

Predictions 2022: Digital grid to ensure bi-directional power

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By Praveer Sinha, Jan 13, 2022



Like most other core industries that drive the Indian economy, the power sector plays a very critical role in powering the sustainable development of the economy. When the first wave of the pandemic caught the world by surprise in March 2020, India witnessed one of the world's largest electricity demand contraction, leading to further straining of the financial health of the power distribution companies (discoms). However, with the ease in pandemic and increased mobility, there was a rebound in the economic activity as well as the power usage demand.

The road to recovery we are seeing now is on the back of a historic contraction of the economy by around 7.3% in 2020-21. India is expected to close the current fiscal with a 9-10% economic growth over last year.

Since, the power demand has a direct correlation with the overall economic activity in the country, early estimates project the energy demand in the country to grow by around 8.5% in the current fiscal or nearly at the same pace as the projected economic growth.

Considering the planetary crisis of climate change and the push to de-carbonise the energy sector, the power sector — both globally and in India — is going through a major transformation. The policymakers have been advocating and formulating policies for driving the greater adoption of renewable energy sources worldwide.

A recent report by the International Energy Agency (IEA) has projected the growth of renewable energy capacity to accelerate in the next five years and account for almost 95% of the increase in global power capacity through 2026.

The energy transition in India over the last five years has been inspiring as well. For starters, unit cost of solar energy is one of the lowest in India and that by itself is a big stimulus for the future growth of renewables in the country.

The IEA report cited earlier has also projected India to add more than 120 gigawatts (GW) of renewable capacity over the next five years, an increase of 86% on existing capacity, making it the third fastest growing market after China and the United States. India is well poised to achieve its target of 500 GW renewable energy capacity by 2030. It assumes significance in view of India's pledge at the COP26 climate conference in Glasgow to achieve net zero carbon emissions by 2070.

With the increasing intermittent energy sources in the system comes the challenge of flexibility. Technologies like utility-scale energy storage will play a critical role in enhancing the flexibility of the power system whereas decentralised energy models like solar pumps and solar microgrids will continue to augment the reliable and clean power supply in rural India.

While the growth in the power sector should move ahead uninterrupted in 2022, a few fundamental challenges have to be addressed immediately.

The distribution side of the business will continue to be its weakest link until the Electricity (Amendment) Bill 2021 is passed in Parliament. The long overdue reforms enshrined in the bill will not only make it more consumer-friendly (through delicensing of distribution) but will also strengthen the financial health of the power sector to be able to invest more in clean energy generating capacity and smart technologies.

Another major challenge faced in India's energy transition is the localisation of inputs, especially related to the renewables that continues to depend heavily on imports. This is being addressed to some extent through policy interventions but needs further acceleration.

Further, in the times to come, there will be increased flexibility demand in generation — both physical-flexible generation, and demand response and institutional — such as access to markets. The transmission sector will require investments for augmenting the capacity to evacuate power from renewable energy rich regions to the rest of the country in order to ensure power for all. Digitalisation of the grid is going to be the game changer as it will enable bidirectional flow of information and power.

India is marching towards energy transition with ambitious targets and plans. However, this will be incomplete in the absence of some of the bigger power sector reforms, especially the turnaround of power distribution companies and the investments in local manufacturing.