

Past the pricing hurdle, solar and wind faces other pitfalls

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Renewable energy is expected to contribute 33 per cent and 43 per cent to generation capacity in 2022 and 2027 respectively in India. Despite achieving price competitiveness, renewable energy requires agile policymaking in view of the energy sector's troubles.

The growing price-competitiveness of renewable energy (henceforth RE) is underscored by the latest price discovery for utility-scale solar and wind power. This is without valuating other benefits like minimal environmental impact, enhancing energy security, low gestation periods, and low price volatility due to the nature of fixed long-term price contracts. Specifically, winning bids in the recent Rewa ultra mega solar park auction (750 MW) and the first wind power auction (1000 MW) closed in at record lows of Rs 3.3/kWh and Rs 3.46/kWh respectively. In contrast, coal capacity, contracted of late by various DISCOMs, has a price range of Rs 4-5.5/kWh. According to the Central Electricity Authority's draft national electricity plan (generation), RE may contribute 33 per cent and 43 per cent to generation capacity and 20 and 24 per cent to electricity demand in 2022 and 2027 respectively. The present generation capacity share of RE is around 14 per cent while contribution to generation is nearly 6 per cent. Fortunately, RE generation prices (in simple per kWh terms) are no longer a hurdle to achieve the above objective.

However, this does not automatically mean that RE will rule in the days to come. While RE growth has been nurtured through policy-regulatory instruments like preferential tariffs, minimum purchase obligations, and waiver from scheduling till recently, RE will increasingly have to confront the mainstream sectoral challenges. These include the poor financial health of DISCOMs, poor supply quality, and weak grids, generation capacity 'surplus' in many states, and need to provide 24x7 universal and affordable access. Additionally, it also has to navigate the concurrent policy-regulatory terrain of the Government of India (GoI) and states, while keeping in mind their differing constraints and capabilities. For example, GoI is keen on very aggressive national RE targets since it has to deal with issues around energy security, climate change negotiations, and current account deficit. But the states are more concerned about rising consumer tariffs, DISCOMs' financial health, and subsidies for agricultural electricity. The institutional systems and mechanisms for implementation, monitoring, and verification are quite different and in many cases weaker in states in comparison with the Centre.

The best bet for RE growth would be to offer its own fundamental value proposition without continued long-term support of incentives like accelerated depreciation, generation-based incentives, and other fiscal waivers. Such a transition is already underway. Enabling competition through transparent price discovery and solar parks has proved effective for solar power. The GoI is rightly urging states to replicate several of the risk mitigation measures enshrined in the Rewa solar bidding documents. These have to do with surety and timeliness of payments, compensation for lack of transmission infrastructure readiness or grid unavailability, and ensuring must-run status. Going ahead, GoI and states should now incorporate similar risk mitigation measures for wind power and quickly move towards a fully competitive price discovery regime for wind.

Further, a government acting as a facilitator can help in ensuring optimal growth and improving the value proposition of RE. The government can undertake detailed resource assessment in the country and make high-quality resource maps public to reduce the information asymmetry currently prevalent. It can collect and disseminate data to make policy formulation and investment decisions more robust. Inclusive frameworks for land use policies for RE, such as informed consent and revenue/benefit sharing with the community will improve RE's local acceptability. Such measures will also contribute to greater investor interest.

On the grid integration of RE, there is a need for state-of-the-art modeling studies to understand the potential additional stress and complexity caused on system planning and operation, specifically due to RE. The economic cost of this integration should be passed on to the RE sector over time. Mandating forecasting and scheduling regulations for wind and solar power (still to be operationalised at the state-level) is the first step. However, equally important for RE integration is how the non-RE sectors respond. Specifically, coal generators will have to operate more flexibly (lower minimum generation levels and faster ramp rates) and states will have to share resources and coordinate with each other to reduce the cost of system operation. In parallel, the falling Plant Load Factors of coal power plants will increase their fixed cost burden on consumers.

The problem of 'surplus' generation is also very real. Regulatory Commissions need to develop a framework for dealing with 'surplus' capacity while simultaneously increasing the share of RE. This needs to be supported by robust demand forecast (including seasonal and peak/off-peak variation) and capacity addition planning exercises. While the high RE price barrier seems to be behind us, other challenges remain. To effectively deal with them, both the RE policy regulatory framework and the RE industry must proactively and quickly respond to the dynamic sectoral changes. Without comprehensive and consultative planning, RE growth may stutter in spite of the generation price advantage.

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