Old Problems, New Hope

Betting big on renewables and the Rs 3 trillion discom revival scheme

The power sector witnessed several hits and misses in the year gone by. While renewable energy addition continued to grow and crossed the 100 GW milestone, thermal power plants posted subpar performance with declining PLFs. The power demand and generation were also affected by the Covid-induced lockdowns. However, with the revival of economic activity, the demand is expected to increase and to be met largely through renewables. With the falling costs of energy storage systems, their adoption is also likely to increase. However, the weak health of state discoms remains an area of concern. All hopes are pinned on the central government's latest Rs 3 trillion scheme for the revival of the discoms. *Indian Infrastructure* invited industry experts to share their views on the power sector's performance, challenges and outlook...

What has been the progress in the power sector over the past one year?

Pramod Deo
Ex-Chairperson,
Central Electricity
Regulatory Authority

Sachin Gupta
Executive Director &
Chief Rating Officer,
CARE Ratings

Arun Tripathi
Head, Energy Business (Solar,
Wind, Storage), Regulatory &
EHS, Hero Future Energies

Pramod Deo

Recently, the Ministry of Power (MoP) announced that the installed capacity of renewable energy in the country has reached 100 GW. This is a landmark achievement because Prime Minister Narendra Modi has set a target of 175 GW by 2022 and 450 GW by 2030. The electricity demand, which had gone down considerably due to Covid-19 lockdowns, has started picking up. Recently, NTPC's generation crossed 100 BUs. Many initiatives to reform and strengthen state-owned and controlled discoms including an amendment bill to initiate market-oriented despatch of electricity are on the central government's agenda.

Sachin Gupta

The power sector's performance over the past year has been a mixed bag. On the one hand, renewables and the transmission sector continued to see some growth and investor interest. On the other, the thermal power sector (coal and gas) witnessed average to below average performance. While the Indian GDP registered a degrowth of 7.96 per cent in financial year 2021, power generation in the country recorded a reasonable performance with a degrowth of only 1.31 per cent in the same period. In terms of capacity addition, the renewable energy sector registered an installed capacity of 94 GW (with a year-on-year growth of 8 per cent versus 2 per cent for thermal capacity). The growth in renewable capacity continued with India achieving an important milestone of 100 GW installed renewable capacity in August 2021. On the power distribution side, the loans available to power distribution companies under the Aatmanirbhar Bharat scheme aided a significant reduction in receivable days for power generating companies. As per data from the PRAAPTI portal, the total overdue position of discoms improved to Rs 798.53 billion at the end of March 2021 as against Rs 1,002 billion in July 2020.

Arun Tripathi

The coronavirus pandemic has affected almost all sectors including the power sector. However, it has given birth to new ideas, a different type of competition and dynamism in the power sector. The past year has been challenging as it delayed some of the developments in the sector. The demand for electricity also dropped significantly, but these

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> Pramod Deo

adversities have not been able to dampen the spirit of the sector. Recently, India achieved an important milestone of 100 GW installed renewable energy capacity. Going forward, solar-wind-hybrid and storage-based renewable energy projects will be at the forefront. Past experiences will help make corrections to make the sector more sustainable.

Covid-19 has significantly impacted not just demand, but also new capacity addition. The online bidding process that started way back (prior to the pandemic) helped in continuing the bidding process and business as usual. The pandemic further fuelled digital initiatives in the power sector.

Support from the government has been proactive and helped to assuage many of the issues faced by developers and the industry. The financial stimulus has provided support to a large extent.

What has been the impact of the key initiatives taken by the government?

Pramod Deo

There is no doubt that very high investment will be required in the renewable energy sector over the next decade for expansion and modernisation. Solar manufacturing will require a high incoming investment in indigenous products. Reliance and Adani have announced that they will be setting up a factory for making cells and modules for solar projects. Besides, the MoP has issued new rules for rooftop solar.

The promotion of hydropower, especially pumped storage, is a necessity to balance the intermittent wind and solar capacities being added. Hydropower projects have a longer gestation period. SJVN has just completed excavation work for a 4.3 km long head race tunnel at the Naitwar Mori hydroelectric project in Uttarakhand. The project has the potential to generate 265.5 MUs of electricity every year. It will provide 12 per cent free power to the state of Uttarakhand as royalty. The project will also help meet the government's commitment of providing round-the-clock energy to the country.

Recently, the MoP has introduced a scheme for revamping discoms with smart meter installations. The MoP has also issued detailed guidelines for the reform-based result-linked power distribution programme for the next five years. The programme aims to improve the quality and reliability of power supply to consumers through a financially sustainable and operationally efficient distribution sector. The plan is to reduce the aggregate technical and commercial losses across India to 12-15 per cent, and eliminate the gap between the average cost of supply and aggregate revenue requirement by 2024-25. According to the MoP, the outlay for the programme is Rs 3.03 trillion (approximately $40.82 billion), with budgetary support of Rs 976.31 billion (approximately $13.1 billion) from the Government of India.

> "If the central government's new reform-based results-linked scheme is implemented in right earnest, its benefits may be seen from 2022-23 onwards." Sachin Gupta

Sachin Gupta

During the past one year, a key initiative taken by the government was the infusion of funds in discoms as part of the Aatmanirbhar Bharat scheme through the sanction of loans worth Rs 1,190 billion from PFC/REC. The liquidity infusion could not have been more opportune given the Covid-related lockdowns impacting the collections of discoms. The receipt of long-term funds by discoms benefited the power gencos, particularly thermal power plants, which had significant receivables with discoms. On the renewables side, the must-run status for renewable companies, extension of waiver of ISTS charges and introduction of the production-linked incentive scheme were some of the initiatives taken by the government. These initiatives were aimed at addressing the short-term pandemic-related stress as well as the long-term need for competitive and large-scale module manufacturing capacity in India.

Arun Tripathi

The recent government initiatives reflect the seriousness towards cleaner energy and the adoption of renewables-based hybrid/storage projects.

- The upcoming Electricity Amendment Bill, 2021 is a positive move for the industry. It empowers the central government to formulate the National Renewable Energy Policy along with state governments. It also empowers the state regulatory commissions to mandate RPOs (as prescribed by the central government) and levy penalties for non-compliance.
- The proposal towards privatisation of discoms is also a welcome move.
- The retirement and replacement of old power plants is under way – 10 GW of supercritical plants to replace 5 GW of old capacity.
- The Aatmanirbhar Bharat initiatives have given an impetus to domestic manufacturing.
- The financial stimulus to discoms provided support to a large extent; however, constant monitoring is required to ensure its effectiveness.

What has been the impact of Covid-19 on the sector? What has been your organisation's response to the pandemic?

Pramod Deo

During the Covid-19 period, power consumption declined significantly. In July this year, it returned to the pre-Covid level. It grew 17 per cent in the first half of July with 39 BUs. This happened mainly due to the easing of lock-

> "While there has been a significant dip in the new capacity being brought online in the past year, this year the sector will bounce back." Arun Tripathi

down curbs and delayed monsoon, especially in north India where paddy sowing takes place. During the 9-minute lights off event during Covid, it was estimated that the power demand would go down by about 13 GW, but it actually went down by 32 GW. The NLDC, RLDCs and SLDCs had to manage this sudden fall in demand. But then it started increasing and the frequency was maintained, which means that the voltage was stable. This unplanned system disturbance confirmed the robustness of the nation's transmission grid. Our system mainly comprises coal-based power plants, which are backing down. We are adding more of solar and wind energy sources. The problem with renewable energy is that it is not available on time and hence, forecasting is mandatory. Different storage options need to be planned and urgently executed.

Sachin Gupta

The lockdown to stem the spread of the Covid-19 pandemic and its subsequent extensions severely impacted economic activity in the country, leading to a significant reduction in power demand (drop of 19 per cent in April-May 2020 as compared to the same period in 2019). On the power generation side, the "must-run" status of renewable companies ensured that they were least affected while thermal power generators bore the maximum brunt as power demand plummeted, leading to the PLF dropping to 42.4 per cent from 63.1 per cent in April 2020 over April 2019. However, with the improvement in demand in the second half of 2020-21, on a full-year basis the base demand registered an annual degrowth of less than 2 per cent only. On the power distribution side, sales to commercial and industrial (C&I) customers were impacted on account of lockdowns, leading to lower collections, which coupled with delayed subsidy payments by the respective state governments affected the cash flow position of discoms. This cash shortfall was partly compensated by the deferment of capacity charges, waiver of interstate transmission charges, etc. by central power PSUs. On an overall basis, given the fact that power utilities are part of essential services, the impact on the sector was not large scale and was lower than earlier estimates.

Arun Tripathi

While there has been a significant dip in the new capacity being brought online in the past year due to various reasons such as extended lockdowns, labour shortage and supply chain disruptions, this year the sector will bounce back with not just business as usual, but the pent-up capacity being expedited with new zeal and progressive market sentiment.

What are the sector's key challenges that remain unaddressed?

Pramod Deo

As far as the renewable energy policy and market trends go, the price of imported photovoltaic cells has increased by 15-20 per cent in the past four or five months. It is expected to impact the returns of solar power project developers. This price rise has been mainly driven by a sharp increase in the price of polysilicon, a key input used in module manufacturing.

It has always been a problem that the distribution sector is very weak. There are a number of conditions under the new scheme for getting finance for distribution companies, but state-owned distribution companies are under the influence of political decisions. Unfortunately, we always have some or the other state going

for election, and imposing stringent measures becomes a problem during those times.

Generators, including renewable power generators, have framed rules. However, the final functioning depends on the state regulator, the state government and the management of the utility. They have to be very objective and should not make any compromises. In the political system, that is the biggest challenge.

With the central government's commitment of 175 GW by 2022 and 450 GW by 2030, the pressure on distribution companies has increased. Discoms have to honour their old PPAs, but their share of thermal power is going down. So, thermal plants run at a much lower PLF and there are some old plants that have closed down.

Sachin Gupta

Among the key challenges that continue to remain unaddressed, the prominent ones are the financial distress of discoms, unavailability of gas and absence of long-term power PPAs. Among them, the financially sustainable power distribution sector is the biggest challenge. For successive governments both at the centre and in the states, despite doling out largesse and implementing a plethora of schemes, financially viable discoms remain an ongoing challenge. Given the fact that discoms are the wallet of the entire power sector, it is of utmost importance that they are efficient and profitable.

Arun Tripathi

- The financial health of many discoms and their debt restructuring remain a key challenge.
- Delayed payment/non-payment to generators from many of the discoms.
- Not honouring the "must-run" status granted to renewables in letter and spirit.
- Phasing out of older fossil fuel-based plants and tactfully utilising their resources such as land, manpower, etc.

What is the sector outlook for the next one to two years?

Pramod Deo

The MoP has extended the timeline for the waiver of interstate transmission charges for electricity generated from solar and wind sources by two years till June 30, 2025. Buyers of renewable energy will have an opportunity to sell surplus power on the power exchanges. This order is of course futuristic and you can use the waiver of transmission charges for renewable energy trading in the green day-ahead market. Meanwhile, the government has introduced a scheme for solarising agricultural feeders, under which 110 GW of capacity will have to be installed. That is an ambitious target. Apart from promoting green energy, it will help solve the problem of determining agricultural consumption, which has always been a challenge because of lack of reliable energy meters.

Sachin Gupta

Power demand is strongly correlated to the economic growth of the country and hence it is expected to recover with the uptick in economic activity. For the period April 2021 to July 2021, the aggregate power demand has witnessed an impressive growth of around 15 per cent, notwithstanding the effect of the lower base. CARE Ratings estimates power demand to grow by 5-7 per cent during financial year 2022. We believe thermal power generators will continue to post firm PLFs during the year, which will gradually decline in the medium term with the increased injection of competitive renewable power into the grid. With basic customs duty on the import of solar modules coming into effect from April 1, 2022, we expect sizeable renewable capacity in the next six months. We expect a fresh renewable capacity addition of 10-12 GW in 2021-22 (PY:7 GW). On the power distribution side, although the discoms were supported by liquidity infusion under the Aatmanirbhar Bharat scheme in financial year 2021, we believe the overdue position of discoms would again start going up in the next few months given the existing unaddressed structural issues. However, if the central government's new reform-based results-linked scheme, which aims to push smart metering and creation of distribution infrastructure, is implemented in right earnest, its benefits may be seen from 2022-23 onwards.

Arun Tripathi

- The demand will be progressive and with decreasing solar and other renewable energy costs, it is (demand) expected to be increasingly met by renewable energy.
- The increasing proportion of solar and wind capacity in electricity generation will increase the need for flexibility in the market.
- India will continue to be amongst the top three renewable energy markets.
- RTC, peak power and hybrid will account for 30-40 per cent new capacity addition post-2025.
- The cost of renewables integrated energy storage systems (solar, wind and storage hybrid) is expected to be at par with the cost of new coal plants by 2022.
- Firm renewable power (including all available technologies) is likely to achieve grid parity in the next two to three years. Of the total capacity, 20-30 per cent capacity is expected to be added through hybrid and storage to ensure the stability of the grid and make renewable energy available round the clock.
- The C&I sector will embrace decarbonisation driven by net zero commitments and seek energy solutions.
- Open access will be liberalised and charges will be competitive.
- Discoms are the most critical part of the power sector. Let discoms strengthen themselves and improve their efficiency and quality of supply.