REPORT

ON

FLY ASH GENERATION

AT

COAL/LIGNITE BASED THERMAL POWER STATIONS

AND

ITS UTILIZATION IN THE COUNTRY

FOR

THE YEAR 2015-16

CENTRAL ELECTRICITY AUTHORITY

NEW DELHI

OCTOBER, 2016

Photo

FOREWORD

Electricity generation in the country is and would remain predominantly by coal based stations in the near future. The Indian coal is of low grade having high ash content of the order of 30 - 45% generating large quantity of fly ash at coal/lignite based thermal power stations in the country. The management of fly ash has thus been a matter of concern in view of requirement of large area of land for its disposal because of its potential of causing pollution of air and water.

To address the above concerns, Ministry of Environment & Forests and Climate Change (MoEF&CC) has issued various Notifications on fly ash utilization prescribing therein the targets for fly ash utilization for Coal/Lignite power based Thermal Power Stations with an aim to achieve 100% utilization in a phased manner. Central Electricity Authority has been monitoring since 1996 the status of fly ash generation and its utilization in the country.

A large number of technologies have been developed for gainful utilization and safe management of fly ash under the concerted efforts made by Fly Ash Mission/Fly Ash Unit under Ministry of Science & Technology, Government of India since 1994. As a result, Fly ash earlier considered to be "hazardous industrial waste" material, has now acquired the status of useful and saleable commodity. The utilization of fly ash has increased from 6.64 million ton in 1996-97 to a level of 107.77 million-ton in 2015-16. The percentage of fly ash utilization during 2015-16 is 60.97% which is behind the target set by MoEF vide its notification dated 03.11.2009. This is a matter of concern and I understand MoEF&CC and other concerned departments are addressing the bottlenecks/difficulties to achieve the target. Recently, MoEF&CC have issued an amendment dated 25th January, 2016 to existing notification for the purpose of increasing fly ash utilization and for revising, the target date of 100% ash utilization to 31st December,2017

This Report gives an overview of current status of fly ash generation and its utilization in the country for the year 2015-16. I am sure, that this publication will serve a useful purpose to guide all stake holders on the issues of fly ash utilization as per the notification of MoEF&CC, G.O.I.

I wish to express my sincere thanks to all the Power Utilities and Thermal Power stations in the country for providing data/information on fly ash generation and its utilization to CEA for bringing out this report.

New Delhi
October, 2016

(S.D.Dubey)
Chairperson, CEA

Photo

PREFACE

Management of Fly Ash at coal/lignite based Thermal Power Stations in the country is a challenging task in view of large quantity of ash being generated and targets of achieving 100% utilization of fly ash in time bound manner as prescribed in MoEF Notification of 14th September,1999 and its subsequent amendment. The land for creating ash dykes for ash disposal facilities at thermal power plants is becoming difficult to be acquired. Fly ash, if not managed well, may pose environmental challenges.

Fly Ash Mission, a Technology Project in Mission Mode of Government of India was commissioned during 1994 as a joint activity of Department of Science & Technology (DST), Ministry of Power (MOP) and Ministry of Environment & Forests (MoEF) with Department of Science & Technology as nodal agency. The Fly Ash Mission was set up to promote research in the area of fly ash utilization so that fly ash could be gainfully utilized instead of its disposal in ash ponds. Ministry of Environment & Forests, GOI also issued 1st Notification on Fly Ash Utilization in September, 1999, which was subsequently amended in 2003,2009 and 2016 stipulating targets for fly ash utilization for Thermal Power Stations and use of fly ash by construction agencies within prescribed radius of any thermal power station.

These initiatives and policy decisions by Government of India have led to increased utilization of fly ash in various construction activities like making of fly ash based building products, manufacturing of Portland pozzolana cement, construction of roads/highways/ flyovers, reclamation of low lying areas, back filling and stowing of mines, waste land development, construction of Roller Compacted concrete dams etc. Though, in 2015-16, the ash utilization level has reached to about 60.97% (107.77 MT) of total ash generated during the year as compared to less than 10% (6.64 MT) of the ash generated during the year 1996-97, a lot more needs to be done.

This report brings out present status of fly ash generation at 151 coal/lignite based thermal power stations and its utilization in the country. It also brings out the status of level of fly ash utilization achieved by various thermal power stations in the country vis-à-vis targets prescribed in MoEF's Notification of 14th September,1999 and its subsequent amendments in 2003,2009 & 2016. I am confident that the report will also be useful to all the stakeholders involved in fly ash management in the country for planning the utilization of fly ash and having necessary tie-up with the concerned thermal power station.

Data collection, its compilation, reconciliation & analysis is quite a vast task. Moreover, to provide a dependable/accurate data in desired formats is equally a major job. We acknowledge and express our gratitude to all Power Utilities and Thermal Power Station for furnishing data in a timely manner. I would also like to place on record my appreciation of the efforts made by the officers and staff of Thermal Civil Design Division. We solicit suggestion from all concerned for further improving the presentation made in the report. All suggestions/views as well as intimations for any unintended errors observed in this document may kindly be sent to Chief Engineer, TCD, CEA, Room No. 901(N), Sewa Bhawan, R.K. Puram, New Delhi (E-mail Address: tcdcea@nic.in)

New Delhi
October, 2016

(T.K.Barai)
Member (Thermal)

ACKNOWLEDGEMENT

I express my sincere thanks to all the power utilities and the Thermal Power Stations for furnishing the data and information for bringing out this report on Fly Ash Generation and its utilization in the country for the year 2015-16. Timely furnishing the required data and information by various Power Utilities and Thermal Power Stations to CEA is important for bringing out the report.

I am grateful to Chairperson as well as Member(Thermal), CEA for the valuable suggestions and guidance in preparation of this report.

I also express my thanks to the team comprising S/Shri Neeraj Kumar, Director, S. A. Khan, Deputy Director, B.P.Upadhyay, Assistant Director, Bhagaban Bhattacharya, Assistant Director and other officers of TCD Division, CEA for their assistance in preparation of this report.

New Delhi
October, 2016

(Lalit Kumar)
Chief Engineer (TCD)

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FLY ASH GENERATION AT COAL/LIGNITE BASED THERMAL POWER STATIONS AND ITS UTILIZATION IN THE COUNTRY (FOR THE YEAR 2015-16)

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 the fly ash generation and its utilization at coal/ lignite based thermal power stations in the country since 1996. Data on fly ash generation and utilization including modes of utilization is obtained from thermal power stations on half yearly as well as on 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 report is forwarded to Ministry of Power, Ministry of Science & Technology and Ministry of Environment, Forests and Climate Change. It 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, in order to facilitate and promote the utilization of fly ash.

In order 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 (MoEF&CC) has issued various Notifications on fly ash utilization. First Notification was issued on 14th September, 1999 which was subsequently amended in year 2003, 2009 and 2016 vide Notifications dated 27th August, 2003; 3rd November, 2009 and 25th January,2016 respectively. The amendment Notification of year 2009 prescribes the 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 in second year, 90% during third year and 100% during fourth year depending upon their date of commissioning. Ministry of Environment, Forest and Climate change has recently issued an amendment to the Notification on 25th January,2016 in order to widen the scope of fly ash utilization, besides engraining upon Power Utilities to bear the cost of the transportation. The target date for 100% fly ash utilization has also extended to 31st December,2017.

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 amendment notification of 3rd November, 2009 and 25th January,2016 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 YEAR 2015-16

2.1 A Brief Summary

Fly ash generation & utilization data for the Year 2015-16 (April, 2015 to March, 2016) has been received from **151** (One hundred fifty-one 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 YEAR 2015-16

Description		Year 2015-16
• Nos. of Thermal Power Stations from which data was received	:	151
• Installed capacity (MW)	:	145044.80
• Coal consumed (Million tons)	:	536.64
• Fly Ash Generation (Million tons)	:	176.74
• Fly Ash Utilization (Million tons)	:	107.77
• Percentage Utilization(%)	:	60.97
• Percentage Average Ash Content (%)	:	32.94

Power Station wise fly ash generation & its utilization status including modes of utilization for the 2015-16 for all the **151** thermal power stations is given in the statement at **Annex-I** and State wise fly ash generation & its utilization status is given in **Annex-II.**

2.2 Commissioned during the Year 2015-16:

During the Year 2015-16, five Thermal power plants with total installed capacity of 3650 MW as given in Table-II below have been commissioned:

TABLE-II

COMMISSIONED DURING THE YEAR 2015-16

Sl. No.	Name of Thermal Power Station	Name of Power Utility	Unit No.	Capacity (MW)	Date of Commission
(1)	(2)	(3)	(4)	(5)	(6)
2015-16					
1	GMR Chhattisgarh	GMR Chhattisgarh Energy Ltd.	2	1370	15.06.2015
2	UCHPINDA	PGCIL	2	720	26.11.2015
3	KAKATIA (Stage-II)	T.S.G.E.N.C.O.	1	600	24.03.2016
4	MCCPL BANDHAKHAR	Maruti Clean Coal and Power Ltd.	1	300	30.07.2015
5	PARAYAGRAJ TPS	P.P.G.C.L	1	660	29.02.2016
			Total for 2015-16	**3650**	

2.3 Retirement of Units during the Year 2015-16:

During the Year 2015-16, four units with installed capacity of 4x110 MW as given in Table-III below have been decommissioned:

TABLE-III

UNITS RETIRED DURING THE YEAR 2015-16

Sl. No.	Name of Thermal Power Station	Name of Power Utility	Unit No.	Capacity (MW)	Date of Retirement
(1)	(2)	(3)	(4)	(5)	(6)
2015-16					
1	Panipat	HPGCL	I to IV	110x4	09.12.2015
			Total for 2015-16	**440**	

2.4 Power Utility Wise Status of Fly Ash Generation & its Utilization during the Year 2015-16

The status of fly ash generation & utilization for 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-IV:

TABLE-IV

POWER UTILITY WISE FLY ASH GENERATION AND UTILIZATION FOR THE YEAR 2015-16

Sl. No.	Name of Power Utility	No. of TPS	Installed Capacity (MW)	Fly Ash Generation (Million-tonne)	Fly Ash Utilization (Million-tonne)	Percentage Utilization %
1	2	3	4	5	6	7
1	Andhra Pradesh Power Generation Corporation (A.P.GEN.CO)	5	3872.50	8.8004	4.8521	55.13
2	APPDCL(Andhra Pradesh)	1	1600.00	0.8457	0.2635	31.15
3	APL (Gujarat)	1	4620.00	1.1990	1.2500	104.25
4	APCPL (Haryana)	1	1500.00	1.2781	0.7691	60.17
5	ACB (INDIA) Ltd. (Chhattishgarh)	4	390.00	1.4409	1.4129	98.06
6	AMNEPL (Maharastra)	1	246.00	0.0000	0.0000	0.000
7	Adani Power Ltd. (Maharastra)	1	3300.00	3.7980	2.2959	60.45
8	Adani Power Ltd. (Rajasthan)	1	1320.00	0.5945	0.5062	85.15
9	BEPL (UP)	5	450.00	0.6301	0.6296	99.91
10	Bihar State Power Generation Co. Ltd.	1	220.00	0.0000	0.0000	0.0000
11	C.E.S.C. Ltd.	3	1125.00	1.5960	1.5960	100.00
12	C.G.P.L (Gujarat)	1	4000.00	0.7140	0.5150	72.13
13	Chattisgarh State Power Generation Company Ltd. (C.S.P.G.C.L.)	4	2280.00	4.6305	0.4984	10.76
14	COASTAL ENERGEN PVT. LTD (Tamil Nadu)	1	1200.00	0.0760	0.0797	104.94
15	Damoadar Valley Corporation (D.V.C.)	6	6210.00	8.5717	8.2541	96.30
16	Durgapur Projects Ltd. (D.P.L.)	1	660.00	0.6058	0.9846	162.54
17	D.P.S.C.Ltd. (W.B)	1	30.00	0.0000	0.0000	0.000
18	Dhariwal Infrastructure Ltd. (Maharashtra)	1	600.00	0.0830	0.0720	86.75
19	E.P.G.L (Gujarat)	1	1200.00	0.2040	0.2040	100.00
20	ESSAR POWER MP	1	1200.00	0.0000	0.0000	0.000

Sl. No.	Name of Power Utility	No. of TPS	Installed Capacity (MW)	Fly Ash Generation (Million-tonne)	Fly Ash Utilization (Million-tonne)	Percentage Utilization %
1	2	3	4	5	6	7
	LTD.(M.P)					
21	Gujarat Industries Power Corporation Ltd. (G.I.P.C.L.)	1	500.00	0.4764	0.4764	100.00
22	Gujarat Mineral Development Corporation Ltd. (G.M.D.C.L.)	1	250.00	0.1833	0.1908	104.09
23	G.S.E.C.L. (Gujarat)	5	4220.00	3.5650	3.4820	97.67
24	Gupta Energy Pvt. Ltd.(Maharastra)	1	120.00	0.0000	0.0000	0.000
25	GMR Kamalanga Energy Ltd (Odisha)	1	1050.00	1.3910	0.6435	46.26
26	G.M.R. Warora Energy Ltd. (Maharashtra)	1	600.00	0.7808	0.6816	87.30
27	GMR Chhattisgarh Energy Ltd. (Chhattisgarh)	1	1370.00	0.1730	0.1142	66.03
28	Haryana Power Generation Cor. Ltd. (H.P.G.C.L.)	3	3167.80	2.4470	4.0229	164.40
29	HALDIA ENERGY LIMITTED (W.B.)	1	600.00	0.7800	0.7840	100.51
30	Inderprastha Power Generation Company Ltd. (.I.P.G.C.L)	1	135.00	0.0138	0.0179	129.95
31	Ideal Energy Projects Ltd.(Maharastra)	1	270.00	0.0000	0.0000	0.000
32	INDIAN METALS & FERRO ALLOYS LTD. (Odisha)	1	258.00	0.4071	0.4070	99.99
33	I.P.C.L. (W.B.)	1	12.00	0.0270	0.0270	100.00
34	Indian Bulls Power Ltd. (Maharashtra)	1	1350.00	1.1340	0.5621	49.57
35	Jharkhand Urja Utpadan Nigam Limited (J.U.U.N.L.)	1	770.00	0.2053	0.0258	12.55
36	J.H.P.L (HR)	1	1320.00	1.3222	0.9551	72.23
37	J.P.L (Chhatisgarh)	2	2800.00	3.0500	0.9199	30.16
38	JSW Energy Ltd.	2	2060.00	0.6102	0.6113	100.18
39	Karnataka Power Corporation Ltd.(K.P.C.L.)	2	2720.00	4.3237	1.9315	44.67
40	Kanti Bijlee Utpadan Nigam Ltd.(K.B.U.N.L.)	1	220.00	0.2542	0.0133	5.25
41	KSK Mahanadi Power Company Limited (Chhattisgarh)	1	1200.00	1.5010	0.8753	58.32
42	Lanco Power Ltd.	1	600.00	0.6830	0.3462	50.69
43	Madhya Pradesh Power Generation Corporation Ltd. (M.P.P.G.C.L.)	4	4080.00	5.5912	2.6113	46.70
44	M.P.L (Jharkhand)	1	1050.00	1.6429	1.7401	105.92
45	Maharashta State Power Generation Corporation Ltd. (M.S.P.G.C.L)	8	8460.00	11.1472	7.5840	68.04
46	Meenakshi Energy Pvt. Ltd. (A.P)	1	300.00	0.0507	0.0144	28.36

Sl. No.	Name of Power Utility	No. of TPS	Installed Capacity (MW)	Fly Ash Generation (Million-tonne)	Fly Ash Utilization (Million-tonne)	Percentage Utilization %
1	2	3	4	5	6	7
47	Maruti Clean Coal and Power Limited (Chhattisgarh)	1	300.00	0.0878	0.0190	21.62
48	Neyvelli Lignite Corporation Ltd. (N.L.C.LTD)	5	2990.00	1.2760	1.1956	93.71
49	NSPCL (Chhatisgarh)	1	500.00	1.0270	0.9106	88.66
50	N.T.P.C.LTD.	17	33675.00	58.8260	24.1230	41.01
51	NTECL (Tamil Nadu)	1	1500.00	1.3750	0.2220	16.15
52	Orissa Power Generation Corporation Ltd. (O.P.G.C.L.)	1	420.00	1.1630	0.2389	20.54
53	Punjab State Power Corporation Ltd. (P.S.P.C.L).	3	2640.00	1.9053	2.0747	108.89
54	P.P.G.C.L (U.P.)	1	660.00	0.0177	0.0000	0.00
55	PGCIL (Chhattisgarh)	1	720.00	0.0133	0.0133	100.00
56	Rajasthan Rajya Vidyut Utpadan Nigam Ltd. (R.R.V.U.N.L.)	4	3990.00	4.0039	3.7952	94.79
57	Reliance Infrastructure Limited (R.I.L)	1	500.00	0.6070	0.7094	116.87
58	RPSCL (UP)	1	1200.00	1.5247	0.9126	59.85
59	R.W.P.L. (JSW)	1	1080.00	1.2730	1.2420	97.56
60	Spectrum Coal & Power Ltd.(Chhattisgarh)	1	50.00	0.1772	0.1718	96.96
61	Taqa Neyveli Power Company Pvt.Ltd.	1	250.00	0.0559	0.0537	96.16
62	Tata Power Company (T.P.CO.)	2	1297.50	1.1180	1.2691	113.52
63	Tenughat Vidyut Nigam Ltd.(T.V.N.L.)	1	420.00	0.7982	0.6048	75.77
64	T.N.G & D Corporation (Tamil Nadu)	6	4660.00	5.9037	5.3973	91.42
65	Torent Power Ltd.	1	422.00	0.2894	0.2943	101.69
66	TSGENCO (Telangana)	2	1100.00	0.5949	0.4426	74.40
67	T.S.P.G.C.L. (Telangana)	1	720.00	2.2771	0.2587	11.36
68	UPCL (Karnataka)	1	1200.00	0.1541	0.1215	78.84
69	Uttar Pradesh Rajya Vidyut Utpadan Nigam Ltd.(U.P.R.V.U.N.L.)	5	4844.00	8.7691	3.1310	35.71
70	West Bangal Power Development Corporation Limited (W.B.P.D.C.L)	5	3860.00	6.3452	6.9288	109.20
71	WPCL (KSKEV Ltd.) (Maharastra)	1	540.00	0.3340	0.4150	124.25
	GRAND TOTAL	**151**	**145044.80**	**176.7441**	**107.7658**	**60.97**

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

The data of fly ash generation and utilization for year 2015-16 was received from 71 Power Utilities out of which **20** Power Utilities have achieved fly ash utilization level of 100% or more and **17** 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 year 2015-16).

2.5 State wise Status of Fly Ash Generation & its Utilization during 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-V below:

TABLE-V

STATE WISE FLY ASH GENERATION AND ITS UTILIZATION DURING THE YEAR 2015-16

Sl. No.	Name of State	Nos. of TPS	Installed Capacity (MW)	Fly Ash Generation (Million-tonne)	Fly Ash Utilization (Million-tonne)	Percentage Utilization %
1	2	3	4	5	6	7
1	ANDHARAPRADESH	8	10310.00	17.5277	10.4779	59.78
2	BIHAR	4	4100.00	6.3442	2.1763	34.30
3	CHHATISGARH	19	15790.00	24.2256	7.9196	32.69
4	DELHI	2	840.00	0.5268	0.6879	130.59
5	GUJARAT	11	15212.00	6.6311	6.4125	96.70
6	HARYANA	5	5987.80	5.0474	5.7471	113.86
7	JHARKHAND	7	5307.50	7.0382	6.3759	90.59
8	KARNATAKA	4	4780.00	4.7803	2.3554	49.27
9	MADHYA PRADESH	6	9540.00	13.4212	3.9963	29.78
10	MAHARASHTRA	20	18936.00	18.6383	13.0005	69.75
11	ODISHA	5	5188.00	10.9490	5.3974	49.30
12	PUNJAB	3	2640.00	1.9053	2.0747	108.89
13	RAJASTHAN	7	6640.00	6.1136	5.7856	94.63
14	TAMILNADU	13	10350.00	8.4443	6.7062	79.42
15	TALANGANA	4	1882.50	2.9921	0.8703	29.09
16	UTTAR PRADESH	17	15464.00	24.6277	11.1182	45.15
17	WEST BENGAL	16	12077.00	17.5313	16.6641	95.05
	GRAND TOTAL	**151**	**145044.80**	**176.7441**	**107.7658**	**60.97**

It may be seen from Table-V above that:

(i) 7 states namely Andhra Pradesh, Chhatisgarh, Madhya Pradesh, Maharastra, Odisha, Uttar Pradesh and West Bengal have generated more than 10 million-ton of fly ash with U.P as the maximum of 24.6277 million ton during the Year 2015-16.

(ii) During the Year 2015-16, Union territory of Delhi and states of Haryana & Punjab has achieved fly ash utilization level of more than 100 %. Similarly, States of Gujarat, Jharkhand, Rajasthan, and West Bengal achieved the fly ash utilization level of more than 90 %.

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

The notification set the target for the thermal power station which was in operation before the date of notification i.e 3.11.2009 as well as the new thermal power station to be commissioned after the notification i.e 3.11.2009. The same have been brought out below.

3.1 Thermal Power Station in Operation as on 3rd November, 2009

All coal and, or lignite based thermal Power Stations and, or expansion units in operation before the date of MoEF's notification i.e. 03.11.2009 were to achieve the target of fly ash utilization as per the Table-VI given below:

TABLE-VI
TARGETS FOR FLY ASH UTILIZATION FOR THERMAL POWER STATIONS IN OPERATION BEFORE 3rd NOVEMBER, 2009

Sl. No.	Target of Fly Ash Utilization (In Percentage)	Target Date
(1)	(2)	(3)
1	At least 50% of Fly Ash generation	One year from the date of issue of notification
2	At least 60% of Fly Ash generation	Two years from the date of issue of notification
3	At least 75% of Fly Ash generation	Three years from the date of issue of notification
4	At least 90% of Fly Ash generation	Four years from the date of issue of notification
5	100% of Fly Ash generation	Five years from the date of issue of notification

The unutilized fly ash, if any, in relation to the target during a year would be required to be utilized within next two years in addition to the targets stipulated for those years and the balance unutilized fly ash accumulated during first five years (the difference between the generation and the utilization target) would be required to be utilized progressively over the next five years in addition to 100% utilization of current generation of fly ash.

3.2 Thermal Power Station Commissioned after 3rd November, 2009

New coal and, or lignite based thermal Power Stations and, or expansion units commissioned after issue of MoEF's notification of 3rd November, 2009 are to achieve the target of fly ash utilization as per Table-VII given below:

TABLE-VII
TARGETS FOR FLY ASH UTILIZATION FOR THERMAL POWER STATION COMMISSIONED AFTER 3rd NOVEMBER, 2009

Sl. No.	Fly Ash Utilization Level	Target Date
(1)	(2)	(3)
1	At least 50% of fly ash generation	One year from the date of Commissioning
2	At least 70% of fly ash generation	Two years from the date of Commissioning
3	90% of fly ash generation	Three years from the date of Commissioning
4	100% of fly ash generation	Four years from the date of commissioning

The unutilized fly ash, if any, in relation to the target during a year would be required to be utilized within next two years in addition to the targets stipulated for these years and the balance unutilized fly ash accumulated during first four years (the difference between the generation and utilization target) would be required to be utilized progressively over next five years in addition to 100% utilization of current generation of fly ash.

4.0 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 year 2015-16 has been broadly analyzed to ascertain the power stations which have achieved the targets of fly ash utilization as prescribed in MoEF's notification of 3rd November, 2009.

During the Year 2015-16, all those thermal power stations which were in operation on the date of issue of MoEF's notification (i.e. 3rd November, 2009) should have achieved the target of fly ash utilization of 100% within five years from the date of notification i.e. by 3rd November, 2014. All those thermal power stations which have come into operation after the date of issue of MoEF's notification (i.e. 3rd November, 2009) should have achieved the target of fly ash utilization as specified in Table-VII above depending upon their date of commissioning.

4.1 Status during the Year 2015-16

To have a broad assessment of the achievement of targets of fly ash utilization by those thermal power stations which were in operation as on 3rd November, 2009 (i.e. date of MoEF's Notification) for the year 2015-16, the fly ash utilization in terms of percentage as achieved by thermal power stations as on 31st March, 2016 has been compared with the targets of fly ash utilization required to be achieved by them as for the Year 2015-16 as per MoEF's Notification of 3rd November, 2009.

For thermal power stations which were commissioned after 3rd November, 2009 (i.e. date of MoEF's Notification), the fly ash utilization in terms of percentage as achieved by them as on 31st March, 2016 for the year 2015-16 has been compared with the targets of fly ash utilization required to be achieved by them as per MoEF's Notification of 3rd November, 2009

For thermal power stations which were in operation for less than one year as on 31st March, 2016 for the Year 2015-16, the target of fly ash utilization of 50% as applicable for the 1st year from the date of commissioning has been considered.

Based on above, the status of achievement of targets of fly ash utilization as prescribed in MoEF's notification of 3rd November, 2009 for the Year 2015-16 has been assessed and status of the same is given in Table-VIII below.

TABLE-VIII

STATUS OF UTILIZATION OF FLY ASH AS PER MOEF'S NOTIFICATION DATED 3rd NOVEMBER, 2009 FOR THE YEAR 2015-16

Sl. No.	Description	Nos. of TPS
(1)	(2)	(3)
1	Nos. of TPS which have achieved the target of fly ash utilization as per MoEF's Notification of 3rd November, 2009	**54**
2	Nos. of TPS which have not been able to achieve the target of fly ash utilization as per MoEF's Notification of 3rd November, 2009	**90**
3	Nos. of TPS which have not generated any significant fly ash or any fly ash	**7**
	Total	**151**

It may be seen from Table-VIII above that:

During the Year 2015-16, out of **151** (one hundred fifty-one) thermal power stations for which data was received, **54 (fifty-four)** power stations have achieved the targets of fly ash utilization as stipulated in MoEF's Notification of 3rd November, 2009.

To increase the fly ash utilization MoEF&CC have issued an amendment on 25th January, 2016. The amendment is enclosed at Annex-III. As per the amendment notification the target date for 100% ash utilization has been revised to 31st December,2017

To reduce the fly ash generation and transportation cost of coal MoEF&CC have issued a notification dated 2nd January, 2014. A copy of notification dated 2nd January, 2014 is enclosed at Annex-V.

4.2 Range of Fly Ash Utilization during 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 5 categories as noted below depending upon range of utilization of fly ash by the stations.

TABLE-IX

RANGE OF PERCENTAGE FLY ASH UTILIZATION DURING THE YEAR 2015-16

Sl. No.	Level of Fly Ash utilization	Nos. of Power Stations
(1)	(2)	(3)
1	100% and more than 100%	**48**
2	Less than 100% and up to 75%	**37**
3	Less than 75% and up to 60%	**14**
4	Less than 60%	**45**
5	Nos. of TPS which have not generated any significant fly ash or any fly ash	**7**
	Total	**151**

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

The following Thermal Power Stations achieved the fly ash utilization level of 100% or more during the year 2015-16. The fly ash utilization level achieved by each of these power stations is given in Table-X below:

TABLE–X

THERMAL POWER STATIONS WITH FLY ASH UTILIZATION LEVEL OF 100% OR MORE DURING THE YEAR 2015-16

Sl. No.	Name of TPS	Power Utility	Installed Capacity (MW)	Fly ash Generation (Mt)	Fly ash Utilization (Mt)	% age
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1	MUNDRA TPS	APL (Gujrat)	4620.00	1.1990	1.2500	104.25
2	CHAKABURA TPP (EXTN)	ACB (INDIA) Ltd. (Chhattishgarh)	30.00	0.1704	0.1704	100.00
3	KUNDARKI	BEPL (UP)	90.00	0.1376	0.1376	100.00
4	UTRAULA	BEPL (UP)	90.00	0.1391	0.1391	100.00
5	B.B.G.S.	C.E.S.C. (West Bengal)	750.00	1.3260	1.3260	100.00
6	S.G.S.	C.E.S.C. (West Bengal)	135.00	0.1410	0.1410	100.00
7	T.G.S.	C.E.S.C. (West Bengal)	240.00	0.1290	0.1290	100.00
8	MEJIA	D.V.C.(West Bengal)	2340.00	3.4399	3.7805	109.90
9	D.P.P.S.	D.P.L (West Bengal)	660.00	0.6058	0.9846	162.54
10	SALAYA	EPGL (Gujarat)	1200.00	0.2040	0.2040	100.00
11	SURAT LIGNITE	G.I.P.C.L. (Gujarat)	500.00	0.4764	0.4764	100.00

Sl. No.	Name of TPS	Power Utility	Installed Capacity (MW)	Fly ash Generation (Mt)	Fly ash Utilization (Mt)	% age
(1)	(2)	(3)	(4)	(5)	(6)	(7)
12	AKRIMOTA	G.M.D.C.L. (Gujarat)	250.00	0.1833	0.1908	104.09
13	GANDHINAGAR	G.S.E.C.L. (Gujarat)	870.00	0.5690	0.8720	153.25
14	KUTCH LIGNITE	G.S.E.C.L. (Gujarat)	290.00	0.2750	0.2750	100.00
15	SIKKA	G.S.E.C.L. (Gujarat)	240.00	0.1040	0.2490	239.42
16	HISAR	H.P.G.C.L.(Haryana)	1200.00	1.2243	1.5365	125.50
17	YAMUNANAGAR	H.P.G.C.L.(Haryana)	600.00	0.7687	1.1190	145.57
18	PANIPAT	H.P.G.C.L.(Haryana)	1367.80	0.4540	1.3674	301.19
19	RAJGHAT	IPGCL (Delhi)	135.00	0.0138	0.0179	129.95
20	RATNAGIRI	JSW Energy Ltd (Maharashtra)	1200.00	0.3077	0.3089	100.39
21	MAITHON RBTPP	MPL (Jharkhand)	1050.00	1.6429	1.7401	105.92
22	AMARKANTAK	M.P.P.G.C.L. (M.P.)	210.00	0.3799	0.3840	101.08
23	PARLI	M.S.P.G.C.L.(Maharastra)	1130.00	0.4811	1.0906	226.69
24	BARSINGSAR LIGNITE	NLC (Rajasthan)	250.00	0.2422	0.2422	100.00
25	BADARPUR	N.T.P.C.LTD (Delhi)	705.00	0.5130	0.6700	130.60
26	DADRI	N.T.P.C.LTD. (U.P.)	1820.00	2.0760	2.8290	136.27
27	FEROZE GANDHI UNACHAR	NTPC Ltd.(U.P.)	1050.00	1.7870	1.8180	101.73
28	TALCHAR(TPS)	N.T.P.C.LTD(Odisha).	460.00	1.2080	1.2150	100.58
29	ROPAR	P.S.P.C.L. (Punjab)	1260.00	0.9096	1.3218	145.32
30	KOTA	RRVUNL (Rajasthan)	1240.00	1.6422	1.7854	108.72
31	GIRAL	RRVUNL (Rajasthan)	250.00	0.0752	0.0757	100.71
32	DAHANU	RELIANCE INFRASTRUCTURE Ltd.(Maharastra)	500.00	0.6070	0.7094	116.87
33	JOJOBERA	T.P.CO. (Jharkhnad)	547.50	1.0623	1.2135	114.24
34	SABARMATI	TORENT POWER Ltd.(Gujarat)	422.00	0.2894	0.2943	101.69
35	METTUR-I	T.N.G & D Corporation (Tamil Nadu)	840.00	1.3882	1.8374	132.36
36	NORTH CHENNAI-I	T.N.G & D Corporation (Tamil Nadu)	630.00	0.9705	1.3485	138.95
37	PANKI	U.P.R.V.U.N.L. (U.P.)	210.00	0.1729	0.6945	401.69
38	KOLAGHAT	W.B.P.D.C.L(W.B.)	1260.00	2.2154	2.6112	117.87
39	BANDEL	W.B.P.D.C.L (W.B.)	450.00	0.4016	0.6630	165.11
40	SANTALDIH	W.B.P.D.C.L (W.B.)	500.00	1.0202	1.1723	114.91
41	BAKRESWAR	W.B.P.D.C.L(W.B.)	1050.00	1.9250	1.9290	100.21
42	SAI WARDHA POWER Ltd. ,WARORA	WPCL (Maharastra)	540.00	0.3340	0.4150	124.25
43	HALDIA ENERGY LIMITED (W.B)	HALDIA ENERGY LIMITED (W.B)	600.00	0.7800	0.7840	100.51
44	DISHERGARH POWER STATION	IPCL (W.B)	12.00	0.0270	0.0270	100.00

Sl. No.	Name of TPS	Power Utility	Installed Capacity (MW)	Fly ash Generation (Mt)	Fly ash Utilization (Mt)	% age
(1)	(2)	(3)	(4)	(5)	(6)	(7)
45	RAMAGUNDAM' B'	A.P.GENCO (Andhrapradesh)/ Telangana	62.50	0.1201	0.1690	140.67
46	CHAKABURA TPP	ACB (INDIA) Ltd. (Chhattisgarh)	30.00	0.1832	0.1832	100.00
47	UCHPINDA	PGCIL (Chhattisgarh)	720.00	0.0133	0.0133	100.00
48	MUTIARA	COASTAL ENERGEN PVT. LTD (Tamil Nadu)	1200.00	0.0760	0.0797	104.94

It may be seen from Table-X above that:

During the Year 2015-16, **48** thermal power stations have achieved the fly ash utilization level of 100% or more including **35** 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 year 2015-16 have utilized the fly ash stored in ash ponds during earlier years.

4.4 Power Stations in Fly Ash Utilization Range of less than 100% and up to 75% during the Year 2015-16

The Thermal Power Stations which have achieved the fly ash utilization level of less than 100% and up to 75% during the year 2015-16 along with fly ash utilization level achieved by each of these power stations are given in Table-XI below:

TABLE-XI

THERMAL POWER STATIONS WITH FLY ASH UTILIZATION LEVEL OF LESS THAN 100% AND UP TO 75% DURING THE YEAR 2015-16

Sl. No.	Name of TPS	Power Utility	Installed Capacity (MW)	Fly ash Generation (Mt)	Fly ash Utilization (Mt)	% age
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1	KASAI PALI	ACB(INDIA)L (Chhattishgarh)	270.00	1.0809	1.0534	97.4520
2	KAWAI	ADANI POWER RAJASTHAN Ltd. (Rajasthan)	1320.00	0.5945	0.5062	85.1491
3	BARKHERA	BEPL (UP)	90.00	0.1226	0.1223	99.7136
4	KHAMBER KHERA	BEPL (UP)	90.00	0.1197	0.1195	99.8286
5	MAQSOODAPUR	BEPL (UP)	90.00	0.1112	0.1112	99.9986
6	CHANDRAPURA	D.V.C.(Jharkhand)	890.00	1.6557	1.4963	90.3733
7	DURGAPUR STEEL	D.V.C. (West Bengal)	1000.00	1.4255	1.4088	98.8253
8	KODERMA	D.V.C. (Jharkhand)	1000.00	0.9790	0.9343	95.4313
9	UKAI	G.S.E.C.L. (Gujarat)	1350.00	1.2570	0.9990	79.4749
10	WANAKBORI	G.S.E.C.L. (Gujarat)	1470.00	1.3600	1.0870	79.9265
11	INDIAN METALS & FERRO ALLOYS LTD.	INDIAN METALS & FERRO ALLOYS Ltd.(Odisha)	258.00	0.4071	0.4070	99.9867

Sl. No.	Name of TPS	Power Utility	Installed Capacity (MW)	Fly ash Generation (Mt)	Fly ash Utilization (Mt)	% age
(1)	(2)	(3)	(4)	(5)	(6)	(7)
12	VIJAYANAGAR	JSW Energy Limited (Karnataka)	860.00	0.3025	0.3024	99.9696
13	SANJAY GANDHI	M.P.P.G.C.L. (M.P.)	1340.00	1.8886	1.4818	78.4576
14	KHAPARKHEDA	M.S.P.G.C.L.(Maharastra)	840.00	1.3580	1.1736	86.4149
15	NASIK	M.S.P.G.C.L.(Maharastra)	630.00	1.2394	1.2149	98.0296
16	PARAS	M.S.P.G.C.L.(Maharastra)	500.00	0.6633	0.6370	96.0274
17	NEYVELI -I EXPN	N.L.C.LTD(Tamilnadu)	420.00	0.2401	0.2401	99.9875
18	NEYVELI - II	N.L.C.LTD(Tamilnadu)	1470.00	0.5676	0.5659	99.7047
19	CUDDALORE	TAQA Neyvelly Power Co.Pvt. Ltd. (Tamil Nadu)	250.00	0.0559	0.0537	96.1585
20	BHILAI	NSPCL (Chhattisgarh)	500.00	1.0270	0.9106	88.6649
21	TANDA	N.T.P.C.LTD. (U.P.)	440.00	0.9010	0.7410	82.2420
22	RAMAGUNDAM	N.T.P.C. (Andhra Pradesh).	2600.00	5.0260	4.4830	89.1962
23	MOUDA TPS	N.T.P.C.LTD (Maharastra)	1000.00	0.3910	0.3160	80.8184
24	BATHINDA	P.S.P.C.L. (Punjab)	460.00	0.2652	0.2248	84.7543
25	CHHABRA	RRVUNL (Rajasthan)	1000.00	0.9229	0.8539	92.5248
26	JALIPA KAPURDI	RWPL (Rajasthan)	1080.00	1.2730	1.2420	97.5640
27	SURATGARH	RRVUNL (Rajasthan)	1500.00	1.3636	1.0802	79.2138
28	TROMBAY	T.P.CO.(Maharashtra)	750.00	0.0557	0.0556	99.8205
29	TENUGHAT	T.V.N.L.(Jharkhnad)	420.00	0.7982	0.6048	75.7749
30	TUTICORIN	T.N.G & D Corporation (Tamil Nadu)	1050.00	1.3453	1.0228	76.0277
31	KAKATIA (Stage-I)	T.S.G.E.N.C.O.(Telangana)	500.00	0.5789	0.4398	75.9723
32	HARDUAGANJ	U.P.R.V.U.N.L. (U.P.)	670.00	0.9495	0.8233	86.7125
33	UDUPI	UPCL (Karnatak)	1200.00	0.1541	0.1215	78.8449
34	GMR WAROARA ENERGY Ltd.	GMR WAROARA ENERGY Ltd. (Maharastra)	600.00	0.7808	0.6816	87.3004
35	RATIZA TPS	Spectrum Coal & Power Limited(Chhattisgarh)	50.00	0.1772	0.1718	96.9610
36	DHARIWAL INFRASTRUCTURE Ltd.	Dhariwal Infrastructure Ltd.(Maharashtra)	600.00	0.0830	0.0720	86.7470
37	SVPPL Renki	ACB India Limited (Chhattisgarh)	60.00	0.0064	0.0060	93.0635

It may be seen from Table-XI above that **37** thermal power stations during the year 2015-16 have achieved fly ash utilization level in the range of less than 100% to 75%.

4.5 Power Stations in Fly Ash Utilization Range of less than 75% and up to 60% during the Year 2015-16

The Thermal Power Stations which have achieved the fly ash utilization level of less than 75% and up to 60% during the year 2015-16 along with fly ash utilization level achieved by each of these power stations are given in Table-XII below:

TABLE-XII

THERMAL POWER STATIONS WITH FLY ASH UTILIZATION LEVEL OF LESS THAN 75% AND UP TO 60% DURING THE YEAR 2015-16.

Sl. No.	Name of TPS	Power Utility	Installed Capacity (MW)	Fly ash Generation (Mt)	Fly ash Utilization (Mt)	% age
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1	Dr. N.T.R (Vijawada)	A.P.GENCO (Andhrapradesh)	1760.00	4.1528	2.9391	70.7748
2	RAYALSEEMA	A.P.GENCO (Andhrapradesh)	1050.00	2.3380	1.3985	62.6152
3	INDIRA GANDHI	APCPL (Haryana)	1500.00	1.2781	0.7691	60.1745
4	TIRORA	ADANI POWER Ltd. (Maharastra)	3300.00	3.7980	2.2959	60.4502
5	MUNDRA UMPP	CGPL (Gujrat)	4000.00	0.7140	0.5150	72.1289
6	DURGAPUR	D.V.C.(West Bengal)	350.00	0.3768	0.2733	72.5200
7	MAHATMA GANDHI	JHPL (Haryana)	1320.00	1.3222	0.9551	72.2344
8	BHUSAWAL	M.S.P.G.C.L.(Maharastra)	1420.00	1.7120	1.1811	68.9906
9	NEYVELI - I	N.L.C.LTD(Tamilnadu)	600.00	0.2260	0.1474	65.2168
10	LEHRA MOHABAT	P.S.P.C.L. (Punjab)	920.00	0.7305	0.5281	72.2949
11	ENNORE	T.N.G & D Corporation (Tamil Nadu)	340.00	0.2397	0.1767	73.7171
12	METTUR-II	T.N.G & D Corporation (Tamil Nadu)	600.00	0.6798	0.4982	73.2863
13	SAGARDIGHI	W.B.P.D.C.L(W.B.)	600.00	0.7830	0.5533	70.6600
14	GMR Chhattisgarh	GMR Chhattisgarh Energy Ltd. (Chhattisgarh)	1370.00	0.1730	0.1142	66.0300

It may be seen from Table-XII above that **14** thermal power stations during the year 2015-16 have achieved fly ash utilization level of less than 75% and up to 60%.

4.6 Power Stations with Fly Ash Utilization Level of less than 60% during the Year 2015-16

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

TABLE-XIII

THERMAL POWER STATIONS WITH FLY ASH UTILIZATION LEVEL OF BELOW 60% DURING THE YEAR 2015-16

Sl. No.	Name of TPS	Power Utility	Installed Capacity (MW)	Fly ash Generation (Mt)	Fly ash Utilization (Mt)	% age
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1	SRI DAMODARAM SANJEEVAIAH	APPDCL(Andhra Pradesh)	1600.00	0.8457	0.2635	31.1531
2	DSPM	C.S.P.G.C.L.Chhattisgarh	500.00	1.1900	0.1131	9.5042
3	KORBA (EAST)	C.S.P.G.C.L (Chhattisgarh)	440.00	1.1059	0.2628	23.7624
4	BOKARO 'B'	D.V.C.(Jharkhand)	630.00	0.6947	0.3610	51.9599
5	KORBA (WEST)	C.S.P.G.C.L Chhattisgarh	840.00	1.5385	0.1225	7.9590
6	KORBA (WEST) Ext.Stage-III	C.S.P.G.C.L Chhattisgarh	500.00	0.7960	0.0000	0.0000
7	AMARAVATI TPS	INDIABULLS POWER Ltd. (Maharastra)	1350.00	1.1340	0.5621	49.5679
8	O.P.Jindal Super TPP (Stage-I)	JPL (Chhattisgarh.)	1000.00	1.6510	0.4950	29.9818
9	O.P.Jindal Super TPP(Stage-II)	JPL (Chhattisgarh.)	1800.00	1.3990	0.4249	30.3717
10	PATRATU	J.U.U.N.L (Jharkhand)	770.00	0.2053	0.0258	12.5523
11	BELLARY	K.P.C.L (Karnataka)	1000.00	1.3048	0.5562	42.6240
12	RAICHUR	K.P.C.L.(Karnataka)	1720.00	3.0189	1.3753	45.5563
13	MUZAFFARPUR TPS	K.B.U.N.L (Bihar)	220.00	0.2542	0.0133	5.2502
14	AMARKANTAK TPS	LANCO POWER Ltd.(Chhattisgarh)	600.00	0.6830	0.3462	50.6893
15	SATPURA	M.P.P.G.C.L. (M.P.)	1330.00	2.0248	0.7048	34.8085
16	SHREE SINGAJI TPS	M.P.P.G.C.L. (M.P.)	1200.00	1.2979	0.0407	3.1348
17	CHANDRAPUR	M.S.P.G.C.L.(Maharastra)	2340.00	39.7742	1.8944	46.3747
18	KHAPARKHEDA (EXT)	M.S.P.G.C.L.(Maharastra)	500.00	0.9813	0.0242	2.4649
19	KORADI	M.S.P.G.C.L.(Maharastra)	1100.00	0.6270	0.3682	58.7241
20	SINGRAULI	N.T.P.C.LTD. (U.P.)	2000.00	4.5480	0.3970	8.7291
21	RIHAND	N.T.P.C.LTD. (U.P.)	3000.00	4.3740	0.6600	15.0892
22	KORBA	N.T.P.C. (Chhattisgarh).	2600.00	5.9310	1.8050	30.4333
23	VINDHYACHAL	N.T.P.C.LTD.(M.P.)	4260.00	7.8300	1.3850	17.6884
24	SIPAT	N.T.P.C. (Chhattisgarh).	2980.00	5.5110	0.8330	15.1152
25	SIMHADRI	N.T.P.C. (Andhra Pradesh).	2000.00	2.9250	1.0340	35.3504
26	FARAKKA	N.T.P.C.LTD. (W.B.)	2100.00	2.9350	0.8810	30.0170
27	KAHALGAON	N.T.P.C.LTD.(Bihar)	2340.00	5.1180	2.1010	41.0512
28	BARH SUPER TPS	N.T.P.C.LTD (Bihar)	1320.00	0.9720	0.0620	6.3786
29	TALCHAR(KAN)	N.T.P.C.LTD(Odisha).	3000.00	6.7800	2.8930	42.6696

Sl. No.	Name of TPS	Power Utility	Installed Capacity (MW)	Fly ash Generation (Mt)	Fly ash Utilization (Mt)	% age
(1)	(2)	(3)	(4)	(5)	(6)	(7)
30	IB VALLEY	O.P.G.C.L.(Odisha)	420.00	1.1630	0.2389	20.5406
31	ROSA PHASE-I	RPSCL(U.P)	1200.00	1.5247	0.9126	59.8527
32	NORTH CHENNAI-II	T.N.G & D Corporation (Tamil Nadu)	1200.00	1.2802	0.5137	40.1265
33	KOTHAGUDEM (Stage I to IV)	T.S.P.G.C.L (Telengana)	720.00	2.2771	0.2587	11.3608
34	KOTHAGUDEM-V	A.P.GENCO (Andhrapradesh)	500.00	1.4057	0.0086	0.6098
35	KOTHAGUDEM-VI	A.P.GENCO (Andhrapradesh)	500.00	0.7838	0.3369	42.9823
36	KAKATIA (Stage-II)	T.S.G.E.N.C.O.(Telangana)	600.00	0.0160	0.0028	17.7222
37	ANPARA 'A' & 'B'	U.P.R.V.U.N.L. (U.P.)	1630.00	3.8671	0.0123	0.3168
38	OBRA	U.P.R.V.U.N.L. (U.P.)	1194.00	1.4769	0.2921	19.7779
39	PARICHHA	U.P.R.V.U.N.L. (U.P.)	1140.00	2.3027	1.3089	56.8418
40	GMR KAMALANGA TPP	GMR KAMALANGA ENERGY Ltd. (Odisha)	1050.00	1.3910	0.6435	46.2618
41	KMPCL (AKALTARA)	KSK Mahanadi Power Company Limited (Chhattisgarh)	1200.00	1.5010	0.8753	58.3173
42	MCCPL BANDHAKHAR	Maruti Clean Coal and Power Limited (Chhattisgarh)	300.00	0.0878	0.0190	21.6152
43	THAMMINAPATNAM TPS	MEENAKSHI ENERGY Pvt. Ltd.(Andhra Pradesh)	300.00	0.0507	0.0144	28.3563
44	PARAYAGRAJ TPS	P.P.G.C.L (U.P.)	660.00	0.0177	0.0000	0.0000
45	VALLUR	NTECL (Tamil Nadu)	1500.00	1.3750	0.2220	16.1455

It may be seen from Table-XIII above that:

During the year 2015-16, out of **151** (one hundred fifty-one) thermal power stations, **45** stations could not reach the level of fly ash utilization to 60%.

Following 7 Nos. Thermal Power Stations did not generate any fly ash during 2015-16:

1. **Mihan**-TPS is under shut down condition since 5th November, 2013.
2. **Chinakuri**- Plant under shutdown from 21st November 2011.
3. **Mahan-** COD declared on 29.04. 2013.No Fly Ash Generation during April,2015 to March,2016
4. **Bela** - COD declared on 18.07.2013. However, plant has not run significantly from COD.
5. **Neyveli – II- Expansion-** There is no significant fly ash generation during April, 2015 to March, 2016.
6. **Baraun**i-Both Unit No. 6&7 are under ongoing R&M works since long.
7. **GEPL TPP** – Both Unit-1 & 2 are under shutdown due to non-availability of coal source/coal blocks/coal linkage.

5.0 UTILIZTION STATUS AS PER NOTIFICATION OF 3RD NOVEMBER, 2009 DURING THE YEAR 2015-16 (TARGET ACHIEVED/NOT ACHIEVED)

As per the targets mandated by the MoEF notification of dated 3rd November, 2009 for fly ash utilization by the power stations, a total of **54** stations achieved their target and as many as **90** Nos. could not reach the targets, while there were **7** stations where no fly ash was generated. The details are given at Table- XIV & XV respectively. However, the date of achieving the 100% ash utilization target is now extended to 31st December,2017 as per new amendment notification dated 25th January,2016.

TABLE-XIV

UTILIZATION STATUS AS PER NOTIFICATION OF 3RD NOVEMBER, 2009 DURING THE YEAR 2015-16 (TARGET ACHIEVED)

Sl. No	Name of TPS	Power Utility	Date of Commissioning	Installed Capacity (MW)	Fly ash Generation	Fly ash Utilization	% age	Target in %age	Status Achieved
1	2	3	4	5	6	7	8	9	
1	MUNDRA TPS	APL (Gujrat)	04.08.2009	4620.00	1.1990	1.2500	104.2535	100	Achieved
2	KUNDARKI	BEPL (U.P.)	03.01.2012	90.00	0.1376	0.1376	100.0000	100	Achieved
3	UTRAULA	BEPL (U.P.)	30.01.2012	90.00	0.1391	0.1391	100.0000	100	Achieved
4	B.B.G.S.	C.E.S.C. (West Bengal)	16.09.1997	750.00	1.3260	1.3260	100.0000	100	Achieved
5	S.G.S.	C.E.S.C. (West Bengal)	12.08.1990	135.00	0.1410	0.1410	100.0000	100	Achieved
6	T.G.S.	C.E.S.C. (West Bengal)	05.03.1983	240.00	0.1290	0.1290	100.0000	100	Achieved
7	MEJIA	D.V.C. (West Bengal)	01.12.1997	2340.00	3.4399	3.7805	109.9016	100	Achieved
8	KODERMA	D.V.C. (Jharkhand)	18.07.2013	1000.00	0.9790	0.9343	95.4313	70	Achieved
9	D.P.P.S.	D.P.L. (West Bengal).	03.07.1985	660.00	0.6058	0.9846	162.5428	100	Achieved
10	SALAYA	EPGL (Gujarat)	01.04.2012	1200.00	0.2040	0.2040	100.0000	100	Achieved
11	SURAT LIGNITE	G.I.P.C.L. (Gujarat)	06.11.1999	500.00	0.4764	0.4764	100.0000	100	Achieved
12	AKRIMOTA	G.M.D.C.L. (Gujarat)	31.03.2005	250.00	0.1833	0.1908	104.0921	100	Achieved
13	GANDHINAGAR	G.S.E.C.L. (Gujarat)	13.03.1977	870.00	0.5690	0.8720	153.2513	100	Achieved
14	KUTCH LIGNITE	G.S.E.C.L. (Gujarat)	09.01.1990	290.00	0.2750	0.2750	100.0000	100	Achieved
15	SIKKA	G.S.E.C.L. (Gujarat)	26.03.1988	240.00	0.1040	0.2490	239.4231	100	Achieved
16	HISAR	H.P.G.C.L. (Haryana)	24.08.2010	1200.00	1.2243	1.5365	125.4968	100	Achieved
17	YAMUNANAGAR	H.P.G.C.L. (Haryana)	14.04.2008	600.00	0.7687	1.1190	145.5701	100	Achieved
18	PANIPAT	H.P.G.C.L. (Haryana)	01.11.1979	1367.80	0.4540	1.3674	301.1894	100	Achieved
19	RATNAGIRI	JSW Energy Ltd (Maharashtra)	01.09.2010	1200.00	0.3077	0.3089	100.3900	100	Achieved
20	MAITHON RBTPP	MPL (Jharkhand)	01.09.2011	1050.00	1.6429	1.7401	105.9163	100	Achieved
21	AMARKANTAK	M.P.P.G.C.L.(MP)	10.09.2009	210.00	0.3799	0.3840	101.0792	100	Achieved
22	PARLI	M.S.P.G.C.L. (Maharashtra)	10.10.1980	1130.00	0.4811	1.0906	226.6868	100	Achieved
23	BARSINGSAR LIGNITE	NLC (Rajasthan)	27.10.2009	250.00	0.2422	0.2422	100.0012	100	Achieved
24	BADARPUR	N.T.P.C.LTD (Delhi).	July-73	705.00	0.5130	0.6700	130.6043	100	Achieved
25	DADRI	N.T.P.C.LTD. (U.P.)	Oct,1991	1820.00	2.0760	2.8290	136.2717	100	Achieved
26	FEROZE GANDHI UNACHAR	N.T.P.C. LTD. (U.P.)	01-11-88	1050.00	1.7870	1.8180	101.7348	100	Achieved
27	TALCHAR(TPS)	N.T.P.C.LTD (Odisha).	03.06.1995	460.00	1.2080	1.2150	100.5795	100	Achieved
28	KOTA	RRVUNL (Rajasthan)	17.01.1983	1240.00	1.6422	1.7854	108.7181	100	Achieved

Sl. No	Name of TPS	Power Utility	Date of Commissioning	Installed Capacity (MW)	Fly ash Generation	Fly ash Utilization	% age	Target in %age	Status Achieved
1	2	3	4	5	6	7	8	9	
29	GIRAL	RRVUNL (Rajasthan)	28.02.2007	250.00	0.0752	0.0757	100.7092	100	Achieved
30	DAHANU	RELIANCE INFRASTRUCTURE Ltd. (Maharashtra)	01.07.1995	500.00	0.6070	0.7094	116.8746	100	Achieved
31	JOJOBERA	T.P.CO. (Jharkhand)	01-04-96	547.50	1.0623	1.2135	114.2392	100	Achieved
32	TROMBAY	T.P.CO. (Maharashtra)	06.06.2005	750.00	0.0557	0.0556	99.8205	100	Achieved
33	SABARMATI	TORENT POWER Ltd.(Gujarat)	13.04.1997	422.00	0.2894	0.2943	101.6932	100	Achieved
34	PANKI	U.P.R.V.U.N.L. (U.P.)	10-11-76	210.00	0.1729	0.6945	401.6890	100	Achieved
35	BANDEL	W.B.P.D.C.L (W.B.)	04.09.1965	450.00	0.4016	0.6630	165.1065	100	Achieved
36	SANTALDIH	W.B.P.D.C.L (W.B.)	01.04.2009	500.00	1.0202	1.1723	114.9074	100	Achieved
37	BAKRESWAR	W.B.P.D.C.L (W.B.)	18.07.1999	1050.00	1.9250	1.9290	100.2078	100	Achieved
38	SAI WARDHA POWER Ltd. ,WARORA	WPCL (Maharashtra)	15.04.2010	540.00	0.3340	0.4150	124.2515	100	Achieved
39	HALDIA ENERGY LIMITED (W.B)	HALDIA ENERGY LIMITED (W.B)	28-01-15	600.00	0.7800	0.7840	100.5128	50	Achieved
40	CHAKABURA TPP (EXTN)	ACB (INDIA) Ltd. (Chhattishgarh)	28.03.2014	30.00	0.1704	0.1704	100.0000	70	Achieved
41	RAJGHAT	IPGCL (Delhi)	20.02.1990	135.00	0.0138	0.0179	129.9501	100	Achieved
42	METTUR-I	T.N.G & D Corporation (Tamil Nadu)	07.03.1990	840.00	1.3882	1.8374	132.3584	100	Achieved
43	NORTH CHENNAI-I	T.N.G & D Corporation (Tamil Nadu)	24.02.1996	630.00	0.9705	1.3485	138.9490	100	Achieved
44	RATIZA TPS	Spectrum Coal & Power Limited(Chhattisgarh)	27.02.2013	50.00	0.1772	0.1718	96.9610	90	Achieved
45	DISHERGARH POWER STATION	IPCL (W.B)	25.09.2012	12.00	0.0270	0.0270	100.0000	90	Achieved
46	RAMAGUNDAM' B'	A.P.GENCO (Andhrapradesh) / Telangana	17.10.1971	62.50	0.1201	0.1690	140.6750	100	Achieved
47	CHAKABURA TPP	ACB (INDIA) Ltd. (Chhattisgarh)	27.02.2007	30.00	0.1832	0.1832	100.0000	100	Achieved
48	UCHPINDA	PGCIL (Chhattisgarh)	26.11.2015	720.00	0.0133	0.0133	100.0000	50	Achieved
49	MUTIARA	COASTAL ENERGEN PVT. LTD (Tamil Nadu)	23.12.2014	1200.00	0.0760	0.0797	104.9373	70	Achieved
50	DURGAPUR STEEL	D.V.C. (West Bengal)	15.05.2012	1000.00	1.4255	1.4088	98.8253	90	Achieved
51	INDIAN METALS & FERRO ALLOYS LTD.	INDIAN METALS & FERRO ALLOYS Ltd.(Odisha)	31.12.2012	258.00	0.4071	0.4070	99.9867	90	Achieved
52	DHARIWAL INFRASTRUCTURE Ltd.	Dhariwal Infrastructure Ltd(Maharashtra)	11.2.2014	600.00	0.0830	0.0720	86.7470	70	Achieved
53	GMR Chhattisgarh	GMR Chhattisgarh Energy Ltd. (Chhattisgarh)	1.06.2015	1370.00	0.1730	0.1142	66.0300	50	Achieved
54	KAWAI	ADANI POWER RAJASTHAN Ltd. (Rajasthan)	31.05.2013	1320.00	0.5945	0.5062	85.1491	70	Achieved

TABLE-XV
UTILIZATION STATUS AS PER NOTIFICATION OF 3RD NOVEMBER,2009 DURING THE YEAR 2015-16 (TARGET NOT ACHIEVED)

Sl. No.	Name of TPS	Power Utility	Date of Commissioning	Installed Capacity	Fly ash Generation	Fly ash Utilization	% age	Target in % age	Status Not Achieved
1	2	3	4	5	6	7	8	9	
1	Dr. N.T.R (Vijaywada)	A.P.GENCO (Andhrapradesh)	Nov-79	1760.00	4.1528	2.9391	70.7748	100	Not Achieved
2	RAYALSEEMA	A.P.GENCO (Andhrapradesh)	Nov-94	1050.00	2.3380	1.3985	59.8163	100	Not Achieved
3	SRI DAMODARAM SANJEEVAIAH	APPDCL(Andhra Pradesh)	05.02.2015	1600.00	0.8457	0.2635	31.1531	50	Not Achieved
4	KASAI PALI	ACB(INDIA)L (Chhattisgarh)	13.12.2011	270.00	1.0809	1.0534	97.4520	100	Not Achieved
5	INDIRA GANDHI	APCPL (Haryana)	31.10.2010	1500.00	1.2781	0.7691	60.1745	100	Not Achieved
6	TIRORA	ADANI POWER Ltd.(Maharastra)	23.09.2012	3300.00	3.7980	2.2959	60.4502	90	Not Achieved
7	BARKHERA	BEPL (UP)	29.10.2011	90.00	0.1226	0.1223	99.7136	100	Not Achieved
8	KHAMBER KHERA	BEPL (UP)	30.09.2011	90.00	0.1197	0.1195	99.8286	100	Not Achieved
9	MAQSOODAPUR	BEPL (UP)	27.10.2011	90.00	0.1112	0.1112	99.9986	100	Not Achieved
10	MUNDRA UMPP	CGPL (Gujrat)	07.03.2012	4000.00	0.7140	0.5150	72.1289	100	Not Achieved
11	KORBA (EAST)	C.S.P.G.C.L (Chhattisgarh)	01.10.1966	440.00	1.1059	0.2628	23.7624	100	Not Achieved
12	BOKARO 'B'	D.V.C. (Jharkhand)	24.03.1986	630.00	0.6947	0.3610	51.9599	100	Not Achieved
13	CHANDRAPURA	D.V.C. (Jharkhand)	10.10.1964	890.00	1.6557	1.4963	90.3733	100	Not Achieved
14	DURGAPUR	D.V.C.(West Bengal)	Dec,1966	350.00	0.3768	0.2733	72.5200	100	Not Achieved
15	UKAI	G.S.E.C.L. (Gujarat)	19.03.1976	1350.00	1.2570	0.9990	79.4749	100	Not Achieved
16	WANAKBORI	G.S.E.C.L. (Gujarat)	23.03.1982	1470.00	1.3600	1.0870	79.9265	100	Not Achieved
17	AMARAVATI TPS	INDIABULLS POWER Ltd. (Maharashtra)	03.06.2013	1350.00	1.1340	0.5621	49.5679	70	Not Achieved
18	MAHATMA GANDHI	JHPL (Haryana)	29.03.2012	1320.00	1.3222	0.9551	72.2344	100	Not Achieved
19	O.P.Jindal Super TPP (Stage-I)	JPL (Chhattisgarh.)	08.12.2007	1000.00	1.6510	0.4950	29.9818	100	Not Achieved
20	O.P.Jindal Super TPP(Stage-II)	JPL (Chhattisgarh.)	14.03.2014	1800.00	1.3990	0.4249	30.3717	70	Not Achieved
21	PATRATU	J.U.U.N.L (Jharkhand)	30.01.1969	770.00	0.2053	0.0258	12.5523	100	Not Achieved
22	VIJAYANAGAR	JSW Energy Limited (Karnataka)	18.01.2000	860.00	0.3025	0.3024	99.9696	100	Not Achieved
23	BELLARY	K.P.C.L (Karnataka)	25.03.2008	1000.00	1.3048	0.5562	42.6240	100	Not Achieved
24	RAICHUR	K.P.C.L. (Karnataka)	29.03.1985	1720.00	3.0189	1.3753	45.5563	100	Not Achieved
25	MUZAFFARPUR TPS	K.B.U.N.L (Bihar)	31.03.1985	220.00	0.2542	0.0133	5.2502	100	Not Achieved
26	AMARKANTAK TPS	LANCO POWER Ltd. (Chhattisgarh)	01.05.2009	600.00	0.6830	0.3462	50.6893	100	Not Achieved
27	SANJAY GANDHI	M.P.P.G.C.L. (M.P.)	07.10.1993	1340.00	1.8886	1.4818	78.4576	100	Not Achieved
28	SATPURA	M.P.P.G.C.L. (M.P.)	01.07.1979	1330.00	2.0248	0.7048	34.8085	100	Not Achieved
29	SHREE SINGAJI TPS	M.P.P.G.C.L. (M.P.)	01.02.2014	1200.00	1.2979	0.0407	3.1348	70	Not Achieved

Sl. No.	Name of TPS	Power Utility	Date of Commissioning	Installed Capacity	Fly ash Generation	Fly ash Utilization	% age	Target in % age	Status Not Achieved
1	2	3	4	5	6	7	8	9	
30	BHUSAWAL	M.S.P.G.C.L. (Maharashtra)	30.08.1979	1420.00	1.7120	1.1811	68.9906	100	Not Achieved
31	CHANDRAPUR	M.S.P.G.C.L. (Maharashtra)	15.08.1983	2340.00	4.0850	1.8944	46.3747	100	Not Achieved
32	KHAPARKHEDA	M.S.P.G.C.L. (Maharashtra)	26.03.1989	840.00	1.3580	1.1736	86.4149	100	Not Achieved
33	KHAPARKHEDA (EXT)	M.S.P.G.C.L. (Maharashtra)	16.04.2012	500.00	0.9813	0.0242	2.4649	100	Not Achieved
34	KORADI	M.S.P.G.C.L. (Maharashtra)	03.06.1974	1100.00	0.6270	0.3682	58.7241	100	Not Achieved
35	NASIK	M.S.P.G.C.L. (Maharashtra)	26.04.1979	630.00	1.2394	1.2149	98.0296	100	Not Achieved
36	PARAS	M.S.P.G.C.L. (Maharashtra)	31.03.2008	500.00	0.6633	0.6370	96.0274	100	Not Achieved
37	NEYVELI - I	N.L.C. LTD (Tamilnadu)	1962	600.00	0.2260	0.1474	65.2168	100	Not Achieved
38	NEYVELI -I EXPN	N.L.C. LTD (Tamilnadu)	21.10.2002	420.00	0.2401	0.2401	99.9875	100	Not Achieved
39	NEYVELI - II	N.L.C. LTD (Tamilnadu)	17.01.1988	1470.00	0.5676	0.5659	99.7047	100	Not Achieved
40	BHILAI	NSPCL (Chhattisgarh)	05.01.2009	500.00	1.0270	0.9106	88.6649	100	Not Achieved
41	SINGRAULI	N.T.P.C. LTD. (U.P.)	February-82	2000.00	4.5480	0.3970	8.7291	100	Not Achieved
42	RIHAND	N.T.P.C. LTD. (U.P.)	March-88	3000.00	4.3740	0.6600	15.0892	100	Not Achieved
43	TANDA	N.T.P.C. LTD. (U.P.)	01-01-00	440.00	0.9010	0.7410	82.2420	100	Not Achieved
44	KORBA	N.T.P.C. LTD. (Chhattisgarh).	01-03-83	2600.00	5.9310	1.8050	30.4333	100	Not Achieved
45	VINDHYACHAL	N.T.P.C. LTD. (M.P.)	01-10-87	4260.00	7.8300	1.3850	17.6884	100	Not Achieved
46	SIPAT	N.T.P.C. LTD. (Chhattisgarh).	01-05-07	2980.00	5.5110	0.8330	15.1152	100	Not Achieved
47	RAMAGUNDAM	N.T.P.C. LTD. (AndhraPradesh)	01-11-83	2600.00	5.0260	4.4830	89.1962	100	Not Achieved
48	SIMHADRI	N.T.P.C. LTD. (AndhraPradesh)	01-02-02	2000.00	2.9250	1.0340	35.3504	100	Not Achieved
49	FARAKKA	N.T.P.C.LTD. (W.B.)	01-01-86	2100.00	2.9350	0.8810	30.0170	100	Not Achieved
50	KAHALGAON	N.T.P.C. LTD. (Bihar)	01-03-92	2340.00	5.1180	2.1010	41.0512	100	Not Achieved
51	BARH SUPER TPS	N.T.P.C. LTD. (Bihar)	01-11-14	1320.00	0.9720	0.0620	6.3786	50	Not Achieved
52	TALCHAR(KAN)	N.T.P.C. LTD. (Odisha)	01-02-95	3000.00	6.7800	2.8930	42.6696	100	Not Achieved
53	MOUDA TPS	N.T.P.C. LTD. (Maharashtra)	01-04-12	1000.00	0.3910	0.3160	80.8184	100	Not Achieved
54	IB VALLEY	O.P.G.C.L. (Odisha)	21.12.1994	420.00	1.1630	0.2389	20.5406	100	Not Achieved
55	BATHINDA	P.S.P.C.L. (Punjab)	22.09.1974	460.00	0.2652	0.2248	84.7543	100	Not Achieved

Sl. No.	Name of TPS	Power Utility	Date of Commissioning	Installed Capacity	Fly ash Generation	Fly ash Utilization	% age	Target in % age	Status Not Achieved
1	2	3	4	5	6	7	8	9	
56	LEHRA MOHABAT	P.S.P.C.L. (Punjab)	25.05.1998	920.00	0.7305	0.5281	72.2949	100	Not Achieved
57	ROPAR	P.S.P.C.L. (Punjab)	01.01.1985	1260.00	0.9096	1.3218	145.3194	100	Not Achieved
58	CHHABRA	RRVUNL (Rajasthan)	11.06.2010	1000.00	0.9229	0.8539	92.5248	100	Not Achieved
59	JALIPA KAPURDI	RWPL (Rajasthan)	26.11.2009	1080.00	1.2730	1.2420	97.5640	100	Not Achieved
60	ROSA PHASE-I	RPSCL (U.P.)	12.03.2010	1200.00	1.5247	0.9126	59.8527	100	Not Achieved
61	TENUGHAT	T.V.N.L. (Jharkhand)	13.04.1997	420.00	0.7982	0.6048	75.7749	100	Not Achieved
62	KOTHAGUDEM (Stage I to IV)	T.S.P.G.C.L (Telengana)	04-07-66	720.00	2.2771	0.2587	11.3608	100	Not Achieved
63	KOTHAGUDEM-V	A.P.GENCO (AndhraPradesh)	01-03-97	500.00	1.4057	0.0086	0.6098	100	Not Achieved
64	KOTHAGUDEM-VI	A.P.GENCO (AndhraPradesh)	23-10-11	500.00	0.7838	0.3369	42.9823	100	Not Achieved
65	KAKATIA (Stage-I)	T.S.G.E.N.C.O. (Telangana)	31-03-10	500.00	0.5789	0.4398	75.9723	100	Not Achieved
66	ANPARA 'A' & 'B'	U.P.R.V.U.N.L. (U.P.)	01-01-87	1630.00	3.8671	0.0123	0.3168	100	Not Achieved
67	HARDUAGANJ	U.P.R.V.U.N.L. (U.P.)	31-03-77	670.00	0.9495	0.8233	86.7125	100	Not Achieved
68	OBRA	U.P.R.V.U.N.L. (U.P.)	15-08-67	1194.00	1.4769	0.2921	19.7779	100	Not Achieved
69	PARICHHA	U.P.R.V.U.N.L. (U.P.)	01-10-85	1140.00	2.3027	1.3089	56.8418	100	Not Achieved
70	UDUPI	UPCL (Karnataka)	11.11.2010	1200.00	0.1541	0.1215	78.8449	100	Not Achieved
71	KOLAGHAT	W.B.P.D.C.L (W.B.)	14.08.1984	1260.00	2.2154	2.6112	117.8658	100	Not Achieved
72	SAGARDIGHI	W.B.P.D.C.L (W.B.)	21.12.2007	600.00	0.7830	0.5533	70.6600	100	Not Achieved
73	GMR WAROARA ENERGY Ltd.	GMR WAROARA ENERGY Ltd. (Maharashtra)	19.03.2013	600.00	0.7808	0.6816	87.3004	90	Not Achieved
74	GMR KAMALANGA TPP	GMR KAMALANGA ENERGY Ltd. (Odisha)	30.04.2013	1050.00	1.3910	0.6435	46.2618	90	Not Achieved
75	DSPM	C.S.P.G.C.L. (Chhattisgarh)	21.10.2007	500.00	1.1900	0.1131	9.5042	100	Not Achieved
76	KORBA (WEST)	C.S.P.G.C.L (Chhattisgarh)	21.06.1983	840.00	1.5385	0.1225	7.9590	100	Not Achieved
77	KORBA (WEST) Ext.Stage-III	C.S.P.G.C.L (Chhattisgarh)	05.09.2013	500.00	0.7960	0.0000	0.0000	70	Not Achieved
78	CUDDALORE	TAQA Neyvelly Power Co.Pvt. Ltd. (Tamil Nadu)	15.12.2002	250.00	0.0559	0.0537	96.1585	100	Not Achieved

Sl. No.	Name of TPS	Power Utility	Date of Commissioning	Installed Capacity	Fly ash Generation	Fly ash Utilization	% age	Target in % age	Status Not Achieved
1	2	3	4	5	6	7	8	9	
79	TUTICORIN	T.N.G & D Corporation (Tamil Nadu)	31.03.1991	1050.00	1.3453	1.0228	76.0277	100	Not Achieved
80	ENNORE	T.N.G & D Corporation (Tamil Nadu)	26.05.1973	340.00	0.2397	0.1767	73.7171	100	Not Achieved
81	METTUR-II	T.N.G & D Corporation (Tamil Nadu)	11.10.2012	600.00	0.6798	0.4982	73.2863	90	Not Achieved
82	NORTH CHENNAI-II	T.N.G & D Corporation (Tamil Nadu)	01-05-2013	1200.00	1.2802	0.5137	40.1265	70	Not Achieved
83	KAKATIA (Stage-II)	T.S.G.E.N.C.O. (Telangana)	24.03.2016	600.00	0.0160	0.0028	17.7222	50	Not Achieved
84	SURATGARH	RRVUNL (Rajasthan)	28.09.2009	1500.00	1.3636	1.0802	79.2138	100	Not Achieved
85	KMPCL (AKALTARA)	KSK Mahanadi Power Company Limited (Chhattisgarh)	14.08.2013	1200.00	1.5010	0.8753	58.3173	70	Not Achieved
86	MCCPL BANDHAKHAR	Maruti Clean Coal and Power Limited (Chhattisgarh)	30.07.2015	300.00	0.0878	0.0190	21.6152	50	Not Achieved
87	SVPPL Renki	ACB India Limited (Chhattisgarh)	21.10.2011	60.00	0.0064	0.0060	93.0635	100	Not Achieved
88	THAMMINAPATNAM TPS	MEENAKSHI ENERGY Pvt. Ltd. (AndhraPradesh)	10.07.2012	300.00	0.0507	0.0144	28.3563	90	Not Achieved
89	PARAYAGRAJ TPS	P.P.G.C.L (U.P.)	29.02.2016	660.00	0.0177	0.0000	0.0000	50	Not Achieved
90	VALLUR	NTECL (Tamil Nadu)	09.03.2012	1500.00	1.3750	0.2220	16.1455	100	Not Achieved
LIST OF THERMAL POWER STATIONS WITH NO ASH GENERATION									
1	MIHAN	AMNEPL (Maharastra)	20.04.2011	246.00	0.0000	0.0000	0.0000	No Generation	
2	CHINAKURI	DPSCL (W.B)	21.11.2011	30.00	0.0000	0.0000	0.0000	No Generation	
3	MAHAN	ESSAR POWER MP LTD.(M.P.)	29.04.2013	1200.00	0.0000	0.0000	0.0000	No Generation	
4	BELA TPS	IDEAL ENERGY PROJECTS Ltd.(Maharastra)	18.07.2013	270.00	0.0000	0.0000	0.0000	No Generation	
5	NEYVELI - II EXPN	NLC (TamilNadu)	04.02.2012	250.00	0.0000	0.0000	0.0000	No Generation	
6	BARAUNI	B.S.P.G.C. LTD.(Bihar)	01.05.1983	220.00	0.0000	0.0000	0.0000	No Generation	
7	GEPL TPP	GUPTA ENERGY Pvt.Ltd.. (Maharastra)	19.07.2012	120.00	0.0000	0.0000	0.0000	No Generation	

6.0 MODES OF FLY ASH UTILIZATION DURING THE YEAR 2015-16

The data on fly ash utilization received from Thermal Power Stations/Power Utilities for the year 2015-16 has been analyzed 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 year 2015-16 along with utilization in each mode are given in Table-XVI below:

TABLE-XVI
MODES OF FLY ASH UTILIZATION DURING 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	43.3801	24.54
2	Mine filling	10.3343	5.85
3	Bricks & Tiles	14.7557	8.35
4	Reclamation of low lying area	12.5293	7.09
5	Ash Dyke Raising	10.6071	6.00
6	Roads & flyovers	5.0006	2.83
7	Agriculture	2.2167	1.25
8	Concrete	0.7825	0.44
9	Hydro Power Sector	0.0375	0.02
10	Others	8.1239	4.60
11	Unutilized Fly Ash	68.9763	39.03
	Total	**176.7441**	**100.00**

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

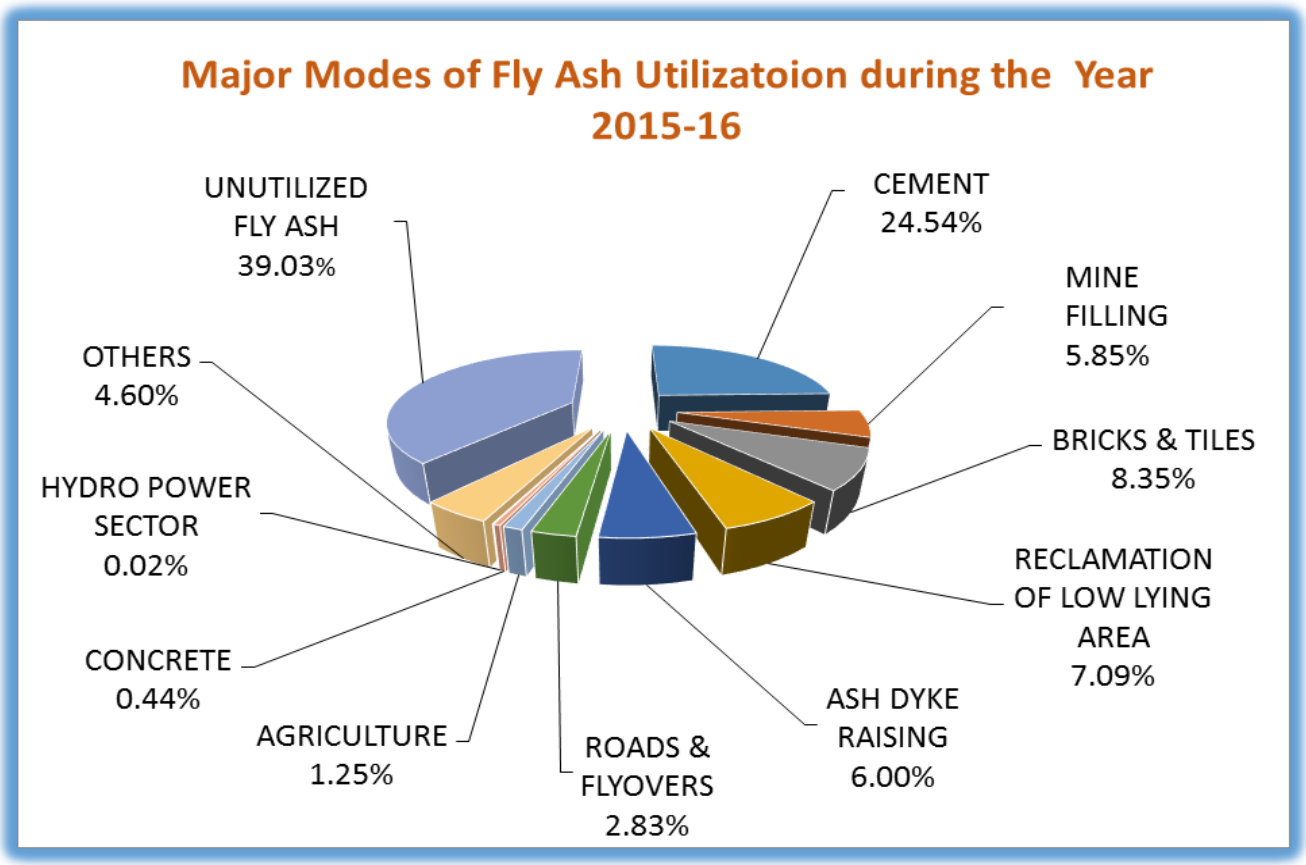

FIGURE-1

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

During the Year 2015-16, the maximum utilization of fly ash to the extent of 24.54% of total fly ash generated was in the Cement sector, followed by 8.35 % in making bricks & tiles, 7.09 % in reclamation of low lying area, 6.00 % in ash dyke raising, 5.85 % in mine filling, 2.83 % in roads & embankments, 1.25 % in Agriculture, 0.44 % in Concrete, 0.02 % in Hydro Power Sector, 4.60 % in Others and 39.03% remained as unutilized fly ash.

7.0 PROGRESSIVE FLY ASH GENERATION & UTILIZATION DURING THE PERIOD FROM 1996-97 TO 2015-16

Central Electricity Authority has been monitoring since 1996-1997, the fly ash generation and its utilization at coal/lignite based thermal power stations in the country. Based on data of fly ash generation and utilization received from Thermal Power Stations/Power Utilities since 1996-97, the progressive fly ash generation and its utilization for the period from 1996-97 to 2015-16 is given in Table-XVII below:

TABLE-XVII

PROGRESSIVE FLY ASH GENERATION AND ITS UTILIZATION DURING THE PERIOD FROM 1996-97 TO 2015-16

Sl. No.	Year	Fly Ash Generation (Million-ton))	Fly Ash Utilization (Million-ton)	Fly Ash Utilization in % age
(1)	(2)	(3)	(4)	(5)
1	1996-97	68.88	6.64	9.63
2	1997-98	78.06	8.43	10.80
3	1998-99	78.99	9.22	11.68
4	1999-2000	74.03	8.91	12.03
5	2000-01	86.29	13.54	15.70
6	2001-02	82.81	15.57	18.80
7	2002-03	91.65	20.79	22.68
8	2003-04	96.28	28.29	29.39
9	2004-05	98.57	37.49	38.04
10	2005-06	98.97	45.22	45.69
11	2006-07	108.15	55.01	50.86
12	2007-08	116.94	61.98	53.00
13	2008-09	116.69	66.64	57.11
14	2009-10	123.54	77.33	62.60
15	2010-11	131.09	73.13	55.79
16	2011-12	145.41	85.05	58.48
17	2012-13	163.56	100.37	61.37
18	2013-14	172.87	99.62	57.63
19	2014-15	184.14	102.54	55.69
20	2015-16	176.74	107.77	60.97

A graph showing progressive fly ash generation and its utilization for the period from 1996-97 to 2015-16 is given in Figure-2 below:

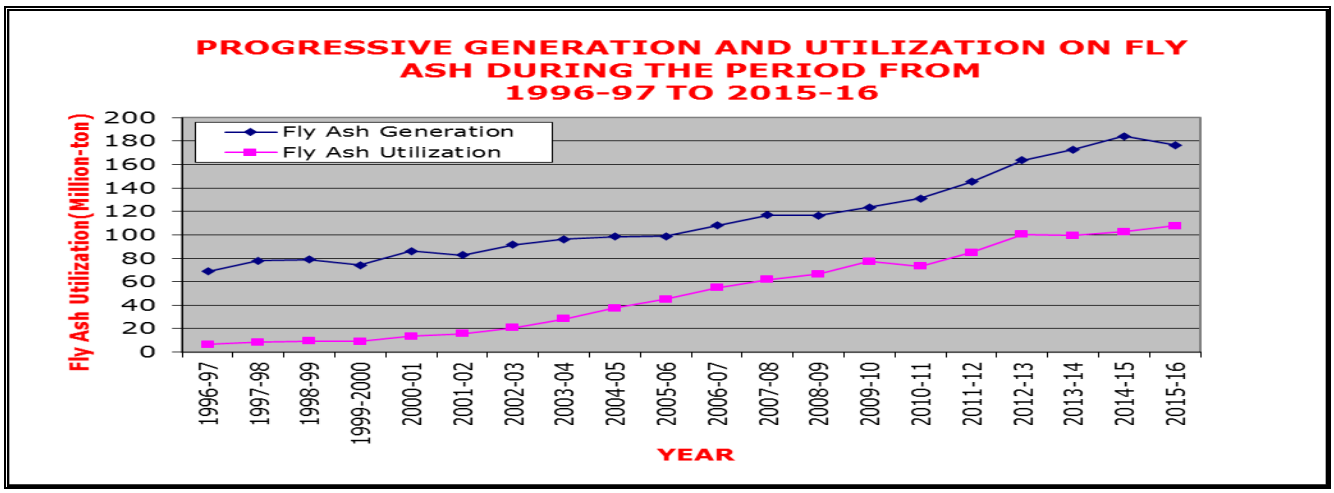

FIGURE-2

It may be seen from Table-XVII and Figure-2 above that:

(i) The fly ash generation as well as utilization has generally been increasing since 1996-97.

(ii) Fly ash utilization has increased from 9.63% in 1996-97 to the highest level of 62.60% in 2009-10 with 60.97 % during 2015-16.

(iii) The fly ash generation has increased from 68.88 million-ton in 1996-97 to 176.74 million-ton in 2015-16 i.e. nearly 2.5 times.

(iv) However, fly ash utilization has increased from 6.64 million-ton in 1996-97 to a level of 107.77 million ton in 2015-16 i.e. nearly more than 16 times over the same period.

(v) From the Table XVII, it is seen that quantities of fly ash generation during 2013-14, 2014-15 and 2015-16 have been 172.87,184.14 and 176.74 million-ton respectively, indicating slight variation, However, in 2015-16 slight fall in compare with last year. Fly ash utilization during the said three years are 99.62, 102.54 and 107.77 million-ton, indicating there in gradual increase in fly ash utilization.

8.0 PROGRESSIVE FLY ASH UTILIZATION IN VARIOUS MODES DURING THE ` PERIOD FROM 1998-99 TO 2015-16

8.1 Cement Industry

Fly ash is being used by Cement Industry as a pozzolanic material in manufacturing of Portland Pozzolana Cement. It saves both precious lime stone and coal. The utilization of fly ash in manufacturing of cement is highly value added use. A graph showing progressive utilization of fly ash by Cement Industry for the period from 1998-99 to 2015-16 is given in Figure-3 below:

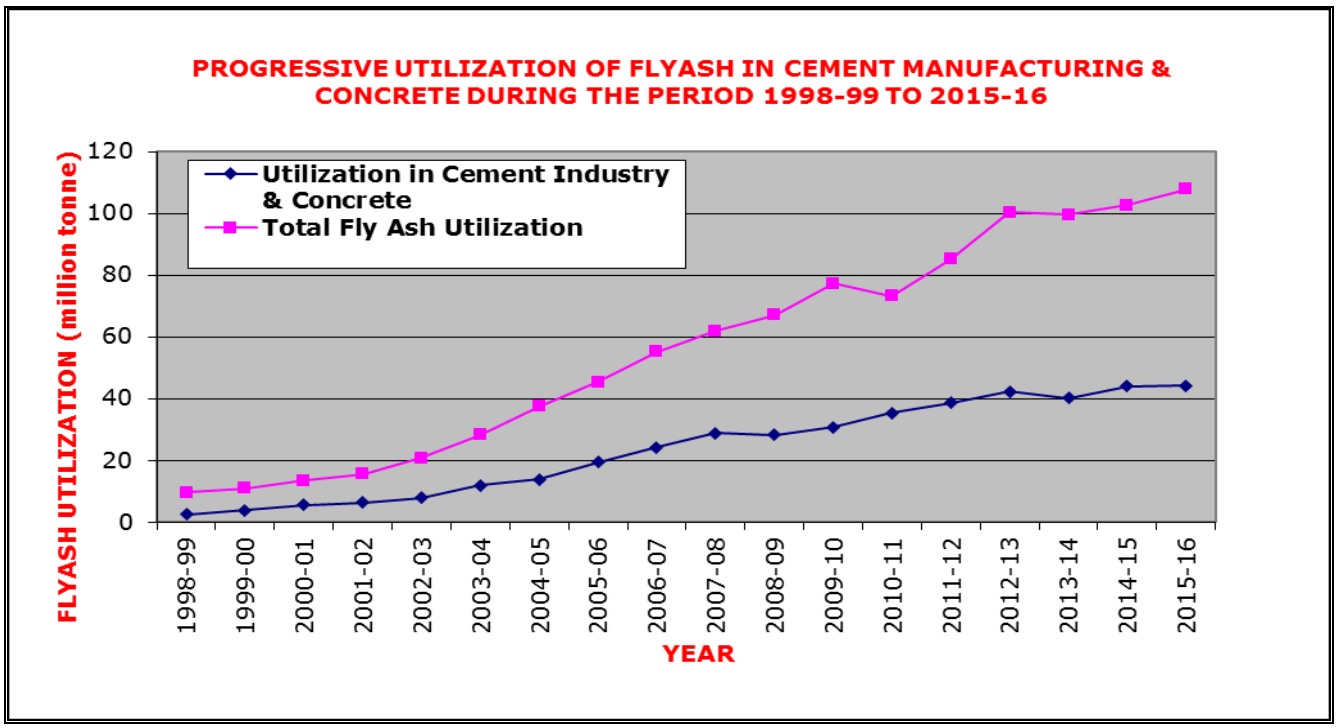

FIGURE-3

It may be seen from Figure-3 above that 2.45 million-ton of fly ash was used by Cement Industry in 1998-99 which increased to 43.38 million-ton during 2015-16 and constituted 40.25 % of total fly ash utilization in the aforesaid year.

8.2 Reclamation of Low Lying Areas

Fly ash as a substitute of soil/sand is used for reclamation of low lying areas thereby saving top soil. A graph showing the progressive utilization of fly ash in reclamation of low lying area for the period from 1998-99 to 2015-16 is given in Figure-4.

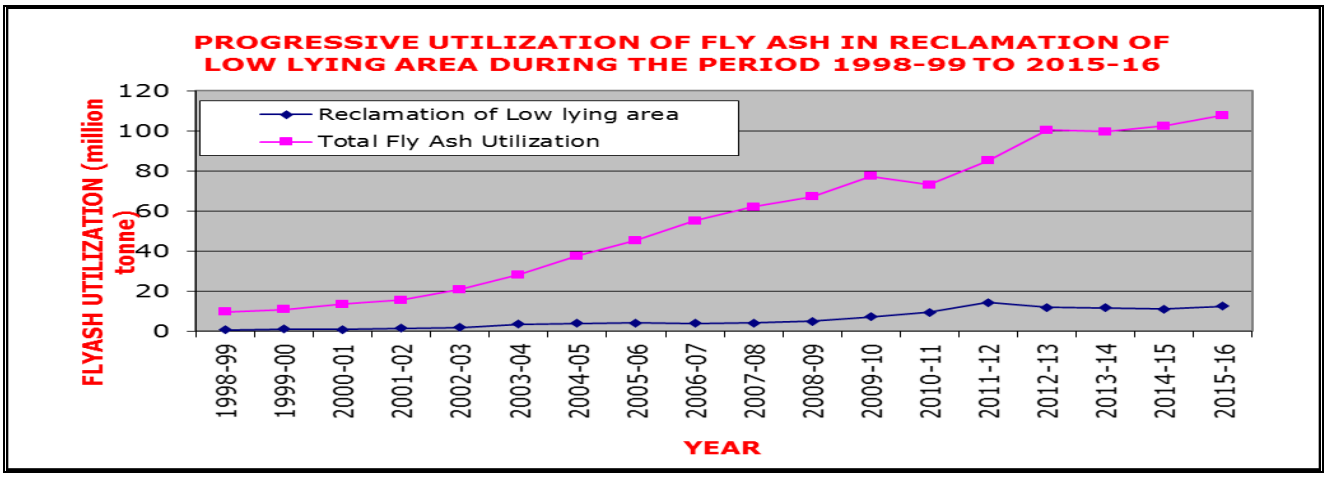

FIGURE-4

It may be seen from Figure-4 above that 4.17 million-ton of fly ash was used for reclamation of low lying area in 1998-99 which has increased to 12.53 million ton in 2015-16 constituting 11.63% of total fly ash utilization during the aforesaid year. However, utilization under this mode has become stable availability wise.

8.3 Construction of Roads/Embankments/Flyovers and raising of Ash Dykes

Fly ash is being used in construction of roads/embankments/flyovers and the raising of ash dykes. It has a large potential for fly ash utilization. A graph showing the progressive utilization of fly ash in the construction of roads & embankments and the raising of ash dykes for the period from 1998-99 to 2015-16 is given in Figure-5 below:

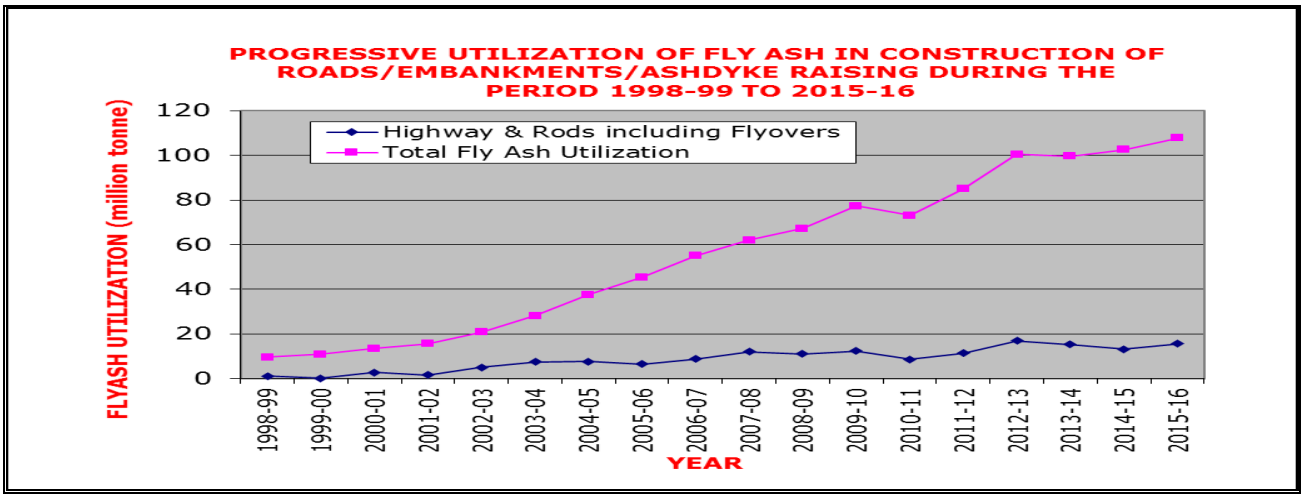

FIGURE-5

It may be seen from Figure-5 above that 1.055 million-ton of fly ash was used in the construction of roads/embankments/flyovers and raising of ash dykes etc. during 1998-99 which increased to 15.6077 million-ton in 2015-16 and constituted 14.48 % of total fly ash utilization in the aforesaid year. However, falling trend in recent past is seen.

8.4 Back Filling/Stowing of Mines

Fly ash is being used for backfilling of open cast mines and stowing of underground mines which results in saving of top fertile soil and precious river sand. It has large potential for fly ash utilization especially for pit head thermal power stations. A graph showing the progressive utilization of fly ash in backfilling/stowing of mines for the period from 1998-99 to 2015-16 is given in Figure-6:

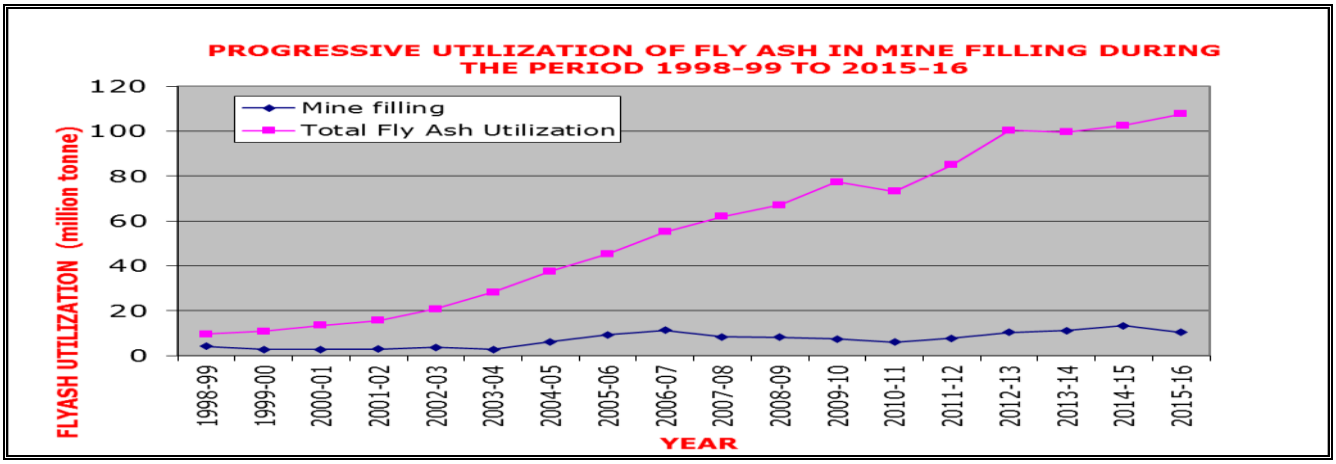

FIGURE-6

It may be seen from Figure-6 above that 0.65 million-ton of fly ash was used for backfilling/stowing of open cast and underground mines during 1998-99 which increased to 13.33 at in 2014-15, However, it has decrease to 10.33 million-ton in 2015-16 constituting 9.59 % of total fly ash utilization in the aforesaid year. The trend was on increasing side, but it is decrease in this year as compared to last year.

8.5 Building Materials like Bricks, Blocks and Tiles etc.

Fly ash is used in manufacturing of fly ash based building products like bricks, blocks, tiles etc which results in saving of fertile top soil. Fly ash based bricks/blocks/tiles are as good as clay based conventional building products. It has substantial potential of fly ash utilization especially for thermal power stations located near load centers. A graph showing progressive utilization of fly ash in making of fly ash based building products for the period from 1998-99 to 2015-16 is given in Figure -7.

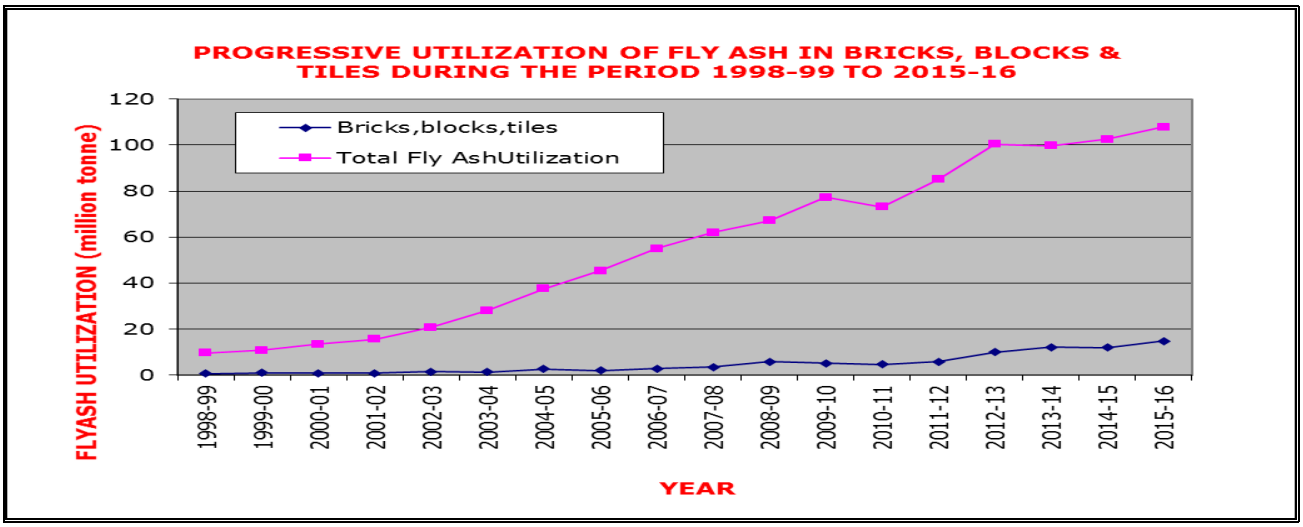

FIGURE-7

It may be seen from Figure-7 above that 0.70 million-ton of fly ash was used for making of fly ash based bricks/blocks/tiles etc during 1998-99 which increased to 14.76 million-ton in 2015-16 and constituted 13.69 % of total fly ash utilization in the aforesaid year.

8.6 Agriculture

Fly ash is being used as manure in agricultural sector as it has many micronutrients. The progressive utilization of fly ash in Agricultural Sector for the period from 1998-99 to 2015-16 is given in Figure-8.

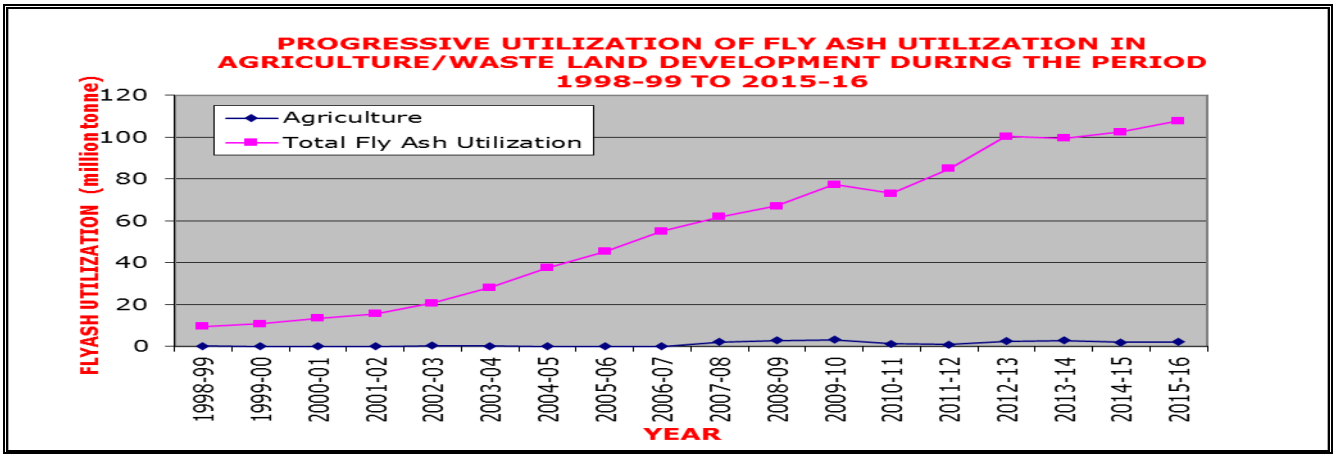

FIGURE-8

It may be seen from Figure-8 above that 0.13 million ton of fly ash was used in agricultural sector during 1998-99 which increased to 2.22 million ton in 2015-16 and constituted about 2.06 % of total fly ash utilization in the aforesaid year.

9.0 CONCLUSIONS & RECOMMENDATIONS

1. The highest level of fly ash utilization of about 62.6% was achieved in the year 2009-10 and it is, however, 60.97 % in the year 2015-16. It would require a lot of efforts to achieve the target of 100% utilization of fly ash by 31st December,2017 as stipulated in MoEF's Notification of 25th January,2016. The utilization of fly ash is not commensurate with fly ash generation and that is why their percentage decrease. The stipulations of notification of 2009 and recent amendment should be effectively implemented.

2. 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 Stations need 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.

   - 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. Department of Science and Technology Govt. of India, through their research Projects, has established that use of fly ash in agriculture is safe.

- 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, GOI 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.

- Induction of 'Fly Ash' as a subject in academic curriculum of Engineering and Architecture is needed.

- The meeting of working group for assessing the infrastructure requirement for facilitating transportation of fly ash by Rail held on 28.07.2016, where the issues were discussed and the issues involved are (i) To develop uploading facility at user, (ii) Development of new rakes having top loading and pneumatic side unloading, (iii) availability of rakes and attractive tariff structure and (iv)Development of fly ash depot near consumption centres.

***

10.0 Abbreviations

CEA	:	Central Electricity Authority
MoEF	:	Ministry of Environment & Forest
MoEF&CC	:	Ministry of Environment & Forest and Climate Change (erstwhile MoEF)
MW	:	Mega Watt
MoP	:	Ministry of Power
MT	:	Million Tonnes
TPS	:	Thermal Power Stations
APGENCO	:	Andhra Pradesh Power Generation Corporation Ltd.
APPDCL	:	Andhra Pradesh Power Distribution company Limited
ACBPL	:	Aryan Coal Benefication Private Ltd.
APL	:	Adani Power Ltd.,
APCPL	:	Aravali Power corporation Pvt.Ltd.
AMNEPL	:	Abhijet MADC Nagpur energy Pvt. Ltd.
BEPL	:	Bajaj Energy Pvt. Ltd.
BSPGC	:	Bihar State Power Generation Company
CESC	:	Calcutta Electric Supply Company
CGPL	:	Coastal Gujarat Power Ltd.
CSPGCL	:	Chattisgargh State Power Generation Company Ltd.
DVC	:	Damodar Valley Corporation
DPL	:	Durgapur Project Ltd.
DPSC	:	Dishergarh Power Supply Company Ltd.
EPGL	:	Essar Power Gujarat Ltd.
GIPCL	:	Gujarat Industries Power Corporation Ltd.
GMDCL	:	Gujarat Mineral Development Corporation Ltd.
GSECL	:	Gujarat State Electric Corporation Ltd.
HPGCL	:	Haryana Power Generating company Ltd.
IPGCL	:	Indraprastha Power Generation Company Ltd.
JSEB	:	Jharkhand State Electricity Board.
JHPL	:	Jhajjar Power Ltd.
JPL	:	Jindal Power Ltd.
JSW	:	Jindal Steel Works
KPCL	:	Karnataka Power Corporation Ltd.
KBUNL	:	Kanti Bijlee Utpadan Nigam Ltd.
MPPGCL	:	Madhya Pradesh Power Generating Company Ltd.
MPL	:	Maithon Power Ltd.
MSPGCL	:	Maharashtra State Power Generating Company Ltd.
NLC	:	Neyveli Lignite Corporation
NSPCL	:	NTPC -SAIL Power Corporation Ltd.
NTPC	:	National thermal Power Corporation
NTECL	:	NTPC – Tamilnadu Electric Company Ltd.
OPGCL	:	Odisha Power Generation Corporation Ltd.
PSPCL	:	Punjab State Power Corporation Ltd.
RRVUNL	:	Rajasthan Rajya Vidyut Utpadan Nigam Ltd.
RIL	:	Reliance Infrastructure Ltd.
RPSCL	:	Rosa Power Supply Company Ltd.
RWPL	:	Raj West Power Ltd.
SEL	:	Sterlite energy Ltd.
SVPPL	:	Shri Vardhman Power Pvt. Ltd.
ST-CMS	:	ST-CMS
TPCO	:	Tata Power company Ltd.
TVNL	:	Tenunghat Vidyut Nigam Ltd.
TNG&D	:	Tamil Nadu Generating and Distribution Corporation Ltd.
UPCl	:	Udupi Power Company Ltd.
UPRVUNL	:	Uttar Pradeh Rajaya Vidyut Utpadan Nigam Ltd.
VESPL	:	Vandanca energy Supply Power Ltd.
WBPDCL	:	West Bengal Power Development Corporation Ltd.

WPCL	:	Wardha Power Company Ltd.
GEPL	:	Gupta Power Company Ltd.
VIP	:	Vidharbha Industries Power Ltd.
EPL	:	Essar Power Ltd.
ACB	:	Aryan Coal Beneficiary Ltd.
AP	:	Andhra Pradesh
MP	:	Madhya Pradesh
TN	:	Tamil Nadu
UP	:	Uttar Pradesh
WB	:	West Bengal

Annex-I

FLY ASH GENERATION AND ITS UTILIZATION AT COAL/LIGNITE BASED THERMAL POWER STATIONS IN THE COUNTRY FOR THE YEAR 2015-16(APRIL-2015 TO MARCH-2016)
(POWER UTILITY WISE)

Sl no.	Name of TPS	Power Utility & state	Installed Capacity	Coal Consumed	Ash Content of coal	Fly Ash Genaration	Fly Ash Utilization	%age utilization	In making of Fly Ash based/Brick/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 Arae	In Mining filling	In agriculture /waste land Development	Others	Total Utilization
			(MW)	(MT)	%age (7)/(5)x100	(MT)	(MT)	%age (8)/(7)x100	(MT)	(MT)	(MT)	(MT)	(MT)	(MT)	(MT)	(MT)	(MT)	(MT)	(MT) $\sum$(10) to
(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 (Andhrapradesh)	1760.00	9.1822	45.2263	4.1528	2.9391	70.7748	1.1967	1.3187	0.0069	0.0357			0.2690			0.1121	2.9391
2	RAYALSEEMA	A.P.GENCO (Andhrapradesh)	1050.00	5.3466	43.7051	2.3380	1.3985	62.6152	0.2755	1.0830				0.0400					1.3985
3	SRI DAMODARAM SANJEEVAIAH	APPDCL(Andhra Pradesh)	1600.00	2.8941	29.2230	0.8457	0.2635	31.1531	0.0882	0.1575					0.0174			0.0004	0.2635
4	KASAI PALI	ACB(INDIA)L (Chhattishgarh)	270.00	1.9114	56.5538	1.0809	1.0534	97.4520	0.0874		0.0575				0.9085				1.0534
5	INDIRA GANDHI	APCPL (Haryana)	1500.00	3.9827	32.0914	1.2781	0.7691	60.1745	0.1055	0.6636									0.7691
6	MUNDRA TPS	APL (Gujrat)	4620.00	17.1870	6.9762	1.1990	1.2500	104.2535	0.0019	0.4540	0.1550				0.3770			0.2650	1.2529
7	TIRORA	ADANI POWER Ltd. (Maharastra)	3300.00	11.8916	31.9385	3.7980	2.2959	60.4502	0.0576	0.0238				0.5885	0.6000			1.0270	2.2969
8	KAWAI	ADANI POWER RAJASTHAN Ltd. (Rajasthan)	1320.00	4.0902	14.5350	0.5945	0.5062	85.1491	0.0017	0.4916					0.0129			0.0131	0.5193
9	MIHAN	AMNEPL (Maharastra) (No Generation)	246.00		#DIV/0!			#DIV/0!											0.0000
10	CHAKABURA TPP (EXTN)	ACB (INDIA) Ltd. (Chhattishgarh)	30.00	0.2978	57.2208	0.1704	0.1704	100.0000	0.0146						0.1557				0.1704
11	BARKHERA	BEPL (UP)	90.00	0.3053	40.1570	0.1226	0.1223	99.7136	0.0006	0.0243					0.0973				0.1223
12	KHAMBER KHERA	BEPL (UP)	90.00	0.2891	41.3941	0.1197	0.1195	99.8286	0.0037	0.0585					0.0572				0.1195
13	KUNDARKI	BEPL (UP)	90.00	0.3397	40.4998	0.1376	0.1376	100.0000	0.0012	0.0985					0.0379				0.1376
14	MAQSOODAPUR	BEPL (UP)	90.00	0.2785	39.9468	0.1112	0.1112	99.9986	0.0015	0.0245					0.0808				0.1068
15	UTRAULA	BEPL (UP)	90.00	0.3385	41.0786	0.1391	0.1391	100.0000		0.0583					0.0808				0.1391
16	B.B.G.S.	C.E.S.C. (West Bengal)	750.00	3.4610	38.3126	1.3260	1.3260	100.0000	0.0520	0.9990					0.2710				1.3220
17	S.G.S.	C.E.S.C. (West Bengal)	135.00	0.4091	34.4659	0.1410	0.1410	100.0000	0.0082	0.1100		0.0090			0.0152				0.1424
18	T.G.S.	C.E.S.C. (West Bengal)	240.00	0.4780	26.9874	0.1290	0.1290	100.0000	0.0170	0.0640	0.0180				0.0300				0.1290
19	CHINAKURI	DPSCL (W.B) (No Generation)	30.00		#DIV/0!			#DIV/0!											0.0000
20	MUNDRA UMPP	CGPL (Gujrat)	4000.00	9.9700	7.1615	0.7140	0.5150	72.1289		0.5150									0.5150
21	DSPM	C.S.P.G.C.L. (Chhattisgarh)	500.00	2.8410	41.8867	1.1900	0.1131	9.5042						0.0900	0.0028		0.0203		0.1131
22	KORBA (EAST)	C.S.P.G.C.L (Chhattisgarh)	440.00	2.3250	47.5667	1.1059	0.2628	23.7624	0.0013					0.2610	0.0005				0.2628

Annex-I

FLY ASH GENERATION AND ITS UTILIZATION AT COAL/LIGNITE BASED THERMAL POWER STATIONS IN THE COUNTRY FOR THE YEAR 2015-16(APRIL-2015 TO MARCH-2016)
(POWER UTILITY WISE)

Sl no.	Name of TPS	Power Utility & state	Installed Capacity	Coal Consumed	Ash Content of coal	Fly Ash Genaration	Fly Ash Utilization	%age utilization	In making of Fly Ash based/Brick/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 Arae	In Mining filling	In agriculture /waste land Development	Others	Total Utilization
			(MW)	(MT)	%age (7)/(5)x100	(MT)	(MT)	%age (8)/(7)x100	(MT)	(MT)	(MT)	(MT)	(MT)	(MT)	(MT)	(MT)	(MT)	(MT)	(MT) $\sum$(10) to
23	BOKARO 'B'	D.V.C.(Jharkhand)	630.00	1.4352	48.4074	0.6947	0.3610	51.9599								0.3610			0.3610
24	CHANDRAPURA	D.V.C.(Jharkhand)	890.00	3.4401	48.1301	1.6557	1.4963	90.3733	0.0057	0.0228						1.4666			1.4951
25	DURGAPUR	D.V.C.(West Bengal)	350.00	0.7481	50.3680	0.3768	0.2733	72.5200				0.0318				0.2414			0.2733
26	MEJIA	D.V.C.(West Bengal)	2340.00	7.6855	44.7589	3.4399	3.7805	109.9016	0.0118	0.9676	0.0254					2.7757			3.7805
27	DURGAPUR STEEL	D.V.C. (West Bengal)	1000.00	3.0520	46.7069	1.4255	1.4088	98.8253	0.0529	0.7235	0.0559				0.5765				1.4088
28	KODERMA	D.V.C. (Jharkhand)	1000.00	2.17	45.0907	0.9790	0.9343	95.4313	0.0392	0.3525	0.0000				0.5426				0.9343
29	D.P.P.S.	D.P.L (West Bengal).	660.00	1.3706	44.1971	0.6058	0.9846	162.5428		0.2980	0.4437				0.1215	0.1137	0.0077		0.9846
30	MAHAN	ESSAR POWER MP LTD.(M.P.) (No Generation)	1200.00		#DIV/0!			#DIV/0!											0.0000
31	SALAYA	EPGL (Gujarat)	1200.00	2.1000	9.7143	0.2040	0.2040	100.0000	0.0027	0.1760					0.0240				0.2027
32	KORBA (WEST)	C.S.P.G.C.L Chhattisgarh	840.00	4.4953	34.2251	1.5385	0.1225	7.9590							0.1225				0.1225
33	KORBA (WEST) Ext.Stage-III	C.S.P.G.C.L Chhattisgarh	500.00	2.4800	32.0968	0.7960	0.0000	0.0000											0.0000
34	SURAT LIGNITE	G.I.P.C.L. (Gujarat)	500.00	3.0250	15.7492	0.4764	0.4764	100.0000	0.4416									0.0348	0.4764
35	AKRIMOTA	G.M.D.C.L. (Gujarat)	250.00	1.2681	14.4543	0.1833	0.1908	104.0921								0.1908			0.1908
36	GANDHINAGAR	G.S.E.C.L. (Gujarat)	870.00	1.7480	32.5515	0.5690	0.8720	153.2513	0.2550	0.5080		0.0900						0.0190	0.8720
37	KUTCH LIGNITE	G.S.E.C.L. (Gujarat)	290.00	1.6690	16.4769	0.2750	0.2750	100.0000		0.0160						0.2570			0.2730
38	SIKKA	G.S.E.C.L. (Gujarat)	240.00	0.7310	14.2271	0.1040	0.2490	239.4231	0.0910	0.1570									0.2480
39	UKAI	G.S.E.C.L. (Gujarat)	1350.00	3.7310	33.6907	1.2570	0.9990	79.4749	0.6130	0.2900								0.0950	0.9980
40	WANAKBORI	G.S.E.C.L. (Gujarat)	1470.00	3.9030	34.8450	1.3600	1.0870	79.9265	0.1420	0.7530								0.1950	1.0900
41	HISAR	H.P.G.C.L.(Haryana)	1200.00	3.1039	39.4453	1.2243	1.5365	125.4968	0.0055	0.6510	0.5566	0.0461		0.2773					1.5365
42	YAMUNANAGAR	H.P.G.C.L.(Haryana)	600.00	2.6144	29.4014	0.7687	1.1190	145.5701	0.0140	0.5886	0.1911						0.1268	0.1985	1.1190
43	PANIPAT	H.P.G.C.L.(Haryana)	1367.80	1.1395	39.8420	0.4540	1.3674	301.1894	0.0320	0.9850	0.1116			0.0388	0.2000				1.3674
44	RAJGHAT	IPGCL (Delhi)	135.00	0.0412	33.4639	0.0138	0.0179	129.9501	0.0000	0.0055	0.0124								0.0179
45	AMARAVATI TPS	INDIABULLS POWER Ltd. (Maharastra)	1350.00	3.7084	30.5783	1.1340	0.5621	49.5679	0.3163		0.0158			0.1253	0.1047				0.5621

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			(MW)	(MT)	%age (7)/(5)x100	(MT)	(MT)	%age (8)/(7)x100	(MT)	(MT)	(MT)	(MT)	(MT)	(MT)	(MT)	(MT)	(MT)	(MT)	(MT) $\sum$(10) to
46	BELA TPS	IDEAL ENERGY PROJECTS Ltd.(Maharastra) (No Generation)	270.00		#DIV/0!			#DIV/0!											0.0000
47	INDIAN METALS & FERRO ALLOYS LTD.	INDIAN METALS & FERRO ALLOYS Ltd.(Odisha)	258.00	0.8870	45.8898	0.4071	0.4070	99.9867	0.0704		0.0726				0.2520			0.0071	0.4022
48	MAHATMA GANDHI	JHPL (Haryana)	1320.00	3.2058	41.2450	1.3222	0.9551	72.2344	0.0465	0.8963	0.0123								0.9551
49	O.P.Jindal Super TPP (Stage-I)	JPL (Chhattisgarh.)	1000.00	3.9720	41.5660	1.6510	0.4950	29.9818						0.2810	0.2170				0.4980
50	O.P.Jindal Super TPP(Stage-II)	JPL (Chhattisgarh.)	1800.00	3.3612	41.6220	1.3990	0.4249	30.3717	0.0319					0.3810	0.0120				0.4249
51	PATRATU	J.U.U.N.L (Jharkhand)	770.00	0.5472	37.5229	0.2053	0.0258	12.5523	0.0068						0.0189				0.0257
52	RATNAGIRI	JSW Energy Ltd (Maharashtra)	1200.00	3.3533	9.1750	0.3077	0.3089	100.3900	0.0350	0.0876	0.0590	0.1272							0.3089
53	VIJAYANAGAR	JSW Energy Limited (Karnataka)	860.00	2.3972	12.6187	0.3025	0.3024	99.9696	0.0177	0.2255								0.0592	0.3024
54	BELLARY	K.P.C.L (Karnataka)	1000.00	3.5108	37.1655	1.3048	0.5562	42.6240		0.5562									0.5562
55	RAICHUR	K.P.C.L.(Karnataka)	1720.00	8.2400	36.6371	3.0189	1.3753	45.5563	0.2441	1.1312									1.3753
56	MUZAFFARPUR TPS	K.B.U.N.L (Bihar)	220.00	0.5945	42.7590	0.2542	0.0133	5.2502	0.0025						0.0108				0.0133
57	AMARKANTAK TPS	LANCO POWER Ltd. (Chhattisgarh)	600.00	2.0587	33.1765	0.6830	0.3462	50.6893	0.0014	0.3448									0.3462
58	MAITHON RBTPP	MPL (Jharkhand)	1050.00	4.0930	40.1404	1.6429	1.7401	105.9163	0.0312	0.0037	0.0479					1.6552			1.7380
59	SANJAY GANDHI	M.P.P.G.C.L. (M.P.)	1340.00	5.0315	37.5357	1.8886	1.4818	78.4576	0.0561	1.4257									1.4818
60	SATPURA	M.P.P.G.C.L. (M.P.)	1330.00	4.5230	44.7674	2.0248	0.7048	34.8085	0.5184	0.0893		0.0101		0.0012		0.0714		0.0144	0.7048
61	AMARKANTAK	M.P.P.G.C.L. (M.P.)	210.00	1.0577	35.9176	0.3799	0.3840	101.0792	0.0409	0.1674				0.1757					0.3840
62	SHREE SINGAJI TPS	M.P.P.G.C.L. (M.P.)	1200.00	3.0197	42.9809	1.2979	0.0407	3.1348	0.0087									0.0320	0.0407
63	BHUSAWAL	M.S.P.G.C.L.(Maharastra)	1420.00	5.0356	33.9989	1.7120	1.1811	68.9906	0.4987	0.3143							0.2395	0.1287	1.1811
64	CHANDRAPUR	M.S.P.G.C.L.(Maharastra)	2340.00	10.2706	39.7742	4.0850	1.8944	46.3747	0.0448	1.1814	0.1310				0.1648		0.0871	0.2794	1.8884
65	KHAPARKHEDA	M.S.P.G.C.L.(Maharastra)	840.00	4.3207	31.4310	1.3580	1.1736	86.4149	0.2152		0.2234			0.7250				0.0100	1.1736
66	KHAPARKHEDA (EXT)	M.S.P.G.C.L.(Maharastra)	500.00	2.5841	37.9736	0.9813	0.0242	2.4649	0.0242										0.0242
67	KORADI	M.S.P.G.C.L.(Maharastra)	1100.00	1.5590	40.2181	0.6270	0.3682	58.7241	0.1502		0.2180								0.3682
68	NASIK	M.S.P.G.C.L.(Maharastra)	630.00	3.3837	36.6275	1.2394	1.2149	98.0296	0.7723	0.2722	0.0007			0.1574					1.2025

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			(MW)	(MT)	%age (7)/(5)x100	(MT)	(MT)	%age (8)/(7)x100	(MT)	(MT)	(MT)	(MT)	(MT)	(MT)	(MT)	(MT)	(MT)	(MT)	(MT) $\Sigma_{(10)\ to}$
69	PARLI	M.S.P.G.C.L.(Maharastra)	1130.00	1.0933	44.0044	0.4811	1.0906	226.6868	0.4781	0.3381							0.0416	0.2328	1.0906
70	PARAS	M.S.P.G.C.L.(Maharastra)	500.00	2.7871	23.8000	0.6633	0.6370	96.0274	0.3242	0.3128									0.6370
71	NEYVELI - I	N.L.C.LTD(Tamilnadu)	600.00	4.8620	4.6483	0.2260	0.1474	65.2168	0.1175	0.0280								0.0019	0.1474
72	NEYVELI -I EXPN	N.L.C.LTD(Tamilnadu)	420.00	3.3489	7.1701	0.2401	0.2401	99.9875	0.0502	0.1454						0.0445			0.2401
73	NEYVELI - II	N.L.C.LTD(Tamilnadu)	1470.00	11.5154	4.9293	0.5676	0.5659	99.7047	0.1104	0.3108						0.1448			0.5659
74	NEYVELI - II EXPN	NLC (Tamil Nadu) (No Generation)	250.00		#DIV/0!			#DIV/0!											0.0000
75	BARSINGSAR LIGNITE	NLC (Rajasthan)	250.00	1.2128	19.9721	0.2422	0.2422	100.0012	0.0695	0.0903						0.0824			0.2422
76	BHILAI	NSPCL (Chhattisgarh)	500.00	2.4408	42.0766	1.0270	0.9106	88.6649	0.1389	0.7280								0.0437	0.9106
77	CUDDALORE	TAQA Neyvelly Power Co.Pvt. Ltd. (Tamil Nadu)	250.00	0.9301	6.0092	0.0559	0.0537	96.1585	0.0042	0.0496									0.0537
78	BADARPUR	N.T.P.C.LTD (Delhi).	705.00	1.7070	30.0527	0.5130	0.6700	130.6043	0.2270	0.2410	0.2020								0.6700
79	DADRI	N.T.P.C.LTD. (U.P.)	1820.00	6.4900	31.9877	2.0760	2.8290	136.2717	0.4460	1.2510					0.5890			0.5440	2.8300
80	SINGRAULI	N.T.P.C.LTD. (U.P.)	2000.00	11.7920	38.5685	4.5480	0.3970	8.7291	0.0090	0.0150				0.3740					0.3980
81	RIHAND	N.T.P.C.LTD. (U.P.)	3000.00	13.8640	31.5493	4.3740	0.6600	15.0892	0.0650	0.0280				0.3500	0.1950			0.0220	0.6600
82	FEROZE GANDHI UNACHAR	NTPC Ltd.(U.P.)	1050.00	4.6330	38.5711	1.7870	1.8180	101.7348	0.0150	1.2270	0.0590			0.2530	0.1000			0.1660	1.8200
83	TANDA	N.T.P.C.LTD. (U.P.)	440.00	2.2960	39.2422	0.9010	0.7410	82.2420	0.1100	0.2360				0.2240				0.1710	0.7410
84	KORBA	N.T.P.C. (Chhattisgarh).	2600.00	14.2540	41.6094	5.9310	1.8050	30.4333	0.1490					0.9800				0.6690	1.7980
85	VINDHYACHAL	N.T.P.C.LTD.(M.P.)	4260.00	21.6220	36.2131	7.8300	1.3850	17.6884	0.1270	0.2150				0.2590				0.7840	1.3850
86	SIPAT	N.T.P.C. (Chhattisgarh).	2980.00	14.0280	39.2857	5.5110	0.8330	15.1152	0.2770	0.4230				0.0470	0.0450			0.0410	0.8330
87	RAMAGUNDAM	N.T.P.C. (Andhra Pradesh).	2600.00	13.5870	36.9912	5.0260	4.4830	89.1962	1.2820	0.9980	0.0090			0.5190		1.2200		0.4440	4.4720
88	SIMHADRI	N.T.P.C. (Andhra Pradesh).	2000.00	10.0560	29.0871	2.9250	1.0340	35.3504	0.3840	0.1550	0.0410			0.4540					1.0340
89	FARAKKA	N.T.P.C.LTD. (W.B.)	2100.00	8.5600	34.2874	2.9350	0.8810	30.0170	0.0110	0.1420	0.2420			0.1050	0.3440			0.0370	0.8810
90	KAHALGAON	N.T.P.C.LTD.(Bihar)	2340.00	12.5450	40.7971	5.1180	2.1010	41.0512	0.2420	0.6520	0.0780			0.5520	0.1400			0.4370	2.1010
91	BARH SUPER TPS	N.T.P.C.LTD (Bihar)	1320.00	2.6610	36.5276	0.9720	0.0620	6.3786	0.0040						0.0180			0.0400	0.0620
92	TALCHAR(TPS)	N.T.P.C.LTD(Odisha).	460.00	3.0970	39.0055	1.2080	1.2150	100.5795	0.0130							1.1940			1.2070

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93	TALCHAR(KAN)	N.T.P.C.LTD(Odisha).	3000.00	18.0080	37.6499	6.7800	2.8930	42.6696	0.1260	0.0330				2.7340					2.8930
94	MOUDA TPS	N.T.P.C.LTD (Maharastra)	1000.00	1.3150	29.7338	0.3910	0.3160	80.8184	0.3080										0.3080
95	IB VALLEY	O.P.G.C.L.(Odisha)	420.00	2.7884	41.7074	1.1630	0.2389	20.5406	0.0158		0.0009			0.1781	0.0391			0.0051	0.2389
96	BATHINDA	P.S.P.C.L. (Punjab)	460.00	0.6428	41.2589	0.2652	0.2248	84.7543	0.0220	0.2028									0.2248
97	LEHRA MOHABAT	P.S.P.C.L. (Punjab)	920.00	1.9065	38.3163	0.7305	0.5281	72.2949	0.0205	0.4958		0.0118							0.5281
98	ROPAR	P.S.P.C.L. (Punjab)	1260.00	2.7222	33.4136	0.9096	1.3218	145.3194	0.0184	1.1241		0.0110			0.1684				1.3218
99	KOTA	RRVUNL (Rajasthan)	1240.00	5.1584	31.8360	1.6422	1.7854	108.7181	0.6439	1.1207		0.0083					0.0093	0.0033	1.7854
100	CHHABRA	RRVUNL (Rajasthan)	1000.00	2.9164	31.6448	0.9229	0.8539	92.5248	0.0463	0.6264			0.0375					0.1437	0.8539
101	GIRAL	RRVUNL (Rajasthan)	250.00	0.3336	22.5452	0.0752	0.0757	100.7092								0.0757			0.0757
102	JALIPA KAPURDI	RWPL (Rajasthan)	1080.00	6.7130	18.9628	1.2730	1.2420	97.5640	0.0632	0.7725						0.4062			1.2420
103	ROSA PHASE-I	RPSCL(U.P)	1200.00	4.6259	32.9595	1.5247	0.9126	59.8527		0.3767	0.1510	0.0025		0.2274	0.1549				0.9126
104	DAHANU	RELIANCE INFRASTRUCTURE Ltd. (Maharastra)	500.00	2.1694	27.9801	0.6070	0.7094	116.8746	0.0004			0.2790		0.0040				0.4260	0.7094
105	SURATGARH	RRVUNL (Rajasthan)	1500.00	3.8091	35.7992	1.3636	1.0802	79.2138	0.1933	0.6952								0.1917	1.0802
106	JOJOBERA	T.P.CO. (Jharkhnad)	547.50	2.5775	41.2131	1.0623	1.2135	114.2392	0.0013	0.7099		0.0103			0.4920				1.2135
107	TROMBAY	T.P.CO.(Maharashtra)	750.00	2.7040	2.0599	0.0557	0.0556	99.8205				0.0475				0.0069	0.0002	0.0010	0.0556
108	SABARMATI	TORENT POWER Ltd.(Gujarat)	422.00	1.3800	20.9710	0.2894	0.2943	101.6932		0.2326				0.0598			0.0019		0.2943
109	TENUGHAT	T.V.N.L.(Jharkhnad)	420.00	1.9955	40.0000	0.7982	0.6048	75.7749							0.6048				0.6048
110	TUTICORIN	T.N.G & D Corporation (Tamil Nadu)	1050.00	5.2206	25.7691	1.3453	1.0228	76.0277	0.1662	0.8112					0.0454				1.0228
111	ENNORE	T.N.G & D Corporation (Tamil Nadu)	340.00	0.5737	41.7800	0.2397	0.1767	73.7171	0.0341	0.0680								0.0746	0.1767
112	METTUR-I	T.N.G & D Corporation (Tamil Nadu)	840.00	4.1716	33.2774	1.3882	1.8374	132.3584	0.3299	1.5073									1.8372
113	METTUR-II	T.N.G & D Corporation (Tamil Nadu)	600.00	2.4850	27.3561	0.6798	0.4982	73.2863	0.1197	0.3785									0.4982
114	NORTH CHENNAI-I	T.N.G & D Corporation (Tamil Nadu)	630.00	2.9324	33.0958	0.9705	1.3485	138.9490	0.0850	0.0529	1.2106								1.3485
115	NORTH CHENNAI-II	T.N.G & D Corporation (Tamil Nadu)	1200.00	4.3526	29.4123	1.2802	0.5137	40.1265	0.3393	0.1138	0.0606								0.5137

Annex-I

FLY ASH GENERATION AND ITS UTILIZATION AT COAL/LIGNITE BASED THERMAL POWER STATIONS IN THE COUNTRY FOR THE YEAR 2015-16(APRIL-2015 TO MARCH-2016)
(POWER UTILITY WISE)

Sl no.	Name of TPS	Power Utility & state	Installed Capacity	Coal Consumed	Ash Content of coal	Fly Ash Genaration	Fly Ash Utilization	%age utilization	In making of Fly Ash based/Brick/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 Arae	In Mining filling	In agriculture /waste land Development	Others	Total Utilization
			(MW)	(MT)	%age (7)/(5)x100	(MT)	(MT)	%age (8)/(7)x100	(MT)	(MT)	(MT)	(MT)	(MT)	(MT)	(MT)	(MT)	(MT)	(MT)	(MT) ∑(10) to
116	KOTHAGUDEM (Stage I to IV)	T.S.P.G.C.L (Telengana)	720.00	4.6013	49.4872	2.2771	0.2587	11.3608	0.1695	0.0892									0.2587
117	KOTHAGUDEM-V	A.P.GENCO (Andhrapradesh)	500.00	2.8083	50.0563	1.4057	0.0086	0.6098	0.0013	0.0073									0.0086
118	KOTHAGUDEM-VI	A.P.GENCO (Andhrapradesh)	500.00	1.8871	41.5340	0.7838	0.3369	42.9823	0.0052	0.3317									0.3369
119	KAKATIA (Stage-I)	T.S.G.E.N.C.O. (Telangana)	500.00	2.0349	28.4465	0.579	0.4398	75.9723	0.0009	0.4389		0.0000							0.4398
120	KAKATIA (Stage-II)	T.S.G.E.N.C.O. (Telangana)	600.00	0.0571	28.0343	0.0160	0.0028	17.7222		0.0028									0.0028
121	ANPARA 'A' & 'B'	U.P.R.V.U.N.L. (U.P.)	1630.00	9.2473	41.8188	3.8671	0.0123	0.3168		0.0012					0.0106			0.0005	0.0123
122	HARDUAGANJ	U.P.R.V.U.N.L. (U.P.)	670.00	2.6148	36.3115	0.9495	0.8233	86.7125	0.0200	0.3700					0.4333				0.8233
123	OBRA	U.P.R.V.U.N.L. (U.P.)	1194.00	3.4516	42.7889	1.4769	0.2921	19.7779		0.2921									0.2921
124	PANKI	U.P.R.V.U.N.L. (U.P.)	210.00	0.5096	33.9248	0.1729	0.6945	401.6890		0.0668					0.6260				0.6928
125	PARICHHA	U.P.R.V.U.N.L. (U.P.)	1140.00	5.3267	43.2299	2.3027	1.3089	56.8418		1.1672				0.1415				0.0002	1.3089
126	UDUPI	UPCL (Karnatak)	1200.00	3.3510	4.5986	0.1541	0.1215	78.8449	0.0034	0.0560		0.0621							0.1215
127	KOLAGHAT	W.B.P.D.C.L(W.B.)	1260.00	5.0364	43.9878	2.2154	2.6112	117.8658	0.0508	0.3742							1.6824	0.5038	2.6112
128	SAGARDIGHI	W.B.P.D.C.L(W.B.)	600.00	1.8358	42.6529	0.7830	0.5533	70.6600	0.0409	0.2824								0.2300	0.5533
129	BANDEL	W.B.P.D.C.L (W.B.)	450.00	0.9605	41.8063	0.4016	0.6630	165.1065	0.0047	0.1941	0.4643								0.6630
130	SANTALDIH	W.B.P.D.C.L (W.B.)	500.00	2.4783	41.1667	1.0202	1.1723	114.9074	0.0094						1.1427			0.0701	1.2221
131	BAKRESWAR	W.B.P.D.C.L(W.B.)	1050.00	4.6200	41.6667	1.9250	1.9290	100.2078	0.0127	0.9461					0.9530			0.0172	1.9290
132	SAI WARDHA POWER Ltd. ,WARORA	WPCL (Maharastra)	540.00	1.2340	27.0665	0.3340	0.4150	124.2515		0.3340					0.0810				0.4150
133	GMR WAROARA ENERGY Ltd.	GMR WAROARA ENERGY Ltd. (Maharastra)	600.00	2.5168	31.0223	0.7808	0.6816	87.3004		0.6816									0.6816
134	GMR KAMALANGA TPP	GMR KAMALANGA ENERGY Ltd. (Odisha)	1050.00	4.2383	32.8193	1.3910	0.6435	46.2618	0.3457						0.2978				0.6435
135	RATIZA TPS	Spectrum Coal & Power Limited(Chhattisgarh)	50.00	0.3236	54.7674	0.1772	0.1718	96.9610	0.0111						0.1607				0.1718
136	HALDIA ENERGY LIMITED (W.B)	HALDIA ENERGY LIMITED (W.B)	600.00	2.3850	32.7044	0.7800	0.7840	100.5128	0.0660	0.3760					0.2050			0.1370	0.7840
137	DHARIWAL INFRASTRUCTURE Ltd.	Dhariwal Infrastructure Ltd.(Maharashtra)	600.00	0.2440	34.0164	0.0830	0.0720	86.7470		0.0720									0.0720

Annex-I

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(POWER UTILITY WISE)

Sl no.	Name of TPS	Power Utility & state	Installed Capacity	Coal Consumed	Ash Content of coal	Fly Ash Genaration	Fly Ash Utilization	%age utilization	In making of Fly Ash based/Brick/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 Arae	In Mining filling	In agriculture /waste land Development	Others	Total Utilization
			(MW)	(MT)	%age (7)/(5)x100	(MT)	(MT)	%age (8)/(7)x100	(MT)	(MT)	(MT)	(MT)	(MT)	(MT)	(MT)	(MT)	(MT)	(MT)	(MT) Σ(10) to
138	GMR Chhattisgarh	GMR Chhattisgarh Energy Ltd. (Chhattisgarh)	1370.00	0.5111	33.8414	0.1730	0.1142	66.0300	0.0058	0.1084									0.1142
139	KMPCL (AKALTARA)	KSK Mahanadi Power Company Limited (Chhattisgarh)	1200.00	3.9154	38.3349	1.5010	0.8753	58.3173	0.0015	0.8738									0.8753
140	MCCPL BANDHAKHAR	Maruti Clean Coal and Power Limited (Chhattisgarh)	300.00	0.1951	44.9780	0.0878	0.0190	21.6152	0.0063						0.0126				0.0190
141	SVPPL Renki	ACB India Limited (Chhattisgarh)	60.00	0.0112	57.7268	0.0064	0.0060	93.0635	0.0030					0.0030					0.0060
142	DISHERGARH POWER STATION	IPCL (W.B)	12.00	0.0566	47.8043	0.0270	0.0270	100.0000								0.0270			0.0270
143	BARAUNI	B.S.P.G.C. LTD.(Bihar) (No Generation)	220.00		#DIV/0!			#DIV/0!											0.0000
144	THAMMINAPATNAM TPS	MEENAKSHI ENERGY Pvt. Ltd.(Andhra Pradesh)	300.00	1.1679	4.3411	0.0507	0.0144	28.3563	0.0144										0.0144
145	RAMAGUNDAM'B'	A.P.GENCO (Andhrapradesh)/ Telangana	62.50	0.2732	43.9704	0.1201	0.1690	140.6750	0.0169		0.0676				0.0845				0.1690
146	CHAKABURA TPP	ACB (INDIA) Ltd. (Chhattisgarh)	30.00	0.3341	54.8155	0.1832	0.1832	100.0000	0.0146						0.1685				0.1832
147	PARAYAGRAJ TPS	P.P.G.C.L (U.P.)	660.00	0.0657	27.0003	0.0177	0.0000	0.0000											0.0000
148	GEPL TPP	GUPTA ENERGY Pvt. Ltd.(Maharastra) (No Generation)	120.00		#DIV/0!			#DIV/0!											0.0000
149	VALLUR	NTECL (Tamilnadu)	1500.00	5.1630	26.6318	1.3750	0.2220	16.1455							0.0260			0.1960	0.2220
150	UCHPINDA	PGCIL (Chhattisgarh)	720.00	0.0446	29.7493	0.0133	0.0133	100.0000		0.0026					0.0107				0.0133
151	MUTIARA	COASTAL ENERGEN PVT. LTD (Tamil Nadu)	1200.00	1.7720	4.2886	0.0760	0.0797	104.9373	0.0097	0.0701									0.0797
		Grand Total	**145044.80**	**536.64**	**32.935**	**176.7441**	**107.7658**	**60.9728**	**14.7557**	**43.3801**	**5.0006**	**0.7825**	**0.0375**	**10.6071**	**12.5293**	**10.3343**	**2.2167**	**8.1239**	**107.77**

ANNEX-II

FLY ASH GENERATION AND ITS UTILIZATION AT COAL/LIGNITE BASED THERMAL POWER STATIONS IN THE COUNTRY FOR THE YEAR 2015-16(APRIL-2015 TO MARCH-2016) (State WISE)

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			(MW)	MT	%age (7)/(5)x100	MT	MT	%age (8)/(7)x100	MT	MT	MT	MT	MT	MT	MT	MT	MT	MT	(MT) Σ(10) to
(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	9.1822	45.2263	4.1528	2.9391	70.7748	1.1967	1.3187	0.0069	0.0357	0.0000		0.2690			0.1121	2.9391
2	RAYALSEEMA	A.P.GENCO (Andhra Pradesh)	1050.00	5.3466	43.7051	2.3380	1.3985	62.6152	0.2755	1.0830				0.0400					1.3985
3	SRI DAMODARAM SANJEEVAIAH	APPDCL (Andhra Pradesh)	1600.00	2.8941	29.2230	0.8457	0.2635	31.1531	0.0882	0.1575					0.0174			0.0004	0.2635
4	RAMAGUNDAM	N.T.P.C. (Andhra Pradesh).	2600.00	13.5870	36.9912	5.0260	4.4830	89.1962	1.2820	0.9980	0.0090			0.5190		1.2200		0.4440	4.4720
5	SIMHADRI	N.T.P.C. (Andhra Pradesh).	2000.00	10.0560	29.0871	2.9250	1.0340	35.3504	0.3840	0.1550	0.0410			0.4540					1.0340
6	KOTHAGUDEM-V	A.P.GENCO (Andhra Pradesh)	500.00	2.8083	50.0563	1.4057	0.0086	0.6098	0.0013	0.0073									0.0086
7	KOTHAGUDEM-VI	A.P.GENCO (Andhra Pradesh)	500.00	1.8871	41.5340	0.7838	0.3369	42.9823	0.0052	0.3317									0.3369
8	THAMMINAPATNAM TPS	MEENAKSHI ENERGY Pvt. Ltd.(Andhra Pradesh)	300.00	1.1679	4.3411	0.0507	0.0144	28.3563	0.0144										0.0144
9	MUZAFFARPUR TPS	K.B.U.N.L (Bihar)	220.00	0.5945	42.7590	0.2542	0.0133	5.2502	0.0025						0.0108				0.0133
10	KAHALGAON	N.T.P.C.LTD.(Bihar)	2340.00	12.5450	40.7971	5.1180	2.1010	41.0512	0.2420	0.6520	0.0780			0.5520	0.1400			0.4370	2.1010
11	BARH SUPER TPS	N.T.P.C.LTD (Bihar)	1320.00	2.6610	36.5276	0.9720	0.0620	6.3786	0.0040						0.0180			0.0400	0.0620
12	BARAUNI	B.S.P.G.C. LTD.(Bihar) (No Generation)	220.00		#DIV/0!			#DIV/0!											0.0000
13	KASAI PALI	ACB(INDIA)Ltd.(Chhattishgarh)	270.00	1.9114	56.5538	1.0809	1.0534	97.4520	0.0874		0.0575				0.9085				1.0534
14	DSPM	C.S.P.G.C.L. (Chhattisgarh)	500.00	2.8410	41.8867	1.1900	0.1131	9.5042						0.0900	0.0028		0.0203		0.1131
15	KORBA (EAST)	C.S.P.G.C.LChhattisgarh	440.00	2.3250	47.5667	1.1059	0.2628	23.7624	0.0013					0.2610	0.0005				0.2628
16	O.P.Jindal Super TPP (Stage-I)	JPL (Chhattisgarh.)	1000.00	3.9720	41.5660	1.6510	0.4950	29.9818						0.2810	0.2170				0.4980
17	O.P.Jindal Super TPP(Stage-II)	JPL (Chhattisgarh.)	1800.00	3.3612	41.6220	1.3990	0.4249	30.3717	0.0319					0.3810	0.0120				0.4249
18	AMARKANTAK TPS	LANCO POWER Ltd. (Chhattisgarh)	600.00	2.0587	33.1765	0.6830	0.3462	50.6893	0.0014	0.3448									0.3462
19	BHILAI	NSPCL (Chhattisgarh)	500.00	2.4408	42.0766	1.0270	0.9106	88.6649	0.1389	0.7280					0.0000			0.0437	0.9106
20	KORBA	N.T.P.C. (Chhattisgarh).	2600.00	14.2540	41.6094	5.9310	1.8050	30.4333	0.1490					0.9800				0.6690	1.7980
21	SIPAT	N.T.P.C. (Chhattisgarh).	2980.00	14.0280	39.2857	5.5110	0.8330	15.1152	0.2770	0.4230				0.0470	0.0450			0.0410	0.8330
22	GMR Chhattisgarh	GMR Chhattisgarh Energy Ltd. (Chhattisgarh)	1370.00	0.5111	33.8414	0.1730	0.1142	66.0300	0.0058	0.1084									0.1142
23	KMPCL (AKALTARA)	KSK Mahanadi Power Company Limited (Chhattisgarh)	1200.00	3.9154	38.3349	1.5010	0.8753	58.3173	0.0015	0.8738									0.8753
24	CHAKABURA TPP	ACB (INDIA) Ltd. (Chhattishgarh)	30.00	0.3341	54.8155	0.1832	0.1832	100.0000	0.0146						0.1685				0.1832
25	CHAKABURA TPP (EXTN)	ACB (INDIA) Ltd. (Chhattishgarh)	30.00	0.2978	57.2208	0.1704	0.1704	100.0000	0.0146						0.1557				0.1704
26	KORBA (WEST)	C.S.P.G.C.L (Chhattisgarh)	840.00	4.4953	34.2251	1.5385	0.1225	7.9590							0.1225				0.1225

ANNEX-II

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			(MW)	MT	%age (7)/(5)x100	MT	MT	%age (8)/(7)x100	MT	MT	MT	MT	MT	MT	MT	MT	MT	MT	(MT) $\sum_{(10)\ to}$
27	KORBA (WEST) Ext.Stage-III	C.S.P.G.C.L (Chhattisgarh)	500.00	2.4800	32.0968	0.7960	0.0000	0.0000											0.0000
28	MCCPL BANDHAKHAR	Maruti Clean Coal and Power Limited (Chhattisgarh)	300.00	0.1951	44.9780	0.0878	0.0190	21.6152	0.0063						0.0126				0.0190
29	SVPPL Renki	ACB India Limited (Chhattisgarh)	60.00	0.0112	57.7268	0.0064	0.0060	93.0635	0.0030					0.0030					0.0060
30	RATIZA TPS	Spectrum Coal & Power Limited(Chhattisgarh)	50.00	0.3236	54.7674	0.1772	0.1718	96.9610	0.0111						0.1607				0.1718
31	UCHPINDA	PGCIL (Chhattisgarh)	720.00	0.0446	29.7493	0.0133	0.0133	100.0000		0.0026					0.0107				0.0133
32	BADARPUR	N.T.P.C.LTD (Delhi).	705.00	1.7070	30.0527	0.5130	0.6700	130.6043	0.2270	0.2410	0.2020								0.6700
33	RAJGHAT	IPGCL (Delhi)	135.00	0.0412	33.4639	0.0138	0.0179	129.9501		0.0055	0.0124								0.0179
34	MUNDRA TPS	APL (Gujarat)	4620.00	17.1870	6.9762	1.1990	1.2500	104.2535	0.0019	0.4540	0.1550				0.3770			0.2650	1.2529
35	MUNDRA UMPP	CGPL (Gujarat)	4000.00	9.9700	7.1615	0.7140	0.5150	72.1289		0.5150									0.5150
36	SALAYA	EPGL (Gujarat)	1200.00	2.1000	9.7143	0.2040	0.2040	100.0000	0.0027	0.1760					0.0240				0.2027
37	SURAT LIGNITE	G.I.P.C.L. (Gujarat)	500.00	3.0250	15.7492	0.4764	0.4764	100.0000	0.4416									0.0348	0.4764
38	AKRIMOTA	G.M.D.C.L. (Gujarat)	250.00	1.2681	14.4543	0.1833	0.1908	104.0921								0.1908			0.1908
39	GANDHINAGAR	G.S.E.C.L. (Gujarat)	870.00	1.7480	32.5515	0.5690	0.8720	153.2513	0.2550	0.5080		0.0900						0.0190	0.8720
40	KUTCH LIGNITE	G.S.E.C.L. (Gujarat)	290.00	1.6690	16.4769	0.2750	0.2750	100.0000		0.0160						0.2570			0.2730
41	SIKKA	G.S.E.C.L. (Gujarat)	240.00	0.7310	14.2271	0.1040	0.2490	239.4231	0.0910	0.1570									0.2480
42	UKAI	G.S.E.C.L. (Gujarat)	1350.00	3.7310	33.6907	1.2570	0.9990	79.4749	0.6130	0.2900								0.0950	0.9980
43	WANAKBORI	G.S.E.C.L. (Gujarat)	1470.00	3.9030	34.8450	1.3600	1.0870	79.9265	0.1420	0.7530								0.1950	1.0900
44	SABARMATI	TORENT POWER Ltd.(Gujarat)	422.00	1.3800	20.9710	0.2894	0.2943	101.6932		0.2326				0.0598			0.0019		0.2943
45	INDIRA GANDHI	APCPL (Haryana)	1500.00	3.9827	32.0914	1.2781	0.7691	60.1745	0.1055	0.6636									0.7691
46	HISAR	H.P.G.C.L.(Haryana)	1200.00	3.1039	39.4453	1.2243	1.5365	125.4968	0.0055	0.6510	0.5566	0.0461		0.2773					1.5365
47	YAMUNANAGAR	H.P.G.C.L.(Haryana)	600.00	2.6144	29.4014	0.7687	1.1190	145.5701	0.0140	0.5886	0.1911						0.1268	0.1985	1.1190
48	PANIPAT	H.P.G.C.L.(Haryana)	1367.80	1.1395	39.8420	0.4540	1.3674	301.1894	0.0320	0.9850	0.1116			0.0388	0.2000				1.3674
49	MAHATMA GANDHI	JHPL (Haryana)	1320.00	3.2058	41.2450	1.3222	0.9551	72.2344	0.0465	0.8963	0.0123								0.9551
50	BOKARO 'B'	D.V.C.(Jharkhand)	630.00	1.4352	48.4074	0.6947	0.3610	51.9599	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.3610	0.0000	0.0000	0.3610
51	CHANDRAPURA	D.V.C.(Jharkhand)	890.00	3.4401	48.1301	1.6557	1.4963	90.3733	0.0057	0.0228						1.4666			1.4951
52	KODERMA	D.V.C. (Jharkhand)	1000.00	2.1712	45.0907	0.9790	0.9343	95.4313	0.0392	0.3525	0.0000				0.5426				0.9343
53	PATRATU	J.U.U.N.L (Jharkhand)	770.00	0.5472	37.5229	0.2053	0.0258	12.5523	0.0068						0.0189				0.0257

ANNEX-II

FLY ASH GENERATION AND ITS UTILIZATION AT COAL/LIGNITE BASED THERMAL POWER STATIONS IN THE COUNTRY FOR THE YEAR 2015-16(APRIL-2015 TO MARCH-2016) (State WISE)

Sl no.	Name of TPS	Power Utility & state	Installed Capacity	Coal Consumed	Ash Content of coal	Fly Ash Genaration	Fly Ash Utilization	%age utilization	In making of Fly Ash based/Brick /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 Arae	In Mining filling	In agriculture/ waste land Development	Others	Total Utilization
			(MW)	MT	%age (7)/(5)x100	MT	MT	%age (8)/(7)x100	MT	MT	MT	MT	MT	MT	MT	MT	MT	MT	(MT) $\sum_{(10)}$ to
54	MAITHON RBTPP	MPL (Jharkhand)	1050.00	4.0930	40.1404	1.6429	1.7401	105.9163	0.0312	0.0037	0.0479					1.6552			1.7380
55	JOJOBERA	T.P.CO. (Jharkhnad)	547.50	2.5775	41.2131	1.0623	1.2135	114.2392	0.0013	0.7099		0.0103			0.4920				1.2135
56	TENUGHAT	T.V.N.L.(Jharkhnad)	420.00	1.9955	40.0000	0.7982	0.6048	75.7749							0.6048				0.6048
57	VIJAYANAGAR	JSW Energy Limited (Karnataka)	860.00	2.3972	12.6187	0.3025	0.3024	99.9696	0.0177	0.2255								0.0592	0.3024
58	BELLARY	K.P.C.L (Karnataka)	1000.00	3.5108	37.1655	1.3048	0.5562	42.6240		0.5562									0.5562
59	RAICHUR	K.P.C.L.(Karnataka)	1720.00	8.2400	36.6371	3.0189	1.3753	45.5563	0.2441	1.1312									1.3753
60	UDUPI	UPCL (Karnataka)	1200.00	3.3510	4.5986	0.1541	0.1215	78.8449	0.0034	0.0560		0.0621							0.1215
61	MAHAN	ESSAR POWER MP LTD.(M.P.) (No Generation)	1200.00		#DIV/0!			#DIV/0!											0.0000
62	SANJAY GANDHI	M.P.P.G.C.L. (M.P.)	1340.00	5.0315	37.5357	1.8886	1.4818	78.4576	0.0561	1.4257									1.4818
63	SATPURA	M.P.P.G.C.L. (M.P.)	1330.00	4.5230	44.7674	2.0248	0.7048	34.8085	0.5184	0.0893		0.0101		0.0012		0.0714		0.0144	0.7048
64	AMARKANTAK	M.P.P.G.C.L. (M.P.)	210.00	1.0577	35.9176	0.3799	0.3840	101.0792	0.0409	0.1674				0.1757					0.3840
65	SHREE SINGAJI TPS	M.P.P.G.C.L. (M.P.)	1200.00	3.0197	42.9809	1.2979	0.0407	3.1348	0.0087									0.0320	0.0407
66	VINDHYACHAL	N.T.P.C.LTD.(M.P.)	4260.00	21.6220	36.2131	7.8300	1.3850	17.6884	0.1270	0.2150				0.2590				0.7840	1.3850
67	TIRORA	ADANI POWER Ltd. (Maharastra)	3300.00	11.8916	31.9385	3.7980	2.2959	60.4502	0.0576	0.0238				0.5885	0.6000			1.0270	2.2969
68	MIHAN	AMNEPL (Maharastra)(No Generation)	246.00		#DIV/0!			#DIV/0!											0.0000
69	AMARAVATI TPS	INDIABULLS POWER Ltd. (Maharastra)	1350.00	3.7084	30.5783	1.1340	0.5621	49.5679	0.3163		0.0158			0.1253	0.1047				0.5621
70	BELA TPS	IDEAL ENERGY PROJECTS Ltd.(Maharastra)(No Generation)	270.00		#DIV/0!			#DIV/0!											0.0000
71	RATNAGIRI	JSW Energy Ltd (Maharashtra)	1200.00	3.3533	9.1750	0.3077	0.3089	100.3900	0.0350	0.0876	0.0590	0.1272							0.3089
72	BHUSAWAL	M.S.P.G.C.L.(Maharastra)	1420.00	5.0356	33.9989	1.7120	1.1811	68.9906	0.4987	0.3143							0.2395	0.1287	1.1811
73	CHANDRAPUR	M.S.P.G.C.L.(Maharastra)	2340.00	10.2706	39.7742	4.0850	1.8944	46.3747	0.0448	1.1814	0.1310				0.1648		0.0871	0.2794	1.8884
74	KHAPARKHEDA	M.S.P.G.C.L.(Maharastra)	840.00	4.3207	31.4310	1.3580	1.1736	86.4149	0.2152		0.2234			0.7250				0.0100	1.1736
75	KHAPARKHEDA (EXT)	M.S.P.G.C.L.(Maharastra)	500.00	2.5841	37.9736	0.9813	0.0242	2.4649	0.0242										0.0242
76	KORADI	M.S.P.G.C.L.(Maharastra)	1100.00	1.5590	40.2181	0.6270	0.3682	58.7241	0.1502		0.2180								0.3682
77	NASIK	M.S.P.G.C.L.(Maharastra)	630.00	3.3837	36.6275	1.2394	1.2149	98.0296	0.7723	0.2722	0.0007			0.1574					1.2025
78	PARLI	M.S.P.G.C.L.(Maharastra)	1130.00	1.0933	44.0044	0.4811	1.0906	226.6868	0.4781	0.3381							0.0416	0.2328	1.0906
79	PARAS	M.S.P.G.C.L.(Maharastra)	500.00	2.7871	23.8000	0.6633	0.6370	96.0274	0.3242	0.3128									0.6370

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			(MW)	MT	%age (7)/(5)x100	MT	MT	%age (8)/(7)x100	MT	MT	MT	MT	MT	MT	MT	MT	MT	MT	(MT) $\sum$(10) to
80	MOUDA TPS	N.T.P.C.LTD (Maharastra)	1000.00	1.3150	29.7338	0.3910	0.3160	80.8184	0.3080										0.3080
81	DAHANU	RELIANCE INFRASTRUCTURE Ltd. (Maharastra)	500.00	2.1694	27.9801	0.6070	0.7094	116.8746	0.0004			0.2790		0.0040				0.4260	0.7094
82	TROMBAY	T.P.CO.(Maharashtra)	750.00	2.7040	2.0599	0.0557	0.0556	99.8205				0.0475				0.0069	0.0002	0.0010	0.0556
83	SAI WARDHA POWER Ltd., WARORA	WPCL (Maharastra)	540.00	1.2340	27.0665	0.3340	0.4150	124.2515		0.3340					0.0810				0.4150
84	GMR WAROARA ENERGY Ltd.	GMR WAROARA ENERGY Ltd. (Maharastra)	600.00	2.5168	31.0223	0.7808	0.6816	87.3004		0.6816						0.0000			0.6816
85	DHARIWAL INFRASTRUCTURE Ltd.	Dhariwal Infrastructure Ltd.(Maharashtra)	600.00	0.2440	34.0164	0.0830	0.0720	86.7470		0.0720									0.0720
86	GEPL TPP	GUPTA ENERGY Pvt. Ltd.(Maharastra)	120.00		#DIV/0!			#DIV/0!											0.0000
87	INDIAN METALS & FERRO ALLOYS LTD.	INDIAN METALS & FERRO ALLOYS Ltd.(Odisha)	258.00	0.8870	45.8898	0.4071	0.4070	99.9867	0.0704		0.0726				0.2520			0.0071	0.4022
88	TALCHAR(TPS)	N.T.P.C.LTD(Odisha).	460.00	3.0970	39.0055	1.2080	1.2150	100.5795	0.0130							1.1940			1.2070
89	TALCHAR(KAN)	N.T.P.C.LTD(Odisha).	3000.00	18.0080	37.6499	6.7800	2.8930	42.6696	0.1260	0.0330				2.7340					2.8930
90	IB VALLEY	O.P.G.C.L.(Odisha)	420.00	2.7884	41.7074	1.1630	0.2389	20.5406	0.0158		0.0009			0.1781	0.0391			0.0051	0.2389
91	GMR KAMALANGA TPP	GMR KAMALANGA ENERGY Ltd. (Odisha)	1050.00	4.2383	32.8193	1.3910	0.6435	46.2618	0.3457						0.2978			0.0000	0.6435
92	BATHINDA	P.S.P.C.L. (Punjab)	460.00	0.6428	41.2589	0.2652	0.2248	84.7543	0.0220	0.2028									0.2248
93	LEHRA MOHABAT	P.S.P.C.L. (Punjab)	920.00	1.9065	38.3163	0.7305	0.5281	72.2949	0.0205	0.4958		0.0118							0.5281
94	ROPAR	P.S.P.C.L. (Punjab)	1260.00	2.7222	33.4136	0.9096	1.3218	145.3194	0.0184	1.1241		0.0110			0.1684				1.3218
95	KAWAI	ADANI POWER RAJASTHAN Ltd. (Rajasthan)	1320.00	4.0902	14.5350	0.5945	0.5062	85.1491	0.0017	0.4916				0.0000	0.0129			0.0131	0.5193
96	BARSINGSAR LIGNITE	NLC (Rajasthan)	250.00	1.2128	19.9721	0.2422	0.2422	100.0012	0.0695	0.0903						0.0824			0.2422
97	KOTA	RRVUNL (Rajasthan)	1240.00	5.1584	31.8360	1.6422	1.7854	108.7181	0.6439	1.1207		0.0083					0.0093	0.0033	1.7854
98	CHHABRA	RRVUNL (Rajasthan)	1000.00	2.9164	31.6448	0.9229	0.8539	92.5248	0.0463	0.6264			0.0375					0.1437	0.8539
99	GIRAL	RRVUNL (Rajasthan)	250.00	0.3336	22.5452	0.0752	0.0757	100.7092								0.0757			0.0757
100	JALIPA KAPURDI	RWPL (Rajasthan)	1080.00	6.7130	18.9628	1.2730	1.2420	97.5640	0.0632	0.7725						0.4062			1.2420
101	SURATGARH	RRVUNL (Rajasthan)	1500.00	3.8091	35.7992	1.3636	1.0802	79.2138	0.1933	0.6952								0.1917	1.0802
102	NEYVELI - I	N.L.C.LTD(Tamil Nadu)	600.00	4.8620	4.6483	0.2260	0.1474	65.2168	0.1175	0.0280								0.0019	0.1474
103	NEYVELI -I EXPN	N.L.C.LTD(Tamil Nadu)	420.00	3.3489	7.1701	0.240121	0.2401	99.9875	0.0502	0.1454						0.0445	0.0000		0.2401
104	NEYVELI - II	N.L.C.LTD(Tamil Nadu)	1470.00	11.5154	4.9293	0.5676	0.5659	99.7047	0.1104	0.3108						0.1448			0.5659
105	NEYVELI - II EXPN	NLC (Tamil Nadu) (No Generation)	250.00		#DIV/0!			#DIV/0!											0.0000
106	VALLUR	NTECL (Tamilnadu)	1500.00	5.1630	26.6318	1.3750	0.2220	16.1455							0.0260			0.1960	0.2220

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107	CUDDALORE	TAQA Neyvelly Power Co.Pvt. Ltd. (Tamil Nadu)	250.00	0.9301	6.0092	0.0559	0.0537	96.1585	0.0042	0.0496						0.0000			0.0537
108	ENNORE	T.N.G & D Corporation (Tamil Nadu)	340.00	0.5737	41.7800	0.2397	0.1767	73.7171	0.0341	0.0680								0.0746	0.1767
109	METTUR-I	T.N.G & D Corporation (Tamil Nadu)	840.00	4.1716	33.2774	1.3882	1.8374	132.3584	0.3299	1.5073									1.8372
110	METTUR-II	T.N.G & D Corporation (Tamil Nadu)	600.00	2.4850	27.3561	0.6798	0.4982	73.2863	0.1197	0.3785									0.4982
111	NORTH CHENNAI-I	T.N.G & D Corporation (Tamil Nadu)	630.00	2.9324	33.0958	0.9705	1.3485	138.9490	0.0850	0.0529	1.2106								1.3485
112	NORTH CHENNAI-II	T.N.G & D Corporation (Tamil Nadu)	1200.00	4.3526	29.4123	1.2802	0.5137	40.1265	0.3393	0.1138	0.0606								0.5137
113	TUTICORIN	T.N.G & D Corporation (Tamil Nadu)	1050.00	5.2206	25.7691	1.3453	1.0228	76.0277	0.1662	0.8112					0.0454				1.0228
114	MUTIARA	COASTAL ENERGEN PVT. LTD (Tamil Nadu)	1200.00	1.7720	4.2886	0.0760	0.0797	104.9373	0.0097	0.0701									0.0797
115	KOTHAGUDEM (Stage I to IV)	T.S.P.G.C.L (Telengana)	720.00	4.6013	49.4872	2.2771	0.2587	11.3608	0.1695	0.0892									0.2587
116	KAKATIA (Stage-I)	T.S.G.E.N.C.O.(Telangana)	500.00	2.0349	28.4465	0.579	0.4398	75.9723	0.0009	0.4389		0.0000							0.4398
117	KAKATIA (Stage-II)	T.S.G.E.N.C.O.(Telangana)	600.00	0.0571	28.0343	0.01601	0.0028	17.7222		0.0028									0.0028
118	RAMAGUNDAM'B'	A.P.GENCO (Andhrapradesh)/Telangana	62.50	0.2732	43.9704	0.1201	0.1690	140.6750	0.0169		0.0676				0.0845				0.1690
119	BARKHERA	BEPL (UP)	90.00	0.3053	40.1570	0.1226	0.1223	99.7136	0.0006	0.0243				0.0000	0.0973				0.1223
120	KHAMBER KHERA	BEPL (UP)	90.00	0.2891	41.3941	0.1197	0.1195	99.8286	0.0037	0.0585				0.0000	0.0572				0.1195
121	KUNDARKI	BEPL (UP)	90.00	0.3397	40.4998	0.1376	0.1376	100.0000	0.0012	0.0985				0.0000	0.0379				0.1376
122	MAQSOODAPUR	BEPL (UP)	90.00	0.2785	`	0.1112	0.1112	99.9986	0.0015	0.0245				0.0000	0.0808				0.1068
123	UTRAULA	BEPL (UP)	90.00	0.3385	41.0786	0.1391	0.1391	100.0000		0.0583				0.0000	0.0808				0.1391
124	DADRI	N.T.P.C.LTD. (U.P.)	1820.00	6.4900	31.9877	2.0760	2.8290	136.2717	0.4460	1.2510					0.5890			0.5440	2.8300
125	SINGRAULI	N.T.P.C.LTD. (U.P.)	2000.00	11.7920	38.5685	4.5480	0.3970	8.7291	0.0090	0.0150				0.3740					0.3980
126	RIHAND	N.T.P.C.LTD. (U.P.)	3000.00	13.8640	31.5493	4.3740	0.6600	15.0892	0.0650	0.0280				0.3500	0.1950			0.0220	0.6600
127	FEROZE GANDHI UNACHAR	NTPC Ltd.(U.P.)	1050.00	4.6330	38.5711	1.7870	1.8180	101.7348	0.0150	1.2270	0.0590			0.2530	0.1000			0.1660	1.8200
128	TANDA	N.T.P.C.LTD. (U.P.)	440.00	2.2960	39.2422	0.9010	0.7410	82.2420	0.1100	0.2360				0.2240				0.1710	0.7410
129	ROSA PHASE-I	RPSCL(U.P)	1200.00	4.6259	32.9595	1.5247	0.9126	59.8527		0.3767	0.1510	0.0025		0.2274	0.1549				0.9126
130	ANPARA 'A' & 'B'	U.P.R.V.U.N.L. (U.P.)	1630.00	9.2473	41.8188	3.8671	0.0123	0.3168		0.0012					0.0106			0.0005	0.0123
131	HARDUAGANJ	U.P.R.V.U.N.L. (U.P.)	670.00	2.6148	36.3115	0.9495	0.8233	86.7125	0.0200	0.3700					0.4333				0.8233
132	OBRA	U.P.R.V.U.N.L. (U.P.)	1194.00	3.4516	42.7889	1.4769	0.2921	19.7779		0.2921									0.2921
133	PANKI	U.P.R.V.U.N.L. (U.P.)	210.00	0.5096	33.9248	0.1729	0.6945	401.6890		0.0668					0.6260				0.6928

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			(MW)	MT	%age (7)/(5)x100	MT	MT	%age (8)/(7)x100	MT	MT	MT	MT	MT	MT	MT	MT	MT	MT	(MT) $\sum$(10) to
134	PARICHHA	U.P.R.V.U.N.L. (U.P.)	1140.00	5.3267	43.2299	2.3027	1.3089	56.8418		1.1672				0.1415				0.0002	1.3089
135	PARAYAGRAJ TPS	P.P.G.C.L (U.P.)	660.00	0.0657	27.0003	0.0177	0.0000	0.0000											0.0000
136	B.B.G.S.	C.E.S.C. (West Bengal)	750.00	3.4610	38.3126	1.3260	1.3260	100.0000	0.0520	0.9990					0.2710				1.3220
137	S.G.S.	C.E.S.C. (West Bengal)	135.00	0.4091	34.4659	0.1410	0.1410	100.0000	0.0082	0.1100		0.0090			0.0152				0.1424
138	T.G.S.	C.E.S.C. (West Bengal)	240.00	0.4780	26.9874	0.1290	0.1290	100.0000	0.0170	0.0640	0.0180				0.0300				0.1290
139	DURGAPUR	D.V.C.(West Bengal)	350.00	0.7481	50.3680	0.3768	0.2733	72.5200				0.0318				0.2414			0.2733
140	MEJIA	D.V.C.(West Bengal)	2340.00	7.6855	44.7589	3.4399	3.7805	109.9016	0.0118	0.9676	0.0254					2.7757			3.7805
141	DURGAPUR STEEL	D.V.C. (West Bengal)	1000.00	3.0520	46.7069	1.4255	1.4088	98.8253	0.0529	0.7235	0.0559				0.5765				1.4088
142	D.P.P.S.	D.P.L (West Bengal).	660.00	1.3706	44.1971	0.6058	0.9846	162.5428		0.2980	0.4437				0.1215	0.1137	0.0077		0.9846
143	FARAKKA	N.T.P.C.LTD.(West Bengal).	2100.00	8.5600	34.2874	2.9350	0.8810	30.0170	0.0110	0.1420	0.2420			0.1050	0.3440			0.0370	0.8810
144	KOLAGHAT	W.B.P.D.C.L(West Bengal).	1260.00	5.0364	43.9878	2.2154	2.6112	117.8658	0.0508	0.3742							1.6824	0.5038	2.6112
145	SAGARDIGHI	W.B.P.D.C.L(West Bengal).	600.00	1.8358	42.6529	0.7830	0.5533	70.6600	0.0409	0.2824								0.2300	0.5533
146	BANDEL	W.B.P.D.C.L (West Bengal).	450.00	0.9605	41.8063	0.4016	0.6630	165.1065	0.0047	0.1941	0.4643								0.6630
147	SANTALDIH	W.B.P.D.C.L (West Bengal).	500.00	2.4783	41.1667	1.0202	1.1723	114.9074	0.0094						1.1427			0.0701	1.2221
148	BAKRESWAR	W.B.P.D.C.L(West Bengal).	1050.00	4.6200	41.6667	1.9250	1.9290	100.2078	0.0127	0.9461					0.9530			0.0172	1.9290
149	HALDIA ENERGY LIMITED (W.B)	HALDIA ENERGY LIMITED (West Bengal).	600.00	2.3850	32.7044	0.7800	0.7840	100.5128	0.0660	0.3760					0.2050			0.1370	0.7840
150	CHINAKURI	DPSCL (West Bengal). No Generation	30.00		#DIV/0!			#DIV/0!											0.0000
151	DISHERGARH POWER STATION	IPCL (West Bengal).	12.00	0.0566	47.8043	0.0270	0.0270	100.0000								0.0270			0.0270
		Grand Total	**145044.80**	**536.64**	**32.9352**	**176.7441**	**107.7658**	**60.9728**	**14.7557**	**43.3801**	**5.0006**	**0.7825**	**0.0375**	**10.6071**	**12.5293**	**10.3343**	**2.2167**	**8.1239**	**107.77**

रजिस्ट्री सं० डी० एल०-33004/99 REGD. NO. D. L.-33004/99

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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;

अत:, 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 अंत:स्थापित किया जाएगा, अर्थात्:-

"परंतु यह और कि शुष्क ईएसपी फ्लाई ऐश के 20 प्रतिशत का नि:शुल्क 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 अंत:स्थापित किए जाएंगे, अर्थात् :-

"(8) प्रत्येक कोयला या लिग्नाइट आधारित तापीय विद्युत संयंत्र (जिसके अंतर्गत कैपटिव और/या सह उत्पादन केन्द्र भी हैं), अधिसूचना की तारीख से तीन मास के भीतर उनके पास उपलब्ध प्रत्येक किस्म की ऐश के स्टाक के ब्यौरे अपनी वेबसाइट पर अपलोड करेगा और उसके पश्चात् मास में कम से कम एक बार स्टाक की स्थिति को अद्यतन करेगा।

(9) प्रत्येक कोयला या लिग्नाइट आधारित तापीय विद्युत संयंत्र समर्पित शुष्क ऐश साइलोस 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 संड़क 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 अंत:स्थापित 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 ईंटों 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]

बिश्वनाथ 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,-

(a) in sub-paragraph 1(A), for the words "hundred kilometers", the words "three hundred kilometers" shall be substituted;

(b) in sub-paragraph (3), for the figures and letters "100 km", the words "three hundred kilometers" shall be substituted;

(c) in sub-paragraph (5), for the words "hundred Kilometers", the words "three hundred Kilometers" shall be substituted;

(d) 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 utlise 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.

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ANNEX-IV

रजिस्ट्री सं० डी० एल०-33004/99

REGD. NO. D. L.-33004/99

भारत का राजपत्र
The Gazette of India

असाधारण

EXTRAORDINARY

भाग II—खण्ड 3—उप-खण्ड (i)

PART II—Section 3—Sub-section (i)

प्राधिकार से प्रकाशित

PUBLISHED BY AUTHORITY

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पर्यावरण और वन मंत्रालय

अधिसूचना

नई दिल्ली, 2 जनवरी, 2014

सा.का.नि. 02(अ).—केन्द्रीय सरकार ने, पर्यावरण (संरक्षण) नियम, 1986 के नियम 5 के साथ पठित पर्यावरण संरक्षण अधिनियम, 1986 (1986 का 29) की धारा 3 की उप-धारा (2) और धारा 25 का प्रयोग करते हुए, पर्यावरण (संरक्षण) नियम, 1986 का और संशोधन करने के लिए भारत के राजपत्र, असाधारण में सं. सा.का.नि. 552(अ), तारीख 11 जुलाई, 2012 द्वारा सभी व्यक्तियों तथा संगठनों की जानकारी के लिए जिनके उनसे प्रभावित होने की संभावना थी, प्रारूप नियम प्रकाशित किए थे और यह सूचना दी थी कि उक्त प्रारूप नियमों पर उस तारीख से जिसको राजपत्र की प्रतियां, जिसमें सूचना प्रकाशित की जाती है, जनता को उपलब्ध करा दी जाती हैं, साठ दिनों की अवधि की समाप्ति के पश्चात् विचार किया जाएगा;

और जनता को उक्त राजपत्र की प्रतियां 31 जुलाई, 2012 को उपलब्ध करा दी गईं थी;

और केन्द्रीय सरकार द्वारा उपर वर्णित प्रारूप नियमों पर प्राप्त सुझावों या आक्षेपों पर सम्यक्तः विचार किया गया है;

अतः अब केन्द्रीय सरकार, पर्यावरण (संरक्षण) नियम, 1986 के नियम 5 के साथ पठित पर्यावरण संरक्षण अधिनियम, 1986 (1986 का 29) की धारा 3 की उप-धारा (2), धारा 6 और धारा 25 द्वारा प्रदत्त शक्तियों का प्रयोग करते हुए, पर्यावरण (संरक्षण) नियम, 1986 का और संशोधन करने के लिए निम्नलिखित नियम बनाती है, अर्थात् : —

1. (1) इन नियमों का संक्षिप्त नाम पर्यावरण (संरक्षण) संशोधन नियम, 2014 है ।

(2) ये राजपत्र में प्रकाशन की तारीख को प्रवृत्त होंगे ।

2. पर्यावरण (संरक्षण) अधिनियम, 1986 में, नियम 3 के उप-नियम (8) के स्थान पर निम्नलिखित उप-नियम रखा जाएगा, अर्थात् : —

"(8) इसमें नीचे विनिर्दिष्ट तारीख से निम्नलिखित कोयला आधारित ताप ऊर्जा संयंत्र त्रैमासिक औसत आधार पर कच्चा अथवा मिश्रित अथवा सज्जीकृत कोयले का जिसमें भष्म अंतर्वस्तु 34% से अनधिक हो, उपयोग करेंगे, अर्थात् : —

(क) एकल ताप विद्युत संयंत्र (किसी भी क्षमता का) या 100 मेगावाट या अधिक प्रतिष्ठापित क्षमता का या उससे अधिक क्षमता का प्रतिष्ठापित कैप्टिव ताप विद्युत संयंत्र जो गर्तमुख से 1000 किलोमीटर से अधिक दूरी पर या किसी शहरी क्षेत्र या किसी पारिस्थितिकीय रूप से संवेदनशील क्षेत्र में या गंभीर रूप से प्रदूषित औद्योगिक क्षेत्र में आवस्थित है, गर्तमुख से उसकी दूरी पर ध्यान दिए बिना सिवाय किसी गर्तमुख विद्युत संयंत्र के, तुरंत प्रभाव से,;

(ख) एकल ताप विद्युत संयंत्र (किसी भी क्षमता का) या 100 मेगावाट या उससे अधिक प्रतिष्ठापित क्षमता का कैप्टिव ताप विद्युत संयंत्र जो गर्तमुख से 750-1000 किलोमीटर के बीच की दूरी पर अवस्थित है, 1 जनवरी, 2015 से;

(ग) एकल ताप ऊर्जा संयंत्र (किसी भी क्षमता का) या 100 मेगावाट या उससे अधिक प्रतिष्ठापित क्षमता का कैप्टिव ताप विद्युत संयंत्र जो गर्तमुख से 500-749 किलोमीटर के बीच की दूरी पर अवस्थित है, 5 जून, 2016 से;

परंतु यह कि ऐसे किसी ताप ऊर्जा संयंत्र के संबंध में, जो परिसंचारी तरल-तर दहन या वायुमंडलीय तरल-तर दहन या संपीड़ित द्रवित तरल-तर दहन या समाकलित गैसीकरण संयुक्त आवर्तन चक्र प्रौद्योगिकियों का या ऐसी कोई स्वच्छ प्रौद्योगिकियों का, जो केन्द्रीय सरकार द्वारा राजपत्र में अधिसूचित की जाएं, प्रयोग कर रहा है, खंड (क), (ख) और (ग) लागू नहीं होंगे ।

स्पष्टीकरण : — इस नियम के प्रयोजन के लिए, —

(i) 'सज्जीकृत कोयला' से ऐसा कोयला अभिप्रेत है जिसमें उच्चतर कैलोरी मान अंतर्विष्ट है किंतु भौतिक पृथक्करण या धोवन प्रक्रिया के माध्यम से अभिप्राप्त कच्चे कोयले में अंतर्विष्ट मूल भष्म से निम्नतर भष्म अंतर्विष्ट है;

(ii) 'कैप्टिव ताप ऊर्जा संयंत्र' से ऐसा ताप ऊर्जा संयंत्र अभिप्रेत हैं जो किसी उद्योग द्वारा उसके अनन्य उपयोग के लिए विद्युत सृजन के लिए स्थापित किया गया है;

(iii) 'अत्यधिक प्रदूषित औद्योगिक क्षेत्र' से ऐसा औद्योगिक समूह या क्षेत्र अभिप्रेत है, जहां प्रदूषण गंभीर स्तर पर पहुंच चुका है या पहुंच जाने की संभावना है और जिसकी केन्द्रीय सरकार या राज्य सरकार या केन्द्रीय प्रदूषण नियंत्रण बोर्ड या राज्य प्रदूषण नियंत्रण बोर्ड द्वारा ऐसे क्षेत्र के रूप में पहचान की जा चुकी है;

(iv) 'पारिस्थितिकीय रूप से संवेदनशील क्षेत्र' से, ऐसा क्षेत्र अभिप्रेत है, जहां पारिस्थितिकीय संतुलन आसानी से विक्षुब्ध होने की संभावना है और जिसकी केन्द्रीय सरकार द्वारा पहचान की गई है और उसे अधिसूचित किया गया है;

(v) 'प्रतिष्ठापित क्षमता' की संगणना किसी सीमा के भीतर सभी इकाईयों की व्यष्टिक क्षमता को जोड़कर की जाएगी;

(vi) 'गर्तमुख विद्युत संयंत्र' से कोई केपटिव या एकल विद्युत केन्द्र अभिप्रेत है जिसका खनन क्षेत्र से लदाई बिन्दु तक विद्युत केन्द्र में सामान्य लोक परिवहन प्रणाली का उपयोग किए बिना विद्युत केन्द्र में कोयले के परिवहन के लिए उसके अनन्य उपयोग के लिए केपटिव परिवहन प्रणाली है;

(vii) 'एकल ताप विद्युत संयंत्र' से ऐसा विद्युत संयंत्र अभिप्रेत है जिसकी स्थापना विद्युत ग्रिड में विद्युत आपूर्ति के लिए विद्युत के सृजन के लिए या उन अवस्थानों पर जिन्हें विद्युत वितरण प्रणाली के साथ सुसज्जित नहीं किया गया है, विद्युत आपूर्ति के लिए की गई है; और

(viii) 'शहरी क्षेत्र' से ऐसे शहर की क्षेत्र सीमा अभिप्रेत जिसकी जनसंख्या नवीनतम जनगणना के अनुसार दस लाख से अधिक हो ।"।

[फा. सं. क्यू-15017/11/2011-सी.पी.डब्ल्यू.]

सुशील कुमार, अपर सचिव

टिप्पण.—मूल नियम भारत के राजपत्र में सं. का. आ. 844(अ), तारीख 19 नवम्बर, 1986 द्वारा प्रकाशित किए गए थे और पश्चात्वर्ती संशोधन सं. का.आ. 82(अ), तारीख 16 फरवरी, 1987; का.आ. 64(अ), तारीख 18 जनवरी, 1988;

सा.का.नि., 931(अ), तारीख 27 अक्तूबर, 1989; का.आ. 23 (अ), तारीख 16 जनवरी, 1991; सा.का.नि. 95(अ), तारीख 12 फरवरी, 1992; सा.का.नि. 329(अ), तारीख 13 मार्च, 1992; सा.का.नि. 562(अ), तारीख 27 मई, 1992; सा.का. नि. 884(अ), तारीख 20 नवम्बर, 1992; सा.का.नि. 386(अ), तारीख 22 अप्रैल, 1993; सा.का.नि. 422(अ), तारीख 19 मई, 1993; सा.का.नि. 801(अ), तारीख 31 दिसंबर, 1993; सा.का.नि. 320(अ), तारीख 16 मार्च, 1994; सा.का.नि. 560(अ), तारीख 19 सितंबर, 1997; सा.का.नि. 378(अ), तारीख 30 जून, 1998; सा.का.नि. 07(अ), तारीख 22 दिसंबर, 1998; सा.का.नि. 407(अ), तारीख 31 मई, 2001; और सा.का.नि. 826(अ), तारीख 16 नवंबर, 2009 और सा.का.नि. 513(अ), तारीख 28 जून, 2012 द्वारा किए गए ।

MINISTRY OF ENVIRONMENT AND FORESTS

NOTIFICATION

New Delhi, the 2nd January, 2014

G.S.R. 02(E).—Whereas the Central Government had, in exercise of its powers under sub-section (2) of Section 3 and Section 25 of the Environment (Protection) Act, 1986 (29 of 1986), read with rule 5 of the Environment (Protection) Rules, 1986, published draft rules further to amend the Environment (Protection) Rules, 1986, in the Gazette of India, Extraordinary, *vide* number G.S.R. 552(E), dated 11th July, 2012 for information of all persons and organizations likely to be affected thereby; and notice was given that the said draft rules would be taken into consideration by the Central Government on or after the expiry of a period of sixty days from the date on which copies of the Gazette containing this notification are made available to the public;

And whereas, the copies of the said Gazette notification were made available to the public on the 31st July, 2012;

And whereas, the suggestions or objections received in response to the above mentioned draft rules have been duly considered by the Central Government;

Now, therefore, in exercise of the powers conferred by Section 3, Section 6 and Section 25 of the Environment (Protection) Act, 1986 (29 of 1986) read with rule 5 of the Environment (Protection) Rules, 1986, the Central Government hereby makes the following rules further to amend the Environment (Protection) Rules, 1986, namely :—

1. (1) These rules may be called the Environment (Protection) Amendment Rules, 2014.

(2) They shall come into force on the date of their publication in the Official Gazette.

2. In the Environment (Protection) Rules, 1986, in rule 3, for sub-rule (8), the following sub-rule shall be substituted, namely :—

"(8) With effect from the date specified hereunder, the following coal based thermal power plants shall be supplied with, and shall use, raw or blended or beneficiated coal with ash content not exceeding thirty-four per cent, on quarterly average basis, namely :—

(a) a stand-alone thermal power plant (of any capacity), or a captive thermal power plant of installed capacity of 100 MW or above, located beyond 1000 kilometres from the pit-head or, in an urban area or an ecologically sensitive area or a critically polluted industrial area, irrespective of its distance from the pit-head, except a pit-head power plant, with immediate effect;

(b) a stand-alone thermal power plant (of any capacity), or a captive thermal power plant of installed capacity of 100 MW or above, located between 750 – 1000 kilometres from the pit-head, with effect from the 1st day of January, 2015;

(c) a stand-alone thermal power plant (of any capacity), or a captive thermal power plant of installed capacity of 100 MW or above, located between 500-749 kilometres from the pit-head, with effect from the 5th day of June, 2016:

Provided that in respect of a thermal power plant using Circulating Fluidised Bed Combustion or Atmosphere Fluidised Bed Combustion or Pressurized Fluidised Bed Combustion or Integrated Gasification Combined Cycle technologies or any other clean technologies as may be notified by the Central Government in the Official Gazette, the provisions of clauses (a), (b) and (c) shall not be applicable.

Explanation: For the purpose of this rule,—

(i) 'beneficiated coal' means coal containing higher calorific value but lower ash than the original ash content in the raw coal obtained through physical separation or washing process;

(ii) 'captive thermal power plant' means a power plant which is set up by an industry to generate electricity for its exclusive use;

(iii) 'critically polluted industrial area' means an industrial cluster or area where pollution levels have reached or likely to reach critical level, and has been identified as such by the Central Government or the State Government or the Central Pollution Control Board or a State Pollution Control Board;

(iv) 'ecologically sensitive area' means an area whose ecological balance is prone to be easily disturbed and has been identified and notified by the Central Government;

(v) 'installed capacity' shall be calculated by adding, individual capacity of all units within a boundary;

(vi) 'pit-head power plant' means any captive or stand-alone power station having captive transportation system for its exclusive use for transportation of coal from the loading point at the mining end, up to the uploading point at the power station without using the normal public transportation system;

(vii) 'stand-alone thermal power plant' means a power plant which is set up to generate electricity for feeding to electricity grid or for locations that are nor fitted with an electricity distribution system; and

(viii) 'urban area' means an area limit of a city having a population of more than one million according to the last census. ".

[F. No. Q-15017/11/2011-CPW]

SUSHEEL KUMAR, Addl. Secy.

Note:—The Principal rules were published in the Gazette of India *vide* number S.O. 844(E), dated the 19th November, 1986 and subsequently amended *vide* numbers S.O. 82(E), dated 16th February, 1987; S.O. 64(E), dated 18th January, 1988; G.S.R. 931(E), dated 27th October, 1989; S.O. 23(E), dated 16th January, 1991; G.S.R. 95(E), dated 12th February, 1992; G.S.R. 329(E), dated 13th March, 1992; G.S.R. 562(E), dated 27th May, 1992; G.S.R. 884(E), dated 20th November, 1992; G.S.R. 386(E), dated 22nd April, 1993; G.S.R. 422(E), dated 19th May, 1993; G.S.R. 801(E), dated 31st December, 1993; G.S.R. 320(E), dated 16th March, 1994; G.S.R. 560(E), dated 19th September, 1997; G.S.R. 378(E), dated 30th June, 1998; G.S.R. 7(E), dated 22nd December, 1998; G.S.R. 407(E), dated 31st May, 2001; G.S.R. 826(E), dated 16th November, 2009 and G.S.R. 513(E), dated 28th June, 2012.

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