No. 23/23/2018-R&R
Government of India
Ministry of Power
***

Shram Shakti Bhawan, Rafi Marg,
New Delhi, ..20th.. January, 2026

To

1. Secretary, Ministry of New and Renewable Energy, New Delhi
2. Secretary, Ministry of Housing and Urban Affairs, New Delhi
3. Secretary, Ministry of Micro, Small & Medium Enterprises, New Delhi
4. Chairman, Railway Board, New Delhi
5. Chairperson, Central Electricity Authority, Sewa Bhavan, R.K. Puram, New Delhi
6. Principal Secretaries/Secretaries (Power/Energy) of all State Governments/UTs
7. Secretary, Central Electricity Regulatory Commission (CERC), New Delhi
8. Secretaries of All State Electricity Regulatory Commissions/JERCs
9. Chairman/CMDs of all PSUs under administrative control of Ministry of Power
10. MD, SECI, New Delhi
11. CMDs/MDs of Discoms/Gencos of all State Governments
12. CMD, IEX LTD New Delhi & MD/CEO, PXIL, Mumbai/ HPX New Delhi
13. DG, Association of Power Producers, New Delhi
14. President, FICCI, House No. 1, Tansen Marg, New Delhi
15. President, CII, New Delhi
16. President, PHDCCI, New Delhi
17. ASSOCHAM, Chanakya Puri, New Delhi
18. Member, PRAYAS Energy Group, Pune
19. DG, Electric Power Transmission Association (EPTA), New Delhi
20. Chairman, Indian Wind Power Association, New Delhi
21. Chairman, Indian Wind Turbine Manufacturers Association (IWTMA), New Delhi
22. Director General, National Solar Energy Federation of India (NSEFI), New Delhi
23. DG, Solar Power Developers Association (SPDA), New Delhi
24. DG, All India Discoms Association (AIDA), New Delhi
25. Chairman, Federation of Indian SME Associations, Mumbai
26. Prof. Anoop Singh, CER-IIT-Kanpur

Subject: Seeking comments on Draft National Electricity Policy, 2026 – Reg.

Sir/Madam,

The Electricity Act, 2003 mandates the Central Government to formulate the National Electricity Policy (NEP) and to review or revise it from time to time in consultation with the State Governments and the Central Electricity Authority. In accordance with this mandate, the Ministry of Power has prepared the Draft National

Electricity Policy, 2026, keeping in view the significant transformation of the power sector, emerging challenges—particularly in the distribution segment—and the requirements arising from India's energy transition and long-term development objectives. The draft policy outlines the strategic framework for ensuring reliable, affordable, and sustainable electricity supply, promoting competition, enhancing grid resilience, and delivering consumer-centric services in line with the vision of Viksit Bharat @ 2047.

2. In this regard, the Draft National Electricity Policy, 2026, along with an explanatory note, is enclosed with the request to furnish comments/suggestions on the Draft National Electricity Policy, 2026 to this Ministry within 30 days from the date of issuance of this letter. The comments/suggestions (in **word format)** may please be sent by email at **rr1-mop@gov.in.**

Yours faithfully,

Encl: As above

20/11/26

(Vikash Khichi)
Under Secretary to the Govt. of India
Tel: 2371 8087

Copy for information to: PS to Hon'ble Minister for Power, PS to HMoSP, PPS to Secy (P), PPS to AS (R&R), PSO to CE (R&R), PPS to Director (R&R), Ministry of Power.

Copy to: Technical Director, NIC Cell for uploading on MoP's website under "Current Notices" with the heading of "Seeking comments on Draft National Electricity Policy, 2026"

Draft National Electricity Policy, 2026

CONTENTS

1. INTRODUCTION

1.1. In compliance with Section 3 of the Electricity Act 2003, the Central Government notified the National Electricity Policy on 12th February, 2005. In exercise of powers conferred under Section 3(3) of Electricity Act, 2003, the Central Government hereby notifies the revised National Electricity Policy to be effective from the date of publication of this resolution in the Gazette of India.

1.2. Notwithstanding things done, purported to have been done, or omitted to be done under the provisions of the National Electricity Policy notified on 12th February, 2005 and amendments made thereunder, such action, in so far as it is not inconsistent with this Policy, shall be deemed to have been done or taken under provisions of this revised policy.

1.3 By 2003, the power sector faced the twin challenges of access and financial viability. Firstly, large parts of the country remained unconnected to the electric grid. The distribution network had not reached many villages and households. Further, the installed generation capacity was inadequate to meet the growing demand. Supply was unevenly distributed, and limited transmission network hindered power transfer to deficit regions. Additionally, the quality of power supply was poor. Secondly, unsustainable cross-subsidies, and alarmingly high technical and commercial losses deterred investments.

1.4. Recognising these issues, the Electricity Act 2003 enabled unbundling of SEBs and introduced competition to accelerate the development of power sector. The National Electricity Policy notified on 12th February, 2005 (NEP 2005) acknowledged the need to ensure affordable electricity for rural areas, competitive tariffs for industry, and quality supply for the services sector. It aimed to

overcome electricity shortages, accelerate rural electrification, and improve the financial sustainability of electricity supply. Key objectives included universal household access within five years, meeting full demand by 2012, reliable and affordable electricity, a minimum lifeline consumption of 1 kWh/household/day, financial turnaround of the power sector, and consumer protection. To achieve these objectives, NEP 2005 required the development of the National Electricity Plan, with both five-year short-term and 15-year long-term strategies. It laid out strategies for different areas of electricity sector e.g. generation, transmission, distribution, rural electrification, competition, consumer satisfaction, and energy conservation.

1.5. Since 2005, the power sector has undergone transformational changes. The challenge of access has been largely addressed. Universal electrification has been achieved, connecting all villages and willing households. Delicensing generation has attracted substantial private investments with the private sector accounting for over 50% of the installed generation capacity. Regional grids have been unified into a single national grid, enabling seamless power flow across the country. The emergence of competitive power markets has allowed distribution licensees to buy electricity for their short-term and peak demand needs without the burden of maintaining costly surplus capacities. Consequently, deficits in peak demand and energy shortages have significantly declined. Power now flows from surplus to deficit regions, reaching even remote households. Strengthened consumer rights frameworks have improved service quality and enhanced accountability of suppliers.

1.6. However, behind the visible progress, the deteriorating financial condition of distribution utilities emerged as a concern. To address this, Government of India has been extending support through bailout

programmes over the years - beginning with the Scheme for Repayment of State Electricity Board Dues (2001), followed by the Financial Restructuring Plan (2012), Ujjwal DISCOM Assurance Yojana (2015), the Atmanirbhar Bharat Abhiyan Package (2020), and most recently, the Revamped Distribution Sector Scheme (2021), which also provided a 0.5% relaxation in the FRBM limit for states undertaking specified power sector reforms. However, distribution utilities continue to incur mounting financial losses. Industrial tariffs remain significantly higher than in many developed and developing economies, undermining the competitiveness of Indian goods. Although competition has been successfully introduced in generation and transmission, the supply segment – tied to distribution – remains a monopoly, limiting consumer choice and elevating industrial tariffs.

1.7. The energy transition has emerged as a new challenge. By 2047, over 80% of the installed capacity and nearly two thirds of total electricity generation is expected from non-fossil sources. The share of electricity in total energy consumption is also projected to double. Variable Renewable Energy (VRE), primarily solar and wind, now account for around 37% of the total installed generation capacity. However, their intermittent nature necessitates integration with firm sources and energy storage systems. There is an urgent need to expand and augment intra-state transmission networks to facilitate integration of Variable Renewable Energy within the state. This will help reduce reliance on the expansion of costly inter-state transmission network, needed to procure Renewable Energy from distant locations. Developing a resilient and flexible grid will be essential - not only for integrating large scale Variable Renewable Energy but also for addressing emerging cyber security and climate-related risks.

1.8. The National Electricity Policy (NEP, 2026) aligns with India's vision

of "Viksit Bharat @ 2047", aiming to become a developed nation by 2047. Energy independence is central to this vision. With GDP projected to reach USD 30 trillion and per capita income USD 18,000, electricity demand will rise significantly. While emphasizing the importance of climate adaptation over mitigation for developing nations, India has been at the forefront of global carbon reduction efforts. Having surpassed its Paris Agreement commitments nine years ahead of schedule, India updated its Nationally Determined Contributions (NDCs) in 2022, targeting a 45% reduction in emissions intensity below 2005 levels by 2030, 50% non-fossil capacity by 2030, and net-zero emissions by 2070. Transition to low carbon energy system is a key step toward achieving energy independence. The NEP, 2026 provides a strategic roadmap for India's energy independence, aligned with low-carbon pathways. Achieving this hinges on the following key approaches:

(i) maximizing non-fossil fuel based generation;

(ii) electrifying end-use sectors such as industry, transport, and cooking, using clean electricity; and

(iii) encouraging energy efficiency and demand side management.

1.9. The NEP, 2026 lays out strategies for achieving the following vision:

"Providing reliable 24x7 quality power through a financially viable and environmentally sustainable power sector furthering energy security at an affordable price."

2. OBJECTIVES

The NEP, 2026 aims to achieve the following objectives:

(1) Financial turn around and commercial viability of electricity sector.

(2) Ensuring adequate availability of power with reliable and quality supply, while meeting peak demand and energy requirements.

(3) Supply of electricity at competitive prices to achieve the vision of 'Viksit Bharat @ 2047'.

(4) Increase the share of non-fossil capacity to achieve the Nationally Determined Contribution (NDC) targets.

(5) Promote competition in supply of electricity.

(6) Increase per capita electricity consumption to 2,000 kWh by 2030 and over 4,000 kWh by 2047, ensuring energy efficiency and responsible usage.

(7) Strengthen grid resilience to enable large scale RE generation and utilisation, flexible operation, and meet climate adaptation and cybersecurity needs.

(8) Enhance consumer centric service and implement demand side interventions.

(9) Strengthen the dispute resolution mechanism in the sector to enable faster resolution and reduce financial burden on consumers.

3. RESOURCE ADEQUACY

(1) A structured mechanism for resource adequacy must be established at national, state, and distribution utility levels to ensure reliable 24x7 power supply.

(2) **Demand Forecasting & Planning:** CEA, in consultation with States and other stakeholders, will prepare long-term national demand forecasts and review them annually. SLDCs will do similar forecasting at the state level, considering sectoral growth rates and seasonal needs.

(3) **Resource Adequacy Plans (RAPs):** CEA, in consultation with relevant State Government departments and key stakeholders, will prepare national-level RAPs for generation and transmission,

ensuring adequate reserve margins and grid reliability. SLDCs and distribution licensees will prepare State and distribution utility level RAPs, aligned with national plans. Regulatory commissions will frame supporting regulations.

(4) **Capacity Building:** CEA, Grid-India, CTU and Load Dispatch Centres must strengthen tools and expertise for forecasting and resource planning. CEA may provide required technical and training support.

(5) The Central Government may issue rules and guidelines to support energy security and faster energy transition.

4. FINANCIAL VIABILITY OF THE SECTOR AND ECONOMIC COMPETITIVENESS OF INDIAN INDUSTRY

(1) **Timely Orders**: Tariff orders must be issued before the commencement of each financial year, and true-up orders for the previous financial year issued within the current financial year. Distribution and supply tariffs must be clearly separated. Regulatory proceedings must be concluded within 120 days.

(2) **Cost Recovery:** Recovery of cost of service is essential for power sector sustainability. From FY 2026-27, State Commissions must ensure that tariffs fully reflect costs without creating regulatory assets. Tariffs must be linked to a suitable index for automatic annual revision which operates if no tariff order is passed by the State Commission. Tariffs should progressively recover fixed costs through demand charges. Power purchase cost increases must be automatically passed through to consumers on a monthly basis. Stabilization funds may be established to manage power purchase cost fluctuations.

(3) **Loss Reduction**: Cross-subsidies must be reduced progressively, ensuring no tariff falls below 50% of ACoS. Free power supply

should be avoided and subsidies should be paid in advance as per Section 65. State Governments must target single-digit AT&C losses, with commercial loss reduction and timely payments of Government and local body dues. Central Government may provide incentive-based support for loss reduction. Multi-Year Tariff framework must be adopted to ensure timely and cost-reflective tariffs to secure sector viability. The framework for accounting and disbursing subsidies by State Governments, along with measures to ensure financial viability, including revenue sustainability and cost recovery, will be specified. By 2030, States shall complete the solarisation of all agriculture feeders, suitably backed by storage, to enable reliable power supply to farmers, alongside the solarisation of individual agriculture pumps and deployment of stand-alone solar pumps wherever required, thereby contributing to a reduction in the subsidy burden on State Governments.

(4) **Attracting Investments:** Private investment via competitive bidding under Section 63 must be encouraged by ensuring predictable returns and revenue streams. State Commissions must ensure differential pricing for electricity during peak-hours, particularly non-solar hours. The generation sector has witnessed significant inflows of private capital. Building on this success, Governments must enable private investments, especially in distribution and transmission segments through continuous industry engagement. Return on investment must be competitive with other sectors. State Commissions must ensure stable and transparent regulations, and performance-based incentives.

(5) **Building a Competitive Market:** Competition across the power sector must be promoted to benefit consumers. Currently, distribution licensees are obligated to supply power to manufacturing industries and railways, even if these consumers are capable of

sourcing power independently. This compels DISCOMs to contract power for such consumers, leading to underutilization and fixed cost burdens. To recover these costs, State Commissions impose high cross-subsidy and surcharges, raising industrial tariffs and reducing competitiveness. The Act allows generators and traders to directly supply electricity to consumers under Open Access, and State Commissions must not stifle competition with cross-subsidy and additional surcharges. It is suggested that Regulatory Commissions, in consultation with Appropriate Governments, may exempt the distribution licensees from the Universal Service Obligation in respect of consumers having a contracted load of 1 MW and above, capable of self-procurement. State Commissions should exempt manufacturing enterprises, Railways, and Metro Railways from payment of cross-subsidies and surcharges. These measures will ensure that Indian goods remain competitively priced, cost of logistics is optimized and commuting costs of workforce come down. Regulatory Commissions should create appropriate frameworks to enhance market liquidity and ensure availability of power at competitive prices.

5. GENERATION

5.1. RENEWABLE ENERGY

India needs large investments to achieve the required expansion of non-fossil capacity by 2047, requiring large investments. Building on the progress under NEP 2005, the following key actions are required:

(1) **Policy Alignment & Incentives:** CEA will develop a least-cost generation mix, guiding national and state Resource Adequacy Plans. Central schemes must align with this mix and provide necessary incentives.

(2) **Renewable Consumption Obligations (RCOs)**: State regulators

must enforce RCO targets set under the Energy Conservation Act. Such obligations may be met by procurement of green power or Green Attributes or any other mechanism such as RCO Buyout under the framework notified by the Central Government and suitable regulatory provisions shall be made by the Central Commission. Policy measures shall be undertaken to promote and incentivize co-generation as envisioned in the Electricity Act, 2003.

(3) **Market-Based RE Growth:** The Central Government shall evolve appropriate market-based frameworks and the Central Commission shall make the necessary regulatory provisions for mechanisms such as Virtual Power Purchase Agreements and Bilateral Contract Settlement to attract investments in non-fossil fuel-based generation capacities.

(4) **Commercial and Industrial (C&I) Consumers:** Central and State Commissions, guided by Appropriate Government policies, should support RE procurement through seamless Open Access and captive consumption by C&I consumers by creating necessary regulatory frameworks.

(5) **RE with Storage:** Hybrid projects (VRE plus storage) should be promoted for reliability and optimized transmission use. Distribution licensees should build local RE with storage to reduce losses. Governments and Regulatory Commissions must support such projects and specify CUF targets.

(6) **Consumer-Driven RE & P2P Trading**: Rooftop solar with storage, peer-to-peer (P2P) energy trading, and Open Access to RE, free from surcharges must be promoted. Net metering beyond 5 kW should be discouraged. In view of declining costs, installation of storage by consumers should be promoted in place of mechanisms for banking of power.

(7) **Aggregators:** Central and State Commissions must introduce aggregators to pool demand and supply, improve market access for prosumers, storage, and EVs, and optimize distributed energy. No additional charges beyond network costs should apply for aggregator participation.

(8) **Balancing Capacity:** Load Despatch Centres (LDCs) must procure adequate balancing capacity for voltage and frequency control as per regulations.

(9) **Forecasting & Scheduling:** LDCs and RE developers must improve forecasting accuracy. The Central Government will support SLDCs, and establish a national meteorological data portal to facilitate improved forecasting.

(10) **Deviation Settlement Mechanism:** By 2030 or earlier, Central and State Commissions must ensure parity between RE and conventional sources to ensure grid stability.

(11) **Repowering:** Aging RE projects must be upgraded with efficient technologies.

(12) **Microgrids:** RE-based microgrids must be developed for remote and rural areas and integrated with main grid where feasible.

(13) **Transmission-Optimised Siting of RE Projects:** To optimise overall system cost and reduce transmission expenses, renewable energy projects should preferably be situated near the load centres.

5.2. THERMAL GENERATION

The following strategy should be implemented for ensuring energy security and facilitating RE integration:

(1) **Significance of Coal-Based Power:** Coal-based power will continue to play a critical role in meeting baseload demand, and ensuring the nation’s energy security.

(2) **Location of New Plants:** New coal based generating plants should preferably be located near coal mines, with the objective of minimizing fuel transportation requirements and addressing associated logistical challenges. However, from the perspective of grid stability, a certain portion of generation capacity may be required to be located near load centres.

(3) **Supply Chain Readiness:** The Government should facilitate advance planning of coal transport infrastructure (conveyor belts, pipe conveyors, rail links) for power plants.

(4) **Flexibility & Efficiency:** Existing coal-based plants, wherever feasible, should be retrofitted to enable flexible operation and equipped with storage systems to support integration of variable renewable energy. The associated costs may be recovered through tariffs or ancillary services charges or any other market mechanisms. Additionally, direct utilization of the steam generated from thermal plants may be explored for applications such as district cooling or industrial processes to efficiently integrate variable renewable energy.

(5) **Cleaner Operations:** In coal and gas-based thermal generating stations, co-firing or blending of alternative fuels – including biomass and municipal solid waste based fuels – may be explored. Additionally, the production and utilization of coal gasification – based Synthetic Natural Gas (SNG) may be explored for application in thermal power plants and fertilizer industries, to enhance energy security and promote cleaner use of domestic coal resources.

(6) **Modernization & Efficiency Improvement:** Renovation and Modernisation of old plants shall be done as per well-defined plans including necessary cost-benefit analysis to improve efficiency,

reduce costs, and extend operational life.

(7) **Coal Quality Monitoring:** Coal supply to generating stations should meet strict quality standards with automated sampling to ensure efficiency and reduce emissions. Coal suppliers shall be encouraged to assume responsibility for the quality of coal on an "as-delivered at plant-end" basis to mitigate generation losses resulting from coal grade slippage.

(8) **Ash Utilization:** 100% of ash from thermal plants shall be used in eco-friendly applications.

(9) **Optimum Utilisation of Thermal Plants:** Plants may be utilised judiciously for base load or spinning reserves. Older plants may be retained for grid support. Inefficient thermal plants may be retired based on cost-benefit analysis but may be repurposed for use as synchronous condenser for providing voltage support, and grid inertia.

(10) **Gas-Based Power Plants:** Gas-based power plants in India have limited flexibility and low utilization due to domestic gas shortages and high RLNG costs. Their use for peaking and balancing should be explored, with flexible gas supply arrangements. Some units may need to operate in open cycle mode and should be compensated for efficiency losses and wear. Additionally, the introduction of Capacity Markets may be explored to ensure the long-term financial sustainability of gas-based power plants.

5.3. NUCLEAR GENERATION

(1) Nuclear power is a clean, reliable, and sustainable energy source with significant potential for India's long-term energy security. To expand the nuclear capacity to 100 GW by 2047, the Central Government will collaborate with the private sector for setting up Modular Reactors and developing Bharat Small Reactors, and

advanced nuclear technologies. Nuclear projects should be eligible for Green Bond funding.

(2) Measures like brownfield expansion, replacing coal-based captive plants with nuclear, where feasible, fleet-mode implementation establishing local supply chains for cost optimization with standardizing reactor sizes will be considered. Retired thermal plant sites may also be repurposed for nuclear power wherever feasible. Large C&I consumers should be encouraged to use nuclear-sourced power. Designing for flexible operation and two-part tariff of future nuclear plants may be explored to integrate VRE. These initiatives will be undertaken within the broader resource adequacy framework, while ensuring the nation's energy security.

5.4. HYDRO GENERATION

Hydropower is a renewable, reliable, and flexible energy source, yet India has harnessed only 32% of its 133 GW potential. Development is hindered by geological risks, delays in environment and forest clearances, land acquisition difficulties, funding constraints, and procedural bottlenecks. To address the challenges in hydro development following strategies should be adopted:

(1) States with hydro potential should accelerate development of these resources.

(2) Advanced technology will be used for site assessments. Enhanced baseline geological, and seismic surveys, shall be carried out to de-risk hydropower projects.

(3) Environment and forest clearances will be further streamlined. State Governments will establish mechanisms to expedite project clearances and project execution issues.

(4) Land banks will be created to speed up compensatory

afforestation, especially for projects located in forest-rich areas of the Northeastern States.

(5) Hydro projects are exempt from mandatory competitive bidding due to uncontrollable risks, though bidding may be used for better price discovery. Central Government will support the State Governments for expeditious development of their hydroelectric projects through CPSUs.

(6) States may incentivize hydro projects by offering benefits like staggered free power and tax reimbursements, with free power shares linked to timely project completion.

(7) Against the backdrop of climate change and declining per capita storage capacity for water and energy needs, there is an urgent need to undertake climate adaptation measures to safeguard lives and the economy. In this context, accelerating the development of storage-based hydroelectric projects is critical for flood moderation, irrigation, and energy security. Appropriate financing mechanisms will be put in place to support such projects and strengthen nation's water and energy security.

(8) Hydel projects call for debt financing of longer tenure commensurate with project life. Central Government is committed to policies that ensure financing of viable hydro projects. Low-cost financing options, back-loaded tariffs and monetisation of attributes like faster ramping capability, carbon neutrality, and ability to provide peaking power and reactive power support will be explored.

(9) The Government will assess hydro-kinetic energy potential and introduce policies for its development.

(10) Suitable policy and regulatory framework including higher Carbon

Credits and REC Multiplier for hydropower and PSPs shall be established.

(11) Viability Gap Funding (VGF) with capped tariffs may be explored for strategic capacities.

5.5. CAPTIVE GENERATION

Electricity Act 2003 facilitates setting up of captive power plants for ease of doing business. The Central Government may prescribe measures to promote captive generating plants by facilitating flexible capital structures and simplified verification processes. State Commissions must promote co-generation and may facilitate purchase of surplus power from such plants by the distribution licensees. Further, the adoption of co-generation systems shall be promoted in the larger interest of enhancing energy efficiency and ensuring grid stability.

6. ENERGY STORAGE

(1) Energy Storage Systems (ESS) are essential for managing VRE and supporting ancillary services to improve grid stability. They also provide arbitrage opportunities, reduce peak deficits and postpone transmission and distribution investments. Governments and Regulatory Commissions will make policies, schemes and regulatory frameworks to promote ESS.

(2) ESS can be part of generation, transmission, distribution, or can be a standalone system. Deployment of ESS is constrained by high upfront cost and lower utilization factor. Innovative concepts like “Cloud Energy Storage” can be explored to provide affordable and on-demand energy storage to consumers/utilities.

(3) Appropriate Governments and Regulatory Commissions shall facilitate the adoption of consumer-owned energy storage systems for better utilisation of distributed renewable energy sources.

(4) **Pumped Storage Projects (PSPs)**: The country has significant untapped PSP potential, especially at off-stream sites with lower environmental and rehabilitation issues. Clearances for such projects will be fast-tracked. Distribution licensees will procure PSP capacity, whether within or outside the state, preferably through competitive bidding under Section 63 of the Act. Where State Government allots a PSP site for use by entities other than state utilities, incentives to the host State may be explored.

(5) **Battery Energy Storage Systems (BESS)**: BESS must be encouraged as they are location agnostic, require lesser land, and have a low gestation period. Emerging technologies that offer longer and cheaper storage options with lower import dependency should be supported. Domestic manufacturing of cells and other components of BESS may be incentivized.

(6) **Incentives, Procurement, and Regulation:** To accelerate ESS deployment, Appropriate Commission should promote co-located battery storage with variable renewable energy projects. Grid operators may be assigned ESS for ancillary service management. Besides long-term PPAs, the Central Government will promote ESS development through market-based mechanisms including bilateral contract settlement. The Central Commission must establish required regulatory framework to implement bilateral contract settlement based capacity procurement.

7. POWER MARKET

For faster generation capacity addition to support the electricity needed for “Viksit Bharat @ 2047”, suitable market mechanisms should be established by the Central Government and Central Commission.

Expanding power markets will create new opportunities for capacity addition to meet the country's growing energy needs. To achieve this, the following measures will be initiated.

(1) **Deepening Power Markets:** Suitable policy and regulatory framework shall be established for generation capacity addition through market mechanisms like Bilateral Contract Settlement. Standardized contracts for collective transactions will be executed on power exchanges. Electricity from long term PPAs may be encouraged to be routed through power exchanges or any other platform recognized by the Central Commission. Central Commission shall develop a suitable market mechanism in this regard.

(2) **Introducing Capacity Markets:** Central Commission will explore introduction of capacity markets in a phased manner to ensure required capacity addition.

(3) **Enhancing Ancillary Services:** The scope of ancillary services will be broadened to maintain grid stability and to limit deviations within the prescribed limits. A market-based system will be introduced for competitive procurement of ancillary services, including consumer participation via demand response individually or through aggregators.

(4) **Aggregation and Distributed Energy:** Regulatory frameworks shall be established to enable aggregation of distributed renewable generation, small storage systems, and demand response mechanisms to increase market participation. India Energy Stack shall be established as a foundational framework for interoperable energy systems and seamless financial settlements.

(5) **Open Access Reforms:** The Appropriate Commissions shall

facilitate long-term Open Access for consumers by ensuring stable and predictable Open Access charges, along with unidirectional and progressively reducing trajectory of cross-subsidy and additional surcharges. Large consumers requesting access to inter-state transmission would be facilitated through suitable regulatory provisions.

(6) **Risk Management:** As markets deepen, measures may be taken to enable hedging of price and volume risks by market participants and progressively introducing forward contracts to be administered under appropriate regulatory frameworks.

(7) **Cost Optimization and Efficiency Measures:** In addition to market-based procurement, SCED and SCUC may be expanded to optimize power procurement costs. SCED and SCUC, currently applied to inter-state generating stations, may be extended to other generators as well.

(8) **Market Oversight and Regulatory Stability:** A strong regulatory framework will be set up for market monitoring and surveillance to prevent collusion, gaming, or market dominance. As the markets mature and liquidity increases, interventions in power market operations will be discouraged. Any intervention should be based on established regulatory mechanisms, for a limited period and may be extended only after comprehensive analysis and consultation with stakeholders by the Central Commission.

8. TRANSMISSION

Given the large-scale planned integration of non-fossil energy and the deepening of the power market, there is a pressing need to develop a more flexible transmission system, with particular emphasis on strengthening intra-state networks.

8.1. Transmission Planning and Implementation

(1) Transmission planning and execution should be consumer-oriented, anticipating transmission needs that would be incident on the system under the Open Access regime. Prior agreement with the beneficiaries would not be a pre-condition for network expansion. CTU and STUs should undertake network expansion after identifying the requirements in consultation with stakeholders.

(2) CEA, in consultation with key stakeholders including CTU, STUs, load dispatch centres, State Governments, and industry associations, shall prepare transmission plans: detailed (5 years) and perspective (10 years) on a rolling basis.

(3) CTU and STUs, in alignment with plans made by CEA, will formulate 5-year capacity expansion plans incorporating: Generation growth, General Network Access (GNA) demand, congestion mitigation, adequate margins and redundancy, and Right-of-Way (RoW) constraints. CTU and STUs shall ensure optimal utilization of existing and planned transmission infrastructure to reduce overall system cost.

(4) The CTU and STUs shall publish definitive timelines well in advance for the commissioning of substations and bays, across various States, and adhere strictly to these schedules to ensure transparency, enable effective planning, and keep all stakeholders appropriately informed.

(5) CTU and STUs will develop plug-and-play substations with adequate number of pre-built bays based on anticipated generation and demand, especially in industrial and high-demand zones.

(6) The Appropriate Commissions shall standardise and simplify

network connection procedures and cost structures, and establish a single-window system to streamline connectivity approvals and first-time charging across both transmission and distribution networks.

(7) The Appropriate Commission shall establish mechanisms to discourage speculative or non-serious holding of transmission connectivity by entities lacking corresponding power procurement or sale commitments, while ensuring that genuine project developers are duly facilitated.

(8) Generation-transmission coordination shall be prioritised, especially for Variable RE projects with shorter gestation periods.

8.2. Grid Modernisation and Technological Advancements

(1) Adoption of latest technologies shall be promoted, including: Storage devices, Flexible AC Transmission Systems (FACTS), Synchronous condensers, and Dynamic Line Rating.

(2) Mechanisation of construction including drone-based stringing, hot line maintenance, and other advanced construction/O&M practices will be encouraged.

8.3. Regulatory Framework and Market Facilitation

(1) Open Access must be enabled in a non-discriminatory manner, in line with the Electricity Act 2003 to allow efficient generation location decisions, promote electricity trading, and reduce overall system costs.

(2) Appropriate Governments and Commissions shall adopt suitable policies and regulations to maximise RE corridor utilisation, particularly during non-solar hours.

(3) CERC shall develop transmission pricing mechanisms that optimise overall system costs and provide efficient price signals. As far as practicable, SERCs should harmonise intra-state transmission pricing frameworks with the CERC's approach to ensure consistency.

(4) Appropriate Governments and Commissions shall ensure the implementation of effective policies and regulations to ensure optimum utilisation and prevent any speculative holding of transmission connectivity.

8.4. Investment and Risk Sharing

(1) Competitive bidding shall be the default mode for all inter-, and intra-state transmission projects. State-owned Transmission licensees may also be encouraged to participate in such bidding. Exceptions may be permitted only for urgent, strategic or technically critical projects in accordance with the framework prescribed by the Appropriate Government.

(2) A transparent risk-sharing and compensation mechanism will be formulated to address mismatches in commissioning timelines between generation and transmission projects, or between inter-connected transmission projects.

8.5. Right-of-Way

(1) State Governments shall prescribe appropriate compensation mechanisms for land value diminution in transmission corridors.

(2) RoW corridors shall be optimised, *inter-alia*, through the use of insulated cross-arms, high-ampacity conductors, monopoles, underground cables and reconductoring.

(3) Uniform RoW and wayleave charges must be applied across all utilities by local bodies and agencies such as Railways and NHAI.

8.6. Non-Fossil Energy and Cross-Border Interconnections

(1) Based on potential non-fossil generation and demand zones identified by the Central Government, CEA, or State Governments, the CTU and STUs may proactively develop the necessary transmission infrastructure, both at the generation and load ends. Development of dedicated green feeders shall be taken up on a priority basis, in a cost optimal manner, to ensure reliable supply to consumers facilitating entire consumption from renewable energy sources only.

(2) Green Hydrogen facilities should be encouraged to source RE from nearby locations to reduce transmission costs.

(3) Cross-border interconnections shall be strengthened under the overall vision of One Sun One World One Grid (OSOWOG). India will actively promote the cross-border exchange of renewable energy to support regional energy transition efforts. Harmonised regulations shall be developed to facilitate cross-border electricity trade, and India will play a leadership role.

9. DISTRIBUTION

Distribution is the most crucial part of the power sector directly serving consumers and generating revenue for the entire sector. The Central and State Governments as well as Regulators shall ensure the financial sustainability of the distribution sector, and undertake the following measures:

(1) **Cost Optimisation:** Appropriate Commission should provide distribution licensees enough freedom to take timely, market-

based decisions for power purchase to ensure reliable and good quality supply. Efficient energy portfolio management should be encouraged to reduce power purchase costs. Training programmes will be introduced to help utility staff build the skills needed to manage market operations.

(2) **Introducing Competition and PPP:** In line with the intent of the Act, monopoly in distribution will be phased out by allowing multiple players. Public-Private Partnerships (PPP) and listing of utilities shall be promoted. The Central Government shall extend necessary support to facilitate the implementation. At present, the supply areas are coterminous with the distribution areas. However, in order to promote competition, State Commissions may allow multiple licensees in the same areas.

(3) **Loss Reduction and Financial Discipline:** To reduce technical losses and theft, distribution infrastructure may be strengthened with new technologies. State Commissions shall ensure that tariffs are cost-reflective, energy audits and accounting are performed in a time-bound manner.

(4) **Digitalization and Smart Infrastructure:** GIS-based asset mapping and consumer indexing will be implemented for better service and audits. Efforts should be made to install substation automation equipment in a phased manner. Smart meters will be implemented in a phased manner to enable real-time energy management, loss reduction, and demand side management. All Government establishments should immediately switch over to prepaid metering, followed by Industrial and Commercial consumers beyond specified demand.

(5) **Advanced Technologies for Grid Stability:** Integration of

distributed renewables involve smart inverters, Vehicle-to-Grid (V2G) systems, and advanced control mechanisms. This would require the establishment of a Distribution System Operator (DSO) at the DISCOM level to enable real-time network management and minimize losses.

(6) **Ensuring Quality of Supply:** State Commissions shall ensure strict monitoring of the performance of distribution licensees. N-1 redundancy shall be ensured at the distribution transformer level in urban areas with a population exceeding ten lakh, and at the 11 kV feeder level in all other areas by 2032. Undergrounding of distribution network in congested areas of such urban centres should also be undertaken.

(7) **Transparent Monitoring and Performance Standards:** National benchmarks will be specified for quality of supply, including a trajectory for improving reliability indices such as SAIDI, SAIFI and CAIDI. State Commissions shall ensure that distribution licensees meet these benchmarks. Licensees shall be required to regularly report reliability indices, and suitable monitoring mechanisms shall be put in place to track service quality. All performance parameters shall be published online to promote transparency and enable effective regulatory oversight.

(8) **Innovation in Technology and Demand Response:** Distribution utilities shall leverage technology to strengthen consumer engagement and service delivery. Demand response programmes will be promoted by the distribution licensees. The Central and State Commissions should evolve business models and create necessary regulatory framework for demand response including aggregation of the participants. Time-of-Use (ToU) tariffs will be implemented by State Commissions starting with industrial and

commercial consumers.

(9) **Strengthening Corporate Governance:** Boards of Distribution licensees must include external power sector experts for better decision-making. Listing of state-owned distribution companies on stock market will be encouraged to improve governance and efficiency.

(10) **Universal Access to Electricity:** India has achieved universal electrification, connecting all villages and willing households. Central and State Governments shall, from time to time, undertake review of the status of universal access to electricity in all areas and ensure provisioning of access to electricity accordingly. Priority shall be accorded to accelerating infrastructure development and essential public services to ensure inclusive growth in border regions under various Government initiatives like Vibrant Village Programme.

10. CONSUMER CENTRICITY

The electricity sector will prioritize consumer needs, offering choices in supply and usage. Government policies should encourage consumers to actively manage their energy consumption.

(1) **24x7 Supply**: The distribution licensees must ensure reliable, affordable and quality 24/7 supply.

(2) **Monitoring Service Quality and Compensation to Consumers**: The Appropriate Commission shall specify standards of performance to be adhered to by the licensees, which shall not be inferior to the minimum standards of performance prescribed by the Central Government. Distribution licensees will track and publicly share service quality data in accordance with State regulations, CEA standards, and Central Rules. This information will be tracked

separately for urban and rural areas down to the distribution transformer level. State Commissions will oversee the process to ensure compliance and accountability. State Commissions shall ensure payment of adequate compensation for failure to meet performance standards specified by the Central Rules and State Commission regulations.

(3) **Easy Grievance Redressal**: The grievance redressal system shall include robust online mechanisms for complaint filing and virtual hearings by Consumer Grievance Redressal Forums and Ombudsman. State Commissions shall also conduct periodic consumer satisfaction surveys to assess service quality and responsiveness.

(4) **Consumer Engagement**: Distribution licensees will provide access to consumption and bills on mobile phones of consumers. Distribution licensees should establish cells to educate consumers on tariffs, safety, rights and duties. State Commissions will encourage consumer groups to participate in regulatory processes.

(5) Distribution licensees may support solar roof top installations with energy storage and energy-efficient appliance upgrades.

11. GRID OPERATION

(1) At present, State power transmission corporations perform the functions of Transmission Service Provider (TSP), State Transmission Utility (STU), and State Load Dispatch Centre (SLDC). To professionalize grid operations and promote Tariff-Based Competitive Bidding (TBCB) at the intra-state transmission level, each State Government should unbundle these functions and establish an independent company responsible for state load dispatch operations and for the discharge of STU responsibilities. The power transmission

corporation would continue to function as TSP.

(2) LDCs must deploy advanced technologies (e.g., SCADA/EMS, PMU/WAMS, AI/ML) to enhance power system operations amid rising RE penetration. Demand and forecasting tools leveraging big data analytics must also be deployed. Associated costs may be recovered as per relevant regulations.

(3) Appropriate Commissions must establish regulatory frameworks for ancillary services, generation reserves and Security Constrained Economic dispatch (SCED). They will also implement Deviation Settlement Mechanism for InSTS aligned with the mechanism of Central Commission for ISTS.

(4) LDCs must assess the transfer capability of their respective transmission systems, similar to national and regional LDCs, to ensure secure grid operations and optimum utilization of the power system.

(5) LDCs must establish and maintain a dedicated and trained workforce for managing grid operations. Priority should be given to ensuring adequate staffing levels and regular re-skilling and upskilling to keep pace with evolving grid and market operations.

(6) State Commissions shall regularly update their Grid Codes, to align with Indian Electricity Grid Code specified by CERC to address the challenges of increasing RE penetration.

(7) The CEA shall periodically update technical standards and regulations to reflect emerging grid requirements, while ensuring sufficient lead time for the development of domestic manufacturing and technical capabilities.

12. CYBERSECURITY

The increasing reliance on Information Technology (IT) and Operational Technology (OT) systems has significantly heightened cybersecurity

risks, posing threats to both national security and economic development. A coordinated, standards-driven, and proactive approach is essential to safeguard the power sector.

(1) **Alignment with National Policy and Legal Frameworks:** Power sector utilities shall ensure that all cybersecurity initiatives are fully aligned with the National Cyber Security Policy and relevant provisions of the Information Technology Act, 2000. Utilities must adopt standard operating procedures recommended by designated authorities such as the National Critical Information Infrastructure Protection Centre (NCIIPC) and CERT-In.

(2) **CEA's Role in Regulatory Oversight**: CEA shall formulate regulations on cybersecurity measures for the power sector, covering prevention, detection, response, and recovery protocols.

(3) **Implementation of Cybersecurity Measures**: Power utilities shall implement appropriate systems and controls to ensure cybersecurity, based on relevant standards, guidelines, regulations, and statutory provisions. A comprehensive approach must be adopted to mitigate risks throughout the supply chain of critical assets.

(4) **Security by Design**: Security considerations shall be integrated at all stages of product design, development, and deployment to build resilient infrastructure from the ground up.

(5) **Data Sovereignty and Infrastructure Localisation**: All infrastructure and control systems that store or process power sector data, including those related to battery management systems, must be located within India to ensure data sovereignty and regulatory control.

(6) **Institutional Framework at All Levels**: An appropriate institutional framework shall be established at the national, state, and utility levels in accordance with relevant standards, guidelines,

regulations, and the Information Technology Act to oversee implementation and ensure compliance. Computer Security Incident Response Team (CSIRT)-Power established by the Central government shall serve as the central agency for cyber-incident response and coordination across the power sector. CSIRT-Power shall ensure the implementation of a comprehensive and standardized cybersecurity framework, aligned with CEA regulations, to establish a uniform security baseline while ensuring interoperability across systems and entities.

13. DATA SHARING

Timely and accurate data is fundamental to transparency, effective policy formulation, and evidence-based decision-making. A robust framework for data collection, sharing, and analysis will strengthen governance, market efficiency, and system planning. Sectoral entities shall share data, excluding personally identifiable information, including operational and market data, subject to appropriate safeguards and in accordance with the guidelines issued by the Central Government.

(1) **CEA's Role in Data Management:** As mandated under the Electricity Act, 2003, CEA shall collect, analyse, and publish comprehensive power sector data in the public domain, in a format that is interactive, downloadable, and easily analysable, consistent with international best practices in open data platforms. This includes identifying key trends and providing demand, supply, and investment projections to support long-term planning. CEA shall also specify national standards for utility data architecture, interoperability, and third party access to facilitate the secure and responsible adoption of present and future digital technologies, including but not limited to Artificial Intelligence, Machine Learning, advanced data analytics, and other emerging technologies.

(2) **Obligations of Power Sector Entities:** All power sector entities, including LDCs, shall make their operational, planning, and market-related data and reports publicly accessible. Central Government may exempt public sharing of commercially sensitive data fields.

(3) **Enforcement of Data Standards:** Appropriate Commission shall enforce uniform data sharing standards, taking into account the model framework developed by the Forum of Regulators and sectoral stakeholder requirements. These standards will ensure consistency, comparability, and data integrity across entities.

(4) **Real-time Visibility of Distributed Energy Resources (DERs):** State Commissions shall develop a regulatory framework to enable real-time visibility of Distributed Energy Resources to DISCOMs and SLDCs, facilitating better grid integration, forecasting, and dispatch planning.

14. TECHNOLOGY DEPLOYMENT AND MAKE IN INDIA

To strengthen the energy security of the country and promote self-reliance, a comprehensive and forward-looking approach to technology development, indigenisation, and innovation in the power sector is essential.

(1) **Securing Critical Technologies:** Special efforts shall be made to develop or acquire technologies for equipment, materials, and components that are critical to the energy security of the nation. This will be facilitated through Foreign Direct Investment (FDI) and Government-to-Government (G2G) partnerships, wherever necessary.

(2) **Industry–Academia Collaboration**: Power sector utilities shall be encouraged to enter into strategic partnerships with Indian or foreign firms, and make investments for the development of technologies of national importance that are owned by Indian entities. Utilities shall

deploy such domestically owned technologies in the power system for operational use, with relaxations in experience and other applicable eligibility criteria, where necessary, and shall facilitate their scaling up to promote widespread adoption and ensure commercial viability.

(3) **Adoption of Advanced and Smart Technologies**: The adoption of advanced digital technologies such as Artificial Intelligence (AI), Augmented Reality (AR), and Virtual Reality (VR) shall be encouraged across all segments of the power sector, especially in asset management, network planning and workforce training. Smart grid technologies shall be implemented to enhance grid reliability and support the integration of Distributed Renewable Energy (DRE), demand-side management, Vehicle-to-Grid (V2G) systems, and efficient communication networks.

(4) **R&D Support and Testing**: A suitable funding mechanism shall be developed to promote Research and Development (R&D) in the power sector. Required testing infrastructure will be developed to support development of new technologies. Power utilities shall earmark dedicated financial resources for supporting R&D initiatives.

(5) **Framework by Government:** Appropriate Government will establish framework to encourage the adoption of domestically developed technologies, promote innovation, and R&D.

(6) **Indigenisation and Vendor Development:** A comprehensive policy framework shall be developed for phased manufacturing programmes and vendor development to promote domestic manufacturing of power sector equipment, components, and materials.

(7) **Indigenous Software Development for Grid Operations**: Grid-India and SLDCs shall endeavour to transition to indigenously developed SCADA systems by 2030. The development of domestic software solutions for all critical applications in the power sector shall

be actively encouraged and supported.

15. SKILL DEVELOPMENT

To meet the evolving technical, operational, and regulatory demands of the power sector, a structured and future-ready approach to capacity building, skilling, and institutional strengthening shall be adopted.

(1) **Comprehensive Skill Development Plan:** The Ministry of Power, in consultation with CEA shall implement a structured plan to enhance workforce capacity. This shall include conducting skill gap assessments, developing National Occupation Standards (NOS), and fostering industry-academia-PPP collaborations to meet emerging skill requirements.

(2) **Training for Field-Level and Technical Personnel**: State Power Utilities shall conduct regular training programmes for transmission line construction workers, linemen, fitters, operators, and other field personnel to enhance workforce availability, and ensure safe, efficient and reliable service delivery.

(3) **Strengthening Managerial and Regulatory Capacities:** DISCOMs shall implement targeted programmes to enhance managerial and operational capabilities, while State Commissions, with support from Forum of Regulators (FoR), shall conduct capacity-building programmes to strengthen regulatory and institutional capacity.

(4) **Training Curriculum Development**: Central and State Government training institutions, in collaboration with industry bodies, power sector utilities, Regulatory Commissions, CEA and academic institutions, shall develop sector-aligned training curricula that reflect current and emerging technological needs.

(5) **Undergraduate and Graduate Curriculum Reforms**: The All India Council for Technical Education (AICTE), in consultation with industry

stakeholders, shall lead the reform of undergraduate and graduate curricula to ensure alignment with the skill needs of the power sector and to make graduates industry-ready.

(6) **Cybersecurity and IT Capacity:** The CEA, in consultation with CSIRT-Power, CERT-In and NCIIPC, shall design capacity-building initiatives on cybersecurity, while utilities and SLDCs shall recruit and train young professionals in IT and cybersecurity to safeguard power system infrastructure.

(7) **Financial Commitment to Training**: Power utilities shall ensure dedicated budget allocations for training and skill development, in compliance with the National Training Policy.

16. DISASTER MANAGEMENT

(1) The power system is a critical national infrastructure vulnerable to a range of natural disasters such as floods, cyclones, earthquakes, and other extreme events. Power sector utilities shall incorporate de-risking measures across all stages of planning, construction, upgradation, and operations to ensure system resilience. The choice of materials, technologies, and system configurations shall be guided by location-specific risk assessments, ensuring resilience against common disasters.

(2) State Governments, in consultation with power utilities, shall prepare and periodically update disaster preparedness and business continuity plans to ensure timely response and restoration during emergencies.

(3) CEA shall identify disaster-prone regions; periodically review and update technical standards and construction norms; and issue risk mitigation guidelines applicable across the power sector.

(4) All generating companies, transmission licensees, and distribution

licensees shall ensure full compliance with CEA standards and guidelines. Appropriate Commissions shall monitor and enforce adherence as part of their regulatory oversight.

17. ENERGY EFFICIENCY

Improving energy efficiency across end use sectors like industry, buildings, transport, and agriculture is vital for reducing the peak demand and energy consumption. The following interventions shall be undertaken:

(1) **Agriculture:** Agricultural pumps consume a significant share of electricity, much of which is subsidized. To ensure sustainability, the minimum energy performance standards for all electrically driven pumps including agricultural pumps shall be progressively upgraded, with a view to aligning with best-in-class efficiency benchmarks.

(2) **Buildings:** With growing cooling demand in the building sector, States shall adopt and enforce the Energy Conservation and Sustainability Building Codes for residential and commercial buildings, developed by BEE, to ensure new buildings are energy-efficient. On-site renewable energy systems will be promoted to reduce grid dependency. District cooling systems will be encouraged in large greenfield urban developments.

(3) **Appliances:** To reduce household and commercial electricity consumption, energy performance standards for appliances shall be progressively enhanced to match global benchmarks by 2030. All appliances procured for public use shall meet the highest energy-efficiency standards available in the market.

(4) **Energy Intensive Industries and MSMEs:** Large energy-intensive industries shall transition to the Carbon Credit Trading Scheme (CCTS) in a phased manner. The Appropriate Government shall

promote energy efficiency in the MSME sector through targeted programmes.

18. ENVIRONMENTAL SUSTAINABILITY

(1) State Commissions shall establish regulatory framework to facilitate e-mobility, including expansion of EV charging infrastructure, supportive tariff structures, and promotion of emerging technologies in charging and storage.

(2) To manage municipal solid waste, and reduce emissions from open burning of agricultural residues, their conversion into pellets for co-firing with coal in power generation will be actively promoted.

(3) Solar photovoltaic projects and BESS must account for waste disposal and the recycling of critical minerals, ensuring long-term sustainability.

(4) The establishment of municipal solid waste-to-energy projects in urban areas, along with the promotion of refuse-derived fuel (RDF) and energy recovery from industrial effluents, will be encouraged to mitigate environmental pollution and augment energy generation.

19. FINANCING

(1) India's power sector will require approximately ₹50 lakh crore by 2032 and ₹200 lakh crore by 2047 for generation capacity expansion, transmission, and distribution. Energy security and transition hinges on access to affordable capital and blended financing, as renewable and nuclear projects involve high upfront investments but low operational costs.

(2) To attract long-term, low-cost financing from private investors, international financial institutions, and development agencies, it is essential to provide stable and predictable revenue streams. To

accelerate investments in non-fossil generation capacity, State Commissions should ensure that industrial consumers have unrestricted access to clean power, free from regulatory or procedural barriers, through mechanisms such as Open Access and captive generation.

(3) Dedicated platforms and energy-sector–specific funds may be established under the National Bank for Financing Infrastructure and Development (NaBFID) and the National Investment and Infrastructure Fund (NIIF) to mobilize capital for non-fossil energy infrastructure. Project bankability may be enhanced through the deployment of risk-mitigation instruments such as first-loss guarantees, reserve funds, and multilateral guarantees from Multilateral Development Banks (MDBs).

(4) A climate finance taxonomy will be explored to facilitate concessional green financing, supporting the power sector's transition towards net-zero emissions.

******

Glossary:

Act	Electricity Act 2003
AR	Augmented Reality
AT&C	Aggregate Technical and Commercial
BEE	Bureau of Energy Efficiency
BESS	Battery Energy Storage System
C&I	Commercial and Industrial
CAIDI	Customer Average Interruption Duration Index
CCTS	Carbon Credit Trading Scheme
CCUS	Carbon Capture, Utilisation and Storage
CEA	Central Electricity Authority
CERT-In	Indian Computer Emergency Response Team
CGRF	Consumer Grievance Redressal Forum
COP	Conference of Parties
CTU	Central Transmission Utility
CUF	Capacity Utilization Factor
DISCOM	Distribution Company
DPIIT	Department for Promotion of Industry and Internal Trades
DSO	Distribution System Operator
ECBC	Energy Conservation Building Code
EHV	Extra High Voltage
ESO	Energy Service Obligation
ESS	Energy Storage System
EV	Electric Vehicle
G-20	Group of 20
GDP	Gross Domestic Product
GSI	Geological Survey of India
HVDC	High Voltage Direct Current
ICM	International Carbon Market
ISTS	Inter State Transmission System
IT/OT	Information Technology and Operation Technology
MAIFI	Momentary Average Interruption Frequency Index
MDB	Multilateral Development Bank
MGR	Merry Go Round
MSME	Micro and Small Medium Enterprise
NDC	Nationally Determined Contributions
NEP	National Electricity Policy
NLDC	National Load Despatch Centre
NOS	National Occupation Standard
OTC	Over the Counter
P2P	Peer to Peer Trading
PAT	Performance, Achieve and Trade
PCS	Public Charging Station
PFC	Power Finance Corporation
PLI	Performance Linked Incentives
POSOCO	Power System Operation Corporation
PPA	Power Purchase Agreement
PPP	Public Private Partnership
PSP	Pumped Storage Plant

PV	Photo Voltaic
R&D	Research and Development
R&R	Rehabilitation and Resettlement
RA	Resource Adequacy
RAP	Resource Adequacy Plan
RCO	Renewable Consumption Obligation
RE	Renewable Energy
REC	Renewable Energy Certificate
REIA	Renewable Energy Implementation Agency
REMC	Renewable Energy Management Centre
RLDC	Regional Load Despatch Centre
RLNG	Regassified Liquefied Natural Gas
RoW	Right of Way
SAIDI	System Average Interruption Duration Index
SAIFI	System Average Interruption Frequency Index
SCADA	Supervisory Control and Data Acquisition
SCED	Security Constrained Economic Despatch
SCUC	Security Constrained Unit Commitment
SEBI	Securities and Exchange Board of India
SGST	State Good and Service Tax
SLDC	State Load Despatch Centre
STU	State Transmission Utility
T&D	Transmission and Distribution
TOU	Time of Use
UNFCCC	United Nations Framework Convention on Climate Change
VPPA	Virtual Power Purchase Agreement
VR	Virtual Realty

Explanatory Note on Proposed National Electricity Policy, 2026

Electricity Act, 2003 mandates the Central Government to formulate the National Electricity Policy (NEP) and revise or review it from time to time, in consultation with the State Governments and the Central Electricity Authority (CEA). The first NEP, notified on 12th February, 2005 (NEP 2005), addressed critical challenges facing India's power sector, such as demand-supply deficits, limited access to electricity, and inadequate generation, transmission and distribution infrastructure. The policy aimed to achieve universal electricity access within five years, meet full electricity demand by 2012, improve reliability, and raise per capita availability to over 1,000 units annually, while ensuring financial viability of utilities and consumer protection.

Since 2005, India's power sector has undergone major transformation. Generation capacity has quadrupled, driven by substantial private investment. Per capita consumption reached 1,460 units in 2024-25; universal electrification was achieved by March 2021, and a unified national grid was operational by December 2013, enabling seamless inter-regional power flow. Power exchanges have enhanced flexibility of power purchase, even before one hour of delivery, with largely uniform price all the time, across the country.

Despite these achievements the power sector still has challenges, especially in the distribution segment. Distribution companies have accumulated losses of around Rs.6.9 lakh crore, and outstanding debt has reached Rs 7.18 lakh crore. Tariffs are still not cost reflective and cross-subsidisation has resulted in high industrial tariffs, undermining global competitiveness of Indian industry.

While overcoming these challenges, electricity supply must keep pace with the demands of “Viksit Bharat @ 2047” vision which targets a USD 30 trillion economy, and move towards energy independence. Accordingly, the National Electricity Policy, 2026 (NEP 2026) targets per capita consumption of 2,000 kWh by 2030 and over 4,000 kWh by 2047. India plans to cut emissions intensity by 45% below 2005 levels by 2030, and achieve net-zero by 2070, requiring a shift to low-carbon energy. NEP 2026 outlines strategies to overcome these challenges and achieve the stated objectives. The Policy also seeks to foster competition, ensure grid resilience to integrate increased shares of variable RE, and provide consumer-centric services with demand-side interventions.

The major interventions envisaged in the proposed policy are outlined as below:

1. Resource Adequacy: Under NEP 2005, CEA was mandated to prepare short- and long-term plans as part of the National Electricity Plan, covering a five-year period with a 15-year perspective. However, States and DISCOMs encountered difficulties in translating these national plans into actionable state-level strategies. Resource adequacy (RA) planning is essential to ensure that enough electricity is available to meet demand reliably at reasonable cost. It plays a vital role in optimizing resource mix, indicating capacity enhancement requirements in a scientific manner and attracting investments in power sector. To ensure required capacity expansion through decentralised advance planning, NEP 2026 proposes that DISCOMs and SLDCs shall prepare RA plans at utility and state levels, in accordance with the regulations of State Commissions. CEA, in consultation with stakeholders, will prepare a corresponding national plan to ensure adequacy at the national level.

2. Financial Viability of the Power Sector and Economic Competitiveness of Indian Industry: The need for financial sustainability through recovery of supply cost and a phased reduction of excessive cross-subsidies, supported by targeted subsidies was a key theme of NEP 2005. However, the continued practice of setting tariffs below the cost of supply has resulted in DISCOMs being trapped in recurrent debt cycles. NEP 2026 seeks to restore financial health of the DISCOMs by promoting cost-reflective tariffs, timely cost pass-through, and reduction of AT&C losses. It is also proposed that tariffs must be linked to a suitable index for automatic annual revision which operates if no tariff order is passed by the State Commission. Further, tariffs should progressively recover fixed costs through demand charges to avoid cross-subsidisation between the tariff components as well as among various categories of consumers. The policy also proposes exemption of cross-subsidies and surcharges on manufacturing industry, railways and metro railways to increase the economic competitiveness of Indian goods and reduce logistics cost. It is suggested that Regulatory Commissions, in consultation with Appropriate Governments, may exempt the distribution licensees from the Universal Service Obligation in respect of consumers having a contracted load of 1 MW and above, capable of self-procurement. This is expected to reduce the fixed cost burden on DISCOMs and cost of supply for smaller consumers, enable industries to procure competitively priced power, and contribute to employment generation.

NEP 2026 aims that States complete solarisation of all agriculture feeders suitably backed by storage to provide stable daytime supply to farmers and reduce state subsidy burdens by 2030.

Strengthening of dispute resolution mechanism in addition to the Regulatory Commissions has been envisaged to reduce burden on Regulatory Commissions, enable faster resolution and reduce financial burden on consumers.

3. Renewable Energy Generation and Storage: NEP 2005 aimed to reduce capital costs and attract private investment in renewables through competitive mechanisms. India has achieved over 250 GW (including 50 GW large hydro) RE capacity, which is more than 50% of the total installed generation capacity. Building on this progress and in line with India's NDC commitments, NEP 2026 emphasizes accelerated renewable energy integration. It encourages transmission cost optimized siting of RE projects, RE capacity addition through market-based mechanisms and captive power plants. Focus is on developing RE sources near load with storage to reduce losses and transmission requirement. Distributed RE (DRE) resources development along with storage installations by distribution licensee on behalf of small consumers to get benefit of economies of scale and by bulk consumers themselves has been suggested. Trading of surplus DRE as well storage will be encouraged through trading by consumers themselves (P2P) or through aggregators. With the addition of storage, smart and resilient grids, and advanced forecasting, renewable energy sources have become more dispatchable. globally. This has enabled renewables to achieve operational parity with conventional generation in grid operations. With RE capacity outpacing the conventional generation capacity growth, NEP 2026 proposes that by 2030 or earlier, Central and State Commissions must ensure parity in scheduling and deviation between RE and conventional sources to ensure grid stability. NEP 2026 promotes market-based deployment of storage, use of emerging Battery Energy Storage System (BESS) technologies,

domestic manufacturing of cells and other components of BESS and demand side incentives like VGF for pumped storage projects. NEP 2026 proposes to further strengthen RE sources use as captive by aligning the statutory provisions with flexible capital structures of the companies, simplifying verification procedures and enabling regulatory frameworks.

4. Thermal Generation: While NEP 2005 focused on augmenting generation capacity at the national level, NEP 2026 reaffirms the role of coal-based thermal power in ensuring base load supply. The draft policy recognizes the need to enhance flexibility of thermal plants, integrate storage solutions, and repurposing older units for grid support to enable greater renewable energy integration. To broaden scope of utilization of thermal generating stations especially during high RE generation period, NEP 2026 envisages exploring possibility of direct utilization of the steam generated from thermal plants for applications such as district cooling or industrial processes.

5. Nuclear Generation: The 2005 policy envisaged nuclear power development through public-private partnerships. However, progress has been limited due to policy barriers to private sector participation and high upfront capital requirements. The 2025-26 Union Budget has set a target of 100 GW nuclear capacity by 2047 and the Sustainable Harnessing and Advancement of Nuclear Energy for Transforming India (SHANTI) Act, 2025 has been enacted in December, 2025. In line with this, NEP 2026 encourages adoption of advanced nuclear technologies, developing Modular Reactors, setting up Small Reactors, and use of nuclear energy by commercial and industrial consumers.

6. Hydro Generation: Building on NEP 2005's emphasis on hydropower, NEP 2026 prioritizes optimal utilization of hydro potential through

advanced site assessments, streamlined clearance processes, suitable financing and tariff structure along with incentive mechanisms to enhance project viability. Against the backdrop of climate change and declining per capita storage capacity for water and energy needs, there is an urgent need to undertake climate adaptation measures to safeguard lives and the economy. In this context, accelerating the development of storage-based hydroelectric projects is critical for flood moderation, irrigation, and energy security. NEP 2026 suggests that appropriate financing mechanisms would be put in place to support such projects and strengthen nation's water and energy security.

7. Power Markets: While the Electricity Act, 2003 sought to promote a competitive market beyond long-term PPAs, currently only about 13% of generation is transacted in short-term markets. NEP 2026 seeks to deepen market participation through various measures including bilateral contract settlements, standardized contracts, capacity markets. Regulatory frameworks shall be established to enable aggregation of distributed renewable generation, small storage systems, procurement of ancillary services and demand response mechanisms to broaden market participation by small and new players like prosumers, storage and DRE owners and aggregators. In order to enhance trust, transparency and stakeholders' confidence in the market operations, NEP 2026 suggests a strong regulatory framework for market monitoring and surveillance to prevent collusion, gaming, or market dominance.

8. Transmission: The objective of establishing a unified national grid and a robust transmission network with adequate margins as outlined in NEP 2005 has been achieved. NEP 2026 focuses on emerging priorities such as enhancing grid flexibility, optimizing utilization and augmentation need through storage deployment and augmenting intra-state networks to

accelerate renewable energy integration across all States. It emphasizes optimal transmission planning, efficient network utilization, and adoption of latest technologies including storage devices, Flexible AC Transmission Systems (FACTS), Synchronous condensers, underground cables, and Dynamic Line Rating and suitable compensation for land use to address Right of Way (RoW) challenges. The policy also proposes making competitive tariff-based bidding the default mode for both inter- and intra-state transmission projects to promote private investment and cost efficiency. NEP 2026 envisages a simplified, utilisation-based framework for allocation of transmission connectivity, along with appropriate regulatory mechanisms to ensure optimal use and prevent speculative holding of connectivity. Keeping in view large proportion of RE in total electricity generation mix, which has already surpassed 50% in capacity terms, parity of transmission tariff with conventional power by 2030 for all types of new RE capacity is suggested. Dedicated green feeders will be developed to enable consumers meeting their clean energy consumption commitments. Cross-border interconnections shall be strengthened under the overall vision of One Sun One World One Grid (OSOWOG). India will actively promote the cross-border exchange of renewable energy to support regional energy transition efforts.

9. Distribution: NEP 2005 prioritized restructuring of distribution utilities and transition financing, which led to the unbundling of most of the vertically integrated utilities. Despite central government support through efficiency-linked schemes, DISCOMs continue to face persistent financial stress. NEP 2026 focuses on achieving financial sustainability through optimizing cost structure, especially power purchase cost by advance planning, maximizing revenue by reducing AT&C losses and strengthening of corporate governance. Phased rollout of smart meters

with prepayment facility starting with Government and commercial and industrial consumers, regular energy audits and proper accounting in a time-bound manner are envisaged to achieve single-digit AT&C losses. It also proposes shared distribution networks to enhance competition, efficiency, and accountability while eliminating the requirement of duplication of network. GIS-based asset mapping, consumer indexing and automation will be encouraged for better service and financial viability. To facilitate integration of distributed renewables, storage, Vehicle-to-Grid (V2G) systems, facilitate optimum utilization of these resources through local trading, leveraging technology to improve consumer engagement, and to ensure safe grid operation, establishment of a Distribution System Operator (DSO) has been suggested. Quality and reliability of supply are proposed to be strengthened through the introduction of optimal network redundancy, on lines similar to transmission systems, for specified voltage levels, along with strict monitoring and enforcement of standards of service. N-1 redundancy at distribution transformer level in all cities with population more than 10 lakh is envisaged by 2032. Such cities may also be considered for undergrounding of distribution network in congested areas. Requirement of ensuring universal access to electricity with priority to border areas has been outlined.

10. Grid Operations: NEP 2005 envisaged independent operation of RLDCs and SLDCs and the establishment of NLDC, all of which have been accomplished. With growing share of variable renewable energy, greater grid flexibility is now essential. NEP 2026 emphasizes adoption of advanced forecasting and scheduling tools for smoother RE integration. It is suggested that Grid operators may be assigned ESS for ancillary service management. It further proposes functional unbundling of State

Transmission Utilities (STUs) and creation of independent state-level entities to manage SLDC operations and transmission planning functions. Strengthening of Load Dispatch Centres through the adoption of advanced technologies and deployment of adequately skilled and trained manpower has been proposed to enable them to effectively address grid operation challenges arising from large-scale integration of renewable energy and distributed energy resources.

11. Cybersecurity: Recognizing the increasing digitalization of the power sector, NEP 2026 establishes the need for a robust cybersecurity framework. It proposes strict compliance with Central Government advisories, mitigation of supply chain vulnerabilities, and mandatory storage of power sector data within India to ensure data sovereignty and system resilience. It is also proposed that Computer Security Incident Response Team (CSIRT-Power), established by the Central Government, shall act as the central agency for cyber incident response and coordination across the power sector.

12. Energy Efficiency: NEP 2005 defined Bureau of Energy Efficiency's (BEE) role in advancing energy conservation and demand-side measures. Building on this foundation, NEP 2026 proposes improving electrical equipment efficiency standards, promoting energy-efficient cooling solutions, and expanding adoption of energy-efficient building codes. The Policy further enables Appropriate Governments to support energy efficiency in MSMEs through targeted programmes.

13. Consumer Centricity: Enhancing the quality and reliability of electricity supply and timely resolution of consumer's grievances remains a key priority, as service levels in Indian cities continue to lag global standards. NEP 2026 establishes a consumer-centric framework with a

24X7 supply mandate and compensation for non-compliance. It also mandates robust, technology-enabled grievance redressal systems to ensure transparency and accountability. Electricity sector will prioritize consumer needs, offering choice in supply and usage.

14. Data Sharing: Timely and accurate data is fundamental to transparency, effective policy formulation, and evidence-based decision-making. A robust framework for data collection, sharing, and analysis will strengthen governance, market efficiency, and system planning. Recognizing data as a necessity for innovation, NEP 2026 mandates that all sectoral entities are required to share operational and market data under a framework prescribed by the Central Government. It is proposed that all data except personally identifiable information shall be shared by power sector entities to support the development of technology-driven solutions by different entities including start-ups. Keeping in view large scale DRE installation and smart meters, State Commissions are being advised to develop a regulatory framework to enable real-time visibility of Distributed Energy Resources to DISCOMs and SLDCs, facilitating better grid integration, forecasting, and dispatch planning.

15. Technology and Skill Development: NEP 2026 emphasizes local manufacturing, acquisition of critical technologies, and fostering innovation through AI and digital tools. It introduces a structured Skill Development Framework to align training programmes with emerging technologies and strengthen industry-academia collaboration for workforce upskilling.

16. Environment and Disaster Management: NEP 2026 promotes e-mobility through expansion of EV charging infrastructure, encourages co-firing of biofuels, and supports waste-to-energy and industrial effluent

recovery initiatives to enhance sustainability and reduce emissions. A dedicated Disaster and Crisis Management framework is introduced to address climate risks through improved infrastructure design, stricter standards, and proactive planning in vulnerable regions.

17. Financing: NEP 2026 projects investment requirements of ₹50 lakh crore by 2032 and ₹200 lakh crore by 2047 for the power sector. To mobilize capital efficiently, the Policy proposes establishment of sector-specific funds and development of a Climate Finance Taxonomy to attract concessional and green financing. The policy envisages establishment of dedicated platforms and funds under financial institutions such as National Bank for Financing Infrastructure and Development (NaBFID) and National Investment and Infrastructure Fund (NIIF) to mobilize capital for meeting energy independence requirements.

***