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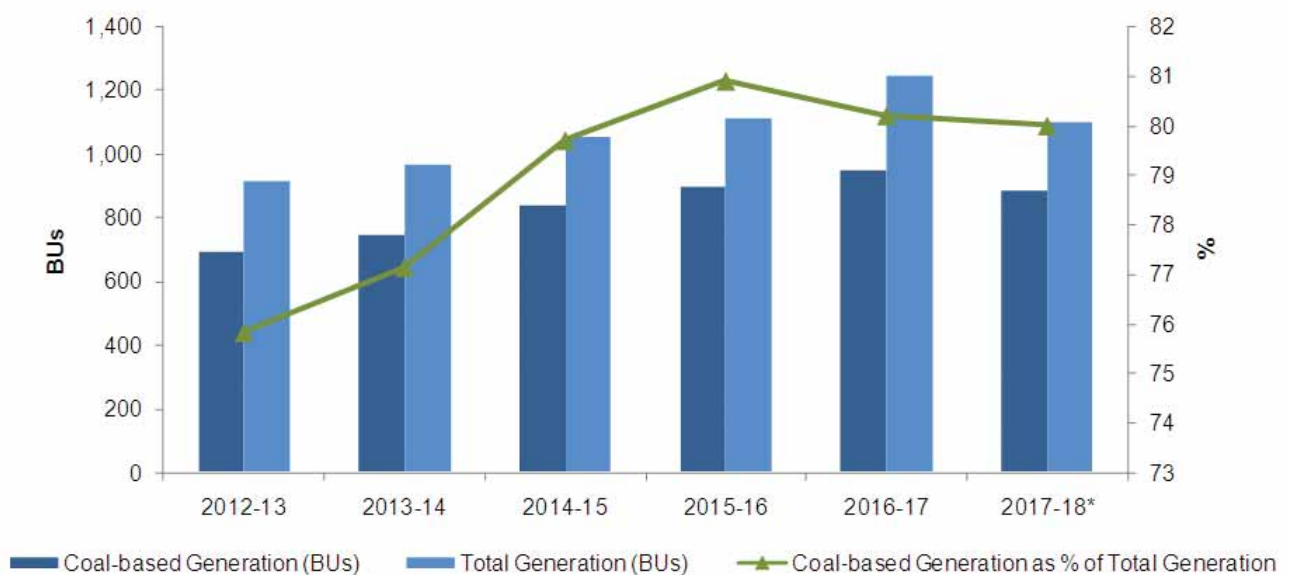
# Coal-based Power Generation in India 2018

Future Prospects, Issues and Opportunities

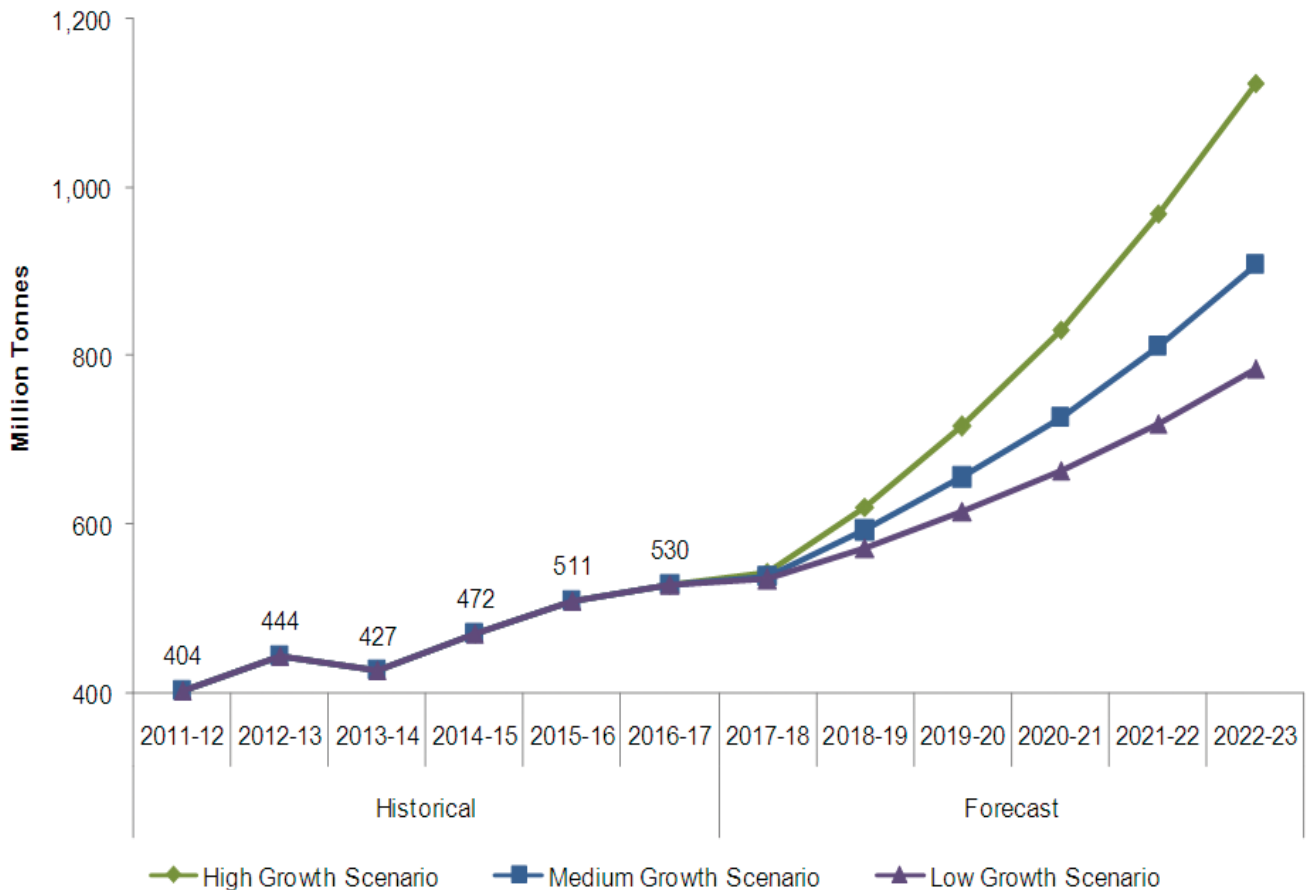
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- According to India Infrastructure Research, the total coal-based installed capacity stood at 197 GW as of March 2018, accounting for about 58% of the installed capacity of 344 GW across all sources of power generation. While, the share of coal-based capacity in total capacity has increased consistently between 2013 and 2015, it has continued to decline marginally since then.
- Meanwhile, in 2016-17, electricity generation from coal-based plants accounted for more than 80% of the total power produced during the year. Private sector (IPPs and utilities) had the highest share in coal-based generation, followed by the central and state sectors. Between 2012-13 and 2016-17, generation from coal-based power plants has increased at a CAGR of 8.1%. In 2017-18, coal-based generation until was around 951 BUs, maintaining the 80% share of the total power generation.
- The plant load factor (PLF) for coal-based power plants has declined considerably from about 70 per cent in 2012-13 to 59 per cent in 2017-18, and is set to decrease even further. Rapidly changing generation mix will require coal-based power plants to be more flexible through multiple physical changes. Moreover, the operational strategy of power plants will need to be changed in order to deal with the challenges posed by flexibilisation.
- By 2022, renewables are expected to account for 33% of the country’s power generation, and 43% by 2027. The future load generation scenario suggests a heavy demand growth, likely to be fulfilled in part by renewable sources of energy. However, given the intermittent and variable nature of these sources, the role of load balancing will be significantly played by coal-based and hydropower plants.

## Trends in Coal-based Power Generation



## Expected Network Addition in Urban Rail Segment



- The installed coal-based power capacity is expected to reach 248,513 MW by 2026-27, as per CEA's National Electricity Plan. An additional capacity of 51,342 MW is under-development and likely to yield benefits by 2021-22. Major changes are expected in the country's installed capacity mix going forward. The share of coal-based power capacity in total installed capacity is expected to stand at about 48% by 2021-22 as against 57.3% in 2017-18. It is further expected to reduce to 39% by 2026-27.
- According to India Infrastructure Research, the average year-on-year growth rate of power generated by coal-based power plants during 2012-16 was 9.3%. Based on power generation forecasts, high-, medium- and low-growth scenarios have been determined to forecast the demand of coal by the power sector over the next five years.

**Executive Summary****SECTION I: OVERVIEW AND RECENT DEVELOPMENTS****1. Coal-based Generation - Size and Growth**

- ❖ Growth in Installed Capacity
- ❖ Analysis of Existing Capacity
  - By Sector
  - Location
  - Size of Units
  - Type of Coal
- ❖ Trends in Generation
- ❖ Trends in PLF

**2. Policy Initiatives and Developments**

- ❖ Update on SHAKTI
- ❖ Revised Mega Power Policy
- ❖ Methodology for Flexible Utilisation of Coal for IPPs
- ❖ CEA's FGD Perspective Plan
- ❖ SC Ruling on Tribunal Order in Compensatory Tariff Case
- ❖ Replacement and Upgradation of Old Units
- ❖ Status of Auctioned Captive Coal Blocks for Power

**3. Update on Stressed Assets**

- ❖ Stressed Assets in Power Sector
- ❖ Stressed Projects and Developers
- ❖ Measures to Revive Stressed Assets
- ❖ Recent Acquisitions
- ❖ Deals under Discussions
- ❖ Potential Buyers
- ❖ Future Outlook

**4. Need for Flexibilisation**

- ❖ Growth Drivers
- ❖ All-India Load Pattern Analysis
- ❖ Existing Policy and Regulatory Provisions for Flexibilisation
- ❖ Flexible Generation Options for Coal-based Plants
- ❖ Retrofits and Modifications to Enhance Flexibility
- ❖ Performance of Flexibilised Plants
- ❖ Impact on Costs
- ❖ Key Limitations and Challenges
- ❖ Flexibilisation Initiatives underway in India
- ❖ Future Outlook

**5. Emission Control Regulations: Timelines, Costs and Status**

- ❖ Trends in Emissions from Coal-based Plants
- ❖ Overview of Revised Environmental Standards
- ❖ Rationale for New Standards

- ❖ Existing and Upcoming Capacity Impacted by Emission Norms™
- ❖ Timelines for Implementation
- ❖ Impact on Cost of Generation and Tariffs
- ❖ Key Technologies
- ❖ Industry Issues and Concerns

**6. Impact of Renewables**

- ❖ Current Share of Electricity Generation
- ❖ Coal versus Renewables Generation Cost Comparison
- ❖ Projected Renewable Capacity Additions
- ❖ Projected Fuel Mix by 2022 and 2027
- ❖ Future Load Generation Scenario
- ❖ Role of Coal-based Plants in Grid Balancing
- ❖ Flexibility Requirements with High Share of Renewables

**SECTION II: PLANT PROFILE AND OPERATING PERFORMANCE****7. Plant Performance Analysis**

- ❖ Size of Plants and Units
- ❖ Subcritical and Supercritical Units
- ❖ Age of Units
- ❖ Boiler and Turbine Makes
- ❖ PLF Trends
- ❖ Heat Rate Trend Analysis
- ❖ Auxiliary Consumption trends

**8. Candidates for Shutdown and O&M**

- ❖ Current O&M Projects
- ❖ Potential for O&M
- ❖ Candidates for O&M
- ❖ Candidate Plants for Closure

**SECTION III: COAL SUPPLY, PRICES AND OUTLOOK****9. Coal Supply Scenario**

- ❖ Coal Demand from Thermal Power Plants
- ❖ Current Production
- ❖ Supply of Coking versus Non-coking Coal
- ❖ Captive Coal Production
- ❖ Trends in Coal Imports
- ❖ Projections for Coal Demand and Supply

**10. Trends in Coal Procurement**

- ❖ Source Comparison
- ❖ Linkage Volume and Trends
- ❖ E-auction Volume and Trends
- ❖ Captive Volume and Trends
- ❖ Imported Volume and Trends

**11. Coal Prices**

- ❖ Domestic Coal Prices
- ❖ E-Auction Prices
- ❖ Global Price Trend
- ❖ Pricing Outlook and Forecasts

**12. Coal Transportation**

- ❖ Share of various Modes of Coal Transportation
- ❖ Trends in Rail Freight Costs
- ❖ Status of Critical Rail Connectivity Projects
- ❖ Ports Capacity for Handling Coal
- ❖ Upcoming Railways and Ports Capacity
- ❖ Key Issues and Challenges

**SECTION IV: COSTS AND TARIFFS****13. Tariff and Prices**

- ❖ Factors affecting Tariffs
- ❖ Tariff Trends
- ❖ Tariff Trends in PPAs
- ❖ Tariff Discovered under Case 1 and 2 Bids
- ❖ Short-term Power Prices
- ❖ E-bidding under DEEP

**14. Generation Costs**

- ❖ Trends in Generation Costs
- ❖ Factors Affecting Cost of Generation
- ❖ Cost Comparison with other Fuels Options
- ❖ Energy Charges for New Plants
- ❖ Equipment Costs for New Plants
- ❖ Other Costs (AFC and O&M)
- ❖ Future Outlook

**SECTION V: MARKET OUTLOOK AND OPPORTUNITIES****15. New Project Pipeline**

- ❖ Analysis of Capacity under Construction
  - By Ownership
  - By Expected CoD
  - By Size
  - By Location
- ❖ Status of Capacity under Construction
- ❖ Time and Cost Overruns in Upcoming Projects
- ❖ Stalled Projects
- ❖ Issues and Concerns

**16. Future Outlook**

- ❖ Capacity Addition
- ❖ Power Demand and Power Procurement
- ❖ Capacity Utilisation
- ❖ Merchant Sales
- ❖ Generation Tariffs
- ❖ Emission Norms

**17. Market Opportunities for Technology Providers**

- ❖ FGD Systems
- ❖ ESP Upgradation
- ❖ Water Management Systems
- ❖ Control and Instrumentation (C&I) Systems

**SECTION VI: KEY POWER PRODUCERS****18. Major Players**

- ❖ NTPC Limited
- ❖ Damodar Valley Corporation
- ❖ NLC India Limited
- ❖ Adani Power Limited
- ❖ Tata Power Company Limited
- ❖ Reliance Power Limited
- ❖ JSW Energy Limited
- ❖ Jindal Power Limited
- ❖ Essar Power Limited
- ❖ GMR Energy Limited
- ❖ RattanIndia Power Limited
- ❖ Lanco Infratech Limited
- ❖ Maharashtra State Power Generation Company Limited
- ❖ Uttar Pradesh Rajya Vidyut Utpadan Nigam Limited
- ❖ Rajasthan Vidyut Utpadan Nigam Limited
- ❖ Tamil Nadu Generation and Distribution Corporation Limited
- ❖ West Bengal Power Development Corporation Limited
- ❖ Karnataka Power Corporation Limited
- ❖ Madhya Pradesh Power Generating Company Limited
- ❖ Gujarat State Electricity Corporation Limited
- ❖ Chhattisgarh State Power Generation Company Limited
- ❖ Telangana State Power Generation Corporation Limited
- ❖ Andhra Pradesh Power Generation Corporation Limited
- ❖ Haryana Power Generation Corporation Limited

*Each profile includes information on current capacity, upcoming projects, operating performance and financial performance.*

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