

HIGHLIGHTS

- The review covers the performance analysis of 454 coal / lignite based thermal units above 25 MW capacity of 126 thermal power stations aggregating 97768 MW.
- During the financial year 2011-12, the highest ever capacity addition of 20501 MW (Thermal, Nuclear and Hydro) was achieved, out of which 18404 MW of capacity was of Coal/Lignite based plants.
- During the financial year 2011-12, nine nos. of supercritical units were synchronized to the grid. The performance analysis of following Supercritical units (which were reckoned for PLF calculations during the year) was included in the Present Publication.

Sl. No	Name of Station	Unit No	Organisation	Capacity
1	MUNDRA TPS	5	APL	660
2	MUNDRA TPS	6	APL	660
3	MUNDRA TPS	7	APL	660
4	SIPAT STPS	1	NTPC Ltd.	660

- In order to include the performance analysis of above units, a new capacity group the capacity group 660-800 MW (Supercritical units) has been added in the review.
- All India electricity generation in the country during 2011-12 has been 876.89 BU representing a growth rate of 8.11% as compared to the generation of 811.14 BU during 2010-11.
- Thermal Generation stood at 708.81 BU representing a share of more than 80 % of total electricity generation in the country.
- Coal/ Lignite based plants continued to have major contribution towards electricity generation with a major share of 86.4% of the total thermal generation in the
- During 2011-12, the total thermal generation achieved a growth rate of 6.59%. Coal based generation recorded a remarkable growth rate of 9.24 %.
- The thermal generation in the country during 2011-12 was 99.52% of its target fixed for the year.
- Operating Availability of 82.61% was achieved during 2011-12 as against 83.85% achieved during 2010-11.
- 7 thermal generating units had achieved plant operating availability more than 99% during 2011-12. 32 Thermal stations achieved the Operating Availability more than 90% during 2011-12.
- Plant load factor (PLF) of thermal power stations at the national level, during 2011-12, reduced to 73.32% from 75.08% achieved during previous year. The Lower PLF was due to increased generation loss due to coal supply problem and transmission constraints and Reserve Shut down/Low system demand.

- Plant load factor (PLF) of Central Sector units was highest at 82.12%. However the PLF of IPP was reduced from 80.97% during 2010-11 to 67.27% during 2011-12.
- Plant load factor (PLF) of BHEL/BHEL make units (283 units aggregating to 65838 MW) registered the highest PLF of 77.00% among units of different makes. However, the PLF % of China / China make units reduced from 72.33% during 2010-11 to 62.48% during 2011-12 due to increased forced outages of China/China make units at Mundra TPS(U #5, 6 of capacity 660 MW each), Jallipa Kupurdi TPS (U#1,2 of 135 MW each), Yamuna Nagar TPS (U#2 of 300 MW).
- Dahanu Thermal Power Station (2X250 MW) of M/s Reliance Infrastructure Ltd. in Maharashtra achieved the highest ever PLF of 101%.
- PLF of 15 thermal power Stations aggregating to 20420 MW was above 90%. Among these 7 were from Central Sector Utility (6 from NTPC and 1 from NSPCL), 4 were from Pvt. Utilities (one from JSW Energy Ltd. and one each from Reliance Infra, CESC and JPL) and 4 were from State Sector Utilities (PSPCL- 1, RRVUNL-1, TNGDCL-1, APGENCO-1). PLF of 52 number Thermal units aggregating to 5703 MW were below 30%. 29 numbers of units of capacity 2444 MW did not contribute to electricity generation during the year under review.
- The coal availability to power stations deteriorated due to Telangana crisis during the month of September,11. Telangana crisis hampered the production in SCCL mines which had affected coal supplies to many generating stations of Southern Region especially Andhra Pradesh, Karnataka and Maharashtra.
- Energy loss on account of planned maintenance was 5.93% as compared to 5.83% during 2009-10. The % increase in Planned maintenance was due to increase in unscheduled Capital maintenance and in unscheduled R&M activity of some units.
- The average duration of boiler overhaul and capital maintenance was achieved as 30 days and 58 days respectively.
- The loss of generation due to non-availability of thermal units due to forced outages during 2011-12 increased to 11.46% as compared to 10.32% during 2009-10. The increased forced outages was due to increased forced shutdown of units due to coal supply problem and transmission constraints and equipment problems of some new units. The details are given in Section 4.
- 59.87% of the total forced shut down were of duration up to 24 hours. 38.67% outages were of duration varying from 1 to 25 days and only 1.45% of shut downs were for more than 25 days.
- The total loss of generation (6574 MU) due to planned maintenance of thermal units was highest in September '2011. Loss of generation due to various forced outages was maximum during the month of September'11 (10436 MU)

- Following loss of generation due to various constraints were reported by the utilities:

Sl. No.	Category	Energy (BU) (2011-12)	Energy (BU) (2010-11)
1	Shortage of coal	11.6	8.4
2	Wet/poor coal quality	17.9	17.4
3	Backing down/Reserve shut down	15.3	13.7
4	Transmission constraints (Mundra TPS, Sterlite TPS, Udupi TPS are some stations which are mainly affected)	3.92	3.7
5	Gas shortage	36.71	28.27

- The generation from gas based plants had negative growth rate on account of low schedules from the beneficiaries coupled with shortage of gas. During the year, the generation from gas based plants (including liquid fuel, Diesel etc) were 93.22 BU in comparison to 99.97 BU. As such the % PLF was also reduced from 66.14% during 2010-11 to 59.94% during 2011-12.
- Energy loss due to partial unavailability of the thermal generating units operating in the country during 2011-12 had increased to 9.43% of the maximum possible generation during the year in comparison to the 9.34% in 2010-11. The increase was mainly attributed to partial unavailability of the thermal generating units on account of backing down of units due to poor quality coal/lignite, coal/Lignite shortage and low system demand.
- JOJOBERA TPS # 1 (120 MW) of TATA PCL had operated continuously for 340 days. 10 coal/lignite based thermal generating units (6 of NTPC, and one of each from Tata PCL, GSECL JSWEL, RIL (DAHANU)) continuously operated for more than 250 days.
- 23 coal/lignite based thermal generating units (NTPC-11, Tata PCL-3, JSWEL-2 and one each of RIL, GSECL, WBPDC, NLC, TNGDCL, APGENCO & CESE) operated continuously for more than 200 days.
- The all India Specific coal consumption of thermal power stations during 2011-12 was 0.72 kg/kWh.
- The All India average auxiliary power consumption by the thermal stations during 2011-12 reduced to 8.44% from 8.49% during 2010-11.
- Additional new features covered in the Review are mentioned below:
 - Performance analysis of Super critical units (660-800 MW Capacity Group in Section -6)

- Details of units which were taken under unscheduled/extended Capital Maintenance and unscheduled/extended R&M activities (Section-3, Para 3.2.1).
- Details of units which were taken unscheduled /extended Annual Over Haul (A.O.H) of more than 40 days(Annexure 3.2, Section- 3).
- Detailed analysis to know the major reasons for increased forced outages is covered in (Section -4, Para 4.2.1 & 4.2.2)
- Details of units which were having Operating Availability less than 50%(Annexure 5.1, Section-5).