Power sector update

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Attesting to the higher levels of activity in the domestic economy is the rise in electricity generation and consumption. Reversing the decline of August'20, electricity consumption grew by 6.3% and generation by 0.4% in September'20.

Coal power pushed up overall electricity generation during the month and helped offset the sharp decline in renewable energy generation viz. wind power.

The improvements in electricity consumption were not broad-based across regions despite the easing of lockdown restriction across the country. While it was higher on a monthly basis in the northern, western and eastern regions, the southern and north-eastern regions witnessed a decline. This indicates that economic and business activity continues to be constrained in these regions and raises concerns about the extent and sustainability of the increase in demand.

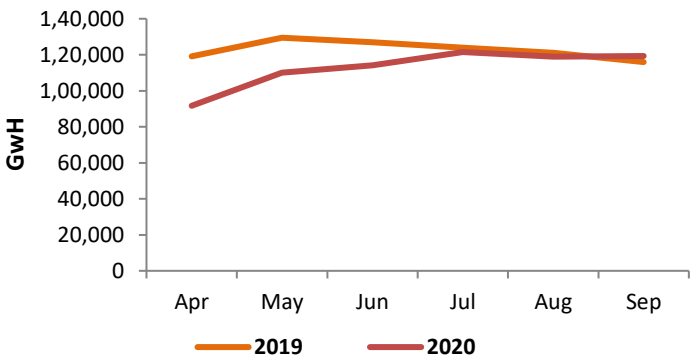
The rate of addition to power generation capacity has slowed down further in the current financial year with a decline in capacity build-up of both renewable energy and conventional energy sources. The addition to capacity in the current financial year has been led by solar power.

The finances of DISCOMS continue to be constrained and their outstanding dues to power generators as of Aug'20 rose to Rs.1.19 lakh crores, a 13% increase over 7 months.

Rise in electricity generation

Not only was electricity generation in September'20 higher than in August'20 by 0.4%, it was also the first time in 7 months that it surpassed the generation in the same month of last year (3% higher than in September'19). It, however, continued to be lower than that in July'20 (by 1.8%).

Chart 1: All India Electricity Generation



Source: CEA (provisional)

The improvement in generation seen in September'20 was led by coal-based power which rose to 7 months high. Generation from renewable energy sources, on the other hand, fell to 10 months low.

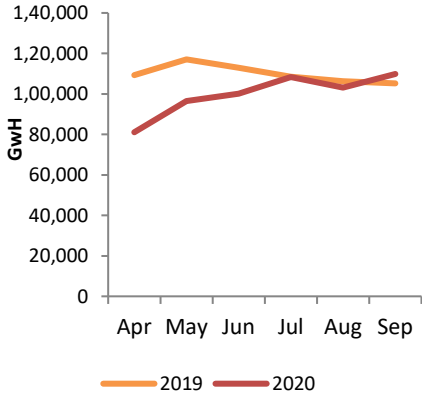
The monthly output from both conventional and renewable sources has been prone to fluctuations in the current financial year. Renewable energy generation saw a monthly decline in 3 of the first 6 months of 2020-21 while conventional energy after registering a sequential increase during May-Jul'20, contracted in August'20 to rise again in September'20.

Generation from conventional energy sources in September'20 was 6.5% higher than month ago and 4% more than last year. This improvement in conventional energy generation is due to higher thermal power output viz coal-based power (72% of conventional energy and 92% of thermal power) that registered a 9% month-on-month and a 9.5% year-on-year improvement. The increase in coal power helped offset the 0.5% monthly decline in hydro power. Generation from coal and consequently thermal power in September'20 was the highest since February'20. The capacity utilization rate or plant load factor of coal power plants too rose to a 7 month high of 55% in September'20.

The sharp decline in thermal power generation in H1 2020-21 pulled down overall electricity generation during this period given that thermal power accounts for 70% of total generation. Thermal power generation during April-September'20 has been the lowest in the last 5 years and 12% lower than that in H1 2019-20. On account of lower generation the plant load factor of thermal power plants during April-September'20 was a low 50%.

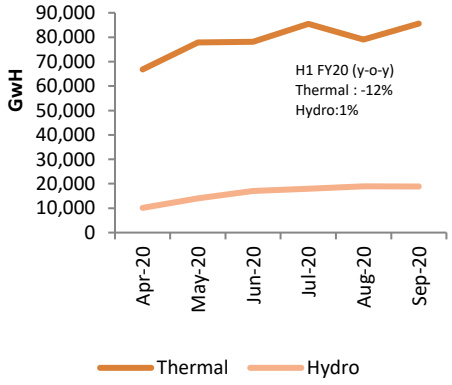
Barring September'20, hydro–power which accounts for 16% of conventional power generation has seen a sustained increase in generation in 2020-21. In H1 2020-21, hydro power generation has been 1% higher than that in H1 2019-20

Chart 2: Conventional Energy Generation



Source: CEA (provisional)

Chart 3: Thermal and Hydro Power Generation



Source: CEA (provisional)

Table 1: Plant Load Factor (%)

	Apr'20	Aug'20	Sep'20	Apr-Sep'19	Apr-Sep'20
Thermal	42	49	55	58	50
Coal	42	49	55	58	50
Gas	27	24	25	23	26
Lignite	58	43	47	57	52

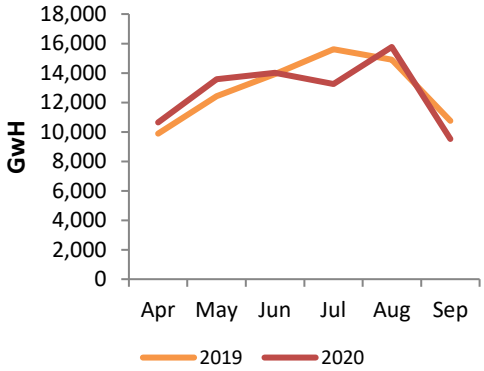
Source: CEA (provisional)

Generation from renewable sources was 40% lower in September'20 from that in August'20 and the lowest since December'19. Both wind and solar power generation fell during the month. However, the decline was sharper in case of wind power at 53% v/s the 5% fall of solar power generation.

Wind power generation dropped to the lowest level in 5 months in September'20. During H1 2020-21, wind power generation, which accounts for the larger share in renewable energy (50%), was 14% lower than that in H1 2019-20 and can

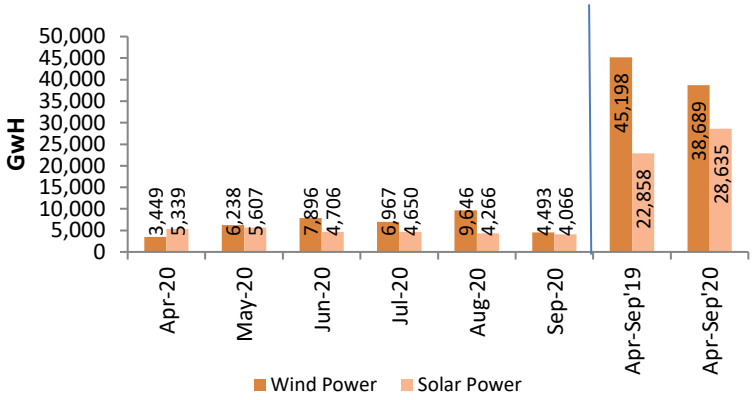
be attributed to the low wind speeds during the peak monsoon months. Solar power generation on the other hand fell to a 9 month low in September'20. There has been a sustained decline in solar power since June'20 and can be linked to seasonal factors as well as imported input supply shortfalls. However, solar power output during H1 2020-21 was 25% higher than that in H1 2019-20. This increase can be credited to the higher generation during the summer months (Apr-May) which was nearly 30% higher than year ago.

Chart 4: Renewable Energy Generation



Source: CEA (provisional)

Chart 5: Wind and Solar Power Generation



Source: CEA (provisional)

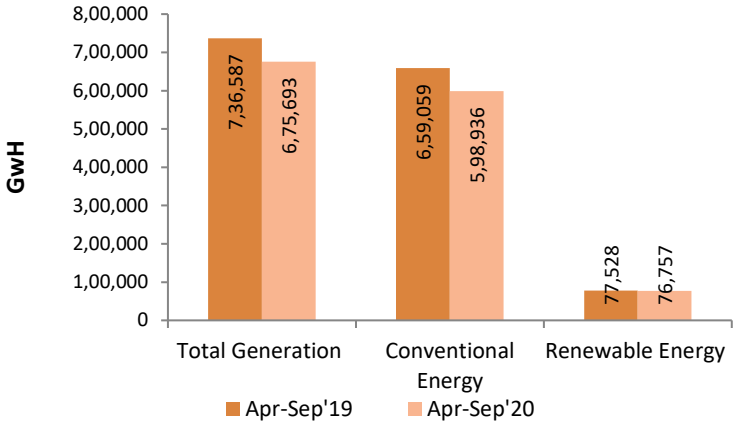
Generation in H1 2020-21 at multi-year lows

Even though power generation came under the ambit of essential services and was thus not subject to lockdown restrictions, domestic electricity generation in the first half of 2020-21 was at a 4 year low and 8% lower than that in H1 2019-20.This decline can in large part be attributed to the sharp fall in electricity demand from the industrial and commercial sector during the national lockdown in April'20. Even as the easing of lockdowns and resumption of business activity in the subsequent months pushed up consumption and generation, it nevertheless lagged year ago levels as economic activity continued to be significantly subdued. Additionally, the lockdown led disruptions in the supply of inputs, raw materials and labour shortages also impacted power generation.

Electricity generation from conventional sources (thermal, hydro and nuclear) which accounts for 92% of the total output, witnessed a higher decline than from renewable sources in H1 2020-21, weighing down overall generation. Output from conventional energy sources in H1 2020-21 was 9% lower than that in H1 2019-20 while that from renewable energy sources fell by 1%.

The 'must run status' of renewable and hydro power plants that mandates uninterrupted power procurement by utilities has supported the higher generation by these power sources despite the fall in power consumption during the lockdown. The higher capacity addition in recent years has also been a factor that has aided higher renewable energy output.

Chart 6: All India Electricity Generation in H1 2020-21

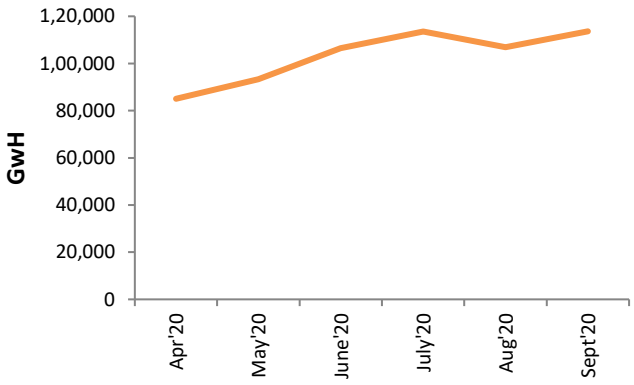


Source: CEA (provisional)

Pick-up in demand

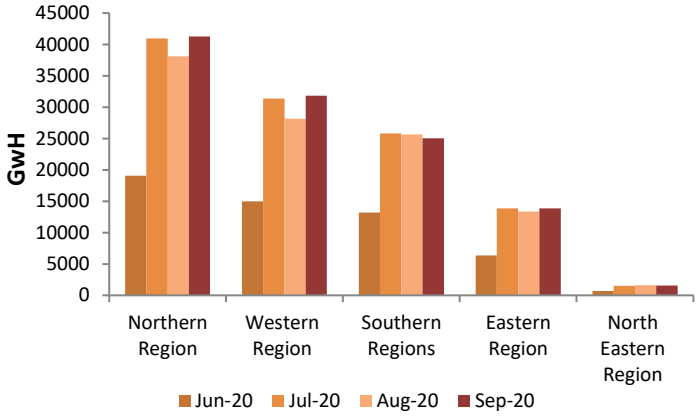
Electricity consumption rose to a 14 months high in September'20, suggestive of the higher levels of activity in the economy. On a monthly basis, electricity consumption rose by 6.3% in September'20, reversing the 5.8% decline of month ago. It was around 6% higher than that in September'19 and 34% higher than the lows of April'20.

Chart 7: Electricity Consumption



Source: POSOCO

Chart 8: Regionwise Electricity Consumption



Source: POSOCO

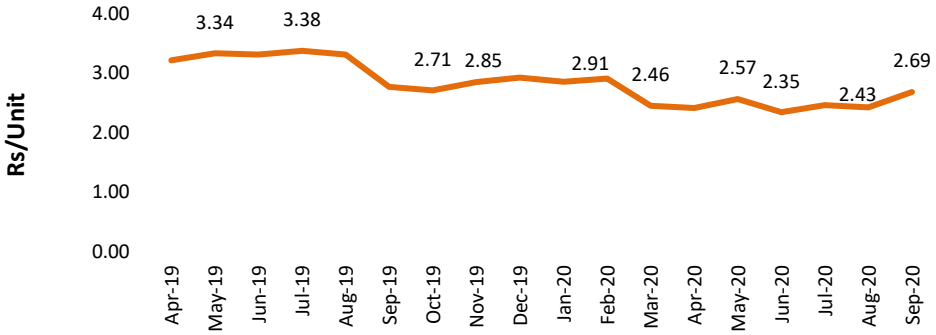
In terms of regional demand, while there has been an improvement in electricity consumption in the northern, western and eastern regions in September'20 from a month ago, the southern and north-eastern regions witnessed a decline. The western region, which is home to the most industrialised states of the country registered a 13% monthly increase in power consumption, affirming to the higher activity here. The northern and eastern regions saw electricity consumption increase by 8% and 4% respectively from that in August'20. The lower power consumption in the southern states (2.4% lower than in August'20) indicates that industrial activity here has been lacklustre despite the easing of the lockdown and restrictions.

Increase in short term electricity prices

The increase in power consumption was being reflected in the trades on the power exchanges. There has been an increase in the volume of trade transacted on the power exchanges - the traded volumes on the Indian Energy Exchange in September'20 at 4780 MU was 7% higher than month ago and 37% more than year ago (September'19).

Prices in the day ahead market (DAM) rose to 7-month highs in September'20. The average prices of electricity in the DAM Rs.2.69 per unit in September'20 was 11% higher than that in August'20. It was however 3% lower than year ago (September'19).

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

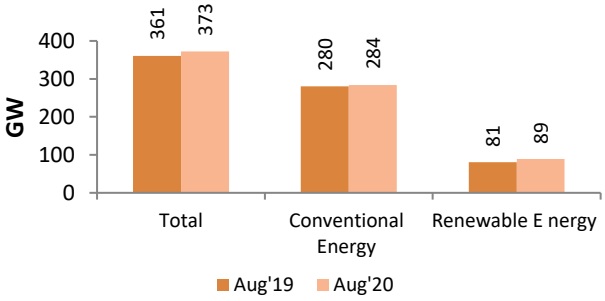


Source: IEX

Lower Capacity Addition

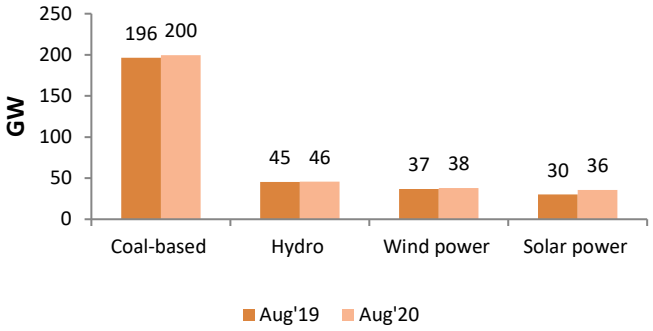
The rate of addition to India's electricity generation capacity has slowed down further in the current financial year with a decline in capacity build-up of both renewable energy and conventional energy sources. The country's installed power generation capacity as of end August'20 at 373 GW saw an annualized addition of 11.9 GW versus the over 15 GW addition in each of the previous 2 years.

Chart 10: All India Electricity Generation Installed Capacity



Source: CEA

Chart 11: Installed Generation Capacity- Sources



Source: CEA

Although lower than year ago, renewable energy sources accounted for the major share of generation capacity addition during April-August'20 at 8.2 GW (v/s 10 GW in April-August'19), while conventional energy sources capacity

addition was 3.7 GW. The addition to generation capacity in the current financial year has been led by solar power. During April-August'20, 5.7 GW of solar power generation capacity was added which amounted to 48% of the total electricity generation capacity addition.

There has been a notable slowdown in domestic electricity generation capacity addition since the last 3 years. The annualized capacity addition as of end August'20 at 11.9 GW is significantly lower than the 23.7 GW of August'17. The lower capacity addition of thermal energy sources; which accounts for over 60% of the country's electricity generation capacity, has led to the overall decline in expansion of generation capacity in recent years. Thermal power generation capacity addition has declined from an annual 6.9 GW in August'17 to 3.4 GW in August'20.

Even as conventional energy dominates electricity generation capacity in the country with a share of 76% (totalling 284 GW), there has been a sustained increase in the share of renewable energy sources, which has come to account for nearly 24% (or 88.7 GW) of the overall installed capacity, a 2% increase from a year ago. 31.5 GW of renewable energy generation capacity has been added in the last 3 years while the capacity addition of conventional sources in this period has been 11.9 GW.

The increase in generation capacity of renewable energy is being driven by solar power which has witnessed a year-on-year growth of 19% in August'20, taking the solar power generation capacity to 35.7 GW. Wind power, which accounts for the largest share in renewable energy generation capacity at 37.9 GW has added 1.3 GW to capacity in the last 1 year.

DISCOM dues to power generator mounting

The fall in power demand and disruptions in the billing and collections consequent to the pandemic led lockdown since March'20 has led to cash flow problems for DISCOMS that has further aggravated their financial stress. The absence of cost reflective tariffs, rising operational expenditure, high AT &C losses and delays in receipt of subsidy from the governments has been pressuring the finances of state distribution utilities over time. The outstanding dues owed by DISCOMs to power generators as of Aug'20 amounted to Rs.1.19 lakh crores, which is a 13% increase from January'20.

As of August'20, the outstanding dues were the highest for the DISCOMS of Rajasthan (Rs.36,475 crs),Tamil Nadu (Rs.19,648 crs), Uttar Pradesh (Rs.12,671 crs), Karnataka (Rs.9,306 crs) and Maharashtra (Rs.7,314 crs). The DISCOMs of these 5 states accounted for 71% of the total outstanding dues owed to the power generators.

Table 2: State-wise DISCOM Dues as of end August '20

States	Overdue Amount: Rs Crs
Rajasthan	36,475
Tamil Nadu	19,648
Uttar Pradesh	12,671
Karnataka	9,306
Maharashtra	7,314
Jammu & Kashmir	6,649
Telangana	5,310
Jharkhand	4,732
Andhra Pradesh	4,646
Haryana	3,441
Total	**119,892**

Source: PRAAPTI

Outlook

With business and commercial activity expected to see a resurgence in the remaining two quarters of the financial year, power demand and generation could see further positive growth on a sequential basis. However, the extent and sustainability of the same remain uncertain given the fluctuation in electricity consumption and generation seen in H1 2020-21, even with the progressive easing of the lockdown restrictions.

With industrial and commercial activity likely to be subdued even with the easing of the lockdown and unlikely to attain pre-lockdown level of activity in the current financial year, electricity demand and the consequently generation is likely to contract for the financial year as whole.