The Indian Power Sector in 2019-20

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Various facets of the power sector are looked as being indicative of the health of the economy and some performance indicators of the Indian power sector in recent times have raised concerns. The domestic power sector has been impacted by the prevailing slowdown in the Indian economy. The emerging economic disruption caused by the Corona virus pandemic would add to the weakness in the sector.

The Indian power sector in 2019-20 has been characterised by a

- Less than targeted addition to installed generation capacity
- Decline in pace of growth in power generation
- Low capacity utilization
- Subdued electricity demand
- Narrowing of energy deficits
- Increase in power purchase from power exchanges
- AT&C losses and ACS-ARR gap above target
- Increase in outstanding dues of DISCOMs

Table 1: Snapshot of Indian Power Sector

Parameters	As on	Status
Installed Capacity	February'20	369 GW
Conventional power	February'20	282 GW (77% of total capacity)
Renewable energy	February'20	86 GW (23% of total capacity)
Generation	April'19-February'20	1297 Billion Units
Energy demand	April'19-February'20	1191 Billion Units
Energy Deficit	April'19-February'20	0.50%
AT&C losses	March'20	19.10%
ACS-ARR gap	March'20	Rs.0.36/unit
DISCOM dues	January'20	Rs.88,311 crores

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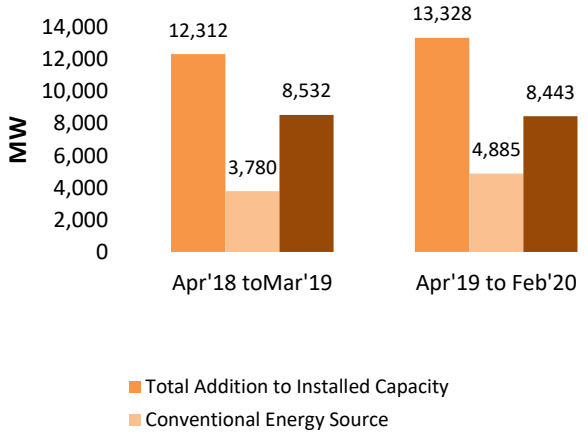
Below target addition to power generation capacity in 2019-20 and perceptible shift towards renewable energy capacity creation

Although there has been an increase in the addition to installed power generation capacity in 2019-20 from year ago, it falls well short of the set target, mainly due to the lower capacity addition by the conventional power sources which dominates the country's power mix (77% of installed generation capacity).

In the first 11 months of 2019-20 (Apr'19-Feb'20), the installed capacity of power generation (conventional and renewable) in the country increased by 13,328 MW (to 3,69,428 MW), compared with the capacity addition of 12,312 MW during the financial year 2018-19. The addition to the generation capacity in 2019-20 is led by renewable energy, which accounted for 68% of the capacity addition.

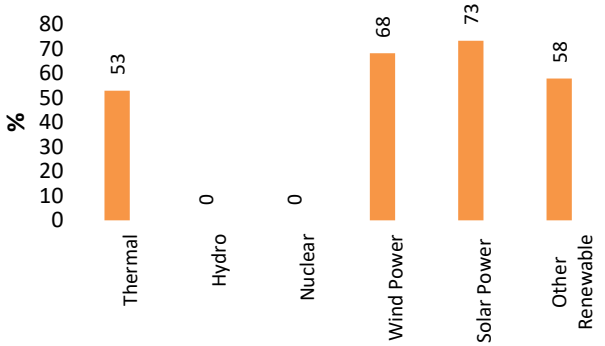
The capacity addition by conventional power sources in 2019-20 (Apr'19-Jan'20) was only 44% of the target for the financial year, while that of (grid connected) renewable sources (Apr'19-Feb'20) in comparison has been higher at 71% of target.

Chart 1: Addition to Installed Capacity



Source: provisional data CEA (conventional energy) and MRNE(renewable energy)

Chart 2: Addition to Installed Capacity : Percentage of Target Met in 2019-20*



Source: CEA (provisional) & MNRE.
Thermal, Hydro and Nuclear : April'19-Jan'20
*Wind Power, Solar Power and Other Renewable achievement: Apr'19-Feb'20

Even though the Indian power sector continues to be dominated by conventional sources of energy (coal, diesel, gas, nuclear and large hydro), which accounts for nearly 3 quarters of the country's installed power generation capacity, there has been a progressive shift towards renewable sources (wind, solar, bio and small hydro). In the last 5 years, the share of renewable energy (wind, solar, bio power and small hydro) in installed capacity has increased from 11.8% (32 GW in March 2015) to 23.5% (87 GW in February 2020). On the other hand, the share of thermal sources viz. coal in installed capacity has been on the decline – from 61% to 55% during this period

The capacity addition of renewable energy sources has grown at a CAGR of 22% in the 5 year period to February 2020. Within renewable energy, the capacity addition by solar power has grown the fastest – at a CAGR of 67% during this period. It accounted for 47% of the new capacity addition in 2019-20, surpassing the 30% of conventional power sources such as coal.

Indian Power mix: share of various sources in installed capacity and generation

Chart 3: Share of various sources in installed generation capacity (%)

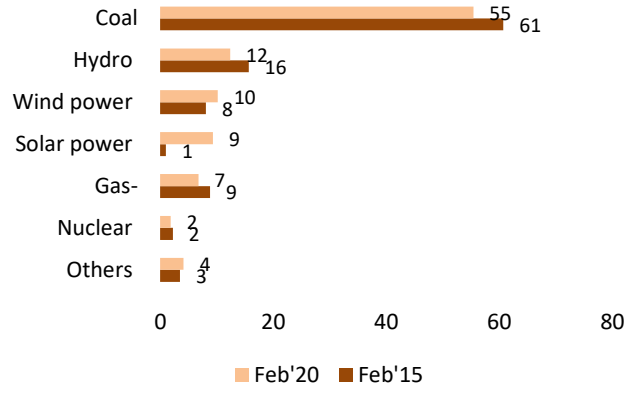
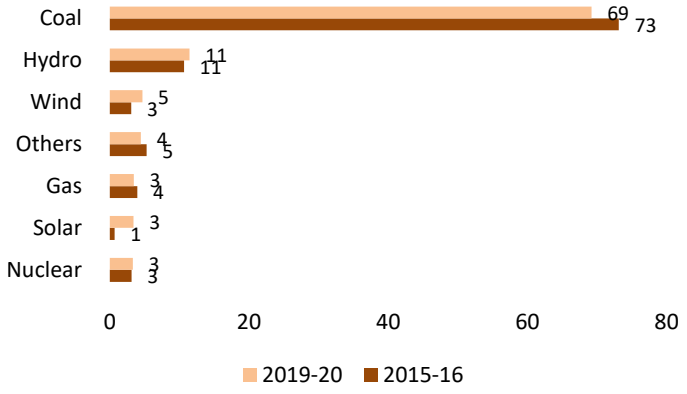


Chart 4: Share of various sources in power generation (%)



Source: CEA and CARE Ratings calculations

Tempered domestic power generation in 2019-20

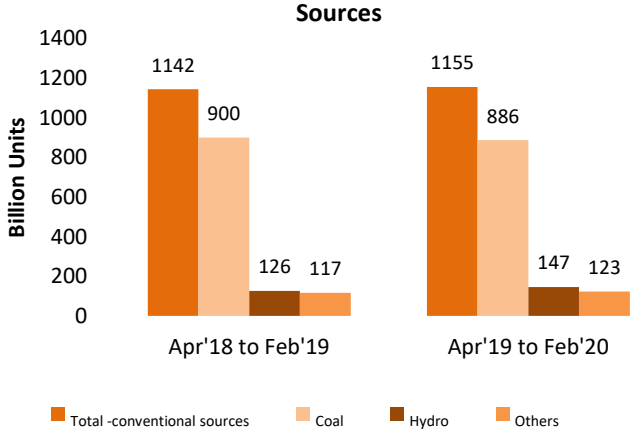
Power generation in the country in 2019-20 grew at its slowest pace in 5 years. As per the latest provisional data from CEA, during the first 11 months of 2019-20 (Apr-Feb), the growth in overall generation (conventional and renewable) was 1.6% (to 1,279 billion units) compared with 5.3% in the same months of year ago. The average annual growth in power generation has been 5.5% in the last 3 years.

There was a sustained decline in domestic power generation during June – November'19 that can be partly attributed to the extended monsoons. In addition, the lower demand mainly from the industrial sector due to subdued economic activity and the lower purchase of power by the financially stressed power distribution companies affected production.

Domestic power generation continues to be led by conventional energy which accounts for 90% of total generation. However, the growth in generation from conventional sources lagged that of renewable sources. Power generation from conventional sources in the 11 months of 2019-20 (Apr-Feb) grew by 1.1%, while that from renewable sources increased by 8.2%.

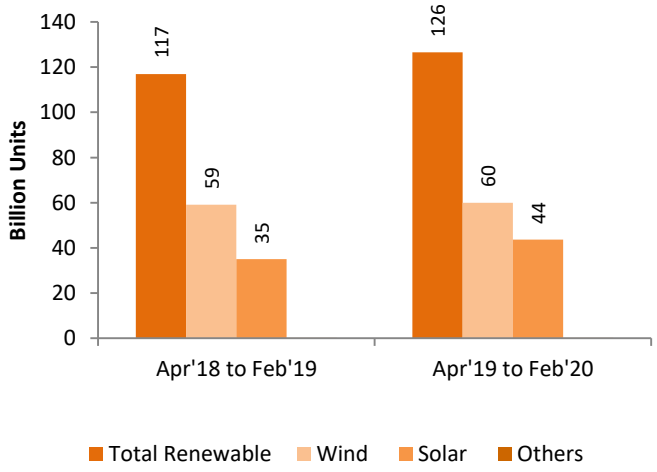
Both conventional and renewable sources witnessed a decline in annual growth in generation in 2019-20 (Apr-Feb). The fall was sharper in case of renewable source with growth being 8.2% against 25% of last year. In comparison, the growth in generation from conventional sources fell by 3% to 1.1% Coal sourced power generation which is the largest source of domestic electricity (70% of overall generation) contracted by 1.5% in the 11 months of 2019-20, pulling down the overall generation from conventional source

Chart 5: Electricity Generation by Conventional Sources



Source: CEA
Others includes diesel, gas, lignite, nuclear and imports from Bhutan

Chart 6: Renewable Energy Generation



Source: CEA
Others includes small hydro, biomass

Fall in capacity utilization rates of thermal power plants

As a result of the lower generation and demand, the capacity utilization or the plant load factor (PLF) of thermal power plants has declined in 2019-20. The PLF of thermal power plants during April'19 –February'20 at 56.4% has been the lowest in nearly two and half decades. On a year on year basis it has declined by 4%. There has been a near sustained decline in the utilization rates of conventional power plants viz. coal and gas based plants in recent years. The utilization rate of coal based power plants has declined by over 15% in the last 9 years (56% in 2019-20) and that of gas-based plants by 44%. Capacity utilization level of coal based power plants fell to below 50%, the lowest level on record, in October'19. The decline in the PLF of conventional power sources in recent times also coincides with the growing prominence of renewable energy sources in the domestic power sector. Even though the renewable energy sources are prone to seasonal variations, the decline in the PLF of conventional sources points to considerable weakness in power demand. The coal based power plants have also had to contend with input supply shortages

The lower capacity utilization rates of the thermal power plants add to the financial constraints of the generating companies who are already faced with large outstanding dues from distribution companies (DISCOMS).

Depressed electricity demand and narrowing of electricity deficit

There has been a discernible decline in the country's electricity demand in 2019-20. India's electricity demand during April'19 – February'20 grew by 2.2% (to 1191 billion units) compared with the 5.4% annual growth in the same months of last year. Similarly, the peak power demand during the first 11 months at 1,85,425 MW grew by 4.7% which is 3.1% lower than 7.9% growth of year ago (April'18-February'19).

The decline in electricity demand in 2019-20 can in large part be attributed to the slowdown in the domestic economy and the consequent lower energy requirement by the industrial and commercial sectors of the country. The domestic economic growth slipped to a 8 year low of 5.1% in the first 9 months of 2019-20 and the growth in

industrial output during April'19-January'20 at 0.5% too was at a 8 year low. The industrial sector is the largest consumer of electricity in the country accounting for 41% of total demand (as per the 2018-19 estimates by the CEA) and lower growth here has a direct bearing on overall power demand. The extended and abundant monsoons this year too weighed on power demand, especially from agriculture (accounts for 18% of demand) and the household (25% of demand) segments.

Softening electricity demand is weighing down the generation and distribution side of the domestic power sector value chain. Electricity demand in the coming months is expected to be further pressured on account of the economic disruptions caused by the Corona virus pandemic.

Chartv 7: Electricity Demand

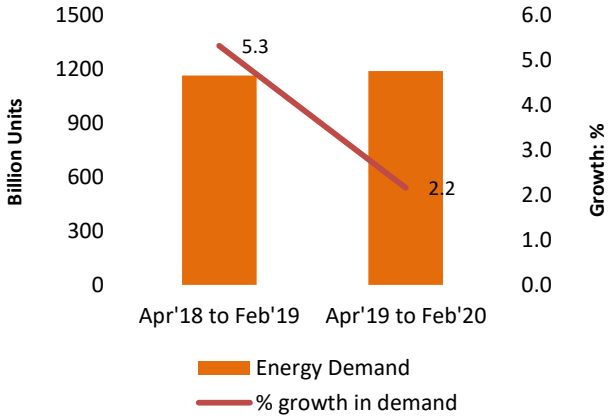
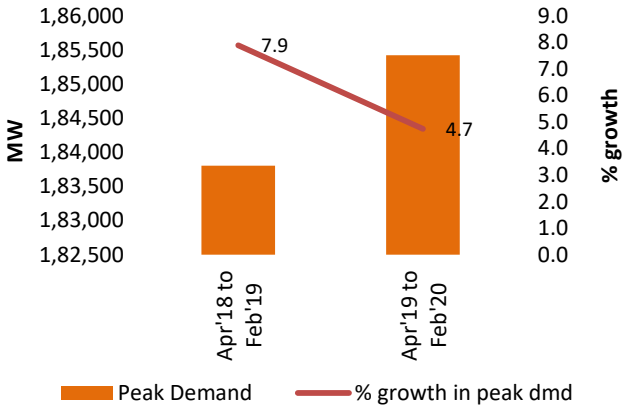


Chart 8: Peak Electricity Demand



Source: CEA and POSOCO

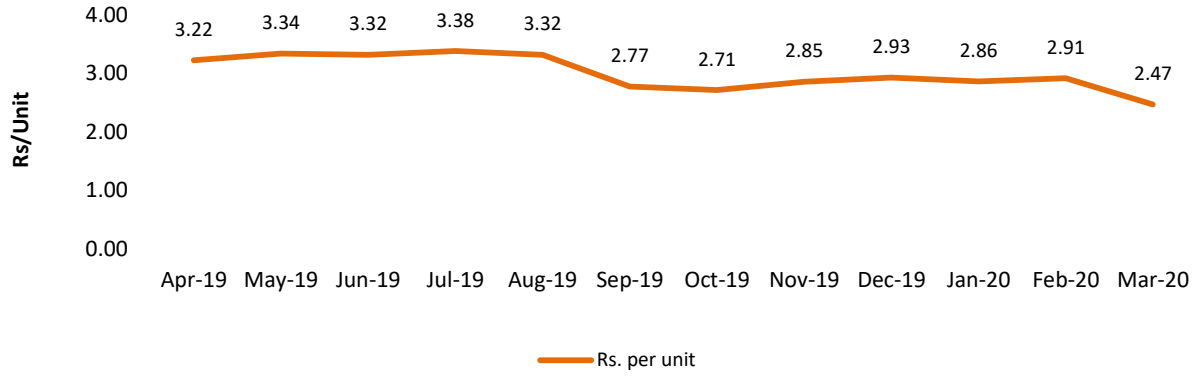
There has been a steady narrowing in the domestic electricity deficit i.e. the difference between demand and supply (or requirement versus availability) over the years. The energy deficit in the 11 month period of April'19 – February'20 at 0.51% was the lowest in the last 5 years. On a year on year basis, the deficit narrowed by 0.08%. The electricity deficit in India has seen a notable decline from 2.2% in 2015-16. The electricity deficit, despite the increase in generation capacity and regional grid connectivity, can be attributed to the inability of the DISCOMs to buy power owing to their substantial dues to power generators (Rs. 88,311 crs as of end January'20)

Increased power purchases from power exchanges and fall in prices of short term electricity purchase

Market participants, including state power distribution companies, have been increasingly turning to the power exchanges to meet their short term power requirements. The power exchanges accounted for 45% of the short term electricity transactions of the country in January'20, 14% higher than that in January'19. The volume of electricity transacted on the power exchanges (IEX and PXIL) in the DAM (day ahead market) was 4.6% of the total electricity supplied in the country in January'20, a 1.4% increase from that in January'19.

The higher volume of trade on the exchanges has led to better market price discovery in the short term market. The average price of electricity purchased (day ahead market) on the power exchanges has declined by 9.5% to Rs. 2.91 per unit during April'19-February'20. The lower prices on the power exchanges relative to the prices of the long term power purchase agreements (PPA) with generators has prompted state DISCOMs to increasingly replace their costlier power purchase with exchange procurements.

Chart 9: Average price of electricity in the day ahead market



Source: IEX

Stressed finances of state DISCOMS

The financial profile of the state distribution utilities or DISCOMS has not seen an improvement in 2019-20. The transmission and distribution losses and the outstanding dues of DISCOMS have not seen a reduction during the year. The inability of states to hike tariffs, rising operational expenditure, high levels of outstanding dues and delays in receipt of subsidy from states has weakened the financial position of state distribution utilities.

The AT&C losses (aggregate technical and commercial loss) of DISCOMS at the all India level at 19.1% is above the UDAY (Ujwal DISCOM Assurance Yojana) target of limiting the losses to 15% by FY19.The ACS-ARR gap (average cost of supply and average revenue realised) at the national level is Rs.0.36/unit against the target of elimination of the gap in FY19.

The outstanding amount of DISCOMS as of end January'20 (as per data from PRAAPTI) stood at Rs. 88,311 crs of which Rs.76,192 crs (excluding disputed amount) was overdue. There has been a 27% increase in outstanding amount since April'19 and 42% increase in the overdue amount.

Key policies announced in 2019-20

- Removed end-use restrictions for participating in coal mine auctions and open up the coal sector fully for commercial mining by domestic and global companies (The Mineral Laws (Amendment) Bill, 2020)
- Opening and maintaining of adequate Letter of Credit (LC) as Payment Security Mechanism (PSM) under Power Purchase Agreements (PPAs) by DISCOMs.
- Treat letter of comfort (undertaking) issued by state-run firms such as PFC, REC and IREDA at par with bank guarantees to reduce procedural delays for bidding in clean energy projects
- Removed tariff cap on solar and wind power auctions

Impact of Corona Virus Pandemic

The domestic power sector is feeling the impact of the global spread of the virus and the resultant lockdowns. It has not only led to a fall in electricity consumption, but has impacted the supply of key inputs for generators which would lead to project delays and thereby time and cost overruns. It is also adding to the financial stress of power producers and distribution companies. The severity of the impact is difficult to ascertain given the uncertainty associated with containing the spread of the virus.

The economic disruptions following the lockdown of the country to contain the spread of the virus has further dented electricity demand from the industrial and commercial sector in the country. Consumption of electricity has declined across states. The daily power demand in the country has fallen by 25% since mid –March'20 when most parts of the country imposed restriction and shutdowns. Electricity consumption in the country fell from 3,494 million units on 16 March'20 to 2,628 million units on 28 March'20. The drop in consumption has been notably higher in the northern and western regions of the country – a fall of around 30%. The southern regions have reported a decline of 19%.

The lower consumption has led to a decline in prices of short term electricity purchases on the power exchange. The average price of electricity purchased in the day ahead market at Rs.2.21/unit was 15% lower than that on 16 March'20. The volume of trades too has fallen – by 33% during this period.

The solar manufacturers here are increasingly feeling the brunt of the supply chain disruptions given the large dependence (78%) on imports of inputs (solar cells and modules) from China. This would result in project delays/shelving and consequent financial distress for solar power manufacturers. It would also have a bearing on generation.

The finances of generators and DISCOMS are being impacted due to the lockdown. DISCOMS are unable to collect payments from consumers and they in turn are not paying generators. States government would further delay the release of subsidies. Given that usually most of the payments for past supply are collected/made towards the end of the financial year (March), the delays would have significant financial implications. Although since August'19, states have been making monthly payments to generators after the power ministry made it mandatory for DISCOMS to maintain LC as payment security for power purchases, there exists sizeable past dues that are to be cleared. Further, the fall in demand would impact revenues of generators and distributors alike.

In recognition of the impact of the pandemic, the government has announced some relief measures for the power sector. The RBI too has announced measures for the overall economy that benefit the power sector too.

- Delay on account of disruption of the supply chains due to the spread of coronavirus in China or any other country to be treated as Force Majeure for all renewable energy projects.
- 3 month moratorium on DISCOMS making payment to generating and transmission companies and waiver of penalty for late payment
- Till 31 May'20, the payment security mechanism to be maintained by the DISCOMS with the generators for dispatch of power to be reduced by 50%.
- Generation/ Transmission Companies to continue supply/transmission of electricity even to DISCOMS which have large outstanding dues.
- Ensure adequate supply of coal to facilitate uninterrupted supply of electricity.
- 3 months moratorium in respect on all term loans of commercial banks, all India financial institutions and NBFCs outstanding as on 1 March 2020.
- Deferment of interest on working capital facilities for a period of 3 months for all facilities outstanding as on 20 March, 2020

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CARE Ratings View

India's power sector performance is expected to see a significantly decline in 2020-21, due to the likely prolonged disruptions caused by the Corona virus pandemic.

Electricity demand is expected to contract during the year, largely driven by slippages in commercial and industrial demand. With the industrial and commercial sector together accounting for nearly 50% of the country's electricity consumption, a decline in their consumption would no doubt weigh down overall demand. With the pandemic bringing activity in these sectors to a standstill, electricity demand by these segments is to see a significant decline this year. Consequent to lower demand, power generation would also see a commensurate decline. Given the supply chain disruptions, the generation and capacity addition by renewable energy sources viz. solar power would also be lower. With low demand and the resultant low power generation, the capacity utilization rate of thermal power plants would continue to be subdued.

The financial health of generating and distribution companies would deteriorate further and stressed assets in the sector are slated to increase.

The government may consider providing additional relief or stimulus to the sector. There could also be relaxation and flexibility in compliances and reduction/ removal of duties.

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