURI	SEPL(A.P)	450.00	0.0488	0.0482	98.91
21	CUDDALORE	Taqa Neyveli Power Co.Pvt. Ltd.(Tamilnadu)	250.00	0.0738	0.0616	83.58
22	JOJOBERA	T.P.CO. (Jarkhnad)	547.50	0.6400	0.5810	90.78
23	TROMBAY	T.P.CO. (Maharashtra)	750.00	0.0218	0.0187	85.78
24	SABARMATI	Torrent Power Ltd.(Gujarat)	422.00	0.1900	0.1890	99.47
25	ENNORE	T.N.G & D Corporation (Tamil Nadu)	340.00	0.1708	0.1481	86.72
26	HARDUAGANJ	U.P.R.V.U.N.L. (U.P.)	670.00	0.5090	0.5046	99.13
27	UDUPI	UPCL (Karnatak)	1200.00	0.0778	0.0631	81.08
28	KOLAGHAT	W.B.P.D.C.L (W.B.)	1260.00	1.2273	1.0621	86.54
29	JAYPEE BINA TPP	Jaypee Bina Thermal Power Plant (MP)	500.00	0.3679	0.2925	79.51
30	EMCO ENERGY Ltd.	EMCO ENERGY Ltd.(Maharashtra)	600.00	0.3778	0.3486	92.27

Sl.No.	Name of TPS	Power Utility	Installed Capacity	Fly ash Generation	Fly ash Utilization	% age
(1)	(2)	(3)	(4)	(5)	(6)	(7)
31	RATIJA TPS	Spectrum Coal & Power Ltd. (Chhattisgarh)	50.00	0.1013	0.0803	79.26
32	KAWAI	Adani Power Ltd.(Rajasthan)	1320.00	0.4350	0.3470	79.77

It may be seen from Table-VI above that 32 thermal power stations during the 1st half of the year 2014-15 have achieved fly ash utilization level in the range of 75% to 100%.

3.4 Power Stations with Fly Ash Utilization Level of 60% to 75% during the 1st half of the Year 2014-15

The Thermal Power Stations which have achieved the fly ash utilization in the range of 60% to 75% during the 1st half of the year 2014-15 along with fly ash utilization level achieved by each of these power stations are given in Table-VII below:

TABLE-VII

THERMAL POWER STATIONS WITH FLY ASH UTILIZATION LEVEL OF 60% TO 75% DURING THE 1ST HALF OF THE YEAR 2014-15.

Sl.No.	Name of TPS	Power Utility	Installed Capacity	Fly ash Generation	Fly ash Utilization	% age
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1	RAYALSEEMA	A.P.GENCO Andhrapradesh	1050.00	1.1239	0.7577	67.42
2	Dr. N.T.R (Vijawada)	A.P.GENCO Andhrapradesh	1760.00	1.9886	1.2156	61.13
3	CHANDRAPURA	D.V.C. (Jharkhand)	890.00	0.8595	0.5899	68.63
4	DURGAPUR PROJECTS POWER STAION	D.P.L (West Bengal).	641.00	0.2433	0.1624	66.73
5	RAJGHAT	IPGCL (Delhi)	135.00	0.1029	0.0760	73.84
6	RATNAGIRI	JSW Energy Limited (Maharastra)	1200.00	0.1154	0.0805	69.82
7	BELLARY	K.P.C.L (Karnataka)	1000.00	0.2415	0.1457	60.35
8	KORADI	M.S.P.G.C.L. (Maharastra)	620.00	0.4530	0.3297	72.77
9	NEYVELI - I	N.L.C.LTD (Tamilnadu)	600.00	0.1425	0.1034	72.59
10	BHILAI	NSPCL (Chhattisgarh)	500.00	0.5183	0.3372	65.06
11	UNCHA HAR	N.T.P.C.LTD. (U.P.)	1050.00	1.0280	0.7420	72.18
12	BATHINDA	P.S.P.C.L. (Punjab)	460.00	0.2267	0.1394	61.50

Sl.No.	Name of TPS	Power Utility	Installed Capacity	Fly ash Generation	Fly ash Utilization	% age
(1)	(2)	(3)	(4)	(5)	(6)	(7)
13	LEHRA MOHABAT	P.S.P.C.L. (Punjab)	920.00	0.6189	0.4157	67.17
14	SURATGARH	RRVUNL (Rajsthan)	1500.00	1.3398	0.9145	68.26
15	METTUR-II	T.N.G & D Corporation (Tamil Nadu)	600.00	0.2188	0.1374	62.82
16	NORTH CHENNAI	T.N.G & D Corporation (Tamil Nadu)	630.00	0.4220	0.2673	63.34
17	TUTICORIN	T.N.G & D Corporation (Tamil Nadu)	1050.00	0.7814	0.5619	71.91

It may be seen from Table-VII above that **17** thermal power stations during the 1st half year 2014-15 have achieved fly ash utilization level of less than 75% and up to 60%.

3.5 Power Stations with Fly Ash Utilization Level of less than 60% during the 1st half of the Year 2014-15

The Thermal Power Stations which have achieved the fly ash utilization level of less than 60% during the 1st half year 2014-15 along with fly ash utilization level achieved by each of these power stations are given in Table-VIII:

TABLE-VIII

THERMAL POWER STATIONS WITH FLY ASH UTILIZATION LEVEL OF BELOW 60% DURING THE 1st HALF OF THE YEAR 2014-15

Sl. No.	Name of TPS	Power Utility	Installed Capacity	Fly ash Generation	Fly ash Utilization	% age
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1	KOTHAGUDEM (Stage I to IV)	TSGENCO (Telangana)	720.00	1.1349	0.0820	7.22
2	KOTHAGUDEM-V	TSGENCO (Telangana)	500.00	0.7406	0.0411	5.55
3	KOTHAGUDEM-VI	TSGENCO (Telangana)	500.00	0.5786	0.2020	34.92
4	KAKATIA	TSGENCO (Telangana)	500.00	0.5550	0.2888	52.04
5	INDIRA GANDHI	APCPL (Haryana)	1500.00	0.9038	0.1230	13.60
6	MIHAN	AMNEPL (Maharashtra) (No generation)	246.00	0.0000	0.0000	0.00
7	BARAUNI	B.S.P.G.C.L. (Bihar) (No Generation)	220.00	0.0000	0.0000	0.00

Sl. No.	Name of TPS	Power Utility	Installed Capacity	Fly ash Generation	Fly ash Utilization	% age
(1)	(2)	(3)	(4)	(5)	(6)	(7)
8	MUNDRA UMPP	CGPL (Gujrat)	4000.00	0.3080	0.0290	9.42
9	KORBA (WEST)	C.S.P.G.C.L Chhattisgarh	840.00	0.7075	0.1420	20.07
10	KORBA (WEST) Extn	C.S.P.G.C.L (Chhattisgarh)	500.00	0.3740	0.0000	0.00
11	DSPM	C.S.P.G.C.L. (Chhattisgarh)	500.00	0.4890	0.0000	0.00
12	KORBA (EAST)	C.S.P.G.C.L (Chhattisgarh)	440.00	0.6340	0.0890	14.04
13	DURGAPUR	D.V.C.(West Bengal)	350.00	0.2964	0.1437	48.47
14	Durgapur Steel	DVC (West Bengal)	1000.00	0.6957	0.2753	39.57
15	KODARMA	DVC (Jharkhand)	1000.00	0.1420	0.0688	48.43
16	CHINAKURI	DPSCL (W.B) (No Generation)	30.00	0.0000	0.0000	0.00
17	UKAI	G.S.E.C.L. (Gujarat)	1350.00	0.7700	0.3910	50.78
18	WANAKBORI	G.S.E.C.L. (Gujarat)	1470.00	0.9400	0.4890	52.02
19	HISAR	H.P.G.C.L. (Haryana)	1200.00	0.7234	0.3698	51.12
20	YAMUNANAGAR	H.P.G.C.L. (Haryana)	600.00	0.5000	0.2012	40.24
21	O.P.Jindal (Stage-I)	JPL (Chhattisgarh.)	1000.00	1.3110	0.6474	49.38
22	O.P.Jindal (Stage-II)	JPL (Chhattisgarh.)	1200.00	0.3150	0.1474	46.79
23	PATRATU	J.U.U.N.L (Jarkhand)	770.00	0.1408	0.0140	9.95
24	RAICHUR	K.P.C.L. (Karnataka)	1720.00	1.3590	0.5849	43.04
25	MUZAFFARPUR TPS	K.B.U.N.L (Bihar)	220.00	0.1199	0.0000	0.00
26	ANPARA 'C'	Lanco Power Ltd (UP)	1200.00	0.9668	0.0018	0.19
27	THAMMINAPAT NAM TPS	Meenakshi Energy Pvt. Ltd. (A.P)	300.00	0.0192	0.0067	34.85
28	SATPURA	M.P.P.G.C.L. (M.P.)	1330.00	1.1777	0.4913	41.71
29	AMARKANTAK	M.P.P.G.C.L. (M.P.)	450.00	0.2777	0.0983	35.40
30	SHREE SINGAJI TPS	M.P.P.G.C.L. (M.P.)	600.00	0.2333	0.0002	0.07
31	BHUSAWAL	M.S.P.G.C.L. (Maharashtra)	420.00	0.4733	0.2058	43.48
32	CHANDRAPUR	M.S.P.G.C.L. (Maharashtra)	2340.00	2.2012	1.0289	46.74

Sl. No.	Name of TPS	Power Utility	Installed Capacity	Fly ash Generation	Fly ash Utilization	% age
(1)	(2)	(3)	(4)	(5)	(6)	(7)
33	KHAPARKHEDA	M.S.P.G.C.L. (Maharashtra)	840.00	0.7384	0.3628	49.13
34	KHAPARKHEDA (Ext)	M.S.P.G.C.L. (Maharashtra)	500.00	0.0645	0.0000	0.00
35	PARAS	M.S.P.G.C.L. (Maharashtra)	500.00	0.4646	0.1121	24.14
36	NEYVELI - II EXPN	NLC(Tamil Nadu) (No generation)	250.00	0.0000	0.0000	0.00
37	VALLUR	NTECL (Tamilnadu)	1000.00	0.0455	0.0090	19.78
38	RAMAGUNDAM	N.T.P.C. (Andhra Pradesh).	2600.00	2.7220	1.5350	56.39
39	SIMHADRI	N.T.P.C. (Andhra Pradesh).	2000.00	1.5690	0.7530	47.99
40	KAHALGAON	N.T.P.C.LTD. (Bihar)	2340.00	2.8250	0.7370	26.09
41	KORBA	N.T.P.C. (Chhattisgarh).	2600.00	2.9620	0.9830	33.19
42	SIPAT	N.T.P.C. (Chhattisgarh).	2980.00	2.3620	0.6580	27.86
43	VINDHYACHAL	N.T.P.C.LTD. (M.P.)	4260.00	3.7090	1.2010	32.38
44	TALCHAR(KAN)	N.T.P.C.LTD (Odisha).	3000.00	3.2280	1.3030	40.37
45	RIHAND	N.T.P.C.LTD. (U.P.)	3000.00	2.4550	0.3130	12.75
46	SINGRAULI	N.T.P.C.LTD. (U.P.)	2000.00	1.8500	0.2420	13.08
47	TANDA	N.T.P.C.LTD. (U.P.)	440.00	0.5480	0.2550	46.53
48	FARAKKA	N.T.P.C.LTD. (W.B.)	2100.00	1.8250	0.4820	26.41
49	MOUDA TPS	N.T.P.C.LTD (Maharashtra)	1000.00	0.3300	0.0050	1.52
50	IB VALLEY	O.P.G.C.L. (Odisha)	420.00	0.4856	0.0949	19.55
51	ROSA PHASE-I	RPSCL (U.P)	1200.00	0.7862	0.2897	36.85
52	SVPL	SVPPL (Chhattisgarh.) (No Generation)	63.00	0.0000	0.0000	0.00
53	TENUGHAT	T.V.N.L. (Jarkhnad)	420.00	0.3511	0.1570	44.71
54	ANPARA 'A' & 'B'	U.P.R.V.U.N.L. (U.P.)	1630.00	1.3937	0.0038	0.27
55	OBRA	U.P.R.V.U.N.L. (U.P.)	1194.00	0.7105	0.1621	22.82
56	PARICHHA	U.P.R.V.U.N.L. (U.P.)	1140.00	0.9779	0.4226	43.22

Sl. No.	Name of TPS	Power Utility	Installed Capacity	Fly ash Generation	Fly ash Utilization	% age
(1)	(2)	(3)	(4)	(5)	(6)	(7)
57	BUTIBORI	V.I.P Ltd.(Maharastra)	600.00	0.4243	0.0409	9.64
58	SAGARDIGHI	W.B.P.D.C.L (W.B.)	600.00	0.5283	0.29530	55.90
59	SANTALDIH	W.B.P.D.C.L (W.B.)	500.00	0.5951	0.2571	43.20
60	BAKRESWAR	W.B.P.D.C.L (W.B.)	1050.00	1.1912	0.5876	49.33
61	GEPL TPP	Gupta Energy Pvt. Ltd.(Maharastra) (No Generation)	120.00	0.0000	0.0000	0.00
62	TIRORA	Adani Power Maharastra Ltd.	2640.00	1.2700	0.3256	25.64
63	AMARAVATI TPS	Indiabulls Power Ltd. (Maharastra)	540.00	0.2620	0.0986	37.62
64	BELA TPS	Ideal Energy Projects Ltd. (Maharastra)(No Generation)	270.00	0.0000	0.0000	0.00
65	KAMALANGA TPP	GMR Kamalanga Energy Ltd. (Odisha)	1050.00	0.4973	0.1285	25.85
66	NALCO, CPP	NALCO (Odisha)	1200	1.0230	0.2290	22.39
67	KMPCL (AKALTARA)	WPCL (KSKEVL) (Chhatishgarh)	600	0.3528	0.1764	49.99

It may be seen from Table-VIII above that:

During the 1st half of the year 2014-15, out of **146** thermal power stations, **67** stations could not reach the level of fly ash utilization to 60%.

4.0 MODES OF FLY ASH UTILIZATION DURING THE 1st HALF OF THE YEAR 2014-15

The data on fly ash utilization received from Thermal Power Stations/Power Utilities for the 1st half of the year 2014-15 has been compiled to ascertain the modes in which fly ash was utilized and the quantity utilized in each mode.

The modes in which fly ash were utilized during the 1st half year 2014-15 along with utilization in each mode are given in Table-IX below:

TABLE-IX

MODES OF FLY ASH UTILIZATION DURING THE 1st HALF OF THE YEAR 2014-15

Sl. No.	Mode of utilization	Quantity of Fly Ash utilized in the mode of utilization	
		Million-ton	Percentage (%)
(1)	(2)	(3)	(4)
1	Cement	21.27	43.73
2	Mine filling	6.44	13.24
3	Reclamation of low lying area	5.06	10.41
4	Bricks & Tiles	4.92	10.10
5	Ash Dyke Raising	4.25	8.73
6	Roads & flyovers	1.39	2.86
7	Agriculture	1.07	2.19
8	Concrete	0.37	0.77
9	Others	3.88	7.98
Total		48.65	100.00

The pie diagram showing the modes of utilization of fly ash during the 1st half of the Year 2014-15 is given in Figure-1 below:

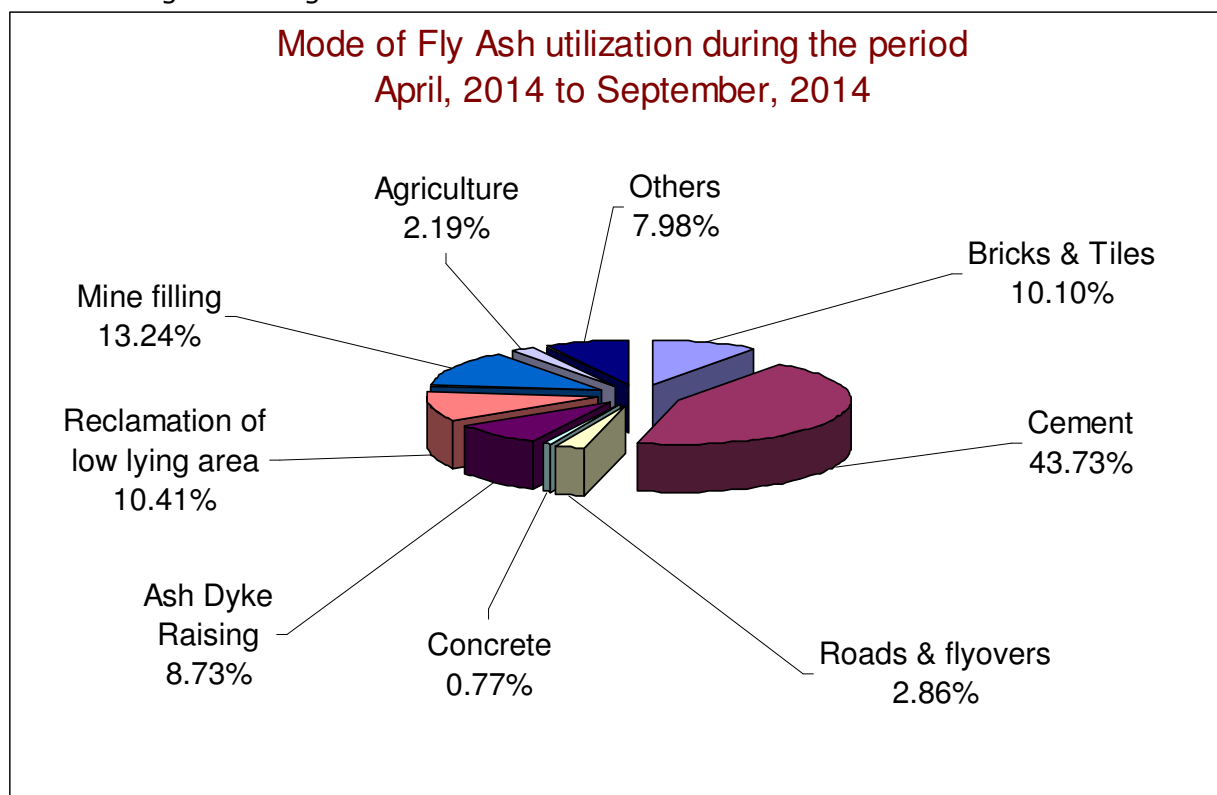


FIGURE-1

It may be seen from Table-IX and Figure -1 above that:

During the 1st half of the Year 2014-15, the maximum utilization of fly ash to the extent of 43.73 % of total fly ash utilized was in the Cement sector, followed by 13.24 % in

mine filling, 10.41 % in reclamation of low lying area, 10.10 % in making bricks & tiles, 8.73 % in ash dyke raising, 2.86 % in roads & embankments etc.

5.0 CONCLUSIONS & RECOMMENDATIONS

1. The highest level of fly ash utilization of about 62.6% was achieved in the year 2009-10 and it was about 58.48% in the year 2011-12, about 61.37% in the year 2012-13 and 57.63% in the year 2013-14. During the instant period i.e 1st half of the year 2014-15, utilization of fly ash is 53.01% which is behind the stipulated target.
2. While according environmental clearance to Thermal Power Projects, MoEF has been recently stipulating conditions to the effect that fly ash shall not be used in filling of low lying areas, in agriculture and in backfilling/stowing of mines etc. These conditions are contrary to provisions in MoEF's own Notification of 3rd November, 2009 on fly ash utilization and are going to have adverse impact on the pace of fly ash utilization in the country. Many organizations including NTPC have raised their concern on these conditions. These conditions may have to be suitably reviewed by MoEF so that the target of 100% utilization of fly ash as mandated in MoEF's Notification of 3rd November, 2009 could be achieved.
3. The utilization of fly ash in mine filling, in making fly ash based building products and in the construction of roads & embankments has been less than 12% or around 10% in each of these areas of fly ash utilization. These areas have large potential of fly ash utilization which needs to be explored for increasing the overall utilization of fly ash in the country.
4. A few strategies which need to be adopted to further increase the utilization level of fly ash are given below:
 - Renovation and modernization of coal/lignite based Thermal Power Station needs to include the technological advancement required to ensure development of dry fly ash collection, storage and disposal facilities so that fly ash in dry form could be made available to its users. Renovation and modernization should also include a marketing strategy for the development of fly ash based industries and making available fly ash and fly ash based building products in the nearby markets.
 - The states and districts where thermal power stations are located need to be sensitized to the need for utilization of fly ash and fly ash based building products and take necessary measures to promote them in the construction of buildings, highways/roads/ flyovers and other infrastructure projects. Measures can include policy intervention, planning strategies, fiscal incentives, recognizing specific efforts etc.
 - Use of fly ash based building products like fly ash based bricks, blocks, tiles etc. by both Govt. and Public & Private Construction agencies at Central and State levels is required to be ensured especially in construction works within a radius of 100km of any coal/ lignite based thermal power station as mandated in MoEF's Notification of 3rd November, 2009. The government agencies responsible for approval of building plans may have to ensure stipulation of a condition in their approval to the effect that only fly ash based building products like bricks/blocks/tiles etc shall be used in the construction of buildings as prescribed in MoEF's Notification of 3rd November, 2009 within a prescribed distance from

any thermal power station especially in the construction of large office/commercial buildings and housing projects being developed both in government and private sectors.

- Use of fly ash in the construction of roads, road embankments and flyovers is well established and is slowly picking up. However, its potential is yet to be fully utilized. The use of fly ash in these projects within a radius of 100 km of any thermal power station as mandated in MoEF's Notification of 3rd November, 2009 has to be ensured right from project formulation stage and included in tender documents by having a prior tie up with the concerned thermal power station for their requirement. There is a need to sensitize National Highway Authority of India, CPWD, State PWDs and other agencies both at Central and State levels that are involved in the construction of highways, roads, flyovers etc. in this regard.
- Use of fly ash in backfilling/stowing of closed/abandoned/running open cast and underground mines has large potential for utilization of fly ash, especially for pit head thermal power stations which otherwise have limited avenues for fly ash utilization. However, its potential is yet to be fully utilized. The use of fly ash in back filling/stowing of open cast and underground mines within a radius of 50 km of any thermal power station as mandated in MoEF's Notification of 3rd November, 2009 has to be ensured right from initial stage of preparation of mine development plan. Inclusion of fly ash and bottom ash as backfill materials in the guidelines for preparation of mine closure plan is required for which Ministry of Coal and other concerned Ministries/Authorities have to take necessary action. There are environmental and safety concerns for use of fly ash along with OB material for back filling of operating open cast mines. These concerns need to be addressed.
- Use of fly ash in the construction of embankments for laying railway lines has also significant potential for large scale utilization of fly ash. There are safety concerns in use of fly ash in the construction of railway embankments having passenger traffic. There is a need to address these concerns by carrying out necessary studies by organizations like RDSO, a research organization under the Ministry of Railways.
- Thermal Power Stations have to ensure the utilization of fly ash and fly ash based building products within the thermal power station for the development of infrastructure like construction of buildings & roads, reclamation of low lying areas, the raising of ash dyke etc.
- The use of fly ash in Agriculture and waste land development has large potential but the utilization is below expectation. This may be attributed mainly to reservations in various quarters for use of fly ash in agriculture because of presence of heavy metals and radioactive elements in fly ash however, findings of research projects funded by Fly Ash Unit under Ministry of Science & Technology and studies carried out by other organizations indicate that there are no adverse effects in using fly ash in agriculture. Therefore, these concerns are required to be addressed for increasing the fly ash utilization.
- A large number of technologies have been developed for gainful utilization and safe management of fly ash through research projects funded by Fly Ash Mission/ Fly Ash Unit under Ministry of Science & Technology, Government of India since 1994. Propagation of these technologies by establishing 'Self sustaining

technology demonstration centers' would facilitate and accelerate the fly ash utilization in the country.

- Thermal Power Stations have to explore and promote all possible modes of fly ash utilization at their respective thermal power station for increasing the fly ash utilization in the country in line with MoEF's notification of 3rd November, 2009.
- There is a need to encourage 'Industry-Institute Interactions' for entrepreneur development, creating awareness and organizing training programmes and workshops.
- In view of large quantity of fly ash generation, this may be introduced as construction material in academic curriculum of Engineering, architecture, mining, agriculture etc.

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6.0

Abbreviations

1. CEA : Central Electricity Authority
2. MoEF : Ministry of Environment & Forest
3. MW : Mega Watt
4. MoP : Ministry of Power
5. MT : Million Tonnes
6. TPS : Thermal Power Stations
7. APGENCO: Andhra Pradesh generation Corporation Ltd.
8. ACBPL: Aryan Coal Benefication Private Ltd.
9. APL : Adani Power Ltd.,
10. APCPL: Aravali Power Corporation Pvt.Ltd.
11. AMNEPL: Abhijet MADC Nagpur energy Pvt. Ltd.
12. BEPL : Bajaj Energy Pvt. Ltd.
13. BSEB : Bihar State Electricity Supply Company
14. CESC : Calcutta Electric Supply Company
15. CGPL : Coastal Gujarat Power Ltd.
16. CSPGCL: Chattisgarh State Power Generation Company Ltd.
17. DVC : Damodar Valley Corporation
18. DPL : Durgapur Project Ltd.
19. DPSC : Dishengardh Power Supply Company Ltd.
20. EPGL : Essar Power Gujarat Ltd.
21. GIPCL : Gujarat Industries Power Corporation Ltd.
22. GMDCL: Gujarat Mineral Development Corporation Ltd.
23. GSECL: Gujarat State Electric Corporation Ltd.
24. HPGCL: Haryana Power Generating company Ltd.
25. IPGCL: Indraprastha Power Generation Company Ltd.
26. JSEB : Jharkhand State Electricity Board.
27. JHPL : Jhajjar Power Ltd.
28. JPL : Jindal Power Ltd.
29. JSW : Jindal Steel Works
30. KPCL : Karnataka Power Corporation Ltd.
31. KBUNL: Kanti Bijlee Utpadan Nigam Ltd.
32. MPPGCL: Madhya Pradesh Power Generating Company Ltd.
33. MPL : Maithon Power Ltd.
34. MSPGCL: Maharashtra State Power Generating Company Ltd.
35. NLC: Neyvelli Lignite Corporation
36. NSPCL: NTPC -SAIL Power Corporation Ltd.
37. NTPC : National thermal Power Corporation
38. NTECL: NTPC – Tamilnadu Electric Company Ltd.
39. OPGCL: Odisha Power Generation corporation Ltd.
40. PSPCL: Punjab State Power Corporation Ltd.
41. RRVUNL: Rajasthan Rajaya Vidyut Utpadan Nigam Ltd.
42. RIL : Reliance Infrastructure Ltd.
43. RPSCL: Rosa Power Supply Company Ltd.
44. RWPL: Raj West Power Ltd.
45. SEL : Sterlite energy Ltd.
46. SVPPPL: Shri Vardhman Power Pvt. Ltd.

47. ST-CMS: ST-CMS
48. TPCO : Tata Power company Ltd.
49. TUNL : Tenunghat Vidyut Nigam Ltd.
50. TNG&D: Tamil Nadu Generating and Distribution Corporation Ltd.
51. UPCI: Udupi Power Company Ltd.
52. UPRVUNL: Uttar Pradeh Rajaya Vidyut Utpadan Nigam Ltd.
53. VESPL: Vandanca energy Supply Power Ltd.
54. WBPDC: West Bengal Power Development Corporation Ltd.
55. WPCL : Wardha Power Company Ltd.
56. GEPL : Gupta Power Company Ltd.
57. VIP : Vidharbha Industries Power Ltd.
58. EPL : Essar Power Ltd.
59. ACB : Aryan Coal Beneficiary Ltd.
60. AP : Andhra Pradesh
61. MP : Madhya Pradesh
62. TN : Tamil Nadu
63. UP : Uttar Pradesh
64. WB : West Bengal

**HALF YEARLY DATA ON FLY ASH GENERATION AND ITS UTILIZATION AT COAL/LIGNITE BASED THERMAL POWER STATIONS IN THE COUNTRY DURING THE PERIOD FROM APRIL-2014 TO SEPTEMBER-2014
(POWER UTILITY- WISE)**

Sl. No.	Name of TPS	Power Utility & State	FLY ASH GENERATION AND ITS UTILIZATION						MODES OF UTILIZATION										Total Utilization	
			Installed Capacity	Coal consumed	Ash content of coal	Fly Ash Generation	Fly Ash Utilization	% age Utilization	In making of Fly Ash based/ Bricks/ Blocks/ Tiles etc.	In manufacture of Portland Pozzolana Cement	In construction of Highways & Roads including Flyovers	Part replacement of cement in concrete	In Hydro Power Sector in RCC Dam Construction	In Ash dyke raising	In reclamation of low lying Area	In Mine filling	In Agriculture/ Waste land Development	Others		
			(MW)	(million ton)	% age	(million ton)	(million ton)	%	(million ton)	(million ton)	(million ton)	(million ton)	(million ton)	(million ton)	(million ton)	(million ton)	(million ton)	(million ton)		(million ton)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	
134	JAYPEE BINA TPP	Jaypee Bina Thermal Power Plant (MP)	500.00	0.8914	41.2722	0.3679	0.2925	79.5053	0.0009	0.2655	0.0000	0.0000	0.0000	0.0000	0.0000	0.0261	0.0000	0.0000	0.0000	0.2925
135	EMCO ENERGY LTD.	EMCO ENERGY Ltd. (Maharashtra)	600.00	1.1377	33.2049	0.3778	0.3486	92.2675	0.0000	0.2214	0.0000	0.0000	0.0000	0.0000	0.0000	0.1271	0.0000	0.0000	0.0000	0.3486
136	RATITJA TPS	Spectrum Coal & Power Ltd. (Chhattisgarh)	50.00	0.1962	51.6499	0.1013	0.0803	79.2558	0.0058	0.0000	0.0000	0.0000	0.0000	0.0000	0.0211	0.0535	0.0000	0.0000	0.0000	0.0803
137	TIRORA	Adani Power Maharashtra Ltd.	2640.00	4.1100	30.9002	1.2700	0.3254	25.6372	0.0104	0.0000	0.0000	0.0000	0.0000	0.0000	0.3151	0.0001	0.0000	0.0000	0.0000	0.3254
138	KAWAI	Adani Power Ltd. (Rajasthan)	1320.00	2.0140	21.5988	0.4350	0.3470	79.7701	0.0040	0.3170	0.0000	0.0000	0.0000	0.0000	0.0000	0.0080	0.0000	0.0000	0.0180	0.3470
139	AMARAVATI TPS	Indiabulls Power Ltd. (Maharashtra)	540.00	0.6852	38.2442	0.2620	0.0986	37.6242	0.0500	0.0000	0.0000	0.0000	0.0000	0.0000	0.0015	0.0471	0.0000	0.0000	0.0000	0.0986
140	BELA TPS	Ideal Energy Projects Ltd. (Maharashtra)(No Generation)	270.00	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
141	CHAKABURA TPP	ACB (INDIA) Ltd. (Chhattisgarh)	30.00	0.1148	47.5937	0.0546	0.0546	100.0000	0.0105	0.0008	0.0000	0.0000	0.0000	0.0000	0.0000	0.0342	0.0000	0.0000	0.0092	0.0546
142	CHAKABURA TPP (EXTN)	ACB (INDIA) Ltd. (Chhattisgarh)	30.00	0.1089	45.1802	0.0492	0.0492	100.0000	0.0086	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0406	0.0000	0.0000	0.0000	0.0492
143	KAMALANGA TPP	GMR Kamalanga Energy Ltd. (Odisha)	1050.00	1.4040	35.4220	0.4973	0.1285	25.8479	0.0217	0.0000	0.0000	0.0000	0.0000	0.0000	0.1069	0.0000	0.0000	0.0000	0.0000	0.128549
144	INDIAN METALS & FERRO ALLOYS LTD.	INDIAN METALS & FERRO ALLOYS LTD. (Odisha)	258.00	0.3673	52.7304	0.1937	0.1939	100.1105	0.0230	0.0000	0.0000	0.0000	0.0000	0.0000	0.1675	0.0000	0.0000	0.0000	0.0035	0.1939
145	NALCO_CPP	NALCO (Odisha)	1200	2.3500	43.5319	1.0230	0.2290	22.3851	0.1880	0.0000	0.0000	0.0000	0.0000	0.0000	0.0410	0.0000	0.0000	0.0000	0.0000	0.2290
146	KMPCL (AKALTARA)	WPCL (KSKEVL) (Chhattisgarh)	600	0.9585	36.8120	0.3528	0.1764	49.9885	0.0003	0.1760	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.1764
	GRAND TOTAL		133708.80	272.7028	33.6549	91.7778	48.6532	53.0119	4.9160	21.2738	1.3901	0.3733	0.0000	4.2490	5.0650	6.4396	1.0654	3.8811	48.6533	