



REPORT
ON
FLY ASH GENERATION
AT
COAL/LIGNITE BASED THERMAL POWER
STATIONS
AND
ITS UTILIZATION IN THE COUNTRY
FOR
THE YEAR 2013-14



CENTRAL ELECTRICITY AUTHORITY

NEW DELHI

AUGUST, 2014



FOREWORD

Electricity generation in the country is and would remain predominantly coal based 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 (MoEF) 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 99.62 million-ton in 2013-14. The percentage of fly ash utilization during 2013-14 (57.63) is however behind the target (90%) fixed by MoEF vide its notification dated 03.11.2009. This is a matter of concern and I understand MoEF and other concerned departments are addressing the bottlenecks/difficulties to achieve the target.

This Report gives an overview of current status of fly ash generation and its utilization in the country for the year 2013-14. This, I am sure, will serve as useful information to guide further strategies that all stakeholders can evolve to turn the "menace" into a "meaningful" engagement on issues related to implementation on fly ash utilization of Ministry of Environment & Forests Notification of 3rd November, 2009.

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
August, 2014

(Neerja Mathur)
Chairperson, CEA
& Ex-officio Secretary
to the Government of India



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's Notification of 3rd November, 2009. 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. All these issues demand to promote gainful utilization of fly ash on an urgent basis.

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 has been subsequently amended in 2003 and 2009 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 2013-14, the ash utilization level has reached to about 57.63% (99.6MT) of total ash generated during the year as compared to less than 10% (6.6MT) 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 143 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 3rd November, 2009. 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. Thanks are due to all Power Utilities and Thermal Power Station for furnishing data in a timely manner.

New Delhi
August, 2014

(K.N.Garg)
Member (Thermal)

ACKNOWLEDGEMENT

TCD Division of CEA express sincere thanks to all the Power Utilities and 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 2013-14. Timely furnishing the required data and information by various Power Utilities and Thermal Power Stations to CEA is important for bringing out the report.

The Chairperson and Member (Thermal), have been kind to guide the TCD Division in the preparation of this Report.

The collection and compilation of fly ash data entail many activities such as writing to Power utilities, Thermal Power Stations, sending reminder, requesting on phone, etc. continuous and sustained effort is required almost on daily basis to obtain the data to ensure preparation of report. S/ Shri Neeraj Kumar, Director, Birendra Singh, Deputy Director, B.P.Upadhaya, Assistant Director, Laxmi Narain, Head Draftsman etc. were engaged in obtaining the data and preparing the report. Their works are greatly appreciated.

NTPC was very helpful to arrange printing the report for the year 2011-12, 2012-13. I hope that the gesture of help will continue in respect of this report as well.

New Delhi
August, 2014

(Gorakh Thakur)
Chief Engineer (TCD)

CONTENTS

PARA No.	DESCRIPTION	PAGE No.
1.0	Background	1
2.0	Ash Generation & Utilization during the Year 2013-14	1
2.1	A Brief Summary	1
2.2	Retirement of Units during 2013-14	2
2.3	Power Utility wise status of fly ash generation & its utilization during the Year 2013-14	2
2.4	State wise status of fly ash generation & its utilization during the Year 2013-14	5
3.0	Targets of fly ash utilization as per MoEF's Notification dated 3 rd November, 2009	6
3.1	Thermal Power Station in operation as on 03.11.2009	6
3.2	Thermal Power Stations Commissioned after 03.11.2009	7
4.0	Present status of fly ash utilization as per MoEF's notification of 3 rd November, 2009	7
4.1	Status during the Year 2013-14	7
4.2	Range of Fly Ash utilization during the year 2013-14	8
4.3	Thermal Power Stations that achieved 100% or more Fly Ash utilization during the year 2013-14	8
4.4	Power Stations with ash utilization range of less than 100% and up to 75% during the year 2013-14	10
4.5	Power Stations with ash utilization range of less than 75% and up to 60% during the year 2013-14	12
4.6	Power Stations with ash utilization level of less than 60% during the year 2013-14	12
5.0	Modes of Fly Ash utilization during the year 2013-14	15
6.0	Progressive fly ash generation & utilization during the period from 1996-97 to 2013-14	16
7.0	Progressive fly ash utilization in various modes/sectors during the period from 1998-99 to 2013-14	18
7.1	Cement Industry	18
7.2	Reclamation of low lying area	18
7.3	Construction of Road, Embankments, Flyovers and raising of Ash dykes.	19
7.4	Back Filling/Stowing of Mines	20
7.5	Building materials like bricks, blocks, tiles etc.	20
7.6	Agriculture	21
8.0	Conclusions & Recommendations	22
9.0	Abbreviations	23
Annex-I	Fly ash generation and its utilization at coal/lignite based thermal power stations in the country during the year 2013-14 (Power Station Wise)	
Annex-II	Utilization Status as per Notification of 3 rd November,2009 during the year 2013-14	

LIST OF TABLES

TABLE No.	TITLE OF TABLE	PAGE No.
I	Summary of fly ash generation and utilization during the year 2013-14	2
II	Units retired during the year 2013-14	2
III	Power Utility wise fly ash generation & utilization for the year 2013-14	2
IV	State wise fly ash generation & utilization during the year 2013-14	5
V	Targets for fly ash utilization for Thermal Power Station in operation as on 03.11.2009	6
VI	Targets for fly ash utilization for Thermal Power Station commissioned after 03.11.2009	7
VII	Status of utilization of fly ash as per MoEF's notification dated 3 rd November, 2009 for the year 2013-14	8
VIII	Range of percentage Fly ash utilization during the year 2013-14	8
IX	Thermal Power Stations with fly ash utilization level of 100% or more during the year 2013-14	9
X	Thermal Power Stations with fly ash utilization level of less than 100% and up to 75% during the year 2013-14	10
XI	Thermal Power Stations with ash utilization level of less than 75% and up to 60% during the year 2013-14	12
XII	Thermal Power Stations with Ash Utilization Level of less than 60% during the Year 2013-14	13
XIII	Modes of fly ash utilization during Year 2013-14	15
XIV	Progressive Fly Ash generation & utilization during the period from 1996-97 to 2013-14	16

LIST OF FIGURES

Figure No.	TITLE OF FIGURE	PAGE No.
1	Mode of fly ash utilization during 2013-14	16
2	Progressive generation & utilization of fly ash during the Period from 1996-97 to 2013-14	17
3	Progressive utilization of fly ash in cement manufacturing and concrete during the Period from 1998-99 to 2013-14	18
4	Progressive utilization of fly ash in reclamation of low lying areas during the period from 1998-99 to 2013-14	19
5	Progressive utilization of fly ash in construction of roads/embankments/ash dyke raising during the period from 1998-99 to 2013-14	19
6	Progressive utilization of fly ash in Mine filling during the period from 1998-99 to 2013-14	20
7	Progressive utilization of fly ash in manufacture of fly ash based brick/blocks/ tiles during the period from 1998-99 to 2013-14	21
8	Progressive utilization of fly ash in agriculture during the period from 1998-99 to 2013-14	21

CENTRAL ELECTRICITY AUTHORITY
THERMAL CIVIL DESIGN DIVISION

**FLY ASH GENERATION AT COAL/LIGNITE BASED THERMAL POWER STATIONS AND ITS
UTILIZATION IN THE COUNTRY
(FOR THE YEAR 2013-14)**

1.0 BACKGROUND

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

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

To reduce the requirement of land for disposal of fly ash in ash ponds and to address the problem of pollution caused by fly ash, Ministry of Environment & Forests (MoEF) has issued various Notifications on fly ash utilization, first Notification was issued on 14th September, 1999 which was subsequently amended in 2003 and 2009 vide Notifications dated 27th August, 2003 and 3rd November, 2009 respectively. The said Notification of 2009 as noted below prescribe 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 which have come into operation after the MoEF's notification (i.e. 3rd November, 2009) are to achieve the target of fly ash utilization as 50% in the first year, 70% during two years, 90% during three years and 100% during four years depending upon their date of commissioning.

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

2.0 ASH GENERATION & UTILIZATION DURING THE YEAR 2013-14

2.1 A Brief Summary

Fly ash generation & utilization data for the Year 2013-14 (April, 2013 to March, 2014) has been received from **143** (One hundred forty three 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 2013-14

Description	:	Year 2013-14
• Nos. of Thermal Power Stations from which data was received	:	143
• Installed capacity (MW)	:	1,33,381.30
• Coal consumed (Million tons)	:	523.52
• Fly Ash Generation (Million tons)	:	172.87
• Fly Ash Utilization (Million tons)	:	99.62
• Percentage Utilization	:	57.63
• Percentage Average Ash Content (%)	:	33.02

Power Station wise fly ash generation & its utilization status including modes of utilization for the 2013-14 for all the **143** thermal power stations is given in the statement at **Annex-I**.

2.2 Retirement of Units during the Year 2013-14:

During the Year 2013-14, two Units, each with installed capacity of 62.5 MW as given in Table-II below have been decommissioned:

TABLE-II
UNITS RETIRED DURING THE YEAR 2013-14

Sl. No.	Name of Thermal Power Station	Name of Power Utility	Unit No.	Capacity (MW)	Date of Retirement
(1)	(2)	(3)	(4)	(5)	(6)
2013-14					
1	Satpura	M.P.P.G.C. Ltd. (M.P.)	2	62.5	05.12.2013
			4	62.5	05.12.2013
Total for 2013-14				135.0	

2.3 Power Utility wise Status of Fly Ash Generation & its Utilization during the Year 2013-14

The status of fly ash generation & utilization for the year 2013-14 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-III:

TABLE-III
POWER UTILITY WISE FLY ASH GENERATION AND UTILIZATION FOR THE
YEAR 2013-14

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)	7	5092.50	11.2245	5.3174	47.37
2	ACBPL (Chhattisgarh)	1	270.00	0.9102	0.6469	71.08
3	APL (Gujarat)	1	4620.00	1.8290	1.4830	81.08
4	APCPL (Haryana)	1	1500.00	1.4386	0.2907	20.21
5	AMNEPL (Maharashtra)	1	246.00	0.0810	0.0291	35.91
6	BEPL (UP)	5	450.00	1.0204	0.8349	81.82

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
7	Bihar State Power Generation Co. LTD. (B.S.P.G.C.L) Bihar	1	220.00	0.0000	0.0000	0.0000
8	C.E.S.C. Ltd.	4	1285.00	2.1392	2.1392	100.00
9	C.G.P.L (Gujarat)	1	4000.00	0.5320	0.1330	25.00
10	Chattisgarh State Power Generation Company Ltd. (C.S.P.G.C.L.)	4	2280.00	3.5699	0.2455	6.88
11	Damodar Valley Corporation (D.V.C.)	6	5710.00	9.0025	6.3303	70.32
12	Durgapur Projects Ltd. (D.P.L.)	1	641.00	0.5958	0.4475	75.11
13	D.P.S.C.Ltd. (W.B)	2	42.00	0.0416	0.0416	100.00
14	E.P.G.L (Gujarat)	1	1200.00	0.1944	0.1940	99.79
15	ESSAR POWER MP LTD.(M.P)	1	1200.00	0.2617	0.2095	80.05
16	Gujarat Industries Power Corporation Ltd. (G.I.P.C.L.)	1	500.00	0.4273	0.4273	100.00
17	Gujarat Mineral Development Corporation Ltd. (G.M.D.C.L.)	1	250.00	0.1322	0.1370	103.61
18	G.S.E.C.L. (Gujarat)	5	3720.00	3.3610	2.9550	87.92
19	Haryana Power Generation Cor. Ltd. (H.P.G.C.L.)	3	3167.80	3.4188	1.4771	43.21
20	Inderprastha Power Generation Company Ltd. (.I.P.G.C.L)	1	135.00	0.1146	0.1134	98.96
21	Jharkhand State Electricity Board (J.S.E.B.)	1	770.00	0.2540	0.0202	7.97
22	J.H.P.L (HR)	1	1320.00	1.1704	0.9758	83.37
23	J.P.L (Chhatisgarh)	1	1000.00	2.1200	1.2000	56.60
24	JSW Energy Ltd.	2	2060.00	0.5172	0.5120	99.00
25	Karnataka Power Corporation Ltd. (K.P.C.L.)	2	2720.00	4.0425	1.6258	40.2182
26	Kanti Bijlee Utpadan Nigam Ltd.(K.B.U.N.L.)	1	220.00	0.1288	0.0141	10.98
27	Lanco Power Ltd.	1	600.00	0.5266	0.3745	71.11
28	Madhya Pradesh Power Generation Corporation Ltd. (M.P.P.G.C.L.)	3	3182.50	4.4276	2.5464	57.51
29	M.P.L (Jharkhand)	1	1050.00	1.7715	1.9886	112.26
30	Maharashtra State Power Generation Corporation Ltd. (M.S.P.G.C.L)	7	7960.00	11.7107	7.3286	62.58
31	Neyveli Lignite Corporation Ltd. (N.L.C.LTD)	5	2990.00	1.4338	1.2603	87.90
32	NSPCL (Chhatisgarh)	1	500.00	0.9562	0.7302	76.37
33	N.T.P.C.LTD.	16	32355.00	57.8250	25.3730	43.88
34	NTECL (Tamil Nadu)	1	1000.00	0.8484	0.0675	7.96

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
35	Odisha Power Generation Corporation Ltd. (O.P.G.C.L.)	1	420.00	1.0806	0.1476	13.66
36	Punjab State Power Corporation Ltd. (P.S.P.C.L.)	3	2630.00	3.1478	2.7997	88.94
37	Rajasthan Rajya Vidyut Utpadan Nigam Ltd. (R.R.V.U.N.L.)	4	3740.00	4.9657	4.8838	98.35
38	Reliance Infrastructure Limited (R.I.L)	1	500.00	0.6980	0.6480	92.84
39	RPSCL (UP)	1	1200.00	1.3365	0.9670	72.35
40	R.W.P.L. (JSW)	1	1080.00	0.6048	0.5801	95.92
41	SEL (Odisha)	1	2400.00	2.7636	0.8623	31.20
42	SEPL (AP)	1	450.00	0.0721	0.0687	95.30
43	SVPPL TPP	1	63.00	0.0066	0.0066	100.00
44	ST-CMS Electric Company Pvt.Ltd.	1	250.00	0.1374	0.1132	82.37
45	TATA POWER COMPANY (T.P.CO.)	2	1297.50	1.1931	1.3312	111.57
46	TENUGHAT VIDYUT NIGAM Ltd. (TVNL)	1	420.00	0.6410	0.6440	100.47
47	T.N.G & D Corporation (Tamil Nadu)	5	3460.00	5.2051	5.3986	103.72
48	TORRENT POWER Ltd.	1	422.00	0.3600	0.3700	102.78
49	UPCL (Karnataka)	1	1200.00	0.1600	0.1223	76.47
50	UTTAR PRADESH RAJYA VIDYUT UTPADAN NIGAM Ltd. (UPRVUNL)	5	4844.00	7.5025	2.5209	33.60
51	West Bengal Power Development Corporation Ltd. (W.B.P.D.C. L)	5	3860.00	6.5946	5.6069	85.02
52	WPCL (Maharastra)	1	540.00	0.6018	0.6018	100.00
53	GUPTA ENERGY Pvt. Ltd. (Maharastra)	1	120.00	0.0377	0.0377	100.00
54	JAYPEE BINA THERMAL POWER PLANT (MP)	1	500.00	0.4362	0.3486	79.92
55	ADHUNIK POWER & NATURAL RESOURCES Ltd. (Jharkhand)	1	540.00	0.6684	0.3607	53.96
56	V.I.P Ltd.(Maharastra)	1	600.00	0.1233	0.0132	10.72
57	EMCO ENERGY Ltd. (Maharastra)	1	600.00	0.5303	0.5217	98.38
58	SPECTRUM COAL & POWER Ltd. (Chhattisgarh)	1	50.00	0.1294	0.1294	100.00
59	ADANI POWER Ltd. (Maharastra)	1	2640.00	1.8200	0.4940	27.14
60	ADANI POWER Ltd. (Rajasthan)	1	1320.00	0.4410	0.2100	47.62
61	INDIABULLS POWER Ltd. (Maharastra)	1	270.00	0.2350	0.0778	33.10

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
62	IDEAL ENERGY PROJECTS Ltd.(Maharashtra)	1	270.00	0.0058	0.0010	17.33
63	MEENAKSHI ENERGY Pvt. Ltd. (A.P)	1	300.00	0.0587	0.0204	34.70
64	ACB (INDIA) Ltd. (Chhattisgarh)	1	30.00	0.0934	0.0934	100.00
65	GMR KAMALANGA ENERGY Ltd. (Odisha)	1	1050.00	0.3624	0.1525	42.07
66	INDIAN METALS & FERRO ALLOYS Ltd. (Odisha)	1	258.00	0.4947	0.4939	99.82
67	NALCO (Odisha)	1	1200.00	1.9220	1.3770	71.64
68	WPCL (KSKEVL) (Chhatisgarh)	1	600.00	0.4123	0.1469	35.64
	GRAND TOTAL	143	133381.30	172.87	99.62	57.63

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

The data of fly ash generation and utilization for year 2013-14 was received from 68 Power Utilities out of which **14** Power Utilities have achieved fly ash utilization level of 100% or more and **22** 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 2013-14).

2.4 State wise Status of Fly Ash Generation & its Utilization during the Year 2013-14

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

TABLE-IV

STATE WISE FLY ASH GENERATION AND ITS UTILIZATION DURING THE YEAR 2013-14

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	ANDHRA PRADESH (erstwhile)	11	10442.50	19.8444	9.9965	50.37
2	BIHAR	3	2780.00	4.8628	1.0901	22.42
3	CHHATISGARH	14	10973.00	19.6796	6.5664	33.37
4	DELHI	2	840.00	1.1786	0.9134	77.50
5	GUJARAT	11	14712.00	6.8359	5.6993	83.37
6	HARYANA	5	5987.80	6.0277	2.7436	45.52
7	JHARKHAND	8	5347.50	7.3815	6.7595	91.57
8	KARNATAKA	4	4780.00	4.4865	2.0322	45.30
9	MADHYA PRADESH	6	9142.50	11.9654	6.0864	50.87
10	MAHARASHTRA	19	16696.00	16.3788	10.0480	61.35
11	ODISHA	7	8788.00	14.1534	6.7582	47.75
12	PUNJAB	3	2630.00	3.1478	2.7997	88.94

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
13	RAJASTHAN	7	6390.00	6.3482	6.0106	94.68
14	TAMILNADU	11	7450.00	7.2881	6.5029	89.23
15	UTTAR PRADESH	16	14804.00	24.2214	12.2368	50.52
16	WEST BENGAL	16	11618.00	19.0691	13.3765	70.15
	GRAND TOTAL	143	133381.30	172.87	99.62	57.63

It may be seen from Table-IV above that:

- (i) 7 states namely Andhra Pradesh, Chhatisgarh, Madhya Pradesh, Maharashtra, Odisha, Uttar Pradesh and West Bengal have generated more than 10 million-ton of fly ash with U.P as the maximum of 24.2214 million ton during the Year 2013-14.
- (ii) During the Year 2013-14, the State of Rajasthan has achieved fly ash utilization level of more than 94 % and the States of Delhi, Gujarat, Jharkhand, Punjab, Rajasthan, Tamilnadu and West Bengal have achieved the fly ash utilization level of more than 70%.

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

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-V given below:

TABLE-V

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-VI given below:

TABLE-VI

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 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 2013-14 has been analyzed broadly 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 2013-14, 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 90% within four years from the date of notification i.e. by 3rd November, 2013. 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-VI above depending upon their date of commissioning.

4.1 Status during the Year 2013-14

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 2013-14, the fly ash utilization in terms of percentage as achieved by thermal power stations as on 31st March, 2014 has been compared with the targets of fly ash utilization required to be achieved by them as on 3rd November, 2013 for the Year 2013-14 as per MoEF's Notification of 3rd November, 2009 (Annexure-II).

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, 2014 for the year 2013-14 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 and given in Table-VI above depending upon their date of commissioning.

For thermal power stations which were in operation for less than one year as on 31st March, 2014 for the Year 2013-14, 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 2013-14 has been assessed and the same is given in Table-VII below.

TABLE-VII

STATUS OF UTILIZATION OF FLY ASH AS PER MOEF'S NOTIFICATION DATED 3rd NOVEMBER, 2009 FOR THE YEAR 2013-14

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 3 rd November, 2009	57
2	Nos. of TPS which have not been able to achieve the target of fly ash utilization as per MoEF's Notification of 3 rd November, 2009	83
3	Nos. of TPS which have not generated any significant fly ash or any fly ash	3
	Total	143

It may be seen from Table-VII above that:

During the Year 2013-14, out of **143** (one hundred forty three) thermal power stations for which data was received, **57 (fifty seven)** power stations have achieved the targets of fly ash utilization as stipulated in MoEF's Notification of 3rd November, 2009.

4.2 Range of Fly Ash Utilization during the Year 2013-14

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-VIII

RANGE OF PERCENTAGE FLY ASH UTILIZATION DURING THE YEAR 2013-14

Sl. No.	Level of Fly Ash utilization	Nos. of Power Stations
(1)	(2)	(3)
1	100% and more than 100%	33
2	Less than 100% and up to 75%	37
3	Less than 75% and up to 60%	16
4	Less than 60%	54
5	Nos. of TPS which have not generated any significant fly ash or any fly ash	3
	Total	143

4.3 Thermal Power Stations that have achieved Fly Ash utilization level of 100% or more during the Year 2013-14

The following names of Thermal Power Stations achieved the fly ash utilization level of 100% or more during the year 2013-14. The fly ash utilization level achieved by each of these power stations is given in Table-IX below:

TABLE-IX**THERMAL POWER STATIONS WITH FLY ASH UTILIZATION LEVEL OF 100% OR MORE DURING THE YEAR 2013-14**

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	RAMAGUNDAM'B'	T.P.GENCO (Telangana)	62.50	0.1547	0.1712	110.67
2	B.B.G.S.	C.E.S.C.(W.B.)	750.00	1.4090	1.4090	100.00
3	S.G.S.	C.E.S.C.(W.B.)	135.00	0.2680	0.2680	100.00
4	T.G.S	C.E.S.C.(W.B.)	240.00	0.4260	0.4260	100.00
5	NEW COSSIPORE	C.E.S.C.(W.B.)	160.00	0.0362	0.0362	100.00
6	CHANDRAPURA	D.V.C. (Jharkhand)	890.00	1.6391	1.7459	106.51
7	DISHERGARH POWER STATION	DPSC (W.B)	12.00	0.0416	0.0416	100.00
8	SURAT LIGNITE	G.I.P.C.L. (Gujarat)	500.00	0.4273	0.4273	100.00
9	AKRIMOTA	G.M.D.C.L. (Gujarat)	250.00	0.1322	0.1370	103.61
10	GANDHINAGAR	G.S.E.C.L. (Gujarat)	870.00	0.4360	0.5380	123.39
11	KUTCH LIGNITE	G.S.E.C.L. (Gujarat)	290.00	0.3480	0.3480	100.00
12	SIKKA	G.S.E.C.L. (Gujarat)	240.00	0.1250	0.2010	160.80
13	VIJAYANAGAR	JSW Energy Limited (Karnataka)	860.00	0.2840	0.2840	100.00
14	MAITHON RBTPP	MPL (Jharkhand)	1050.00	1.7715	1.9886	112.26
15	KORADI	M.S.P.G.C.L. (Maharashtra)	1100.00	0.8710	1.1310	129.85
16	BARSINGSAR LIGNITE	NLC (Rajsthan)	600.00	0.3367	0.3367	100.00
17	TALCHAR(KAN)	N.T.P.C.LTD (Odisha).	460.00	1.2170	1.2170	100.00
18	DADRI	N.T.P.C.LTD. (U.P.)	1820.00	2.6800	3.1230	116.53
19	GIRAL	RRVUNL (Rajsthan)	250.00	0.1794	0.1794	100.00
20	SVPL	SVPPL (Chhattisgarh)	63.00	0.0066	0.0066	100.00
21	JOJOBERA	T.P.CO. (Jarkhnad)	547.50	1.1290	1.2670	112.22
22	TROMBAY	T.P.CO. (Maharashtra)	750.00	0.0641	0.0642	100.16
23	SABARMATI	TORENT POWER Ltd. (Gujarat)	422.00	0.3600	0.3700	102.78
24	TENUGHAT	T.V.N.L. (Jharkhand)	420.00	0.6410	0.6440	100.47
25	ENNORE	T.N.G & D Corporation (Tamil Nadu)	340.00	0.6077	1.1347	186.74
26	METTUR	T.N.G & D Corporation	840.00	1.3294	1.8186	136.79

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)
		(Tamil Nadu)				
27	PANKI	U.P.R.V.U.N.L. (U.P.)	210.00	0.2299	0.4722	205.41
28	KOLAGHAT	W.B.P.D.C.L (W.B.)	1260.00	2.1178	2.8320	133.72
29	BANDEL	W.B.P.D.C.L (W.B.)	450.00	0.4387	0.6010	137.00
30	WARDHA WARORA	WPCL (Maharashtra)	540.00	0.6018	0.6018	100.00
31	GEPL TPP	GUPTA ENERGY Pvt. Ltd. (Maharashtra)	120.00	0.0377	0.0377	100.00
32	RATIJA TPS	SPECTRUM COAL & POWER Ltd. (Chhattisgarh)	50.00	0.1294	0.1294	100.00
33	CHAKABURA TPP	ACB(India)Ltd. (Chhattisgarh)	30.00	0.0934	0.0934	100.00

It may be seen from Table-IX above that:

During the Year 2013-14, **33** thermal power stations have achieved the fly ash utilization level of 100% or more including **17** 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 2013-14 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 2013-14

The names of Thermal Power Stations which have achieved the fly ash utilization level of less than 100% and up to 75% during the year 2013-14 along with fly ash utilization level achieved by each of these power stations are given in Table-X below:

TABLE-X
THERMAL POWER STATIONS WITH FLY ASH UTILIZATION LEVEL OF LESS THAN 100% AND UP TO 75% DURING THE YEAR 2013-14

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 (Gujarat)	4620.00	1.8290	1.4830	81.08
2	BARKHERA	BEPL (UP)	90.00	0.1997	0.1598	80.00
3	KHAMBER KHERA	BEPL (UP)	90.00	0.2029	0.1647	81.14
4	KUNDARKI	BEPL (UP)	90.00	0.2012	0.1748	86.86
5	MAQSOODPUR	BEPL (UP)	90.00	0.2035	0.1628	80.00
6	UTRAULA	BEPL (UP)	90.00	0.2130	0.1729	81.15
7	BOKARO 'B'	D.V.C.(Jharkhand)	630.00	0.7860	0.7260	92.37
8	DURGAPUR PROJECTS POWER STAION	D.P.L (West Bengal)	641.00	0.5958	0.4475	75.11
9	MAHAN	ESSAR POWER MP Ltd.(M.P)	1200.00	0.2617	0.2095	80.05
10	SALAYA	EPGL(Gujarat)	1200.00	0.1944	0.1940	99.79

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)
11	UKAI	G.S.E.C.L. (Gujarat)	850.00	1.2350	0.9280	75.14
12	WANAKBORI	G.S.E.C.L. (Gujarat)	1470.00	1.2170	0.9400	77.24
13	RAJGHAT	IPGCL (Delhi)	135.00	0.1146	0.1134	98.96
14	MAHATMA GANDHI	JHPL (Haryana)	1320.00	1.1704	0.9758	83.37
15	RATNAGIRI	JSW Energy Limited (Maharastra)	1200.00	0.2332	0.2280	97.78
16	SANJAY GANDHI	MPPGCL (M.P)	1340.00	2.2260	1.7783	79.89
17	KHAPARKHEDA	M.S.P.G.C.L (Maharastra)	840.00	1.5421	1.2753	82.70
18	NASIK	M.S.P.G.C.L (Maharastra)	630.00	1.4098	1.0682	75.77
19	PARLI	M.S.P.G.C.L (Maharastra)	1130.00	1.3678	1.1871	86.79
20	NEYVELI -I EXPN	N.L.C.LTD (Tamilnadu)	420.00	0.2254	0.2254	99.99
21	NEYVELI - II	N.L.C.LTD (Tamilnadu)	1470.00	0.5431	0.4549	83.76
22	BHILAI	NSPCL (Chhattisgarh)	500.00	0.9562	0.7302	76.37
23	BADARPUR	N.T.P.C.LTD (Delhi).	705.00	1.0640	0.8000	75.19
24	LEHRA MOHABAT	P.S.P.C.L. (Punjab)	920.00	1.2417	0.9858	79.39
25	ROPAR	P.S.P.C.L.(Punjab)	1260.00	1.5717	1.5634	99.47
26	KOTA	RRVUNL (Rajsthan)	1240.00	1.9799	1.9741	99.71
27	SURATGARH	RRVUNL (Rajsthan)	1500.00	2.0158	1.9547	96.97
28	CHHABRA	RRVUNL (Rajsthan)	750.00	0.7907	0.7757	98.10
29	JALIIPA KAPURDI	RWPL (Rajsthan)	1080.00	0.6048	0.5801	95.92
30	DAHANU	RELIANCE INFRASTRUCTURE Ltd.(Maharastra)	500.00	0.6980	0.6480	92.84
31	SIMHAPURI	SEPL(A.P)	450.00	0.0721	0.0687	95.30
32	CUDDALORE	ST-CMS (Tamil Nadu)	250.00	0.1374	0.1132	82.37
33	NORTH CHENNAI	T.N.G & D Corporation (Tamil Nadu)	630.00	0.8310	0.7200	86.64
34	UDUPI	UPCL (Karnatak)	1200.00	0.1600	0.1223	76.47
35	JAYPEE BINA TPP	JAYPEE BINA THERMAL POWER PLANT	500.00	0.4362	0.3486	79.92
36	EMCO ENERGY Ltd.	EMCO ENERGY Ltd. (Maharastra)	600.00	0.5303	0.5217	98.38
37	INDIAN METALS & FERRO ALLOYS LTD.	INDIAN METALS & FERRO ALLOYS Ltd. (Odisha)	258.00	0.4947	0.4939	99.82

It may be seen from Table-X above that **37** thermal power stations during the year 2013-14 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 2013-14

The names of Thermal Power Stations which have achieved the fly ash utilization level of less than 75% and up to 60% during the year 2013-14 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 75% AND UP TO 60% DURING THE YEAR 2013-14.

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	RAYALSEEMA	A.P.GENCO (A.P)	1050.00	1.9960	1.3824	69.26
2	Dr. N.T.R (Vijaiwada)	A.P.GENCO (A.P)	1760.00	4.0507	2.9097	71.83
3	KAKATIA	A.P.GENCO (A.P)	500.00	0.0972	0.0602	61.93
4	KASAI PALLI	ACBPL (Chhattisgarh)	270.00	0.9102	0.6469	71.08
5	MEJIA	D.V.C.(W.B)	2340.00	4.2340	3.0136	71.18
6	AMARKANTAK TPS	LANCO POWER Ltd. (Chhattisgarh)	600.00	0.5266	0.3745	71.11
7	NEYVELI - I	N.L.C.LTD (Tamilnadu)	600.00	0.3286	0.2433	74.04
8	RAMAGUNDAM	N.T.P.C. (A.P)	2600.00	5.0490	3.1520	62.43
9	UNCHAHR	N.T.P.C. Ltd. (U.P)	1050.00	2.2070	1.4080	63.80
10	BATHINDA	P.S.P.C.L (Punjab)	450.00	0.3344	0.2505	74.92
11	ROSA PHASE-I	RPSC (U.P)	1200.00	1.3365	0.9670	72.35
12	TUTICORIN	T.N.G & D Corporation (Tamil Nadu)	1050.00	2.0823	1.4930	71.70
13	HARDUAGANJ	U.P.R.V.U.N.L. (U.P.)	670.00	1.1727	0.7170	61.14
14	BAKRESWAR	WBPDC (W.B)	1050.00	2.0800	1.3555	65.17
15	NALCO, CPP	NALCO (Odisha)	1200.00	1.9220	1.3770	71.64
16	METTUR-II	T.N.G & D Corporation (Tamil Nadu)	600	0.3547	0.2324	65.50

It may be seen from Table-XI above that **16** thermal power stations during the year 2013-14 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 2013-14

The names of Thermal Power Stations which have achieved the fly ash utilization level of less than 60% during the year 2013-14 along with fly ash utilization level achieved by each of these power stations are given in Table-XII:

TABLE-XII
THERMAL POWER STATIONS WITH FLY ASH UTILIZATION LEVEL OF BELOW 60%
DURING THE YEAR 2013-14

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	KOTHAGUDEM	A.P.GENCO (Andhra Pradesh)	720.00	2.4033	0.2622	10.91
2	KOTHAGUDEM-V	A.P.GENCO (Andhra Pradesh)	500.00	1.5886	0.2305	14.51
3	KOTHAGUDEM-VI	A.P.GENCO (Andhra Pradesh)	500.00	0.9340	0.3011	32.24
4	INDIRA GANDHI	APCPL (Haryana)	1500.00	1.4386	0.2907	20.21
5	MIHAN	AMNEPL (Maharashtra)	246.00	0.0810	0.0280	34.54
6	MUNDRA UMPP	CGPL (Gujrat)	4000.00	0.5320	0.1330	25.00
7	KORBA (WEST)	C.S.P.G.C.L (Chhattisgarh)	840.00	1.3643	0.0240	1.76
8	KORBA (WEST) Ext.Stage-III	C.S.P.G.C.L (Chhattisgarh)	500.00	0.3680	0.0000	0.00
9	DSPM	C.S.P.G.C.L. (Chhattisgarh)	500.00	0.7090	0.0000	0.00
10	KORBA (EAST)	C.S.P.G.C.L (Chhattisgarh)	440.00	1.1286	0.2215	19.63
11	DURGAPUR	D.V.C. (W.B.)	350.00	0.6888	0.4063	58.99
12	DURGAPUR STEEL	DVC (West Bengal)	1000.00	1.1620	0.4314	37.12
13	KODARMA	DVC (Jharkhand)	500.00	0.4926	0.0072	1.46
14	HISAR	H.P.G.C.L. (Haryana)	1200.00	1.1908	0.3860	32.42
15	YAMUNANAGAR	H.P.G.C.L. (Haryana)	600.00	0.8190	0.3350	40.90
16	PANIPAT	H.P.G.C.L. (Haryana)	1367.80	1.4090	0.7560	53.66
17	O.P.Jindal	JPL (Chhattisgarh.)	1000.00	2.1200	1.2000	56.60
18	PATRATU	J.S.E.B. (Jharkhand)	770.00	0.2540	0.0202	7.97
19	BELLARY	K.P.C.L (Karnataka)	1000.00	1.2993	0.5805	44.68
20	RAICHUR	K.P.C.L. (Karnataka)	1720.00	2.7432	1.0453	38.11
21	MUZAFFARPUR TPS	K.B.U.N.L (Bihar)	220.00	0.1288	0.0141	10.98
22	THAMMINAPATNA M TPS	MEENAKSHI ENERGY Pvt. Ltd. (A.P)	300.00	0.0587	0.0204	34.70
23	SATPURA	M.P.P.G.C.L. (M.P.)	1392.50	1.4776	0.5765	39.02
24	AMARKANTAK	M.P.P.G.C.L. (M.P.)	450.00	0.7240	0.1915	26.45
25	BHUSAWAL	M.S.P.G.C.L. (Maharashtra)	1420.00	1.5280	0.7176	46.97
26	CHANDRAPUR	M.S.P.G.C.L. (Maharashtra)	2340.00	3.7666	1.7046	45.25
27	PARAS	M.S.P.G.C.L.	500.00	1.2254	0.2448	19.98

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)
		(Maharastra)				
28	VALLUR	NTECL (Tamilnadu)	1000.00	0.8484	0.0675	7.96
29	SIMHADRI	N.T.P.C. (Andhra Pradesh).	2000.00	3.4400	1.4380	41.80
30	KAHALGAON	N.T.P.C.LTD. (Bihar)	2340.00	4.7340	1.0760	22.73
31	KORBA	N.T.P.C. (Chhattisgarh).	2600.00	6.2260	1.9880	31.93
32	SIPAT	N.T.P.C. (Chhattisgarh).	2980.00	4.7290	1.0050	2.13
33	VINDHYACHAL	N.T.P.C.LTD (M.P)	4260.00	6.8400	2.9820	43.60
34	TALCHAR(TPS)	N.T.P.C.LTD (Odisha).	3000.00	6.3130	2.5080	39.73
35	RIHAND	N.T.P.C.LTD.(U.P.)	3000.00	4.4870	1.8940	42.21
36	SINGRAULI	N.T.P.C.LTD.(U.P.)	2000.00	3.7660	0.9850	26.16
37	TANDA	N.T.P.C.LTD.(U.P.)	440.00	1.2220	0.5040	41.24
38	FARAKKA	N.T.P.C.LTD (W.B)	2100.00	3.6130	1.2900	35.70
39	MOUDA TPS	N.T.P.C.LTD (Maharastra)	1000.00	0.2380	0.0030	1.26
40	IB VALLEY	O.P.G.C.L. (Odisha)	420.00	1.0806	0.1476	13.66
41	STERLITE	SEL (Odisha)	2400.00	2.7636	0.8623	31.20
42	ANPARA 'A' & 'B'	U.P.R.V.U.N.L(U.P)	1630.00	2.9971	0.0098	0.33
43	OBRA	U.P.R.V.U.N.L(U.P)	1194.00	1.3560	0.2916	21.50
44	PARICHHA	U.P.R.V.U.N.L(U.P)	1140.00	1.7469	1.0303	58.98
45	BUTIBORI	V.I.P Ltd. (Maharastra)	600.00	0.1233	0.0132	10.72
46	SAGARDIGHI	W.B.P.D.C.L (W.B)	600.00	1.1782	0.5479	46.51
47	SANTALDIH	W.B.P.D.C.L (W.B)	500.00	0.7799	0.2705	34.68
48	MAHADEV PRASAD TPS	ADHUNIK POWER & NATURAL RESOURCES Ltd. (Jharkhand)	540.00	0.6684	0.3607	53.96
49	TIRORA	ADANI POWER Ltd. (Maharastra)	2640.00	1.8200	0.4940	27.14
50	KAWAI	ADANI POWER Ltd. (Rajasthan)	1320.00	0.4410	0.2100	47.62
51	AMARAVATI TPS	INDIABULLS POWER Ltd. (Maharastra)	270.00	0.2350	0.0778	33.10
52	BELA TPS	IDEAL ENERGY PROJECTS Ltd. (Maharastra)	270.00	0.0058	0.0010	17.33
53	KAMALANGA TPP	GMR KAMALANGA ENERGY Ltd. (Odisha)	1050.00	0.3624	0.1525	42.07
54	KMPCL (AKALTARA)	WPCL (KSKEVL) (Chhattishgarh)	600.00	0.4123	0.1469	35.64

It may be seen from Table-XII above that:

During the year 2013-14, out of **143** (one hundred forty three) thermal power stations, **54** stations could not reach the level of fly ash utilization to 60%.

Following 3Nos. Thermal Power Stations did not generate any fly ash during 2013-14 :

- (i) Barauni
- (ii) Chinakuri
- (iii) Neyveli – II, Expansion

5 MODES OF FLY ASH UTILIZATION DURING THE YEAR 2013-14

The data on fly ash utilization received from Thermal Power Stations/Power Utilities for the year 2013-14 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 2013-14 along with utilization in each mode are given in Table-XIII below:

TABLE-XIII

MODES OF FLY ASH UTILIZATION DURING THE YEAR 2013-14

SI. No.	Mode of utilization	Quantity of Fly Ash utilized in the mode of utilization	
		Million-ton	Percentage (%)
(1)	(2)	(3)	(4)
1	Cement	39.17	39.32
2	Bricks & Tiles	12.23	12.27
3	Reclamation of low lying area	11.75	11.79
4	Mine filling	11.20	11.24
5	Ash Dyke Raising	10.32	10.36
6	Roads & flyovers	4.98	5.00
7	Agriculture	2.88	2.89
8	Concrete	0.91	0.92
9	Others	6.19	6.22
	Total	99.62	100.00

The pie diagram showing the modes of utilization of fly ash during the Year 2013-14 is given in Figure-1 below:

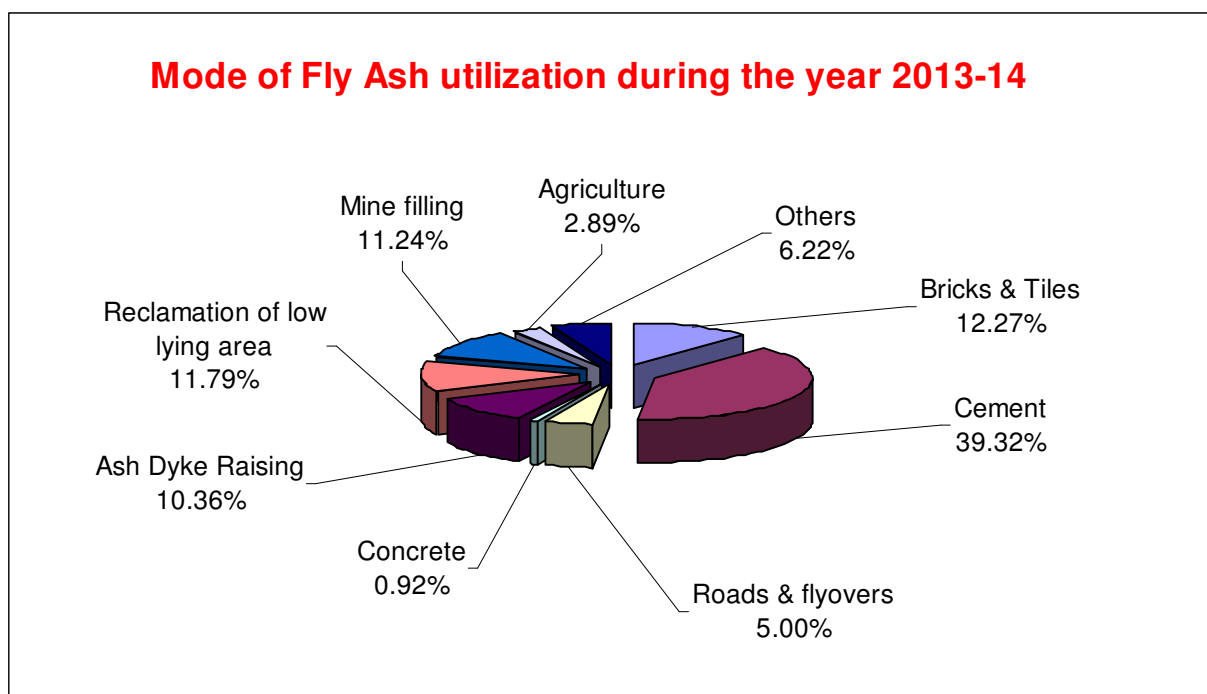


FIGURE-1

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

During the Year 2013-14, the maximum utilization of fly ash to the extent of 39.32 % of total fly ash utilized was in the Cement sector, followed by 12.27 % in making bricks & tiles, 11.79 % in reclamation of low lying area, 11.24 % in mine filling, 10.36 % in ash dyke raising, 5.0% in roads & embankments etc.

6.0 PROGRESSIVE FLY ASH GENERATION & UTILIZATION DURING THE PERIOD FROM 1996-97 TO 2013-14

Central Electricity Authority has been monitoring the fly ash generation and its utilization at coal/lignite based thermal power stations in the country since 1996-1997. 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 2013-14 is given in Table-XIV below:

TABLE-XIV

PROGRESSIVE FLY ASH GENERATION AND ITS UTILIZATION DURING THE PERIOD FROM 1996-97 TO 2013-14

Sl. No.	Year	Fly Ash Generation (Million-ton)	Fly Ash Utilization (Million-ton)	Fly Ash Utilization in Percentage (%)
(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

Sl. No.	Year	Fly Ash Generation (Million-ton)	Fly Ash Utilization (Million-ton)	Fly Ash Utilization in Percentage (%)
(1)	(2)	(3)	(4)	(5)
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

A graph showing progressive fly ash generation and its utilization for the period from 1996-97 to 2013-14 is given in Figure-2 below:

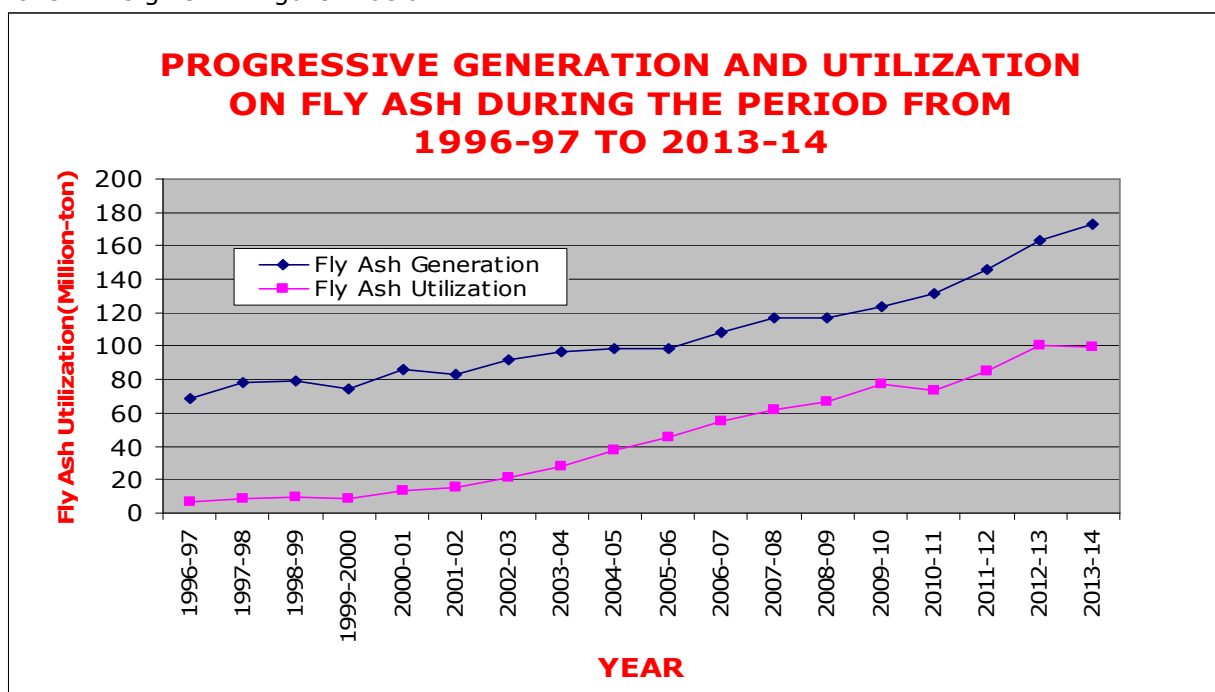


FIGURE-2

It may be seen from Table-XIV 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 57.63 % during 2013-14.
- (iii) The fly ash generation has increased from 68.88 million-ton in 1996-97 to 172.87 million-ton in 2013-14 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 99.62 million ton in 2013-14 i.e. nearly 15 times over the same period.

7.0 PROGRESSIVE FLY ASH UTILIZATION IN VARIOUS MODES DURING THE PERIOD FROM 1998-99 TO 2013-14

7.1 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 2013-14 is given in Figure-3 below:

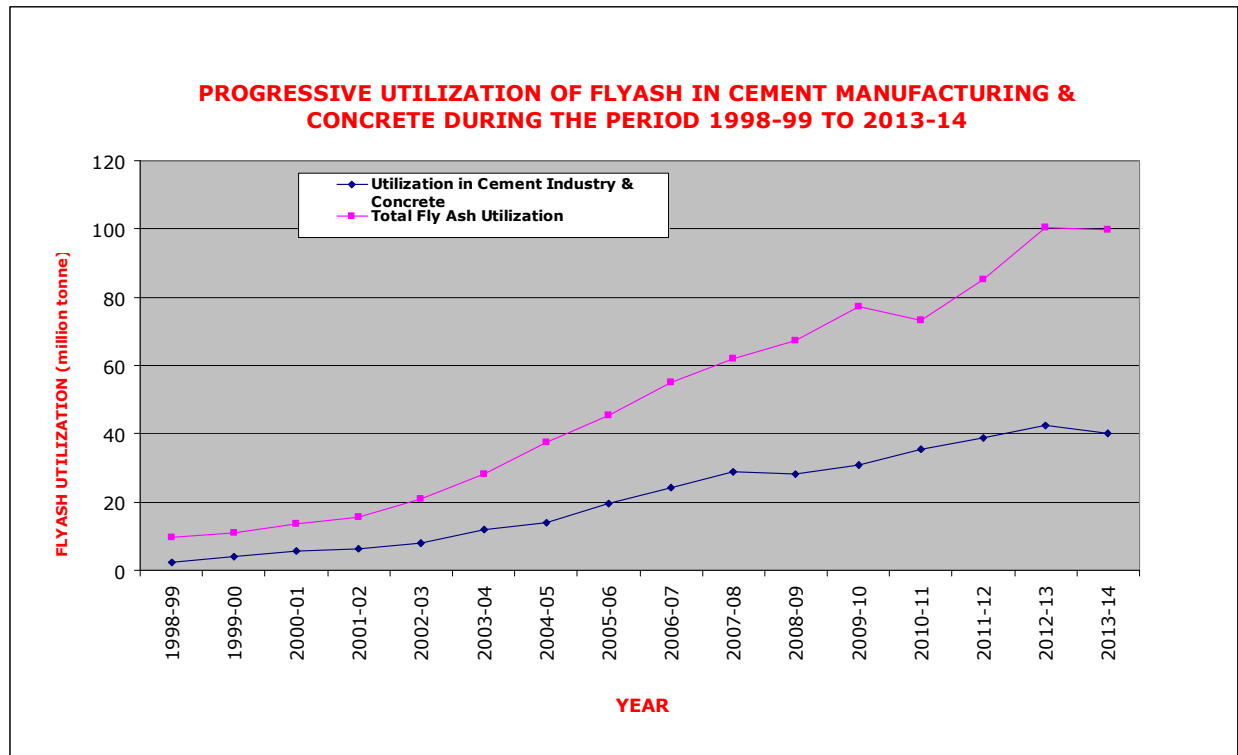


FIGURE-3

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 39.17 million-ton during 2013-14 and constituted 39.32 % of total fly ash utilization in the aforesaid year.

7.2 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 2013-14 is given in Figure-4 below:

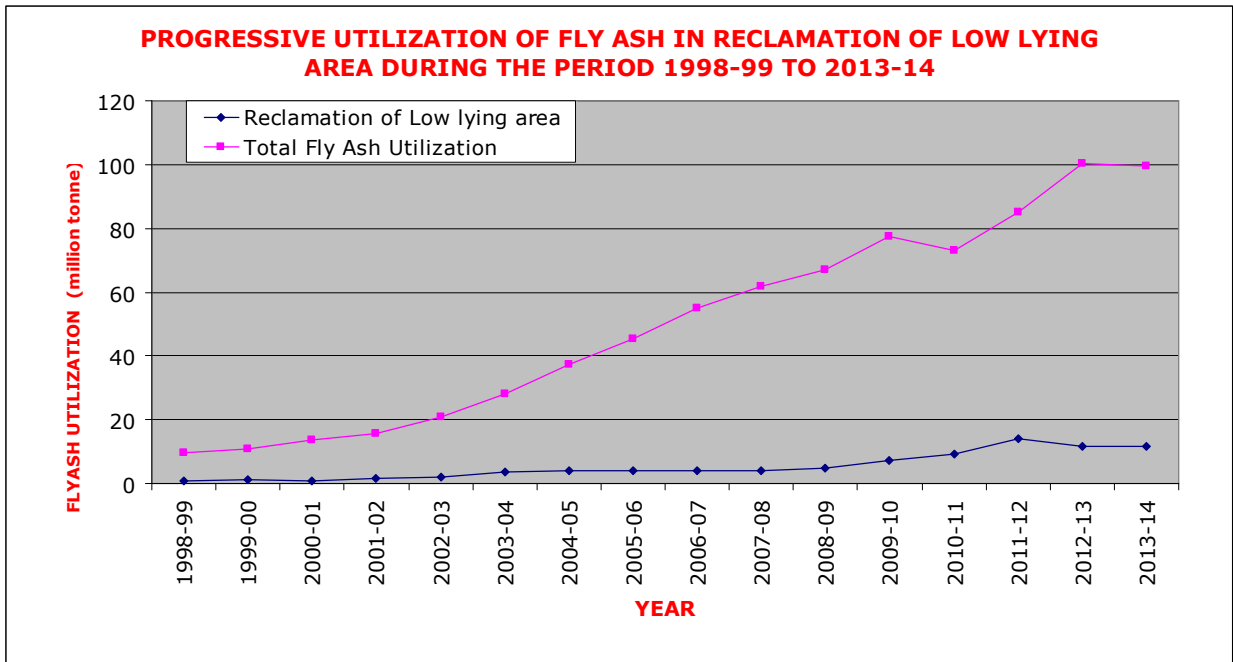


FIGURE-4

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 11.75 million ton in 2013-14 constituting 11.79 % of total fly ash utilization during the aforesaid year.

7.3 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 2013-14 is given in Figure-5 below:

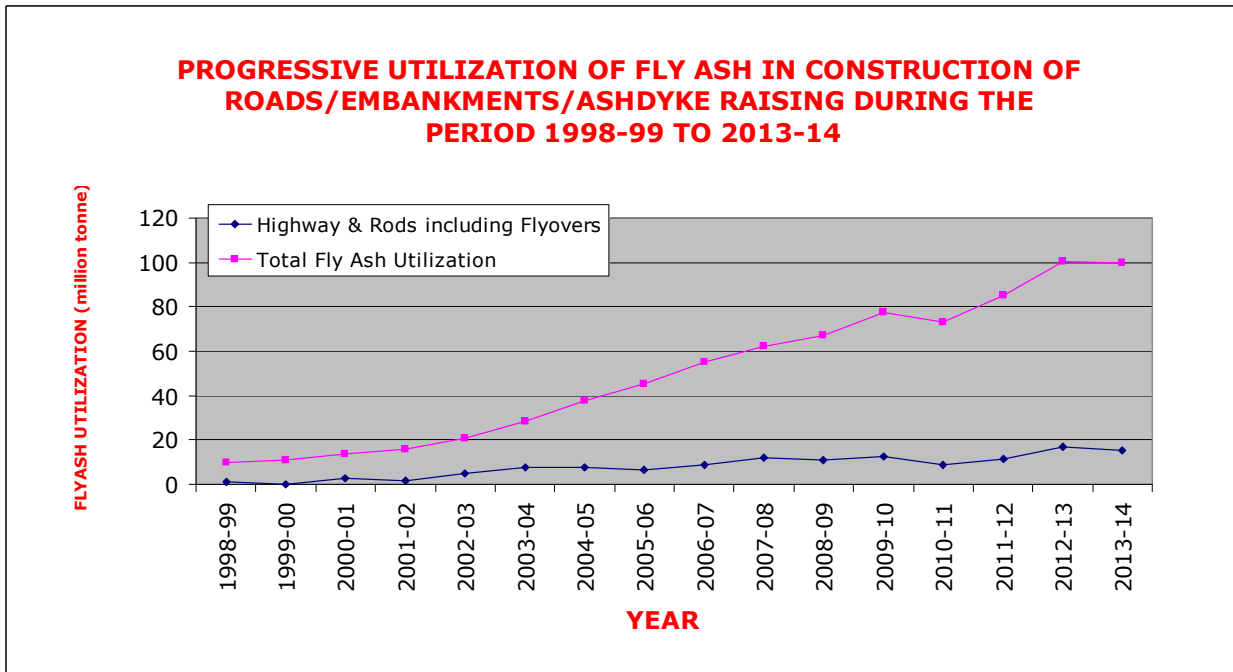


FIGURE-5

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 15.30 million-ton in 2013-14 and constituted 15.36 % of total fly ash utilization in the aforesaid year.

7.4 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 2013-14 is given in Figure-6:

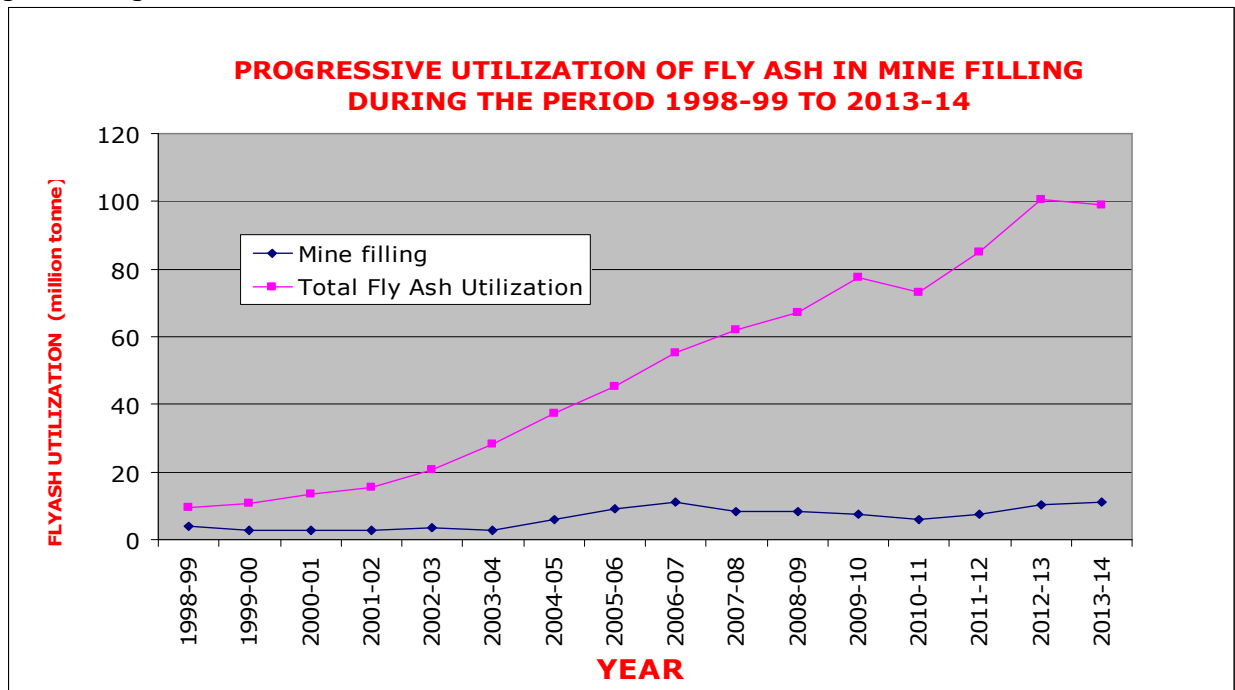


FIGURE-6

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 11.20 million-ton in 2013-14 constituting 11.24 % of total fly ash utilization in the aforesaid year.

7.5 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 2013-14 is given in Figure -7 below:

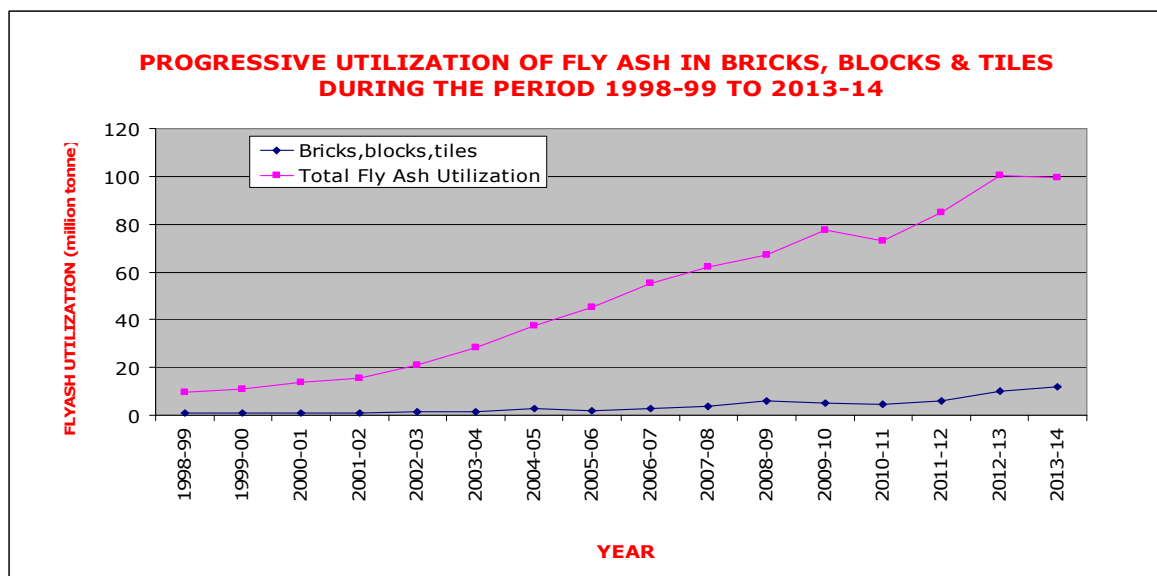


FIGURE-7

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 12.23 million-ton in 2013-14 and constituted 12.27 % of total fly ash utilization in the aforesaid year.

7.6 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 2013-14 is given in Figure-8.

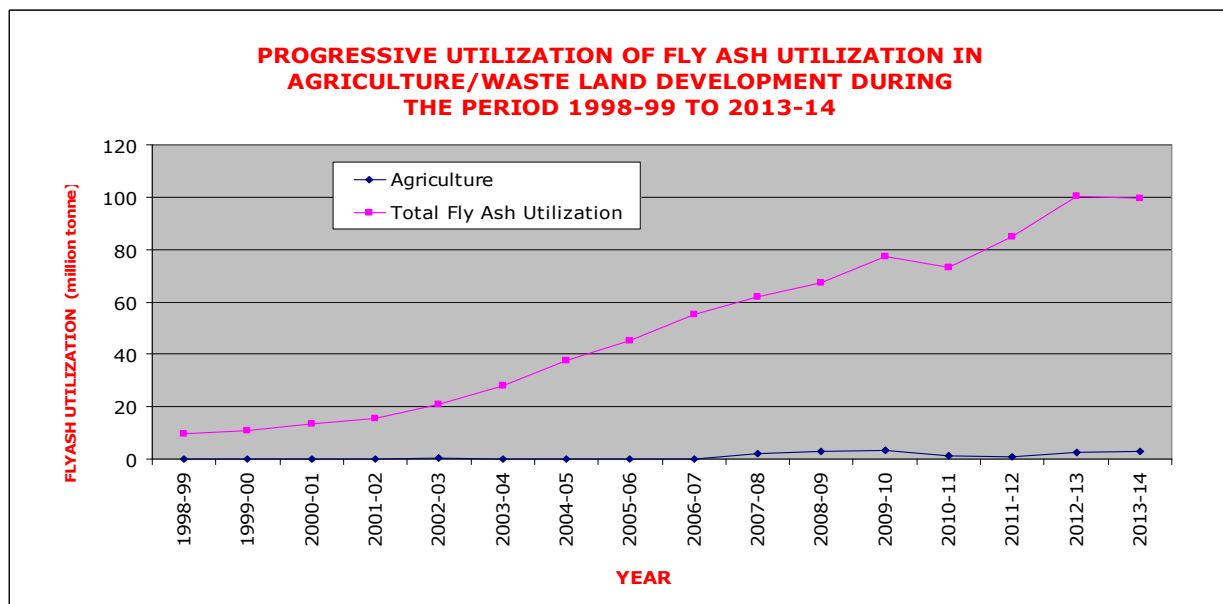


FIGURE-8

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 2.88 million ton in 2013-14 and constituted about 2.89 % of total fly ash utilization in the aforesaid year.

8.0 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, 57.63 % in the year 2013-14. The utilization is behind the target. It would require a lot of efforts to achieve the target of 100% utilization of fly ash as stipulated in MoEF's Notification of 3rd November, 2009.
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 the Monitoring Committee, constituted by MoEF to monitor the fly ash notification, 1999 was held on 18.06.2014 where in various issues responsible for under utilization of fly ash were discussed. Subsequently, concerned Ministries, Departments, PSUs have been asked to take necessary action so as to ensure enhanced utilization of fly ash.

* * *

9.0 Abbreviations

CEA	:	Central Electricity Authority
MoEF	:	Ministry of Environment & Forest
MW	:	Mega Watt
MoP	:	Ministry of Power
MT	:	Million Tonnes
TPS	:	Thermal Power Stations
APGENCO:		Andhra Pradesh Power Generation Corporation Ltd.
ACBPL	:	Aryan Coal Beneficiation 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	:	Chattisgarh 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.
SVPL	:	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.
UPCI	:	Udupi Power Company Ltd.
UPRVUNL:		Uttar Pradeh Rajaya Vidyut Utpadan Nigam Ltd.

VESPL : Vandanca energy Supply Power Ltd.
WBPDCCL : 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

ANNUAL DATA ON FLY ASH GENERATION AND ITS UTILIZATION AT COAL/LIGNITE BASED THERMAL POWER STATIONS IN THE COUNTRY DURING THE PERIOD FROM APRIL-2013 TO MARCH-2014 (POWER STATION - WISE)

Table with columns: Sl. No., Name of TPS, Power Utility & State, Fly Ash Generation and Its Utilization (sub-columns: Installed Capacity, Coal consumed, Ash content of coal, Fly Ash Generation, Fly Ash Utilization, % age Utilization), Modes of Utilization (sub-columns: In making of Fly Ash based/ Bricks/ Tiles etc., In manufacture of Portland Pozzolana Cement, In construction of Highways & Roads including Flyovers, Part replacement in concrete, In Hydro Power Sector in RCC Dam Construction, In Ash dyeing raising, In reclamation of low lying Area, In Mine filling, In Agriculture/Waste land Development, Others), Total Utilization.

ASH UTILIZATION STATUS AS PER NOTIFICATION OF 3rd NOVEMBER,2009 DURING THE YEAR 2013-14

Sl.No.	Name of TPS	Power Utility	Date of Commissioning	Installed Capacity (MW)	Generation (Mt)	Utilization (Mt)	Percentage of utilization	Target in %	Status as per MoEF's Notification, 2009
1	2	3	3	4	5	6	7	8	9
1	KOTHAGUDEM	A.P.GENCO (Andhrapradesh)	04.07.1966	720.00	2.403310	0.262241	10.9117	90.00	Not Achieved
2	KOTHAGUDEM-V	A.P.GENCO (Andhrapradesh)	Mar-97	500.00	1.588600	0.230500	14.5096	90.00	Not Achieved
3	KOTHAGUDEM-VI	A.P.GENCO (Andhrapradesh)	23.10.2011	500.00	0.933974	0.301134	32.2422	70.00	Not Achieved
4	RAYALSEEMA	A.P.GENCO (Andhrapradesh)	16.11.1994	1050.00	1.996000	1.382387	69.2579	90.00	Not Achieved
5	Dr. N.T.R (Vijawada)	A.P.GENCO (Andhrapradesh)	01.11.1979	1760.00	4.050705	2.909737	71.8329	90.00	Not Achieved
6	KAKATIA	A.P.GENCO (Andhrapradesh)	31.03.2010	500.00	0.097229	0.060212	61.9280	100.00	Not Achieved
7	INDIRA GANDHI	APCPL (Haryana)	31.10.2010	1500.00	1.438592	0.290731	20.2094	90.00	Not Achieved
8	MUNDRA TPS	APL (Gujrat)	04.08.2009	4620.00	1.829000	1.483000	81.0826	90.00	Not Achieved
9	MIHAN	AMNEPL (Maharastra)	05.01.2011	246.00	0.080980	0.029083	35.9136	90.00	Not Achieved
10	MUNDRA UMPP	CGPL (Gujrat)	07.03.2012	4000.00	0.532000	0.133000	25.0000	70.00	Not Achieved
11	KORBA (WEST)	C.S.P.G.C.L Chhattisgarh	21.06.1983	840.00	1.364300	0.024000	1.7591	90.00	Not Achieved
12	KORBA (WEST) Ext.Stage-III	C.S.P.G.C.L Chhattisgarh	05.09.2013	500.00	0.368000	0.000000	0.0000	50.00	Not Achieved
13	DSPM	C.S.P.G.C.L.Chhattisgarh	21.10.2007	500.00	0.709000	0.000000	0.0000	90.00	Not Achieved
14	KORBA (EAST)	C.S.P.G.C.L.Chhattisgarh	01.10.1966	440.00	1.128649	0.221500	19.6252	90.00	Not Achieved
15	DURGAPUR	D.V.C.(West Bengal)	Dec-66	350.00	0.688822	0.406308	58.9859	90.00	Not Achieved
16	MEJIA	D.V.C.(West Bengal)	Mar-96	2340.00	4.234000	3.013600	71.1762	90.00	Not Achieved
17	DURGAPUR STEEL	DVC West Bengal)	15.05.2012	1000.00	1.162000	0.431351	37.1214	70.00	Not Achieved
18	KODARMA	DVC (Jharkhand)	20.07.2011	500.00	0.492598	0.007175	1.4566	70.00	Not Achieved
19	DURGAPUR PROJECTS POWER STAION	D.P.L (West Bengal)	23.04.1964	641.00	0.595849	0.447522	75.1066	90.00	Not Achieved
20	UKAI	G.S.E.C.L. (Gujarat)	19.03.1976	850.00	1.235000	0.928000	75.1417	90.00	Not Achieved
21	WANAKBORI	G.S.E.C.L. (Gujarat)	23.03.1982	1470.00	1.217000	0.940000	77.2391	90.00	Not Achieved
22	HISAR	H.P.G.C.L.(Haryana)	01.04.2010	1200.00	1.190772	0.386032	32.4187	100.00	Not Achieved
23	YAMUNANAGAR	H.P.G.C.L.(Haryana)	14.04.2008	600.00	0.819000	0.335000	40.9035	90.00	Not Achieved
24	PANIPAT	H.P.G.C.L.(Haryana)	01.11.1979	1367.80	1.409000	0.756000	53.6551	90.00	Not Achieved
25	O.P.Jindal	JPL (Chhattisgarh.)	08.12.2007	1000.00	2.120000	1.200000	56.6038	90.00	Not Achieved
26	PATRATU	J.S.E.B. (Jarkhand)	1966-1984	770.00	0.254009	0.020236	7.9666	90.00	Not Achieved
27	BELLARY	K.P.C.L (Karnataka)	25.03.2008	1000.00	1.299296	0.580518	44.6794	90.00	Not Achieved
28	RAICHUR	K.P.C.L.(Karnataka)	29.03.1985	1720.00	2.7432	1.0453	38.1051	90.00	Not Achieved
29	MUZAFFARPUR TPS	K.B.U.N.L (Bihar)	31.03.1985	220.00	0.12877	0.01414	10.9829	90.00	Not Achieved
30	AMARKANTAK TPS	LANCO POWER Ltd. (Chhattisgarh)	01.05.2009	600.00	0.526619	0.374486	71.1114	90.00	Not Achieved
31	THAMMINAPATNAM TPS	MEENAKSHI ENERGY Pvt. Ltd. (A.P)	09.09.2012	300.00	0.058738	0.020380	34.6964	50.00	Not Achieved
32	SANJAY GANDHI	M.P.P.G.C.L. (M.P.)	07.10.1993	1340.00	2.225977	1.778332	79.8900	90.00	Not Achieved
33	SATPURA	M.P.P.G.C.L. (M.P.)	06.10.1967	1392.50	1.477620	0.576506	39.0158	90.00	Not Achieved
34	AMARKANTAK	M.P.P.G.C.L. (M.P.)	1977	450.00	0.723969	0.191517	26.4538	90.00	Not Achieved
35	BHUSAWAL	M.S.P.G.C.L.(Maharastra)	30.08.1979	1420.00	1.528004	0.717629	46.9651	90.00	Not Achieved
36	CHANDRAPUR	M.S.P.G.C.L.(Maharastra)	15.08.1983	2340.00	3.766594	1.704556	45.2546	90.00	Not Achieved
37	KHAPARKHEDA	M.S.P.G.C.L.(Maharastra)	26.03.1989	840.00	1.542143	1.275282	82.6954	90.00	Not Achieved
38	NASIK	M.S.P.G.C.L.(Maharastra)	16.08.1970	630.00	1.409842	1.068243	75.7704	90.00	Not Achieved

ASH UTILIZATION STATUS AS PER NOTIFICATION OF 3rd NOVEMBER,2009 DURING THE YEAR 2013-14

Sl.No.	Name of TPS	Power Utility	Date of Commissioning	Installed Capacity (MW)	Generation (Mt)	Utilization (Mt)	Percentage of utilization	Target in %	Status as per MoEF's Notification, 2009
1	2	3	3	4	5	6	7	8	9
39	PARAS	M.S.P.G.C.L.(Maharastra)	10.10.1980	500.00	1.225359	0.244783	19.9764	90.00	Not Achieved
40	PARLI	M.S.P.G.C.L.(Maharastra)	31.03.2008	1130.00	1.367800	1.187100	86.7890	90.00	Not Achieved
41	NEYVELI - I	N.L.C.LTD(Tamilnadu)	1962-1970	600.00	0.328600	0.243310	74.0444	90.00	Not Achieved
42	NEYVELI - II	N.L.C.LTD(Tamilnadu)	17.01.1988	1470.00	0.543123	0.454916	83.7593	90.00	Not Achieved
43	BHILAI	NSPCL (Chhattisgarh)	05.01.2009	500.00	0.956222	0.730243	76.3675	90.00	Not Achieved
44	VALLUR	NTECL (Tamilnadu)	28.03.2012	1000.00	0.848445	0.067500	7.9557	70.00	Not Achieved
45	RAMAGUNDAM	N.T.P.C. (Andhra Pradesh).	Nov.1983	2600.00	5.049000	3.152000	62.4282	90.00	Not Achieved
46	SIMHADRI	N.T.P.C. (Andhra Pradesh).	Feb.2002	2000.00	3.440000	1.438000	41.8023	90.00	Not Achieved
47	KAHALGAON	N.T.P.C.LTD.(Bihar)	Mar-92	2340.00	4.734000	1.076000	22.7292	90.00	Not Achieved
48	KORBA	N.T.P.C. (Chhattisgarh).	Mar-83	2600.00	6.226000	1.988000	31.9306	90.00	Not Achieved
49	SIPAT	N.T.P.C. (Chhattisgarh).	May-07	2980.00	4.729000	1.005000	2.1260	90.00	Not Achieved
50	BADARPUR	N.T.P.C.LTD (Delhi).	Jul-73	705.00	1.064000	0.800000	75.1880	90.00	Not Achieved
51	VINDHYACHAL	N.T.P.C.LTD. (M.P.)	Oct-87	4260.00	6.840000	2.982000	43.5965	90.00	Not Achieved
52	TALCHAR(TPS)	N.T.P.C.LTD(Odisha).	03.06.95	3000.00	6.313000	2.508000	39.7275	90.00	Not Achieved
53	RIHAND	N.T.P.C.LTD. (U.P.)	Mar-88	3000.00	4.487000	1.894000	42.2108	90.00	Not Achieved
54	SINGRAULI	N.T.P.C.LTD. (U.P.)	Feb-82	2000.00	3.766000	0.985000	26.1551	90.00	Not Achieved
55	UNCHAHAHAR	N.T.P.C.LTD. (U.P.)	Nov-88	1050.00	2.207000	1.408000	63.7970	90.00	Not Achieved
56	TANDA	N.T.P.C.LTD. (U.P.)	Jan-00	440.00	1.222000	0.504000	41.2439	90.00	Not Achieved
57	FARAKKA	N.T.P.C.LTD. (W.B.)	Jan.86	2100.00	3.613000	1.290000	35.7044	90.00	Not Achieved
58	MOUDA TPS	N.T.P.C.LTD (Maharastra)	19.04.2012	1000.00	0.238000	0.003000	1.2605	70.00	Not Achieved
59	IB VALLEY	O.P.G.C.L.(Odisha)	21.12.1994	420.00	1.080583	0.147560	13.6556	90.00	Not Achieved
60	BATHINDA	P.S.P.C.L. (Punjab)	22.09.1974	450.00	0.334358	0.250486	74.9155	90.00	Not Achieved
61	LEHRA MOHABAT	P.S.P.C.L. (Punjab)	25.05.1998	920.00	1.241706	0.985810	79.3916	90.00	Not Achieved
62	JALIIPA KAPURDI	RWPL (Rajsthan)	26.11.2009	1080.00	0.604760	0.580090	95.9207	100.00	Not Achieved
63	ROSA PHASE-I	RPSCL(U.P)	12.03.2010	1200.00	1.336463	0.966982	72.3538	100.00	Not Achieved
64	STERLITE	SEL (Odisha)	09.11.2010	2400.00	2.763637	0.862298	31.2016	90.00	Not Achieved
65	CUDDALORE	ST-CMS (Tamil Nadu)	15.12.2002	250.00	0.137383	0.113161	82.3690	90.00	Not Achieved
66	NORTH CHENNAI	T.N.G & D Corporation (Tamil Nadu)	Apr-95	630.00	0.831000	0.720000	86.6426	90.00	Not Achieved
67	TUTICORIN	T.N.G & D Corporation (Tamil Nadu)	09.07.1979	1050.00	2.082317	1.492956	71.6969	90.00	Not Achieved
68	ANPARA 'A' & 'B'	U.P.R.V.U.N.L. (U.P.)	01.01.1987	1630.00	2.997076	0.009772	0.3261	90.00	Not Achieved
69	HARDUAGANJ	U.P.R.V.U.N.L. (U.P.)	31.03.1977	670.00	1.172664	0.716991	61.1421	90.00	Not Achieved
70	OBRA	U.P.R.V.U.N.L. (U.P.)	15.08.1967	1194.00	1.356000	0.291600	21.5044	90.00	Not Achieved
71	PARICHHA	U.P.R.V.U.N.L. (U.P.)	31.03.1984	1140.00	1.746945	1.030340	58.9795	90.00	Not Achieved
72	UDUPI	UPCL (Karnatak)	11.11.2010	1200.00	0.160002	0.122349	76.4672	90.00	Not Achieved
73	BUTIBORI	V.I.P Ltd.(Maharastra)	17.08.2012	600.00	0.123332	0.013223	10.7215	50.00	Not Achieved
74	SAGARDIGHI	W.B.P.D.C.L(W.B.)	06.09.2008	600.00	1.178216	0.547940	46.5059	90.00	Not Achieved
75	SANTALDIH	W.B.P.D.C.L (W.B.)	01.04.2009	500.00	0.779850	0.270474	34.6828	90.00	Not Achieved
76	BAKRESWAR	W.B.P.D.C.L(W.B.)	29.11.2000	1050.00	2.080000	1.355500	65.1683	90.00	Not Achieved
77	TIRORA	ADANI POWER Ltd. (Maharastra)	11.09.2012	2640.00	1.820000	0.494000	27.1429	50.00	Not Achieved

