



REPORT
ON
FLY ASH GENERATION
AT
COAL/LIGNITE BASED THERMAL POWER STATIONS
AND
ITS UTILIZATION IN THE COUNTRY
FOR
1ST HALF OF THE YEAR 2015-16
(April, 2015 to Sept., 2015)



CENTRAL ELECTRICITY AUTHORITY

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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 2015-16 (APRIL, 2015 TO SEPTEMBER, 2015)

1.0 BACKGROUND

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, Forests and Climate Change(MoEF&CC) 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(TPSs) 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 and Climate Change has issued various Notifications on fly ash utilization, first Notification was issued on 14th September, 1999 which was subsequently amended in 2003, 2009 and 2016 vide Notifications dated 27th August, 2003, 3rd November, 2009 and 25th January, 2016 respectively.

Towards the efforts in the direction of enhancing gainful utilization of fly ash, the latest MoEF&CC's Notification of 25th January, 2016 stipulates mandatory uploading of details of fly ash available on TPS's website and updating of stock position at least once in every month; increase in mandatory jurisdiction of area of application from 100 km to 300 km; cost of transportation of fly ash to be borne entirely by TPS up to 100 km and equally shared between user and TPS for more than 100 km and up to 300 km; and mandatory use of fly ash based products in all Government schemes or programmes e.g. Pradhan Mantri Gramin Sadak Yojana, Mahatma Gandhi National Rural Employment Guarantee Act, 2005, Swachh Bharat Abhiyan, etc.

The 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&CC'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&CC's notification of 3rd November, 2009 and to take corrective measures in the cases of Thermal Power Stations lagging behind in achieving the prescribed targets of fly ash utilization.

2.0 ASH GENERATION & UTILIZATION DURING THE 1ST HALF OF THE YEAR 2015-16

2.1 A Brief Summary

Fly ash generation & utilization data for the 1st half of the Year 2015-16 (April, 2015 to Sept., 2015) has been received from **132** (One hundred thirty-two) coal/lignite based thermal power stations of various power utilities in the country.

Data received, as on 15th March, 2016, 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

Description		1 st Half Year 2014-15	1 st Half Year 2015-16
Nos. of Thermal Power Stations from which data was received	:	146	132
Installed capacity (MW)	:	1,33,708.80	1,30,428.80
Coal consumed (Million-Ton)	:	272.70	251.69
Average Ash Content (%)	:	33.65	33.23
Fly Ash Generation (Million-Ton)	:	91.77	83.64
Fly Ash Utilization (Million-Ton)	:	48.65	46.87
Percentage Fly Ash Utilization	:	53.01	56.04

It can be seen from the above table that during current half year **132** thermal power stations have reported Fly Ash Generation & its Utilization data. Based on this, Fly Ash Utilization percentage has increased during 1st half of the year 2015-16 in comparison to the utilization during the 1st half of previous year (of **146** thermal power stations).

Power Station wise fly ash generation & its utilization status including modes of utilization for the 1st half of the Year 2015-16 for all the **132** 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 2015-16

The status of fly ash generation & utilization for the 1st half of the year 2015-16 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 2015-16**

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.)	1	1760.00	2.2051	1.4359	65.12
2	ACBPL (Chhattisgarh)	1	270.00	0.5486	0.5211	94.98
3	APL (Gujarat)	1	4620.00	0.7050	0.7285	103.33
4	APCPL (Haryana)	1	1500.00	0.6599	0.4062	61.54
5	BEPL (UP)	5	450.00	0.5094	0.5094	100.00
6	C.E.S.C. Ltd.	4	1285.00	0.9610	0.9610	100.00
7	C.G.P.L. (Gujarat)	1	4000.00	0.3520	0.2130	60.51
8	Chhattisgarh State Power Generation Company Ltd. (C.S.P.G.C.L.)	1	500.00	0.6080	0.0960	15.79
9	Damodar Valley Corporation (D.V.C.)	6	6210.00	4.6513	4.0364	86.78
10	Durgapur Projects Ltd. (D.P.L.)	1	660.00	0.3037	0.2964	97.58
11	INDIA POWER CO. Ltd. (W.B.) (Formerly DPSCL)	2	42.00	0.0220	0.0220	100.00
12	Gujarat Industries Power Corporation Ltd. (G.I.P.C.L.)	1	500.00	0.1959	0.1959	100.00
13	Gujarat Mineral Development Corporation Ltd. (G.M.D.C.)	1	250.00	0.0868	0.1114	128.30
14	G.S.E.C.L. (Gujarat)	5	4470.00	1.9790	1.6560	83.68
15	Haryana Power Generation Corp. Ltd. (H.P.G.C.L.)	3	3167.80	0.9346	1.1156	119.36
16	Indraprastha Power Generation Company Ltd. (I.P.G.C. L)	1	135.00	0.0138	0.0144	104.55
17	Jharkhand Urja Utpadan Nigam Limited (J.U.U.N.L.)	1	770.00	0.1215	0.0116	9.58
18	J.H.P.L (HR)	1	1320.00	0.6276	0.4783	76.21
19	J.P.L (Chhattisgarh)	2	2800.00	1.4850	0.5420	36.50
20	JSW Energy Ltd.	2	2060.00	0.2916	0.2450	84.00
21	Karnataka Power Corporation Ltd. (K.P.C.L.)	2	2720.00	2.1514	0.9747	45.307
22	Kanti Bijlee Utpadan Nigam Ltd. (K.B.U.N.L.)	1	220.00	0.1312	0.0114	8.69
23	Lanco Power Ltd.	1	600.00	0.2500	0.2034	81.331
24	Madhya Pradesh Power Generation Corporation Ltd. (M.P.P.G.C.L.)	4	4080.00	2.4693	1.1425	46.268
25	M.P.L (Jharkhand)	1	1050.00	0.8003	0.9008	112.55

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)
26	Maharashtra State Power Generation Corporation Ltd. (M.S.P.G.C.L)	7	7960.00	5.4060	3.4440	63.71
27	Neyveli Lignite Corporation Ltd. (N.L.C.)	5	2990.00	0.6550	0.6094	93.04
28	NSPCL (Chhattisgarh)	1	500.00	0.5393	0.4289	79.52
29	N.T.P.C. Ltd.	17	34175.00	29.6540	9.7492	32.88
30	NTECL (Tamil Nadu)	1	1500.00	0.6437	0.0794	12.33
31	Orissa Power Generation Corporation Ltd. (O.P.G.C.L.)	1	420.00	0.5771	0.0800	13.86
32	Punjab State Power Corporation Ltd. (P.S.P.C.L).	3	2640.00	1.3439	1.2356	91.94
33	Rajasthan Rajya Vidyut Utpadan Nigam Ltd. (R.R.V.U.N.L.)	3	2490.00	1.1816	1.1477	97.13
34	Reliance Infrastructure Limited (R.I.L.)	1	500.00	0.3240	0.3319	102.44
35	RPSCL (UP)	1	1200.00	0.9389	0.3219	34.29
36	R.W.P.L. (JSW)	1	1080.00	0.6475	0.6270	96.84
37	Taqa Neyveli Power Company Pvt. Ltd.	1	250.00	0.0698	0.0565	80.90
38	Tata Power Company (T.P.CO.)	2	1297.50	0.5949	0.6169	103.70
39	Tenughat Vidyut Nigam Ltd. (T.V.N.L.)	1	420.00	0.3621	0.2150	59.38
40	T.N.G & D Corporation (Tamil Nadu)	6	4660.00	2.7286	2.9169	106.90
41	Torrent Power Ltd.	1	422.00	0.1400	0.1503	107.36
42	UPCL (Karnataka)	1	1200.00	0.0821	0.0625	76.13
43	TSGENCO (Telangana)	5	2282.50	2.7083	0.6028	22.26
44	Uttar Pradesh Rajya Vidyut Utpadan Nigam Ltd.(U.P.R.V.U.N.L.)	5	4844.00	4.4528	1.6782	37.69
45	West Bengal Power Development Corporation Ltd. (W.B.P.D.C. L.)	5	3860.00	3.3225	3.2942	99.15
46	MSELDC (Maharashtra)	1	540.00	0.2250	0.1800	80.00
47	GMR Warora Energy Ltd. (Maharashtra)	1	600.00	0.4382	0.3686	84.11
48	Spectrum Coal & Power Ltd. (Chhattisgarh)	1	50.00	0.0468	0.0440	94.02
49	Adani Power Maharashtra Ltd.	1	3300.00	1.8340	0.4822	26.29
50	Adani Power Ltd. (Rajasthan)	1	1320.00	0.4040	0.3427	84.83
51	Rattan India Power Ltd. (Maharashtra)	1	1350.00	0.4312	0.2015	46.72
52	Ideal Energy Projects Ltd. (Maharashtra)	1	270.00	0.0000	0.0000	0.00
53	Meenakshi Energy Pvt. Ltd. (AP)	1	300.00	0.0277	0.0068	24.39

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)
54	ACB (India) Ltd. (Chhattisgarh)	2	60.00	0.1651	0.1651	100.00
55	GMR Kamalanga Energy Ltd. (Odisha)	1	1050.00	0.0530	0.0260	49.06
56	Indian Metals & Ferro Alloys Ltd. (Odisha)	1	258.00	0.23905	0.2390	99.96
57	Haldia Energy Limited (W.B.)	1	600.00	0.3374	0.3374	100.00
58	Dhariwal Infrastructure Ltd.	1	600.00	0.0000	0.0000	0.00
	GRAND TOTAL	132	130428.80	83.6379	46.8701	56.04

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 2015-16 was received from 58 Power Utilities out of which **15** Power Utilities have achieved fly ash utilization level of 100% or more and **20** Power Utilities have achieved fly ash utilization level in the range of less than 100% to 75%.

The comparison between performance of power utilities during the 1st half of the year 2014-15 and 1st half of the year 2015-16 is tabulated below:

TABLE-III

POWER UTILITY-WISE RANGE OF PERCENTAGE FLY ASH UTILIZATION

Sl. No.	Level of Fly Ash utilization	Nos. of Power Utilities	
		1 st Half of the Year 2014-15	1 st Half of the Year 2015-16
(1)	(2)	(3)	(4)
1	100% and more than 100%	10	15
2	Less than 100% and up to 75%	21	20
3	Less than 75% and up to 60%	7	4
4	Less than 60%	23	17
5	No Generation	6	2
	TOTAL	67	58

The performance of the power utilities with respect to 100 % & more utilization has increased during the 1st half of the year 2015-16 in comparison to same period of previous year.

2.3 State wise Status of Fly Ash Generation & its Utilization during the 1st half of the Year 2015-16

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-IV below:

TABLE-IV**STATE WISE FLY ASH GENERATION AND ITS UTILIZATION DURING THE
1ST HALF OF THE YEAR 2015-16**

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	ANDHRA PRADESH	3	4060.00	3.6988	1.6936	45.79
2	BIHAR	3	3880.00	3.1712	0.8116	25.59
3	CHHATISGARH	11	10360.00	9.6370	3.2875	34.11
4	DELHI	2	840.00	0.3528	0.3974	112.65
5	GUJARAT	10	14262.00	3.4587	3.0551	88.33
6	HARYANA	5	5987.80	2.2222	2.0000	90.00
7	JHARKHAND	7	5307.50	3.6583	2.7977	76.48
8	KARNATAKA	4	4780.00	2.3741	1.1778	49.61
9	MADHYA PRADESH	5	8840.00	6.1773	1.7945	29.05
10	MAHARASHTRA	17	18070.00	9.0924	5.1419	56.55
11	ODISHA	5	5188.00	4.6462	1.7900	38.53
12	PUNJAB	3	2640.00	1.3439	1.2356	91.94
13	RAJASTHAN	6	5140.00	2.3435	2.2278	95.07
14	TAMIL NADU	12	9150.00	3.9867	3.5518	89.09
15	TELANGANA	6	4882.50	5.3663	2.6308	49.02
16	UTTAR PRADESH	16	14804.00	12.7792	5.1465	40.27
17	WEST BENGAL	17	12237.00	9.3294	8.1305	87.15
	GRAND TOTAL	132	130428.80	83.6379	46.8701	56.04

It may be seen from Table-IV above that:

- (i) 4 states namely Chhattisgarh, Maharashtra, Uttar Pradesh and West Bengal have generated more than 9 million-ton of fly ash during the 1st half of the Year 2015-16 and the maximum fly ash of more than 12 million-ton was generated in U.P. during the aforesaid period.
- (ii) During the 1st half of the Year 2015-16, the State of Delhi has achieved fly ash utilization level of more than 112 % and the States of Gujarat, Haryana, Jharkhand, Punjab, Rajasthan, Tamil Nadu and West Bengal have achieved the fly ash utilization level of more than 75%.

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&CC'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 2015-16 has been compiled to see the fly ash utilization vis-à-vis the target of fly ash utilization as prescribed in MoEF&CC's notification of 3rd November, 2009.

During the 1st half of the Year 2015-16, all those thermal power stations which were in operation on the date of issuance of MoEF&CC'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. All those thermal power stations which have come into operation after the date of issuance of MoEF&CC'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&CC's notification has not achieved as a whole.

3.1 Range of Fly Ash Utilization during the 1st Half of the Year 2015-16

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

TABLE-V
POWER STATION WISE RANGE OF PERCENTAGE FLY ASH UTILIZATION

Sl. No.	Level of Fly Ash Utilization	Nos. of Power Stations	
		1 st Half of the Year 2014-15	1 st Half of the Year 2015-16
(1)	(2)	(3)	(4)
1	100% and more than 100%	30	43
2	Less than 100% and up to 75%	32	30
3	Less than 75% and up to 60%	17	14
4	Less than 60%	61	40
5	Nos. of TPS which have not generated any significant fly ash or any fly ash	06	05
	TOTAL	146	132

3.2 Thermal Power Stations that have achieved Fly Ash utilization level of 100% or more during the 1st half of the Year 2015-16

The following Thermal Power Stations as given in Table-VI achieved the fly ash utilization level of 100% or more during the 1st half of the year 2015-16.

TABLE-VI
THERMAL POWER STATIONS WITH FLY ASH UTILIZATION LEVEL OF 100% OR MORE DURING THE 1st HALF OF THE YEAR 2015-16

Sl. No.	Name of TPS	Power Utility	Installed Capacity (MW)	Fly ash Generation (Million-ton)	Fly ash Utilization (Million-ton)	% age
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1	MUNDRA TPS	APL (Gujarat)	4620.00	0.7050	0.7285	103.33
2	CHAKABURA TPP	ACB (India) Ltd. (Chhattisgarh)	30.00	0.0838	0.0838	100.00

Sl. No.	Name of TPS	Power Utility	Installed Capacity (MW)	Fly ash Generation (Million-ton)	Fly ash Utilization (Million-ton)	% age
(1)	(2)	(3)	(4)	(5)	(6)	(7)
3	CHAKABURA TPP (EXTN)	ACB (India) Ltd. (Chhattisgarh)	30.00	0.0813	0.0813	100.00
4	BARKHERA	BEPL (UP)	90.00	0.1010	0.1010	100.00
5	KHAMBER KHERA	BEPL (UP)	90.00	0.0996	0.0996	100.00
6	KUNDARKI	BEPL (UP)	90.00	0.1057	0.1057	100.00
7	MAQSOODPUR	BEPL (UP)	90.00	0.0954	0.0954	100.00
8	UTRAULA	BEPL (UP)	90.00	0.1077	0.1077	100.00
9	B.B.G.S.	C.E.S.C. (West Bengal)	750.00	0.7420	0.7420	100.00
10	S.G.S.	C.E.S.C. (West Bengal)	135.00	0.1110	0.1110	100.00
11	T.G. S	C.E.S.C. (West Bengal)	240.00	0.1080	0.1080	100.00
12	DURGAPUR	D.V.C. (West Bengal)	350.00	0.2068	0.2414	116.73
13	MEJIA	D.V.C. (West Bengal)	2340.00	1.7880	2.0083	112.32
14	DISHERGARH POWER STATION	India Power Co. Ltd. (W.B.) (Formerly DPSC)	12.00	0.0220	0.0220	100.00
15	SURAT LIGNITE	G.I.P.C.L. (Gujarat)	500.00	0.1959	0.1959	100.00
16	AKRIMOTA	G.M.D.C.L. (Gujarat)	250.00	0.0868	0.1114	128.30
17	GANDHINAGAR	G.S.E.C.L. (Gujarat)	870.00	0.2990	0.4130	138.13
18	SIKKA	G.S.E.C.L. (Gujarat)	490.00	0.0700	0.0920	131.43
19	HISAR	H.P.G.C.L. (Haryana)	1200.00	0.3798	0.5856	154.16
20	YAMUNANAGAR	H.P.G.C.L. (Haryana)	600.00	0.3468	0.4431	127.79
21	RAJGHAT	IPGCL (Delhi)	135.00	0.0138	0.0144	104.55
22	VIJAYANAGAR	JSW Energy Limited (Karnataka)	860.00	0.1406	0.1406	100.00
23	MAITHON RBTPP	MPL (Jharkhand)	1050.00	0.8003	0.9008	112.55
24	KHAPARKHEDA	M.S.P.G.C.L.(Maharashtra)	840.00	0.5467	0.5836	106.75
25	PARLI	M.S.P.G.C.L.(Maharashtra)	1130.00	0.4801	0.6697	139.49
26	NEYVELI -I EXPN	N.L.C. Ltd. (Tamil Nadu)	420.00	0.1285	0.1285	100.00
27	BARSINGSAR LIGNITE	NLC Ltd. (Rajasthan)	250.00	0.1104	0.1104	100.00
28	BADARPUR	N.T.P.C. Ltd. (Delhi)	705.00	0.3390	0.3830	112.98
29	TALCHAR(TPS)	N.T.P.C. Ltd. (Odisha)	460.00	0.6000	0.6000	100.00
30	DADRI	N.T.P.C. Ltd. (U.P.)	1820.00	1.1400	1.4310	125.53
31	ROPAR	P.S.P.C.L. (Punjab)	1260.00	0.6602	0.7799	118.14
32	GIRAL	RRVUNL(Rajasthan)	250.00	0.0488	0.0488	100.00
33	DAHANU	Reliance Infrastructure Ltd. (Maharashtra)	500.00	0.3240	0.3319	102.44
34	JOJOBERA	T.P.CO. (Jharkhand)	547.50	0.5629	0.5895	104.73
35	SABARMATI	Torrent Power Ltd. (Gujarat)	422.00	0.1400	0.1503	107.36
36	METTUR	T.N.G & D Corporation (Tamil Nadu)	840.00	0.5377	0.9544	177.49
37	NORTH CHENNAI	T.N.G & D Corporation (Tamil Nadu)	630.00	0.4849	0.7866	162.23

Sl. No.	Name of TPS	Power Utility	Installed Capacity (MW)	Fly ash Generation (Million-ton)	Fly ash Utilization (Million-ton)	% age
(1)	(2)	(3)	(4)	(5)	(6)	(7)
38	RAMAGUNDAM'B'	TSGENCO (Telangana)	62.50	0.0524	0.0660	125.95
39	PANKI	U.P.R.V.U.N.L (U.P.)	210.00	0.1331	0.3355	251.97
40	KOLAGHAT	W.B.P.D.C.L(W.B.)	1260.00	1.2223	1.2610	103.17
41	BANDEL	W.B.P.D.C.L (W.B.)	450.00	0.1358	0.2488	183.16
42	SANTALDIH	W.B.P.D.C.L (W.B.)	500.00	0.5098	0.7647	150.00
43	HALDIA ENERGY LIMITED (W.B)	Haldia Energy Limited (W.B.)	600.00	0.3374	0.3374	100.00

It may be seen from Table-VI above that:

During the 1st half of the Year 2015-16, **43** thermal power stations have achieved the fly ash utilization level of 100% or more including **25** 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 2015-16 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 2015-16

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 2015-16 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 75% to 100% DURING THE 1st HALF OF THE YEAR 2015-16

Sl. No.	Name of TPS	Power Utility	Installed Capacity (MW)	Fly ash Generation (Million-ton)	Fly ash Utilization (Million-ton)	% age
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1	KASAI PALLI	ACBPL (Chhattisgarh)	270.00	0.5486	0.5211	94.98
2	KAWAI	Adani Power Ltd. (Rajasthan)	1320.00	0.4040	0.3427	84.83
3	DURGAPUR STEEL	DVC (West Bengal)	1000.00	0.8450	0.7059	83.54
4	KODARMA	DVC (Jharkhand)	1000.00	0.5076	0.4689	92.37
5	DURGAPUR PROJECTS POWER STATION	D.P.L. (West Bengal)	660.00	0.3037	0.2964	97.58
6	KUTCH LIGNITE	G.S.E.C.L.(Gujarat)	290.00	0.1110	0.1100	99.10
7	INDIAN METALS & FERRO ALLOYS LTD.	Indian Metals & Ferro Alloys Ltd. (Odisha)	258.00	0.23905	0.2390	99.96
8	MAHATMA GANDHI	JHPL (Haryana)	1320.00	0.6276	0.4783	76.21
9	AMARKANTAK TPS	Lanco Amarkantak Power Ltd.	600.00	0.2500	0.2034	81.33

Sl. No.	Name of TPS	Power Utility	Installed Capacity (MW)	Fly ash Generation (Million-ton)	Fly ash Utilization (Million-ton)	% age
(1)	(2)	(3)	(4)	(5)	(6)	(7)
		(Chhattisgarh)				
10	SANJAY GANDHI	M.P.P.G.C.L. (M.P.)	1340.00	0.8027	0.6846	85.29
11	AMARKANTAK	M.P.P.G.C.L. (M.P.)	210.00	0.1822	0.1776	97.48
12	NASIK	M.S.P.G.C.L. (Maharashtra)	630.00	0.5937	0.4874	82.09
13	NEYVELI - II	N.L.C. Ltd. (Tamil Nadu)	1470.00	0.2901	0.2890	99.62
14	BHILAI	NSPCL (Chhattisgarh)	500.00	0.5393	0.4289	79.52
15	RAMAGUNDAM	N.T.P.C. Ltd. (Telangana)	2600.00	2.6580	2.0280	76.30
16	TANDA	N.T.P.C. Ltd. (U.P.)	440.00	0.4660	0.4290	92.06
17	KOTA	RRVUNL(Rajasthan)	1240.00	0.7185	0.7081	98.55
18	CHHABRA	RRVUNL(Rajasthan)	1000.00	0.4143	0.3908	94.33
19	JALIIPA KAPURDI	RWPL (Rajasthan)	1080.00	0.6475	0.6270	96.84
20	CUDDALORE	Taqa Neyveli Power Company Pvt. Ltd. (Tamil Nadu)	250.00	0.0698	0.0565	80.90
21	TROMBAY	T.P.CO. (Maharashtra)	750.00	0.0320	0.0274	85.63
22	ENNORE	T.N.G & D Corporation (Tamil Nadu)	340.00	0.1598	0.1241	77.64
23	METTUR-II	T.N.G & D Corporation (Tamil Nadu)	600.00	0.2776	0.2215	79.80
24	TUTICORIN	T.N.G & D Corporation (Tamil Nadu)	1050.00	0.7238	0.5453	75.33
25	HARDUAGANJ	U.P.R.V.U.N.L.(U.P.)	670.00	0.4636	0.4539	97.90
26	UDUPI	UPCL (Karnataka)	1200.00	0.0821	0.0625	76.13
27	BAKRESWAR	W.B.P.D.C.L(W.B.)	1050.00	1.0380	0.7933	76.43
28	SAI WARDHA POWER LTD.	MSELDC (Maharashtra)	540.00	0.2250	0.1800	80.00
29	GMR WARORA ENERGY LTD. (Formerly EMCO ENERGY Ltd)	GMR WARORA ENERGY Ltd. (Maharashtra)	600.00	0.4382	0.3686	84.11
30	RATIJA TPS	Spectrum Coal & Power Ltd. (Chhattisgarh)	50.00	0.0468	0.0440	94.02

It may be seen from Table-VII above that 30 thermal power stations during the 1st half of the year 2015-16 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 2015-16

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 2015-16 along with fly ash utilization level achieved by each of these power stations are given in Table-VIII below:

TABLE-VIII**THERMAL POWER STATIONS WITH FLY ASH UTILIZATION LEVEL OF 60% TO 75% DURING THE 1ST HALF OF THE YEAR 2015-16.**

Sl. No.	Name of TPS	Power Utility	Installed Capacity (MW)	Fly ash Generation (Million-ton)	Fly ash Utilization (Million-ton)	% age
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1	Dr. N.T.R (Vijayawada)	A.P. GENCO (Andhra Pradesh)	1760.00	2.2051	1.4359	65.12
2	INDIRA GANDHI	APCPL (Haryana)	1500.00	0.6599	0.4062	61.54
3	MUNDRA UMPP	CGPL (Gujarat)	4000.00	0.3520	0.2130	60.51
4	CHANDRAPURA	D.V.C. (Jharkhand)	890.00	0.9337	0.6119	65.53
5	UKAI	G.S.E.C.L.(Gujarat)	1350.00	0.6710	0.4700	70.04
6	WANAKBORI	G.S.E.C.L.(Gujarat)	1470.00	0.8280	0.5710	68.96
7	RATNAGIRI	JSW Energy Ltd. (Maharashtra)	1200.00	0.1510	0.1044	69.12
8	BHUSAWAL	M.S.P.G.C.L.(Maharashtra)	1420.00	0.8990	0.6455	71.80
9	NEYVELI - I	N.L.C Ltd. (Tamil Nadu)	600.00	0.1260	0.0815	64.68
10	UNCHA HAR	N.T.P.C. Ltd. (U.P.)	1050.00	0.8800	0.5580	63.41
11	BATHINDA	P.S.P.C.L. (Punjab)	460.00	0.1844	0.1310	71.03
12	LEHRA MOHABAT	P.S.P.C.L. (Punjab)	920.00	0.4994	0.3247	65.01
13	KAKATIA	TSGENCO(Telangana)	500.00	0.3410	0.2325	68.17
14	PARICHHA	U.P.R.V.U.N.L. (UP)	1140.00	1.1304	0.7206	63.74

It may be seen from Table-VIII above that 14 thermal power stations during the 1st half year 2015-16 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 2015-16

The Thermal Power Stations which have achieved the fly ash utilization level of less than 60% during the 1st half year 2015-16 along with fly ash utilization level achieved by each of these power stations are given in Table-IX:

TABLE-IX**THERMAL POWER STATIONS WITH FLY ASH UTILIZATION LEVEL OF BELOW 60% DURING THE 1ST HALF OF THE YEAR 2015-16**

Sl. No.	Name of TPS	Power Utility	Installed Capacity (MW)	Fly ash Generation (Million-ton)	Fly ash Utilization (Million-ton)	% age
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1	TIRORA	Adani Power Maharashtra Ltd.	3300.00	1.8340	0.4822	26.29
2	DSPM	C.S.P.G.C.L. (Chhattisgarh)	500.00	0.6080	0.0960	15.79
3	BOKARO 'B'	D.V.C. (Jharkhand)	630.00	0.3702	0.0000	0.00
4	PANIPAT	H.P.G.C.L. (Haryana)	1367.80	0.2080	0.0869	41.76

Sl. No.	Name of TPS	Power Utility	Installed Capacity (MW)	Fly ash Generation (Million-ton)	Fly ash Utilization (Million-ton)	% age
(1)	(2)	(3)	(4)	(5)	(6)	(7)
5	AMARAVATI TPS	Rattan India Power Ltd. (Maharashtra)	1350.00	0.4312	0.2015	46.72
6	O.P. JINDAL SUPER TPP (Stage-I)	JPL(Chhattisgarh.)	1000.00	0.7400	0.2600	35.14
7	O.P. JINDAL SUPER TPP (Stage-II)	JPL(Chhattisgarh.)	1800.00	0.7450	0.2820	37.85
8	PATRATU	J.U.U.N.L (Jharkhand)	770.00	0.1215	0.0116	9.58
9	BELLARY	K.P.C.L (Karnataka)	1000.00	0.5965	0.2936	49.23
10	RAICHUR	K.P.C.L.(Karnataka)	1720.00	1.5549	0.6811	43.80
11	MUZAFFARPUR TPS	K.B.U.N.L. (Bihar)	220.00	0.1312	0.0114	8.69
12	THAMMINAPATNAM TPS	Meenakshi Energy Pvt. Ltd. (A.P)	300.00	0.0277	0.0068	24.39
13	SATPURA	M.P.P.G.C.L. (M.P.)	1330.00	0.9294	0.2718	29.25
14	SHREE SINGAJI TPS	M.P.P.G.C.L. (M.P.)	1200.00	0.5550	0.0085	1.53
15	CHANDRAPUR	M.S.P.G.C.L. (Maharashtra)	2340.00	2.0779	0.9618	46.29
16	KHAPARKHEDA (Ext)	M.S.P.G.C.L. (Maharashtra)	500.00	0.4525	0.0068	1.50
17	KORADI	M.S.P.G.C.L. (Maharashtra)	1100.00	0.3560	0.0892	25.06
18	VALLUR	NTECL (Tamil Nadu)	1500.00	0.6437	0.0794	12.33
19	SIMHADRI	N.T.P.C. Ltd. (Andhra Pradesh)	2000.00	1.4660	0.2510	17.12
20	KAHALGAON	N.T.P.C. Ltd. (Bihar)	2340.00	2.6470	0.7890	29.81
21	KORBA	N.T.P.C. Ltd. (Chhattisgarh)	2600.00	3.2830	0.8840	26.93
22	SIPAT	N.T.P.C. Ltd. (Chhattisgarh)	2980.00	2.7110	0.4030	14.87
23	VINDHYACHAL	N.T.P.C. Ltd. (M.P)	4760.00	3.7080	0.6520	17.58
24	TALCHAR(KAN)	N.T.P.C. Ltd. (Odisha)	3000.00	3.1770	0.8450	26.60
25	RIHAND	N.T.P.C. Ltd. (U.P.)	3000.00	2.1600	0.1240	0.58
26	SINGRAULI	N.T.P.C. Ltd. (U.P.)	2000.00	2.2320	0.0950	4.26
27	FARAKKA	N.T.P.C. Ltd. (W.B.)	2100.00	1.5430	0.2640	17.11
28	MOUDA TPS	N.T.P.C. Ltd. (Maharashtra)	1000.00	0.2510	0.0020	0.80
29	BARH SUPER TPS	N.T.P.C. Ltd.(Bihar)	1320.00	0.3930	0.0112	2.84
30	IB VALLEY	O.P.G.C.L. (Odisha)	420.00	0.5771	0.0800	13.86
31	ROSA PHASE-I	RPSCL (U.P)	1200.00	0.9389	0.3219	34.29
32	TENUGHAT	T.V.N.L.(Jharkhand)	420.00	0.3621	0.2150	59.38
33	NORTH CHENNAI - II	T.N.G & D Corporation (Tamil Nadu)	1200.00	0.5448	0.2851	52.33
34	KOTHAGUDEM (Stage I to IV)	TSGENCO (Telangana)	720.00	1.1355	0.0957	8.43

Sl. No.	Name of TPS	Power Utility	Installed Capacity (MW)	Fly ash Generation (Million-ton)	Fly ash Utilization (Million-ton)	% age
(1)	(2)	(3)	(4)	(5)	(6)	(7)
35	KOTHAGUDEM-V	TSGENCO (Telangana)	500.00	0.7638	0.0081	1.06
36	KOTHAGUDEM-VI	TSGENCO (Telangana)	500.00	0.4155	0.2006	48.27
37	ANPARA'A'& 'B'	U.P.R.V.U.N.L(U.P.)	1630.00	1.9890	0.0066	0.33
38	OBRA	U.P.R.V.U.N.L(U.P.)	1194.00	0.7367	0.1617	21.95
39	SAGARDIGHI	W.B.P.D.C.L(W.B.)	600.00	0.4166	0.2264	54.34
40	KAMALANGA TPP	GMR Kamalanga Energy Ltd. (Odisha)	1050.00	0.0530	0.0260	49.06

LIST OF THERMAL POWER STATIONS WITH NO FLY ASH GENERATION

Sl. No.	Name of TPS	Power Utility	Installed Capacity (MW)	Fly ash Generation (Million-ton)	Fly ash Utilization (Million-ton)	% age
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1	NEW COSSIPORE	CESC (W.B.) (ceased generation permanently w.e.f. 30.11.2014)	160.00	0	0	0
2	CHINAKURI	India Power Co. Ltd. (W.B) (Formerly DPSCL)	30.00	0	0	0
3	BELA TPS	Ideal Energy Projects Ltd. (Maharashtra)	270.00	0	0	0
4	NEYVELI - II EXPN	NLC (Tamil Nadu)	250.00	0	0	0
5	DHARIWAL TPS	Dhariwal Infrastructure Ltd. (Maharashtra.)	600.00	0	0	0

It may be seen from Table-IX above that:

During the 1st half of the year 2015-16, out of **132** thermal power stations, **40** 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 2015-16

The data on fly ash utilization received from Thermal Power Stations/Power Utilities for the 1st half of the year 2015-16 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 2015-16 along with utilization in each mode are given in Table-X below:

TABLE-X

MODES OF FLY ASH UTILIZATION DURING THE 1ST HALF OF THE YEAR 2015-16

Sl. No.	Mode of Utilization	Quantity of Fly Ash utilized in the mode of utilization	
		Million-ton	Percentage (%)
(1)	(2)	(3)	(4)
1	Cement	19.6727	41.97
2	Bricks & Tiles	6.0245	12.85
3	Reclamation of low lying area	5.2529	11.21
4	Mine filling	5.1143	10.91
5	Ash Dyke Raising	3.5960	7.67
6	Roads & flyovers	2.2849	4.87
7	Agriculture	1.0083	2.15
8	Concrete	0.4704	1.00
9	Hydro Power Sector	0.0165	0.04
10	Others	3.4298	7.32
TOTAL		46.8701	100.00

The pie diagram showing the modes of utilization of fly ash during the 1st half of the Year 2015-16 is given in Figure-1 below:

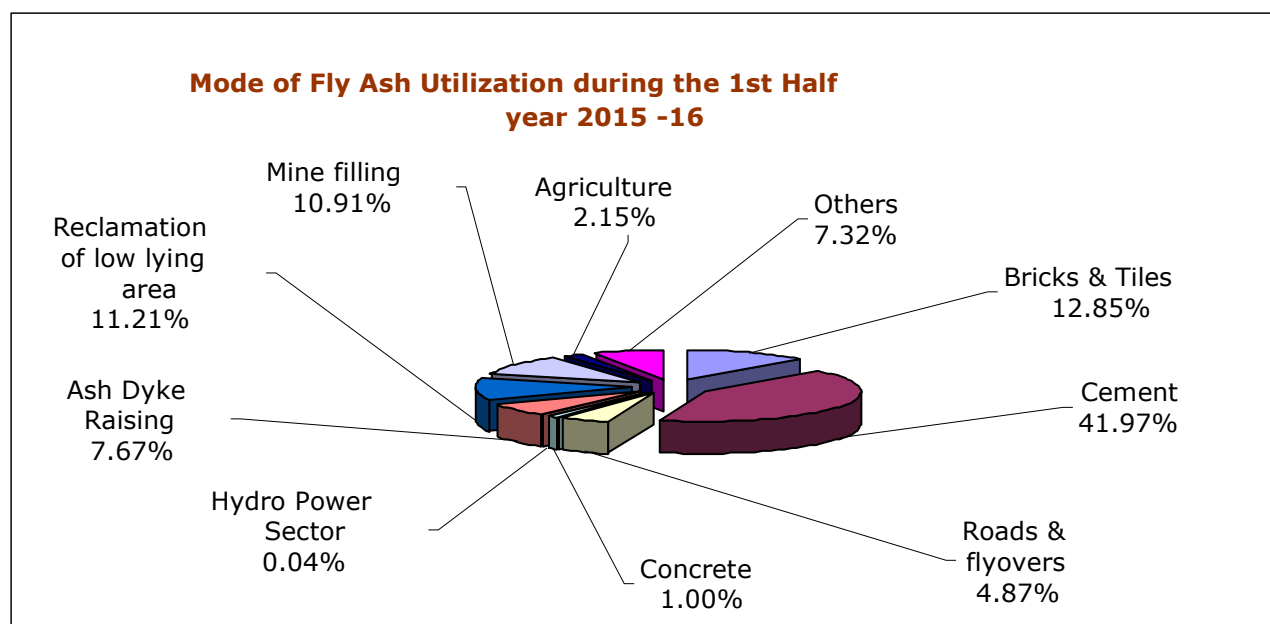


FIGURE-1

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

During the 1st half of the Year 2015-16, the maximum utilization of fly ash to the extent of 41.97 % of total fly ash utilized was in the Cement sector, followed by 12.85 % in making bricks & tiles, 11.21 % in reclamation of low lying area, 10.91 % in mine filling, 7.67 % in ash dyke raising, 4.87 % in roads & embankments, 2.15% in agriculture, 1% in concrete and 7.32 % in others 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, 57.63 % in the year 2013-14 and 55.69 % in 2014-15. During the current period i.e. 1st half of the year 2015-16, utilization of fly ash is 56.04 % which is behind the stipulated target.
2. The utilization of fly ash is in the range of 10-12 % in making fly ash based building products and mine filling each, whereas it is less than 5 % in the construction of roads & embankments. 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.
3. 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 300 km of any coal/ lignite based thermal power station as mandated in MoEF&CC's Notification of 25th January, 2016. 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&CC's Notification of 25th January, 2016 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 300 km of any thermal power station as mandated in MoEF&CC's Notification of 25th January, 2016 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&CC'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&CC's notifications of 3rd November, 2009 and 25th January 2016.
- 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.

* * *

6.0

ABBREVIATIONS

1. CEA : Central Electricity Authority
2. MoEF&CC: Ministry of Environment, Forest & Climate Change
3. MW : Mega Watt
4. MoP : Ministry of Power
5. MT : Million-Ton
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: Chhattisgarh 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 Rajya Vidyut Utpadan Nigam Ltd.
42. RIL : Reliance Infrastructure Ltd.
43. RPSC: Rosa Power Supply Company Ltd.
44. RWPL: Raj West Power Ltd.
45. SEL : Sterlite energy Ltd.
46. SVPPL: 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. UPCL: Udupi Power Company Ltd.
52. UPRVUNL: Uttar Pradesh Rajya 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-2015 TO SEPTEMBER-2015
(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/ 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)	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)
1	Dr. N.T.R (Vijawada)	A.P.GENCO (Andhra Pradesh)	1760.00	4.7963	45.97	2.2051	1.4359	65.12	0.5668	0.6329	0.0000	0.0192	0.0000	0.0000	0.1636	0.0000	0.0000	0.0534	1.4359
2	KASAI PALLI	ACBPL (Chhattishgarh)	270.00	0.9754	56.24	0.5486	0.5211	94.98	0.0442	0.0000	0.0575	0.0000	0.0000	0.0000	0.4194	0.0000	0.0000	0.0000	0.5211
3	INDIRA GANDHI	APCPL (Haryana)	1500.00	2.0623	32.00	0.6599	0.4062	61.54	0.0451	0.3611	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.4062
4	MUNDRA TPS	APL (Gujarat)	4620.00	8.7500	8.06	0.7050	0.7285	103.33	0.0005	0.2480	0.0960	0.0000	0.0000	0.0000	0.2540	0.0000	0.0000	0.1300	0.7285
5	TIRORA	Adani Power Maharastra Ltd.	3300.00	5.7760	31.75	1.8340	0.4822	26.29	0.0197	0.0238	0.0000	0.0000	0.0000	0.2058	0.2329	0.0000	0.0000	0.0000	0.4822
6	KAWAI	Adani Power Ltd. (Rajasthan)	1320.00	1.8456	21.89	0.4040	0.3427	84.83	0.0017	0.3410	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.3427
7	CHAKABURA TPP	ACB (INDIA) Ltd. (Chhattishgarh)	30.00	0.1497	55.96	0.0838	0.0838	100.00	0.0073	0.0000	0.0000	0.0000	0.0000	0.0000	0.0765	0.0000	0.0000	0.0000	0.0838
8	CHAKABURA TPP (EXTN)	ACB (INDIA) Ltd. (Chhattishgarh)	30.00	0.1357	59.94	0.0813	0.0813	100.00	0.0073	0.0000	0.0000	0.0000	0.0000	0.0000	0.0740	0.0000	0.0000	0.0000	0.0813
9	BARKHERA	BEPL (U.P.)	90.00	0.2473	40.85	0.1010	0.1010	100.00	0.0005	0.0157	0.0000	0.0000	0.0000	0.0202	0.0646	0.0000	0.0000	0.0000	0.1010
10	KHAMBER KHERA	BEPL (U.P.)	90.00	0.2355	42.29	0.0996	0.0996	100.00	0.0035	0.0515	0.0000	0.0000	0.0000	0.0199	0.0246	0.0000	0.0000	0.0000	0.0996
11	KUNDARKI	BEPL (U.P.)	90.00	0.2526	41.83	0.1057	0.1057	100.00	0.0005	0.0782	0.0000	0.0000	0.0000	0.0151	0.0119	0.0000	0.0000	0.0000	0.1057
12	MAQSOODPUR	BEPL (U.P.)	90.00	0.2286	41.73	0.0954	0.0954	100.00	0.0013	0.0239	0.0000	0.0000	0.0000	0.0191	0.0511	0.0000	0.0000	0.0000	0.0954
13	UTRAULA	BEPL (U.P.)	90.00	0.2533	42.53	0.1077	0.1077	100.00	0.0000	0.0499	0.0000	0.0000	0.0000	0.0206	0.0373	0.0000	0.0000	0.0000	0.1077
14	B.B.G.S.	C.E.S.C. (West Bengal)	750.00	1.8860	39.34	0.7420	0.7420	100.00	0.0250	0.5670	0.0000	0.0000	0.0000	0.0000	0.1500	0.0000	0.0000	0.0000	0.7420
15	S.G.S.	C.E.S.C. (West Bengal)	135.00	0.3130	35.46	0.1110	0.1110	100.00	0.0050	0.0900	0.0000	0.0060	0.0000	0.0000	0.0100	0.0000	0.0000	0.0000	0.1110
16	T.G.S	C.E.S.C. (West Bengal)	240.00	0.3950	27.34	0.1080	0.1080	100.00	0.0150	0.0520	0.0150	0.0000	0.0000	0.0000	0.0260	0.0000	0.0000	0.0000	0.1080
17	NEW COSSIPORE	CESC (W.B.)(ceased generation permanently w.e.f 30th Nov.2014)	160.00	0.0000	0.00	0.0000	0.0000	0.00	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
18	MUNDRA UMPP	CGPL (Gujarat)	4000.00	4.7400	7.43	0.3520	0.2130	60.51	0.0000	0.2130	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.2130
19	DSPM	C.S.P.G.C.L. (Chhattisgarh)	500.00	1.5280	39.79	0.6080	0.0960	15.79	0.0000	0.0000	0.0000	0.0000	0.0000	0.0900	0.0000	0.0000	0.0060	0.0000	0.0960
20	BOKARO 'B'	D.V.C. (Jharkhand)	630.00	0.7736	47.85	0.3702	0.0000	0.00	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
21	CHANDRAPURA	D.V.C. (Jharkhand)	890.00	1.8774	49.74	0.9337	0.6119	65.53	0.0036	0.0039	0.0000	0.0000	0.0000	0.0000	0.0000	0.6044	0.0000	0.0000	0.6119
22	DURGAPUR	D.V.C. (West Bengal)	350.00	0.4028	51.35	0.2068	0.2414	116.73	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.2414	0.0000	0.0000	0.2414
23	MEJIA	D.V.C. (West Bengal)	2340.00	3.9550	45.21	1.7880	2.0083	112.32	0.0057	0.4294	0.0165	0.0000	0.0000	0.0000	0.0000	1.5567	0.0000	0.0000	2.0083
24	Durgapur Steel	D.V.C. West Bengal)	1000.00	1.7734	47.65	0.8450	0.7059	83.54	0.0295	0.3762	0.0037	0.0000	0.0000	0.0000	0.2966	0.0000	0.0000	0.0000	0.7059
25	KODARMA	D.V.C. (Jharkhand)	1000.00	1.0794	47.03	0.5076	0.4689	92.37	0.0201	0.1832	0.0000	0.0000	0.0000	0.0000	0.2656	0.0000	0.0000	0.0000	0.4689
26	DURGAPUR PROJECTS POWER STATION	D.P.L. (West Bengal)	660.00	0.6807	44.62	0.3037	0.2964	97.58	0.0000	0.1122	0.1254	0.0000	0.0000	0.0000	0.0510	0.0000	0.0077	0.0000	0.2964
27	CHINAKURI	INDIA POWER CO. Ltd.(W.B) (Formerly DPSCL) (No Generation)	30.00	0.0000	0.00	0.0000	0.0000	0.00	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
28	DISHERGARH POWER STATION	INDIA POWER CO. Ltd.(W.B) (Formerly DPSCL)	12.00	0.0432	50.83	0.0220	0.0220	100.00	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0220	0.0000	0.0000	0.0220

**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-2015 TO SEPTEMBER-2015
(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/ 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)	
29	SURAT LIGNITE	G.I.P.C.L. (Gujarat)	500.00	1.7011	11.52	0.1959	0.1959	100.00	0.1700	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0260	0.1959
30	AKRIMOTA	G.M.D.C.L. (Gujarat)	250.00	0.6072	14.30	0.0868	0.1114	128.30	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.1114	0.0000	0.0000	0.0000	0.1114
31	GANDHINAGAR	G.S.E.C.L. (Gujarat)	870.00	0.9400	31.81	0.2990	0.4130	138.13	0.1090	0.2600	0.0000	0.0350	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0090	0.4130
32	KUTCH LIGNITE	G.S.E.C.L. (Gujarat)	290.00	0.6890	16.11	0.1110	0.1100	99.10	0.0000	0.0160	0.0000	0.0000	0.0000	0.0000	0.0000	0.0940	0.0000	0.0000	0.0000	0.1100
33	SIKKA	G.S.E.C.L. (Gujarat)	490.00	0.3570	19.61	0.0700	0.0920	131.43	0.0140	0.0780	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0920
34	UKAI	G.S.E.C.L. (Gujarat)	1350.00	2.0310	33.04	0.6710	0.4700	70.04	0.2670	0.1610	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0420	0.4700
35	WANAKBORI	G.S.E.C.L. (Gujarat)	1470.00	2.3570	35.13	0.8280	0.5710	68.96	0.0640	0.4140	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0930	0.5710
36	HISAR	H.P.G.C.L.(Haryana)	1200.00	1.0009	37.95	0.3798	0.5856	154.16	0.0015	0.2289	0.2878	0.0210	0.0000	0.0464	0.0000	0.0000	0.0000	0.0000	0.0000	0.5856
37	YAMUNANAGAR	H.P.G.C.L.(Haryana)	600.00	1.1435	30.33	0.3468	0.4431	127.79	0.0010	0.2402	0.0518	0.0000	0.0000	0.0000	0.0000	0.0000	0.0484	0.1016	0.4431	
38	PANIPAT	H.P.G.C.L.(Haryana)	1367.80	0.5309	39.18	0.2080	0.0869	41.76	0.0119	0.0749	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0869
39	RAJGHAT	IPGCL (Delhi)	135.00	0.0412	33.46	0.0138	0.0144	104.55	0.0000	0.0055	0.0089	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0144
40	AMARAVATI TPS	RATTAN INDIA POWER Ltd. (Maharastra)	1350.00	1.4043	30.71	0.4312	0.2015	46.72	0.0788	0.0000	0.0074	0.0000	0.0000	0.0629	0.0524	0.0000	0.0000	0.0000	0.0000	0.2015
41	BELA TPS	Ideal Energy Projects Ltd. (Maharastra)(No Generation)	270.00	0.0000	0.00	0.0000	0.0000	0.00	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
42	INDIAN METALS & FERRO ALLOYS LTD.	INDIAN METALS & FERRO ALLOYS LTD. (Odisha)	258.00	0.5140	46.50	0.2390	0.2390	99.96	0.0311	0.0000	0.0062	0.0000	0.0000	0.0000	0.2007	0.0000	0.0000	0.0009	0.2390	
43	MAHATMA GANDHI	JHPL (Haryana)	1320.00	1.5351	40.88	0.6276	0.4783	76.21	0.0204	0.4526	0.0053	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.4783
44	O.P.JINDAL SUPER TPP (Stage-I)	JPL (Chhattisgarh.)	1000.00	1.7740	41.71	0.7400	0.2600	35.14	0.0000	0.0000	0.0000	0.0000	0.0000	0.1690	0.0910	0.0000	0.0000	0.0000	0.2600	
45	O.P.JINDAL SUPER TPP (Stage-II)	JPL (Chhattisgarh.)	1800.00	1.7860	41.71	0.7450	0.2820	37.85	0.0150	0.0000	0.0000	0.0000	0.0000	0.2550	0.0120	0.0000	0.0000	0.0000	0.2820	
46	PATRATU	J.U.U.N.L. (Jarkhand)	770.00	0.3246	37.43	0.1215	0.0116	9.58	0.0054	0.0000	0.0000	0.0000	0.0000	0.0000	0.0062	0.0000	0.0000	0.0000	0.0116	
47	RATNAGIRI	JSW Energy Limited (Maharastra)	1200.00	1.6078	9.39	0.1510	0.1044	69.12	0.0121	0.0340	0.0000	0.0583	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.1044	
48	VIJAYANAGAR	JSW Energy Limited (Karnataka)	860.00	1.0919	12.87	0.1406	0.1406	100.00	0.0000	0.1007	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0399	0.1406	
49	BELLARY	K.P.C.L (Karnataka)	1000.00	1.5684	38.03	0.5965	0.2936	49.23	0.0000	0.2936	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.2936	
50	RAICHUR	K.P.C.L. (Karnataka)	1720.00	4.1649	37.33	1.5549	0.6811	43.80	0.1034	0.5777	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.6811	
51	MUZAFFARPUR TPS	K.B.U.N.L. (Bihar)	220.00	0.3015	43.52	0.1312	0.0114	8.69	0.0006	0.0000	0.0000	0.0000	0.0000	0.0000	0.0108	0.0000	0.0000	0.0000	0.0114	
52	AMARKANTAK TPS	Lanco Amarkantak Power Ltd. (Chhattisgarh)	600.00	0.7289	34.30	0.2500	0.2034	81.33	0.0014	0.2020	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.2034	
53	THAMMINAPATNAM TPS	Meenakshi Energy Pvt. Ltd. (A.P.)	300.00	0.5677	4.89	0.0277	0.0068	24.39	0.0068	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0068	
54	MAITHON RBTPP	MPL (Jharkhand)	1050.00	2.0054	39.91	0.8003	0.9008	112.55	0.0138	0.0019	0.0011	0.0000	0.0000	0.0000	0.8840	0.0000	0.0000	0.0000	0.9008	
55	SANJAY GANDHI	M.P.P.G.C.L. (M.P.)	1340.00	2.0383	39.38	0.8027	0.6846	85.29	0.0249	0.6597	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.6846	
56	SATPURA	M.P.P.G.C.L. (M.P.)	1330.00	2.0891	44.49	0.9294	0.2718	29.25	0.1933	0.0454	0.0000	0.0053	0.0000	0.0012	0.0000	0.0266	0.0000	0.0000	0.2718	
57	AMARKANTAK	M.P.P.G.C.L. (M.P.)	210.00	0.5225	34.87	0.1822	0.1776	97.48	0.0148	0.0760	0.0000	0.0000	0.0000	0.0868	0.0000	0.0000	0.0000	0.0000	0.1776	

**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-2015 TO SEPTEMBER-2015
(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/ 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)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	
119	PANKI	U.P.R.V.U.N.L. (U.P.)	210.00	0.3921	33.96	0.1331	0.3355	251.97	0.0000	0.0519	0.0000	0.0000	0.0000	0.0000	0.2836	0.0000	0.0000	0.0000	0.0000	0.3355
120	PARICHHA	U.P.R.V.U.N.L. (U.P.)	1140.00	2.6112	43.29	1.1304	0.7206	63.74	0.0000	0.6236	0.0000	0.0000	0.0000	0.0969	0.0000	0.0000	0.0000	0.0001	0.7206	
121	UDUPI	UPCL (Karnatak)	1200.00	1.4839	5.53	0.0821	0.0625	76.13	0.0014	0.0362	0.0000	0.0249	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0625	
122	KOLAGHAT	W.B.P.D.C.L(W.B.)	1260.00	2.6623	45.91	1.2223	1.2610	103.17	0.0264	0.1818	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.7844	0.2684	1.2610	
123	SAGARDIGHI	W.B.P.D.C.L(W.B.)	600.00	0.9059	45.99	0.4166	0.2264	54.34	0.1278	0.0985	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.2264	
124	BANDEL	W.B.P.D.C.L (W.B.)	450.00	0.3269	41.56	0.1358	0.2488	183.16	0.0029	0.0899	0.1560	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.2488	
125	SANTALDIH	W.B.P.D.C.L (W.B.)	500.00	1.2467	40.89	0.5098	0.7647	150.00	0.0047	0.0000	0.0000	0.0000	0.0000	0.0000	0.7571	0.0000	0.0000	0.0029	0.7647	
126	BAKRESWAR	W.B.P.D.C.L(W.B.)	1050.00	2.3930	43.38	1.0380	0.7933	76.43	0.0070	0.4410	0.0000	0.0000	0.0000	0.0000	0.3353	0.0000	0.0000	0.0100	0.7933	
127	SAI WARDHA POWER Ltd.	MSELDC (Maharashtra)	540.00	0.6660	33.78	0.2250	0.1800	80.00	0.0000	0.1800	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.1800	
128	GMR WARORA ENERGY Ltd. (Formerly EMCO ENERGY Ltd.)	GMR WARORA ENERGY Ltd. (Maharashtra)	600.00	1.3046	33.59	0.4382	0.3686	84.11	0.0000	0.3417	0.0000	0.0000	0.0000	0.0000	0.0000	0.0269	0.0000	0.0000	0.3686	
129	RATIJA TPS	Spectrum Coal & Power Ltd. (Chhattisgarh)	50.00	0.0872	53.72	0.0468	0.0440	94.02	0.0048	0.0000	0.0000	0.0000	0.0000	0.0000	0.0393	0.0000	0.0000	0.0000	0.0440	
130	KAMALANGA TPP	GMR Kamalanga Energy Ltd. (Odisha)	1050.00	0.2020	26.24	0.0530	0.0260	49.06	0.0140	0.0000	0.0000	0.0000	0.0000	0.0000	0.0120	0.0000	0.0000	0.0000	0.0260	
131	HALDIA ENERGY LIMITED (W.B)	HALDIA ENERGY LIMITED (W.B.)	600.00	1.1200	30.13	0.3374	0.3374	100.00	0.0311	0.0320	0.0000	0.0000	0.0000	0.0000	0.1376	0.0000	0.0000	0.1367	0.3374	
132	DHARIWAL TPS	DHARIWAL INFRASTRUCTURE Ltd. (Maharashtra.) (No Generation)	600.00	0.0000	0.00	0.0000	0.0000	0.00	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
GRAND TOTAL			130428.80	251.6933	33.23	83.6379	46.8701	56.04	6.0245	19.6727	2.2849	0.4704	0.0165	3.5960	5.2529	5.1143	1.0083	3.4298	46.8701	



भारत का राजपत्र

The Gazette of India

असाधारण

EXTRAORDINARY

भाग II—खण्ड 3—उप-खण्ड (ii)

PART II—Section 3—Sub-section (ii)

प्राधिकार से प्रकाशित

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पर्यावरण, वन और जलवायु परिवर्तन मंत्रालय**अधिसूचना**

नई दिल्ली, 25 जनवरी, 2016

का.आ. 254(अ).—भारत सरकार, पर्यावरण, वन और जलवायु परिवर्तन मंत्रालय की अधिसूचना सं. का.आ. 763(अ), तारीख 14 सितंबर, 1999 (जिसे इसमें इसके पश्चात् उक्त अधिसूचना कहा गया है) में कतिपय संशोधनों का प्रारूप, जिन्हें केन्द्रीय सरकार पर्यावरण (संरक्षण) नियम, 1986 के नियम 5 के उप-नियम (3) के खंड (घ) के साथ पठित पर्यावरण (संरक्षण) अधिनियम, 1986 (1986 का 29) की धारा 3 की उप-धारा (1) और उप-धारा (2) के खंड (v) के अंतर्गत करने का प्रस्ताव करती है, भारत के राजपत्र, असाधारण, भाग II, खंड 3, उप-खंड (ii) में अधिसूचना सं. का.आ. 1396(अ), तारीख 25 मई, 2015 द्वारा प्रकाशित किया गया था, जिसके द्वारा ऐसे सभी व्यक्तियों से, जिनके उनसे प्रभावित होने की संभावना थी, उस तारीख से, जिसको उक्त प्रारूप संशोधनों को अंतर्विष्ट करने वाली राजपत्र की प्रतियां जनता को उपलब्ध करा दी जाती हैं, साठ दिनों के अवसान से पूर्व आक्षेप और सुझाव आमंत्रित किए गए थे;

और उक्त राजपत्र की प्रतियां 25 मई, 2015 को जनता को उपलब्ध करा दी गई थी;

और उक्त प्रारूप अधिसूचना के संबंध में, ऐसे सभी व्यक्तियों से, जिनके उनसे प्रभावित होने की संभावना थी, प्राप्त सभी आक्षेपों और सुझावों पर केन्द्रीय सरकार द्वारा सम्यक् रूप से विचार कर लिया गया है;

अतः, अब, केन्द्रीय सरकार पर्यावरण (संरक्षण) नियम, 1986 के नियम 5 के उप-नियम (3) के खंड (घ) के साथ पठित पर्यावरण (संरक्षण) अधिनियम, 1986 (1986 का 29) की धारा 3 की उप-धारा (1) और उप-धारा (2) के खंड (v) द्वारा प्रदत्त शक्तियों का प्रयोग करते हुए उक्त अधिसूचना में निम्नलिखित संशोधन करती है, अर्थात् :-

1. उक्त अधिसूचना के पैरा 1 में-

- (क) उप पैरा 1(क) में "सौ किलोमीटर" शब्दों के स्थान पर "तीन सौ किलोमीटर" शब्द रखें जाएंगे;
- (ख) उप पैरा 3 में "100 कि.मी." अंकों और शब्दों के स्थान पर "तीन सौ किलोमीटर" शब्द रखें जाएंगे;
- (ग) उप पैरा 5 में "सौ किलोमीटर" शब्दों के स्थान पर "तीन सौ किलोमीटर" शब्द रखें जाएंगे;
- (घ) उप पैरा 7 में "सौ किलोमीटर" शब्दों के स्थान पर "तीन सौ किलोमीटर" शब्द रखें जाएंगे;

2. उक्त अधिसूचना के पैरा 2 में:-

(क) उप पैरा (1) के पश्चात् निम्नलिखित परंतुक अंतःस्थापित किया जाएगा, अर्थात्:-

“परंतु यह और कि शुष्क ईएसपी फ्लाई ऐश के 20 प्रतिशत का निःशुल्क प्रदाय करने का निर्बंधन उन तापीय विद्युत संयंत्रों पर लागू नहीं होगा, जो विहित रीति में सौ प्रतिशत फ्लाई ऐश का उपयोग करने में समर्थ हैं।”

(ख) उप पैरा (7) के पश्चात् निम्नलिखित उप पैरा अंतःस्थापित किए जाएंगे, अर्थात् :-

- “(8) प्रत्येक कोयला या लिग्नाइट आधारित तापीय विद्युत संयंत्र (जिसके अंतर्गत कैपिटिव और/या सह उत्पादन केन्द्र भी हैं), अधिसूचना की तारीख से तीन मास के भीतर उनके पास उपलब्ध प्रत्येक किस्म की ऐश के स्टॉक के ब्यौरे अपनी वेबसाइट पर अपलोड करेगा और उसके पश्चात् मास में कम से कम एक बार स्टॉक की स्थिति को अद्यतन करेगा।
- (9) प्रत्येक कोयला या लिग्नाइट आधारित तापीय विद्युत संयंत्र समर्पित शुष्क ऐश साइलस प्रतिष्ठापित करेगा, जिनके पास पृथक् पहुंच मार्ग होंगे, जिससे कि फ्लाई ऐश के परिदान को सुगम बनाया जा सके।
- (10) कोयला या लिग्नाइट आधारित तापीय विद्युत संयंत्र से 100 किलोमीटर की परिधि के भीतर सड़क संनिर्माण परियोजनाओं या ऐश आधारित उत्पादों के संनिर्माण के लिए या कृषि संबंधित क्रियाकलापों में मृदा अनुकूलक के रूप में उपयोग के लिए ऐश के परिवहन की लागत ऐसे कोयला या लिग्नाइट आधारित तापीय विद्युत संयंत्र द्वारा वहन की जाएगी और 100 किलोमीटर की परिधि से परे और 300 किलोमीटर की परिधि के भीतर ऐसे परिवहन की लागत को उपयोक्ता और कोयला या लिग्नाइट आधारित तापीय विद्युत संयंत्र के बीच समान रूप से अंश भाजित की जाएगी।
- (11) कोयला या लिग्नाइट आधारित तापीय विद्युत संयंत्र अपने परिसरों के भीतर या अपने परिसरों के आस-पास ऐश आधारित उत्पाद संनिर्माण सुविधाओं का संवर्धन करेंगे, उन्हें अपनाएंगे और उनकी स्थापना करेंगे (वित्तीय और अन्य सहबद्ध अवसंरचना)।
- (12) नगरों के आस-पास बने कोयला या लिग्नाइट आधारित तापीय विद्युत संयंत्र ऐश आधारित उत्पाद विनिर्माण इकाइयों का संवर्धन करेंगे और उनकी स्थापना का समर्थन और उसमें सहायता करेंगे ताकि ईंटों और अन्य भवन संनिर्माण सामग्रियों की अपेक्षाओं की पूर्ति की जा सके और साथ ही परिवहन में कमी की जा सके।
- (13) यह सुनिश्चित करने के लिए कि किसी सड़क संनिर्माण का संविदाकार सड़क निर्माण में ऐश का उपयोग करता है, सड़क संनिर्माण के लिए संबद्ध प्राधिकारी संविदाकार को किए जाने वाले संदाय को तापीय विद्युत संयंत्र से ऐश के प्रदाय के प्रमाणीकरण के साथ जोड़ेगा।
- (14) कोयला या लिग्नाइट आधारित तापीय विद्युत संयंत्र, 300 किलोमीटर की परिधि के भीतर प्रधानमंत्री ग्रामीण सड़क योजना के अधीन सड़क संनिर्माण परियोजनाओं और भवनों, सड़कों, बांधों और तटबंधों के संनिर्माण को अंतर्वलित करने वाले सरकार के आस्ति सृजन कार्यक्रमों के स्थल तक ऐश के परिवहन की संपूर्ण लागत का वहन करेगा।”।

3. उक्त अधिसूचना के पैरा (2) के उप-पैरा (2क) को उप-पैरा (15) के रूप में पढ़ा जाए और उक्त उप-पैरा के अंत में निम्नलिखित उप-पैरा जोड़ा जाएगा, अर्थात् :-

“और तटीय जिलों में अवस्थित कोयला या लिग्नाइट आधारित तापीय विद्युत संयंत्र तटरेखा सुरक्षा उपायों का समर्थन करेंगे, उनके संनिर्माण में सहायता करेंगे या उसमें प्रत्यक्ष रूप से सम्मिलित होंगे।”

4. उक्त अधिसूचना के पैरा 3 में उप-पैरा (7) के पश्चात् निम्नलिखित अंतःस्थापित किया जाएगा, अर्थात् :-

- “(8) विभिन्न संनिर्माण परियोजनाओं का अनुमोदन करने वाले सभी राज्य प्राधिकारियों का यह उत्तरदायित्व होगा कि वे यह सुनिश्चित करें कि फ्लाई ऐश का उपयोग करने या फ्लाई ऐश आधारित उत्पादों के लिए तापीय विद्युत संयंत्रों और संनिर्माण अभिकरण या संविदाकारों के बीच परस्पर समझ ज्ञापन या कोई अन्य ठहराव किया जाता है।
- (9) राज्य प्राधिकारी, दस लाख या अधिक की जनसंख्या वाले नगरों की भवन निर्माण संबंधी उप विधियों का संशोधन करेंगे ताकि भार वहन करने वाली संरचनाओं हेतु तकनीकी अपेक्षाओं के अनुसार आवश्यक विनिर्देशों को ध्यान में रखते हुए ऐश आधारित ईंटों के आज्ञापक उपयोग को सुनिश्चित किया जा सके।

- (10) संबद्ध प्राधिकारी सभी सरकारी स्कीमों या कार्यक्रमों में, उदाहरणार्थ महात्मा गांधी राष्ट्रीय ग्रामीण रोजगार गारंटी अधिनियम, 2005 (मनरेगा), स्वच्छ भारत अभियान, शहरी और ग्रामीण आवासन स्कीम, जहां संनिर्मित क्षेत्र एक हजार वर्ग फुट से अधिक है और अवसंरचना संबंधी संनिर्माण में, जिसके अंतर्गत अभिहित औद्योगिक संपदाओं या पार्कों या विशेष आर्थिक जोनों में भवन निर्माण भी है, ऐश आधारित ईटों या उत्पादों के आज्ञापक उपयोग को सुनिश्चित करेंगे।
- (11) कृषि मंत्रालय कृषि क्रियाकलापों में ऐश के मृदा अनुकूलक के रूप में उपयोग का संवर्धन करने पर विचार कर सकेगा।”

5. सभी संबद्ध प्राधिकारियों द्वारा उपरोक्त उपबंधों का अनुपालन करने की समयावधि 31 दिसंबर, 2017 है। कोयला या लिग्नाइट आधारित तापीय विद्युत संयंत्र, उनके द्वारा उत्पादित फ्लाई ऐश के 100 प्रतिशत उपयोग के अतिरिक्त उपरोक्त उपबंधों का अनुपालन 31 दिसंबर, 2017 से पूर्व करेंगे।

[फा. सं. 9-8/2005-एचएसएमडी]

विश्वनाथ सिन्हा, संयुक्त सचिव

टिप्पण:- मूल अधिसूचना भारत के राजपत्र, असाधारण, भाग II, खंड 3, उप-खंड (ii) में अधिसूचना सं. का.आ. 763(अ), तारीख 14 सितंबर, 1999 द्वारा प्रकाशित की गई थी और इसमें पश्चातवर्ती संशोधन अधिसूचना सं. का.आ. 979(अ), तारीख 27 अगस्त, 2003 और का.आ. 2804(अ), तारीख 3 नवंबर, 2009 द्वारा किए गए थे।

MINISTRY OF ENVIRONMENT, FORESTS AND CLIMATE CHANGE

NOTIFICATION

New Delhi, the 25th January, 2016

S.O. 254(E).—Whereas a draft of certain amendments to the Government of India in the Ministry of Environment, Forests and Climate Change number S.O. 763(E), dated the 14th September, 1999 (hereinafter referred to as the said notification) which the Central Government proposes to make under sub-section (1) and clause (v) of sub-section (2) of section 3 of the Environment (Protection) Act, 1986 (29 of 1986) read with clause (d) of sub-rule (3) of rule 5 of the Environment (Protection) Rules, 1986, was published in the Gazette of India, Extraordinary, Part II, section 3, Sub-section (ii), vide S.O. 1396(E), dated the 25th May, 2015 inviting objections and suggestions from all persons likely to be affected thereby before the expiry of sixty days from the date on which copies of the Gazette containing the said draft amendments were made available to the public.

And, whereas copies of the said Gazette were made available to the public on 25th May, 2015;

And, whereas all the objections and suggestions received from all persons likely to be affected thereby in respect of the said draft notification have been duly considered by the Central Government;

Now, therefore, in exercise of the powers conferred by sub-section (1) and clause (v) of sub-section (2) of section 3 of the Environment (Protection) Act, 1986 (29 of 1986) read with clause (d) of sub-rule (3) of rule 5 of the Environment (Protection) Rules, 1986, the Central Government hereby makes the following amendments to the said notification, namely: —

1. In the said notification, in paragraph 1,-

- in sub-paragraph 1(A), for the words “hundred kilometers”, the words “three hundred kilometers” shall be substituted;
- in sub-paragraph (3), for the figures and letters “100 km”, the words “three hundred kilometers” shall be substituted;
- in sub-paragraph (5), for the words “hundred Kilometers”, the words “three hundred Kilometers” shall be substituted;
- in sub-paragraph (7), for the words “hundred Kilometers”, the words “three hundred Kilometers” shall be substituted.

2. In the said notification, in paragraph 2:-**(a) after sub-paragraph (1), the following proviso shall be inserted, namely:-**

“provided further that the restriction to provide 20 % of dry ESP fly ash free of cost shall not apply to those thermal power plants which are able to utilise 100 % fly ash in the prescribed manner.”

(b) after sub-paragraph (7), the following sub-paragraphs shall be inserted, namely:-

- “(8) Every coal or lignite based thermal power plants (including captive and or co-generating stations) shall, within three months from the date of notification, upload on their website the details of stock of each type of ash available with them and thereafter shall update the stock position at least once a Month.
- (9) Every coal or lignite based thermal power plants shall install dedicated dry ash silos having separate access roads so as to ease the delivery of fly ash.
- (10) The cost of transportation of ash for road construction projects or for manufacturing of ash based products or use as soil conditioner in agriculture activity within a radius of hundred kilometers from a coal or lignite based thermal power plant shall be borne by such coal or lignite based thermal power plant and the cost of transportation beyond the radius of hundred kilometers and up to three hundred kilometers shall be shared equally between the user and the coal or lignite based thermal power plant.
- (11) The coal or lignite based thermal power plants shall promote, adopt and set up (financial and other associated infrastructure) the ash based product manufacturing facilities within their premises or in the vicinity of their premises so as to reduce the transportation of ash.
- (12) The coal or lignite based thermal power plants in the vicinity of the cities shall promote, support and assist in setting up of ash based product manufacturing units so as to meet the requirements of bricks and other building construction materials and also to reduce the transportation.
- (13) To ensure that the contractor of road construction utilizes the ash in the road, the Authority concerned for road construction shall link the payment of contractor with the certification of ash supply from the thermal power plants.
- (14) The coal or lignite based thermal power plants shall within a radius of three hundred kilometers bear the entire cost of transportation of ash to the site of road construction projects under Pradhan Mantri Gramin Sadak Yojna and asset creation programmes of the Government involving construction of buildings, road, dams and embankments”.

3. In the said notification, in paragraph 2, sub-paragraph (2A) be read as sub-paragraph (15) and at the end of the said sub-paragraph, the following sub-paragraph shall be added, namely:-

“and the coal or lignite based thermal power plants located in coastal districts shall support, assist or directly engage into construction of shore line protection measures.”

4. In the said notification, in paragraph 3, after sub-paragraph (7), the following shall be inserted, namely:-

- “(8) It shall be the responsibility of all State Authorities approving various construction projects to ensure that Memorandum of Understanding or any other arrangement for using fly ash or fly ash based products is made between the thermal power plants and the construction agency or contractors.
- (9) The State Authorities shall amend Building Bye Laws of the cities having population One million or more so as to ensure the mandatory use of ash based bricks keeping in view the specifications necessary as per technical requirements for load bearing structures.
- (10) The concerned Authority shall ensure mandatory use of ash based bricks or products in all Government Scheme or programmes e.g. Mahatma Gandhi National Rural Employment Guarantee Act, 2005 (MNREGA), SWACHH BHARAT ABIYAN, Urban and Rural Housing Scheme, where built up area is more than 1000 square feet and in infrastructure construction including buildings in designated industrial Estates or Parks or Special Economic Zone.

(11) The Ministry of Agriculture may consider the promotion of ash utilisation in agriculture as soil conditioner.”

- 5. The time period to comply with the above provisions by all concerned authorities is 31st December, 2017. The coal or lignite based thermal power plants shall comply with the above provision in addition to 100 % utilization of fly ash generated by them before 31st December, 2017.**

[F. No. 9-8/2005-HSMD]

BISHWANATH SINHA, Jt. Secy.

Note:- The principal notification was published in the Gazette of India, Extraordinary, Part II, section 3, Sub-section (ii) *vide* notification S.O. 763(E), dated the 14th September, 1999 and was subsequently amended *vide* notification S.O. 979(E), dated the 27th August, 2003 and S.O. 2804(E), dated the 3rd November, 2009.