

# India's pursuit of energy transformation

*India must balance between complementing generation capacities rather than pushing for preferred technologies*

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Contrary to US President Donald Trump's accusations, India's pursuit of energy transformation is unfeigned. Three recent developments testify to this. First, India added more renewable energy (RE) capacity than conventional generation capacity in 2016-17. Second, RE tariff in the country dropped to a level that is cost competitive with coal-fired generation. Third, according to EY's renewable energy country attractiveness index, India pipped the US to become the second most attractive country for RE investments. These developments make India a frontrunner in energy transformation, even before US' retreat.

The rhetoric is certainly high around India's energy transformation, backed by strong government support and symbolic developments. India, considered a "coal Goliath" till recently, is now expected to play the role of David in global energy transformation, by maintaining its own pledges, holding to account the developed world and thus, building global confidence. Will India be able to play that role? Will the domestic context in the country allow it to live up to the global expectations?

India has gained global attention for its ambitious clean energy targets. In 2014, it revised the domestic RE target to 175 GW of installed capacity by 2022. In 2015, in its Intended Nationally Determined Contributions (INDC), India made a global pledge to achieve 40% cumulative installed capacity from fossil-fuel-free resources by 2030. While the domestic policy target is ambitious, the global pledge is aptly cautious and realistic. The country already has 33% fossil-fuel-free generation capacity, and as predicted by Central Electricity Authority, it may achieve the INDC target sooner. Though India's energy aspiration has been applauded, will the rhetoric translate into action? We need to understand the political-economy drivers for policy choices, sectoral dynamics and sub-national uptake of a national aspiration.

While RE development has been a long-standing policy goal in India, much of it has been driven by the Central government, and at a modest pace. The current target, marking a quantum leap, is largely driven by individual leader push. Is such a centralized target based on ground realities? There seems to be no sync between the domestic target and global pledge. Several analyses have pointed out that if India achieves the 2022 target, it will likely overachieve the INDC target for next five years. In this scenario, where many of the distribution companies (discoms) are struggling with surplus capacity and storage capacities are yet to be developed, RE will add to power scheduling and balancing woes.

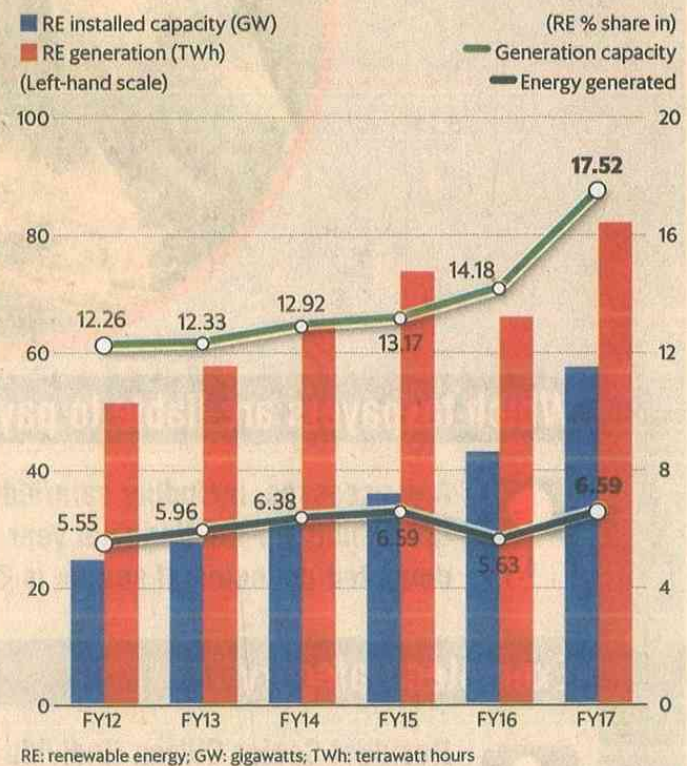
Actual generation from proposed RE capacity is unclear due to uncertainties in capacity utilization factor. While RE capacity has increased by 134% over the last five years, actual generation from RE has increased by just 60%. In 2016-17, with 17.52% share of generation capacity, RE contributed only 6.59% of energy generated. Part of this is blamed on reluctant evacuation by unwilling discoms, who have already contracted for higher amount of conventional power than their existing demand. Similarly, 33% fossil-fuel-free capacity contributed less than 20% of the energy generated. Even if India achieves its INDC target, given its reliance on RE, the share of fossil-fuel-free energy generated will not change much.

Moreover, past experiences in India suggest Centre-pushed reforms, driven by reform champions, have failed to sustain, owing to poor sub-national adoption. Sustaining the desired energy transformation needs alignment of interests and building a reform coalition between the Centre, states, utilities, regulators and private players among others. While there is a greater emphasis on international partnerships, however, the focus on building a domestic reform coalition seems inadequate. Consequently, the early signs of breakdown were evident in poor RPO (renewable purchase obligation) compliance and collapse of REC (renewable energy certificates) mechanism. On deployment front, while there is good progress in reaching the 60 GW utility scale solar capacity, rooftop solar is lagging behind. As on April, only 1.5 GW capacity has been installed against a target of 40 GW by 2022.

India has been using multiple narratives in support of its virtuous

## Growth of RE in India's energy mix

Actual generation from RE has lagged behind generation capacity.



RE: renewable energy; GW: gigawatts; TWh: terrawatt hours

Source: Central Electricity Authority and ministry of new and renewable energy

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RE aspirations. While climate action is at the centre of its global narrative, energy security and economic development dominate the domestic narrative. On a positive development, some states seem to be aligning with the domestic narrative, though with varying objective and approach. While states like Madhya Pradesh and Andhra Pradesh have added RE to their industrial thrust, building on the economic development narrative, states like Odisha have taken up RE to bridge energy access gap.

Simultaneously, there is an emerging political mandate for RE. Many members of Parliament and legislative assemblies across party lines have taken up RE installation as a key part of their local area development. During recent state assembly elections, RE development featured in manifestos of many political parties. Government departments are being encouraged to adopt RE deployment in their activities; RE is allowed as a legitimate item under CSR (corporate social responsibility) spending. All these developments have created more takers of RE. While the initial phase of RE development was infested by short-term winners, seeking to gain from state incentives, the current phase has seen emergence of serious players. A high-level policy signal is in place, a political mandate is shaping up and implementing actors are coming up. Now, the intermediaries need to be strengthened for an effective orchestration and creating social legitimacy for energy transformation.

To meet the global expectations, India needs much more proactive and creative actions. It needs to ensure that proposed RE capacity transforms the consumable energy mix. To do so, India must balance between complementing generation capacities rather than pushing for preferred technologies. In addition, given the unpredictability of RE generation, time is ripe for storage capacity development. The proposed policy goal of electric vehicles is a welcome step, but it needs to be creatively used for storage, while reaping other co-benefits. Finally, the state must facilitate a domestic coalition for energy transformation, by aligning interests.

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