

Seeing India's energy transition through its States

In the upcoming G20 forum, India is planning to propose a multiple energy pathways approach to accommodate the diverse contexts and development trajectories of countries. The diversity of India's States, which necessitates multiple pathways, will determine its own domestic energy transition. India's global climate pledges – 50% non-fossil electricity generation capacity by 2030 and net-zero emissions by 2070 – are backed by domestic energy targets at the national level. Can these targets drive actions at the State level? How do we engage with State-level conditions and priorities?

States are critical actors in India's energy transition as there is a multi-tier governance of energy production and usage. An effective transition will require bridging the ambitions and implementation gaps between the Centre and the States. Simultaneously, national ambitions need to factor the varying incentive structures, processes, and institutional capacities at the State level.

Why States matter

India's achievements on its 2022 target for 175 GW renewable energy offer some insights into the complexities. While it achieved a significant portion of the target, only Gujarat, Karnataka, and Rajasthan met their individual targets. Moreover, about 80% of the current renewable energy capacity is confined to six states in the west and south of India.

In a federal setting, States matter for four functions critical to energy transition. First, States as spheres of implementation are critical to the realisation of national targets. While the Centre may set goals, and use carrots and sticks to help achieve them, the realisation of these goals often depends on how they are aligned with State priorities and capabilities. Second, the legacy issues in the electricity sector, such as high losses, unreliable supply and service quality, if left addressed, could be exacerbated

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by the transition. These are embedded in the State political economy and must be addressed at the State level. Third, States as laboratories of policy innovations have been instrumental to India's energy transition. For example, early initiatives by Gujarat and Rajasthan on solar, and Maharashtra and Tamil Nadu on wind energy technologies, have contributed significantly to renewable energy uptake at the national level. Similarly, PM KUSUM is an adoption of successful State experiments on the solarisation of agriculture at a national scale. Fourth, States could also be roadblocks to national goals, particularly when the goals are perceived to be misaligned with State priorities.

While India has set laudable goals for its energy transition and has been working towards creating incentives and enforcement mechanisms, a critical next step is to engage with diverse State contexts, capabilities, and priorities. These are shaped by the interplay between multiple drivers, barriers, and enablers, including available techno-economic options, fiscal space, and social and political imperatives. In the context of energy transition, one such factor is cross-sectoral inter-linkages, constraints, and opportunities for transition. These inter-linkages are being recognised in the policy discourse. For example, there are analyses on how electric vehicle penetration and urbanisation will affect energy demand patterns or how promotion of transport modal shifts and green buildings can enable the energy transition.

These are steps in the right direction. However, an effective transition requires multi-scalar planning and execution strategy, consideration of inter-linkages and implications, and cross learning. Examples of such considerations include whether State targets add up to meet national goals, managing renewable energy-enabled load migration, the changing role of institutions,

how these will affect legacy issues, and the resources required to deal with these implications.

States are important entry points to engage with policy visions, plans and actions. Central mandates to update the State Action Plans on Climate Change, recommendations to set up State-level steering committees for energy transitions, and regular meetings of the Central and state energy ministers reinforce the importance of States. Central agencies have also developed multiple indexes that rank States on different aspects of energy transition. While important, these efforts primarily focus on outcomes. We need to complement this with analysis of State-level preparedness for energy transition.

A State-level framework

As a complement to the techno-economic discourse, there is a need for a State-level framework to understand plans, actions, and governance processes towards an energy transition. Applying such a framework will enable an expedited transition in multiple ways. First, it helps to broaden the transition discourse from a narrow set of outcomes and to include the processes that shape the outcomes.

Understanding the effects of transitions on transparency and accountability in processes, and affordability and reliability of services, particularly what works under what conditions, is crucial. Second, it leads to greater transparency which could enable participation of stakeholders in the processes and ensure public legitimacy and buy-in to complex decisions. Finally, seeing the energy transition through State preparedness would create a greater sensitivity to State-level diversities on priorities, capacities, and opportunities in the national policy discourse, and thus enable more evidence-based policy choices towards a pragmatic, yet accelerated, scale and pace of energy transition.