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From Foundation to Future:

IEF Celebrates 25 Years as an Energy Pioneer

Developing Transmission Infrastructure for Accelerated Solar Power Development

R.V. Shahi

It is a matter of great pride and satisfaction for Indian power sector to have crossed 100 GW mark of Solar Power capacity during the year 2025. The fast pace of expansion continues and it can be expected that 500 GW of solar capacity can be a reality by the year 2030. The Solar Module manufacturing capacity in the country, exceeds the annual requirement of expansion. Some of the manufacturers have succeeded in bringing down the import component of Modules substantially, the Adani Group to the extent of about 35% from 70% from where they started. The process of import substitution through strengthening the domestic manufacturing capabilities continues. Hence, the ambitious target of 500 GW by 2030 is not likely to be constrained due to the lack of availability of solar project components, though for equipment like Transformers, manufacturers have to gear up.

The experience of having the capacity in excess of 100 GW has been extremely useful in understanding the issues better, as this achievement has also thrown up certain challenges. The large scale expansion of renewables, predominated by solar power projects, has provided valuable inputs and learnings. International experience in development of transmission for a rapid solar power expansion has invariably highlighted that transmission infrastructure needs to be developed ahead of the power generation projects. It is well known that the gestation period for construction and commissioning of solar projects is less than one year while the transmission projects could take three to four years, thus making the task of developing adequate transmission system ahead of the commissioning of Solar Power Projects too difficult.

Even with the present capacity of over 100 GW, the Solar Project Developers are facing dispatch constraints. The emergence of stranded capacity ranges from 15% to 20%, in some cases even upto 25%. They have also expressed their concern that even though a number of other supports have been rightly provided by the Governmental and Regulatory dispensations, stranded capacity, depriving the solar projects from generating electricity, in fact, deprive them of the expected revenue, since the Power Purchase Agreement (PPA) is based on single part tariff and there is no provision for capacity based tariff component.

The purchasers of power, mainly the State owned Distribution Companies, have a different perspective. In their opinion, the transmission capacity constructed is already burdening the effective solar power tariff to the cost of power in view of the fact that solar power is not available beyond day time. Grid operators also have the apprehension on managing the Grid with rising solar power capacities, which, thus far, at the present capacity, has been managed. The expected rise in the capacity is going to enhance the complexity of managing the Grid when 500 GW of solar power, delivering power during day time, will not be available thereafter. Exercises have been worked out to see how best, and to what extent a Thermal Power Station will be technically capable to bring down its generation capacity utilization when during day time solar power is available. It appears that in most cases this ability will be possible to utilize in the range of 40%s to 50%. If they have to reduce further there will be no alternative than to shut down the power unit during day time, which will be unlikely to be brought back in evenings when there would be serious demand - supply mismatch absence of solar power.

International experience in countries having achieved large scale solar power capacities, and still continuing to expand, indicates that transmission capacities have to be developed ahead of solar power expansion, so that the incidence of backing down of the solar power capacity is minimized if not totally eliminated. Based on international experience, the following extracts provide insights on how to address the challenges associated with the integration Solar Power Projects with the grid aligned with the commissioning of these projects.
(The reference is given at the end of this paper)

International experience in transmission development for accelerated solar power expansion demonstrates that building grid infrastructure must be proactively synchronized with renewable generation to avoid massive project bottlenecks. Over the last decade, over 1.5 million kilometers of new transmission lines have been built globally, yet grid congestion remains a top constraint for solar deployment.

Key international trends include strategic "overbuilding" of transmission capacity to anticipate future load growth, the shift toward cross-regional interconnection to balance geographical variability, and the deployment of Grid-Enhancing Technologies (GETs) to maximize existing lines.

Adaptations on the basis of these inputs will be helpful in Indian context. In a few cases, these are already being attempted as highlighted below:

1. A precise planning of solar project development in select areas where large scale solar project capacity can be developed, in Indian context is possible only in a few select areas like Gujarat and Rajasthan. In most cases firming up of land availability and predicting the Commissioning schedule of solar project which will be good enough to finalise the transmission planning will not be an easy exercise. In any case, given this situation India can plan at least for the former category viz. Gujarat and Rajasthan and a few more in large tracks of waste land for which the advance planning of transmission can be done, and is being done. But, from the point of planning transmission system to having it commissioned is becoming more complex and uncertain due to variety or reasons,

2. Development of transmission lines involving forest areas becomes very critical in view of the long procedure of Forest Clearance. There is considerable scope to set right this process – which starts from a local Forest Official, goes up to State Government Ministry, to regional set up and to Central Ministry of Environment and Forest. There are a number of steps and the time durations both of which can be substantially reduced. There is absolutely no appreciation at most of these steps about what adverse impacts these delays cause financially and otherwise including environment and climate related consequences. The challenge is to generate this appreciation at all levels that matter- tough job but there is no shror cut. Besides this, there could be possibility of revisiting this long procedure and have a time bound clearance process to be followed strictly.

3. Right-Of-Way (ROW) Issue - This used to be a tricky problem here and there. Now it has assumed an alarming dimension holding up a number of important tray projects in the country. The eligibility and entitlements require greater degree of clarity, communication, and consistency of approach between the Central Government and State Governments. The financial compensations are also leading to unaffordable transmission infrastructure. There are examples of transmission projects involving large capital expenditures in the range of Rs.10,000 – 20,000 Crores where more than 80 to 90% of the works are completed, which entails financial burden of interest during construction and loss of revenue of non-completion in the Project keep waiting for only last 10% or even less of remaining work due to ROW issues.

4. In view of the projected large scale expansion, availability of good construction contracting

agencies has also emerged as a challenge. For the size of expansion required during next five to ten years' time frame, it would be obvious that the country does not have the right number with required capability to deliver these projects. Even at the present level of activities, the delays are primarily on account of lack of abilities of many of these contracting agencies.

5. Supply of many of the transmission system equipment, more particularly HVDC, even at present level of activities has emerged as a challenge, if not for required supply but definitely for highly escalated prices. It is relevant to mention that the phenomenon of renewable expansion is not only an Indian initiative, it is global. And, transmission, mismatch for solar has emerged as a challenge even for developed countries because of load and supply variability. Unless the manufacturing sector expands to meet demands envisaged during ten to twenty-year time frame, and equips itself to cope with the challenge of demands, the task will continue to create mismatches. This has also led to higher cost of transmission and hence higher cost of power. Given below is a note on increasing price behaviour, -eference is given at the end of this paper.

   The rapid expansion of solar power, characterized by the need to connect remote solar parks to demand centers, is driving a substantial increase in demand for high-voltage transmission equipment, resulting in **generally rising prices** for transformers and HVDC systems due to supply chain pressure, high material costs, and increased technical complexity.

6. Apart from the challenges faced during construction of Transmission Lines and Sub-Stations due to the reasons mentioned above, there are pre-construction delays as well. The process of identification of projects linked to the long term planning of generation sources and load centres, choice of AC or HVDC system, finalisation of Bid Papers to select Developers etc do take long time. There is a scope to optimise these Time Schedules. Regulatory Commissions also add to the pre-construction delays even on projects which are finalized on the basis of tariff based Competitive Bidding which are covered under the Electricity Act providing adaptation of the tariff by the Regulatory Commission. There is a scope for making improvements in all these procedural steps considering the nature of challenge where the delays do matter in smooth development solar projects. Discussions among Ministry of Power, Energy Department of States, Regulatory Commissions at the Center and States, Central Transmission Utility could lead to optimum time durations for the pre-construction stage for the success of the proactive approach on transmission system development. This will ensure the System to be available prior to the commissioning of solar power projects.

7. The challenges described in the previous paragraphs which are faced during construction, many of them are avoidable and many of them are such where the issues could be resolved without undue delays, also need to be addressed. The impacts of delays have to be explained to public at large and also to the relevant functionaries of the State Government, so that timely actions could considerably reduce these delays. It is not to suggest that these challenges are not being addressed, but the seriousness with which these are taken up by concerned authorities definitely needs a lot of improvement. Business as usual approach would obviously cause progressively increasing proportions of solar power generation capacities getting stranded thereby making the whole economics of solar power getting under stress.

Initiatives and actions suggested above would definitely make a significant difference. However, these actions alone may not be able to eliminate the problem of surplus solar power during day time and the bigger challenge of meeting the need of power

after day time. It is here where a few important initiatives which have been put into action in many countries and the actions are in the pipeline even in India. The approach is to create energy storage using the surplus power during day time, and delivering power from the storage during periods when solar energy is not available. This requirement has undergone serious evaluations and debates, particularly during last about five years. The Battery Energy Storage System has been in use for long time. However, during the initial phase of study and discussions it is Hydrogen which has been under consideration for large scale deployment to function as solar energy storage to be converted into power in evenings. In the recent past however, the preference for Battery Energy Storage System (BESS) in the global context has been established on the ground of economics and also on the ground of handling the technology. Concentrated Energy Storage System (CESS) deploying surplus solar power to be stored in the form steam to run the steam turbines to generated power when needed. In addition to these options the Hydro Pump Storage System (PSP) is being favoured as a long-term option for storing energy from surplus solar power through pumping of water at heights and converting the stored energy by operating Hydro Turbines to produce power. Distributed Renewable Energy (DRE) is yet another initiative which has a bearing on the planning of Transmission infrastructure. This is quite relevant in Indian context and particularly in the context of highly decentralised Solar Power Development envisaged and being implemented in rural India.

Deployment of all these initiatives and technologies will have substantial influence on how the transmission system will be developed. The amount of solar power in large Solar Parks and clusters of projects would be expected from the Developers to be earmarked for one or more of the options of energy storage. This will reduce the burden on the capacity of transmission system that would be developed for evacuating the solar power from these large projects in specific areas. Obviously, there has been a lag in putting these storage facilities resulting in 20% to 30% of stranded solar capacity. Gratifyingly when better clarity has emerged on economics of different energy storage systems, many Project Developers have taken action to install these systems. An emerging approach to structure Power Purchase Agreements which obligate the Solar Project Developers to create energy storage system and to provide power later in evenings would gradually establish this approach firmly. As mentioned earlier, the Hydro Pump Storage System would indeed be the lasting solution to not only partially address the non-availability of solar power in evenings but will also take care of surplus solar power during day time to create required capacity of energy storage.

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Refrences :

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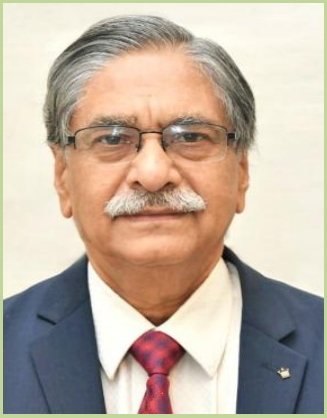

India Energy Forum has completed 25 years of its eventful existence. Established on 28th February 2001, it has, over the years, served effectively as a catalyst for development of a sustainable and competitive energy sector in the Country. It has represented the Energy Sector in totality covering all forms of energy from Fossil and Non-Fossil Sources, Transmission and Distribution, Regulatory Framework etc. Over the years, it has enhanced its outreach in width and depth through regular Conferences, Webinars and Energy Debate platforms by all its Verticals. All this has been possible due to dedication and hard work of the IEF Members. Very able leadership has been provided by its Presidents, Shri P S Bami, Shri Anil Razdan and Shri R V Shahi. Contribution of its Secretary Generals i.e. Shri Amarjit Singh, Shri B Bhambhani and Treasurer Dr V K Garg and all the Vertical Chairmen and Convenors have enabled the Forum to attain a unique position to emerge as an effective spokesperson in the energy field. Regular and efficient support from the IEF Secretariat led by Shri S S Rawat, Head (Admn) has been praise worthy.

The Forum celebrated its Silver Jubilee on 28th Feb 2026 by organizing an interesting Debate on "Financial Sustainability of Electricity Distribution and its Impact on Managing Energy Transmission" with distinguished speakers Shri Anil Razdan, Shri Ajay Shankar, Shri Alok Kumar and Shri R V Shahi, all Former Secretaries, G.O.I. Former Member (Energy), Planning Commission, Shri B K Chaturvedi, was the Chief Guest who delivered the Foundation Day key-note address.

On the 25th Feb 2026, IEF organized a very interesting Webinar on the SHANTI ACT on Nuclear Power – Legislation to Action". Dr R B Grover, Member, Atomic Energy Commission was the main speaker who outlined the Legislative Framework for Nuclear Energy in India.

Other Hon'ble speakers were Shri AP Samal, CEO, NTPC Parmanu Urja Nigam; Shri C P Tiwari, Head (BD, Services & Technology), Tata Power; and Shri Vivek Sharma, (Business Head – Nuclear Energy and Chief Energy Strategy), Adani Power, who shared their contributions in the Power Sector including participation for the Nuclear Energy Programme. Very interesting discussion followed that included (i) speeding up approvals; (ii) need for bulk ordering, (iii) capacity built up of manufacturing and (iv) more indigenization of raw materials and welding consumables and special steels etc. Detail Report will appear in the next issue.

I am sure, with dedication and guidance of its members IEF will continue to grow further and retain its prime position as an effective platform and powerful Forum for the energy sector.

Wishing a Very Happy Silver Jubilee to IEF and many more accolades in future!

S M Mahajan

Power Ministry to Targets 97 GW Thermal Capacity Addition by FY35

The Ministry of Power plans to add at least 97,000 MW of coal and lignite-based thermal power capacity by 2034–35 to bridge the projected demand-supply gap, the Centre informed Parliament recently.

According to the Central Electricity Authority (CEA), thermal capacity requirement is projected at around 3,07,000 MW by FY35, compared with an installed base of 2,11,855 MW as of March 31, 2023. The proposed capacity addition aims to address this shortfall.

Since April 2023, around 17,360 MW of thermal capacity has been commissioned. An additional 39,545 MW is under construction, including 4,845 MW of stressed projects, while contracts for 22,920 MW have been awarded. Further, 24,020 MW has been identified at various planning stages, Minister of State for Power Shripad Naik said in a written reply in the Rajya Sabha.

The projected Plant Load Factor (PLF) for coal-based plants is estimated at around 61 per cent by 2031–32, subject to demand growth and renewable capacity additions.

CEA's generation expansion planning model evaluates the optimal mix of coal, hydro, solar, wind, storage and nuclear capacity, factoring in capital costs, fuel expenses, O&M costs, plant life and operational characteristics.

The all-India weighted average rate of sale of power (WARSP) from existing coal plants has ranged between Rs 4.36 and Rs 4.58 per kWh over the past three years, with the lowest tariff at about Rs 1.52 per kWh.

New coal-based projects awarded through tariff-based competitive bidding in 2025 have discovered tariffs in the range of Rs 5.38–6.30 per kWh.

By comparison, firm and dispatchable renewable energy (FDRE) projects awarded by SECI in August 2024 discovered tariffs in the Rs 4.98–4.99 per kWh range.

However, the government noted that direct tariff comparisons are not appropriate due to differences in operational characteristics, fuel cost structures, risk allocation and system requirements between coal-based and renewable projects.

Capacity Addition Crosses 50,000 MW in FY 2025-26 (Up to 31st January 2026)

During the current financial year 2025–26 (up to 31st January 2026), a record 52,537 MW of generation capacity (from all sources) has been added. Of this, 39,657 MW has been added from Renewable Energy sources, which includes 34,955 MW of Solar Power, 4,613 MW of Wind Power.

This marks the highest ever capacity addition in a single year, surpassing the previous record of 34,054 MW achieved during FY 2024–25.

Further, this also implies that during 2025-26 (upto 31.1.2026), there was an addition of more than 11% to the total installed capacity of the country.

As on 31 January 2026, India's total installed power generation capacity stands at 520,510.95 MW, comprising:

- Fossil Fuel-Based Capacity: 248,541.62 MW
- Non-Fossil Fuel Capacity: 271,969.33 MW
  - Nuclear: 8,780 MW
  - REnergy Sources: 263,189.33 MW

Increasing use of AI, data analytics strengthening power sector: CAG K Sanjay Murthy

Comptroller and Auditor General (CAG) K Sanjay Murthy recently said with the increasing use of artificial intelligence and big data analytics in the power sector, the capacity to tackle inherent complexities in the sector is getting strengthened.

Addressing the National Conference on Power Sector here, the CAG also said it is important for the entire power sector that operational efficiencies and financial sustainability of DISCOMs are enhanced and strengthened through focused and sustained efforts.

Since last decade, Murthy said the power sector has achieved a lot as the generation has gone up from 1,168 BU in 2015-16 to 1,824 BU in 2025-26.

The sources from which this power is being generated have also undergone major change as the shift to green energy has been increasingly gaining focus which is evident from the rise in its share from 6 per cent to 24 per cent, he said.

He also noted that that the transmission network has been augmented by more than 70 per cent and it has achieved a milestone of crossing over 5 lakh circuit km (ckm) of transmission lines.

The Comptroller and Auditor General of India is organising a day-long national conference to facilitate meaningful discussions on recent developments in the power generation, transmission, and distribution sectors.

The conference is being attended by Secretary, Ministry of Power; Secretary, Ministry of New & Renewable Energy; Chairperson, Central Electricity Regulatory Commission (CERC), and Chairperson, Central Electricity Authority along with CMDs of NTPC, NHPC, SECI, PFC, Grid-India and PGCIL.

Murthy said that on the distribution front, a major improvement is being noticed in village and household electrification.

"It is important for the entire power sector that operational efficiencies and financial sustainability of DISCOMs are enhanced and strengthened through focused and sustained efforts," he said.

He also said that there are early signs of recovery in the sector with DISCOMs recording a PAT of Rs 2,701 crore in 2024-25.

Murthy further said the advancement in technology has played a pivotal role in the ongoing metamorphosis of the power sector.

"With the increasing use of Artificial Intelligence and big data analytics in the sector, the capacity to tackle inherent complexities in the sector is getting strengthened," he said.

Murthy said the conference is being organsied to bring together concerned stakeholders including ministries, regulators, PSUs leading the sector across central and states, academia and CAG officers.

At the end of the conference, a comprehensive audit plan would be presented with an aim at achieving the national vision for power sector as well as towards achieving the shared goal of Viksit Bharat.

India’s data centre hub potential: Power, grid challenges and renewable integration, says Deloitte

India has the potential to emerge as a key data centre hub in the Asia Pacific region, provided it can resolve complex power and grid challenges and align renewable integration with rapid digital growth, according to a Deloitte report.

While India accounts for nearly 20 per cent of global data consumption, it hosts less than 5 per cent of the world's data centres, underscoring significant headroom for expansion, said Debasish Mishra, Chief Growth Officer, Deloitte South Asia, dwelling on details of the report brought out at India AI Impact Summit.

India, he said, has a "rare structural opportunity" to emerge as one of the world's leading data centre hubs.

Structural advantages such as lower construction and land costs, competitive power tariffs and a large AIskilled workforce position the country favourably.

Policy support is also strengthening, with Budget 2026-27 proposing a tax holiday until 2047 for foreign companies offering cloud services globally from

India, along with preferential tax treatment to incentivise data centre investments.

The report said Asia Pacific is projected to attract about USD 800 billion in data centre investment by 2030, raising its share of global capacity to 40 per cent and making it the largest market outside North America. India is seen as one of the strongest contenders to capture a significant portion of this growth.

Mishra said India's data centre capacity is expected to expand from around 1.5 GW in 2025 to 8-10 GW by 2030.

"AI-driven expansion will sharply increase electricity demand." AI-linked data centre build-out could require an additional 40-45 terawatt hours (TWh) of power by 2030, up from 10-15 TWh in 2024, lifting the sector's share of national electricity consumption from about 0.8 per cent to 2.5-3 per cent.

AI-focused racks can consume 10-15 times more power than traditional racks, intensifying energy requirements. Although India benefits from relatively low electricity costs and a comparatively modern grid, rapid capacity addition could create a supply gap if generation and transmission infrastructure do not scale in tandem, he said.

Data centres require dedicated, uninterrupted power supply with minimal transmission losses. However, variations in renewable banking rules, open access charges, cross-subsidies and tariffs across states create uncertainty for developers.

Major data centre hubs such as Maharashtra, Tamil Nadu, Uttar Pradesh, Karnataka, Telangana and Andhra Pradesh could each see an additional 2-3 GW of peak demand by 2030, equivalent to 5-20 per cent of their current peak load, placing pressure on state grids.

"India has a rare structural opportunity to rise as one of the world's leading data centre hubs, powered by its cost competitiveness, deep talent and rapidly expanding renewable energy base. The defining moment will be how swiftly power availability and transmission readiness scale with the country's digital ambition," he said.

With the right alignment of policy, grid infrastructure and renewable deployment, India can build AI infrastructure that is globally competitive, sustainable and future-ready, and position itself at the heart of the next era of digital growth, he said.

The report flagged several structural challenges in powering AI-led data centre growth in India. While new data centres are expanding rapidly, power generation capacity is not keeping pace, creating a potential energy supply gap.

Grid stability limitations and constrained substation capacity in high-growth corridors could further strain operations. Transmission upgrades often have longer development timelines compared to renewable generation projects, leading to bottlenecks.

In addition, regulatory differences across states in renewable banking, tariffs and policy incentives create uncertainty for operators, while the absence of a unified national framework to support renewable integration for data centres remains a key gap.

To address these issues, Deloitte recommended accelerating renewable integration through solar-wind hybrid models combined with storage solutions to ensure round-the-clock reliability for high-density AI workloads.

Expanding long-term green power purchase agreements (PPAs), group captive structures and captive renewable installations can provide tariff certainty and reduce cost volatility.

The report also called for upgrading transmission networks and expanding high-capacity substations near growth clusters, along with the creation of power-ready, dedicated Data Centre Economic Zones equipped with pre-built substations and standardised grid connection timelines.

Standardising state-level renewable banking policies would help create predictable clean power portfolios, while leveraging AI to schedule non-urgent computing tasks during periods of low-cost and high renewable availability could further optimise energy use.

Incentivising decentralised renewable models, including co-located solar and storage infrastructure in emerging data centre corridors, was also highlighted as a key enabler.

If implemented effectively, Mishra said, India can position itself as a global leader in sustainable AI infrastructure while strengthening long-term energy security and supporting its broader digital economy ambitions.

Power sector PSUs' investments to rise nearly 19% to ₹1.01 lakh cr in FY27

The government has proposed to increase total investment by the nine state-owned power sector firms by nearly 19 per cent to ₹1,01,762.92 crore in 2026-27 compared to the previous fiscal year.

According to the Budget document, the Revised Estimate (RE) of investment by these nine firms is pegged at ₹85,828.93 crore for 2025-26 while the budgeted estimate (BE) was ₹86,138.48 crore.

State-owned power giant NTPC's investment will be hiked to ₹31,000 crore in the next fiscal year from RE of ₹29,000 crore and BE of ₹26,000 crore in 2025-26.

Similarly, the investment by Power Grid Corp will be raised to ₹37,000 crore in the next fiscal year from RE of ₹28,000 crore and BE of ₹25,000 crore.

The investment by SJVN Ltd will be ₹9,416 crore in FY27 as against RE of ₹7,500 crore and BE of ₹12,000 crore in FY26. The investment by NHPC will also go up to ₹14,323.49 crore in the next fiscal year from RE of ₹12,478.32 crore and BE of ₹13,000 crore.

The investment by Damodar Valley Corporation Ltd will be ₹5,553 crore in FY27, up from RE of ₹3,394 crore and BE of ₹3,394.83 crore for FY26.

North Eastern Electric Power Corporation Ltd will invest ₹1,959.37 crore in the next fiscal year as against RE of ₹1,500 crore and BE of ₹2,600 crore.

However, the investment by Tehri Hydro Development Corporation Ltd has been reduced to ₹2,385.05 crore for 2026-27 from RE of ₹3,543 crore. Its investment as per the BE was ₹3,543.65 crore.

Chenab Valley Power Projects' investment for the next fiscal year was also reduced to ₹1 lakh from the RE of ₹303.61 crore and BE of ₹300 crore in 2025-26.

Power System Operation Corporation Ltd investment will be ₹126 crore in the next fiscal year as against RE of ₹110 crore and BE of ₹300 crore.

The Ministry of Power budget is proposed to be increased to ₹29,996.85 crore for 2026-27 from the RE of ₹21,587.66 crore and BE of ₹21,847 crore this fiscal.

Draft Electricity (Amendment) Bill, 2025 Intends to Remove Wasteful Duplication in Building Distribution Network

The Electricity Act, 2003 (Act) already allows multiple distribution licensee in the same area. It also mandates non-discriminatory open access to the distribution network. But presently, every new licensee had to build its own separate network, which means duplication of poles, wires, and substations - making power costlier for everyone. The proposed amendment under draft Electricity (Amendment) Bill, 2025 intends to remove this wasteful duplication by allowing use of other distribution licensee's network upon payment of charges decided by the State Electricity Regulatory Commission (SERC) by a distribution licensee for supplying power to its consumers.

Under the provisions of the Act, the area of supply for each distribution licensee is defined and it has to be approved by the SERC, while granting license. The subordinate legislations already prescribe a minimum geographical area for granting a distribution licence - covering either an entire Municipal Corporation or at least three adjoining revenue districts, or a smaller area only if specifically notified by the Appropriate Government. Every distribution licensee, whether public or private, will continue to have a Universal Service Obligation for all the consumers including the rural and domestic consumers, except the large consumers for which the distribution licensee is specifically exempted by

the SERC, as per the provisions under the proposed draft Electricity (Amendment) Bill, 2025. They have a duty to supply electricity to all consumers in its area of supply, without discrimination. The amendment further proposed to mandate the SERCs to establish a clear framework for introducing multiple licensees within the same supply area, ensuring transparency and fairness.

It is envisaged that there would not be any adverse impact on agricultural and domestic consumers, rather, the competition will improve quality of service. Further, the subsidies for specified consumer categories including agricultural and domestic consumers may continue to be provided by the State Government under Section 65 of the Act.

This Information was given by The Minister of State in the Ministry of Power, Shri Shripad Naik, in a written reply in the Rajya Sabha recently.

India Eyes 18,000 MW Power Generation Potential from Agricultural Residues

India's transition to a circular economy in agriculture aims to convert its 350 million tonnes of annual agricultural residues into over 18,000 MW of power and nutrient-rich organic fertilizers.

The government has invested Rs 3,926 crore in initiatives to promote sustainable residue management, establishing over 42,000 Custom Hiring Centres and deploying 3.24 lakh machines.

Successful projects like GOBARdhan have led to 979 operational biogas plants. This approach addresses global food waste issues, reduces pollution, and fosters climate resilience by viewing waste as a resource. Ultimately, circular agriculture is crucial for enhancing food security and promoting sustainable growth in rural areas.

AI integration can help manage complexities in power sector: IEA expert

Integration of AI can help manage complexities in the power sector, including in India, where the share of renewables is expected to grow in the years to come, an expert from the International Energy Agency (IEA) said.

"...We are seeing a very strong trend of increasing complexity of the energy sector at large, specifically the electricity systems. So why is it becoming more complex? One is that in general the electrification is rising," Siddharth Sigh of IEA said while speaking at the AI Impact Summit in the national capital.

During a panel discussion organized recently on AI for Power -- Accelerating the Clean Energy Transition -- the energy expert said, the end use of energy is more compared to other fuels. There is greater variable renewable electricity for the system, which was never the case in the past. Most of the other sources of electricity were stable, that is no longer the case. Now with solar and wind, the share of variable renewables is expected to be sizeable by the end of this decade. This is a massive jump of variable electricity in the system.

Integration of AI can help manage complexities in the power sector, including in India, where the share of renewables is expected to grow in the years to come, an expert from the International Energy Agency (IEA) said. "...We are seeing a very strong trend of increasing complexity of the energy sector at large, specifically the electricity systems. So why is it becoming more complex? One is that in general the electrification is rising," Siddharth Sigh of IEA said while speaking at the AI Impact Summit in the national capital.

Battery is to manage that, flex the variability and there are new types of markets.

"Another major trend is that now we have long-term goals that never existed in the past... Now you need something that is more automated and this is where it comes in," he said.

"For India improved forecasting variable electricity generation is a critical aspect. For solar and wind you need minute by minute (tracking) or by understanding of cloud-covered in the specific location... Those are the types of solutions that will be more relevant for India," Singh added.

Arunachal Pradesh targets 19 GW hydropower expansion with ₹1.9 lakh crore investment: Dy CM

Arunachal Pradesh has set a target to add 19 GW of hydropower capacity with an estimated investment of ₹1.9 lakh crore as part of a strategic shift towards large and mega projects, Deputy Chief Minister Chowna Mein informed the Assembly recently.

Replying to a question by BJP member Tapi Darang during Question Hour, Mein, who also holds the power and hydropower portfolios, said the state has declared 2025-2035 as the "Decade of Hydropower" to accelerate development in the sector.

He said the northeastern state accounts for nearly 40 per cent of the country's hydropower potential, with 58,000 MW capacity, positioning the state as a key contributor to India's clean energy transition and its net-zero emissions target by 2070.

"With central support, the state is reviving 13 stalled hydropower projects with a combined capacity of 12.2 GW and has signed MoUs with four central public sector undertakings (CPSUs) in 2023," Mein said.

Of these, three projects -- Heo (240 MW), Tato-II (700 MW) and Tati-I (186 MW) -- have already received approval from the Cabinet Committee on Economic Affairs (CCEA), with work underway at project sites, he added.

The projects are being developed through joint ventures between the state government and CPSUs, with the state holding a 26 per cent equity stake, the deputy chief minister said.

"The Centre is supporting the projects by financing 24 per cent equity through Central Financial Assistance (CFA), capped at ₹750 crore per project. Under this mechanism, CFA support of ₹6,565 crore will be extended through equity participation," Mein said.

He further added that the state will receive 12 per cent free power from hydropower projects and is expected to earn an estimated revenue of ₹4,520 crore between 2025 and 2035, rising to about ₹4,100 crore annually thereafter.

Additionally, the projects are likely to generate around ₹821 crore per year for local area development, while dividends from the state's equity share are estimated at ₹1,452.4 crore, the deputy chief minister informed.

The hydropower expansion is also expected to create over 30,000 skilled direct jobs during construction and operation, along with about 16,000 indirect employment opportunities, he added.

Mein informed the House that the hydropower development department has been restructured and made operational, and a policy for restoration of terminated large hydropower projects under special circumstances is in place.

"The government has also proposed a renovate-own-operate-transfer (ROOT) policy for small hydropower projects to attract private investment, optimise asset utilisation and ensure energy security," he said.

The state is revamping its Small Hydropower Policy 2017, to align with technological advancements in the sector, Mein said.

On major ongoing projects, the deputy chief minister informed that two units with a combined capacity of 500 MW of the 2,000 MW Subansiri Lower Hydroelectric Project have been commissioned, with the remaining three units scheduled for commissioning by March this year.

Full commissioning of all eight units of the project is expected by December this year, Mein said. The 2,880 MW Dibang multipurpose project is under construction and is targeted for completion by February 2032, he added.

Coal exchange rollout should be phased to protect energy security: Coal India

Coal India Ltd (CIL) has said the proposed National Coal Exchange should be introduced in phases with adequate safeguards to protect the country's energy security, PTI reported.

Speaking at the mjunction-organised Indian Coal Markets Conference, V S Maharaj, Executive Director (ICT) at Coal India, said the sector is gradually transitioning from traditional e-auctions to a more structured, market-driven electronic trading platform.

"The shift toward a formalised coal exchange is no longer a distant concept. We are reform-aligned, not reform-resistant. We support modernisation, but reform must be calibrated, phased and aligned with national energy security," Maharaj said.

He cautioned that exposing long-term power generation assets to full market volatility could result in electricity tariff fluctuations and uncertainty in energy supply. Long-Term Fuel Supply Agreements (FSAs), he added, would continue to play a critical role in ensuring stability for thermal power producers.

Describing CIL's approach as "refined, not resistant", Maharaj said the company supports exchange-based digital trading but prefers a gradual rollout of coal sales through the proposed platform.

The National Coal Exchange aims to create a regulated electronic marketplace, moving from the current "one-to-many" auction model to a "many-to-many" price discovery mechanism. Under the framework, coal producers — including CIL — would list available quantities and prices, while buyers would transact at real-time market rates via automated systems.

A central feature of the exchange would be the determination of Market Clearing Price (MCP) and Market Clearing Volume (MCV). Officials said buyers and sellers would submit confidential price expectations through a double-sided closed mechanism, with oversight by the Coal Controller to ensure transparency.

Niladri Bhattacharjee, Partner at Grant Thornton Bharat, said the success of a coal exchange would depend on supply conditions, adding that such a platform would be more effective in a supply comfortable or surplus scenario, reported .

Coal demand set for uptick on rising power needs

The country's coal demand, which had remained weak earlier in the current financial year, is poised for a boost in the coming days on the back of a sharp turnaround in electricity consumption, an industry expert said recently.

Vinaya Varma, Managing Director of mjunction services ltd -- a B2B e-commerce platform and joint venture of SAIL and Tata Steel -- said after successive months of negative growth in October and November, power demand staged a strong recovery in December with a 6.3 per cent growth.

"The tempo has been maintained with power consumption continuing to rise in January as well, due to a harsh winter and general improvement in economic activities," Varma said.

"This, we believe, will boost coal demand in the coming days," he added.

The country's coal sector, after hitting a record one-billion-tonne production milestone, is staring at a surprise demand slowdown, forcing major public firms and new commercial miners to rethink expansion plans amid rising uncertainties.

Against this challenging landscape, mjunction will organise the 19th Indian Coal Markets Conference, "Coalosseum: The Coal Battleground" from February 24-25 in Kolkata.

During the conference, top 36 eminent speakers from coal, power, cement, sponge iron, steel, trading, exchange, and logistics sectors will address various issues facing the coal and energy vertical in the country.

Budget 2026 hikes coal ministry's allocation by massive 640% to ₹3,635 crore

The Union Budget for 2026-27 has provided for a Budgetary allocation of ₹3,635 crore for the Ministry of Coal, a whopping 640 per cent increase over the ₹490 crore Revised Estimate (RE) 2025-26 provided in the Expenditure Budget document for 2026-27.

The allocation for 2025-26 for the ministry was at ₹501 crore, according to the document. It noted that the total allocation for the demand in RE 2025-26 is ₹1,240 crore and in BE 2026-27 is ₹4,390 crore.

According to Sehul Bhatt, Director, Crisil Intelligence, under the Scheme for Promotion of Coal and Lignite Gasification, the coal ministry received an allocation of ₹3,525 crore in FY27 BE, up from just ₹285 crore in FY26RE under the scheme.

"This specific provision was introduced to facilitate the government's ambitious target of achieving 100 MT of coal gasification by 2030. By prioritising gasification, the government is addressing the dual objectives of energy independence and self-reliance. Gasification of coal allows for the conversion of coal into high-value chemical products and cleaner energy forms, thereby optimising the utility of India's vast coal reserves while attempting to mitigate traditional environmental impacts," he told recently.

The additional allocation of ₹750 crore and ₹755 crore in RE 2025-26 and BE 2026-27, respectively, is being met from the balances available under National Mineral Exploration Trust Fund. This amount will be utilised under the scheme Exploration of Coal and Lignite, added the document.

The Economic Survey, tabled in Parliament on 28 January 2026, by Finance Minister Nirmala Sitharaman, noted with the fifth-largest coal reserves and as the second-largest consumer, coal remains crucial, contributing 55 per cent to the national energy mix and fuelling over 74 per cent of total power generation.

It added that India's coal industry reached historic heights in FY25, producing 1,047.52 million tonnes (MT) of coal — a 4.98 per cent increase from the previous year's 997.83 MT. This represents the highest coal production the country has ever achieved, demonstrating the industry's impressive growth and importance to India's energy needs.

"The total coal supply surged by 5.38 per cent, reaching 1,025.33 MT in FY25. Driven by this strong domestic output, imports registered a significant 7.9 per cent decline, falling from 264.53 MT in FY24 to 243.62 MT in FY25. Furthermore, the ratio of domestic production to consumption has also steadily improved over the past decade, as production growth has consistently outpaced consumption growth," the Survey added.

Coal blocks to be allotted only through auctions: Govt

The Government recently said 136 coal blocks have been successfully auctioned since 2020 following the Niti Aayog's recommendations, and future allocations will also be done through a participative bidding process.

Replying to supplementaries during the Question Hour in the Rajya Sabha, Minister of State for Coal Satish Chandra Dubey said the government is ready to examine the Telangana state government's proposal to allot the Tadicherla coal block on an administrative basis to state-owned Singareni Collieries.

"But, the state government of Telangana has to send a formal proposal giving reasons how this block is different from other blocks.

"If such a proposal comes, the government will take a decision in the interests of the people of Telangana as per law and after keeping the recommendations of the Niti Aayog in mind," the minister informed the house.

He said that after the recommendations of the Niti Aayog in 2020, the government has auctioned a total of 136 coal blocks, and Singareni has itself made a profit of Rs 6,000 crore.

"Then, why does it not participate in the auction process. Now, Coal India and other PSUs also

participate in the auctions and take the Coal blocks. If the state government sends a fresh proposal and tells what is so special about that particular coal block, the government is ready to examine and take a decision," Dubey said.

Congress MP from Telangana Anil Kumar Yadav Mandadi asked why the allotment is not being made to Singareni, when the state government is giving proposals again and again, but still the government is asking for fresh proposals.
"When there is an enabled provision in law, why is the government is not allotting the Tadicherla coal block to Singareni Collieries," he asked.

The minister replied that in the past, too, the Government allotted three blocks to Singareni - Naini, Penagadapa, and New Patrapada.

"In 2022, the government could not work on them and gave them back to the Government of India. Only Coal block Naini is functional. If a letter had come in 2013, a lot of time has gone by, and they should send a fresh proposal again as to what is special about that coal block. The proposal will be freshly examined in the interest of the people of Telangana," he said.

The minister told the house that post 2020, 136 blocks have been allotted after successful auctions and revenue of Rs 43,000 crore would be received by the central government once coal production starts. This would also provide employment opportunities to 5 lakh people, he said, adding that 44 new companies have participated in the coal block auctions.

M Thambidurai (AIADMK) also asked why public sector undertakings were not being allotted coal blocks. The minister replied that all state governments are competent to participate in the auction process.

"If there is any special circumstance, then too the blocks would be attempted to be allotted through a participative process. Anyone giving more revenue and more price, we would give the coal block to them only," the minister said.

In his written reply, Minister of Coal and Mines G Kishan Reddy said, "All the coal blocks are being offered for allocation by way of auction for sale of coal. No coal block has been allocated to Public Sector Unit (PSU) through allotment route after June 2020".

"This is being done in the context of the High-Level Committee (HLC) headed by the Vice-Chairman, Niti Aayog on Mines, Mineral and Coal sectors, which was constituted on March 29, 2019, to give recommendations for enhancing exploration, domestic production, reducing imports and achieving rapid growth in exports of coal.

"The Ministry of Coal has accepted the recommendations made in the HLC report that all concessions for exploration and mining will be gradually shifted for commercial purposes. After one year of the acceptance of the said report, all auctions/allotments would be given for (i) commercial purpose only and, (ii) that after one year, direct allotment route shall be closed except under exceptional circumstances to be determined by Ministry of Coal and (iii) PSUs may also participate in auction of coal blocks," the minister said.

Coal India arm SECL identifies 7 mine dumps for rare earth exploration

SECL's initiative aligns with the government's push to unlock value from coal mine waste. Trace rare earth elements (REEs) have been detected in overburden dumps across major coalfields, potentially reducing import dependence.

SECL Chairman and Managing Director Harish Duhan said the tendering process for exploration has already begun, with plans to scientifically assess the dumps within the next year to pinpoint viable sites.

"Under the guidance from the ministry of coal, we have identified seven mine dumps for rare earth elements extraction. We have started the tendering process and within a year or so we will identify which area, which mine dumps, overburden carry rare earth elements," Duhan told PTI. Rare earth elements, critical for high-tech industries like electronics, renewable energy and defence, have emerged as a strategic priority for India amid global supply chain concerns dominated by China.

Govt to Deploy AI to Ease Grid Congestion: Pralhad Joshi

Union New and Renewable Energy Minister Pralhad Joshi announced that the Indian government will implement AI-based solutions to address grid congestion and renewable energy curtailment.

At the AI Impact Summit, he emphasized the need to manage grid stability and reduce power capacity curtailment, which prevents renewable energy transmission.

The government is also facilitating a decrease in Battery Energy Storage Systems (BESS) costs through viability gap funding, projecting a battery storage requirement of 411 gigawatts by 2032.

Joshi highlighted continued advancements, such as the “One Solar” web application and innovative digital models to enhance power distribution. Additionally, India has formed a joint offshore wind taskforce with the UK.

Multiple steps taken to reduce green hydrogen cost: MNRE Minister Shripad Yesso Naik

The government has taken multiple steps, such as production incentives, to reduce the manufacturing cost of green hydrogen, Parliament was informed recently. The government is implementing the National Green Hydrogen Mission (NGHM). with an objective to make India a global hub of production, usage and export of Green Hydrogen and its derivatives, Union Minister of State for New and Renewable Energy Shripad Yesso Naik said in a written reply in Rajya Sabha.

He said India's Green Hydrogen production capacity is likely to reach 5 Million Metric Tonnes per annum by 2030.

"Under the incentive scheme for Electrolyser manufacturing, 15 companies have been awarded a total manufacturing capacity of 3,000 MW per annum. The total incentive awarded is ₹4,440 crore," the minister informed the Upper House.

He said that under the incentive scheme for Green Hydrogen production, 18 companies have been awarded a cumulative production capacity of 8,62,000 tonnes per annum. Under the incentive scheme for procurement of Green Hydrogen for refineries, 2 companies have been awarded a total capacity of 20,000 tonnes per annum.

Without sharing any details, Naik said prices have been discovered by Solar Energy Corporation of India for the production and supply of 7,24,000 tonnes per annum of Green Ammonia (a derivative of Green Hydrogen) to 13 fertiliser units across India.

As part of the efforts, the green hydrogen/green ammonia plants commissioned on or before 31.12.2030, and which utilize renewable energy for the production of green hydrogen or green ammonia, have also been granted exemption from the payment of Inter State Transmission System (ISTS) charges for a period of 25 years, starting from the date of commissioning of the project, he said.

India adds record 7.8 GW of solar open access capacity in 2025: Report

India added 7.8 gigawatts (GW) of solar open access capacity in calendar year (CY) 2025, marking the highest annual additions to date with installations rising marginally by 0.5 per cent compared to 7.7 GW added in 2024, according to a recent report by Mercom India.

The report titled ‘Q4 & Annual 2025 India Solar Open Access Market Report’, added that the record additions were driven by a front-loaded installation pattern in the first half of 2025, which significantly influenced annual deployments despite relatively flat year-on-year growth.

"Rising costs, tighter compliance requirements, and execution constraints will influence the pace of additions in the near term. However, the underlying drivers remain solid, and as infrastructure and regulatory clarity improve, open access is positioned for sustained growth," said Raj Prabhu, CEO of Mercom Capital Group.

According to the report, cumulative installed solar open access capacity crossed 30 GW as of December 2025. The country also had more than 45 GW of projects under development and in the pre-construction phase at the end of Q4 2025.

However, renewable energy certificate (REC) volumes cleared on the Indian Energy Exchange (IEX) fell nearly 58 per cent quarter-over-quarter (QoQ), while volumes in the Green Term Ahead Market (G-TAM) declined by 32 per cent QoQ.

In the fourth quarter (Q4) of 2025, India added 1.6 GW of solar open access capacity, down about 29 per cent from 2.2 GW in Q3 2025 and more than 32 per cent lower than the 2.3 GW added in Q4 2024.

The Q4 slowdown was attributed to projects being commissioned ahead of schedule before the Inter-State Transmission System (ISTS) charge waiver expired in June 2025, reducing the number of projects available for commissioning later in the year.

Market activity showed mixed trends. The Green Day-Ahead Market (G-DAM) recorded an 18 per cent QoQ increase in traded volumes. Adani Green Energy accounted for 38 per cent of electricity traded in GDAM, while Odisha procured the highest volume, representing 23 per cent of traded electricity.

Karnataka led new installations in 2025, accounting for over 24 per cent of additions, followed by Maharashtra and Rajasthan, contributing over 20 per cent and 18 per cent, respectively.

Maharashtra, Tamil Nadu, and Gujarat led Q4 installations, accounting for 27 per cent, 22 per cent, and 17 per cent of quarterly capacity additions, respectively.

India Strengthens Global Renewable Energy Partnerships, Accelerates Policy Reforms: MNRE

The Government of India is intensifying global collaboration and accelerating domestic policy reforms to advance renewable energy deployment, energy storage, and grid integration, the Ministry of New and Renewable Energy (MNRE) informed the Rajya Sabha.

Union Minister of State for New and Renewable Energy Shripad Yesso Naik, in a written reply, said the ministry is actively engaging with multiple countries and international organisations to promote cooperation in solar energy, wind power, green hydrogen, energy storage, and grid integration through Memorandums of Understanding (MoUs), Letters of Intent (LoIs), Joint Declarations of Intent (JDIs), energy dialogues, and strategic partnerships.

These collaborations focus on policy exchange, capacity building, knowledge sharing, personnel training, scientific cooperation, joint research, and technical development projects, alongside regular workshops, seminars, and working group engagements. The ministry also maintains extensive interaction with foreign governments and private sector stakeholders to strengthen international partnerships.

India currently has renewable energy cooperation frameworks with over 40 countries and global institutions, including Australia, France, Germany, Japan, USA, UAE, United Kingdom, Saudi Arabia, Netherlands, Brazil, Canada, Denmark, Sweden, Egypt, Italy, Indonesia, Portugal, Nigeria, Thailand, Sri Lanka, and IRENA, along with multilateral platforms such as the India-Brazil-South Africa (IBSA) Trilateral Forum.

Policy Reforms and Sectoral Modernisation

The government has undertaken a series of structural reforms to modernise India's renewable energy legislation, services, and sector governance. Key measures include the issuance of a bidding trajectory of 50 GW per annum from FY 2023-24 to FY 2027-28, allowing 100% FDI under the automatic route, and waiver of inter-state transmission system (ISTS) charges for renewable energy projects.

Additionally, the Renewable Consumption Obligation (RCO) trajectory has been notified till 2029-30, alongside standard bidding guidelines for tariff-based competitive procurement of solar, wind, wind-solar hybrid, and firm & dispatchable renewable energy (FDRE) projects.

To facilitate large-scale deployment, the government continues to implement the Solar Parks and Ultra Mega Solar Power Projects scheme, while strengthening evacuation infrastructure through financial support under the Green Energy Corridor Scheme.

Further regulatory reforms include net-metering provisions up to 500 kW, the National Repowering and Life Extension Policy for Wind Power Projects, 2023, and the notification of Offshore Wind Energy Lease Rules, 2023 to regulate offshore wind development.

Technology Upgradation and Quality Assurance
To promote technological advancements and operational efficiency, the government has launched research, development and demonstration (RD&D) programmes, implemented Standard & Labelling schemes, issued Quality Control Orders, and mandated the Approved List of Models and Manufacturers (ALMM) for solar PV modules and wind turbines.

Digitalisation and Green Innovation Drive
The ministry is also leveraging digital technologies to enhance transparency, monitoring, and efficiency across renewable energy projects. Digital platforms under PM Surya Ghar: Muft Bijli Yojana and PM-KUSUM schemes are being deployed for application processing, project tracking, and beneficiary monitoring.

Advanced geospatial mapping, digital resource assessment tools, and project optimisation platforms are being adopted to improve site selection, project planning, and operational performance. These initiatives aim to strengthen long-term sustainability, resilience, and accountability across the renewable energy ecosystem.

Market Reforms and Payment Security

To ensure market efficiency and financial discipline, the government has notified Green Energy Open Access Rules, 2022, enabling consumers with contract demand of 100 kW and above to procure renewable energy. The Green Term Ahead Market (GTAM) has also been launched to facilitate power trading through energy exchanges.

Additionally, power dispatch has been linked to Letters of Credit (LCs) or advance payments, strengthening payment security mechanisms for renewable energy generators.

This consists of 246,942 MW (48.07%) from fossil fuels and 266,788 MW (51.93%) from non-fossil sources. In 2025, 48,436 MW of renewable energy capacity was added, primarily from solar (37,945 MW) and wind (6,347 MW).

The government implemented several initiatives, such as waiving transmission costs for renewable energy projects, issuing competitive bidding guidelines, and enabling 100% FDI in renewable sectors.

Plans for various renewable and nuclear projects, including a target of 100 GW nuclear power by 2047, were announced to enhance energy security and contribute to commitments under the Nationally Determined Contributions to the Paris Agreement.

Overall, these efforts are aimed at ensuring a sustainable energy transition towards net-zero emissions by 2070.

Renewable Energy Share in India's Power Mix Set to Rise to 26% in FY2026

India's power sector is undergoing a structural shift, with renewable energy (RE) steadily India's power sector is undergoing a structural shift, with renewable energy (RE) steadily increasing its contribution to the overall generation mix. As per a research by Infomerics Ratings, the share of renewable energy in electricity generation is projected to reach around 26 percent in FY2026, up from 22 percent in FY2025, even as overall power demand growth is expected to remain modest at about 1 to 2 percent during the year.

Between FY2021 and FY2025, electricity demand recorded a strong compound annual growth rate (CAGR) of 7 to 8 percent, broadly aligned with India's GDP growth of approximately 8 percent during the same period.

However, demand growth slowed in the first nine months of FY2026 due to the impact of an early and prolonged monsoon. Despite this temporary moderation, demand is expected to remain robust over the medium term, driven by energy-intensive sectors such as manufacturing, electric mobility, data centres, and green hydrogen.

Capacity Additions Driven by Renewables
On the capacity front, installation activity has accelerated significantly. Around 52 GW of capacity was added in the first nine months of the current fiscal year, compared with an average annual addition of roughly 21 GW between FY2021 and FY2025. Renewable energy has been the primary driver of this expansion, accounting for more than 90 percent of new capacity additions.

Rohit Inamdar, Chief Rating Officer, Infomerics Ratings, said, "RE capacity additions touched a record ~49 GW in the 9MFY2026, keeping pace with the national target of 500 GW by FY2030. RE accounts for nearly 64% of incremental electricity generation growth during 9MFY26. Consequently, the RE share in overall electricity generation is projected to rise to ~26% in FY2026, marking a 4-percentage point increase over FY2025."

Storage Requirements
Looking ahead, renewable energy — led primarily by solar — is expected to dominate India's installed capacity mix. By FY2032, RE is projected to account for nearly 59 percent of total installed capacity.

To meet an estimated peak demand of 458 GW by FY2032, particularly during non-solar hours, large-scale deployment of energy storage systems (ESS) will be essential. This includes battery energy storage systems (BESS) and pumped storage projects (PSPs).

Of the planned 236 GWh BESS capacity targeted by FY2032, only about 0.2 percent was operational as of June 2025, while roughly 9.6 percent (22.6 GWh) is currently under development. India presently operates around 5 GW of pumped storage capacity, with more than 12 GW under construction and nearly 69 GW in the development pipeline.

Mithun Vyas, Associate Director, Infomerics Ratings, said, "BESS typically require 18–24 months for implementation, whereas PSPs involve a far longer construction cycle of 4–6 years. Delays in signing power purchase agreements (PPAs) for BESS linked REs remains a key challenge in the run-up to FY 2032, as utilities await further cost corrections in BESS. The tariff for BESS linked RE currently remains high due to high battery cost. Therefore, the ability of Independent Power Producers (IPPs) to tie-up PPAs for BESS linked REs at remunerative tariff remains critical from credit perspective."

At the same time, a considerable portion of renewable capacity under construction is expected to be contracted through the Renewable Purchase Obligation (RPO) framework, under which distribution companies must procure more than 43 percent of their power from renewable sources by FY2030.

Operational RE projects with tied-up agreements continue to benefit from the 'must-run' status, which ensures priority procurement by distribution utilities and reduces offtake risk.

India emerging as a Global Leader in RE expansion: UN

With India "emerging as a global leader in renewable energy expansion", the UN is organising a roundtable on the matter, which ranks high among Secretary-General Antonio Guterres' priorities during his visit to New Delhi, according to his Spokesperson Stephane Dujarric.

The meeting of senior leaders from industry, finance, policy, and civil society will "discuss renewable energy and energy transition, with India emerging as a global leader in renewable energy expansion", he said. He said the meeting "is part of the Secretary-

General's continued efforts to advance faster, fair and more inclusive global energy transition, aligned with the Paris Agreement".

The meeting's agenda is to come up with concrete steps towards these goals in a range of areas, including renewable energy development, strengthening the grid and storage, and mobilising investment, Dujarric added.

India is committed to reducing its GDP emissions intensity of greenhouse gases by 2030 to a level of 45 per cent below 2005 levels, raise share of non-fossil fuel electric power capacity to 50 per cent, and create carbon sink of 2.5 billion tonnes to three billion tonnes.

Finance Minister Nirmala Sitharaman said last week that India has already achieved nearly two-thirds of its nationally determined contributions in fighting climate change four years ahead of schedule.

It was on its own funding its fight against climate change and deploying its technology, she said at the Munich Security Conference.

"Six years ago, we were spending approximately 3.7 per cent of our GDP on climate action. Today, that figure is close to 5.6 per cent," she said.

"We are not waiting for financing and technology to come from elsewhere — but they must come", she said.

Guterres is travelling to India to participate in the AI Impact Summit 2026, a major global gathering on artificial intelligence that is underway in the Global South for the first time at this scale.

The Summit, organised by the Ministry of Electronics and Information Technology, is taking place in New Delhi from February 16 to 20. It will bring together governments, international organisations, industry leaders, academics and civil society to examine how artificial intelligence can be harnessed responsibly to advance sustainable development.

India Pushes States to Identify Water Bodies to Scale Floating Solar Capacity

The Union Ministry of New and Renewable Energy (MNRE) has called on States and Union Territories to identify and prioritise suitable water bodies for the development of floating solar photovoltaic (FSPV) projects, signalling a stronger push to scale deployment of the technology across the country.

The direction emerged during a stakeholder consultation workshop held on 20 February 2026 under the chairmanship of J V N Subramanyam, Joint Secretary, MNRE. The meeting focused on reviewing the draft Floating Solar PV Potential Assessment Report and the draft floating solar policy prepared by the National Institute of Solar Energy (NISE) and IIT Roorkee.

Push to Unlock Floating Solar Potential

Floating solar is being seen as a strategic solution to India's land constraints in the expansion of renewable energy. By utilising reservoirs, lakes, and other water bodies, the technology allows capacity addition without competing with agricultural or urban land use.

However, India has commissioned only around 700 MW of floating solar capacity so far, according to MNRE. This is largely due to limited availability of reliable site data and the absence of a clear policy and execution framework.

To address these gaps, MNRE — in collaboration with NISE and IIT Roorkee — has developed draft documents aimed at mapping potential sites and establishing a structured policy pathway for project development.

States Asked to Lead Site Identification

As part of the next phase, MNRE has requested States and UTs to conduct internal consultations across multiple departments, including water resources, irrigation, revenue, fisheries, forests, agriculture, power utilities, public works, tourism, and pollution control authorities.

The ministry emphasised that coordinated state-level engagement will be critical for identifying viable water bodies, assessing feasibility, and resolving administrative and regulatory challenges. Based on

the draft potential assessment and policy framework, States are expected to prioritise sites that can be fast-tracked for floating solar deployment.

Focus on Faster Execution and Risk Reduction
Discussions during the workshop also explored implementation models designed to reduce project risks and improve execution timelines. Proposed implementation models, designed to reduce project risks and improve execution timelines, included plug and pay frameworks and the allotment of water bodies with key approvals already in place to de-risk investments.

MNRE indicated that additional consultations will be undertaken with national institutions, including the Ministry of Environment, Forest and Climate Change (MoEFCC), the Wetland Authority, and the National Dam Safety Authority.

Indo-UK offshore wind task force launched, India crosses 272 GW non-fossil fuel power capacity

Union New & Renewable Energy Minister Pralhad Joshi recently said India has over 272 GW nonfossil fuel-based electricity generation capacity, including 141 solar and 55 GW wind energy, at the launch of 'India-UK Offshore Wind Taskforce'.

This assumes significance in view of India's ambitious target of 500 GW of renewable energy by 2030 and net-zero emission target by 2070. UK Deputy Prime Minister David Lammy and British High Commissioner to India Lindy Cameron were present on the occasion.

Addressing the official launch of the India-UK Offshore Wind Taskforce, Joshi said in the ongoing financial year, India added more than 35 GW of solar and 4.61 GW of wind capacity.

Also, he said last year India achieved 50 per cent of its cumulative installed power capacity from nonfossil sources, five years ahead of our Nationally Determined Contribution commitment.

"Today, India's installed non-fossil capacity stands at over 272 GW, with solar at more than 141 GW and wind at 55 GW... to give you an idea of our scale, almost 3 million households have benefitted from rooftop solar under PMSGMBY in less than 2 years. We have solarised 2.1 million pumps under another single scheme, called PM-KUSUM," he added.

The minister pointed out that these numbers reflect a clear policy direction, institutional coordination and the confidence of investors and industry. But the next phase of our transition must strengthen reliability, grid stability, industrial depth and energy security, he opined.

He stated that offshore wind has a strategic role in the next phase and promising zones have been identified off the coasts of Gujarat and Tamil Nadu. Transmission planning for an initial 10 GW offshore evacuation capacity, 5 GW each off Gujarat and Tamil Nadu, has been completed. A Viability Gap Funding scheme has also been introduced to support early projects, with a total outlay of Rs 7,453 crore, which is approximately 710 million pounds, he added.

As we all know, offshore wind is among the most complex segments of the global energy transition. It demands specialised port infrastructure, marine logistics, robust seabed leasing frameworks, clear risk allocation and bankable commercial structures," Joshi said.

That is why this taskforce matters, he pointed out.

As agreed under the India-UK Vision 2035 and the Fourth Energy Dialogue, the taskforce has been constituted to provide strategic leadership and coordination for India's offshore wind ecosystem.

The minister stated that the UK has demonstrated global leadership in scaling offshore wind, from earlystage deployment to large commercial markets with mature supply chains. "India brings scale, long-term demand and a rapidly growing clean energy ecosystem. Together, we can focus on three practical pillars," he said.

First, ecosystem planning and market design. Refining seabed leasing frameworks, aligning bidding trajectories with grid readiness and ensuring revenue certainty mechanisms that are credible and transparent.

Second, infrastructure and supply chains. Port modernisation, local manufacturing of foundations, towers, blades and cables, specialised vessels and skilling for marine operations.

Third, financing and risk mitigation. Blended finance structures, early stage de-risking instruments and mobilisation of long term institutional capital. Offshore wind must also be integrated with transmission planning, storage solutions and emerging coastal green hydrogen clusters, he said. "We have also set a new benchmark in green hydrogen, with prices falling to a historic low of Rs 279 per kg under the National Green Hydrogen Mission," he said.

This task force is actually a trust force, he said, adding that it reflects confidence that India and the United Kingdom can work together in solving real execution challenges.

Energy storage funding falls 19% in 2025 despite resilient deal activity; VC investment jump 30%: Report

Global corporate funding for energy storage companies declined 19 per cent year-on-year to $16.2 billion in 2025, even as deal activity remained resilient and venture capital investment rose sharply, according to a report released by Mercom Capital Group on funding and mergers and acquisitions (M&A) in the energy storage and smart grid sector.

The reported the total funding in energy storage reached $16.2 billion across 119 deals in 2025, compared with $19.9 billion raised through 116 deals in 2024. While overall capital inflows fell, the number of transactions increased 3 per cent year-on-year, reflecting steady investor interest despite a more challenging policy and financing environment. Mercom noted that 2024 funding levels were boosted by a handful of outsized debt transactions, which did not repeat in 2025.

“Energy storage clearly emerged as a winner under the OBBB, with the preservation of investment tax credits for standalone battery storage and production tax credits supporting continued investment amid rising data centre-driven power demand. Project M&A activity also remained strong, reinforcing sustained demand for energy storage assets,” said Raj Prabhu, CEO of Mercom Capital Group.

Venture capital funding in the energy storage sector, however, rose 30 per cent year-on-year to $4.8 billion across 75 deals, up from $3.7 billion across 84 deals in 2024. Downstream energy storage companies attracted the largest share of VC funding during the year, followed by materials and components providers, energy storage systems companies, battery recycling firms and lithium-based battery developers.

Waste-to-energy project planned at Turbhe landfill in Navi Mumbai

The Navi Mumbai Municipal Corporation (NMMC) planned to establish a waste-to-energy project at its Turbhe landfill site in Navi Mumbai to manage and dispose of solid waste generated in the Navi Mumbai area under the Solid Waste Management Act 2016 on a Public Private Partnership (PPP) basis.

The estimated cost of setting up the Integrated Solid Waste Management Facility project was ₹2,100 crore. In the first phase, ₹910 crore was appropriated for a bio-gas energy plant and a waste-to-electricity facility. Of this, NMMC planned to spend ₹181 crore on providing basic structures, while the concessionaire was to fund ₹729 crore for establishing the project.

NMMC commissioner Kailas Shinde said the project was significant for the health of Navi Mumbai citizens and for the smart city, and he took personal interest in it. Belapur MLA Manda Mhatre, who followed up the issue at Mantralaya level, said she worked for many years towards ensuring that a municipal corporation like Navi Mumbai had its own waste-to-energy project, citing the rapidly growing population of Navi Mumbai and the increasing problem of domestic and industrial waste.

According to Shinde, a Letter of Award (LOA) was given to R & B Greentech LLP for developing an integrated project on a PPP basis under the Solid Waste Management Act 2016 for the management and disposal of solid waste generated in Navi Mumbai. This ensured the commencement of the project soon. Phase I is to be completed in the next

36 months. NMMC will have a 26% stake in the project.

The project is to be created on the landfill site, which spread across 100 acres. The site currently received over 850 MT of municipal solid waste daily for segregation, processing, and scientific disposal, where a waste-to-manure plant and construction and demolition waste plants are in existence. The facility is to be constructed to dispose of 850 tonnes of solid waste generated in Navi Mumbai, of which 100 tonnes were collected from the APMC market alone.

The development plan of the waste segregation system is for a projected population of 32.23 lakh by the year 2038. Shinde said the project details were scrutinised by IIT-Bombay. It was proposed to set up a project with a capacity of 1,500 tonnes per day.

This includes Bio-CNG with a capacity of 450 tonnes per day for integrated processing of wet organic waste, including organic waste and coconut husks sorted by the waste classification system, and bio-char from the mulch produced from roadside trees and gardens. It also included around 600 tonnes per annum for thermal incineration of classified Refuse Derived Fuel (RDF). A Waste to Energy (WTE) project is also proposed.

The electricity generated from the project is estimated to be 27 megawatts per day through green open access mode. The sewage disposal centres of the civic area, the sewage treatment centres, and the offices of NMMC will use the generated power. "It would save a hefty amount for NMMC while buying power at ₹5.5 per unit for the next 20 years, as compared to the electricity consumption charges being paid for its establishments. NMMC will also use the Bio-CNG from the project for its transport buses at a cheaper price," said Shinde.

The cost of disposing of waste will drop significantly from the current rate of ₹500 per tonne to ₹385 per tonne. The landfill area was to be cleared with the coming of the project. A sewage treatment plant was also to be constructed using the heat exchanger generated from this project, and the sludge generated was to be collected and converted into electricity. The project included the construction of a solar power plant. The estimated construction period for this project was 36 months. After commissioning, the agency was to maintain the facility for the next 20 years.

Tender to support 500,000 tonnes green methanol production in works

The renewable energy ministry is preparing to float a tender in the coming months to support production of half a million tonnes of green methanol a year, people aware of the development said. The low-carbon, renewable fuel is likely to be procured by Deendayal Port Authority under medium or long-term contracts and supplied to shipping companies.

Deliberations are ongoing on the guidelines for the green methanol tender, the people said. The guidelines will clarify whether the tender will adopt the bucket filling approach of awarding the contract sequentially to the lowest bidders, whether the bids will be sought in dollars and the duration of the procurement. The details, including the likely incentive mechanism, are expected to be announced by March, one of the people said. The tender will come under the Strategic Interventions for Green Hydrogen Transition (SIGHT) Scheme of the National Green Hydrogen Mission (NGHM), which was launched in 2023 with an approved investment of ₹19,400 crore.

Green methanol is liquid at ambient temperature and pressure. It can be handled at docks with existing liquid fuel infrastructure, making the transition easier than other alternative fuels.

India has been looking to expand green methanol for use in industries where reducing emissions is difficult, particularly shipping. Docking and refuelling facilities (bunkering) plays a key role in the adoption of green methanol in the shipping industry.

Recently, Assam Petro-Chemicals Ltd and Gujarat-based Deendayal Port Authority signed a memorandum of understanding to have a 150 tonnes per day e-methanol plant at Kandla Port, valued at over ₹1,200 crore. The facility is expected to produce methanol using green hydrogen and captured carbon dioxide, supporting cleaner fuels for shipping, industrial use and export markets.

Govt extends bid deadline for small oil blocks

The government recently extended the bid submission deadline for discovered small fields (DSF) round by a month to March 18, marking yet another extension in a bidding process that began last April. This is the fourth DSF auction round, offering a total of 55 discoveries across nine contract areas.

The Directorate General of Hydrocarbons (DGH), which conducts oilfield auctions, announced the revised deadline without citing any reason for the extension.

Under the DSF framework, small discoveries previously made by state-run explorers but left undeveloped due to perceived commercial unviability are offered to private and state-run companies under more financially attractive terms.

India won't be importing 80% of its energy in next decade: RIL chief Mukesh Ambani

Reliance Industries chairman Mukesh Ambani said recently that India will not be importing 80% of its energy in the next decade. Ambani was speaking at a fireside chat with BlackRock chief executive Larry Fink during a JioBlackRock event in Mumbai. Reliance, which operates the world's largest single-location refinery at Jamnagar in Gujarat, is also rapidly expanding its renewables portfolio.

Sustained double-digit growth for India is possible, Ambani said, while adding that sustained law and order for 15-20 years and social harmony are prerequisites for economic growth. "I can clearly see 100 new Reliances coming up in the country," he said.

During the event, Ambani unveiled a draft Reliance AI Manifesto, outlining the conglomerate's plan to transform it into an AI deeptech enterprise while driving a tenfold improvement in productivity. Reliance Industries aims to lead India's AI revolution, just as it led the country's digital transformation, he said.

"At Reliance, we have embarked on a path to transform ourselves into an AInative deeptech company with advanced manufacturing capabilities," he said.

The conglomerate plans to employ AI and agentic automation to speed up work, eliminate repetitive work and improve decision-making while retaining human accountability, he said.

Russian share of India’s January oil imports falls to lowest level since late 2022

India’s imports of Russian crude oil in January declined to their smallest share since late 2022, reflecting a continued shift in the country’s crude sourcing strategy, Reuters reported.

Industry data showed India, the world’s third-largest oil importer and consumer, brought in about 1.1 million barrels per day (bpd) of Russian crude last month — a drop of roughly 23.5 per cent from December and about one-third lower than a year earlier. Russia’s share of India’s overall oil imports fell to around 21.2 per cent, the lowest proportion since October 2022.

Analysts expect Russian crude flows to India to continue declining gradually through March as refiners diversify their sources. Import levels in February are forecast to average about 1 million to 1.2 million bpd, easing further to around 800,000 bpd in March, according to energy analysts.

Shift toward Middle East and other suppliers
To compensate for reduced volumes from Russia, Indian refiners have tapped other supply sources. Middle Eastern crude accounted for about 55 per cent of India’s total oil imports in January, while Latin American grades reached a 12-month high of about 10 per cent, reflecting broader diversification.

Reports indicate that Saudi Arabia has regained its position as India’s top crude supplier, with recent import data showing strong flows. Increased purchases from the Middle East have also lifted the

overall share of OPEC oil in India's import mix to an 11-month high.

The change in India's import pattern comes amid Western sanctions tied to Russia's invasion of Ukraine and ongoing geopolitical pressures, alongside efforts to secure trade and energy ties with other partners.

India will buy US LNG if offered at reasonable price, Petronet CEO says

India will buy US liquefied natural gas if it is offered at reasonable rates, the head of the country's top gas importer Petronet LNG said recently, as New Delhi looks to boost imports from Washington.

US President Donald Trump last week said he will slash tariffs on imported Indian goods to 18% from 50%, easing concerns in India, but in exchange asked New Delhi to more than double its annual imports from the United States.

Bilateral trade was $132 billion in 2024-2025, with a roughly $41 billion surplus in India's favour.

"India is looking to source energy at the most competitive and affordable price for consumers," Akshay Kumar Singh said at a press conference, adding that consumers would use gas if "the prices are reasonable" compared to other fuels.

India looks to increase gas use in energy mix
India has about 27,000 megawatts of gas-fired power generation capacity, but plants are operating at less than a quarter of that capacity due to a shortage of gas available at "affordable prices", Singh said.

India's stated intention to buy $500 billion worth of US goods over five years under a trade deal with Washington is drawing scepticism, with economists warning it could distort commercial procurement and sharply reshape the trade balance.

The appetite for liquefied natural gas in the world's most populous nation is set to rise in the coming years, driven by demand across the fertiliser, city gas, refining, and power sectors.

India is the world's fourth-largest buyer of LNG and is seeking to raise the share of gas in its energy mix to 15% by 2030 from around 6% at present.

Petronet, which buys gas from Qatar and Australia, is exploring deals to lock in more long-term deals as it expands the capacity of its existing plant and builds a new import terminal on the east coast.

LNG prices are expected to stabilise as more capacities are added globally, Singh said.

The $170 Billion Gap: Can India Drill Its Way to Energy Independence?

The government claims 300 billion barrels of hydrocarbon potential. Proved reserves stand at 4.5 billion. Bridging that gap requires reforms no administration has been willing to make.

Ten days after speaking at the Prime Minister's Roundtable with Global Energy Leaders on the sidelines of India Energy Week in Goa, Anil Agarwal posted a message on X that was designed to provoke. "The world doesn't want India to produce," the Vedanta Group chairman wrote on 9 February 2026. "It only wants India to be a market."

Within hours, the line had ricocheted across Business Today, India TV, Zee News, and social media. The post laid out a geopolitical argument ("India is vulnerable because we import 90% of our oil and gas. We are surrounded by sea on three sides which can be blockaded in hostile times") and a call to arms ("We must push back. We must fight to be self-sufficient"). But Agarwal was not merely performing for his followers. He was articulating a thesis he has refined over fifteen years in the upstream oil business, one gaining adherents across India's strategic establishment: that the country's extreme dependence on imported hydrocarbons is not an immutable geological fact but a policy choice, and a disastrous one.

The numbers that underpin his argument are stark. India imported 88.2 per cent of its crude oil in FY2025, up from 77 per cent a decade ago. The annual import bill exceeds $170 billion, roughly equivalent to the combined budgets for defence, education, and health.

Meanwhile, domestic crude production has fallen steadily, from 36.96 million tonnes in FY2016 to 28.7 million tonnes in FY2025, even as the country has added refining capacity at a furious pace, becoming the world's fourth-largest refiner. India processes the world's oil. It just cannot find its own.

What are floating LNG plants and how are they reshaping global gas supply

A floating liquefied natural gas (FLNG) plant operated by Italian energy major Eni has started supplying gas to Europe from offshore Congo, signalling a shift for a technology, which was once held back by high costs and operational uncertainty. The vessel, called Nguya, is anchored in shallow waters off the Republic of the Congo and liquefies gas extracted from offshore fields for export to European buyers, including Spain and Italy, the FT reported.

The development reflects a broader shift in how gas reserves are being commercialised, particularly in regions where building traditional land-based LNG infrastructure is difficult, expensive or exposed to security risks.

What is the Nguya and how does it work?
Nguya is a floating industrial facility designed to liquefy natural gas at sea. It is reportedly longer than the largest US aircraft carrier and features extensive processing equipment, including pipes, cooling systems, turbines and storage tanks. The vessel cools natural gas to minus 162 degrees Celsius, converting it into liquid form, which reduces the gas volume significantly, allowing it to be transported economically by tanker over long distances.

The vessel was constructed by China's Wison and delivered in under three years. Storage tanks designed in Japan were built separately and integrated into the hull, which helped speed up construction, FT reported. The project also required converting an existing floating platform, Scarabeo 5, into a pre-treatment unit to separate gas from oil and other liquids before liquefaction.

Floating LNG facilities replicate functions traditionally performed at large land-based terminals in countries such as the US, Qatar and Australia.

Why is floating LNG gaining traction now?
The floating LNG technology has failed to achieve widespread acceptance till now because its initial projects encountered both cost overruns and operational difficulties. The Australian Prelude floating LNG vessel, which Shell operated, generated doubts about the project's commercial viability because it incurred expenses close to $12 billion.

However, industry participants now say costs have declined significantly. Eni estimates floating LNG construction costs have fallen by up to 40 per cent in recent years, to below $1 billion per million tonnes of annual capacity. This implies a construction cost of less than $2.5 billion for a vessel like Nguya, although total project costs are higher due to associated infrastructure.

Shipyards are also moving towards more standardised designs, which has helped improve timelines and predictability.

According to a report by energy intelligence firm Rystad Energy, the FLNG terminals are gaining momentum on the global LNG market, with capacity expected to triple by 2030. The independent energy research firm also said that the global FLNG capacity is set to reach 42 million tonnes per annum (Mtpa) by 2030, further climbing to 55 Mtpa by 2035, which would be almost four times the figure of 14.1 Mtpa recorded in 2024.

How does floating LNG address security and infrastructure challenges?
Floating LNG plants allow companies to process gas offshore, avoiding the need to build extensive land-based facilities, which reduces exposure to logistical challenges, regulatory delays and security risks in politically unstable regions.

And this advantage becomes particularly relevant in Africa, where offshore gas reserves are significant but onshore infrastructure development has faced disruptions for decades. For instance, an onshore LNG project in Mozambique led by TotalEnergies was delayed for five years after a terrorist attack in 2021. In contrast, offshore floating LNG facilities in the region have continued operating.

Therefore, since floating plants are physically separated from land-based conflict zones and can operate independently of onshore infrastructure.

Where else is floating LNG being deployed?
Several floating LNG projects are now operating or planned globally. One example is the Gimi vessel, deployed offshore between Mauritania and Senegal under a long-term lease to BP. The vessel was converted from an existing tanker and is part of a model where specialised companies build and lease floating LNG units to producers.

Companies such as Golar are focusing on this approach, converting older ships into LNG processing units, *FT* reported. Their business model allows gas producers to avoid large upfront investment in permanent infrastructure.

Africa has become a major focus, due to its offshore reserves and infrastructure constraints. Other emerging regions include Latin America, particularly Argentina, Guyana and Suriname, as well as parts of the Asia-Pacific.

In Argentina, Eni is planning a larger floating LNG project offshore Vaca Muerta using multiple vessels. The project is expected to eventually produce 18 million tonnes of LNG annually, comparable with large land-based export terminals.

What are the limitations of floating LNG technology?
The floating LNG plants face operational constraints because both technical and environmental factors restrict their ability to deploy in ocean waters. The limited physical dimensions of ships create operational constraints which determine how much equipment can be installed on board.

According to industry experts, FLNG facilities are usually powered by gas turbines rather than electric drives used in some modern onshore terminals, which can affect efficiency and emissions performance, especially in a time when global talks about emission control are gaining traction.

Gas composition also varies between offshore fields, which affects processing requirements and plant design.

Why does this matter for global gas supply?
Despite the drawbacks, the Floating LNG technology presents an alternative way to develop offshore gas reserves without building permanent onshore infrastructure. It can also be deployed more quickly and relocated once reserves are depleted, allowing operators to use the same asset across multiple projects.

Excise waiver for biogas blending, clear policy line can unlock ₹1 lakh crore investment: IBA

The proposed excise duty waiver on biogas blended in compressed natural gas, coupled with a clear policy line, can unlock potential investment of ₹1 lakh crore in the country, Indian Biogas Association (IBA) said on Sunday.

The government in the recently announced Union Budget 2026, provided an excise duty waiver on Compressed Biogas (CBG) blended with Compressed Natural Gas (CNG), which is an important step forward in India's energy transition towards 2070 Net Zero target, an IBA statement said.

According to the statement, quantitatively, if city gas distribution (CGD) networks achieve even a 5 per cent biogas blending level nationwide over the next five years, it will require about 2.5-3 MMTPA of CBG. "This itself could lead to investments of ₹45,000-55,000 crore. If there is a clear policy and predictable prices, blending could realistically grow to 7-8 per cent by 2032. This would double the investment potential to almost ₹ 1 lakh crore," it said. This initiative (waiver) not only implies a reduction in gas prices; it also changes few dynamics of the biogas sector such as speeding up private investment, making energy more secure, and has measurable benefits for the climate and rural development, it noted.

Fast-Track Nuclear Expansion; Capacity Set to Triple by 2031–32: Dr. Jitendra Singh

Union Minister of State (Independent Charge) for Science & Technology, Earth Sciences, and MoS PMO, Personnel, Public Grievances, Pensions, Atomic Energy and Space, Dr. Jitendra Singh, today asserted in the Rajya Sabha that India's nuclear energy programme is in a decisive expansion phase, backed by policy reforms, private sector participation and clearly defined capacity targets extending up to 2047.

The Minister said India's installed nuclear capacity, which stood at 4,780 MW in 2014, has risen to 8,780 MW and is projected to reach 22,380 MW by 2031–32, 47 GW by 2037, 67 GW by 2042 and 100 GW by 2047. He affirmed that India is moving forward with self-reliance and confidence, and that geopolitical developments will not derail ongoing nuclear projects.

Replying to supplementaries raised by R. Girirajan, Jairam Ramesh, Ram Gopal Yadav and M. Thambidurai, the Minister addressed concerns relating to timelines, international negotiations, fuel security, CSR initiatives, and power-sharing arrangements.

Responding to questions on the Kudankulam Nuclear Power Plant, Dr. Jitendra Singh said Units 3 and 4 are targeted for completion by 2026–27, while Units 5 and 6 are scheduled by 2030. He stated that there is no reason to apprehend any disruption due to recent geopolitical developments, including shifts in India–US relations.

Tracing the project's history, he said the Kudankulam project was conceived in 1988, construction began in 2002, and the first unit became operational in December 2014 after the present government assumed office. The subsequent operationalisation of the first two units within the last decade reflects a clear implementation framework and disciplined adherence to timelines.

On a query regarding Corporate Social Responsibility initiatives within the 16-kilometre emergency planning zone, the Minister said that the Nuclear Power Corporation of India Limited undertakes CSR and Rehabilitation & Resettlement (R&R) activities for communities around all nuclear facilities.

He informed the House that significant allocations have been made under CSR, with ₹168 crore spent in the current financial year across projects. Specific figures for Kudankulam over the last four years would be furnished separately. He added that such initiatives focus on infrastructure, healthcare, education and skill development for local communities.

Addressing a question on negotiations concerning the proposed six 1600 MW reactors at Jaitapur Nuclear Power Project, Dr Jitendra Singh said that discussions have been ongoing and that while the technical agreement framework is in place, certain commercial aspects remain under consideration. He indicated that the matter is being pursued in coordination with relevant ministries, keeping national interest paramount.

On concerns regarding uranium imports and possible supply disruptions in a volatile global environment, Dr. Jitendra Singh stated that India has strengthened its energy security significantly over the last decade. He said nuclear capacity has more than doubled since 2014 and that policy measures, including recent enabling provisions and duty exemptions for nuclear plant equipment imports up to 2035, are aimed at accelerating domestic capability. He said the expansion roadmap demonstrates that India is not dependent solely on external sources and is steadily enhancing indigenous potential.

Responding to questions on power allocation, the Minister said distribution of electricity generated from nuclear plants follows the long-standing Gadgil formula, under which 50% of power is retained by the host state, 35% is allocated to neighbouring states and 15% goes to the central grid. This mechanism ensures balanced regional distribution.

On safety concerns and past apprehensions in the Kudankulam region, the Minister reiterated that India's nuclear programme operates on the principle of "Safety First, Production Next." He clarified that allegations regarding centralized storage of spent fuel at Kudankulam were scientifically unfounded, as each reactor manages its own specific fuel cycle.

Dr. Jitendra Singh concluded that the government has instituted clear timelines for nuclear expansion and is implementing them in a structured and disciplined manner, positioning nuclear energy as a key pillar of India's long-term energy transition strategy.

Implementation of Shanti Act

The SHANTI Act has received the assent of the President of India on 20 December 2025, which has been Gazette Notified. No, the timelines for framing of Rules, Regulations, polices and implementation of provisions of the Act has not been notified by the Government so far.

The SHANTI Act 2025 has the provision for drafting of Rules, Regulation and Policies for the effective implementation of the provisions of the Act. The SHANTI Act also provides power to the Central Government to establish Directorates, Wings and Divisions for the purposes of exercising its power or discharging its functions which includes effective enforcement of safety, security, safeguards, interagency coordination during radiation emergency and fixing accountability on licensee or holder of safety authorization.

The SHANTI Act has aligned the important civil nuclear cooperations aspects in the legal framework to enhance nuclear energy share to meet the national goals in a manner that fully comply to the national and international commitments in the areas of safety, security, safeguards, Civil liability for nuclear damage.

The SHANTI Act provides legal framework for the promotion, development and use of atomic energy and ionizing radiation for the welfare of the people of India through nuclear power generation, application in healthcare, food, water, agriculture, research, industry, environment, innovation in nuclear science and technology and to provide for robust regulatory system for its safe and secure utilisation.

This information was given by the Minister of State for Personnel, Public Grievances & Pensions and Prime Minister's Office Dr. Jitendra Singh in a written reply in the Rajya Sabha recently.

Indigenous PHWR
The ten indigenous 700 MW Pressurized Heavy Water Reactors (PHWRs) approved under the fleet mode are at various stages of pre-project activities. In addition, three indigenous 700 MW PHWRs are in operation, one under commissioning and two are under construction.

Full indigenization has been achieved in major components of reactor and fabrication of fuel assemblies of indigenous 700 MW PHWRs.
Standardization has enabled bulk procurement of long manufacturing cycle equipment and components with staggered delivery schedule leading to reduction of time and cost.

The major achievements of NPCIL from December 2022 are as follows:

- Addition of 2100 MW nuclear power capacity by completion of KAPS 3&4 (2X700 MW) and RAPS 7 (700 MW).
- NPCIL has achieved highest ever generation of 56,681 Million Units (MU) during FY 2024-25. It avoided release of about 49 Million Tones of CO_2 equivalent in to the environment.
- RAPS-3 resumed operation on July 24, 2024 after successful completion of Renovation and Modernisation (R&M) activities (Enmasse Coolant Channel Replacement, Enmasse Feeder Replacement and other safety upgrades). These R&M activities were completed in the shortest time among Indian Reactors.
- TAPS-1, the world's oldest operating nuclear reactor, achieved criticality on December 30, 2025, following the successful completion of major refurbishment activities.

- Continuous, safe and reliable operation for more than one year has been achieved 54 times since inception by various reactors operated by NPCIL, including 12 times since December 2022.

This information was given by the Minister of State for Personnel, Public Grievances & Pensions and Prime Minister's Office Dr. Jitendra Singh in a written reply in the Rajya Sabha recenty.

100 GW nuclear target to be met via large reactors; SMRs for rapid decarbonisation: Minister tells LS

The government has said India's target of achieving 100 GW of nuclear capacity by 2047 will be met primarily through the deployment of large nuclear reactors, including 700 MWe indigenous pressurised heavy water reactors (PHWRs) and large-capacity imported advanced reactor designs at greenfield sites.

In a written reply to a question raised in Lok Sabha, Minister of State for Personnel, Public Grievances and Pensions and Prime Minister's Office Dr Jitendra Singh stated that small modular reactors (SMRs), while important, are "considered to be fit for rapid decarbonisation of energy sector" rather than the primary drivers of capacity addition.

According to the Department of Atomic Energy (DAE), SMRs are being prioritised for deployment at brownfield sites as captive power plants, particularly for energy-intensive industries, the repurposing of retiring fossil fuel-based power plants, and remote locations with no grid connectivity.The government said SMRs are suitable where "reliable and continuous supply of power" is required and can be engineered for load-following operation, offering greater flexibility compared to conventional reactors.

The Lok Sabha reply highlighted several technical advantages of SMRs, including significantly lower exclusion zones, which reduce land requirements, and shorter construction periods, translating into lower capital costs. The designs can also be standardised for serial production, making them suitable for industrial decarbonisation and off-grid applications.

Under the Nuclear Energy Mission, the Bhabha Atomic Research Centre (BARC) has initiated the design and development of multiple indigenous SMRs, including a 220 MWe Bharat Small Modular Reactor (BSMR-200) and a 55 MWe SMR-55, the minister told the Lower House of Parliament.

While the detailed project report for the BSMR-200 has been approved and awaits financial sanction, design detailing and prototype development are underway for the SMR-55. A high-temperature gas-cooled reactor of up to 5 MWth for hydrogen generation is also under development.

DAE is leveraging its experience with indigenous PHWRs across the entire nuclear fuel cycle, with slightly enriched uranium (SEU) being considered as potential fuel for proposed SMRs, said the minister.

The minister noted that most SMR equipment falls within the manufacturing capability of Indian industry, with technological handholding by BARC, although reprocessing technologies will need re-engineering based on SMR fuel configurations.

The minister also said that the SHANTI Act allows any person to undertake research, development, design and innovation in nuclear energy for peaceful uses without obtaining a licence, a provision aimed at promoting new reactor technologies, including SMRs.

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Silver Jubilee Session

India Energy Debate on Financial Sustainability of Electricity Distribution and its Impact on Managing Energy Transition

28th February 2026

India Energy Forum (IEF) celebrated its Silver Jubilee by hosting a high-level energy debate focusing on "The Financial Sustainability of Electricity Distribution and its Impact on Managing Energy Transition" on 28th February 2026 at IIC, New Delhi. **Shri B K Chaturvedi**, Former Member (Energy), Planning Commission, was the Chief Guest and delivered a visionary Foundation Day Address. He reflected on the evolution of the Indian energy landscape over the last 25 years and underscored that the next decade's success depends on digitizing the grid and ensuring fiscal discipline at the state level.

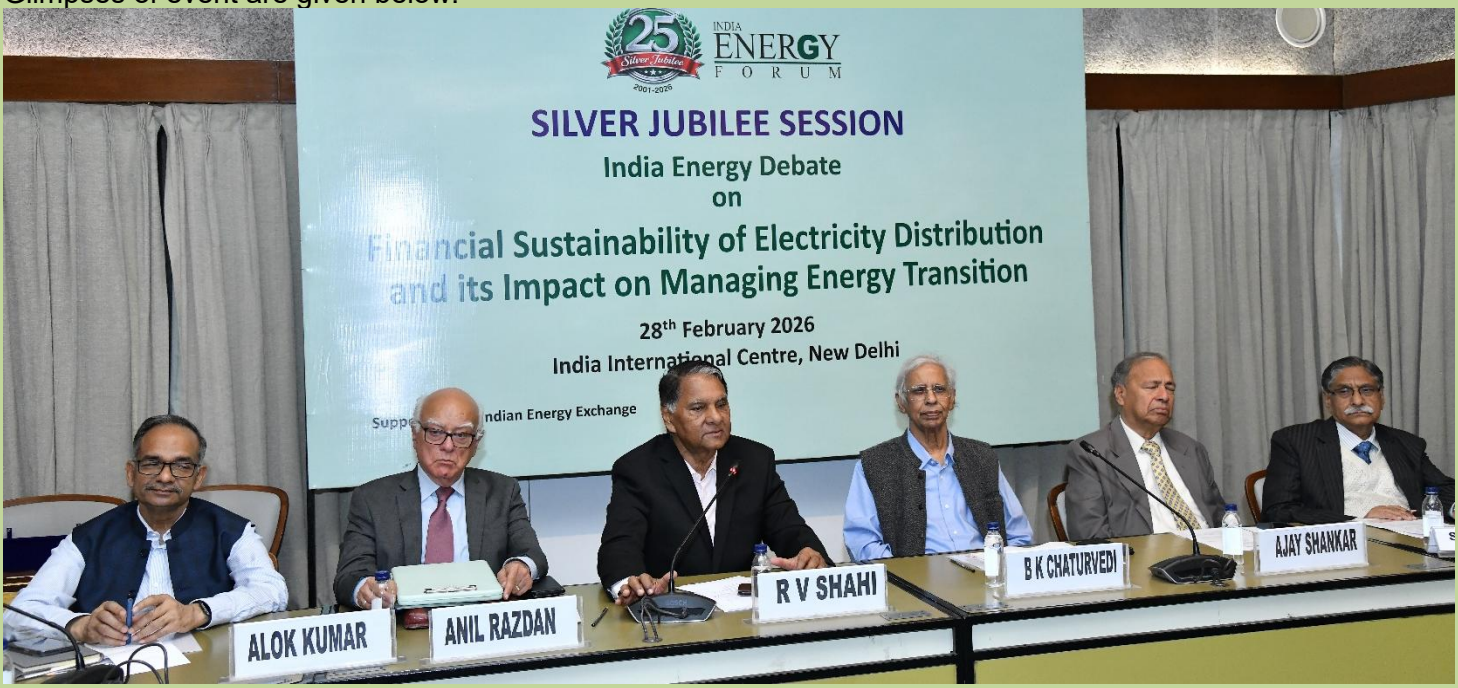
The session brought together a distinguished panel of former top-tier bureaucrats and energy experts to chart a sustainable path forward for the sector.

Shri R V Shahi, President of IEF and Former Secretary of the Ministry of Power, opened the session and set the content and moderate the Session. The other Distinguished Speakers who participated and shared their views were: **Shri Anil Razdan**, Former Secretary, Ministry of Power; **Shri Ajay Shankar**, Former Secretary, Govt of India. **Shri Alok Kumar**, Former Secretary, Ministry of Power. An interactive Q&A session allowed attendees to engage with the speakers on topic.

As part of the Silver Jubilee celebrations, the Forum held a special ceremony to present the Golden Age Plaque to esteemed IEF members. This presentation was specifically organized for those who had missed receiving their honours during the COVID-19 pandemic, recognizing their lifelong contributions to the energy sector.

The event concluded with a summary by **Shri R V Shahi**, followed by a formal Vote of Thanks by **Shri SM Mahajan**, SG, IEF.

Glimpses of event are given below:




SILVER JUBILEE SESSION
India Energy Debate
on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Financial Sustainability of Electricity Distribution
and its Impact on Managing Energy Transition
ALOK KUMAR
ANIL RAZDAN
R V SHAHI


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