EMBER

Ember’s response to India’s draft National Electricity Policy- 2026

Ember’s response to suggestions solicited by the Hon’ble Ministry of Power, Government of India on the draft National Electricity Policy of 2026

Published date: 16 February 2026
Author: Duttatreya Das (duttatreya@ember-energy.org)

About Ember

Ember is an independent, not-for-profit energy think tank that aims to shift the world to clean electricity using data. It gathers, curates and analyses data on the global power sector and its impact on the climate, using cutting edge technologies and making data and research as open as possible. It uses data-driven insights to shift the conversation towards high impact policies and empower other advocates to do the same. Founded in 2008 as Sandbag, it formerly focused on analysing, monitoring and reforming the EU carbon market, before rebranding as Ember in 2020. Its team of electricity analysts and other support staff are based around the world in the EU, UK, Turkey, India, China and Indonesia

Background

The National Electricity Policy sets the broad contours of power sector planning in India at a system-wide level. The draft National Electricity Policy (2026) is only the second such policy since 2005, and it marks a substantive shift in the philosophical underpinnings of the planning framework. The 2005 policy was shaped by persistent demand–supply deficits and limited electricity access. In contrast, the 2026 draft reflects a power system that has largely addressed access constraints and now confronts a different set of challenges. The emphasis has shifted towards ensuring reliable 24×7 supply, accelerating electrification across end-use sectors, and transitioning to clean power. The draft policy recognises electricity as a key source of industrial growth and competitiveness.

Aligned with the Viksit Bharat 2047 vision, the draft calls for coordinated reforms across generation, transmission, distribution and market design. While its overall direction is consistent with the requirements of a modern, low-carbon power system, the recommendations outlined in this policy brief highlight specific areas that warrant deeper systemic reconsideration at the policy level.

Coordinated generation and transmission planning

The draft policy rightly reinforces the importance of a structured resource adequacy framework and prudent transmission planning at both the national and state levels. However, a critical structural gap remains — generation and transmission planning continue to operate in silos rather than as an integrated system. Historically, transmission planning in India has largely followed signals from generation expansion plans. This approach functioned reasonably well when generation was located closer to demand centres.

When transmission planning simply responds to generation siting decisions, it does not provide adequate signals on where generation should optimally locate from a system-wide cost perspective. This is particularly relevant in the context

of RE, where resource-rich regions — such as north-west India — are geographically distant from major demand centres. Transmission infrastructure is subsequently developed to evacuate power from these regions, often requiring high-capacity corridors, including HVDC lines, to connect resource hubs with load centres.

As RE penetration increases, this sequential approach is becoming increasingly difficult to sustain. Despite substantial growth in transmission circuit kilometres in recent years, bottlenecks persist. Recurring delays in transmission commissioning and an estimated 50 GW of stranded assets (as of October 2025) point to systemic coordination challenges. In several instances, projects face delays in connectivity and are unable to inject power even after commissioning due to network congestion. The RE pipeline in the ISTS queue now extends up to 2032, implying that new capacity additions may only be considered for connectivity thereafter. This reflects the constraints arising from the geographic concentration of solar in specific pockets of the country, even though resource quality in terms of irradiance in several other parts of the country remains competitive with respect to typical global standards.

Addressing this anomaly requires a shift from a least-cost generation framework to a "co-optimised generation–transmission strategy," in which joint system costs, network constraints and infrastructure timelines are explicitly incorporated into planning decisions.

In a context where real-time price signals related to congestion, curtailment, or new transmission build-out remain limited, relying solely on market forces may not yield system-optimal outcomes. A more coordinated, planning-led approach is therefore necessary to align generation expansion with network readiness.

Accelerating deployment of grid-enhancing technologies

The draft policy also acknowledges the role of grid-enhancing technologies in building a more resilient and reliable power system. This warrants immediate attention, particularly as the share of inverter-based resources continues to rise rapidly with growing renewables. The increasing dominance of such resources reduces inherent system inertia and heightening vulnerability to frequency disturbances.

A least-cost planning approach is therefore essential to integrate technologies such as grid-forming inverters, synchronous condensers and other system-strength support mechanisms. Rather than reacting to large frequency deviations or grid events, detailed forward-looking technical studies should be undertaken to assess evolving stability requirements under high-RE scenarios.

These technical assessments must be followed by an evaluation of appropriate market and regulatory mechanisms to enable the deployment of such resources.

Institutional reforms in state level transmission planning

The emphasis on strengthening transmission planning at the state level is a positive development, particularly as efforts are being made to replicate certain Central Transmission Utility (CTU) processes within State Transmission Utilities (STUs). This is timely, given that a significant share of upcoming RE capacity is expected to be integrated at the state level, especially in light of bottlenecks and long lead times in the ISTS network.

However, enabling faster and more efficient transmission build-out at the state level will require deeper structural reform. The development of state transmission infrastructure should be more actively opened to private sector participation to mobilise capital, improve execution speed and reduce fiscal pressures on state utilities.

This necessitates a clear functional and institutional separation within State Transmission Utilities (STUs) — between the planning function and the asset-owning and construction function — similar to the carving out of CTUIL from the erstwhile PGCIL to independently carry out transmission planning.

Such unbundling is essential to ensure that the state transmission company responsible for building assets competes on equal terms with private developers, and the state has the necessary incentive to move towards a full-fledged competitive bidding approach for intra-state grids.

Strengthening cost discipline in DISCOM power procurement

The draft policy rightly emphasises improving procurement practices for DISCOMs, given that power purchase costs account for nearly 70–80% of their total expenditure. Strengthening procurement efficiency is therefore central to improving their financial health.

Under current resource adequacy frameworks, reliability is largely equated with tying up long-term contracted capacity. This can conflict with cost optimisation, particularly when procurement from power exchanges or short-term markets is not fully recognised as contributing to adequacy. The outcome is often surplus capacity addition to showcase reliability. When this takes the form of new coal-based assets, it locks DISCOMs into long-term financial liabilities as a result of low utilisation and can constrain higher renewable penetration.

Therefore, resource adequacy requirements should evolve to assess not only whether sufficient 'capacity' is secured, but whether the procurement strategy represents the least-cost pathway to meeting demand. With the expansion of power exchanges, bilateral trading and emerging derivative markets, DISCOMs now have access to a broader set of instruments to manage price risk. Strengthening internal analytical, forecasting and trading capabilities will be

critical to avoiding over-procurement of low-utilisation assets and enabling a leaner power portfolio.

This scrutiny should be particularly rigorous when justifying new coal-based capacity additions. Any proposal for long-lived thermal assets must be supported by clear evidence that alternative market-based options have been fully evaluated and found inadequate.

Cybersecurity and data sharing

With the rapid deployment of distributed RE, storage systems and smart metering infrastructure, data governance assumes critical importance. Historically, electricity data flows were largely confined to government-owned DISCOMs. However, with the emergence of private aggregators, demand response providers, distribution system operator (DSO)-like entities and peer-to-peer trading platforms, the volume, granularity and commercial value of electricity-related data are expanding significantly.

This evolving ecosystem will involve greater exchange of consumer-level consumption data, operational analytics and market information. In the absence of clear safeguards, risks related to data misuse, privacy breaches and unequal access to information may increase.

It is therefore essential to establish a robust data-sharing and governance framework. Such a framework should define ownership, access rights, consent protocols and cybersecurity standards, ensuring that data is used to improve system planning and efficiency without compromising consumer privacy or commercial confidentiality. Additionally, given the strategic nature of electricity infrastructure, storage of critical grid and consumer data within India's geographic boundaries should be prioritised to prevent external vulnerabilities.