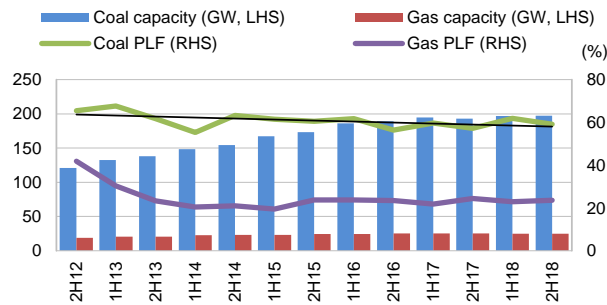


India Power Watch

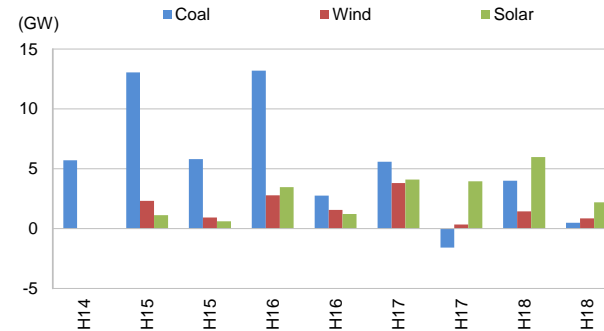
1H19

Thermal Capacity



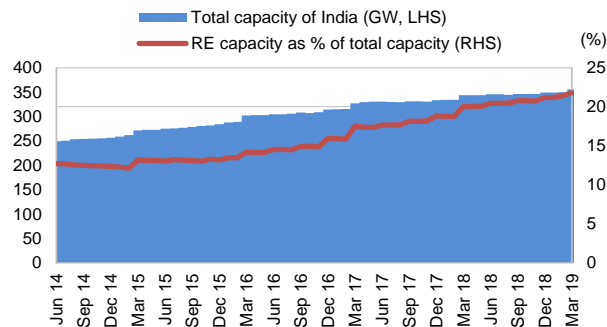
Source: Fitch Ratings, Central Electricity Authority

Net Capacity Additions in India



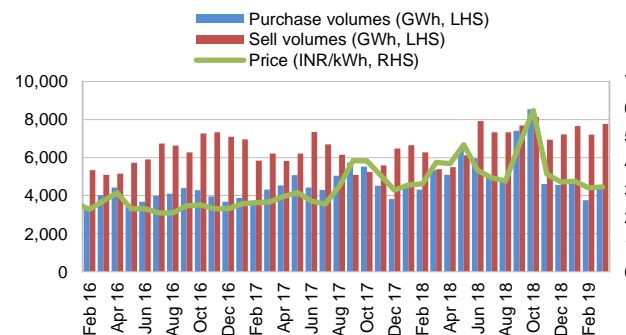
Source: Fitch Ratings, Central Electricity Authority

Increasing Renewable Capacity



Source: Fitch Ratings, Central Electricity Authority

Energy Exchange Volumes and Prices



Source: Fitch Ratings, Central Electricity Authority

Market Update

Uptick in Thermal Capacity Utilisation: India's utilisation factors at the national level increased by 1.1pp yoy in 2H18 as higher demand drove up electricity generation by 7% yoy to 694 billion kWh. Total capacity increased by 5% yoy to 349GW, led by renewable capacity which has inherently lower load factors. The generation increased almost across fuel sources, with coal, hydro, wind and solar contributing 51%, 22%, 16% and 13%, respectively, of the growth, offset by a decline in electricity production from gas and nuclear-based capacities.

Thermal power generation rose by 5% against a 2% yoy increase in capacity to 223GW, which pushed up utilisation levels by 1.7pp to 55%.

Renewables – Lower Capacity Growth: India added 3GW of renewable capacity, recording half-yearly growth of 5%, down from 12% and 8% in 1H18 and 2H17, respectively. We believe the gap in tariff expectations of generators and utilities means an ongoing state of fewer additions to renewable capacity in the short term. The tariff-based auction for wind power yielded prices of INR2.82/kWh in March 2019, up from the lows of INR2.44/kWh in 2018.

Continued Distribution Reforms Key: Fitch Ratings believes financially stressed power-distribution companies that are unable to purchase power or make timely payments remain the weakest link in India's electricity supply chain. They have off-loaded most of the debt to the respective states and refinanced the required balance, which has provided some immediate relief from high interest burdens for companies in 16 states.

However, a sustainable improvement of the power distributors will require a continued reduction of aggregate technical and commercial (AT&C) losses and adequate tariff increases. Aggregate AT&C losses (a measure of electricity lost to electricity generated) improved to 20% in April-June 2018 from 26% a couple of years ago, and the blended cost-revenue gap to INR0.28/kWh from INR0.46/kWh, according to the Ministry of Power.

Lower Electricity Deficit, Higher Exchange Prices: A combination of capacity additions, higher utilisation and better networks addressed the higher demand, resulting in a lower national electricity deficit of 0.5% in 2H18 (1H18: 0.6%, 2H17: 0.7%). About 5% of the total electricity supply is sold on the Indian Energy Exchange. The higher demand, coal shortages and lower renewable power generation pushed trading prices up to INR4.1/kWh in 2H18 (2H17: INR3.4/kWh). The prices retreated again in 1Q19, driven mainly by electricity supply being more than required.



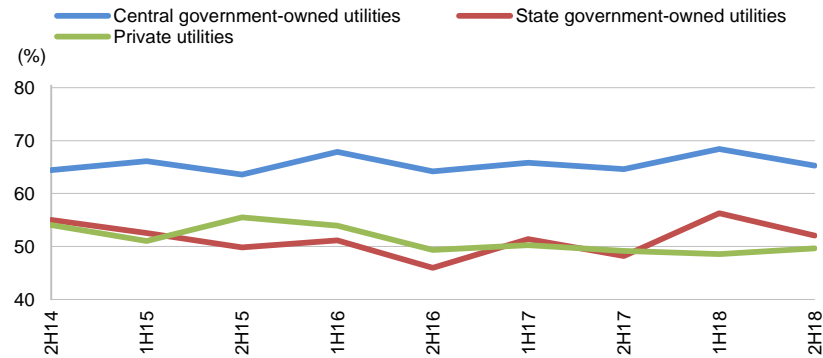
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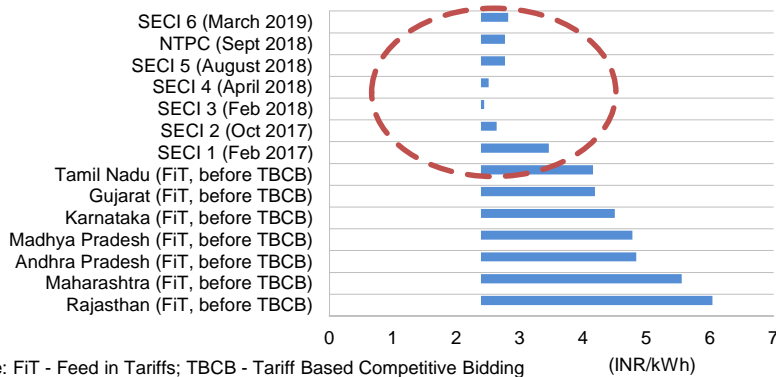
Analysis

Thermal Utilisation Levels



Source: Fitch Ratings, Central Electricity Authority

Wind Tariffs - Auction vs. FiT



Note: FIT - Feed in Tariffs; TBCB - Tariff Based Competitive Bidding
Source: Fitch Ratings, Multiple News Reports

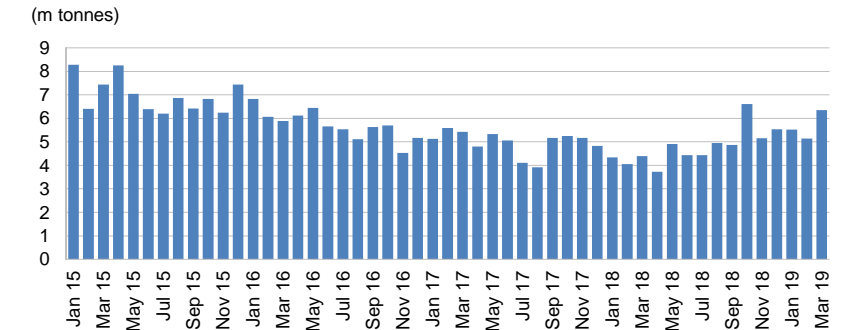
State-Owned Plants Led Higher Thermal Capacity Utilisation:

The state generation companies' (gencos) thermal capacity utilisation rose by 3.8pp yoy to 52% in 2H18, while that of the central-state-owned gencos was up by 70bp to 65%. Private gencos' utilisation remained low, though 50bp higher to 50% – reversing a declining trend from 2H16. The higher thermal capacity utilisation drove the increase in coal imports.

Sluggish Renewable Capacity Addition:

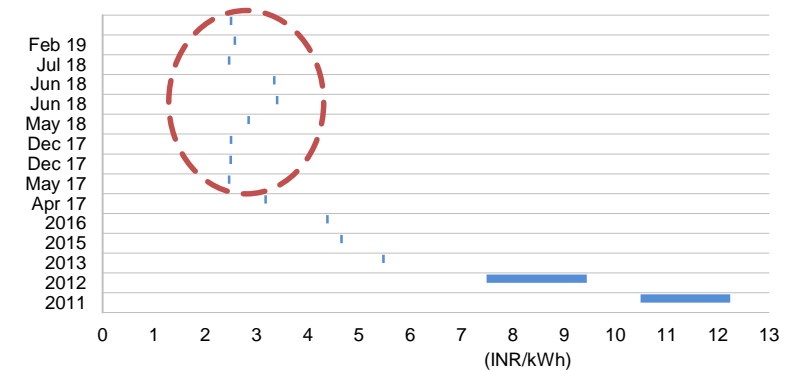
2GW of solar capacity was added in 2H18, down from 6GW in 1H18 (2H17: 4GW). Wind capacity addition also came down marginally, to 0.8GW (1H18: 1.4GW). A number of factors plague developers, who either shied away from bidding or whose bids at higher tariffs were rebuffed. Higher taxes, safeguard duties and rising equipment prices are affecting bids from solar players, while wind developers are holding back due to capped tariffs, lack of quality sites, grid issues, land-acquisition hurdles or higher financing costs.

India Coal Imports by Thermal Power Stations



Source: Fitch Ratings, Central Electricity Authority

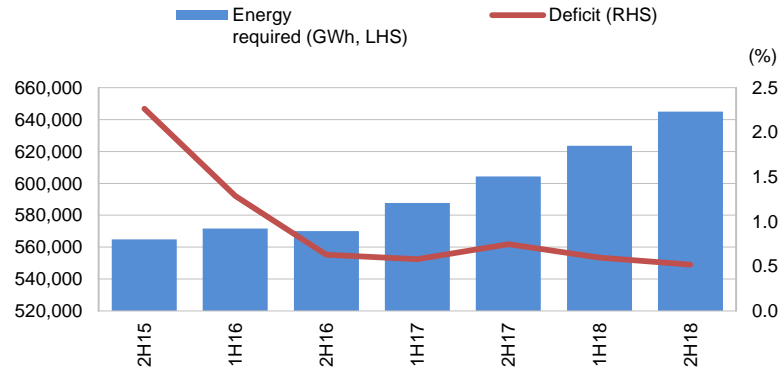
Solar Tariffs - Key Central Projects



Source: Fitch Ratings, Multiple News Reports

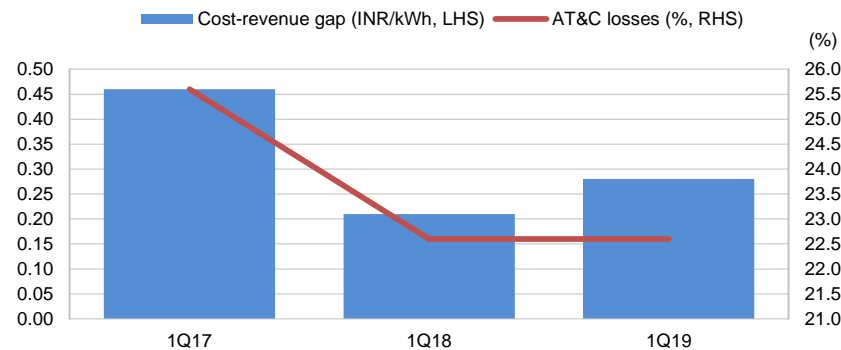
Analysis (Cont.)

India Energy Deficit



Source: Fitch Ratings, Central Electricity Authority

Aggregate Indicators for State-Owned Distribution Companies



Source: Fitch Ratings, Ministry of Power, Government of India

Distribution Companies – the Weakest Link:

The energy deficit hovered at low levels of 0.5% in 2H18, though Fitch believes this to be deceptive as sporadic outages persist. A combination of crippling debt, expensive power, high losses and less-than-commensurate increases in tariffs has historically resulted in distributors being saddled with huge accumulated losses and towering debt, which reduces their ability to purchase power.

Mixed Results from Central Government's Revival Package:

Haryana reported lower AT&C losses, at 19% versus 20% a year ago. On the other hand, the performance of Rajasthan, Uttar Pradesh and Haryana deteriorated on this metric. All four states faced a higher cost-revenue gap. However, the bigger deficit was driven primarily by external factors such as higher coal costs – domestic as well as imported – and higher freight charges, according to the Ministry of Power.

Aggregate Indicators for Distribution Companies

Indicator		No. of states covered
Bonds to be issued (INRtrn)	2.7	16
Proportion of bonds issued (%)	86	16
AT&C losses (%)	20	26
Average cost - revenue gap (INR/kWh)	0.33	26
Tariff revision done (states/union territories)	25	27

Note: 32 states/union territories out of a total of 36 have joined the central government's revival programme; only some states have reported updated data to the Ministry of Power
Source: Fitch Ratings, Ministry of Power, Government of India (30 April 2019)

Indicators for Distribution Companies by State

Indicator	Previous year	Current ^a	Target
AT&C losses (%)			
Rajasthan	20.0	24.1	19.1
Uttar Pradesh	27.7	31.2	19.4
Madhya Pradesh	29.7	31.4	15.5
Haryana	20.3	19.0	15.0
Cost-revenue gap (INR/kWh)			
Rajasthan	-0.33	0.29	0.34
Uttar Pradesh	0.28	0.35	0.22
Madhya Pradesh	0.33	0.52	0.03
Haryana	-0.02	0.03	0.12

Note: Rajasthan, Uttar Pradesh, Madhya Pradesh and Haryana accounted for 73% of FY14 net cash losses reported by state-owned distribution companies in India. They also accounted for 47% of the outstanding debt at end-September 2015

^a Position as of 31 December 2018, recorded from the government's website on 30 April 2019
Source: Fitch Ratings, Ministry of Power, Government of India

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