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Power Sector- Year-End FY19

Contact:

Madan Sabnavis
Chief Economist
madan.sabnavis@careratings.com
+91-22- 6837 4433

Author

Ashish K Nainan
Research Analyst
Ashish.nainan@careratings.com
+91-22-6837 4347

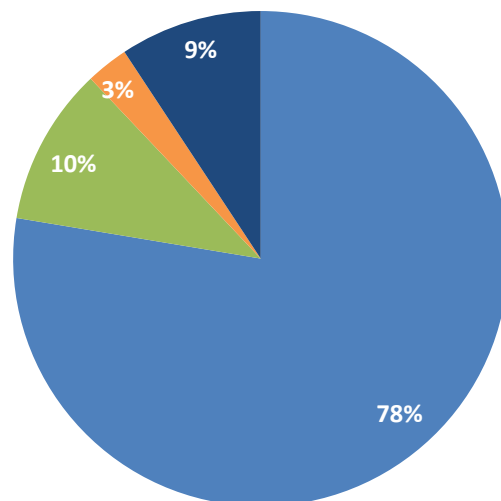
Mradul Mishra (Media Contact)

mradul.mishra@careratings.com
+91-22-6837 4424

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- Total electricity generated in the country clocked 1156.8 BU (billion unit) during April-Jan 19, reporting growth of 5.7% vs 5.3% in previous year. Renewable energy sources contributed 107.2 BU, and recorded a 25.2% growth over production in corresponding period of FY18.
- PLF of thermal power plants monitored by CEA stood at 61.1% during 10- month period of FY19, an improvement over 59.3% for the corresponding period in FY18.

Graph 1. Power Generation by Source



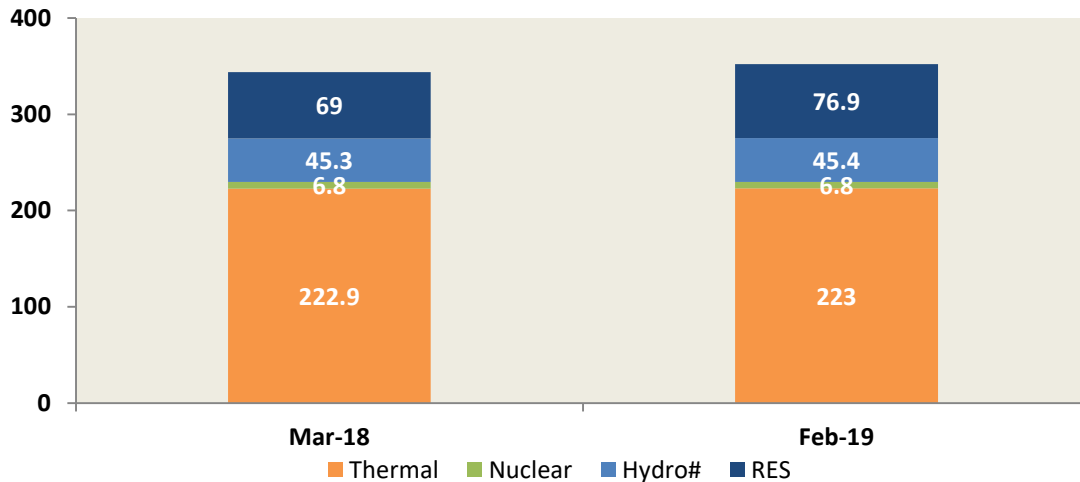
■ Thermal Energy ■ Hydro-Power# ■ Nuclear Energy ■ RES*

* Electricity generated April-January 2019, includes RES Source: CEA # Categorised as Renewable Energy

- Installed capacity stood at 350.1 GW as of February 2019, recording a net capacity addition of 6.1 GW during the year.
- Solar and wind power accounted for 95% of capacity addition and remaining were hydro power projects. Wind energy capacity addition at 1.2 GW, has slowed down considerably post FY17 when it recorded 6 GW of capacity addition.
- India is 100% electrified and as per government data, all willing households have been connected to grid-based electricity.
- AT & T losses (March 2019) at ~19.8% vs a targeted 15% as envisaged under the UDAY scheme for March 2019 is a concern. Few major “SAUBHAGYA” beneficiary states, including J&K, UP, MP, Bihar and Rajasthan continue to have AT&C losses over 25% and their discoms would have to expedite corrective measures.

Installed capacity, addition and utilization:

Graph 2 Total Installed Capacity (Source Wise- Capacity in GW)



Source: CEA, MNRE "RES- Renewable Energy" #Hydro Power has been re-categorized as RES

- April-Feb 19 witnessed addition of 2.1GW of thermal power capacity, but due to retirement of an equivalent capacity, the net capacity addition was just over 100 MW. Total thermal power capacity stood at 223 GW as of February 2019. Overall capacity utilization of coal-based plants stood at 61.1%.
- As of January 31st, 2019 68.7 GW of additional thermal power capacity is under construction.
- Gas based power plants continued to witness below-par capacity utilization and witnessed PLF remaining stable at 22.2% , marking a marginal improvement over 22% in FY18.
- During the 11-month period, 100MW of hydro-based plants were commissioned. Hydro power projects over 25 MW have been categorised as renewable power by the Union Government.
- A total of 7.8 GW of renewable energy capacity was added during the 11 month period of FY19 as per latest data from MNRE and is in addition to the CEA data above.
- Solar power witnessed the highest capacity addition (5.4GW), followed by wind power (1.3 GW) and small hydro (~32 MW). Wind power capacity addition was at multi year low. Bio power capacity too recorded 1.2 GW of capacity addition during the year.
- SECI has issued fresh tenders totalling 6 GW in March 2019, in order to improve the overall pace of implementation of solar projects over the next 36 months. An average 2 GW of solar capacity has to be completed every month over the next 3 years in order to achieve a 100 GW solar power capacity.

Electricity demand and generation (April-January 2019 Actuals)

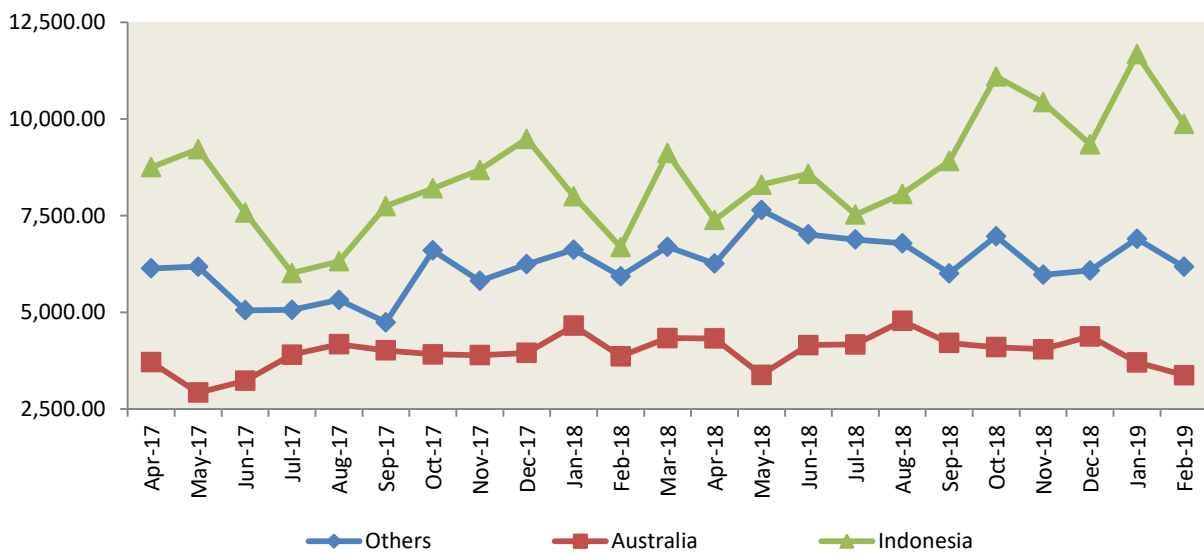
- Total energy generated from conventional sources in the country stood at 1051 billion units (BU) during April-January 2019, growth of 4.3% over corresponding period in FY18.
- Renewable power generation recorded 25% increase in generation during the first 10 months of FY19.
- Thermal energy which includes coal-gas-diesel based power plants accounted for 78% of the power generated in the country. Nuclear-based, Hydro-power; and Renewable energy accounted for 3%, 10% and 9% respectively of the power generated during the year.

Fuel supply and consumption:

- Gas supply to power plants remains in the range of 29-31% of the total gas allocated to the sector. Unavailability of enough volume of gas due to lower domestic production and high cost of imported gas has led to shortfall in supply to gas-based power plants. Major share of gas is supplied to fertilizers and city gas distribution entities (CGD).

- Total coal supplied by Coal India (CIL) & Singareni Collieries Company Limited (SCCL) to power sector stood at 491.2 MT between April-Feb 2019, recording a 9.4% growth in supplies over last year’s supplies during the corresponding period. CIL accounted for 90% of the domestic coal production.
- Ratio of coal supplied to coal allocated by CIL and SCCL to CEA monitored power plants stood at 88.2% and indicates 11.8% shortfall in supply vs allocated quantity.
- Total coal import grew by 13.2 % at 218.8 MT during the 11-month period over the corresponding period during the previous year. Out of this, around 22-23% of the imported coal is coking coal and the remaining is thermal and other coal.
- Coal from Australia and Indonesia contributed two-third of India’s total coal imports. South African coal import fell during the year and was substituted by coal from the US. The two countries together account for 20% of India’s coal import. Coal imports from Mozambique and Canada clocked above average growth during the year.
- Use of imported coal by CEA monitored plants rose by 6.3% to 55.3 MT during Apr-Feb 19 over the corresponding period during the previous year.

Graph 3 Monthly Coal imports in FY18 & FY19



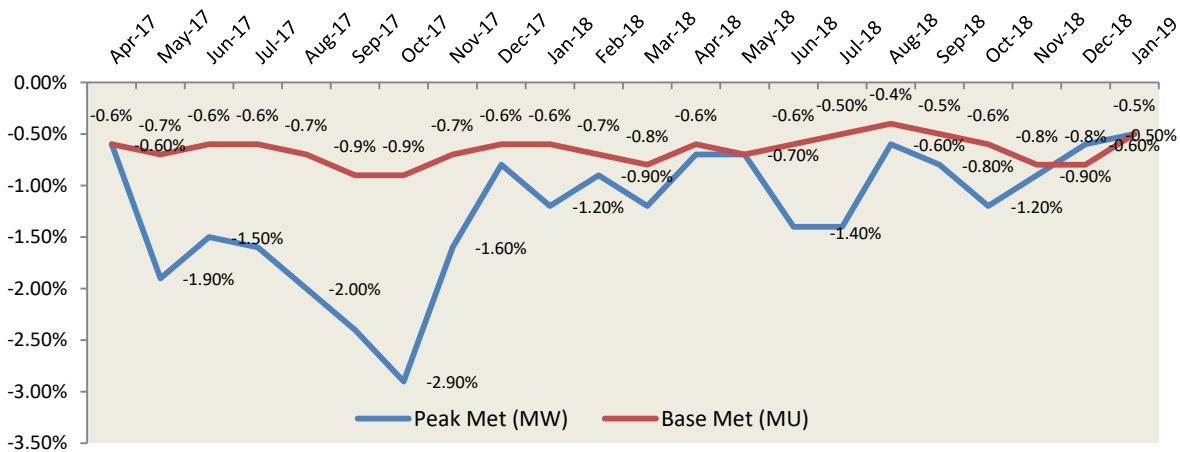
Source: CMIE Others include South Africa, USA, Mozambique, Russia, China, Singapore, UAE

- Factors contributing to increased dependency on imported coal have been lower auction of coal through the e-auction and spot auction route by state-run miners. Total volume of coal sold through e-auction has fallen by 30.1% to 56.17 MT during April-Feb 2019 vs corresponding period in the previous year. The auctioned coal fulfills demand from captive power plants and non-power sectors.
- Demand for imported coal from manufacturing sectors has been robust on the back of improved capacity utilization in industries like steel, cement etc. Imported coal with lower fly ash and higher energy per tonne makes it cost effective against domestic coal which contains 35-40% of fly ash and moisture and a considerably lower calorific value. Lower fly-ash also saves additional disposal cost for its users. Captive power plants in textiles, metals, auto, cement and chemical industry remain key importers of thermal coal. Total captive thermal (coal-based) capacity of 29 GW would continue to import coal for their power requirements for the above-mentioned reasons.

Power deficit remains range-bound:

- The peak and base demand deficit during April-January 2019 period continued to remain range bound with a maximum gap of around 1.4% in July.

Graph 4 Peak and Base Deficit



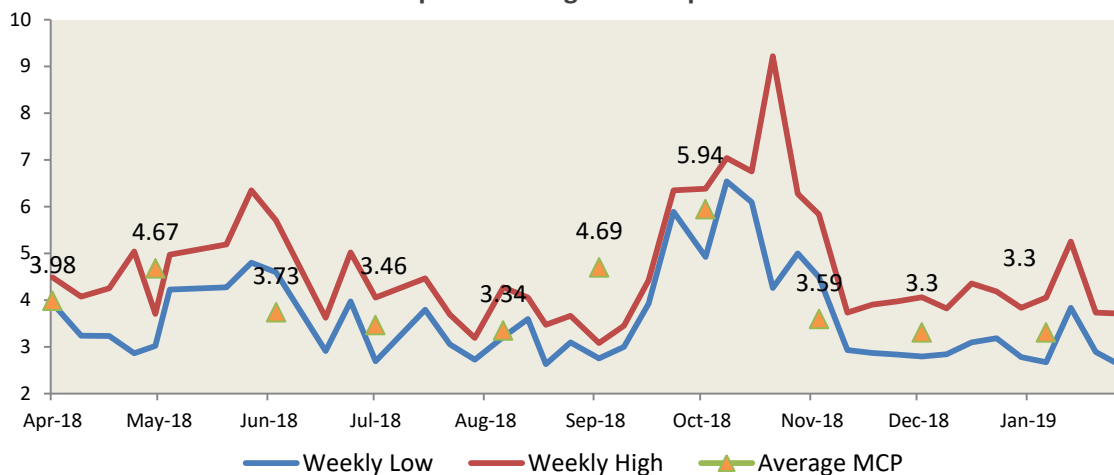
Source: CEA

- The demand-supply shortfall has been consistently contracting post October 2017. Post integration of regional grids, the demand-supply constraint in the country has remained considerably low at 0.5-1.2%. With major improvement in electrification, the demand may spike during peak summer seasons and having enough transmission capacity would be vital to cater to that demand and containing power deficit. Investments in grid strengthening will have to be increased considerably as more renewable energy capacity is added.

Spot-market tariff trends:

- Share of short-term power market has increased to 12.3% from 10% reported a year ago. Exchanges account for 4.4% of the total power purchase transactions and 36% of the short term power market transactions in India. Share of exchange traded power has remained steady during the year.
- 87.7% of the total power purchase transactions in India are through PPAs (long term from 3 to 25 years).

Graph 5 Exchange traded power tariff trend



Source: IEX (Spot Market Prices- Market Data) in Rs. Per unit (kWh) MCP- Market Clearing Price

- States namely Andhra Pradesh, Bihar, Rajasthan, MP, Gujarat, Maharashtra and Odisha were largest buyers of power from exchanges. "Saubhagya" or Power for all scheme could be attributed much of this apart from increased industrial activity in some of these states.

- As per IEX, the overall electricity peak and energy demand grew by 8% and 6.2% respectively in 9MFY19 over 9MFY18. This growth in demand has led to higher growth (~20%) in volume of electricity traded on exchanges during the same period.
- Tariffs remained volatile between Apr-Feb 2019 on the power exchanges with September & October period witnessing record spike in short term tariffs. Shortfall in supply of coal was attributed as the key driver of tariffs apart from unforeseen demand from some Southern states and industries. This temporary increase in power tariffs on exchanges also negatively impacts the financials of state discoms who continue to supply power at subsidized prices to few user segments.
- Major industrial buyers included textile, metal, auto, chemical, cement etc.

States with power deficit:

- States with high power deficit include Jammu & Kashmir, Chhattisgarh, Uttar Pradesh and Puducherry. J&K and UP witnessed rapid electrification of households under “Saubhagya” Scheme.
- AT&C losses remained steady at 19.8% vs. 20% in 2017-18. High AT&C losses highlight slippage in implementation of operational objectives of UDAY scheme which targeted achieving 15% AT&C losses by March 2019.
- Smart metering of lines stood at 5.34 lakh, less than 2.2% of the total targeted 24.1 million meters. Smart metering was expected to improve collection efficiency by minimising human intervention as well as help consumers optimize use of electricity during peak demand hours.

Table. AT& T Losses Post “Saubhagya”

State	Electrified Households (May '18)	AT & C Loss	
		May 2018	March 2019
Jammu and Kashmir	80%	57.4%	52.3%
Chhattisgarh	91%	22.3%	30%
Jharkhand	48%	36.3%	34.6%
Bihar	75%	36.8%	36.3%
Uttar Pradesh	57%	31.2%	31.2%
Madhya Pradesh	86%	31.7%	26.2%
Rajasthan	79%	24.5%	24.1%

Source: CEA, UDAY Website

CARE Ratings Outlook:

- We retain our electricity generation outlook for FY19 i.e. growth of 6.0-7.0%. Successful implementation of electrification led by “Power for all” is expected to drive demand for electricity.
- We expect the demand for imported thermal coal to normalize going forward as supply constraints of domestic coal improve over the next 12 months. But the overall demand for thermal coal would continue to remain in the range of 135-145 MT annually.
- Bringing down AT&C losses would be key to stabilising the power sector in India. Achieving 15% AT&C all-India as stipulated under UDAY scheme would require improvement in revenue collection especially from domestic power consumers who have been electrified under the “SAUBHAGYA” Scheme. Additionally, completion of measures like smart-metering should be expedited and implemented in a time-bound manner.