



**REPORT
ON
FLY ASH GENERATION
AT
COAL/LIGNITE BASED THERMAL POWER STATIONS
AND
ITS UTILIZATION IN THE COUNTRY
FOR
THE YEAR 2011-12 AND 2012-13**



CENTRAL ELECTRICITY AUTHORITY

NEW DELHI

JANUARY, 2014



FOREWORD

Electricity generation in the country is and would remain predominantly coal based during 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 fly ash generation and its utilization in the country for having its factual status.

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, GOI 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 100.37 million-ton in 2012-13.

Report that follows gives an overview of current status of fly ash generation and its utilization in the country for the year 2011-12 and 2012-13 which, 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
January, 2014

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

ACKNOWLEDGEMENT

I express my 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 2011-12 and year 2012-13. 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 the preparation of this Report.

I express my thanks to Shri A.K. Jain my predecessor and the team comprising S/Shri C.K.L. Das, Neeraj Kumar, Directors, Birendra Singh, Deputy Director; B P Upadhyay, Assistant Director; Laxmi Narain, Head Draftsman and other officers of TCD Division, CEA for their assistance in preparation of this report.

I also express by deep gratitude to Shri Anil Gupta, Executive Director, NTPC Ltd. for promptly agreeing to arrange for printing and making it possible to bring out this report.

New Delhi
January, 2014



(Gorakh Thakur)
Chief Engineer (TCD), CEA

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FLY ASH GENERATION AT COAL/LIGNITE BASED THERMAL POWER STATIONS AND ITS UTILIZATION IN THE COUNTRY (FOR THE YEARS 2011-12 AND 2012-13)

1.0 BACKGROUND

Coal/Lignite based Thermal Power Generation has been the backbone of capacity addition in the country. Indian coal is of low grade having ash content as high as 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.

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 Notifications prescribe targets of Fly Ash utilization for all Coal/Lignite based Thermal Power Stations in the country with an aim to achieve 100% utilization in a phased manner.

Central Electricity Authority (CEA) has been monitoring since 1996 on behalf of Ministry of Power 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 submitted to Ministry of Power and Ministry of Environment and Forests and also uploaded on the web site of CEA for bringing out the information in the public domain so that users of fly ash can have access to the information on the availability of fly ash at different thermal power stations in the country, which would facilitate and promote the utilization of fly ash.

The monitoring of 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 2011-12 & 2012-13

2.1 A Brief Summary

Fly ash generation & utilization data for the Years 2011-12 and 2012-13 has been received from **124** (One hundred twenty four) and **138** (One hundred thirty eight) 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 2011-12 AND 2012-13**

| Description | | 2011- 12 | 2012-13 |
|---|---|--------------|--------------|
| • Nos. of Thermal Power Stations from which data was received | : | 124 | 138 |
| • Installed capacity (MW) | : | 1,05,925.3 | 1,20312.30 |
| • Coal consumed (Million tons) | : | 437.41 | 482.97 |
| • Average Ash Content (%) | : | 33.24 | 33.87 |
| • Fly Ash Generation (Million tons) | : | 145.42 | 163.56 |
| • Fly Ash Utilization (Million tons) | : | 85.05 | 100.37 |
| • Percentage Utilization | : | 58.48 | 61.37 |

Power Station wise fly ash generation & its utilization status including modes of utilization for the Year 2011-12 for all the **124** thermal power stations which were in operation as on 31st March, 2012 and for the Year 2012-13, for all the **138** thermal power stations which were in operation as on 31st March, 2013 is given in the statements at **Annex-I and Annex-II** respectively.

2.2 Retirement of Units during the Years 2011-12 and 2012-13:

During the Year 2011-12, total eight Units, having a total installed capacity of 495 MW and during the Year 2012-13, four Units having a total installed capacity of 195 MW of various thermal power stations as per details given in Table-II below have been decommissioned:

TABLE-II**DETAILS OF RETIREMENT OF UNITS DURING THE YEARS 2011-12 AND 2012-13**

| Sl. No. | Name of Thermal Power Station | Name of Power Utility | Unit No. | Capacity (MW) | Date of Retirement |
|--------------------------|---------------------------------|---|----------|---------------|--------------------|
| (1) | (2) | (3) | (4) | (5) | (6) |
| 2011-12 | | | | | |
| 1 | Bhusawal | MAHAGENCO (Maharashtra) | 1 | 50 | 19.05.2011 |
| 2 | Paras | | 2 | 55 | |
| 3 | Parli | | 1 | 20 | |
| | | | 2 | 20 | |
| 4 | Nashik | 1 | 125 | 25.06.2011 | |
| | | 2 | 125 | | |
| 5 | Barauni | B.S.E.S. (Bihar) | 4 | 50 | 12.03.2012 |
| | | | 5 | 50 | |
| Total for 2011-12 | | | | 495 | |
| 2012-13 | | | | | |
| 1 | Durgapur Projects Power Station | Durgapur Projects Ltd. (West Bengal) | 1 | 30 | 10.05.2012 |
| | | | 2 | 30 | 10.05.2012 |
| 2 | Satpura | M.P.P.G.C. Ltd. (M.P.) | 3 | 62.5 | 01.10.2012 |
| | | | 5 | 62.5 | 01.02.2013 |
| Total for 2012-13 | | | | 195 | |

2.3 Power Utility wise Status of Fly Ash Generation & its Utilization during the Year 2011-12 and 2012-13

The status of fly ash generation & utilization for the years 2011-12 and 2012-13 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 below:

TABLE-III
POWER UTILITY WISE FLY ASH GENERATION AND UTILIZATION FOR THE YEARS 2011-12 AND 2012-13

| Sl. No. | Name of Power Utility | Nos. of TPS | Installed Capacity (MW) | Fly Ash Generation (Million-ton) | | Fly Ash Utilization | | | |
|---------|---|-------------|-------------------------|----------------------------------|---------|---------------------|---------|-----------------|---------|
| | | | | 2011-12 | 2012-13 | (In Million -ton) | | (In Percentage) | |
| | | | | | | 2011-12 | 2012-13 | 2011-12 | 2012-13 |
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) |
| 1 | Assam Power Generation Corporation Ltd. (A.P.G.C.L.) | 1 | 60 | - | - | - | - | - | - |
| 2 | Andhra Pradesh Power Generation Corporation (A.P.GENCO) | 6 (7) | 4592.5 (5092.5) | 9.9827 | 11.8620 | 4.7549 | 5.5947 | 47.63 | 47.17 |
| 3 | Aryan Coal Beneficiation Pvt. Ltd. (Chhattisgarh) | 1 | 135 (270) | 0.1143 | 0.7090 | 0.0958 | 0.3398 | 83.80 | 47.92 |
| 4 | Adani Power Ltd. (Gujarat) | 1 | 4620 | 0.5410 | 1.1540 | 0.5410 | 1.1540 | 100.00 | 100.00 |
| 5 | Aravali Power Company Pvt. Ltd. (Haryana) | 1 | 1000 (1500) | 0.7165 | 1.3689 | 0.1736 | 0.1190 | 24.23 | 8.70 |
| 6 | Abhijit MADC Nagpur Energy Pvt. Ltd. (Maharashtra) | 1 | 246 | 0.3110 | 0.2407 | 0.0235 | 0.0407 | 7.55 | 16.90 |
| 7 | Bajaj Energy Pvt. Ltd. (B.E.P.L.), U.P. | 5 | 450 | 0.1132 | 0.9790 | 0.0957 | 0.8046 | 84.56 | 82.18 |
| 8 | Bihar State Electricity Board (B.S.E.B.) | 1 | 110 (220) | 0.0804 | 0.0000* | 0.0988 | 0.0148 | 122.94 | 98.63 |
| 9 | C.E.S.C. Ltd. , (W.B). | 4 | 1285 | 2.0480 | 2.0921 | 2.0480 | 2.0921 | 100.00 | 100.00 |
| 10 | Coastal Gujarat Power Ltd. (C.G.P.L.), Gujarat | 1 | 800 | - | 0.3250 | - | 0.0270 | - | 8.31 |
| 11 | Chhattisgarh State Power Generation Company Ltd. (C.S.P.G.C.L.) | 3 | 1780 | 3.5310 | 3.6266 | 0.8477 | 1.3665 | 24.01 | 37.68 |
| 12 | Damodar Valley Corporation (D.V.C.) | 6 | 4710 (5710) | 6.6734 | 8.5392 | 5.1999 | 6.8786 | 77.92 | 80.55 |
| 13 | Durgapur Projects Ltd. (D.P.L.), W.B. | 1 | 641 | 0.6908 | 0.7033 | 0.6051 | 0.6411 | 87.59 | 91.16 |

* Existing stock of unutilized Ash is 0.0149 MT

| Sl. No. | Name of Power Utility | Nos. of TPS | Installed Capacity (MW) | Fly Ash Generation (Million-ton) | | Fly Ash Utilization | | | |
|---------|---|-------------|-------------------------|----------------------------------|---------|---------------------|---------|-----------------|---------|
| | | | | 2011-12 | 2012-13 | (In Million -ton) | | (In Percentage) | |
| | | | | | | 2011-12 | 2012-13 | 2011-12 | 2012-13 |
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) |
| 14 | D.P.S.C. Ltd. (W.B) | 1 (2) | 30 (42) | 0.0153 | 0.0197 | 0.0149 | 0.0197 | 97.16 | 100.00 |
| 15 | Essar Power Gujarat Ltd. (Gujarat) | 1 | 600 (1200) | 0.0036 | 0.1367 | 0.0036 | 0.1367 | 100.00 | 100.00 |
| 16 | Gujarat Industries Power Corporation Ltd. (G.I.P.C.L.), Gujarat | 1 | 500 | 0.4580 | 0.5721 | 0.4582 | 0.5721 | 100.05 | 100.00 |
| 17 | Gujarat Mineral Development Corporation Ltd. (G.M.D.C.L.), Gujarat | 1 | 250 | 0.1705 | 0.1858 | 0.1871 | 0.1859 | 109.76 | 100.03 |
| 18 | Gujarat State Electric Corporation Ltd. (G.S.E.C.L), Gujarat | 5 | 3720 | 6.2370 | 5.1810 | 3.0080 | 3.4836 | 48.23 | 67.24 |
| 19 | Haryana Power Generation Corporation, Ltd. (H.P.G.C.L.), Haryana | 3 | 3167.5 | 5.2096 | 4.4406 | 1.7862 | 1.5768 | 34.29 | 35.51 |
| 20 | Indraprastha Power Generation Company Ltd. (I.P.G.C.L), Delhi | 1 | 135 | 0.2278 | 0.2384 | 0.1725 | 0.1999 | 75.70 | 83.85 |
| 21 | Jharkhand State Electricity Board (J.S.E.B.), Jharkhand | 1 | 770 | 0.1510 | 0.2590 | 0.0117 | 0.0061 | 7.75 | 2.37 |
| 22 | Jhajjar Power Ltd. J.H.P.L (Haryana) | 1 | 1320 | 0.0412 | 0.7795 | 0.0412 | 0.7795 | 100.00 | 100.00 |
| 23 | Jindal Power Ltd. (J.P.L.), Chhattisgarh | 1 | 1000 | 1.9350 | 1.9990 | 1.1360 | 1.1940 | 58.71 | 59.73 |
| 24 | JSW Energy Ltd. | 2 | 2060 | 0.4473 | 0.5275 | 0.3951 | 0.5064 | 88.33 | 96.00 |
| 25 | Karnataka Power Corporation Ltd. (K.P.C.L.), Karnataka | 2 | 2220 (2720) | 2.3992 | 3.0313 | 1.1833 | 1.2913 | 49.32 | 42.60 |
| 26 | Kanti Bijlee Utpadan Nigam Ltd. (K.B.U.N.L.), Bihar | 1 | 220 | 0.0863 | - | 0.0863 | - | 100.00 | - |
| 27 | LANCO Power Ltd. | 2 | 1800 | 0.9740 | 1.8073 | 0.2360 | 0.3662 | 24.23 | 20.26 |
| 28 | Madhya Pradesh Power Generation Corporation Ltd. (M.P.P.G.C.L.), M.P. | 3 | 2932.5 | 4.3736 | 5.0533 | 1.6608 | 2.4843 | 37.97 | 49.16 |
| 29 | Maithon Power Ltd. (M.P.L.), Jharkhand | 1 | 1050 | 0.3550 | 1.2977 | 0.0013 | 0.3691 | 0.36 | 28.44 |
| 30 | Maharashtra State Power Generation Corporation Ltd. (M.S.P.G.C.L) | 7 | 6960 | 10.4091 | 11.3386 | 5.3263 | 6.6454 | 51.17 | 58.61 |

| Sl. No. | Name of Power Utility | Nos. of TPS | Installed Capacity (MW) | Fly Ash Generation (Million-ton) | | Fly Ash Utilization | | | |
|---------|---|-------------|-------------------------|----------------------------------|---------|---------------------|---------|-----------------|---------|
| | | | | 2011-12 | 2012-13 | (In Million -ton) | | (In Percentage) | |
| | | | | | | 2011-12 | 2012-13 | 2011-12 | 2012-13 |
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) |
| 31 | Neyveli Lignite Corporation Ltd. (N.L.C. Ltd.) | 5 | 2990 | 1.4947 | 1.6020 | 0.9391 | 1.1662 | 62.83 | 72.80 |
| 32 | NTPC-SAIL Power Co. Ltd. (N.S.P.C.L.), Chhattisgarh | 1 | 500 | 1.1342 | 0.9945 | 0.3252 | 0.6976 | 28.67 | 70.15 |
| 33 | NTPC Ltd. | 15 (16) | 27535 (31355) | 50.0520 | 56.2978 | 27.5290 | 30.9670 | 55.00 | 55.01 |
| 34 | NTPC-Tamilnadu Energy Co. Ltd. (N.T.E.C.L.), Tamil Nadu | 1 | 500 | 0.0000 | 0.2342 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 35 | Odisha Power Generation Corporation Ltd. (O.P.G.C.L.), Odisha | 1 | 420 | 1.0478 | 1.1093 | 0.1754 | 0.1801 | 16.74 | 16.24 |
| 36 | Punjab State Power Corporation Ltd. (P.S.P.C.L.), Punjab | 3 | 2620 | 3.4062 | 3.3577 | 2.8202 | 2.7762 | 82.80 | 82.68 |
| 37 | Rajasthan Rajya Vidyut Utpadan Nigam Ltd. (R.R.V.U.N.L.) | 4 | 3490 | 4.8987 | 4.8314 | 4.5750 | 4.9061 | 93.39 | 101.55 |
| 38 | Reliance Infrastructure Ltd. (R.I.L) | 1 | 500 | 0.7790 | 0.8370 | 0.6080 | 0.7200 | 78.05 | 86.02 |
| 39 | Rosa Power Supply CO. Ltd. (R.P.S.C.L.), U.P. | 1 | 1200 | 0.8599 | 1.0889 | 0.0779 | 0.3416 | 9.06 | 31.37 |
| 40 | Raj West Power Ltd. (R.W.P.L.), Rajasthan | 1 | 540 (1080) | 0.2073 | 0.5275 | 0.1144 | 0.3614 | 55.18 | 68.51 |
| 41 | Sterlite Energy Ltd. (S.E.L.), Odisha | 1 | 1800 (2400) | 2.1854 | 2.6256 | 0.4639 | 1.3376 | 21.23 | 50.94 |
| 42 | Simhapuri Energy Pvt. Ltd. (S.E.P.L.), Andhra Pradesh | 1 | 150 (300) | 0.0013 | 0.0658 | 0.0010 | 0.0654 | 80.00 | 99.45 |
| 43 | S.V. Power Pvt. Ltd. (S.V.P.P.L.) | 1 | 63 | 0.0334 | 0.0278 | 0.0334 | 0.0278 | 100.00 | 100.00 |
| 44 | ST-CMS Electric Company Pvt. Ltd. | 1 | 250 | 0.1446 | 0.1700 | 0.1305 | 0.1406 | 90.24 | 82.71 |
| 45 | Tata Power Company (T.P.CO.) | 2 | 1177.5 | 0.9660 | 0.0784 | 0.7443 | 0.0787 | 77.05 | 100.38 |
| 46 | Tenughat Vidyut Nigam Ltd. (T.V.N.L.), Jharkhand | 1 | 420 | 0.6167 | 0.8467 | 0.5838 | 0.2700 | 94.67 | 31.89 |
| 47 | Tamil Nadu Generation & Distribution Corp. Ltd., Tamil Nadu | 4 | 2970 | 5.1456 | 5.0997 | 6.7500 | 6.0513 | 131.18 | 118.66 |

| Sl. No. | Name of Power Utility | Nos. of TPS | Installed Capacity (MW) | Fly Ash Generation (Million-ton) | | Fly Ash Utilization | | | |
|---------|--|------------------|----------------------------|----------------------------------|---------------|---------------------|---------------|-----------------|--------------|
| | | | | 2011-12 | 2012-13 | (In Million -ton) | | (In Percentage) | |
| | | | | | | 2011-12 | 2012-13 | 2011-12 | 2012-13 |
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) |
| 48 | Torrent Power Ltd. (Gujarat) | 1 | 400 | 0.4700 | 0.4690 | 0.6565 | 0.4590 | 139.68 | 97.87 |
| 49 | Udupi Power Corporation Ltd. (U.P.C.L.), Karnataka | 1 | 600 (1200) | 0.0800 | 0.1390 | 0.0490 | 0.1080 | 61.25 | 77.70 |
| 50 | Uttar Pradesh Rajya Vidyut Utpadan Nigam Ltd. (U.P.R.V.U.N.L.) | 5 | 4200 (4950) | 5.6228 | 5.3649 | 1.0166 | 1.4500 | 18.08 | 27.03 |
| 51 | Vandana Energy & Steels Pvt. Ltd. (V.E.S.P.L), Chhattisgarh | 1 | 35 | 0.0037 | - | 0.0037 | - | 100.00 | - |
| 52 | West Bengal Power Development Corporation Ltd. (W.B.P.D.C. L.), W.B. | 5 | 3860 | 7.1710 | 6.7792 | 6.4630 | 6.9663 | 90.13 | 102.76 |
| 53 | Wardha Power Co. Pvt. Ltd. (W.P.C.L.), Maharashtra | 1 | 540 | 0.7992 | 0.8453 | 0.7992 | 0.8453 | 100.00 | 100.00 |
| 54 | Gupta Energy Pvt. Ltd. (Maharashtra) | 0 (1) | 0 (120) | - | 0.1428 | - | 0.1428 | - | 100.00 |
| 55 | J.P. Ventures Ltd., (M.P.) | 0 (1) | 0 (500) | - | 0.1569 | - | 0.1047 | - | 66.74 |
| 56 | AP&NR Ltd. (Jharkhand) | 0 (1) | 0 (540) | - | 0.0946 | - | 0.0189 | - | 20.00 |
| 57 | VIP Limited (Maharashtra) | 0 (1) | 0 (300) | - | 0.0017 | - | 0.0000 | - | 0.00 |
| 58 | EMCO Energy Ltd., (Maharashtra) | 0 (1) | 0 (300) | - | 0.0241 | - | 0.0200 | - | 83.04 |
| 59 | Spectrum Coal & Power Ltd., (Chhattisgarh) | 0 (1) | 0 (50) | - | 0.0103 | - | 0.0103 | - | 100.00 |
| 60 | Adani Power Ltd., (Maharashtra) | 0 (1) | 0 (1320) | - | 0.0979 | - | 0.0479 | - | 48.93 |
| 61 | Indiabulls Power Ltd., (Maharashtra) | 0 (1) | 0 (270) | - | 0.0001 | - | 0.0001 | - | 100.00 |
| 62 | Ideal Energy Projects Ltd., (Maharashtra) | 0 (1) | 0 (270) | - | 0.0015 | - | 0.0005 | - | 33.40 |
| 63 | ESSAR Power M.P. Ltd., (M.P.) | 0 (1) | 0 (600) | - | 0.0080 | - | 0.0080 | - | 100.00 |
| 64 | Meenakshi Energy Pvt. Ltd., (Andhra Pradesh) | 0 (1) | 0 (300) | - | 0.0072 | - | 0.0032 | - | 44.75 |
| | GRAND TOTAL | 124 (138) | 105925.3 (120312.3) | 145.42 | 163.56 | 85.05 | 100.37 | 58.48 | 61.37 |

[Values in brackets in above Table are for year of 2012-13]

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

- (i) The data of fly ash generation and utilization for the year 2011-12 was received from 53 Power Utilities out of which **13** Power Utilities have achieved fly ash utilization level of 100% or more and **15** power utilities have achieved fly ash utilization level in the range of less than 100% to 75%;
- (ii) The data of fly ash generation and utilization for the year 2012-13 was received from **64** Power Utilities, out of which **17** Power Utilities have achieved fly ash utilization level of 100% or more and **13** 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 periods (i.e. during the years 2011-12 and 2012-13).

2.4 State wise Status of Fly Ash Generation & its Utilization during the Year 2011-12 & Year 2012-13

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 YEARS 2011-12 AND 2012-13

| Sl. No. | Name of the State | Nos. of TPS | Installed Capacity (MW) | Fly Ash Generation (Million-ton) | | Fly Ash Utilization | | | |
|---------|-------------------|-------------|-------------------------|----------------------------------|---------|---------------------|---------|-----------------|---------|
| | | | | | | (In Million-ton) | | (In Percentage) | |
| | | | | 2011-12 | 2012-13 | 2011-12 | 2012-13 | 2011-12 | 2012-13 |
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) |
| 1 | Assam | 1 | 60 | - | - | - | - | - | - |
| 2 | Andhra Pradesh | 9 (12) | 8842.5 (10292.5) | 17.0939 | 19.6810 | 9.0518 | 10.6754 | 52.95 | 54.24 |
| 3 | Bihar | 3 | 2670 (2780) | 4.0857 | 4.5630 | 1.1451 | 1.0368 | 28.03 | 22.72 |
| 4 | Chhattisgarh | 11 | 8373 (9878) | 15.7476 | 18.8157 | 6.7438 | 7.2742 | 42.82 | 38.66 |
| 5 | Delhi | 2 | 840 (840.5) | 1.4918 | 1.4404 | 1.2735 | 1.2409 | 85.36 | 86.15 |
| 6 | Gujarat | 11 | 10890 (11490) | 7.8813 | 8.0236 | 4.8544 | 6.0183 | 61.59 | 75.01 |
| 7 | Haryana | 5 | 5487.8 (5987.8) | 5.9673 | 6.5890 | 2.0006 | 2.4753 | 33.53 | 37.57 |
| 8 | Jharkhand | 7 (8) | 4687.5 (5297.5) | 4.6806 | 7.0198 | 3.7752 | 4.7472 | 80.66 | 67.63 |
| 9 | Karnataka | 4 | 3680 (4780) | 2.7011 | 3.4041 | 1.4507 | 1.6322 | 53.71 | 47.95 |
| 10 | Madhya Pradesh | 4 (6) | 6192.5 (8292.5) | 10.6209 | 12.1532 | 4.5554 | 7.2100 | 42.89 | 59.33 |
| 11 | Maharashtra | 12 (16) | 10196 (13276) | 12.5960 | 13.9107 | 7.0055 | 8.8137 | 55.62 | 63.36 |
| 12 | Odisha | 4 | 5680 (6280) | 10.6612 | 11.6959 | 3.6263 | 5.3027 | 34.01 | 45.34 |
| 13 | Punjab | 3 | 2620 | 3.4062 | 3.3577 | 2.8202 | 2.7762 | 82.80 | 82.68 |
| 14 | Rajasthan | 6 | 4280 | 5.2241 | 5.5886 | 4.8075 | 5.5075 | 92.02 | 98.55 |

| Sl. No. | Name of the State | Nos. of TPS | Installed Capacity (MW) | Fly Ash Generation (Million-ton) | | Fly Ash Utilization | | | |
|---------|--------------------|------------------|------------------------------|----------------------------------|---------------|---------------------|---------------|-----------------|--------------|
| | | | | | | (In Million-ton) | | (In Percentage) | |
| | | | | 2011-12 | 2012-13 | 2011-12 | 2012-13 | 2011-12 | 2012-13 |
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) |
| | | | (4820) | | | | | | |
| 15 | Tamil Nadu | 10 | 6460 | 6.6668 | 6.8763 | 7.7015 | 7.1181 | 115.52 | 103.52 |
| 16 | Uttar Pradesh | 17 | 14360 (15610) | 20.4509 | 22.2475 | 10.4291 | 12.4175 | 51.00 | 55.82 |
| 17 | West Bengal | 15 16 | 10606 (11618) | 16.1414 | 18.4139 | 13.8056 | 17.0572 | 85.53 | 92.63 |
| | GRAND TOTAL | 124 (138) | 105925.30 (120312.30) | 145.42 | 163.56 | 85.05 | 100.37 | 58.48 | 61.37 |

[Values in brackets in above Table are for the year 2012-13]

It may be seen from Table-IV above that:

- Out of 17 states, 7 states have generated more than 10 million-ton of fly ash during the Years 2011-12 and 2012-13 and the maximum fly ash of more than 20 million ton was generated in U.P. during the aforesaid periods.
- During the Year 2011-12, the State of Tamil Nadu has achieved fly ash utilization level of more than 100% and the States of Delhi, Jharkhand, Punjab, Rajasthan and West Bengal have achieved the fly ash utilization level of more than 80%.
- During the Year 2012-13, the State of Tamil Nadu has achieved the fly ash utilization level of more than 100% and the States of Delhi, Punjab, Rajasthan and West Bengal have achieved the fly ash utilization level of more than 80%.

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

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

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

All coal/lignite based thermal Power Stations and/or expansion units in operation on or before the date of MoEF's notification i.e. 03.11.2009 are required to achieve the targets of fly ash utilization as given in Table-V below:

TABLE-V

TARGETS FOR FLY ASH UTILIZATION FOR THERMAL POWER STATIONS IN OPERATION AS ON 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 notification |
| 2 | At least 60% of Fly Ash generation | Two years from the date of notification |
| 3 | At least 75% of Fly Ash generation | Three years from the date of notification |
| 4 | At least 90% of Fly Ash generation | Four years from the date of notification |
| 5 | 100% of Fly Ash generation | Five years from the date 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/lignite based thermal Power Stations and/or expansion units commissioned after issuance of MoEF's notification of 3rd November, 2009 are required to achieve the target of fly ash utilization as given in Table-VI below:

TABLE-VI

TARGETS FOR FLY ASH UTILIZATION FOR THERMAL POWER STATION COMMISSIONED AFTER 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 Commissioning |
| 2 | At least 70% of fly ash generation | Two years from the date of Commissioning |
| 3 | At least 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 years 2011-12 and 2012-13 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 2011-12, all those thermal power stations which were in operation on the date of issuance of MoEF's notification (i.e. 3rd November, 2009) should have achieved the target of fly ash utilization of 60% within two years from the date of notification i.e. by 3rd November, 2011. All those thermal power stations which have come into operation after the date of issuance of MoEF's notification (i.e. 3rd November, 2009) should have achieved the target of fly ash utilization as specified in Table-VI above depending upon their date of commissioning.

During the Year 2012-13, all those thermal power stations which were in operation on the date of issuance of MoEF's notification (i.e. 3rd November, 2009) should have achieved the target of fly ash utilization of 75% within three years from the date of notification i.e. by 3rd November, 2012. All those thermal power stations which have come into operation after the date of issuance of MoEF's notification (i.e. 3rd November, 2009) should have achieved the target of fly ash utilization as specified in Table-VI above depending upon their date of commissioning.

4.1 Status during the Year 2011-12 and 2012-13

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 years 2011-12 and 2012-13, the fly ash utilization in terms of percentage as achieved by thermal power stations as on 31st March, 2012 and 31st March, 2013 respectively has been compared with the targets of fly ash utilization required to be achieved by them as on 3rd November, 2011 for the Year 2011-12 and as on 3rd November, 2012 for the Year 2012-13 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, 2012 for the year 2011-12 and as on 31st March, 2013 for the year 2012-13 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, 2012 for the Year 2011-12 and as on 31st March, 2013 for the Year 2012-13, 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 Years 2011-12 and 2012-13 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 YEARS 2011-12 AND 2012-13

| Sl. No. | Description | Nos. of TPS | |
|---------|--|-------------|------------|
| | | 2011-12 | 2012-13 |
| (1) | (2) | (3) | (4) |
| 1 | Nos. of TPS which have achieved the target of fly ash utilization as per MoEF's Notification of 3 rd November, 2009 | 73 | 66 |
| 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 | 43 | 66 |
| 3 | Nos. of TPS which have not generated any significant fly ash or any fly ash | 8 | 6 |
| | Total | 124 | 138 |

It may be seen from Table-VII above that:

- (i) During the Year 2011-12, out of **124** (one hundred twenty four) thermal power stations for which data was received, **73** (seventy three) power stations have achieved the targets of fly ash utilization as stipulated in MoEF's Notification of 3rd November, 2009.

- (ii) During the year of 2012-13, out of **138** (one hundred thirty eight) thermal power stations for which data was received, **66** (sixty six) 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 Years 2011-12 and 2012-13

Based on the analysis of fly ash utilization data received from Thermal Power Stations/Power Utilities, the range of fly ash utilization in percentage and numbers of thermal power stations in that range has been assessed and the same is given in Table-VIII below:

TABLE-VIII

RANGE OF PERCENTAGE FLY ASH UTILIZATION DURING THE YEARS 2011-12 AND 2012-13

| Sl. No. | Level of Fly Ash utilization | Nos. of Power Stations | |
|---------|---|------------------------|------------|
| | | 2011-12 | 2012-13 |
| (1) | (2) | (3) | (4) |
| 1 | 100% and more than 100% | 29 | 32 |
| 2 | Less than 100% and up to 75% | 27 | 33 |
| 3 | Less than 75% and up to 60% | 17 | 19 |
| 4 | Less than 60% | 43 | 48 |
| 5 | Nos. of TPS which have not generated any significant fly ash or any fly ash | 8 | 6 |
| | Total | 124 | 138 |

It may be seen from Table-VIII above that **29** thermal power stations during the year 2011-12 and **32** thermal power stations during the year 2012-13 have achieved fly ash utilization level of 100% or more. The performance of these thermal power stations in fly ash utilization has been excellent.

4.3 Thermal Power Stations that have achieved Fly Ash utilization level of 100% or more during the Years 2011-12 and 2012-13

The following names of Thermal Power Stations achieved the fly ash utilization level of 100% or more during 2011-12 and 2012-13. 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 YEARS 2011-12 AND 2012-13

| Sl. No. | Name of TPS & Power Utility | Installed Capacity | 2011-12 | | | 2012-13 | | |
|---------|------------------------------|--------------------|--------------------|---------------------|----------------|--------------------|---------------------|----------------|
| | | | Fly ash Generation | Fly ash Utilization | Percentage (%) | Fly ash Generation | Fly ash Utilization | Percentage (%) |
| | | | (In Million-ton) | | | (In Million-ton) | | |
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) |
| 1 | MUNDRA TPS, A.P.L. (Gujarat) | 4620 | 0.5410 | 0.5410 | 100.00 | 1.1540 | 1.1540 | 100.00 |
| 2 | BARAUNI, B.S.E.B. (Bihar) | 110 | 0.0804 | 0.0988 | 122.94 | - | - | - |

| Sl. No. | Name of TPS & Power Utility | Installed Capacity | 2011-12 | | | 2012-13 | | |
|---------|--|--------------------|--------------------|---------------------|----------------|--------------------|---------------------|----------------|
| | | | Fly ash Generation | Fly ash Utilization | Percentage (%) | Fly ash Generation | Fly ash Utilization | Percentage (%) |
| | | | (In Million-ton) | | | (In Million-ton) | | |
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) |
| 3 | B.B.G.S., C.E.S.C. (W.B.) | 750 | 1.4630 | 1.4630 | 100.00 | 1.3790 | 1.3790 | 100.00 |
| 4 | S.G.S., C.E.S.C. (W.B.) | 135 | 0.2630 | 0.2630 | 100.00 | 0.2680 | 0.2680 | 100.00 |
| 5 | T.G.S., C.E.S.C. (W.B.) | 240 | 0.3220 | 0.3220 | 100.00 | 0.3900 | 0.3900 | 100.00 |
| 6 | BOKARO 'B', D.V.C. (Jharkhand) | 500 | 1.4908 | 1.7489 | 117.31 | 1.3475 | 1.4907 | 110.63 |
| 7 | SALAYA, E.P.G.L. (Gujarat) | 600 (1200) | 0.0036 | 0.0036 | 100.00 | 0.1367 | 0.1367 | 100.00 |
| 8 | SURAT LIGNITE, G.I.P.C.L. (Gujarat) | 500 | 0.4580 | 0.4582 | 100.05 | 0.5721 | 0.5721 | 100.00 |
| 9 | AKRIMOTA, G.M.D.C.L. (Gujarat) | 250 | 0.1705 | 0.1871 | 109.76 | 0.1858 | 0.1859 | 100.00 |
| 10 | KUTCH LIGNITE, G.S.E.C.L. (Gujarat) | 290 | 0.2750 | 0.2760 | 100.36 | 0.3610 | 0.3610 | 100.00 |
| 11 | MAHATMA GANDHI, J.H.P.L., (Haryana) | 1320 | 0.0412 | 0.0412 | 100.00 | 0.7795 | 0.7795 | 100.00 |
| 12 | BARSINGSAR LIGNIT, E.N.L.C. (Rajasthan) | 250 | 0.1181 | 0.1181 | 100.00 | 0.2297 | 0.2400 | 104.51 |
| 13 | TALCHAR, NTPC Ltd. (Odisha) | 460 | 1.1930 | 1.1930 | 100.00 | 1.2350 | 1.2350 | 100.00 |
| 14 | KOTA, R.R.V.U.N.L., (Rajasthan) | 1240 | 2.0284 | 2.1070 | 103.87 | 1.8504 | 2.2891 | 123.71 |
| 15 | GIRAL, R.R.V.U.N.L., (Rajasthan) | 250 | 0.1831 | 0.1831 | 100.00 | 0.1942 | 0.1942 | 100.00 |
| 16 | SVPL, S.V.P.P.L., (Chhattisgarh) | 63 | 0.0334 | 0.0334 | 100.00 | 0.0278 | 0.0278 | 100.00 |
| 17 | TROMBAY T.P. CO., (Jharkhand) | 750 | 0.0722 | 0.0722 | 100.00 | 0.0784 | 0.0787 | 101.00 |
| 18 | METTUR T.N.G & D., (Tamil Nadu) | 840 | 1.6497 | 2.7372 | 165.92 | 1.3432 | 2.4561 | 183.86 |
| 19 | NORTH CHENNAI T.N.G & D, (Tamil Nadu) | 630 | 0.9580 | 2.3180 | 241.96 | 1.1090 | 1.7690 | 159.58 |

| Sl. No. | Name of TPS & Power Utility | Installed Capacity | 2011-12 | | | 2012-13 | | |
|---------|--|--------------------|--------------------|---------------------|----------------|--------------------|---------------------|----------------|
| | | | Fly ash Generation | Fly ash Utilization | Percentage (%) | Fly ash Generation | Fly ash Utilization | Percentage (%) |
| | | | (In Million-ton) | | | (In Million-ton) | | |
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) |
| 20 | PANKI, U.P.R.V.U.N.L., (U.P.) | 210 | 0.2747 | 0.3789 | 137.95 | 0.2571 | 0.4016 | 156.21 |
| 21 | KOLAGHAT, W.B.P.D.C.L., (W.B.) | 1260 | 2.5470 | 3.0200 | 118.57 | 2.4387 | 3.4196 | 143.63 |
| 22 | BANDEL, W.B.P.D.C.L. (W.B.) | 450 | 0.6510 | 0.7410 | 113.82 | 0.5617 | 0.7479 | 146.32 |
| 23 | BAKRESWAR, W.B.P.D.C.L. (W.B.) | 1050 | 1.9760 | 2.3780 | 120.34 | 2.0795 | 2.3103 | 111.31 |
| 24 | WARDHA, W.P.C.L., (Maharashtra) | 540 | 0.7992 | 0.7992 | 100.00 | 0.8453 | 0.8453 | 100.00 |
| 25 | MUZAFFARPUR, K.B.U.N.L., (Bihar) | 220 | 0.0863 | 0.0863 | 100.00 | - | - | - |
| 26 | KHAPARKHEDA, M.S.P.G.C.L., (Maharashtra) | 840 | 1.4801 | 1.5501 | 104.73 | - | - | - |
| 27 | SABARMATI, Torrent Power Ltd. (Gujarat) | 400 | 0.4700 | 0.6565 | 139.68 | - | - | - |
| 28 | HARDUAGANJ, U.P.R.V.U.N.L., (U.P.) | 420 | 0.0191 | 0.0232 | 121.47 | - | - | - |
| 29 | KATGHORA, V.E.S.P.L., (Chhattisgarh) | 35 | 0.0037 | 0.0037 | 100.00 | - | - | - |
| 30 | GEPL, Gupta Energy Pvt. Ltd., (Maharashtra) | 120 | - | - | - | 0.1428 | 0.1428 | 100.00 |
| 31 | RATIJA, Spectrum Coal & Power Ltd., (Chhattisgarh) | 50 | - | - | - | 0.0103 | 0.0103 | 100.00 |
| 32 | AMARAVATI, Indiabulls Power Ltd., (Maharashtra) | 270 | - | - | - | 0.0001 | 0.0001 | 100.00 |
| 33 | NEW COSSIPORE, C.E.S.C. (W.B.) | 160 | - | - | - | 0.0551 | 0.0551 | 100.00 |
| 34 | DISHERGARH POWER STATION, D.P.S.C.L., (W.B.) | 12 | - | - | - | 0.0197 | 0.0197 | 100.00 |
| 35 | MAHAN, ESSAR POWER MP Ltd., (M.P.) | 600 | - | - | - | 0.0080 | 0.0080 | 100.00 |

| Sl. No. | Name of TPS & Power Utility | Installed Capacity | 2011-12 | | | 2012-13 | | |
|---------|---------------------------------------|--------------------|--------------------|---------------------|----------------|--------------------|---------------------|----------------|
| | | | Fly ash Generation | Fly ash Utilization | Percentage (%) | Fly ash Generation | Fly ash Utilization | Percentage (%) |
| | | | (In Million-ton) | | | (In Million-ton) | | |
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) |
| 36 | GANDHINAGAR, G.S.E.C.L.(Gujarat) | 870 | - | - | - | 0.8580 | 0.8590 | 100.15 |
| 37 | SIKKA, G.S.E.C.L.(Gujarat) | 240 | - | - | - | 0.1850 | 0.2136 | 115.37 |
| 38 | JOJOBERA, Tata Power Co., (Jharkhand) | 427.5 | - | - | - | 1.1552 | 1.2084 | 105.56 |

['-' denotes that TPS is not in the range of fly ash utilization under consideration]

It may be seen from Table-IX above that:

- (i) During the Year 2011-12, **29** thermal power stations have achieved the fly ash utilization level of 100% or more than 100%. **15** thermal power stations out of 29 have achieved fly ash utilization level of more than 100%.
- (ii) During the year 2012-13, **32** thermal power stations have achieved the fly ash utilization level of 100% or more than 100%. **13** thermal power stations out of 32 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 years 2011-12 and/or during the year 2012-13 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 Years 2011-12 and 2012-13

The names of Thermal Power Stations which have achieved the fly ash utilization level of less than 100% and up to 75% during the years 2011-12 and 2012-13 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 FOR THE YEARS 2011-12 AND 2012-13

| Sl. No. | Name of TPS & Power Utility | Installed Capacity | 2011-12 | | | 2012-13 | | |
|---------|---|--------------------|--------------------|---------------------|----------------|--------------------|---------------------|----------------|
| | | | Fly ash Generation | Fly ash Utilization | Percentage (%) | Fly ash Generation | Fly ash Utilization | Percentage (%) |
| | | | (In Million-ton) | | | (In Million-ton) | | |
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) |
| 1 | KASAI PALLI, A.C.B.P.L., (Chhattisgarh) | 135 | 0.1143 | 0.0958 | 83.80 | - | - | - |
| 2 | BARKHERA, B.E.P.L. (U.P.) | 90 | 0.0295 | 0.0251 | 85.06 | 0.2043 | 0.1634 | 80.00 |
| 3 | KHAMBAR KHERA, B.E.P.L. (U.P.) | 90 | 0.0412 | 0.0347 | 84.24 | 0.2084 | 0.1701 | 81.64 |
| 4 | KUNDARKI, B.E.P.L. (U.P.) | 90 | 0.0110 | 0.0093 | 84.45 | 0.2023 | 0.1759 | 86.96 |
| 5 | MAQSOODPUR, B.E.P.L. (U.P.) | 90 | 0.0235 | 0.0199 | 84.41 | 0.2104 | 0.1706 | 81.06 |

| Sl. No. | Name of TPS & Power Utility | Installed Capacity | 2011-12 | | | 2012-13 | | |
|---------|--|--------------------|--------------------|---------------------|----------------|--------------------|---------------------|----------------|
| | | | Fly ash Generation | Fly ash Utilization | Percentage (%) | Fly ash Generation | Fly ash Utilization | Percentage (%) |
| | | | (In Million-ton) | | | (In Million-ton) | | |
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) |
| 6 | UTRAULA, B.E.P.L. (U.P.) | 90 | 0.0079 | 0.0067 | 85.00 | 0.1536 | 0.1245 | 81.06 |
| 7 | D.P.L , D.P.L. (W. B.) | 641 | 0.6908 | 0.6051 | 87.59 | 0.7033 | 0.6411 | 91.16 |
| 8 | RAJGHAT, I.P.G.C.L. (Delhi) | 135 | 0.2278 | 0.1725 | 75.70 | 0.2384 | 0.1999 | 83.85 |
| 9 | RATNAGIRI, JSW Energy Ltd. (Maharashtra) | 1200 | 0.2250 | 0.1760 | 78.22 | 0.2937 | 0.2731 | 93.00 |
| 10 | VIJAYANAGAR, JSW Energy Ltd., (Karnataka) | 860 | 0.2223 | 0.2191 | 98.56 | 0.2338 | 0.2334 | 99.57 |
| 11 | SANJAY GANDHI, M.P.P.G.C.L (M.P.) | 1340 | 1.6610 | 1.5680 | 94.40 | 2.2907 | 1.8017 | 78.65 |
| 12 | NASHIK, M.S.P.G.C.L., (Maharashtra) | 630 | 1.2760 | 1.0381 | 81.36 | 1.2680 | 0.9530 | 75.12 |
| 13 | NEYVELI -I EXPN. N.L.C. Ltd. (Tamil Nadu) | 420 | 0.2270 | 0.2221 | 97.84 | 0.2385 | 0.2385 | 99.80 |
| 14 | BADARPUR, NTPC Ltd. (Delhi) | 705 | 1.2640 | 1.1010 | 87.10 | 1.2020 | 1.0410 | 86.61 |
| 15 | FARAKKA, NTPC Ltd. (W.B.) | 2100 | 2.2070 | 1.9810 | 89.76 | 3.6470 | 3.3340 | 91.40 |
| 16 | LEHRA MOHABAT, P.S.P.C.L., (Punjab) | 920 | 1.4113 | 1.1482 | 81.35 | 1.2306 | 1.0788 | 87.66 |
| 17 | ROPAR, P.S.P.C.L. (Punjab) | 1260 | 1.5284 | 1.4373 | 94.04 | 1.8056 | 1.4764 | 81.76 |
| 18 | SURATGARH, R.R.V.U.N.L., (Rajasthan) | 1500 | 2.1100 | 1.7275 | 81.87 | 2.1259 | 1.8796 | 88.40 |
| 19 | CHHABRA R.R.V.U.N.L., (Rajasthan) | 500 | 0.5774 | 0.5575 | 96.56 | 0.6609 | 0.5433 | 84.36 |
| 20 | DAHANU, Reliance Infrastructure Ltd. (Maharashtra) | 500 | 0.7790 | 0.6080 | 78.05 | 0.8370 | 0.7200 | 86.07 |
| 21 | CUDDALORE, ST-CMS, (Tamil Nadu) | 250 | 0.1446 | 0.1305 | 90.24 | 0.1700 | 0.1406 | 82.71 |
| 22 | ENNORE, T.N.G & D. Corporation, (Tamil Nadu) | 450 | 0.4324 | 0.4148 | 95.92 | 0.3941 | 0.3331 | 84.54 |
| 23 | CHINAKURI, D.P.S.C.L. (W.B.) | 30.00 | 0.0153 | 0.0149 | 97.16 | - | - | - |

| Sl. No. | Name of TPS & Power Utility | Installed Capacity | 2011-12 | | | 2012-13 | | |
|---------|---|--------------------|--------------------|---------------------|----------------|--------------------|---------------------|----------------|
| | | | Fly ash Generation | Fly ash Utilization | Percentage (%) | Fly ash Generation | Fly ash Utilization | Percentage (%) |
| | | | (In Million-ton) | | | (In Million-ton) | | |
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) |
| 24 | GANDHINAGAR, G.S.E.C.L.(Gujarat) | 870 | 1.2450 | 0.9870 | 79.28 | - | - | - |
| 25 | UNCHAHAHAR, NTPC Ltd. (U.P.) | 1050 | 2.5730 | 1.9320 | 75.09 | - | - | - |
| 26 | JOJOBBERA, Tata Power Co. (Jharkhand) | 427.5 | 0.8938 | 0.6721 | 75.19 | - | - | - |
| 27 | TENUGHAT, T.V.N.L. (Jharkhand) | 420 | 0.6167 | 0.5838 | 94.67 | - | - | - |
| 28 | RAYALSEEMA, A.P.GENCO (A.P.) | 1050 | - | - | - | 2.0868 | 1.6271 | 77.95 |
| 29 | BARAUNI, B.S.E.B. (Bihar) | 220 | - | - | - | 0.0000* | 0.0148 | 98.63 |
| 30 | KORBA (WEST), C.S.P.G.C.L. (Chhattisgarh) | 840 | - | - | - | 1.4829 | 1.2395 | 83.58 |
| 31 | DURGAPUR, D.V.C. (W. B.) | 350 | - | - | - | 0.8172 | 0.6933 | 84.84 |
| 32 | MEJIA, D.V.C. (W.B.) | 2340 | - | - | - | 3.7320 | 3.1610 | 84.70 |
| 33 | DADRI, NTPC Ltd. (U.P.) | 1820 | - | - | - | 2.7440 | 2.3800 | 86.75 |
| 34 | SABARMATI, Torrent Power Ltd. (Gujarat) | 400 | - | - | - | 0.4690 | 0.4590 | 97.76 |
| 35 | SIMHAPURI, S.E.P.L. (A.P.) | 300 | - | - | - | 0.0658 | 0.0654 | 99.45 |
| 36 | UDUPI, U.P.C.L. (Karnataka) | 1200 | - | - | - | 0.1391 | 0.1075 | 77.32 |
| 37 | EMCO ENERGY, EMCO ENERGY Ltd. (Maharashtra) | 300 | - | - | - | 0.0241 | 0.0200 | 83.00 |
| 38 | PARAS M.S.P.G.C.L. (Maharashtra) | 500 | - | - | - | 0.9440 | 0.7210 | 75.23 |
| 39 | PARLI M.S.P.G.C.L. (Maharashtra) | 1130 | - | - | - | 1.5060 | 1.1920 | 79.16 |

[^-\ denotes that TPS is not in the range of fly ash utilization under consideration]

* Existing stock of unutilized Ash is 0.0149 MT

It may be seen from Table-X above that **27** thermal power stations during the year 2011-12 and **33** thermal power stations during the Year 2012-13 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 Years 2011-12 & Year 2012-13

The names of Thermal Power Stations which have achieved the fly ash utilization level of less than 75% and up to 60% during the years 2011-12 and 2012-13 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 YEARS 2011-12 AND 2012-13

| Sl. No. | Name of TPS & Power Utility | Installed Capacity | 2011-12 | | | 2012-13 | | |
|---------|-------------------------------------|--------------------|--------------------|---------------------|----------------|--------------------|---------------------|----------------|
| | | | Fly ash Generation | Fly ash Utilization | Percentage (%) | Fly ash Generation | Fly ash Utilization | Percentage (%) |
| | | | (In Million-ton) | | | (In Million-ton) | | |
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) |
| 1 | RAYALSEEMA, A.P.GENCO (A.P.) | 1050 | 2.2650 | 1.5650 | 69.10 | - | - | - |
| 2 | KAKATIA, A.P.GENCO (A.P.) | 500 | 0.6206 | 0.3760 | 60.58 | - | - | - |
| 3 | CHANDRAPURA, D.V.C. (JHARKHAND) | 890 | 1.1733 | 0.7574 | 64.55 | 2.0191 | 1.3840 | 68.54 |
| 4 | DURGAPUR, D.V.C. (W.B.) | 350 | 0.7173 | 0.4956 | 69.10 | - | - | - |
| 5 | MEJIA, D.V.C. (W.B.) | 1840 | 3.2920 | 2.1980 | 66.77 | - | - | - |
| 6 | BHUSAWAL, M.S.P.G.C.L (MAHARASTRA) | 420 | 0.7349 | 0.4806 | 65.39 | 0.6929 | 0.4918 | 70.68 |
| 7 | PARLI, M.S.P.G.C.L (MAHARASTRA) | 1130 | 0.1731 | 0.1191 | 68.80 | - | - | - |
| 8 | NEYVELI-I, N.L.C. Ltd. (TAMIL NADU) | 600 | 0.2506 | 0.1779 | 70.99 | 0.3342 | 0.2132 | 64.51 |
| 9 | RAMAGUNDAM, NTPC Ltd. (A.P.) | 2600 | 4.2940 | 2.6080 | 60.74 | 4.5210 | 3.0520 | 67.52 |
| 10 | SIMHADRI NTPC Ltd. (A.P.) | 1500 (2000) | 2.8160 | 1.6900 | 60.01 | 3.2250 | 1.9600 | 60.78 |
| 11 | KORBA NTPC Ltd. (CHHATTISGARH) | 2600 | 5.4070 | 3.7440 | 69.24 | - | - | - |
| 12 | RIHAND, NTPC Ltd. (U.P.) | 2000 | 3.1190 | 1.8920 | 60.66 | - | - | - |
| 13 | SINGRAULI, NTPC Ltd. (U.P.) | 2000 | 3.7930 | 2.3240 | 61.27 | 3.7770 | 2.2660 | 60.00 |
| 14 | TANDA, NTPC Ltd. (U.P.) | 440 | 1.3600 | 0.8460 | 62.21 | 1.1560 | 0.7310 | 63.42 |
| 15 | DADRI NTPC Ltd. (U.P.) | 1820 | 3.0100 | 2.2470 | 74.65 | - | - | - |

| Sl. No. | Name of TPS & Power Utility | Installed Capacity | 2011-12 | | | 2012-13 | | |
|---------|--|--------------------|--------------------|---------------------|----------------|--------------------|---------------------|----------------|
| | | | Fly ash Generation | Fly ash Utilization | Percentage (%) | Fly ash Generation | Fly ash Utilization | Percentage (%) |
| | | | (In Million-ton) | | | (In Million-ton) | | |
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) |
| 16 | TUTICORIN, TG & D.C. Ltd. (TAMIL NADU) | 1050 | 2.1054 | 1.2800 | 60.79 | 2.2534 | 1.4930 | 66.25 |
| 17 | UDUPI U.P.C.L. (KARNATAK) | 600 | 0.0800 | 0.0490 | 61.25 | - | - | - |
| 18 | BHILAI, N.S.P.C.L. (CHHATTISHGARH) | 500 | - | - | - | 0.9945 | 0.6976 | 70.15 |
| 19 | DR. NTR (VIJAIWADA), APGENCO (A.P.) | 1760 | - | - | - | 4.1007 | 2.9170 | 71.13 |
| 20 | BELLARY, K.P.C.L. (KARNATKA) | 1000 | - | - | - | 0.5381 | 0.3813 | 70.85 |
| 21 | VINDHYACHAL, NTPC Ltd. (M.P.) | 4260 | - | - | - | 6.9350 | 4.6130 | 66.50 |
| 22 | BHATINDA, P.S.P.C.L. (PUNJAB) | 440 | - | - | - | 0.3215 | 0.2211 | 68.77 |
| 23 | KHAPARKHEDA, M.S.P.G.C.L. (MAHARASTRA) | 840 | - | - | - | 1.8457 | 1.2867 | 69.70 |
| 24 | NEYVELI-II, N.L.C. Ltd. (TAMIL NADU) | 1470 | - | - | - | 0.7996 | 0.4745 | 60.50 |
| 25 | UNCHAHAR, NTPC Ltd. (U.P.) | 1050 | - | - | - | 2.4540 | 1.5320 | 62.49 |
| 26 | JALIIPA KAPURDI, R.W.P.L. (RAJASTHAN) | 1080 | - | - | - | 0.5275 | 0.3614 | 68.50 |
| 27 | PARICHHA, U.P.R.V.U.N.L. (U.P.) | 1140 | - | - | - | 1.1380 | 0.7033 | 61.80 |
| 28 | BINA, Jaypee Bina Thermal Power Plant (M.P.) | 500 | - | - | - | 0.1569 | 0.1047 | 66.66 |

['-' denotes that TPS is not in the range of fly ash utilization under consideration]

It may be seen from Table-XI above that **17** thermal power stations during the year 2011-12 and **19** thermal power stations during the year 2012-13 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 Years 2011-12 and 2012-13

The names of Thermal Power Stations which have achieved the fly ash utilization level of less than 60% during the years 2011-12 and 2012-13 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 BELOW 60%
DURING THE YEARS 2011-12 AND 2012-13**

| Sl. No. | Name of TPS & Power Utility | Installed Capacity | 2011-12 | | | 2012-13 | | |
|---------|---|--------------------|--------------------------|---------------------|----------------|--------------------------|---------------------|----------------|
| | | | Fly ash Generation | Fly ash Utilization | Percentage (%) | Fly ash Generation | Fly ash Utilization | Percentage (%) |
| | | | (In Million-ton) | | | (In Million-ton) | | |
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) |
| 1 | CHANDRAPUR A.P.G.P.C.L. (Assam) | 60.00 | No fly ash was generated | | | No fly ash was generated | | |
| 2 | KOTHAGUDAM A.P. GENCO (A.P.) | 720 | 2.0113 | 0.1191 | 5.92 | 2.1051 | 0.1995 | 9.48 |
| 3 | KOTHAGUDEM-V A.P. GENCO (A.P.) | 500 | 0.9090 | 0.2000 | 22.00 | 1.4032 | 0.0711 | 5.09 |
| 4 | RAMAGUNDUM'B' A.P. GENCO (A.P.) | 62.50 | 0.1398 | 0.0748 | 53.51 | 0.1425 | 0.0601 | 42.18 |
| 5 | Dr. N.T.R (VIJAWADA) A.P. GENCO (A.P.) | 1760 | 4.0370 | 2.4200 | 59.95 | - | - | - |
| 6 | INDIRA GANDHI, A.P.C.P.L. (Haryana) | 1000 | 0.7165 | 0.1736 | 24.23 | 1.3689 | 0.1190 | 8.70 |
| 7 | MIHAN, A.M.N.E.P.L. (Maharashtra) | 246 | 0.3110 | 0.0235 | 7.55 | 0.2407 | 0.0407 | 26.98 |
| 8 | KORBA (WEST), C.S.P.G.C.L. (Chhattisgarh) | 840 | 1.5737 | 0.6279 | 39.90 | - | - | - |
| 9 | KORBA(EAST), C.S.P.G.C.L. (Chhattisgarh) | 440 | 0.9701 | 0.2198 | 22.66 | 1.0557 | 0.1270 | 12.03 |
| 10 | DSPM, C.S.P.G.C.L. (Chhattisgarh) | 500 | 0.9872 | 0.0000 | 0.00 | 1.0880 | 0.0000 | 0.00 |
| 11 | SIKKA, G.S.E.C.L.(Gujarat) | 240 | 0.3480 | 0.1830 | 52.59 | - | - | - |
| 12 | UKAI, G.S.E.C.L (Gujarat) | 850 | 1.4530 | 0.5230 | 35.99 | 1.3780 | 0.7490 | 54.34 |
| 13 | WANAKBORI, G.S.E.C.L. Gujarat) | 1470 | 2.9160 | 1.0390 | 35.63 | 2.3990 | 1.3010 | 54.23 |
| 14 | HISAR, H.P.G.C.L. (Haryana) | 1200 | 1.0995 | 0.0319 | 2.90 | 1.4738 | 0.1856 | 12.59 |
| 15 | YAMUNANAGAR, H.P.G.C.L. (Haryana) | 600 | 0.8470 | 0.3480 | 41.09 | 0.2410 | 0.0259 | 10.75 |
| 16 | PANIPAT, H.P.G.C.L. (Haryana) | 1367.8 | 3.2631 | 1.4063 | 43.10 | 2.7258 | 1.3653 | 50.09 |

| Sl. No. | Name of TPS & Power Utility | Installed Capacity | 2011-12 | | | 2012-13 | | |
|---------|--|--------------------|--------------------|---------------------|----------------|--------------------|---------------------|----------------|
| | | | Fly ash Generation | Fly ash Utilization | Percentage (%) | Fly ash Generation | Fly ash Utilization | Percentage (%) |
| | | | (In Million-ton) | | (6) | (In Million-ton) | | (9) |
| (4) | (5) | (7) | (8) | | | | | |
| 17 | O.P. JINDAL, J.P.L. (Chhattisgarh) | 1000 | 1.9350 | 1.1360 | 58.71 | 1.9990 | 1.1940 | 59.72 |
| 18 | PATRATU, J.S.E.B. (Jharkhand) | 770 | 0.1510 | 0.0117 | 7.75 | 0.2590 | 0.0061 | 2.36 |
| 19 | BELLARY, K.P.C.L. (Karnataka) | 500 | 0.5422 | 0.2283 | 42.11 | - | - | - |
| 20 | RAICHUR, K.P.C.L. (Karnataka) | 1720 | 1.8570 | 0.9550 | 51.43 | 2.4932 | 0.9100 | 36.50 |
| 21 | AMARKANTAK, LANCO Power Ltd. | 600 | 0.9740 | 0.2360 | 24.23 | 0.8335 | 0.3582 | 42.96 |
| 22 | SATPURA, M.P.P.G.C.L. (M.P.) | 1142.5 | 2.1676 | 0.0328 | 1.52 | 2.0185 | 0.5221 | 25.86 |
| 23 | AMARKANTAK, M.P.P.G.C.L. (M.P.) | 450 | 0.5450 | 0.0600 | 11.01 | 0.7441 | 0.1605 | 21.57 |
| 24 | CHANDRAPUR, M.S.P.G.C.L. (Maharashtra) | 2340 | 4.6157 | 1.1245 | 24.36 | 4.2539 | 1.5419 | 36.18 |
| 25 | KORADI, M.S.P.G.C.L. (Maharashtra) | 1100 | 1.2080 | 0.5250 | 43.46 | 0.8280 | 0.4590 | 51.46 |
| 26 | PARAS, M.S.P.G.C.L. (Maharashtra) | 500 | 0.9212 | 0.4890 | 53.08 | - | - | - |
| 27 | NEYVELI-II, N.L.C. Ltd. (Tami Nadu) | 1470 | 0.8990 | 0.4210 | 46.83 | - | - | - |
| 28 | BHILAI, N.S.P.C.L. (Chhattisgarh) | 500 | 1.1342 | 0.3252 | 28.67 | - | - | - |
| 29 | KAHALGAON, NTPC Ltd. | 2340 | 3.9190 | 0.9600 | 24.50 | 4.5630 | 1.0220 | 22.40 |
| 30 | SIPAT, NTPC Ltd. | 1660 2980 | 2.6150 | 0.3220 | 12.31 | 4.1760 | 0.8620 | 20.64 |
| 31 | VINDHYACHAL, NTPC Ltd. | 3260 | 6.2470 | 2.8950 | 46.34 | - | - | - |
| 32 | TALCHAR (KAN), NTPC Ltd. | 3000 | 6.2350 | 1.7940 | 28.77 | 6.7260 | 2.5500 | 37.91 |
| 33 | IB VALLEY, O.P.G.C.L. (Odisha) | 420 | 1.0478 | 0.1754 | 16.74 | 1.1093 | 0.1801 | 16.24 |
| 34 | BATHINDA, P.S.P.C.L. (Punjab) | 440 | 0.4664 | 0.2347 | 50.32 | - | - | - |

| Sl. No. | Name of TPS & Power Utility | Installed Capacity | 2011-12 | | | 2012-13 | | |
|---------|--|--------------------|--------------------------------------|---------------------|----------------|--------------------|---------------------|----------------|
| | | | Fly ash Generation | Fly ash Utilization | Percentage (%) | Fly ash Generation | Fly ash Utilization | Percentage (%) |
| | | | (In Million-ton) | | | (In Million-ton) | | |
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) |
| 35 | JALIPA KAPURDI, R.W.P.L. (Rajasthan) | 540 | 0.2073 | 0.1144 | 55.18 | - | - | - |
| 36 | ROSA PHASE-I, R.P.S.C.L. (U.P.) | 1200 | 0.8599 | 0.0779 | 9.06 | 1.0889 | 0.3416 | 31.37 |
| 37 | STERLITE, S.E.L. (Odisha) | 1800 2400 | 2.1854 | 0.4639 | 21.23 | 2.6256 | 1.3376 | 50.94 |
| 38 | ANPARA 'A' & 'B', U.P.R.V.U.N.L. (U.P.) | 1630 | 2.9540 | 0.0200 | 0.68 | 2.6619 | 0.0145 | 0.55 |
| 39 | OBRA, U.P.R.V.U.N.L. (U.P.) | 1300 | 1.5230 | 0.1603 | 10.52 | 1.2620 | 0.3061 | 24.26 |
| 40 | PARICHA, U.P.R.V.U.N.L. (U.P.) | 640 | 0.8520 | 0.4341 | 50.96 | - | - | - |
| 41 | SAGARDIGH, W.B.P.D.C.L (W.B.) | 600 | 1.3210 | 0.1840 | 13.93 | 1.0906 | 0.2218 | 21.29 |
| 42 | SANTALDIH, W.B.P.D.C.L. (W.B.) | 500 | 0.6760 | 0.1400 | 20.71 | 0.6087 | 0.2667 | 43.81 |
| 43 | MAITHON (RIGHT BANK), M.P.L. (Jharkhand) | 1050 | 0.3550 | 0.0013 | 0.36 | 1.2977 | 0.3691 | 28.00 |
| 44 | NEW COSSIPRE, C.E.S.C. (W.B.) | 160 | No significant fly ash was generated | | | - | - | - |
| 45 | KOTHAGUDEM-VI, A.P. GENCO (A.P.) | 500 | - | - | - | 0.9543 | 0.3673 | 38.56 |
| 46 | KORBA, NTPC Ltd. | 2600 | - | - | - | 6.4390 | 2.4180 | 37.55 |
| 47 | MUNDRA UMPP, C.G.P.L. (Gujarat) | 800 | No significant fly ash was generated | | | 0.3250 | 0.0270 | 8.20 |
| 48 | TENUGHAT, T.V.N.L. (Jharkhand) | 420 | - | - | - | 0.8467 | 0.2700 | 59.81 |
| 49 | RIHAND, NTPC Ltd. | 2500 | - | - | - | 3.4890 | 1.9710 | 56.49 |
| 50 | ANPARA 'C', LANCO Power Ltd. (U.P.) | 1200 | No significant fly ash was generated | | | 0.9738 | 0.0080 | 0.82 |
| 51 | DURGAPUR STEEL, D.V.C. (W.B.) | 1000 | No significant fly ash was generated | | | 0.6234 | 0.1497 | 24.01 |
| 52 | KAKATIYA, A.P. GENCO (A.P.) | 500 | - | - | - | 1.0695 | 0.3528 | 32.98 |
| 53 | KASAI PALLI, A.C.B.P.L. (Chhattisgarh) | 270 | - | - | - | 0.7090 | 0.3398 | 47.92 |

| Sl. No. | Name of TPS & Power Utility | Installed Capacity | 2011-12 | | | 2012-13 | | |
|---------|--|--------------------|--------------------------------------|---------------------|----------------|--------------------------------------|---------------------|----------------|
| | | | Fly ash Generation | Fly ash Utilization | Percentage (%) | Fly ash Generation | Fly ash Utilization | Percentage (%) |
| | | | (In Million-ton) | | | (In Million-ton) | | |
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) |
| 54 | KODARMA, D.V.C. (Jharkhand) | 500 | No significant fly ash was generated | | | No significant fly ash was generated | | |
| 55 | CHINAKURI, D.P.S.C.L. (W.B.) | 30 | - | - | - | No significant fly ash was generated | | |
| 56 | MUZAFFARPUR, K.B.U.N.L. (Bihar) | 220 | - | - | - | No significant fly ash was generated | | |
| 57 | THAMMINAPATNAM, Meenakshi Energy Pvt. Ltd. (A.P.) | 300 | - | - | - | 0.0072 | 0.0032 | 44.74 |
| 58 | NEYVELI-II EXPN, N.L.C. Ltd. (Tamil Nadu) | 250 | No significant fly ash was generated | | | No significant fly ash was generated | | |
| 59 | VALLUR, N.T.E.C.L. (Tamil Nadu) | 500 | No significant fly ash was generated | | | 0.2342 | 0.0000 | 0.00 |
| 60 | MOUDA, NTPC Ltd. (Maharashtra) | 500 | - | - | - | 0.0088 | 0.0000 | 0.00 |
| 61 | HARDUAGANJ, U.P.R.V.U.N.L. (U.P.) | 670 | - | - | - | 0.0460 | 0.0245 | 53.30 |
| 62 | KATGHORA, V.E.S.P.L. (Chhattisgarh) | 35 | - | - | - | No significant fly ash was generated | | |
| 63 | BUTIBORI V.I.P. Ltd. (Maharashtra) | 600 | - | - | - | 0.0017 | 0.0000 | 0.00 |
| 64 | MAHADEV PRASAD, Adhunik Power & Natural Resources Ltd. | 540 | - | - | - | 0.0946 | 0.0189 | 20.00 |
| 65 | TIRORA, Adani Power Ltd. (Maharashtra) | 1320 | - | - | - | 0.0979 | 0.0479 | 48.93 |
| 66 | BELA, Ideal Energy Projects Ltd. (Maharashtra) | 270 | - | - | - | 0.0015 | 0.0005 | 33.40 |

['-' denotes that TPS is not in the range of fly ash utilization under consideration]

It may be seen from Table-XII above that:

- (i) During the year 2011-12, out of **124** (one hundred twenty four) thermal power stations, **43** TPS have not been able to achieve the level of fly ash utilization of 60% and **8** TPS did not generate any significant fly ash.
- (ii) During the year 2012-13, out of **138** (one hundred thirty), **48** TPS have not been able to achieve the level of fly ash utilization of 60% and **6** TPS did not generate any significant fly ash.

The power stations which are not able to achieve the targets of fly ash utilization as prescribed in MoEF's Notification of 3rd November, 2009 during the years 2011-12 and 2012-13 would be required to utilize the unutilized fly ash in relation to the target for a particular year in the subsequent years in the manner prescribed in said notification and given in Para 3.1 & 3.2 above.

5.0 MODES OF FLY ASH UTILIZATION DURING THE YEAR 2011-12 AND 2012-13

The data on fly ash utilization received from Thermal Power Stations/Power Utilities for the years 2011-12 and 2012-13 has been analyzed to ascertain the major modes in which fly ash was utilized and the quantity utilized in each mode.

The major modes in which fly ash was utilized during the years 2011-12 and 2012-13 along with utilization in each mode are given in Table-XIII below:

TABLE-XIII

MAJOR MODES OF FLY ASH UTILIZATION DURING THE YEARS 2011-12 AND 2012-13

| Sl. No. | Mode of utilization | Quantity of Fly Ash utilized in the mode of utilization | | | |
|--------------|-------------------------------|---|----------------|---------------|----------------|
| | | 2011-12 | | 2012-13 | |
| | | Million-ton | Percentage (%) | Million-ton | Percentage (%) |
| (1) | (2) | (3) | (4) | (5) | (6) |
| 1 | Cement | 38.08 | 44.77 | 41.33 | 41.18 |
| 2 | Reclamation of low lying area | 14.21 | 16.71 | 11.83 | 11.78 |
| 3 | Roads & Embankments | 5.54 | 6.51 | 6.02 | 6.00 |
| 4 | Concrete | 0.63 | 0.74 | 1.03 | 1.03 |
| 5 | Ash Dyke Raising | 5.86 | 6.89 | 10.93 | 10.89 |
| 6 | Mine filling | 7.74 | 9.10 | 10.34 | 10.30 |
| 7 | Bricks & Tiles | 5.83 | 6.86 | 9.98 | 9.94 |
| 8 | Agriculture | 0.88 | 1.03 | 2.50 | 2.49 |
| 9 | Others | 6.28 | 7.38 | 6.41 | 6.39 |
| Total | | 85.05 | 100 | 100.37 | 100 |

The pie diagrams showing the modes of utilization of fly ash during the Years 2011-12 and 2012-13 are given in Figure-1 & Figure-2 respectively below:

MODES OF FLY ASH UTILIZATION DURING 2011-12

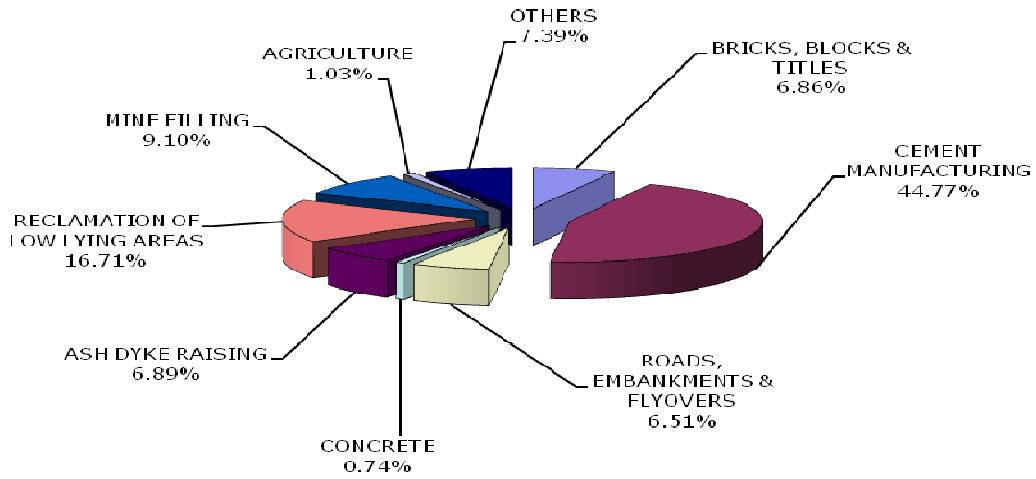


FIGURE-1

MODES OF FLY ASH UTILIZATION DURING 2012-13

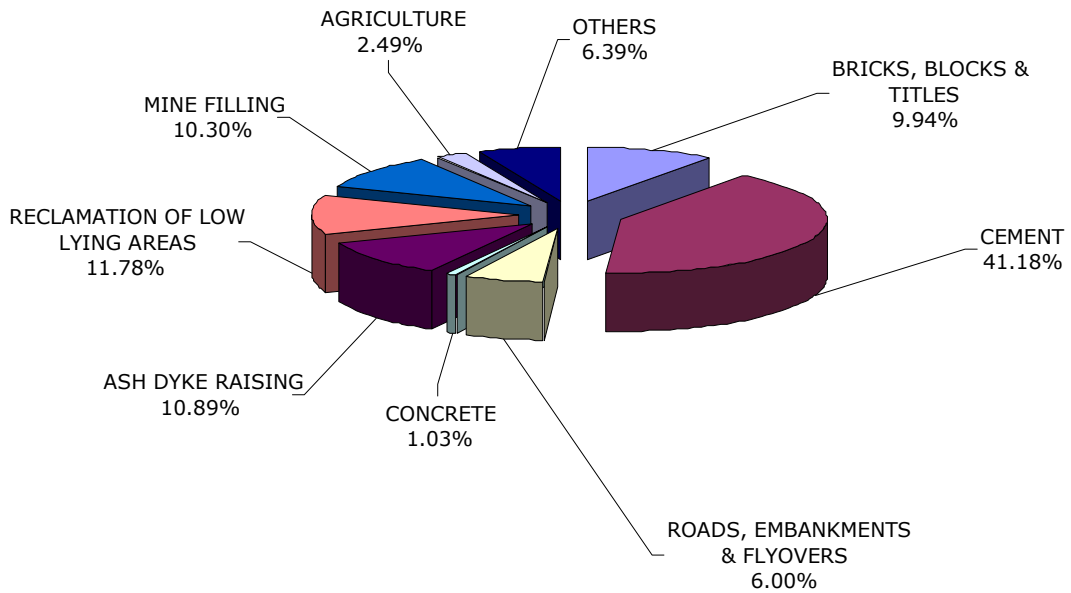


FIGURE-2

It may be seen from Table-XIII and Figures-1 & 2 above that:

- (i) During the Year 2011-12, the maximum utilization of fly ash to the extent of 44.77% of total fly ash utilized was in the Cement sector, followed by 16.71% in reclamation of low lying area, 9.10% in mine filling, 6.89% in ash dyke raising, 6.86% in making bricks & tiles, 6.51 % in roads & embankments etc.
- (ii) During the Year 2012-13, the maximum utilization of fly ash to the extent of 41.18.% of total fly ash utilized was in the Cement sector, followed by 11.78% in reclamation of low lying area, 10.89% in ash dyke raising, 10.30% in mine filling, 9.94% in making bricks & tiles, 6.00 % in roads & embankments etc.

6.0 PROGRESSIVE FLY ASH GENERATION & UTILIZATION DURING THE PERIOD FROM 1996-97 TO 2012-13

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 2012-13 is given in Table-XIV below:

TABLE-XIV

PROGRESSIVE FLY ASH GENERATION AND ITS UTILIZATION DURING THE PERIOD FROM 1996-97 TO 2012-13

| 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 |
| 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 |

A graph showing progressive fly ash generation and its utilization for the period from 1996-97 to 2012-13 is given in Figure-3 below:

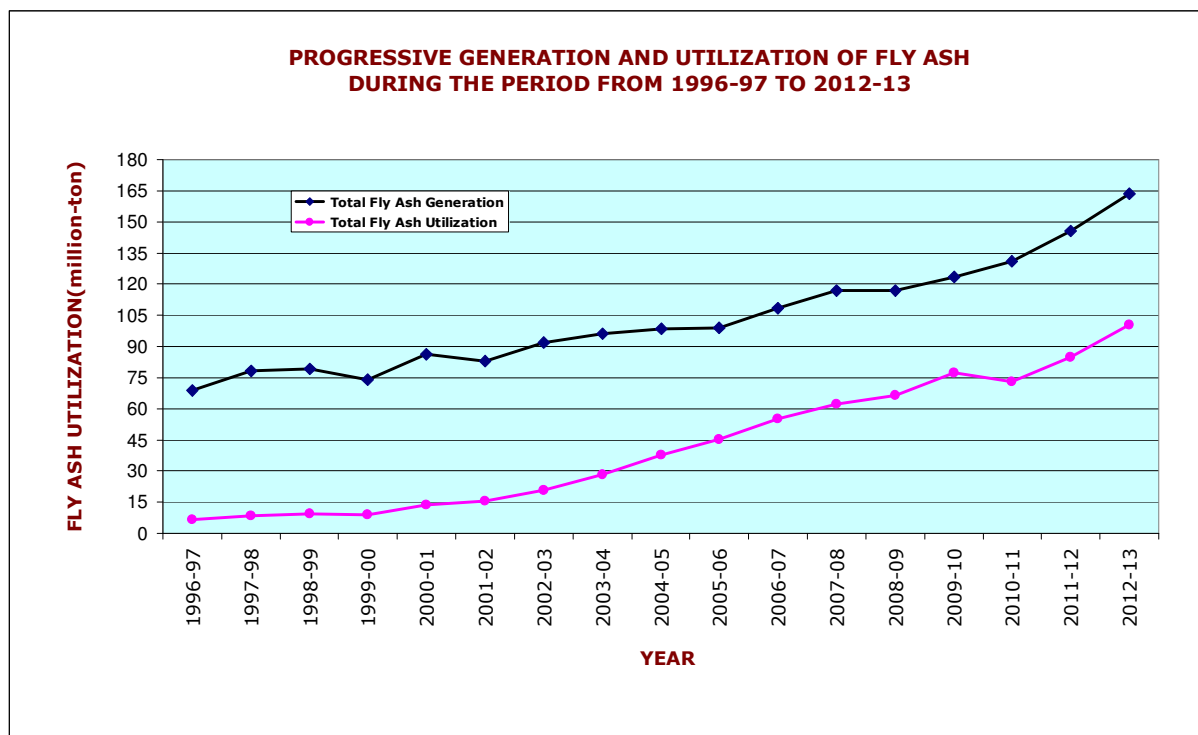


FIGURE-3

It may be seen from Table-XIV and Figure-3 above that:

- (i) The fly ash utilization has been generally increasing, both in terms of percentage and quantity over the years since 1996-97.
- (ii) Fly ash utilization in terms of percentage of total fly ash that was generated at thermal power stations in the country has increased from 9.63% in 1996-97 to the highest level of 62.60% in 2009-10 and it was about 58.48% during 2011-12 and about 61.37% during 2012-13.
- (iii) The quantity wise fly ash generation has increased from 68.88 million-ton in 1996-97 to 63.5 million-ton in 2012-13 i.e. nearly 2.5 times.
- (iv) However, the quantity wise, fly ash utilization has increased from 6.64 million-ton in 1996-97 to a level of 100.37 million ton in 2012-13 i.e. more than 15 times over the same period.

7.0 PROGRESSIVE FLY ASH UTILIZATION IN VARIOUS MODES DURING THE PERIOD FROM 1998-99 TO 2012-13

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 2012-13 is given in Figure-4 below:

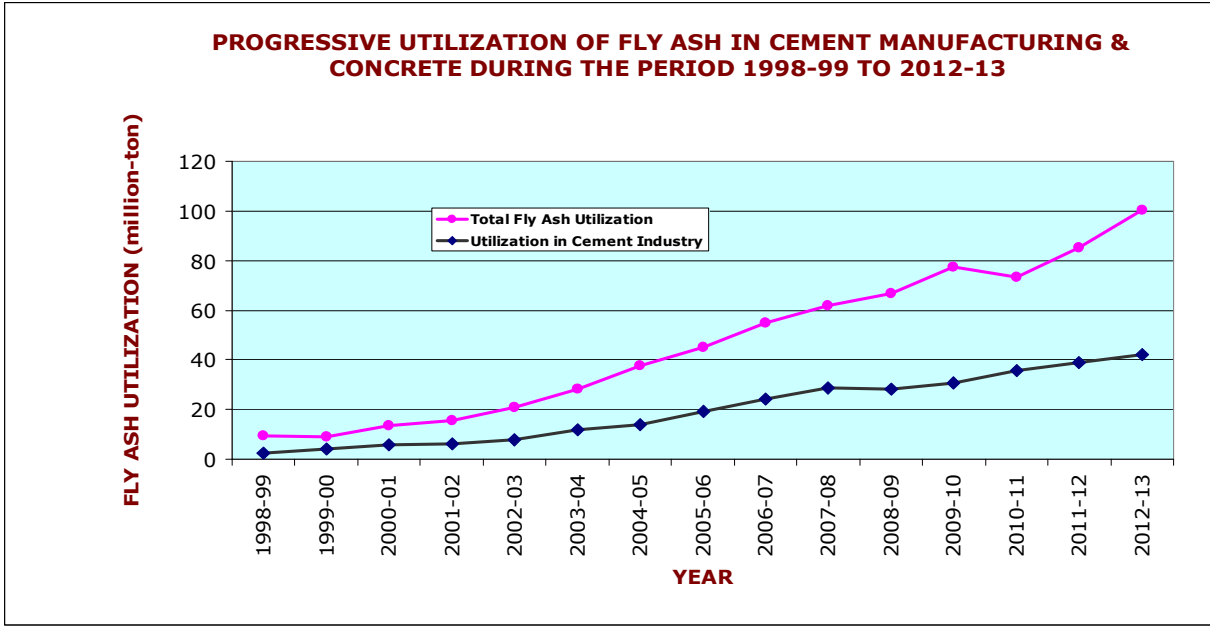


FIGURE-4

It may be seen from Figure-4 above that 2.45 million-ton of fly ash was used by Cement Industry in 1998-99 which increased to 38.08 million-ton during 2011-12 and constituted 44.77% of total fly ash utilization in the aforesaid year. During 2012-13, it was 41.33 million-ton and constituted 41.18% of total fly ash utilization in the aforesaid year.

7.2 Reclamation of Low Lying Areas

Fly ash is being used for reclamation of low lying areas which results in saving of fertile top soil. A graph showing the progressive utilization of fly ash in reclamation of low lying area for the period from 1998-99 to 2012-13 is given in Figure-5 below:

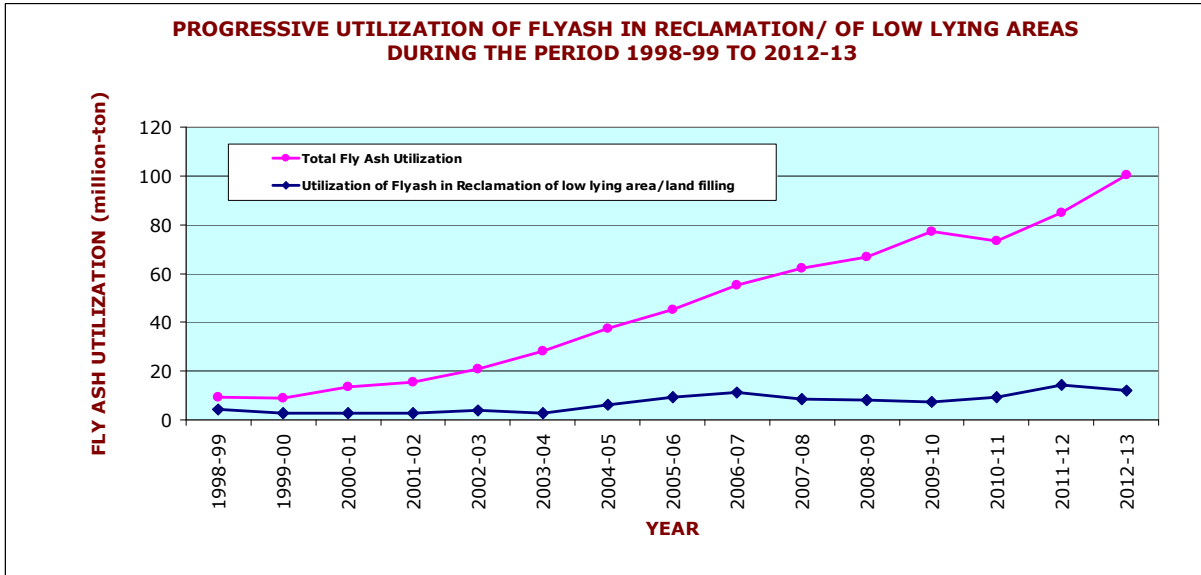


FIGURE-5

It may be seen from Figure-5 above that 4.17 million-ton of fly ash was used for reclamation of low lying area in 1998-99 which has increased to 14.21 million ton in 2011-12 and constituted 16.71% of total fly ash utilization during the aforesaid year. During the year 2012-13, the utilization of fly ash in reclamation of low lying areas was 11.83 million-ton and constituted 11.78% 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 which results in saving of top fertile soil. 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 2012-13 is given in Figure-6 below:

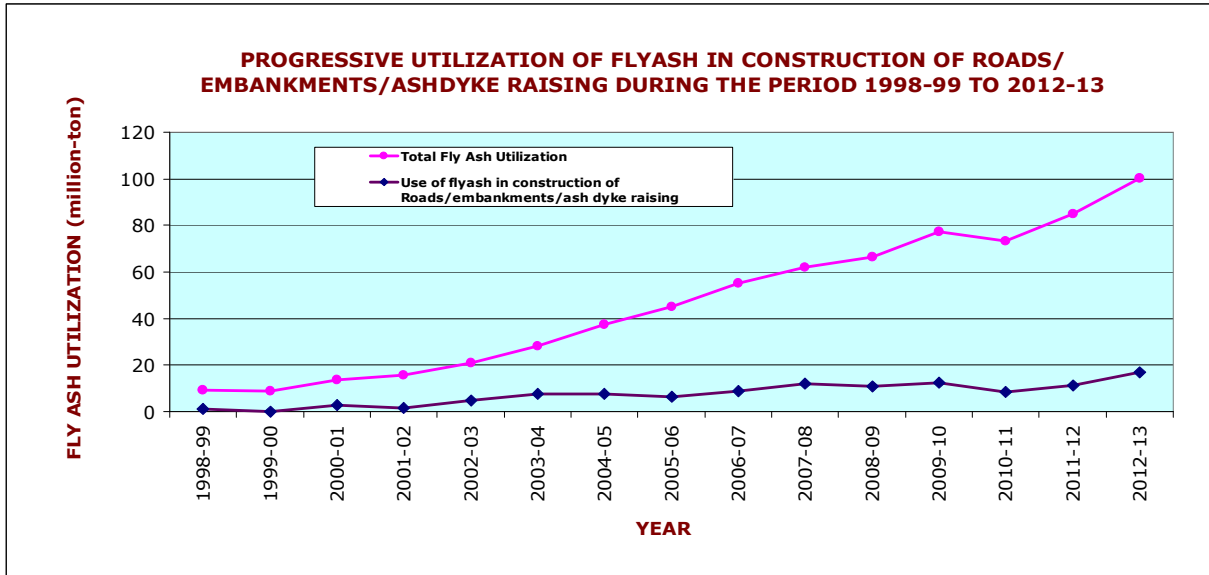


FIGURE-6

It may be seen from Figure-6 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 5.54 million-ton in 2011-12 and constituted 6.51% of total fly ash utilization in the aforesaid year. During 2012-13, it was 6.02 million-ton and constituted 6.00% 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 2012-13 is given in Figure-7:

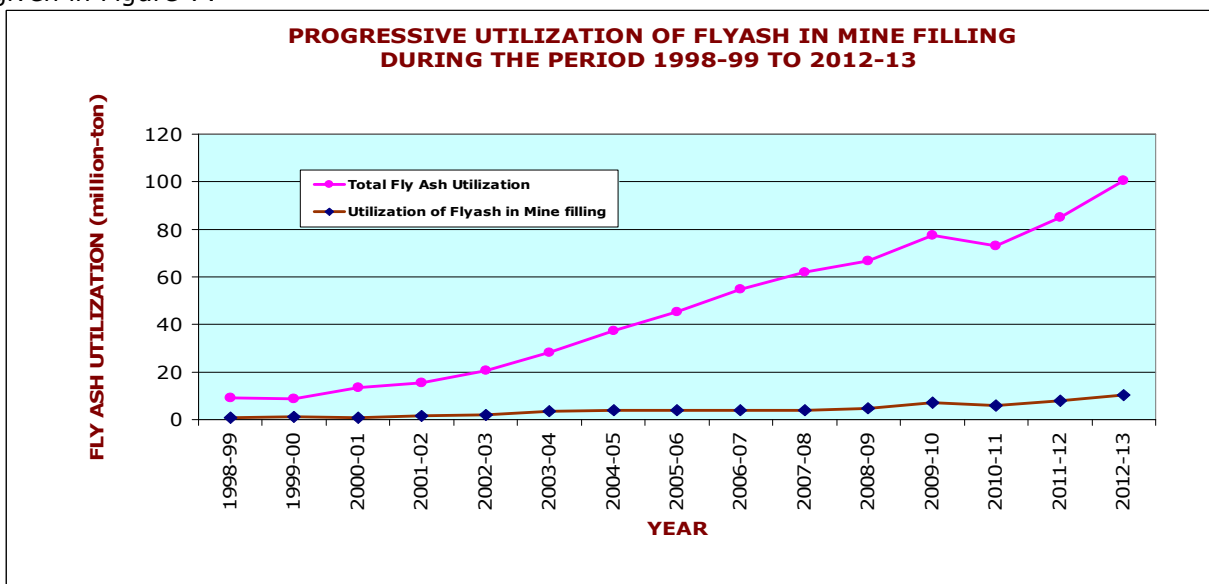


FIGURE-7

It may be seen from Figure-7 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 7.74 million-ton in 2011-12 and constituted 9.10% of total fly ash utilization in the aforesaid year. In the Year 2012-13, it was 10.34 million-ton and constituted 10.30% of total fly ash utilization in the aforesaid year.

7.5 Building Materials like Bricks, Blocks and Tiles etc.

Fly ash is being 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 2012-13 is given in Figure -8 below:

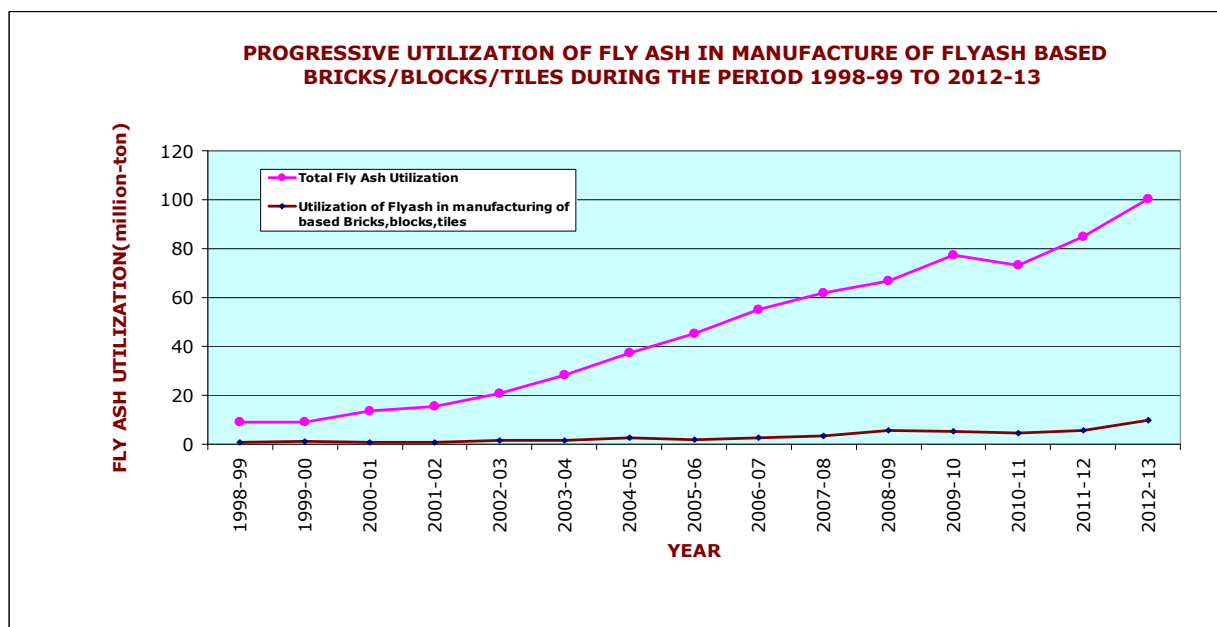


FIGURE-8

It may be seen from Figure-8 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 5.83 million-ton in 2011-12 and constituted 6.86% of total fly ash utilization in the aforesaid year. In 2012-13, it was 9.98 million-ton and constituted 9.94% 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 2012-13 is given in Figure-9.

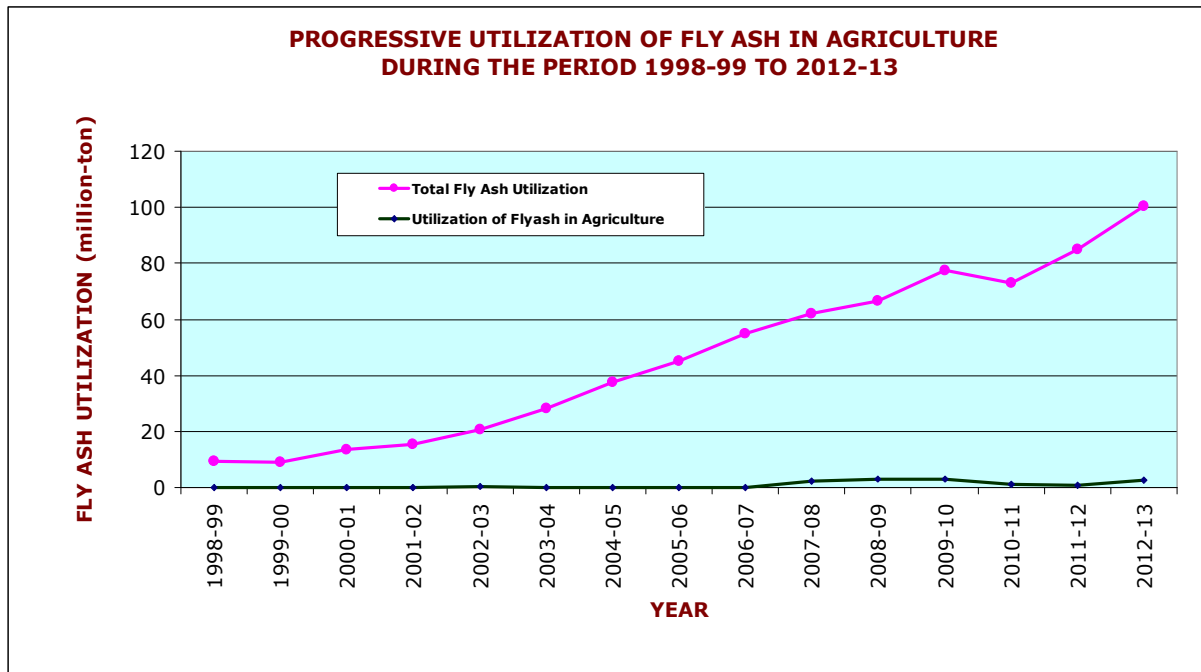


FIGURE-9

It may be seen from Figure-9 above that 0.126 million ton of fly ash was used in agricultural sector during 1998-99 which increased to 0.88 million ton in 2011-12 and constituted about 1.03% of total fly ash utilization in the aforesaid year. In 2012-13, it was 2.50 million ton and constituted 2.49% 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 was about 58.48% in the year 2011-12 and about 61.37% in the year 2012-13. 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. While according environmental clearance to Thermal Power Projects, MoEF has been recently stipulating conditions to the effect that fly ash shall not be used in filling of low lying areas, in agriculture and in backfilling/stowing of mines etc. These conditions are contrary to provisions in MoEF's own Notification of 3rd November, 2009 on fly ash utilization and are going to have adverse impact on the pace of fly ash utilization in the country. Many organizations including NTPC have raised their concern on these conditions. These conditions may have to be suitably reviewed by MoEF so that the target of 100% utilization of fly ash as mandated in MoEF's Notification of 3rd November, 2009 could be achieved.
3. The utilization of fly ash in mine filling, in making fly ash based building products and in the construction of roads & embankments has been less than 10% or around 10% in each of these areas of fly ash utilization. These areas have large potential of fly ash utilization which needs to be explored for increasing the overall utilization of fly ash in the country.
4. A few strategies which need to be adopted to further increase the utilization level of fly ash are given below:
 - Renovation and modernization of coal/lignite based Thermal Power Station needs to include the technological advancement required to ensure development of dry fly ash collection, storage and disposal facilities so that fly ash in dry form could be made

available to its users. Renovation and modernization should also include a marketing strategy for the development of fly ash based industries and making available fly ash and fly ash based building products in the nearby markets.

- The states and districts where thermal power stations are located need to be sensitized to the need for utilization of fly ash and fly ash based building products and take necessary measures to promote them in the construction of buildings, highways/roads/flyovers and other infrastructure projects. Measures can include policy intervention, planning strategies, fiscal incentives, recognizing specific efforts etc.
- Use of fly ash based building products like fly ash based bricks, blocks, tiles etc. by both Govt. and Public & Private Construction agencies at Central and State levels is required to be ensured especially in construction works within a radius of 100km of any coal/lignite based thermal power station as mandated in MoEF's Notification of 3rd November, 2009. The government agencies responsible for approval of building plans may have to ensure stipulation of a condition in their approval to the effect that only fly ash based building products like bricks/blocks/tiles etc shall be used in the construction of buildings as prescribed in MoEF's Notification of 3rd November, 2009 within a prescribed distance of any thermal power station especially in the construction of large office/commercial buildings and housing projects being developed both in government and private sectors.
- Use of fly ash in the construction of roads, road embankments and flyovers is well established and is slowly picking up. However, its potential is yet to be fully utilized. The use of fly ash in these projects within a radius of 100 km of any thermal power station as mandated in MoEF's Notification of 3rd November, 2009 has to be ensured right from project formulation stage and included in tender documents by having a prior tie up with the concerned thermal power station for their requirement. There is a need to sensitize National Highway Authority of India, CPWD, State PWDs and other agencies both at Central and State levels that are involved in the construction of highways, roads, flyovers etc in this matter.
- Use of fly ash in backfilling/stowing of closed/abandoned/running open cast and underground mines has large potential for utilization of fly ash, especially for pit head thermal power stations which otherwise have limited avenues for fly ash utilization. However, its potential is yet to be fully utilized. The use of fly ash in back filling/stowing of open cast and underground mines within a radius of 50 km of any thermal power station as mandated in MoEF's Notification of 3rd November, 2009 has to be ensured right from initial stage of preparation of mine development plan. Inclusion of fly ash and bottom ash as backfill materials in the guidelines for preparation of mine closure plan is required for which Ministry of Coal and other concerned Ministries/Authorities have to take necessary action. There are environmental and safety concerns for use of fly ash along with OB material for back filling of operating open cast mines. These concerns need to be addressed.
- Use of fly ash in the construction of embankments for laying railway lines has also significant potential for large scale utilization of fly ash. There are safety concerns in use of fly ash in the construction of railway embankments having passenger traffic. There is a need to address these concerns by carrying out necessary studies by organizations like RDSO, a research organization under the Ministry of Railways.
- Thermal Power Stations have to ensure the utilization of fly ash and fly ash based building products within the thermal power station for the development of infrastructure like construction of buildings & roads, reclamation of low lying areas, the raising of ash dyke etc.
- The use of fly ash in Agriculture and waste land development has large potential. There are reservations in various quarters for use of fly ash in agriculture because of presence

of heavy metals and radioactive elements in fly ash inspite of findings of research projects funded by Fly Ash Unit under Ministry of Science & Technology and studies carried out by other organizations to any adverse effects. However, these concerns are required to be addressed for increasing the fly ash utilization.

- A large number of technologies have been developed for gainful utilization and safe management of fly ash through research projects funded by Fly Ash Mission/ Fly Ash Unit under Ministry of Science & Technology, 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.

* * *

**FLY ASH GENERATION AND ITS UTILIZATION AT COAL/LIGNITE BASED THERMAL POWER STATIONS IN THE COUNTRY FOR THE YEAR 2011-12 (FROM APRIL, 2011 to MARCH, 2012)
(POWER STATION WISE)**

| Sl. No. | Name of TPS | Power Utility & State | Installed Capacity | FLY ASH GENERATION AND ITS UTILIZATION | | | | | MODES OF UTILIZATION | | | | | | | | | | Total Utilization | |
|---------|-------------------------------|------------------------------|--------------------|--|---------------------|--------------------|---------------------|-------------------|---|---|--|--|---|---------------------|----------------------------------|-----------------|---|---------------|-------------------|---------------|
| | | | | Coal consumed | Ash content of coal | Fly Ash Generation | Fly Ash Utilization | % age Utilization | In making of Fly Ash based Bricks/Blocks/Tiles etc. | In manufacture of Portland Pozzolana Cement | In construction of Highways & Roads including Flyovers | Part replacement of cement in concrete | In Hydro Power Sector as part replacement of cement in concrete | In Ash dyke raising | In reclamation of low lying Area | In Mine filling | In Agriculture / Waste land Development | Others | | |
| | | | | (MW) | (Million-ton) | % age | (Million-ton) | (Million-ton) | % | (10) | (Million-ton) | (Million-ton) | (Million-ton) | (Million-ton) | (Million-ton) | (Million-ton) | (Million-ton) | (Million-ton) | | (Million-ton) |
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) | (13) | (14) | (15) | (16) | (17) | (18) | (19) | (20) | |
| 1 | CHANDRAPUR | A.P.G.P.C.L. (Assam) | 60 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 2 | KOTHAGUDEM | A.P. GENCO (Andhra Pradesh) | 720 | 4.3892 | 45.82 | 2.011250 | 0.119107 | 5.92 | 0.014950 | 0.084486 | - | - | - | - | - | - | - | - | 0.019667 | 0.119103 |
| 3 | KOTHAGUDEM-V | | 500 | 2.6800 | 33.89 | 0.909000 | 0.200000 | 22.00 | 0.060000 | 0.140000 | - | - | - | - | - | - | - | - | - | 0.200000 |
| 4 | RAMAGUNDAM 'B' | | 62.50 | 0.3260 | 42.86 | 0.139800 | 0.074800 | 53.51 | 0.038900 | 0.035900 | - | - | - | - | - | - | - | - | - | 0.074800 |
| 5 | RAYALSEEMA | | 1050 | 5.4853 | 41.29 | 2.265034 | 1.565047 | 69.10 | 0.573061 | 0.991780 | - | - | - | - | - | - | - | - | - | 1.564841 |
| 6 | Dr. N.T.R (Vijawada) | | 1760 | 9.8020 | 41.19 | 4.037000 | 2.420000 | 59.95 | 0.642000 | 1.249000 | 0.163000 | 0.040000 | - | - | 0.170000 | - | - | 0.156000 | 2.420000 | |
| 7 | KAKATIA | | 500 | 1.4871 | 41.70 | 0.620610 | 0.375979 | 60.58 | 0.001407 | 0.154836 | - | - | - | - | 0.219736 | - | - | - | 0.375979 | |
| 8 | KASAI PALLI | A.C.B.P.L. (Chhattishgarh) | 135 | 0.2027 | 56.80 | 0.114287 | 0.095772 | 83.80 | 0.017534 | - | - | - | - | 0.009415 | 0.068822 | - | - | - | 0.095771 | |
| 9 | INDIRA GANDHI | A.P.C.P.L. (Haryana) | 1000 | 2.4279 | 36.84 | 0.716531 | 0.173615 | 24.23 | - | - | - | - | - | - | - | - | - | 0.173615 | 0.173615 | |
| 10 | Mundra TPS | A.P.L. (Gujrat) | 4620 | 7.1370 | 7.58 | 0.541000 | 0.541000 | 100.00 | - | 0.229000 | 0.080000 | - | - | 0.027000 | 0.204000 | - | - | - | 0.540000 | |
| 11 | Mihan | A.M.N.E.P.L. (Maharashtra) | 246 | 0.7143 | 43.50 | 0.311030 | 0.023470 | 7.55 | 0.023020 | 0.000441 | - | - | - | - | - | - | - | - | 0.023461 | |
| 12 | BARAUNI | B.S.E.B. (Bihar) | 110 | 0.1663 | 48.34 | 0.080397 | 0.098840 | 122.94 | 0.054000 | - | 0.015000 | - | - | - | - | - | - | 0.029841 | 0.098841 | |
| 13 | Barkhera | B.E.P.L. (U.P.) | 90 | 0.0849 | 34.77 | 0.029495 | 0.025088 | 85.06 | - | 0.010000 | - | - | - | 0.015000 | - | - | - | - | 0.025000 | |
| 14 | Khambar Khera | | 90 | 0.1175 | 35.27 | 0.041196 | 0.034705 | 84.24 | - | 0.019000 | - | - | - | - | 0.016103 | - | - | - | 0.035103 | |
| 15 | Kundarki | | 90 | 0.0301 | 36.60 | 0.011036 | 0.009320 | 84.45 | - | 0.005734 | - | - | - | - | 0.003585 | - | - | - | 0.009319 | |
| 16 | Maqsoodpur | | 90 | 0.0654 | 36.14 | 0.023532 | 0.019863 | 84.41 | - | 0.010542 | - | - | - | - | 0.009321 | - | - | - | 0.019863 | |
| 17 | Utraula | | 90 | 0.0218 | 36.71 | 0.007928 | 0.006739 | 85.00 | - | 0.003663 | - | - | - | - | 0.003075 | - | - | - | 0.006738 | |
| 18 | B.B.G.S. | C.E.S.C. (West Bengal) | 750 | 3.5680 | 36.28 | 1.463000 | 1.463000 | 100.00 | 0.018000 | 1.111000 | - | - | - | - | 0.334000 | - | - | - | 1.463000 | |
| 19 | S.G.S. | | 135 | 0.7270 | 31.59 | 0.263000 | 0.263000 | 100.00 | 0.002000 | 0.221000 | - | - | - | - | 0.040000 | - | - | - | 0.263000 | |
| 20 | T.G.S. | | 240 | 1.0910 | 27.30 | 0.322000 | 0.322000 | 100.00 | 0.044000 | 0.016000 | 0.051000 | - | - | - | 0.211000 | - | - | - | 0.322000 | |
| 21 | New Cossipore | | 160 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| 22 | Mundra UMPP | C.G.P.L. (Gujarat) | 800 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| 23 | KORBA (WEST) | C.S.P.G.C.L. (Chhattishgarh) | 840 | 4.7011 | 33.47 | 1.573700 | 0.627900 | 39.90 | 0.002700 | - | - | - | - | 0.597700 | 0.027500 | - | - | - | 0.627900 | |
| 24 | DSPM | | 500 | 2.2501 | 43.66 | 0.987153 | 0.000000 | - | - | - | - | - | - | - | - | - | - | - | - | |
| 25 | KORBA (EAST) | | 440 | 2.7738 | 43.72 | 0.970100 | 0.219800 | 22.66 | - | - | - | - | - | 0.206800 | - | - | 0.013000 | - | 0.219800 | |
| 26 | BOKARO 'B' | D.V.C. (Jharkhand) | 630 | 3.0080 | 48.87 | 1.490807 | 1.748890 | 117.31 | - | 0.031172 | - | - | - | - | - | 1.717718 | - | - | 1.748890 | |
| 27 | CHANDRAPURA | | 890 | 2.3093 | 50.79 | 1.173304 | 0.757417 | 64.55 | 0.006190 | - | - | - | - | - | 0.751231 | - | - | - | 0.757421 | |
| 28 | DURGAPUR | D.V.C. (West Bengal) | 350 | 1.5623 | 45.55 | 0.717286 | 0.495629 | 69.10 | 0.002296 | - | - | - | - | - | 0.493334 | - | - | - | 0.495630 | |
| 29 | MEJIA | | 1840 | 7.2333 | 45.49 | 3.292000 | 2.198000 | 66.77 | 0.036000 | 0.579000 | - | - | - | - | 1.585000 | - | - | - | 2.200000 | |
| 30 | Durgapur Steel | | 500 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| 31 | Kodarma | D.V.C. (Jharkhand) | 500 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| 32 | D.P.L | D.P.L. (West Bengal) | 641 | 1.5913 | 43.41 | 0.690792 | 0.605082 | 87.59 | 0.010699 | 0.034398 | 0.071953 | - | - | - | - | - | 0.488032 | - | 0.605082 | |
| 33 | Chinakuri | D.P.S.C.L. (West Bengal) | 30.00 | 0.0415 | 36.88 | 0.015298 | 0.014863 | 97.16 | - | - | - | - | - | - | - | 0.014863 | - | - | 0.014863 | |
| 34 | Essar Power Gujrat Ltd.Salaya | E.P.G.L. (Gujarat) | 600 | 0.0542 | 66.76 | 0.003617 | 0.003617 | 100.00 | - | 0.001428 | - | - | - | 0.000993 | 0.000474 | - | 0.000722 | - | 0.003617 | |
| 35 | SURAT LIGNITE | G.T.P.C.L. (Gujarat) | 500 | 2.7167 | 16.87 | 0.458000 | 0.458236 | 100.05 | 0.383970 | - | 0.033208 | - | - | - | - | 0.041096 | - | - | 0.458274 | |
| 36 | AKRIMOTA | G.M.D.C.L. (Gujarat) | 250 | 0.8130 | 20.97 | 0.170456 | 0.187094 | 109.76 | - | 0.004790 | - | - | - | - | 0.182000 | - | - | - | 0.186790 | |
| 37 | GANDHINAGAR | G.S.E.C.L. (Gujarat) | 870 | 3.7180 | 33.48 | 1.245000 | 0.987000 | 79.28 | 0.015829 | 0.873836 | - | 0.074518 | - | - | - | - | 0.022890 | - | 0.987072 | |
| 38 | KUTCH LIGNITE | | 290 | 1.8417 | 14.96 | 0.275000 | 0.276000 | 100.36 | - | - | - | - | - | - | - | 0.276000 | - | - | 0.276000 | |
| 39 | SIKKA | | 240 | 0.8320 | 41.88 | 0.348000 | 0.183000 | 52.59 | 0.076588 | 0.106831 | - | - | - | - | - | - | - | - | 0.183419 | |
| 40 | UKAI | | 850 | 4.0300 | 35.90 | 1.453000 | 0.523000 | 35.99 | 0.038000 | 0.268000 | - | - | - | - | - | - | - | 0.217000 | 0.523000 | |
| 41 | WANAKBORI | | 1470 | 7.3100 | 39.78 | 2.916000 | 1.039000 | 35.63 | - | 0.788000 | - | - | - | - | - | - | - | 0.250000 | 1.038000 | |

**FLY ASH GENERATION AND ITS UTILIZATION AT COAL/LIGNITE BASED THERMAL POWER STATIONS IN THE COUNTRY FOR THE YEAR 2011-12 (FROM APRIL, 2011 to MARCH, 2012)
(POWER STATION WISE)**

| Sl. No. | Name of TPS | Power Utility & State | Installed Capacity | FLY ASH GENERATION AND ITS UTILIZATION | | | | | | MODES OF UTILIZATION | | | | | | | | Total Utilization | | |
|---------|-------------------|----------------------------------|--------------------|--|---------------------|--------------------|---------------------|-------------------|---|---|--|--|---|---------------------|----------------------------------|-----------------|---|-------------------|---------------|---------------|
| | | | | Coal consumed | Ash content of coal | Fly Ash Generation | Fly Ash Utilization | % age Utilization | In making of Fly Ash based Bricks/Blocks/Tiles etc. | In manufacture of Portland Pozzolana Cement | In construction of Highways & Roads including Flyovers | Part replacement of cement in concrete | In Hydro Power Sector as part replacement of cement in concrete | In Ash dyke raising | In reclamation of low lying Area | In Mine filling | In Agriculture / Waste land Development | | Others | |
| | | | | (Million-ton) | % age | (Million-ton) | (Million-ton) | % | (10) | (Million-ton) | (Million-ton) | (Million-ton) | (Million-ton) | (Million-ton) | (Million-ton) | (Million-ton) | (Million-ton) | | (Million-ton) | (Million-ton) |
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) | (13) | (14) | (15) | (16) | (17) | (18) | (19) | (20) | |
| 42 | HISAR | H.P.G.C.L.(Haryana) | 1200 | 2.9180 | 37.68 | 1.099533 | 0.031911 | 2.90 | 0.000310 | 0.031601 | - | - | - | - | - | - | - | - | - | 0.031911 |
| 43 | YAMUNANAGAR | | 600 | 2.1100 | 32.17 | 0.847000 | 0.348000 | 41.09 | - | 0.345000 | - | - | - | - | - | - | - | - | 0.003000 | 0.348000 |
| 44 | PANIPAT | | 1367.8 | 7.8235 | 41.71 | 3.263060 | 1.406310 | 43.10 | - | 1.406310 | - | - | - | - | - | - | - | - | - | 1.406310 |
| 45 | RAJGHAT | I.P.G.C.L. (Delhi) | 135 | 0.6796 | 33.52 | 0.227836 | 0.172473 | 75.70 | - | 0.160793 | 0.011680 | - | - | - | - | - | - | - | - | 0.172473 |
| 46 | Mahatma Gandhi | J.H.P.L. (Haryana) | 1320 | 0.1197 | 34.37 | 0.041151 | 0.041151 | 100.00 | - | 0.023140 | - | - | - | 0.013275 | - | - | - | 0.004736 | - | 0.041151 |
| 47 | O.P.Jindal | J.P.L. (Chhattisgarh) | 1000 | 5.2440 | 36.92 | 1.935000 | 1.136000 | 58.71 | 0.016000 | - | - | - | - | - | 0.264000 | 0.856000 | - | - | - | 1.136000 |
| 48 | PATRATU | J.S.E.B. (Jarkhand) | 770 | 0.4040 | 37.40 | 0.151000 | 0.011700 | 7.75 | 0.004800 | 0.006000 | - | - | - | - | - | 0.001000 | - | - | - | 0.011800 |
| 49 | RATNAGIRI | JSW Energy Limited (Maharashtra) | 1200 | 3.6300 | 6.55 | 0.225000 | 0.176000 | 78.22 | 0.077000 | 0.009000 | - | 0.090000 | - | - | - | - | - | - | - | 0.176000 |
| 50 | VIJAYANAGAR | JSW Energy Limited (Karnataka) | 860 | 2.2870 | 9.72 | 0.222300 | 0.219100 | 98.56 | 0.017000 | 0.200000 | - | - | - | - | - | - | - | - | - | 0.217000 |
| 51 | BELLARY | K.P.C.L. (Karnataka) | 500 | 2.1594 | 25.11 | 0.542207 | 0.228301 | 42.11 | - | 0.228301 | - | - | - | - | - | - | - | - | - | 0.228301 |
| 52 | RAICHUR | | 1720 | 7.4900 | 34.58 | 1.857000 | 0.955000 | 51.43 | 0.138000 | 0.817000 | - | - | - | - | - | - | - | - | - | 0.955000 |
| 53 | Muzaffarpur TPS | K.B.U.N.L. (Bihar) | 220 | 0.1900 | 45.42 | 0.086289 | 0.086289 | 100.00 | - | - | - | - | - | - | 0.086289 | - | - | - | - | 0.086289 |
| 54 | Amarkantak TPS | Lanco Power Ltd. (Chhattisgarh) | 600 | 2.8800 | 42.20 | 0.974000 | 0.236000 | 24.23 | - | 0.031000 | - | - | - | - | - | - | - | - | 0.205000 | 0.236000 |
| 55 | Anpara 'C' | Lanco Power Ltd. (U.P.) | 1200 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 56 | Maithon RBTPP | M.P.L. (Jharkhand) | 1050 | 0.7779 | 45.64 | 0.355000 | 0.001274 | 0.36 | - | 0.001274 | - | - | - | - | - | - | - | - | - | 0.001274 |
| 57 | SANJAY GANDHI | M.P.P.G.C.L. (M.P.) | 1340 | 5.8600 | 37.73 | 1.661000 | 1.568000 | 94.40 | 0.001000 | 1.567000 | - | - | - | - | - | - | - | - | - | 1.568000 |
| 58 | SATPURA | | 1142.5 | 5.5305 | 39.19 | 2.167566 | 0.032842 | 1.52 | 0.000690 | 0.008252 | 0.000400 | - | - | 0.023500 | - | - | - | - | - | 0.032842 |
| 59 | AMARKANTAK | | 450 | 1.5100 | 36.02 | 0.545000 | 0.060000 | 11.01 | - | 0.059500 | - | - | - | - | - | - | - | - | - | 0.059500 |
| 60 | BHUSAWAL | M.S.P.G.C.L. (Maharashtra) | 420 | 2.1612 | 34.01 | 0.734929 | 0.480557 | 65.39 | 0.133231 | 0.289657 | - | - | - | - | - | - | 0.006594 | 0.051075 | - | 0.480557 |
| 61 | CHANDRAPUR | | 2340 | 10.7816 | 42.81 | 4.615747 | 1.124495 | 24.36 | 0.056419 | 1.059695 | - | 0.000600 | - | - | - | - | - | 0.007782 | - | 1.124496 |
| 62 | KHAPARKHEDA | | 840 | 4.8125 | 30.76 | 1.480110 | 1.550067 | 104.73 | 0.471115 | 0.248527 | 0.553280 | - | - | 0.215000 | - | - | - | - | 0.062145 | 1.550067 |
| 63 | KORADI | | 1100 | 2.8890 | 40.22 | 1.208000 | 0.525000 | 43.46 | 0.303000 | 0.031770 | 0.183000 | - | - | 0.007000 | - | - | - | - | - | 0.524770 |
| 64 | NASHIK | | 630 | 3.3900 | 37.53 | 1.276006 | 1.038101 | 81.36 | 0.392200 | 0.490711 | - | - | - | - | 0.109900 | - | 0.045290 | - | - | 1.038101 |
| 65 | PARAS | | 500 | 2.2493 | 40.96 | 0.921236 | 0.489005 | 53.08 | 0.283995 | 0.205010 | - | - | - | - | - | - | - | - | - | 0.489005 |
| 66 | PARLI | | 1130 | 0.4179 | 41.42 | 0.173100 | 0.119100 | 68.80 | 0.035700 | 0.050900 | - | - | - | - | - | - | 0.001870 | 0.030600 | - | 0.119070 |
| 67 | NEVELI - I | N.L.C. Ltd. (Tamil Nadu) | 600 | 5.8850 | 5.67 | 0.250600 | 0.177910 | 70.99 | 0.013915 | 0.161600 | - | - | - | - | - | - | - | - | 0.002390 | 0.177905 |
| 68 | NEVELI - I EXPN | | 420 | 3.1387 | 7.11 | 0.227000 | 0.222100 | 97.84 | 0.036000 | 0.143500 | - | - | - | - | - | 0.042500 | - | - | - | 0.222000 |
| 69 | NEVELI - II | | 1470 | 12.1390 | 7.41 | 0.899000 | 0.421000 | 46.83 | 0.033000 | 0.147000 | - | - | - | 0.083000 | - | 0.154000 | 0.003800 | - | - | 0.420800 |
| 70 | Neyveli-II Exp | | 250 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 71 | Barsingar-Lignite | N.L.C. Ltd. (Rajasthan) | 250 | 0.6413 | 18.42 | 0.118105 | 0.118104 | 100.00 | 0.000116 | 0.084891 | - | - | - | - | - | - | 0.033096 | - | - | 0.118103 |
| 72 | Bhilai | N.S.P.C.L. (Chhattisgarh) | 500 | 2.7488 | 41.26 | 1.134225 | 0.325209 | 28.67 | 0.034751 | 0.289458 | - | - | - | - | - | 0.001000 | - | - | - | 0.325209 |
| 73 | Vallur | N.T.E.C.L. (Tamil Nadu) | 500 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 0.000000 |
| 74 | RAMAGUNDAM | N.T.P.C. (Andhra Pradesh) | 2600 | 13.0810 | 32.55 | 4.294000 | 2.608000 | 60.74 | 0.011000 | 1.606000 | 0.015000 | - | - | 0.182000 | - | - | - | - | 0.794000 | 2.608000 |
| 75 | SIMHADRI | | 1500 | 7.6700 | 36.69 | 2.816000 | 1.690000 | 60.01 | - | 0.472000 | 0.172000 | - | - | 0.647000 | 0.002000 | - | - | - | 0.398000 | 1.691000 |
| 76 | KHALGAON | NTPC Ltd. (Bihar) | 2340 | 11.5260 | 34.00 | 3.919000 | 0.960000 | 24.50 | 0.006000 | 0.151000 | - | - | - | 0.495000 | 0.303000 | - | - | - | 0.005000 | 0.960000 |
| 77 | KORBA | NTPC Ltd. (Chhattisgarh) | 2600 | 13.2340 | 40.72 | 5.407000 | 3.744000 | 69.24 | 0.020000 | 0.167000 | - | - | - | 0.678000 | 2.879000 | - | - | - | - | 3.744000 |
| 78 | SIPAT | | 1660 | 7.1840 | 36.08 | 2.615000 | 0.322000 | 12.31 | - | 0.317000 | - | - | - | - | 0.004000 | - | - | - | - | 0.321000 |
| 79 | BADARPUR | NTPC Ltd. (Delhi) | 705 | 4.2120 | 30.00 | 1.264000 | 1.101000 | 87.10 | 0.002000 | 0.605000 | 0.482000 | - | - | - | - | 0.013000 | - | - | - | 1.102000 |
| 80 | VINDHYACHAL | NTPC Ltd. (M.P.) | 3260 | 18.0040 | 34.53 | 6.247000 | 2.895000 | 46.34 | 0.011000 | 0.776000 | - | - | - | 0.444000 | 0.410000 | - | - | - | 1.254000 | 2.895000 |
| 81 | TALCHAR(KAN) | NTPC Ltd. (Odisha) | 3000 | 17.1040 | 36.47 | 6.235000 | 1.794000 | 28.77 | 0.022000 | 0.079000 | - | - | - | 1.234000 | 0.120000 | - | - | - | 0.340000 | 1.795000 |
| 82 | TALCHAR(TPS) | | 460 | 3.1000 | 38.50 | 1.193000 | 1.193000 | 100.00 | 0.004000 | 0.020000 | - | - | - | - | - | - | 1.168000 | - | - | 1.192000 |

**FLY ASH GENERATION AND ITS UTILIZATION AT COAL/LIGNITE BASED THERMAL POWER STATIONS IN THE COUNTRY FOR THE YEAR 2011-12 (FROM APRIL, 2011 to MARCH, 2012)
(POWER STATION WISE)**

| Sl. No. | Name of TPS | Power Utility & State | Installed Capacity | FLY ASH GENERATION AND ITS UTILIZATION | | | | | | MODES OF UTILIZATION | | | | | | | | | Total Utilization |
|--------------------|------------------|--|--------------------|--|---------------------|--------------------|---------------------|-------------------|---|---|--|--|---|---------------------|----------------------------------|-----------------|---|-----------------|-------------------|
| | | | | Coal consumed | Ash content of coal | Fly Ash Generation | Fly Ash Utilization | % age Utilization | In making of Fly Ash based Bricks/Blocks/Tiles etc. | In manufacture of Portland Pozzolana Cement | In construction of Highways & Roads including Flyovers | Part replacement of cement in concrete | In Hydro Power Sector as part replacement of cement in concrete | In Ash dyke raising | In reclamation of low lying Area | In Mine filling | In Agriculture / Waste land Development | Others | |
| | | | | (MW) | (Million-ton) | % age | (Million-ton) | (Million-ton) | % | (10) | (Million-ton) | (Million-ton) | (Million-ton) | (Million-ton) | (Million-ton) | (Million-ton) | (Million-ton) | (Million-ton) | |
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) | (13) | (14) | (15) | (16) | (17) | (18) | (19) | (20) |
| 83 | RIHAND | NTPC Ltd. (U.P.) | 2000 | 11.0560 | 28.20 | 3.119000 | 1.892000 | 60.66 | 0.002000 | 0.082000 | - | - | - | 0.293000 | 1.515000 | - | - | - | 1.892000 |
| 84 | SINGRAULI | | 2000 | 11.2020 | 33.87 | 3.793000 | 2.324000 | 61.27 | 0.003000 | 0.310000 | - | - | - | 0.025000 | 1.009000 | - | - | 0.978000 | 2.325000 |
| 85 | UNCHAHAHAR | | 1050 | 5.9870 | 42.86 | 2.573000 | 1.932000 | 75.09 | 0.001000 | 1.605000 | 0.008000 | - | - | - | 0.050000 | - | - | 0.268000 | 1.932000 |
| 86 | TANDA | | 440 | 3.0400 | 44.39 | 1.360000 | 0.846000 | 62.21 | 0.004000 | 0.298000 | - | - | - | 0.222000 | 0.046000 | - | - | 0.276000 | 0.846000 |
| 87 | DADRI | | 1820 | 8.8560 | 34.00 | 3.010000 | 2.247000 | 74.65 | 0.002000 | 1.658000 | 0.158000 | - | - | - | 0.429000 | - | - | - | 2.247000 |
| 88 | FARAKKA | NTPC Ltd. (W.B.) | 2100 | 6.9900 | 31.51 | 2.207000 | 1.981000 | 89.76 | 0.007000 | 0.918000 | 0.963000 | - | - | - | 0.093000 | - | - | - | 1.981000 |
| 89 | IB VALLEY | O.P.G.C.L. (Odisha) | 420 | 2.5729 | 40.70 | 1.047806 | 0.175425 | 16.74 | 0.010734 | 0.000210 | - | - | - | 0.038400 | 0.125980 | - | - | 0.000101 | 0.175425 |
| 90 | BATHINDA | P.S.P.C.L. (Punjab) | 440 | 1.3889 | 33.58 | 0.466425 | 0.234728 | 50.32 | 0.012758 | 0.221970 | - | - | - | - | - | - | - | - | 0.234728 |
| 91 | LEHRA MOHABAT | | 920 | 4.5388 | 31.10 | 1.411315 | 1.148164 | 81.35 | 0.000680 | 1.051746 | - | 0.054068 | - | - | 0.041667 | - | - | - | 1.148161 |
| 92 | ROPAR | | 1260 | 6.1529 | 33.04 | 1.528438 | 1.437345 | 94.04 | 0.005785 | 1.421655 | - | 0.009903 | - | - | - | - | - | - | 1.437343 |
| 93 | KOTA | R.R.V.U.N.L. (Rajasthan) | 1240 | 6.4826 | 31.29 | 2.028371 | 2.106950 | 103.87 | 0.188158 | 1.785527 | 0.059400 | 0.020952 | - | - | - | - | 0.007396 | 0.044662 | 2.106950 |
| 94 | SURATGARH | | 1500 | 6.9202 | 30.48 | 2.109950 | 1.727470 | 81.87 | 0.132292 | 1.537327 | 0.049541 | - | - | - | 0.008260 | - | - | - | 1.727420 |
| 95 | Chhabra | | 500 | 1.6817 | 34.33 | 0.577359 | 0.557505 | 96.56 | 0.221072 | 0.336343 | - | - | 0.000090 | - | - | - | - | - | 0.557505 |
| 96 | Giral | | 250 | 0.5772 | 31.71 | 0.183069 | 0.183069 | 100.00 | 0.000600 | 0.000000 | - | - | - | - | - | 0.182469 | - | - | 0.183069 |
| 97 | Jalpa Kapurdi | R.W.P.L. (Rajasthan) | 540 | 1.6376 | 12.01 | 0.207275 | 0.114378 | 55.18 | 0.001857 | 0.012050 | - | 0.005522 | - | - | 0.094948 | - | - | - | 0.114377 |
| 98 | Rosa Phase-I | R.P.S.C.L. (U.P.) | 1200 | 2.8084 | 30.62 | 0.859928 | 0.077935 | 9.06 | 0.001434 | 0.069600 | - | 0.006902 | - | - | - | - | - | - | 0.077936 |
| 99 | DAHANU | Reliance Infrastructure Ltd. (Maharashtra) | 500 | 2.8060 | 27.75 | 0.779000 | 0.608000 | 78.05 | 0.000817 | - | - | 0.280000 | - | 0.307000 | - | - | - | 0.019540 | 0.607357 |
| 100 | Sterlite | S.E.L. (Odisha) | 1800 | 5.0990 | 42.85 | 2.185365 | 0.463860 | 21.23 | 0.000205 | - | 0.085613 | - | - | 0.084000 | 0.294042 | - | - | - | 0.463860 |
| 101 | Simhapuri | S.E.P.L. (A.P.) | 1500 | 0.0136 | 9.36 | 0.001275 | 0.001020 | 80.00 | 0.000714 | 0.000306 | - | - | - | - | - | - | - | - | 0.001020 |
| 102 | CUDDALORE | ST-CMS (Tamil Nadu) | 250 | 1.9269 | 7.50 | 0.144583 | 0.130477 | 90.24 | - | 0.112122 | - | - | - | - | - | 0.018000 | - | - | 0.130122 |
| 103 | SVPL | S.V.P.P.L. (Chhattisgarh) | 63 | 0.0648 | 51.56 | 0.033416 | 0.033416 | 100.00 | 0.000750 | - | 0.001750 | - | - | 0.028416 | 0.002500 | - | - | - | 0.033416 |
| 104 | JOJOBBERA | T.P.CO. (Jarkhnad) | 427.5 | 2.0071 | 44.53 | 0.893840 | 0.672091 | 75.19 | 0.000850 | 0.389910 | - | 0.005850 | - | - | 0.274060 | 0.001420 | - | - | 0.672090 |
| 105 | TROMBAY | T.P.CO. (Maharashtra) | 750 | 2.5680 | 2.81 | 0.072200 | 0.072200 | 100.00 | 0.005000 | - | 0.053000 | - | - | - | - | - | - | 0.014200 | 0.072200 |
| 106 | SABARMATI | Torrent Power Ltd. (Gujarat) | 400 | 1.8803 | 0.00 | 0.470000 | 0.656500 | 139.68 | 0.004500 | 0.348000 | - | - | - | - | - | - | 0.304000 | - | 0.656500 |
| 107 | TENUGHAT | T.V.N.L. (Jarkhnad) | 420 | 1.5416 | 40.00 | 0.616654 | 0.583801 | 94.67 | - | - | - | - | - | - | 0.583801 | - | - | - | 0.583801 |
| 108 | ENNORE | T.N.G & D. Corporation (Tamil Nadu) | 450 | 1.0574 | 40.90 | 0.432427 | 0.414777 | 95.92 | 0.034629 | 0.086026 | 0.062784 | - | - | - | - | - | - | 0.231338 | 0.414777 |
| 109 | METTUR | | 840 | 4.8877 | 33.80 | 1.649742 | 2.737220 | 165.92 | 0.436732 | 2.300485 | - | - | - | - | - | - | - | - | 2.737217 |
| 110 | NORTH CHENNAI | | 630 | 3.0660 | 31.32 | 0.958000 | 2.318000 | 241.96 | 0.086000 | 0.380000 | 1.845000 | 0.007260 | - | - | - | - | - | - | 2.318260 |
| 111 | TUTICORIN | | 1050 | 5.9495 | 37.39 | 2.105430 | 1.279991 | 60.79 | 0.194015 | 1.070781 | - | 0.001772 | - | - | 0.013418 | - | - | 0.000050 | 1.280036 |
| 112 | ANPARA 'A' & 'B' | U.P.R.V.U.N.L. (U.P.) | 1630 | 8.4408 | 37.36 | 2.954000 | 0.020016 | 0.68 | - | 0.008399 | - | - | - | - | 0.010142 | - | - | 0.001475 | 0.020016 |
| 113 | HARDUAGANJ | | 420 | 0.0962 | 19.85 | 0.019100 | 0.023200 | 121.47 | - | - | 0.023200 | - | - | - | - | - | - | - | 0.023200 |
| 114 | OBRA | | 1300 | 3.9610 | 38.45 | 1.523000 | 0.160286 | 10.52 | - | 0.160286 | - | - | - | - | - | - | - | - | 0.160286 |
| 115 | PANKI | | 210 | 0.8667 | 31.47 | 0.274679 | 0.378920 | 137.95 | 0.000588 | 0.106419 | - | - | - | - | 0.271913 | - | - | - | 0.378920 |
| 116 | PARICHHA | | 640 | 2.5132 | 33.91 | 0.852000 | 0.434140 | 50.96 | 0.000030 | 0.404920 | 0.002550 | - | - | - | 0.026650 | - | - | - | 0.434150 |
| 117 | Udupi | U.P.C.L. (KARNATAK) | 600 | 1.5560 | 5.18 | 0.080000 | 0.049000 | 61.25 | - | 0.039000 | - | 0.010000 | - | - | - | - | - | - | 0.049000 |
| 118 | Katghora | VESPL (Chhattisgarh) | 35 | 0.0080 | 46.00 | 0.003691 | 0.003691 | 100.00 | 0.000096 | 0.000780 | - | - | - | - | 0.000120 | - | - | 0.002695 | 0.003691 |
| 119 | KOLAGHAT | W.B.P.D.C.L.(W.B.) | 1260 | 6.3430 | 40.12 | 2.547000 | 3.020000 | 118.57 | 0.174000 | 0.549000 | 0.393000 | - | - | - | 1.574000 | - | - | 0.332000 | 3.020000 |
| 120 | SAGARDIGHI | | 600 | 2.9250 | 44.97 | 1.321000 | 0.184000 | 13.93 | 0.047000 | 0.115000 | - | - | - | - | - | - | - | 0.022000 | 0.184000 |
| 121 | BANDEL | | 450 | 1.6380 | 39.85 | 0.651000 | 0.741000 | 113.82 | 0.026000 | 0.004000 | - | - | - | - | 0.658000 | - | - | 0.058000 | 0.746000 |
| 122 | SANTALDIH | | 500 | 1.8040 | 37.49 | 0.676000 | 0.140000 | 20.71 | 0.002000 | - | - | - | - | - | 0.147000 | - | - | 0.000200 | 0.149200 |
| 123 | BAKRESWAR | | 1050 | 5.0740 | 3.85 | 1.976000 | 2.378000 | 120.34 | 0.031000 | 0.938000 | - | - | - | 1.395000 | - | - | - | 0.015000 | 2.379000 |
| 124 | Wardha Warora | W.P.C.L. (Maharashtra) | 540 | 2.1281 | 37.46 | 0.799240 | 0.799240 | 100.00 | 0.010740 | 0.497996 | - | 0.024661 | - | - | 0.037891 | 0.225959 | - | - | 0.797247 |
| GRAND TOTAL | | | 105925.30 | 437.41 | 33.24 | 145.42 | 85.05 | 58.48 | 5.835421 | 38.078584 | 5.536359 | 0.632008 | 0.000090 | 5.861499 | 14.216197 | 7.743686 | 0.875440 | 6.285266 | 85.06 |

**FLY ASH GENERATION AND ITS UTILIZATION AT COAL/LIGNITE BASED THERMAL POWER STATIONS IN THE COUNTRY FOR THE YEAR 2012-13 (APRIL, 2012 TO MARCH, 2013)
(POWER STATION WISE)**

| Sl. No. | Name of TPS | Power Utility & State | FLY ASH GENERATION AND ITS UTILIZATION | | | | | | MODES OF UTILIZATION | | | | | | | | | | Total Utilization |
|---------|--------------------------|----------------------------------|--|---------------|---------------------|--------------------|---------------------|-------------------|--|---|--|--|---|---------------------|----------------------------------|-----------------|--|---------------|-------------------|
| | | | Installed Capacity | Coal consumed | Ash content of coal | Fly Ash Generation | Fly Ash Utilization | % age Utilization | In making of Fly Ash based/ Bricks/ Tiles etc. | In manufacture of Portland Pozzolana Cement | In construction of Highways & Roads including Flyovers | Part replacement of cement in concrete | In Hydro Power Sector as part replacement of cement in concrete | In Ash dyke raising | In reclamation of low lying Area | In Mine filling | In Agriculture/ Waste land Development | Others | |
| | | | (MW) | (million-ton) | % age | (million-ton) | (million-ton) | % | (million-ton) | (million-ton) | (million-ton) | (million-ton) | (million-ton) | (million-ton) | (million-ton) | (million-ton) | (million-ton) | (million-ton) | |
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) | (13) | (14) | (15) | (16) | (17) | (18) | (19) | (20) |
| 1 | Chandrapur | A.P.G.P.C.L. (Assam) | 60 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 2 | KOTHAGUDEM | A.P. GENCO (Andhra Pradesh) | 720 | 4.4432 | 47.37 | 2.105060 | 0.199485 | 9.48 | 0.035283 | 0.136266 | - | - | - | - | - | - | - | 0.027936 | 0.199485 |
| 3 | KOTHAGUDEM-V | | 500 | 3.0097 | 46.65 | 1.403160 | 0.071066 | 5.09 | 0.015610 | 0.055330 | - | - | - | - | - | - | - | 0.000126 | 0.071066 |
| 4 | KOTHAGUDEM-VI | | 500 | 2.5973 | 36.70 | 0.954340 | 0.367254 | 38.56 | 0.040480 | 0.363170 | - | - | - | - | - | - | - | - | 0.367250 |
| 5 | RAMAGUNDAM'B | | 62.50 | 0.3284 | 43.44 | 0.142500 | 0.060100 | 42.18 | 0.043500 | 0.016600 | - | - | - | - | - | - | - | - | 0.060100 |
| 6 | RAYALSEEMA | | 1050 | 5.1495 | 40.52 | 2.086760 | 1.627056 | 77.95 | 0.503689 | 1.123367 | - | - | - | - | - | - | - | - | 1.627056 |
| 7 | Dr. N.T.R. (Vijawada) | | 1760 | 9.7922 | 41.88 | 4.100650 | 2.916983 | 71.13 | 0.730329 | 1.271500 | 0.507657 | 0.058732 | - | 0.205809 | - | 0.001034 | 0.141922 | 2.916983 | |
| 8 | KAKATIA | | 500 | 2.4628 | 43.72 | 1.069540 | 0.352789 | 32.98 | 0.001299 | 0.351490 | - | - | - | - | - | - | - | - | 0.352789 |
| 9 | KASAI PALLI | A.C.B.P.L. (Chhattishgarh) | 270 | 1.3405 | 52.66 | 0.708963 | 0.339766 | 47.92 | 0.092373 | - | - | 0.000200 | - | 0.081901 | 0.164992 | - | 0.000300 | - | 0.339766 |
| 10 | INDIRA GANDHI | A.P.C.P.L. (Haryana) | 1500 | 3.6896 | 37.10 | 1.368890 | 0.119047 | 8.70 | 0.005068 | 0.011675 | - | - | - | - | 0.020000 | - | - | 0.082304 | 0.119047 |
| 11 | MUNDRA TPS | A.P.L. (Gujarat) | 4620 | 12.0560 | 9.41 | 1.154000 | 1.154000 | 100.00 | 0.041000 | 0.542000 | - | - | 0.193000 | 0.378000 | - | - | - | - | 1.154000 |
| 12 | MIHAN | A.M.N.E.P.L. (Maharashtra) | 246 | 0.5896 | 40.46 | 0.240720 | 0.040674 | 26.98 | 0.022369 | 0.018305 | - | - | - | - | - | - | - | - | 0.040674 |
| 13 | BARAUNI | B.S.E.B. (Bihar) | 220 | - | - | - | 0.014760 | 98.63 | 0.014760 | - | - | - | - | - | - | - | - | - | 0.014760 |
| 14 | BARKHERA | B.E.P.L. (U.P.) | 90 | 0.5250 | 38.91 | 0.204293 | 0.163432 | 80.00 | 0.000176 | 0.065148 | - | - | - | - | 0.098108 | - | - | - | 0.163432 |
| 15 | KHAMBER KHERA | | 90 | 0.5162 | 40.36 | 0.208377 | 0.170128 | 81.64 | - | 0.087508 | - | - | - | - | 0.082619 | - | - | - | 0.170128 |
| 16 | KUNDARKI | | 90 | 0.4633 | 43.66 | 0.202294 | 0.175917 | 86.96 | - | 0.129339 | - | - | - | - | 0.046578 | - | - | - | 0.175917 |
| 17 | MAQSODPUR | | 90 | 0.5045 | 41.71 | 0.210407 | 0.170561 | 81.06 | - | 0.054067 | - | - | - | - | 0.116494 | - | - | - | 0.170561 |
| 18 | UTRAULA | | 90 | 0.3600 | 42.68 | 0.153644 | 0.124542 | 81.06 | - | 0.069873 | - | - | - | - | 0.054669 | - | - | - | 0.124542 |
| 19 | B.B.G.S. | C.E.S.C. (West Bengal) | 750 | 3.5460 | 34.18 | 1.379000 | 1.379000 | 100.00 | 0.032000 | 0.998000 | - | - | - | - | 0.349000 | - | - | - | 1.379000 |
| 20 | S.G.S. | | 135 | 0.7240 | 33.85 | 0.268000 | 0.268000 | 100.00 | 0.011000 | 0.214000 | - | 0.004000 | - | - | 0.039000 | - | - | - | 0.268000 |
| 21 | T.G.S. | | 240 | 1.0400 | 29.27 | 0.390000 | 0.390000 | 100.00 | 0.067000 | 0.034000 | 0.072000 | 0.008500 | - | - | 0.217000 | - | - | - | 0.390000 |
| 22 | NEW COSSIPORE | | 160 | 0.2310 | 21.57 | 0.055100 | 0.055100 | 100.00 | - | - | - | - | - | - | 0.032200 | - | - | - | 0.055100 |
| 23 | MUNDRA UMPP | C.G.P.L. (Gujarat) | 800 | 6.0200 | 5.40 | 0.325000 | 0.027000 | 8.20 | - | 0.027000 | - | - | - | - | - | - | - | - | 0.027000 |
| 24 | KORBA (WEST) | C.S.P.G.C.L. Chhattisgarh | 840 | 4.5039 | 41.00 | 1.482900 | 1.239500 | 83.58 | 0.003590 | - | - | - | - | 0.598000 | 0.637900 | - | - | - | 1.239490 |
| 25 | DSPM | | 500 | 2.4930 | 43.60 | 1.088000 | 0.000000 | 0.00 | - | - | - | - | - | - | 0.000000 | - | - | - | - |
| 26 | KORBA (EAST) | | 440 | 2.3416 | 45.17 | 1.055734 | 0.127000 | 12.03 | 0.002000 | - | - | - | - | 0.125000 | - | - | - | - | 0.127000 |
| 27 | BOKARO 'B' | D.V.C. (Jharkhand) | 630 | 2.6925 | 50.08 | 1.347944 | 1.490702 | 110.63 | - | - | - | - | - | - | - | - | 1.490702 | - | 1.490702 |
| 28 | CHANDRAPURA | | 890 | 3.8469 | 52.47 | 2.019089 | 1.383954 | 68.54 | 0.007340 | 0.021184 | - | - | - | - | - | 1.355430 | - | - | 1.383954 |
| 29 | DURGAPUR | D.V.C. (West Bengal) | 350 | 1.6748 | 49.06 | 0.817202 | 0.693326 | 84.84 | 0.000938 | - | - | - | - | - | - | 0.692389 | - | - | 0.693327 |
| 30 | MEJIA | | 2340 | 8.1980 | 45.38 | 3.732000 | 3.161000 | 84.70 | 0.049000 | 0.551000 | - | - | - | - | - | 2.561000 | - | - | 3.161000 |
| 31 | Durgapur Steel | | 1000 | 1.5990 | 39.48 | 0.623388 | 0.149666 | 24.01 | - | 0.149666 | - | - | - | - | - | - | - | - | 0.149666 |
| 32 | KODARMA | D.V.C. (Jharkhand) | 500 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 33 | D.P.L. | D.P.L. (West Bengal) | 641 | 1.6447 | 43.68 | 0.703299 | 0.641100 | 91.16 | 0.005603 | 0.027782 | 0.563487 | - | - | - | - | - | 0.044228 | - | 0.641100 |
| 34 | CHINAKURI | D.P.S.C.L. (W.B.) | 30 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 35 | DISHERGARH POWER STATION | D.P.S.C.L. (W.B.) | 12 | 0.0298 | 49.00 | 0.019713 | 0.019713 | 100.00 | - | - | - | - | - | - | - | 0.019713 | - | - | 0.019713 |
| 36 | MAHAN | ESSAR POWER MP LTD.(M.P.) | 600 | 0.0000 | 0.00 | 0.007983 | 0.007983 | 100.00 | - | - | - | - | - | - | 0.007983 | - | - | - | 0.007983 |
| 37 | SALAYA | E.P.G.L. (Gujarat) | 1200 | 2.4320 | 5.60 | 0.136700 | 0.136700 | 100.00 | 0.014000 | 0.044000 | - | - | 0.067000 | 0.006000 | - | 0.006000 | - | - | 0.137000 |
| 38 | SURAT LIGNITE | G.I.P.C.L. (Gujarat) | 500 | 3.4627 | 16.52 | 0.572080 | 0.572084 | 100.00 | 0.519370 | - | 0.031070 | - | - | - | - | 0.021644 | - | - | 0.572084 |
| 39 | AKRIMOTA | G.M.D.C.L. (Gujarat) | 250 | 0.9323 | 19.93 | 0.185826 | 0.185888 | 100.00 | - | - | - | - | - | - | - | 0.185888 | - | - | 0.185888 |
| 40 | GANDHINAGAR | G.S.E.C.L. (Gujarat) | 870 | 2.6140 | 32.81 | 0.858000 | 0.859000 | 100.15 | 0.031000 | 0.686000 | - | 0.120000 | - | - | - | - | 0.022000 | - | 0.859000 |
| 41 | KUTCH LIGNITE | | 290 | 2.0080 | 17.87 | 0.361000 | 0.361000 | 100.00 | - | - | - | - | - | - | 0.361000 | - | - | - | 0.361000 |
| 42 | SIKKA | | 240 | 0.5920 | 31.30 | 0.185000 | 0.213600 | 115.37 | 0.130000 | 0.084000 | - | - | - | - | - | - | 0.000000 | - | 0.214000 |
| 43 | UKAI | | 850 | 3.8260 | 35.96 | 1.378000 | 0.749000 | 54.34 | 0.187000 | 0.303000 | - | - | - | - | - | - | 0.259000 | - | 0.749000 |
| 44 | WANAKBORI | | 1470 | 6.3520 | 37.59 | 2.399000 | 1.301000 | 54.23 | 0.024200 | 0.971000 | - | - | - | - | - | - | - | - | 1.301200 |
| 45 | HISAR | H.P.G.C.L. (Haryana) | 1200 | 3.7554 | 39.24 | 1.473798 | 0.185588 | 12.59 | 0.002320 | 0.146403 | 0.036865 | - | - | - | - | - | - | - | 0.185588 |
| 46 | YAMUNANAGAR | | 600 | 0.6340 | 38.25 | 0.241000 | 0.025900 | 10.75 | - | 0.025900 | - | - | - | - | - | - | - | - | 0.025900 |
| 47 | PANIPAT | | 1367.8 | 6.6551 | 40.96 | 2.725834 | 1.365304 | 50.09 | - | 1.365304 | - | - | - | - | - | - | - | - | 1.365304 |
| 48 | RAJGHAT | I.P.G.C.L. (Delhi) | 135 | 0.7114 | 33.51 | 0.238384 | 0.199880 | 83.85 | - | 0.157080 | 0.042800 | - | - | - | - | - | - | - | 0.199880 |
| 49 | MAHATMA GANDHI | J.H.P.L. (Haryana) | 1320 | 2.0374 | 38.26 | 0.779492 | 0.779492 | 100.00 | - | 0.580314 | - | - | 0.199178 | - | - | - | - | - | 0.779492 |
| 50 | O.P.Jindal | J.P.L. (Chhattisgarh) | 1000 | 5.1720 | 38.65 | 1.999000 | 1.194000 | 59.72 | 0.022000 | 0.002000 | - | - | - | - | 0.036000 | 1.134000 | - | - | 1.194000 |
| 51 | PATRATU | J.S.E.B. (Jharkhand) | 770 | 0.6763 | 38.50 | 0.259038 | 0.006130 | 2.36 | 0.001141 | 0.005000 | - | - | - | - | - | - | - | - | 0.006141 |
| 52 | RATNAGIRI | JSW Energy Limited (Maharashtra) | 1200 | 4.5417 | 6.62 | 0.293746 | 0.273083 | 93.00 | 0.041614 | 0.055504 | - | 0.175965 | - | - | - | - | - | - | 0.273083 |
| 53 | VIJAYANAGAR | JSW Energy Limited (Karnataka) | 860 | 2.7382 | 11.51 | 0.233800 | 0.233360 | 99.57 | 0.012600 | 0.188200 | - | - | - | - | - | - | 0.032530 | - | 0.233360 |
| 54 | BELLARY | K.P.C.L. (Karnataka) | 1000 | 2.1018 | 32.60 | 0.538111 | 0.381272 | 70.85 | - | 0.381275 | - | - | - | - | - | - | - | - | 0.381275 |
| 55 | RAICHUR | | 1720 | 7.4860 | 33.30 | 2.493158 | 0.910000 | 36.50 | 0.121340 | 0.788600 | - | - | - | - | - | - | - | - | 0.909940 |
| 56 | MUZAFFARPUR TPS | K.B.U.N.L. (Bihar) | 220 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 57 | AMARKANTAK TPS | Lanco Power Ltd. (Chhattisgarh) | 600 | 2.3928 | 44.53 | 0.833500 | 0.358200 | 42.96 | 0.001350 | 0.225600 | - | - | - | - | 0.006900 | - | - | 0.124300 | 0.358150 |
| 58 | ANPARA 'C' | Lanco Power Ltd (U.P.) | 1200 | 2.6815 | 35.81 | 0.973834 | 0.008029 | 0.82 | - | - | - | - | - | - | 0.008029 | - | - | - | 0.008029 |

**FLY ASH GENERATION AND ITS UTILIZATION AT COAL/LIGNITE BASED THERMAL POWER STATIONS IN THE COUNTRY FOR THE YEAR 2012-13 (APRIL, 2012 TO MARCH, 2013)
(POWER STATION WISE)**

| Sl. No. | Name of TPS | Power Utility & State | FLY ASH GENERATION AND ITS UTILIZATION | | | | | | MODES OF UTILIZATION | | | | | | | | | | Total Utilization (million-ton) | |
|---------|--------------------|--|--|-----------------------------|---------------------------|----------------------------------|-----------------------------------|-------------------|--|---|--|--|---|---------------------|----------------------------------|-----------------|--|----------|---------------------------------|----------|
| | | | Installed Capacity (MW) | Coal consumed (million-ton) | Ash content of coal % age | Fly Ash Generation (million-ton) | Fly Ash Utilization (million-ton) | % age Utilization | In making of Fly Ash based/ Bricks/ Tiles etc. | In manufacture of Portland Pozzolana Cement | In construction of Highways & Roads including Flyovers | Part replacement of cement in concrete | In Hydro Power Sector as part replacement of cement in concrete | In Ash dyke raising | In reclamation of low lying Area | In Mine filling | In Agriculture/ Waste land Development | Others | | |
| | | | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) | (13) | (14) | (15) | (16) | (17) | (18) | (19) | | (20) |
| 59 | THAMMINAPATNAM TPS | Meenakshi Energy Pvt. Ltd. (A.P.) | 300 | 0.2810 | 2.50 | 0.007191 | 0.003218 | 44.74 | - | 0.000218 | 0.001050 | - | - | - | - | - | - | 0.001950 | 0.003218 | |
| 60 | MALTHON RBTPP | M.P.L. (Jharkhand) | 1050 | 2.8839 | 45.00 | 1.297700 | 0.369100 | 28.00 | - | - | - | - | - | - | 0.369100 | - | - | - | 0.369100 | |
| 61 | SANJAY GANDHI | M.P.P.G.C.L. (M.P.) | 1340 | 6.2689 | 36.44 | 2.290671 | 1.801672 | 78.65 | 0.001141 | 1.800531 | - | - | - | - | - | - | - | - | 1.801672 | |
| 62 | SATPURA | | 1142.5 | 5.3182 | 37.95 | 2.018509 | 0.522108 | 25.86 | 0.011916 | 0.008943 | 0.202938 | - | 0.298311 | - | - | - | - | - | 0.522108 | |
| 63 | AMARKANTAK | | 450 | 2.1664 | 34.35 | 0.744094 | 0.160478 | 21.57 | 0.004595 | 0.155883 | - | - | - | - | - | - | - | - | 0.160478 | |
| 64 | BHUSAWAL | M.S.P.G.C.L. (Maharashtra) | 420 | 1.8326 | 37.81 | 0.692947 | 0.491807 | 70.68 | 0.139342 | 0.284098 | - | - | - | - | - | - | 0.007374 | 0.058987 | 0.489801 | |
| 65 | CHANDRAPUR | | 2340 | 11.8339 | 35.99 | 4.253873 | 1.541898 | 36.18 | 0.067278 | 1.217715 | - | - | - | - | 0.058000 | 0.008800 | 0.189368 | 1.541161 | | |
| 66 | KHAPARKHEDA | | 840.00 | 4.7408 | 38.93 | 1.845749 | 1.286725 | 69.70 | 0.501585 | 0.087390 | 0.321333 | - | 0.063595 | 0.214220 | - | - | - | 0.098600 | 1.286723 | |
| 67 | KORADI | | 1100 | 2.0840 | 39.69 | 0.828000 | 0.459000 | 55.43 | 0.328000 | 0.020000 | 0.009000 | - | 0.102000 | - | - | - | - | - | 0.459000 | |
| 68 | NASIK | | 630 | 3.1160 | 37.97 | 1.268000 | 0.953000 | 75.12 | 0.503000 | 0.411000 | 0.000000 | - | - | 0.030000 | - | - | 0.009000 | - | 0.953000 | |
| 69 | PARAS | | 500 | 2.3300 | 44.21 | 0.944000 | 0.721000 | 75.23 | 0.292000 | 0.429000 | 0.000000 | - | - | - | - | - | - | - | 0.721000 | |
| 70 | PARLI | | 1130 | 3.4720 | 43.52 | 1.506000 | 1.192000 | 79.16 | 0.432000 | 0.504000 | 0.000000 | - | - | - | - | - | 0.032000 | 0.224000 | 1.192000 | |
| 71 | NEVELI - I | N.L.C. Ltd. (Tamil Nadu) | 600 | 5.8710 | 5.83 | 0.334200 | 0.213190 | 64.51 | 0.029000 | 0.183000 | 0.000000 | - | - | - | - | - | - | 0.001190 | 0.213190 | |
| 72 | NEVELI - I EXPN. | | 420 | 3.3845 | 7.10 | 0.238541 | 0.238529 | 99.80 | 0.042160 | 0.151913 | 0.000000 | - | - | - | 0.043917 | - | - | 0.000539 | 0.238529 | |
| 73 | NEVELI - II | | 1470 | 12.3034 | 6.50 | 0.799615 | 0.474459 | 60.50 | 0.092263 | 0.221079 | 0.000000 | - | - | - | 0.159925 | - | - | 0.001192 | 0.474459 | |
| 74 | NEVELI - II EXPN. | N.L.C. Ltd. (Tamil Nadu) | 250 | - | - | - | - | - | - | - | 0.000000 | - | - | - | - | - | - | - | - | - |
| 75 | BARSINGAR LIGNITE | N.L.C. Ltd. (Rajasthan) | 250 | 1.2739 | 18.03 | 0.229669 | 0.240023 | 104.51 | 0.000934 | 1.179914 | 0.000000 | - | - | - | - | 0.059175 | - | - | 0.240023 | |
| 76 | BHILAI | N.S.P.C.L. (Chhattisgarh) | 500 | 2.6555 | 37.50 | 0.994533 | 0.697635 | 70.15 | 0.106026 | 0.591609 | 0.000000 | - | - | - | - | - | - | - | 0.697635 | |
| 77 | VALLUR | N.T.E.C.L. (Tamil Nadu) | 500 | 0.6741 | 34.70 | 0.234240 | 0.000000 | 0.00 | - | - | 0.000000 | - | - | - | - | - | - | - | - | |
| 78 | RAMAGUNDAM | NTPC Ltd. (Andhra Pradesh) | 2600 | 13.1040 | 34.32 | 4.521000 | 3.052000 | 67.52 | 0.827000 | 1.054000 | 0.066000 | - | 0.252000 | - | 0.137000 | - | - | 0.716000 | 3.052000 | |
| 79 | SIMHADRI | | 2000 | 9.1520 | 35.37 | 3.225000 | 1.960000 | 60.78 | 0.112000 | 0.249000 | 0.002000 | - | 0.927000 | - | - | - | - | 0.670000 | 1.960000 | |
| 80 | KAHALGAON | NTPC Ltd. (Bihar) | 2340 | 13.4220 | 34.00 | 4.563000 | 1.022000 | 22.40 | 0.062000 | 0.254000 | 0.008000 | - | 0.410000 | 0.289000 | - | - | - | 0.001000 | 1.024000 | |
| 81 | KORBA | NTPC Ltd. (Chhattisgarh) | 2600 | 15.2520 | 42.19 | 6.439000 | 2.418000 | 37.55 | 0.037000 | 0.146000 | - | - | - | 2.134000 | 0.101000 | - | - | - | 2.418000 | |
| 82 | SIPAT | | 2980 | 11.1530 | 37.28 | 4.176000 | 0.862000 | 20.64 | 0.078000 | 0.445000 | - | - | - | 0.314000 | 0.024000 | - | - | - | 0.862000 | |
| 83 | BADARPUR | NTPC Ltd. (Delhi) | 705 | 4.0060 | 30.00 | 1.202000 | 1.041000 | 86.61 | 0.391000 | 0.606000 | 0.030000 | - | - | - | 0.014000 | - | - | - | 1.041000 | |
| 84 | VINDHYACHAL | NTPC Ltd. (M.P.) | 4260 | 18.9210 | 36.66 | 6.935000 | 4.613000 | 66.50 | 0.494000 | 0.962000 | - | - | 0.765000 | 1.005000 | - | - | - | 1.387000 | 4.613000 | |
| 85 | TALCHAR(KAN) | NTPC Ltd. (Odisha) | 3000 | 17.5120 | 38.49 | 6.726000 | 2.550000 | 37.91 | 0.058000 | 0.065000 | - | - | 1.576000 | 0.496000 | - | - | - | 0.354000 | 2.549000 | |
| 86 | TALCHAR(TPS) | | 460 | 3.1660 | 39.00 | 1.235000 | 1.235000 | 100.00 | - | 0.037000 | - | - | - | - | - | 1.198000 | - | - | 1.235000 | |
| 87 | RIHAND | NTPC Ltd. (U.P.) | 2500 | 1.1190 | 31.20 | 3.489000 | 1.971000 | 56.49 | 0.012000 | 0.097000 | 0.002000 | - | 0.522000 | 1.338000 | - | - | - | - | 1.971000 | |
| 88 | SINGRAULI | | 2000 | 11.3140 | 33.37 | 3.777000 | 2.266000 | 60.00 | 0.014000 | 0.315000 | - | - | 1.266000 | 0.014000 | - | - | - | 0.657000 | 2.266000 | |
| 89 | UNCHAHAR | | 1050 | 5.8550 | 41.88 | 2.454000 | 1.532000 | 62.49 | 0.043000 | 1.238000 | 0.005000 | - | - | 0.032000 | - | - | - | 0.214000 | 1.532000 | |
| 90 | TANDA | | 440 | 2.6570 | 43.36 | 1.156000 | 0.731000 | 63.42 | 0.087000 | 0.162000 | - | - | 0.188000 | 0.064000 | - | - | - | 0.230000 | 0.731000 | |
| 91 | DADRI | | 1820 | 8.4070 | 3.27 | 2.744000 | 2.380000 | 86.75 | 0.114000 | 1.846000 | 0.022000 | - | - | - | 0.399000 | - | - | - | 2.380000 | |
| 92 | FARAKKA | NTPC Ltd. (W.B.) | 2100 | 9.2010 | 39.47 | 3.647000 | 3.334000 | 91.40 | 0.024000 | 1.040000 | 1.710000 | - | - | 0.247000 | 0.314000 | - | - | - | 3.335000 | |
| 93 | MOUDA TPS | NTPC Ltd. (Maharashtra) | 500 | 0.0157 | 56.00 | 0.008805 | 0.000000 | 0.00 | - | - | - | - | - | - | - | - | - | - | 0.000000 | |
| 94 | IB VALLEY | O.P.G.C.L. (Odisha) | 420 | 2.7572 | 40.21 | 1.109346 | 0.180129 | 16.24 | 0.003094 | - | - | - | - | 0.059400 | 0.118635 | - | - | - | 0.180129 | |
| 95 | BATHINDA | P.S.P.C.L. (Punjab) | 440 | 1.0285 | 31.26 | 0.321512 | 0.221107 | 68.77 | 0.013885 | 0.207222 | - | - | - | - | - | - | - | - | 0.221107 | |
| 96 | LEHRA MOHABAT | | 920 | 4.1181 | 29.88 | 1.230643 | 1.078750 | 87.66 | 0.003041 | 0.981854 | - | 0.057483 | - | - | 0.036374 | - | - | - | 1.078752 | |
| 97 | ROPAR | | 1260 | 5.7293 | 31.51 | 1.805578 | 1.476364 | 81.76 | 0.008653 | 1.425268 | 0.010565 | - | 0.022008 | - | - | 0.009873 | - | - | 1.476367 | |
| 98 | KOTA | R.R.V.U.N.L. (Rajasthan) | 1240 | 6.2243 | 29.73 | 1.850390 | 2.289951 | 123.71 | 0.421905 | 1.539559 | 0.229300 | - | 0.020735 | - | - | - | - | 0.006442 | 2.289951 | |
| 99 | SURATGARH | | 1500 | 6.8178 | 31.13 | 2.125903 | 1.879611 | 88.40 | 0.149685 | 1.575658 | - | - | 0.154278 | - | - | - | - | - | 1.879621 | |
| 100 | CHHABRA | | 500 | 1.8719 | 35.31 | 0.660945 | 0.543274 | 84.36 | 0.000685 | 0.401587 | - | - | - | 0.004550 | - | - | - | 0.136452 | 0.543274 | |
| 101 | GIRAL | | 250 | 0.5902 | 32.90 | 0.194160 | 0.194160 | 100.00 | 0.000270 | - | - | - | - | - | - | 0.193890 | - | - | 0.194160 | |
| 102 | JALIPPA KAPURDI | Raj West Power (Rajasthan) | 1080 | 3.7766 | 13.90 | 0.527500 | 0.361400 | 68.50 | 0.000770 | 0.203000 | - | - | 0.006540 | - | 0.122000 | 0.029100 | - | - | 0.361410 | |
| 103 | ROSA PHASE-I | R.P.S.C.L. (U.P.) | 1200 | 4.9578 | 21.96 | 1.088852 | 0.341564 | 31.37 | 0.001074 | 0.062691 | 0.105676 | - | 0.005065 | - | 0.166908 | - | - | - | 0.341414 | |
| 104 | DAHANU | Reliance Infrastructure Ltd. (Maharashtra) | 500 | 2.7570 | 30.35 | 0.837000 | 0.720000 | 86.07 | - | - | - | - | 0.299000 | - | 0.359000 | - | - | - | 0.610400 | 0.719040 |
| 105 | STERLITE | S.E.L. (Odisha) | 2400 | 6.4117 | 40.99 | 2.625564 | 1.337590 | 50.94 | 0.000504 | - | 0.130038 | - | - | 0.016562 | 1.190486 | - | - | - | 1.337590 | |
| 106 | SIMHAPURI | S.E.P.L. (A.P.) | 300 | 1.0784 | 6.16 | 0.065794 | 0.065429 | 99.45 | 0.034306 | 0.031123 | - | - | - | - | - | - | - | - | 0.065429 | |
| 107 | CUDDALORE | ST-CMS (Tamil Nadu) | 250 | 1.9092 | 8.91 | 0.170024 | 0.140630 | 82.71 | - | 0.125947 | - | - | - | - | - | 0.014683 | - | - | 0.140630 | |
| 108 | SIVPL | S.V.P.P.L. (Chhattisgarh) | 63 | 0.0577 | 48.17 | 0.027812 | 0.027812 | 100.00 | 0.000750 | - | 0.001200 | - | - | 0.015862 | 0.010000 | - | - | - | 0.027812 | |
| 109 | JOJOBERA | Tata Power Co. (Jarkhnad) | 427.5 | 2.6294 | 43.93 | 1.155210 | 1.208400 | 105.56 | 0.000530 | 0.497090 | - | - | 0.002400 | - | 0.707271 | 0.001100 | - | - | 1.208391 | |
| 110 | TROMBAY | Tata Power Co. (Maharashtra) | 750 | 2.8390 | 2.76 | 0.078400 | 0.078700 | 101.00 | 0.003700 | - | - | - | 0.063100 | - | - | 0.007000 | - | - | 0.078700 | |
| 111 | SABARMATI | Torrent Power Ltd. (Gujarat) | 400 | 1.8200 | 25.59 | 0.469000 | 0.459000 | 97.76 | 0.004000 | 0.340000 | - | - | - | - | - | 0.115000 | - | - | 0.459000 | |
| 112 | TENUGHAT | T.V.N.L. (Jarkhnad) | 420 | 2.1168 | 40.00 | 0.846706 | 0.270000 | 59.81 | - | - | - | - | - | - | 0.270000 | - | - | - | 0.270000 | |
| 113 | ENNORE | T.N.G & D Corporation (Tamil Nadu) | 450 | 0.9662 | 40.90 | 0.394091 | 0.333148 | 84.54 | 0.040303 | 0.072969 | 0.028419 | - | - | - | - | - | - | 0.191457 | 0.333148 | |
| 114 | METTUR | | 840 | 4.5629 | 21.99 | 1.343177 | 2.456119 | 183.86 | 0.09941 | 2.046178 | - | - | - | - | - | - | - | - | 2.456119 | |
| 115 | NORTH CHENNAI | | 630 | 3.4820 | 32.00 | 1.109000 | 1.769000 | 159.58 | 0.085400 | 0.388000 | 1.293000 | - | 0.000263 | - | - | - | - | - | 1.766663 | |
| 116 | TUTICORIN | | 1050 | 6.6490 | 33.89 | 2.253441 | 1.493013 | 66.25 | 0.236916 | 1.101912 | - | - | - | - | 0.153875 | - | - | 0.000310 | 1.493013 | |
| 117 | ANPARA 'A' & 'B' | U.P.R.V.U.N.L. (U.P.) | 1630 | 7.6053 | 39.24 | 2.661870 | 0.014530 | 0.55 | - | 0.005650 | - | - | - | - | 0.07255 | - | - | 0.001625 | 0.014530 | |
| 118 | HARDUANGAN | | 670 | 0.1139 | 40.35 | 0.045993 | 0.024514 | 53.30 | - | - | 0.024514 | - | - | - | - | - | - | - | 0.024514 | |

**FLY ASH GENERATION AND ITS UTILIZATION AT COAL/LIGNITE BASED THERMAL POWER STATIONS IN THE COUNTRY FOR THE YEAR 2012-13 (APRIL, 2012 TO MARCH, 2013)
(POWER STATION WISE)**

| Sl. No. | Name of TPS | Power Utility & State | FLY ASH GENERATION AND ITS UTILIZATION | | | | | | MODES OF UTILIZATION | | | | | | | | | Total Utilization | | |
|--------------------|--------------------|--|--|-----------------|---------------------|--------------------|---------------------|-------------------|--|---|--|--|---|---------------------|----------------------------------|------------------|--|-------------------|---------------|----------|
| | | | Installed Capacity | Coal consumed | Ash content of coal | Fly Ash Generation | Fly Ash Utilization | % age Utilization | In making of Fly Ash based/ Bricks/ Tiles etc. | In manufacture of Portland Pozzolana Cement | In construction of Highways & Roads including Flyovers | Part replacement of cement in concrete | In Hydro Power Sector as part replacement of cement in concrete | In Ash dyke raising | In reclamation of low lying Area | In Mine filling | In Agriculture/ Waste land Development | | Others | |
| | | | (MW) | (million-ton) | % age | (million-ton) | (million-ton) | % | (million-ton) | (million-ton) | (million-ton) | (million-ton) | (million-ton) | (million-ton) | (million-ton) | (million-ton) | (million-ton) | | (million-ton) | |
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) | (13) | (14) | (15) | (16) | (17) | (18) | (19) | (20) | |
| 119 | OBRA | | 1300 | 3.1909 | 39.55 | 1.262000 | 0.306115 | 24.26 | - | 0.306115 | - | - | - | - | - | - | - | - | - | 0.306115 |
| 120 | PANKI | | 210 | 0.7758 | 33.19 | 0.257053 | 0.401564 | 156.21 | 0.002346 | 0.141098 | - | - | - | - | 0.258120 | - | - | - | - | 0.401564 |
| 121 | PARICHA | | 1140 | 3.3979 | 33.48 | 1.137951 | 0.703251 | 61.80 | 0.000180 | 0.531350 | - | - | - | 0.137760 | 0.030980 | - | - | 0.002920 | 0.000060 | 0.703250 |
| 122 | UDUPI | U.P.C.L. (Karnatak) | 1200 | 2.7550 | 5.04 | 0.139069 | 0.107536 | 77.32 | 0.000152 | 0.081327 | - | - | 0.026057 | - | - | - | - | - | - | 0.107536 |
| 123 | KATGHORA | V.E.S.P.L. (Chhattisgarh.) | 35 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 124 | BUTIBORI | V.I.P Ltd. (Maharashtra) | 300 | 0.0058 | 29.71 | 0.001720 | 0.000000 | 0.00 | - | - | - | - | - | - | - | - | - | - | - | - |
| 125 | KOLAGHAT | W.B.P.D.C.L. (W.B.) | 1260 | 6.0495 | 40.19 | 2.438700 | 3.419600 | 143.63 | 0.690200 | 0.532700 | 0.523840 | 0.010100 | - | - | - | - | 1.602700 | 0.059147 | - | 3.418687 |
| 126 | SAGARDIGHI | | 600 | 2.6107 | 41.93 | 1.090625 | 0.221796 | 21.29 | 0.044326 | 0.142667 | 0.034330 | - | - | - | - | - | - | - | 0.000023 | 0.221346 |
| 127 | BANDEL | | 450 | 1.5703 | 36.27 | 0.561700 | 0.747900 | 146.32 | 0.033100 | - | - | - | - | - | - | - | 0.663100 | 0.059800 | - | 0.756000 |
| 128 | SANTALDIH | | 500 | 1.5959 | 38.42 | 0.608716 | 0.266692 | 43.81 | 0.008452 | - | - | - | - | - | 0.258188 | - | - | - | - | 0.266640 |
| 129 | BAKRESWAR | | 1050 | 5.2808 | 39.31 | 2.079500 | 2.310300 | 111.31 | 0.058700 | 0.807000 | - | - | - | - | 1.430000 | - | - | 0.013500 | - | 2.309200 |
| 130 | WARDHA WARORA | W.P.C.L. (Maharashtra) | 540 | 2.3180 | 36.46 | 0.845300 | 0.845300 | 100.00 | 0.007328 | 0.542100 | - | 0.001100 | - | - | 0.049326 | 0.245509 | - | - | - | 0.845363 |
| 131 | GEPL TPP | Gupta Energy Pvt. Ltd. (Maharashtra) | 120 | 0.5059 | 28.22 | 0.142787 | 0.142787 | 100.00 | 0.008224 | 0.116667 | - | - | - | - | 0.007590 | 0.010306 | - | - | - | 0.142787 |
| 132 | JAYPEE BINA TPP | Jaypee Bina Thermal Power Plant (M.P.) | 500 | 0.3608 | 43.49 | 0.156941 | 0.104747 | 66.74 | - | 0.005563 | - | - | - | - | 0.099184 | - | - | - | - | 0.104747 |
| 133 | MAHADEV PRASAD TPS | Adhunik Power & Natural Resources Ltd. | 540 | 0.2129 | 44.43 | 0.094600 | 0.018920 | 20.00 | 0.009460 | 0.009460 | - | - | - | - | - | - | - | - | - | 0.018920 |
| 134 | EMCO ENERGY Ltd. | EMCO Energy Ltd. (Maharashtra) | 300 | 0.0602 | 40.00 | 0.024084 | 0.019998 | 83.00 | - | 0.015600 | - | - | - | - | - | 0.004398 | - | - | - | 0.019998 |
| 135 | RATIJA TPS | Spectrum Coal & Power Ltd.(Chhattisgarh) | 50 | 0.0251 | 51.00 | 0.010289 | 0.010289 | 100.00 | 0.001792 | - | - | - | - | - | 0.008497 | - | - | - | - | 0.010289 |
| 136 | TIRORA | Adani Power Ltd. (Maharashtra) | 1320 | 0.4200 | 24.20 | 0.097900 | 0.047900 | 48.93 | 0.000100 | - | - | - | - | - | 0.047800 | - | - | - | - | 0.047900 |
| 137 | AMARAVATI TPS | Indiabulls Power Ltd. (Maharashtra) | 270 | 0.0002 | 40.00 | 0.000096 | 0.000096 | 100.00 | - | - | - | - | - | 0.000096 | - | - | - | - | - | 0.000096 |
| 138 | BELA TPS | Ideal Energy Projects Ltd. (Maharashtra) | 270 | 0.0044 | 34.00 | 0.001497 | 0.000500 | 33.33 | - | - | - | - | - | - | 0.000500 | - | - | - | - | 0.000500 |
| GRAND TOTAL | | | 120312.30 | 482.9728 | 33.87 | 163.56 | 100.37 | 61.37 | 9.982954 | 41.327098 | 6.022582 | 1.027026 | 0.004550 | 10.925255 | 11.827079 | 10.342563 | 2.503798 | 6.409869 | 100.37 | |