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India Emerges as One of Top 5 Nations in Solar Energy: PM

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Accelerating Renewable Energy Capacity and Addressing the Challenge of Building Transmission Infrastructure

R.V. Shahi

Indian power sector should be proud of commissioning over 100 GW of Solar Power and 50 GW of Wind Power capacities recently. Solar Power capacity addition has indeed been a more rapid and highly satisfying achievement. This has given the confidence that India could complete 500 GW of Solar Power by 2030, and continue on further expansion of Solar and other renewable segments of power sector. These outcomes, with the planning and efforts which have gone to achieve these, have also provided the required feedback through problems being faced and the challenges which will emerge while scaling up the growth of capacity addition. There are many areas which need to be reviewed and evaluated in respect of infrastructure, manufacturing of required equipment, supply logistic, and construction infrastructure including, in all areas, the required level of manpower in terms of number and more particularly in terms of required skills. While these relate to the challenges ahead for meeting the capacity addition targets, one of the most important challenges relate to providing required level of power evacuation capacity through building up and strengthening of transmission infrastructure. Even with the present level of renewable capacity, particularly Solar capacity, instances of stranded capacities for want of adequate transmission have started emerging. Success of the renewable target is linked considerably with the transmission infrastructure, apart from other related inputs which have been highlighted earlier, and all of which need to be appropriately strengthened.

Based on the experience gained so far and also looking to the future vision of expansion of renewable sector, the challenges being faced, which would be further intensified, are briefly outlined below, and would be elaborated in detail subsequently.

(a) At the planning stage there is a need to further streamline the process of identifying transmission infrastructure and putting in place a time bound programme- from the level of identifying the project to commissioning- to ensure that the renewable capacity that gets built up and commissioned is not faced with the problem of inadequacy of transmission.

(b) There are considerable gaps, which are likely to become more acute, in the area of supply chain – equipment and material whose timely supply and delivery would be essential to get the transmission in place as required.

(c) Even with the present level of building and augmenting transmission system, the adequacy of construction agencies with required background and with the capacity of mobilisation of construction machinery and manpower is proving to be a major problem. With the size of expansion on transmission needed this problem will be further intensified.

(d) Not only in power sector, but also in most other areas of industrial activities and infrastructure development, inadequacies of required manpower, more particularly of skilled manpower, have emerged as a major challenge. Unexpectedly the infrastructure development is facing this problem even in respect of unskilled and semi-skilled manpower.

Advance planning for transmission infrastructure, keeping in view all the relevant factors and variables to meet the requirement of Solar Project development, has become more challenging on account of following reasons – (i) The gestation period for Solar Projects is too short compared to Transmission Projects, (ii) The load variations during day and night puts additional burden on planning, (iii) Seasonal variations and their impact on irradiation resulting in significant changes in generation. An ideal situation would be when transmission infrastructure is available ahead of Solar Projects getting commissioned. This would mean that transmission planning will need to be finalised four years ahead of the commissioning of the Solar Projects. The development so far have provided the required learning which should be appropriately deployed in future transmission planning for Solar Projects, particularly for those clusters where the Solar Power capacities are on the higher side of say, 1000 MW plus.

In order to optimise the capital expenditure in these transmission projects it would be desirable to develop the Transmission Plan on the basis of detailed analysis of the backup capacity to take care of evening loads. Transmission planning would need to factor in the requirement of Battery Energy Storage System, or any such other technologies, to be located nearby, so that the requirement of power to be taken out beyond the day long consumption from Solar for these facilities. This analysis should lead to planning of transmission infrastructure for large and medium size Solar Project clusters. For smaller projects also with Battery backup similar dispensation would be necessary but with lessor complexities. The development of Distributed Renewable Energy in rural areas is a good national initiative under which power supply in these areas would primarily be from small (2 to 5 MW) systems together with Battery backup, so that these will provide a self-contained power supply arrangement, not depending on the usual Grid drawing power from high voltage transmission systems. This will also be required to be factored in while planning for transmission systems associated with medium and large Solar Project clusters. Thus this overall approach should lead to definite transmission plans which should be available four to five years in advance for large and medium size Solar Project clusters. There will be a need for commensurate documentation to fix accountability on generation project developers and transmission project developers to commercially bind them on these schedules through appropriate indemnification mechanism.

Even at the present level of capacity addition, the instances of inadequacies in manufacturing and timely supply of equipment and materials are being experienced. There is a need to have interactions with manufacturing sector and provide them the details about the nature of expansion and requirement of various equipments. Considering the size and rate of expansions, the manufacturers of Transmission Towers, Conductors, etc. will need significant expansions of their production facilities. In case of GIS and HVDC, local manufacturing facilities will need considerable augmentation. There is a great opportunity to modernise and expand the domestic manufacturing facilities. The complete supply chain would obviously include not only the manufacturing aspect but also the entire transportation logistic. If these are not planned well in advance their inadequacies will also affect the development of transmission infrastructure suited to the schedule of generation capacity.

Technologies deployed in construction of transmission line have remained same for several decades which definitely requires much longer durations. It is essential that the construction contractors adopt various new methods and ensure much faster completion of the work. The gestation period can be considerably reduced if use of modern methods including Drones is adopted. Pre-fabricated segments of transmission tower can be another approach to save time. Keeping in view the resistance faced for land acquisition and for right-of-way, the approach should be to work on new design of towers. In many cases, for example in city areas, it becomes challenging to lay towers, it may be preferable to use cables rather than conductors to address the problem of right-of-way. Construction agencies have to be encouraged to prepare themselves with technologies, equipment, manpower, and appropriate financing so as to handle the size and dimension of the challenges to meet the time schedule determined for completing these tasks. Lack of contracting agencies has also emerged as a challenge to cope with the size of the problem.

Infrastructure developments across the sectors and businesses are increasing in a manner that lack of sufficiently trained manpower, with required skills, is being faced not only in transmission, but also in other segments of power sector and, as a matter of fact, in all sectors of economy. However, since this aspect has assumed a national dimension, the ideas is not to put it as a responsibility somewhere else. Every segment of industry has to work toward mitigating this challenge. An approach to shift this responsibility elsewhere is obviously not a solution. It is the transmission sector which has to match the requirement of rapidly expanding renewable capacities. Similarly for other segments of power, it should be obviously the responsibility of the respective sector. Contractors in Transmission need to focus on the choice of technologies, nature of construction equipment, the skills required for the specific equipment so as to be in a position to mobilise in time all the resources and meet the challenging targets for completing the transmission network.

Transmission projects are being developed on the basis of competition through Tariff Based Competitive Bidding (TBCB). This process also has to be streamlined to ensure timely decisions and actions. It has been observed in certain cases that the Regulatory approvals are inordinately delayed. Similarly, the Project Developers have to optimise their pre-construction activities, consisting of Engineering, Tendering, and Selection of Contractors, so that once the project is awarded to them, on the basis of the competitive process, they are able to start the work immediately thereafter. The overall cycle time of initiating Competitive Bidding, deciding about the selected Developer, Regulatory approvals, and pre-award activities to be completed by the selected Developers, all these time durations need to be optimised. Over the years, the entire system has got used to a four-to-five-year cycle time. This was taking care of the need of Thermal Power Projects. Similar approach obviously will not meet the requirement of Solar Power Projects. Obviously, each element of the time cycle has to be optimised to address the challenge of transmission development needed for Solar Projects.

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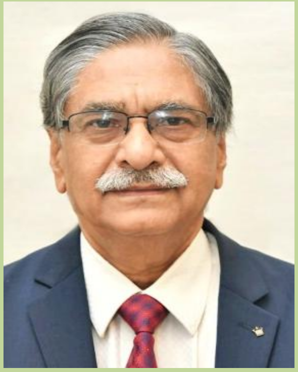
Dear Reader,



The India Energy Forum (IEF), in collaboration with the Atomic Energy Regulatory Board (AERB) and the Indian Nuclear Society (INS), organised, in hybrid mode, a colloquium aimed at raising awareness about the significance of safety culture in the nuclear sector.

Organized on 27th September 2025 in AERB Auditorium, Anushakti Nagar, Mumbai, the subject was **"Significance of Safety Culture in Nuclear Industry"**. It was addressed by Chairman AERB, Dr DK Shukla; Chancellar HBNI, Dr Anil Kakodkar; Sh RV Shahi, President IEF; Dr. RB Grover, Chairman, Nuclear Group-IEF and Dr. VK Manchanda, President INS and was attended by about 100 participants at the auditorium and 65 online including senior officials of AERB and DAE, industry and academic institutes. Detailed report is presented in this issue of Total Energy

It was followed by a widely participated Webinar on "Enabling Renewable Energy Integration: **Addressing Transmission Connectivity and Execution Challenges in India"** on 29th September 2025. With renewable energy (RE) expected to play a dominant role in the Energy Mix, timely development of transmission infrastructure and RE generator connectivity are critical to evacuate RE power as well as ensure safe & reliable grid integration. The webinar, in this background, was addressed by eminent senior officials from concerned industry viz; PGCIL, CTU, KEC, Adani Energy, Resonia, ReNew Power etc and President - IEF, Chairman & Convenor of T & D group of IEF, who presented various issues involved and Identified key gaps in planning and execution of transmission projects for RE integration. Detailed report is presented in this issue of Total Energy.

The T&D Group of IEF will organise, on 11th Oct, 2025, another webinar to present and discuss a Report generated by Prayas Energy titled **"Price it Right: Reforming in STS Transmission Pricing, Building on ISTS Experience"** Details of the webinar will be shared shortly.

The power generation capacity in the country is now almost 500GW. In our quest for an Energy Mix Basket having predominantly green energy sources, 252GW of this capacity is from non-fossil fuel sources. Current year is likely to see more than 40MW of RE addition that raises the confidence of achieving 500GW of green energy by 2030. The nuclear power generation share in this basket is expected to be about 20GW by that time. Lot more emphasis is being given to developing and installation of Battery Storage Systems for RE and Pumped Storage for Hydro Plants that should provide power generation stability from these sources enabling Grid compatibility.

The recent foundation stone laying of 4x700 MW Mahi Banswada Nuclear Power Plant by the Hon'ble Prime Minister raises hopes of renewed efforts for greater contribution by NTPC to supplement efforts of NPCIL for the 100 GW generation capacity target by 2047. NTPC has already announced its plans to add 30 GW of nuclear power by 2047 and have sought government approval for bulk ordering. Govt., however, needs to move fast on the proposed amendments to the Atomic Energy Act to allow private sector to build up NPPs.

Meanwhile NPCIL's initiative to co-develop 220 MW BSRs based on existing and operational PHWR design (modified) have drawn interest from Tata Power, Adani Power, Reliance, JSPL, JSW Energy, Hindalco. These companies have identified 16 probable sites spread over six states. NPCIL has now extended the bid submission date to March 2026 to allow more time for bid preparation.

Whatever basket of energy mix emerges; it will have a good share of fossil fuel energy sources. However, even with diminishing share, the requirement in absolute terms will increase. To reduce emissions of GHGs, more efficient technologies like AUSC, coal washing, coal gasification etc need to be adopted. NTPC should lead these efforts like it did when super critical technology was introduced.

In the coming months, all these issues and developments in the energy sectors will be debated thru' Conferences, Webinars and Energy Debates by IEF.

Wishing all Reader and their families a very happy Dussehra and Durga Pooja

S M Mahajan

India emerges as one of top 5 nations in solar energy, says PM Modi

Prime Minister Narendra Modi highlighted India's significant progress in green energy, stating that the country is now among the top five globally in solar energy capacity, a stark contrast to a decade ago.

He emphasized the need for alternative fuels like ethanol to reduce oil and gas dependence, noting that a newly inaugurated ethanol plant in Assam, which uses bamboo, will benefit local farmers and tribal communities.

The government plans to support bamboo cultivation and procurement, with annual investments of approximately Rs 200 crore expected in this sector, creating thousands of jobs. The Prime Minister contrasted this with past restrictions on bamboo cutting under previous governments.

Modi also pointed to Assam's crucial role in India's self-reliance (Aatmanirbhar Bharat), particularly in energy and semiconductors, with a major semiconductor factory under construction in Morigaon, representing a Rs 27,000 crore investment.

India has embarked on path of becoming self-reliant for its energy needs: PM Narendra Modi

Prime Minister Narendra Modi recently emphasised that India has embarked on the path to becoming "self-reliant" in the energy sector, highlighting the country's dependence on other countries for importing crude oil and gas.

The Prime Minister was speaking at a public gathering in Assam's Golaghat, where he inaugurated and laid the foundation of various projects worth thousands of crores.

He noted that India spends crores of money towards importing gas and oil from foreign countries, stating that it increases the income of people there.

"We have been dependent on foreign countries for these things. We import huge quantities of crude oil and gas from foreign countries, and in return, India has to give lakhs of crores of rupees to other countries every year. Our money creates jobs abroad. The income of the people there increases. It was necessary to change this situation. That is why India has embarked on the path of becoming self-reliant for its energy needs," the Prime Minister said.

Meanwhile, India got its first second-generation ethanol plant recently, with Prime Minister Narendra Modi inaugurating the Numaligarh Refinery Ltd's bamboo-based refinery unit in Assam. The foundation stone of the NRL Bio Refinery at Numaligarh was laid by the PM himself on February 9, 2019.

This is significant news for Assam in particular, and the northeast region as a whole, as these states grow bamboo in abundance. In 2014, the ethanol blending was just 1.53 per cent. By 2022, India had achieved a 10 per cent blending rate, five months ahead of schedule. The original target of 20 per cent blending (E20) by 2030 was advanced to 2025 and has already been achieved in the current ethanol supply year (ESY).

The Numaligarh Rs 5,000 crore 2nd-generation bioethanol plant is the first such unit in the world to utilise bamboo.

It is a zero-waste plant, as it utilises every part of the bamboo to produce high-value industrial chemicals such as green furfural and green acetic acid, which is used in APIs, food-grade carbon dioxide (CO_2) and bio-coal.

This plant also champions net zero, producing 25 MW of green electricity.

"Experts suggest that our oceans hold significant reserves of oil and gas. To identify and utilise these resources effectively, we are launching the National Deep Water Exploration Mission. Simultaneously, India is making remarkable progress in the field of green energy and sustainable power generation. While the country lagged behind in solar power production just a decade ago, it has now risen to rank among the top five nations globally in this sector," PM said at the event. "Assam is the land that enhances India's energy capacity. Petroleum products produced here accelerate the country's development. The government is committed to taking Assam's strength to new heights," the PM said.

"On the one hand, we are discovering new reserves of crude oil and gas in the country, and on the other hand, we are also increasing our capacity for green energy. This time, I announced Samudra Manthan from the Red Fort. Experts say that there can be huge reserves of oil and gas in our seas too. We are going to start the National Deepwater Exploration Mission so that these resources can be useful for the country and they can be explored. Today, India is the fastest-developing country in the world. As India is developing, our needs for electricity, gas and fuel are also increasing," he said.

The Prime Minister further expressed his gratitude for the love and affection he received on his two-day Assam tour.

"I have been in the North East for the last two days. Whenever I come to the North East, I get unprecedented love and blessings. Especially the love and affection I get in this region of Assam is amazing. I express my heartfelt gratitude to all of you. Today is a very important day for the glorious journey of developed Assam, developed India. Today, Assam has received projects worth about Rs 18,000 crore," he said.

India’s green energy capacity rises by 23 GW in 5 months: says Pralhad Joshi

India has significantly advanced its renewable energy targets, adding 23 gigawatts (GW) of clean capacity in the first five months of the current financial year.

This brings the country’s non-fossil fuel capacity to approximately 252 GW, exceeding the halfway point toward its 2030 goal of 500 GW. India now sources half its total electricity capacity from non-fossil sources, achieving this five years ahead of schedule and meeting its Paris Climate Agreement commitments.

Notably, India is the sole G20 nation to meet its 2030 goals by 2021. Initiatives like the ‘PM Surya Ghar Muft Bijli Yojana’ are set to add 30 GW of rooftop solar capacity, with around 20 lakh homes already solarised.

Furthermore, India’s solar module manufacturing capacity has reached 100 GW, and PV cell manufacturing capacity stands at 27 GW, driven by government policies such as production-linked incentives.

India to add record 43 GW renewable energy capacity in 2025: Pralhad Joshi

India has added 30 gigawatt (Gw) renewable energy generation capacity so far this calendar year and the number is likely to touch 43 Gw by the end of this year, Minister for New and Renewable Energy Pralhad Joshi said recently.

“We have recorded 22 Gw solar and wind capacity from 1st January to 30th June this year and by this time we have done around 30 GW. I am hopeful that we will end up with (capacity addition) between 39 Gw and 43 Gw that we may achieve this year,” Joshi said while speaking at an industry event here.

He added that, based on this progress and the multiple steps taken to resolve issues like transmission constraints, the government is hopeful of meeting the larger target of achieving 500 Gw of installed renewable energy generation capacity by 2030.

The country’s installed renewable energy generation capacity currently stands at 226 Gw.

“At present, projects of nearly 186.3 Gw capacity are under implementation and another 67.08 Gw capacity has already been tendered. So, all put together, including the capacity already added as on date, we will have something like 499 Gw,” Joshi said.

He told the audience that the government was taking steps to jack up the accuracy of weather forecasting systems to improve the performance of renewable energy projects and the Centre was also trying to resolve the issues around delays in signing power sale agreements (PSAs).

The government has also amended the standard bidding guidelines for solar, wind and hybrid projects to provide for cancellation of letter of award (LoA) in cases where progress does not meet timelines beyond 12 months.

Joshi also said the power ministry has prepared a detailed implementation plan for the transmission system required to integrate 500 GW capacity by 2030, covering all the renewable energy rich states.

He said the Ministry of New and Renewable Energy is preparing to launch the third phase of the Green Energy Corridor project and the second phase of the Pradhan Mantri Kisan Urja Suraksha evam Utthaan Mahabhiyan (PM-KUSUM) scheme.

Speaking at the same event, Pradeep Kumar Das, chairman and managing director of Indian Renewable Energy Development Agency (IREDA) said India needs to mobilize ~30 trillion by 2030 through deepening of bond markets and strengthening the non-banking finance companies (NBFCs).

Das said India’s solar module manufacturing capacity has jumped from 38 Gw in 2023-24 to 100 Gw in 2025, marking a shift from near-total import dependence to a pathway of self-sufficiency across the value chain.

India achieves 250 GW of non-fossil fuel electricity generation capacity: Pralhad Joshi

India's non-fossil fuel electricity generation capacity has jumped over three-fold to touch 250 GW-mark from 81 GW in 2014, New & Renewable Energy Minister Pralhad Joshi said recently. The country aims to have 500 GW of renewable energy capacity by 2030.

"India's non-fossil installed capacity has witnessed an extraordinary rise from 81 GW before 2014 to 250 GW in 2025. This decade of consistent growth highlights the country's strong commitment to clean, sustainable and renewable energy, laying a solid foundation for a greener future," Joshi wrote on social media platform X.

The minister further stated that this achievement across solar, wind, hydro, bio-energy and nuclear power strengthens our path to 500 GW by 2030 and positions India as a global leader in clean energy.

According to his post on the X, the 250 GW non-fossil fuel electricity generation capacity includes 123.13 GW solar, 52,68 GW wind energy, 55.22 GW hydro, 11.60 bio-energy and 8.78 GW nuclear energy.

India set to become global hub for hydrogen innovation under national mission: MoS

Union Minister of State for New and Renewable Energy Shripad Yesso Naik said recently that India is laying strong foundations to become a global hub for innovation, manufacturing and deployment in hydrogen technologies.

Speaking at the valedictory session of the first Green Hydrogen R&D Conference in the national capital, he said that through the National Green Hydrogen Mission, launched by the Prime Minister Narendra Modi, India aims not just to consume but also to lead the world in this critical clean energy sector.

"At the heart of this journey lies green hydrogen, a fuel that promises to decarbonise our hardest-to-abate sectors, open new trade frontiers, and create a cleaner and more secure future," he said.

"The National Green Hydrogen Mission, launched by the Prime Minister, the Government is laying the foundations for India to emerge not just as a consumer, but as a global hub of innovation, manufacturing and deployment in hydrogen technologies," the MoS added.

Naik underlined that green hydrogen lies at the heart of India's journey to achieve Net Zero by 2070. He said the fuel has the potential to decarbonise tough sectors such as steel, cement, fertilizer, shipping and mobility while also creating jobs, reducing import dependence and making Indian industries globally competitive.

He added that as countries bring in carbon regulations, India's leadership in hydrogen will ensure its industries remain future-ready.

The minister noted that the government has already supported over 200 R&D projects in renewables, hydrogen, fuel cells and storage technologies, and that dedicated funding, testing facilities and incubation programmes are helping Indian researchers and startups convert ideas into breakthroughs.

"This conference is a testimony to our resolve to turn laboratories into launchpads and startups into global champions," he said, urging young researchers to design disruptive solutions instead of incremental change.

The two-day event, organised by the Ministry of New & Renewable Energy under the National Green Hydrogen Mission, saw 1,347 registrations and hosted 17 technical sessions, five panel discussions and eight roundtable meetings. A startup exhibition also showcased cutting-edge hydrogen technologies developed in India.

India scales up green energy: ₹32.45 lakh crore investment pledged, 100 GW solar module capacity built

India has achieved more than 50 per cent of its installed power capacity from non-fossil fuel sources, amounting to 252 GW, against the 500 GW target set for 2030, Union Minister for New and Renewable Energy Pralhad Joshi said recently.

Speaking at the 6th CII International Energy Conference & Exhibition, Joshi said the milestone was achieved five years ahead of schedule. “We have already achieved over 50 per cent of our installed power capacity from non-fossil fuel sources, and we have done it 5 years ahead of the timeline. We have also crossed 50 per cent of the 500 GW target (252 GW),” he said.

The minister said nearly 20 lakh households had benefitted from solar under the PM Surya Ghar: Muft Bijli Yojana and that schemes such as PM-KUSUM and PM-JANMAN had enabled farmers and villages to access solar pumps and off-grid power. “We are not just giving people free electricity, we are empowering them to become energy producers,” he said. On investments, Joshi said his ministry had secured commitments worth ₹32.45 lakh crore from banks and industry for clean energy initiatives. He added that insurance surety bonds had been permitted as an alternative to earnest money deposits and performance bank guarantees for renewable projects.

He said India had achieved an installed module manufacturing capacity of more than 100 GW. “So far, almost ₹50,000 crore has been invested under the PLI scheme for high-efficiency solar PV modules, creating more than 12,600 direct jobs,” he said.

Joshi said the government had set a target of achieving domestically manufactured solar cells by 2028, along with a plan for wafers and ingots. “I have also given my ministry clear directions to come up with a trajectory for domestic polysilicon production,” he said.

On tariff levels, Joshi said Madhya Pradesh had recently discovered a price of ₹2.70 per unit for solar with battery storage and ₹2.15 per unit without storage in auctions. “Today, solar-plus battery is costing much less than thermal power,” he said.
He said incentives had been awarded for over 3,000 MW per annum of electrolyser manufacturing capacity and 8.62 MTPA of green hydrogen production. Green hydrogen and green ammonia have also been included under the definition of infrastructure to enable easier capital flow, he added.

The minister said the renewable energy sector currently employs over 13 lakh full-time workers, with programmes such as Suryamitra, Varunmitra, Vayumitra and Jal-Urjamitra training youth for different segments. Transmission planning is being undertaken for about 537 GW renewable capacity by 2030, he added.

“Our energy journey is a marathon, not a sprint. We have already covered significant ground, and the path ahead is filled with challenges,” Joshi said.

India plans new incentive scheme to power local solar manufacturing

The government is working on a new incentive scheme to boost production of wafers and ingots, key sub-components that go into making solar photovoltaic (PV) modules, amid choked supplies from China, three people with knowledge of the matter said.

The Union ministry of new and renewable energy (MNRE) is likely to spend an unused sum of around ₹5,500 crore from an existing incentive scheme for solar module manufacturing, to boost production of these key inputs, they added, requesting anonymity.

In April 2021, the Union cabinet approved the production-linked incentive (PLI) scheme for National Programme on High Efficiency Solar PV Modules under the ministry of new & renewable energy with an outlay of ₹4,500 crore. Subsequently, the government approved a second tranche of the PLI scheme in September 2022 with an outlay of ₹19,500 crore, of which about ₹13,937 crore has already been allocated. The remainder ₹5,563 crore is likely to be diverted for a new incentive scheme to boost production of wafers and ingots.

In the solar module supply chain, polysilicon is the initial raw material, which is used to produce ingot, which then is developed into wafer, followed by cells before a solar photovoltaic module is finally assembled.

"The proposal from MNRE is that there already is unutilized fund under the PLI scheme which can be utilized specifically for wafers and ingots. The scheme is being finalized," the first of the three persons cited earlier said.

The modalities of the proposed scheme are being worked out, and are expected to be different from the ongoing PLI scheme.

Under the PLI for solar modules, the manufacturing units sanctioned under the scheme are eligible for getting the incentives annually for five years from commissioning the capacity, on the basis of the sales of high-efficiency solar PV (photo-voltaic) modules each year.

Slow pace of implementation

The consideration for a change in modalities of the incentive scheme comes amid a slow pace of project implementation in the ongoing PLI. In June, Mint reported that the government is considering extending the deadline for completion of projects under the PLI scheme amid delays in technology sourcing and component supply from China.

A second person noted that government is also likely to announce extension of the deadlines under the ongoing scheme by one year to FY27. The scheduled commissioning dates for projects under the second tranche range from October 2024 to April 2026.

Earlier this month, new and renewable energy minister Pralhad Joshi highlighted plans to develop a fully-indigenous solar value chain, targeting domestic solar cell manufacturing with local components by 2028. He also emphasized the government's focus on supporting wafer and ingot production in the country.

"The country is now advancing beyond modules to develop domestic capacity for wafers and ingots as well, ensuring that the entire solar manufacturing ecosystem is established within India. This will not only reduce import dependence but also generate employment, boost investment, and strengthen India's position as a global leader in clean energy manufacturing," Joshi had said. So far, about ₹50,000 crore has been invested in the country's solar equipment manufacturing sector.

Amid supply chain concerns and need for local capacity, India has developed about 100 GW of solar module capacity and about 27 GW of cell manufacturing capacity. However, the capacity for producing wafers and ingots is just around 2 GW, with the country relying completely on Chinese imports.

According to a report by CareEdge, the recent volatility in input prices, driven by supply-chain shifts in China, strengthens the case for setting up wafer and ingot capacity in the country.

The ministry has already proposed to come up with an Approved List for Models and Manufacturers (ALMM) for wafers from June 2028. If the plan takes a concrete shape, all solar modules used in government-backed projects will have to use locally-made wafers and ingots. Currently, the norm is applicable for modules. The rules will apply to cells with effect from June next year.

Government proposes approved list of wafers for solar modules effective June 2028

The government has proposed an approved list of models and manufacturers (ALMM) for wafers that are used for manufacturing solar panels, in a move to create a domestic supply chain for solar equipment. ALMM acts as a non-tariff barrier for import, by mandating to purchase the equipment from the manufacturers that are on the list.

ALMM acts as a non-tariff barrier for import, by mandating to purchase the equipment from the manufacturers that are on the list. So far, the ministry of new and renewable energy has brought out two such lists, one for solar modules and the other for cells. The solar cells list will come into effect from June 2026.

It has now brought in a proposal for issuing a third list for wafers effective June 2028, a draft proposal showed. Views and comments on the draft are to be submitted by October 11.

The ALMM list-III for wafers will not be issued unless it contains at least three wafer manufacturing units, which must operate independently, shall not be under a common ownership or control and have aggregate manufacturing capacity of at least 15 GW a year.

To list on the ALMM for wafers, the manufacturer should also have an equivalent ingot manufacturing capacity. As per the proposal, the wafer manufacturing capacity enlisted on ALMM list-III will reflect the manufacturing capacity of both ingots and wafers.

The government had launched a production-linked incentive scheme for high efficiency solar modules with an outlay of ₹24,000 crore in 2022. In the scheme, there were provisions to make waferingots and polysilicon as well. The extra push comes amid the idea to slowly backward integrate the solar equipment supply chain and build energy security.

MNRE to hold second round of talks with states on energy storage, PPAs

नवीन एवं नवीकरणीय ऊर्जा मंत्रालय
MINISTRY OF NEW AND RENEWABLE ENERGY
सत्यमेव जयते

The Ministry of New and Renewable Energy (MNRE) will soon hold a second round of talks with states on energy storage, energy transition and power purchase agreements (PPAs), Union Minister for New and Renewable Energy Pralhad Joshi said recently.

"Energy transition, energy storage and PPA are very serious issues, and we are consistently holding talks with states. We have already completed one round of talks with states, and very soon we will be holding the second round of talks," Joshi said at the 6th CII International Energy Conference and Exhibition.

PPAs are long-term contracts between renewable energy developers and buyers to sell and purchase electricity from a specific renewable asset, such as a solar or wind farm, at a predetermined price for a set period.

The minister said that under the PM Surya Ghar: Muft Bijli Yojana, 20 lakh households have already installed rooftop solar panels. "Of these nearly half (48 per cent) are already getting zero bills," he added. The initiative aims to supply solar power to one crore households by March 2027. Joshi also said he is meeting heads of banks, including public sector banks, to encourage investment in renewable energy projects.

India recently crossed 250 GW of non-fossil fuel power capacity, well ahead of target, and is working towards 500 GW by 2030. The milestone includes solar, wind, hydro, biomass and nuclear energy.

The minister also said the country is exploring domestic manufacturing of polysilicon, ingots and wafers. “Energy transition cannot happen without Swadeshi manufacturing of polysilicon, ingots and wafers,” he noted.

Madhya Pradesh Chief Minister Mohan Yadav said the state hosts India’s largest solar project in Rewa which supplies electricity to Delhi Metro Rail. He added that a recent tender for a solar-plus-storage project in the state attracted a bid of ₹2.70 per unit, indicating the pace at which costs are falling.

Maldives’ Minister of State for Environment and Tourism Dr Muaviyath Mohamed said the island nation spends 13.5 per cent of its GDP on fossil fuel imports and $150 million on fuel subsidies. “Maldives looks forward to working with Indian companies to achieve its target of 33 per cent of electricity generation through renewable energy by 2028,” he said.

CII leaders and industry representatives also flagged the need for collaborative policy frameworks. Dr Praveer Sinha, Chairman, CII National Committee on Power and MD, Tata Power, suggested a GST Council-like body for the power sector to ease reforms.

“Balanced growth of wind, solar and storage will ensure stable and sustainable energy for all in the path to energy independence,” said Girish Tanti, Vice Chairman of Suzlon and Chairman of CII RE Manufacturing Council. He noted that India’s solar manufacturing currently has 20-25 per cent local content, compared with 64 per cent in wind energy, and said this could increase to 80 per cent with policy support.

Govt to soon launch carbon capture utilisation and storage mission: NITI Aayog

The government will soon launch a carbon capture utilisation and storage mission with incentives ranging from 50-100 per cent as the country tries to strike a balance between rising energy demand with its climate goals while depending on coal.

Carbon Capture, Utilisation and Storage (CCUS) is a process that captures carbon dioxide from industrial sources and power plants before it enters the atmosphere.

The captured carbon dioxide is then transported to either be utilised in various products like chemicals or fuels, or permanently stored in underground geological formations, such as depleted oil and gas reservoirs or saline aquifers.

Speaking at the 17th India Coal Summit organised by the Indian Chamber of Commerce (ICC), Rajnath Ram, Advisor (Energy), NITI Aayog, said, "We are going to launch the CCUS mission very soon, where... incentives like 100 per cent government funding will be provided to some of the technology. The incentives may range from 50 per cent to 100 per cent."

He further said these incentives will help industries adopt carbon capture technologies and integrate them with coal-based energy systems.

With the growth in the economy, the energy demand is also expected to go up, he said, adding that the "growth of energy demand would definitely require the multiplication of supply side of energy".

While coal is considered to be one of the important constituent of our total primary energy supply, a lot of renewable energy is being installed into the system.

"But there are challenges related to it... If you really want to integrate the renewable energy into the system, there are other costs involved. You have to parallelly bring the storage that may be costlier," he explained.

NITI Aayog had earlier said CCUS also has an important role to play in decarbonising the power sector, given the country's present reliance on coal for meeting over 70 per cent of its electricity needs.

Even if India is able to substantially green the grid and meet the target of 500 GW installed capacity of renewables by 2030, there would still be a need to meet the baseload power demand from fossil fuels (most likely coal) or other dispatchable sources, given the intermittency and non-dispatchable nature of solar and wind power.

India's per capita carbon dioxide emissions are about 1.9 tonnes per annum, which is less than 40 per cent of the global average and about one-fourth of that of China.

There is a need for sustainable solution for the decarbonisation of sectors that contribute to 70 per cent of the emission. CCUS has an important and critical role to play in it, especially for India to accomplish net-zero target by 2070.

MP's First Solar+BESS Project Sees Record Tariff Of ₹2.70/kWh

The Indian solar sector has achieved a new milestone with the discovery of its lowest-ever tariff for a solar-plus-energy storage project. In a recent development, Madhya Pradesh's maiden solar-plus-storage project in Morena recorded a tariff of ₹2.70/kWh.

According to state government officials, this marks the first time in India that a Firm and Dispatchable Renewable Energy (FDRE) project has achieved a tariff below ₹3/kWh, setting the stage for more affordable and reliable renewable power. The tender for the project had earlier been issued by Madhya Pradesh Power Management Company Limited (MPPMCL).

Manu Srivastava, Additional Chief Secretary of Madhya Pradesh, noted that this is also the country's first solar-plus-storage project with assured annual availability of 95% peak supply. "The project ensures the same level of supply during peak hours as during normal solar hours, whereas all previous projects in the country have had much higher solar capacity compared to their peak-hour capacity," Srivastava wrote in a social media post."

Under the auction, MPPMCL awarded the project to CEIGALL India Limited at ₹2.70/kWh and to ACME Group at ₹2.76/kWh.

The project comprises 600 MW of solar capacity along with a 220/880 MWh Battery Energy Storage System (BESS). It also includes provisions such as free night charging (10 p.m.–5 a.m.), incentives for lower charging power requirements, a cap on maximum solar export with reduced tariffs beyond that, a three-tier payment security mechanism, 100% land allotment, and both internal and external evacuation infrastructure provided by the state.

So far, India has witnessed solar-plus-BESS tariffs of ₹3.13/kWh (solar + 4 hrs BESS), ₹3.59 lakh/MW/month (standalone BESS for 4 hours), and ₹6.64/kWh (standalone BESS with charging in the developer's scope).

"The Tender saw global participation with 16 bidders participating in the tender, with an over-subscription of around 10 times the bid capacity. The bidders include reputed players, including Acme Solar, Adani Renewable, AMPIN Energy, Apraava Energy, CEIGALL India, Dilip Buildcon, Engie Energy, Goldi Solar, MB Power, NTPC Renewable Energy, Power Mech, Purvah Green, ReNew Solar, Serentica Renewables, Shivalaya Constructions, and Waaree Forever Energies," Srivastava added.

About the Tender

Madhya Pradesh and Rewa Ultra Mega Solar Limited (RUMSL) will develop their first storage project — a 600 MW solar plant with an 880 MWh dual-cycle BESS — in Morena. As per the tender, these developers must ensure 95% annual availability for both peak supply periods. The tender allows an additional payment of Rs. 2.15 per unit for power supplied beyond 220 MW, up to 300 MW, with the annual CUF capped at 35%.

RUMSL had planned to provide 100% of the land — 575 hectares for Unit 1 and 635 hectares for Unit 2 for the project. Power evacuation will be handled via the state transmission utility (STU), with internal evacuation infrastructure by RUMSL and external infrastructure by MP Transco. Both are being developed as a single package by MP Transco under one contractor to ensure synergy.

First time, India's CO_2 emissions from power sector dip in Jan-June

Breaking a long-term trend, carbon dioxide emissions from India's electricity sector in the first half of this year have showed a marginal decline compared to the same period last year, a new analysis has revealed.

This is the first time that emissions from any sector in India over half-a-year period have dropped, outside of the Covid years. The relatively milder summer temperatures and good monsoon rainfall were an important contributory factor.

The analysis by Bengaluru-based Centre for Research on Energy and Clean Air (CREA) for Carbon Brief, a UK-based climate-focussed publication, shows that the CO2 emissions from India's electricity sector between January and June this year dropped 1 per cent compared to the first half of 2024.

This is significant because the electricity sector is the largest contributor to India's greenhouse gas emissions, accounting for almost 40 per cent of the country's annual emissions. India's emissions, the third largest in the world, have been rising steadily over the years, in sync with its expanding economy, and this is the first time that a drop has been witnessed even at the sectoral level.

A flattening in India's emissions trajectory is likely to have a global impact.

The analysis suggests that emissions from India's electricity sector may peak by 2030, much earlier than previously expected. New capacity additions in non-fossil fuel based electricity, like renewables, nuclear and hydro, are likely to outpace the growth in power demand by that time. This means that India may not need to deploy additional coal-based electricity to meet the increase in electricity demand.

The growing ability of solar and wind to meet the peak demands in electricity with the help of storage could result in flat-lining coal-powered electricity generation, and the emissions associated with it, the analysis said.

The 1 per cent drop in power sector emissions in the first half of this year could be attributed to lower electricity demand and faster growth in generation of clean electricity. The drop in electricity demand was mainly because the summer season this year was relatively less hot compared to 2024. There were relatively few heatwave periods, and not as intense as last year. Also, there was plentiful rainfall in the pre-monsoon March-May period, about 30 per cent higher than normal.

Relatively lower temperatures and higher rainfall reduced the need for air-conditioning, which accounts for about 10 per cent of India's electricity demand during the summer months.

Recently, Pralhad Joshi, Minister for New and Renewable Energy, said that India installed 23 GW of non-fossil fuel electricity capacity in the first five months of this fiscal (April to August) and this was likely to get doubled in the remaining part of the year. "The ongoing clean energy expansion over the next five years is expected to shift the structural trend in an important way, likely leading to a peak in the power sector emissions by then," Aggarwal said.

India is targeting 500 GW of installed non-fossil electricity capacity by 2030, of which 252 GW has already been achieved. Projects already in the pipeline, if executed before 2030, were enough to take the installed capacity to 482 GW, the analysis said.

CREA has used data from various government agencies to carry out its analysis. India's official emissions data, both sectoral as well as overall, is released by the government from time to time, usually pertaining to a period four to five years in the past. The last official emissions data was released in December last year, and it contained greenhouse gas inventory for 2020.

Geothermal push: India opens sector to 100% FDI, incentives, and JV partnerships

India recently launched its first national policy on geothermal energy, joining a growing list of countries betting on subterranean heat to power their clean energy transitions.

India's Ministry of New and Renewable Energy said the policy aims to unlock the country's untapped geothermal potential through incentives and regulations.

It also encourages repurposing abandoned oil and gas wells and deploying ground source heat pumps for heating and cooling.

WHY IT'S IMPORTANT
Countries such as Germany have accelerated geothermal expansion and Big Tech companies in the U.S. have been scouting for low-carbon electricity to fuel AI growth.

India has identified 381 hot springs and 10 geothermal provinces, including Ladakh, Himachal Pradesh and Gujarat, the MNRE said.

The policy also promotes joint ventures between geothermal developers and oil, gas, and mineral companies, and proposes fiscal incentives such as tax holidays, import duty exemptions and viability gap funding.

CONTEXT
Conventional geothermal power involves drilling deep into the earth to release hot brine, which produces steam to drive turbines.

These plants emit about 99% less carbon dioxide than fossil fuel-based power, according to the U.S. Energy Information Administration.

BY THE NUMBERS
Global geothermal capacity stood at 15.4 GW at the end of 2024, led by the United States, Indonesia and the Philippines, the MNRE said.

India aims to contribute to this growth through 100% foreign direct investment, concessional loans and international collaborations, according to the policy document.

The policy supports geothermal projects for up to 30 years, with extensions based on resource availability, the MNRE said.

India revokes grid access for 17 GW of clean energy projects

India has cancelled grid access for nearly 17 gigawatts (GW) of delayed clean energy projects to prioritise connections for those that are operational or nearing completion, according to a source familiar with the matter and official documents reviewed by Reuters.

The state-run Central Transmission Utility of India Ltd (CTUIL) informed companies including Adani Green Energy, ReNew Power, NTPC, Avaada Group, JSW Energy, and ACME Solar about the cancellations, the documents show.

The affected projects are located in renewable-rich states such as Rajasthan, western Gujarat, and Madhya Pradesh in central India, according to a document from the federal agency overseeing inter-state transmission access.

The grid access terminations were carried out in the June quarter after prior notices were issued to the companies, said the source, who requested anonymity as the firms are seeking relief from the federal power regulator, the Central Electricity Regulatory Commission (CERC).

India's surging power demand - driven by rising incomes, mechanised farming, industrialisation, and urbanisation - has prompted New Delhi to streamline grid rules to better integrate clean energy projects and ensure uninterrupted electricity supply for its 1.4 billion people.

The country aims to have 500 GW of non-fossil fuel power capacity by 2030. However, its transmission network, spanning about 495,000 circuit kilometres, is lagging the growth in generation capacity.

The Central Transmission Utility conducted manual inspections before revoking access and will continue efforts to free up transmission lines for projects that are on track for completion, the official said.

JSW Energy appealed the revocation, but the regulator declined to grant interim relief, according to an order dated June 24, and on July 10 asked CTUIL to share its response. The petition is listed for October 7, according to orders posted on the CERC website.

"There is no connectivity revocation on account of delay in project commissioning dates," a spokesperson for Adani said, without providing further details.

The other companies and the CTUIL did not respond to Reuters emails seeking comment. Recently, India tightened rules to curb trading of grid access by barring developers from changing the source of generation after securing connectivity. The CERC also mandated that project promoters must retain control until commissioning. Violations could lead to forfeiture of bank guarantees and revocation of connectivity.

India reduces GST on renewable energy components to 5%

The Indian government has reduced the goods and services tax (GST) on solar photovoltaic (PV) modules and wind turbine generators from 12% to 5%.

This move is expected to decrease the capital cost for solar and wind power projects by approximately 5% and accelerate the country's transition to renewable energy, reported Reuters, citing industry experts.

The tax cut is part of a broader initiative to reduce taxes on hundreds of consumer items and is aligned with India's goal to expand its non-fossil fuel capacity to 500GW by 2030.

Currently, India has about 44GW of renewable projects pending firm power supply agreements.

This move is expected to bolster India's renewable energy sector, which has recently surpassed 100GW of solar PV module manufacturing capacity under the Approved List of Models and Manufacturers.

Renewable energy investments in India rise 45% to $1.23 bn in August

Investments in the Indian renewable energy (RE) sector, including solar and wind energy projects, jumped to $1,235 million ($1.23 billion) last month (August 2025), research firm JMK Research said recently. This was 45 per cent higher than $848 million investments announced in the same month last year.

"In August 2025, a total of about $1,235 million in investments were made in the RE sector in India. The key investments during the month were Acme Hybrid Urja, a wholly owned subsidiary of ACME Solar, securing a long-term project financing of ₹3,184 crore from REC Ltd for its 280 Megawatt (Mw) firm and dispatchable renewable energy project," the company said in a report.

During the month, Juniper Green Energy also secured ₹1,739 crore in debt financing from Indian Renewable Energy Development Agency (IREDA) to support the growth and development of the company and its subsidiaries.

The report said over 5,750 Mw of renewable energy tenders were issued in August 2025 under the project development category. In addition, around 250 Mw of firm and dispatchable renewable capacity and 275 Mw/800 Megawatt Hour (MWh) of Battery Energy Storage Systems (BESS) capacity were allocated to various developers.

The report also highlighted that between January and July this year, around 21,151 Mw of solar and 3,976 Mw of wind energy generation capacity were added in the country, taking the cumulative renewable energy capacity to around 237.5 Gw. Meanwhile, 13,889 Mw of solar capacity and 2,339 Mw of wind capacity were added in the same month last year.

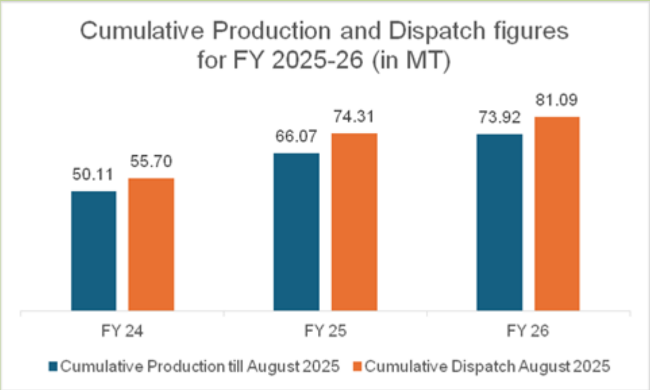
Another report on the renewable energy sector pointed out that the performance of Indian wind and solar project-finance transactions dipped last financial year (2024-25). Wind load factors fell 8 per cent in 2024-25 relative to 2023-24, leading to performance that was at the lowest level since 2021-22. Solar load factors also decreased last fiscal, albeit by a lower degree of 3 per cent against 2023-24, Fitch Ratings said.

Monthly Production and Dispatch from Captive and Commercial Mines in August 2025

Coal production from Captive and Commercial mines during August 2025 in the financial year 2025–26 was recorded at 14.43 million tonnes (MT), while dispatches reached 15.07 million tonnes (MT).

The cumulative figures for the financial year 2025-26 up to August reflect a strong year-on-year growth, with production rising by 11.88% and dispatches increasing by 9.12% compared to the same period last year. These positive trends indicate enhanced operational efficiency and more effective utilization of mining capacity across the sector.

The attached graph clearly illustrates the consistent performance improvement with both production and dispatch showing strong gains.



The Ministry attributes the sector's improved performance to a series of strategic policy measures, rigorous monitoring, and consistent support to stakeholders. These efforts have played a crucial role in accelerating operational approvals and expanding production capabilities, thereby driving overall growth in coal output and dispatches.

The Ministry of Coal has reiterated its dedication to fully realizing the potential of captive and commercial coal mining in India. Moving forward, the emphasis will be on maintaining consistent production, reducing supply interruptions, and making a substantial contribution to the country's rising energy needs.

Coal stock at power plants up 28% year-on-year; daily rake supply at 436.5 in September

Coal availability at thermal power plants (TPPs) rose to 47.55 million tonnes (MT) as of September 10, 2025, compared with about 37 MT in the same period last year, an increase of nearly 28 per cent, according to official data. Mine-end stock stood at 99 MT while the average daily coal rake supply during September was 436.5 per day, of which 388.6 rakes per day were delivered to the power sector.

A senior coal ministry official said, "In September 2025, total coal rakes averaged 436.5 per day, with 388.6 rakes per day moving to the power sector. Thermal power plant stock on September 10 was 47.55 MT, and mine-end stock was 99 MT."

In September 2024, the coal stock at TPPs was 37 MT, reflecting lower reserve levels despite similar demand conditions. Although daily rake figures for that period were not collated in the same format, government officials had pointed to constrained logistics and higher demand as reasons for tighter coal balances.

The higher coal stock levels this year are attributed to improved supply planning and logistics coordination, ensuring that TPP inventories remain well above last year's buffer. Officials said mine-end stock of 99 MT provides additional flexibility to address seasonal demand fluctuations, especially during high consumption months.

India's power demand typically peaks during the summer and early winter months, when coal shortages in the past had strained generation and triggered emergency measures. The ministry has been closely monitoring daily rake movement to ensure uninterrupted supply to the power sector, which consumes over 70 per cent of the country's domestic coal.

The official emphasised that the focus remains on balancing production, dispatch, and transportation. With inventories improving compared to last year, the ministry expects to maintain stable coal supply conditions through the upcoming high-demand period.

Ministry of Coal to Launch ₹2,400 crore funding for coal gasification projects

The ministry of coal will shortly roll out the second tranche of viability gap funding (VGF) of around ₹2,400 crore for coal gasification projects and is also in talks with the ministry of petroleum and natural gas (MoPNG) to sell byproducts of coal gasification, including methanol and green hydrogen, Rupinder Brar, additional secretary at the coal ministry said in Mumbai recently. She was speaking at a roadshow on coal gasification in India.

Coal gasification technology enables the conversion of coal into syngas (synthetic gas) used to produce downstream products such as methanol, ammonium nitrate, synthetic natural gas (SNG), and fertilisers, while reducing emissions. India plans to achieve 100 million tonnes of coal gasification by 2030.

The government had, in January 2024, launched a financial incentive scheme with an outlay of ₹8,500 crore to provide viability gap funding (VGF) to promote coal/lignite gasification projects for PSUs and the private sector in three categories.

Of the ₹8,500 crore, the government has already allocated ₹6,100 crore and will roll out the second round of the scheme shortly for the remaining ₹2,400 crore.

"We will be rolling out the second round of the scheme left from last year. We encourage all of you (industry) to participate in that," said Brar.

The scheme was approved by the Cabinet for promotion of coal/lignite gasification projects, a crucial step towards India's target of 100 million tonnes of coal gasification by 2030.

The scheme was launched under three categories. Category I is for PSUs only, with a provision of ₹4,050 crore. Category II, with an outlay of ₹3,850 crore, is available to both the private sector and PSUs with a maximum grant of ₹1,000 crore or 15% of project cost, whichever is lower.

56th GST Council Decisions to Benefit both Coal Producers and Consumers

The 56th meeting of the GST Council held in New Delhi has brought significant changes to the taxation structure of the Coal sector. Earlier, Coal attracted 5% GST along with a compensation cess of Rs. 400 per ton. The Council has now recommended the removal of GST Compensation cess and an increase in the GST rate on coal from 5% to 18%.

The new reforms reduce the overall tax on coal grades G6 to G17, which is in the range of Rs.13.40 per ton to Rs.329.61 per ton. The average reduction for power sector is Rs.260 per ton, which will reduce the cost of generation by 17 to 18 paise /kWh.

The reforms will also help in rationalization of tax burden on coal vis-à-vis its pricing. Previously, a flat rate of Rs. 400 per tonne was imposed as GST compensation cess without considering coal quality. This disproportionately affected low-quality and low-priced coal. For example, G-11 non-coking coal, which is the majority coal produced by Coal India Limited, had a tax incidence of around of 65.85% compared to G2 coal where incidence was 35.64%. With the cess removed, tax incidence across all categories of coal has now been rationalized to a uniform of 39.81%.

The reforms will also help in promoting Aatmanirbhar Bharat by import substitution. Earlier, due to flat rate of GST compensation cess at Rs. 400/ton, landing cost of High Gross Calorific value imported coal was lesser as compared to Indian Low-grade Coal. This used to place Indian Coal in disadvantageous position. The removal of cess levels the playing field, strengthening India’s self-reliance and curbing unnecessary imports.

The reforms also remove the Inverted Duty Anomaly by raising GST Rate to 18%. Earlier Coal attracted 5% GST but the input services used by coal companies used to attract higher GST rates, normally at 18%. This, meant that huge amount of unutilized tax credit was standing in the books of these coal companies as output GST liability was lower.

Since, the outward GST liability of Coal companies was lower as compared to GST paid on input services, this amount was continuously increasing and with no refund of this amount, this implied blockage of funds of coal companies. Now this unutilized amount can be used for some years to pay of the GST tax liability, leading to release of blocked liquidity. This will also help in staving off loss of coal companies due to accumulation of such unutilized GST credit.

Despite increase in GST Rates from 5% to 18%, the reforms will have lower overall tax incidence on final consumer, due to removal of GST compensation Cess. Similarly, the removal of cess, rationalization of duty, and correction of the inverted structure release liquidity, eliminate distortions, and prevent large accounting losses for coal producers. The decisions of the GST council represent a balanced reform that benefit both coal producers and consumers alike.

This information was given by Union Minister of Coal and Mines Shri G. Kishan Reddy in a written reply in Rajya Sabha recently.

India to auction coal blocks for gasification projects soon

India plans to auction coal blocks suitable for coal gasification in the near future as part of its initiative to gasify 100 million tonnes (mt) of coal over the next five years.

This was announced by Coal Additional Secretary Rupinder Brar during a roadshow on coal gasification organised by the Coal Ministry and non-governmental trade association the Federation of Indian Chambers reported PTI.

Coal gasification is a technique that transforms coal into a synthetic gas, or syngas, which consists primarily of carbon monoxide and hydrogen. This is achieved by reacting coal with oxygen and steam at elevated temperatures.
The resulting syngas can be used to manufacture a range of downstream products such as fertilisers, methanol and synthetic natural gas. This process provides a cleaner and more versatile application of coal compared to conventional combustion methods.

The coal blocks will be auctioned under the commercial coal mining auction, a ministry official told the PTI.

The government also plans to issue a request for proposal to allocate the remaining Rs25bn under the financial incentive scheme for the coal gasification project. So far, approximately Rs60bn has been allocated under this scheme.

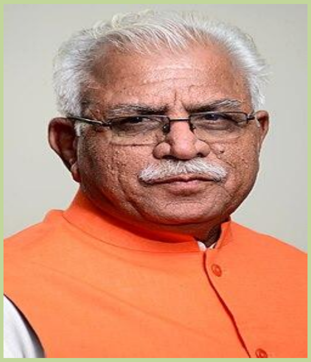
Last year, the government approved an Rs85bn financial incentive scheme to promote coal and lignite gasification projects by both government public sector units and private companies. The scheme aims to convert coal into valuable products such as synthetic natural gas and chemicals, reducing reliance on imported products.

Meanwhile, state-owned National Thermal Power Corporation (NTPC) plans to appoint a consultant to identify uranium mines overseas after signing a formal agreement with the Uranium Corporation of India (UCIL). This move is part of NTPC’s plan to secure raw materials for its future nuclear projects, according to another report by PTI.

A company official stated; “We are in the process of signing the JV [joint venture] agreement with Uranium Corporation of India for joint techno-commercial due diligence of overseas uranium assets. It has gone for approval to the board. Then we will award a contract for consultancy.”

The consultant will advise on potential locations for uranium mines, with decisions on acquiring these assets to follow.
The NTPC board previously signed a draft memorandum of understanding with UCIL for joint techno-commercial due diligence of overseas uranium assets. Currently, NTPC, the country’s largest power generator, has an installed capacity of 83,863MW, utilising fuel sources such as coal, gas/liquid fuel, hydro and solar.

GoM meeting focuses on power sector reforms, debt relief, prepaid smart meters to strengthen discoms



The Group of Ministers (GoM) chaired by Union Minister of Power and Housing & Urban Affairs Manohar Lal Khattar and constituted to address the viability of electricity distribution utilities met for the fifth time in New Delhi recently. Khattar said that the operational and financial health of distribution companies was key to providing power to consumers.

He called for collaborative efforts by the Centre, states and regulators to implement reforms and urged states to expedite the installation of prepaid smart meters in government establishments.

Union Minister of State Shripad Naik referred to earlier deliberations of the GoM and stressed the need for regulatory reforms. He said proposed interventions, to be implemented by the Centre and states, should reduce the debt burden of distribution utilities and improve their efficiency in delivering reliable electricity supply. Pankaj Agarwal, Secretary - Power, at the ministry, underlined the need for reforms that could restore financial stability to distribution companies and prevent recurrence of a debt trap. He said the GoM had been set up to identify reform measures that could ensure durable change.

Proposals on tariff and debt Senior ministry officials cited high cross-subsidy levels, mounting losses and reduced private sector interest as key issues, and presented provisions of the proposed Electricity (Amendment) Bill outlining its potential to improve the financial condition of utilities, strengthen the regulatory framework, enable energy transition and promote efficient use of distribution networks.

Deliberations during the meeting emphasised that regulatory commissions should issue cost-reflective tariffs, with state governments free to extend subsidies if needed. Members also discussed the need for mediation mechanisms to resolve disputes, recognition of utility debt as a state government liability, and timely settlement of subsidies and dues from government departments.
Other points of discussion included the use of data analytics for power purchase optimisation and demand forecasting, and the design of a new scheme for debt restructuring of distribution utilities.

The GoM reiterated their commitment to undertake necessary measures to improve the financial position of power distribution companies.

The meeting was attended by Union Minister of State for Power and New & Renewable Energy Shripad Yesso Naik, Energy Ministers from Maharashtra, Uttar Pradesh, Tamil Nadu, Rajasthan, Andhra Pradesh and Madhya Pradesh, along with senior officials from the Centre, state governments, state power utilities and Power Finance Corporation.

India expects to double power demand within a decade: Pralhad Joshi

India's electricity demand is expected to double in less than a decade, making capacity building and grid modernisation a critical priority, Union Minister for New and Renewable Energy Pralhad Joshi said recently.

Speaking at the ET Energy Leadership Summit 2025, Joshi said that the government is expanding the inter-state transmission system and updating electricity markets to integrate the large volumes of renewable power being added.

"As the world's fastest-growing major economy, our electricity demand is set to double in less than a decade. This makes capacity building an absolute necessity. I am happy to note that we are expanding our inter-state transmission system. Our electricity markets are also being modernised, to integrate the massive addition of renewables," he said.

Thermal share dips below 50%
India is currently the world's second-largest coal producer, but its renewable capacity has also

surged, ranking third in solar and fourth in total installed renewables. For the first time this year, the share of thermal capacity dipped below 50 per cent, five years ahead of India's global commitment.

GST cut to save discoms ₹3,000 crore annually
The minister said the government's move to cut GST on renewable energy equipment from 12 per cent to 5 per cent will save distribution companies up to ₹3,000 crore a year in power procurement costs. "This is a win-win for people, nation, and even our finances," he said, adding that companies such as ReNew Energy have already reduced module and cell prices after the cut.

Innovation driving supply chain
India is also advancing in high-efficiency solar cells, perovskite research, and sodium-ion battery development, Joshi said, describing them as part of a strategy to build a fully integrated domestic supply chain for renewables.

Data centres, hydrogen to drive new power demand; capacity markets on the anvil: CEA

India's power demand outlook is shifting rapidly with data centres, green hydrogen and electric vehicles emerging as new drivers, Central Electricity Authority (CEA) chairperson Ghanshyam Prasad said recently.

"Data centres are expected to grow from 1 GW today to 16 GW in a short period. Green hydrogen, green ammonia and EVs will also add significant demand. These sectors are seeking 24x7 green power, which requires innovative supply models," Prasad said at the ET Energy Leadership Summit 2025.

Market evolution
On the market side, Prasad noted that short-term trading volumes have risen to 15 per cent of total electricity consumption, with 8–9 per cent of this through power exchanges. "A derivatives product has already been launched under SEBI supervision. The next step is a capacity market, which will help meet short-term and flexible demand," he said.

Distribution and automation
While demand from new sectors grows, distribution remains a bottleneck. "Discoms are improving performance, but infrastructure needs upgrading. With rooftop solar and distributed renewables, load dispatch centres need visibility down to the distribution level, supported by automation," Prasad said.

Technology and cybersecurity
Alongside demand growth, Prasad flagged cybersecurity as a rising risk. "With smart meters and prosumers entering the grid, threats are expanding. A Centre of Excellence on cyber security has been set up at IISc Bangalore, in collaboration with IIT Kanpur," he said.

CEA has also highlighted the role of storage technologies and carbon capture, utilisation and storage (CCUS) in managing future demand. NTPC pilots are already operational, with captured CO_2 being used to produce methane and other products.

India revises power strategy, balances coal expansion with renewable, nuclear growth

India will add 97 gigawatt (GW) of new coal-based power capacity by 2035 while simultaneously expanding nuclear and hydro generation to meet rising electricity demand and long-term net zero goals, Central Electricity Authority (CEA) Chairperson Ghanshyam Prasad said.

Speaking at KPMG ENRich 2025, Prasad said 70 GW of coal projects are already under construction and another 27 GW will be taken up in the coming years. "This strategy is aimed at ensuring stable supply, particularly during non-solar hours," he said, while stressing that renewable energy additions will continue at pace.

Prasad said India has already achieved 50% non-fossil capacity in its power mix, five years ahead of its Paris Agreement commitment, and is on track to revise its long-term capacity targets. "We are moving towards 500 GW non-fossil capacity by 2030, 600 GW by 2032, and around 2,000 GW by 2047," he said.

On nuclear power, he announced that capacity would increase from 8.8 GW at present to nearly 100 GW by 2047, supported by policy changes to bring in more players beyond NPCIL. Hydro, especially pumped storage, is also set for a major scale-up, with capacity projected to rise from 4.7 GW in 2024 to 57–60 GW by 2033. “This year we are commissioning 2.8 GW, followed by 2.6 GW next year and 30 GW in 2027,” Prasad said.

The CEA chief underlined that planning will be continuously updated, with strategies revised annually and transmission plans every six months. Resource adequacy studies have been completed for 11 states and will cover all by December, providing visibility into state-level demand and supply requirements.

He pointed to emerging challenges from demand growth in green hydrogen, large-scale data centres, and export-oriented industries. “The challenge is how to make them green and competitive,” Prasad said, adding that domestic manufacturing capacity is being ramped up in line with Make in India. “Manufacturers are augmenting their capacity and increasing domestic content every year or two,” he noted.

India’s transmission network lags behind renewable growth; 50 GW of green energy capacity stranded: IEEFA report

India's power-transmission network is expanding more slowly than the rapid growth of renewable energy capacity, according to a new report by the Institute for Energy Economics and Financial Analysis (IEEFA) and JMK Research & Analytics.

As of June 2025, over 50 GW of renewable energy capacity remains stranded nationwide, causing project delays and increasing transmission costs.

In the fiscal year 2025, only 8,830 circuit kilometres of new transmission lines were commissioned, against a target of 15,253 circuit kilometres, representing a 42 per cent shortfall. Inter-State Transmission System (ISTS) additions were at their lowest in a decade, with up to 71 per cent of ISTS corridors operating below 30 per cent utilisation.

Transmission expansion and constraints
The report highlights that mismatches between variable renewable generation and grid consumption create challenges for integrating new capacity. Solar generation coincides with afternoon peak demand but declines in the evening when consumption remains high, leading to underutilised transmission corridors.

Energy storage is identified as crucial to bridging this gap. Some underutilisation reflects strategic overbuilding to accommodate future demand, but delays in expansion stem from issues such as right-ofway constraints, extended land acquisition timelines, equipment procurement restrictions, and multiagency approvals. "Speculative hoarding" of transmission capacity by entities without genuine projects has increased connectivity costs and delayed access for viable projects.

Calls for policy and planning reforms
The report calls for reforms to improve coordination between generation and transmission planning, streamline approval processes, and introduce new investment mechanisms to expand grid capacity more efficiently.

It suggests moving away from traditional five-year static transmission planning cycles towards adaptive approaches that account for evolving generation patterns and demand growth.

Public-private partnership models and asset monetisation frameworks are recommended to accelerate investment and project execution. The report also recommends a single-window clearance system with performance-based incentives to improve commissioning timelines and asset utilisation.

Regional challenges and government initiatives
Rajasthan is cited as an example where 8GW of renewable energy capacity remains stranded, compounded by ecological directives requiring underground cabling in sensitive habitats.

The Green Energy Corridor initiative has enabled commissioning of 27.45GW of renewable capacity, with a further 36GW under development. Amendments to the General Network Access framework seek to better align transmission capacity with actual generation patterns by dividing capacity allocation into solar and non-solar hours.

A coordinated approach combining regulatory reform, operational improvements and capital mobilisation is deemed critical to transform India's transmission network into a more flexible and resilient system capable of supporting the country's renewable energy transition.

IEX appeals against CERC order on market coupling, seeks approval for new peak power market

The Indian Energy Exchange (IEX) has filed a petition challenging the Central Electricity Regulatory Commission's (CERC) July 23, 2025 order on phased implementation of market coupling across power exchanges in India.

Market coupling refers to aggregation and matching of buy and sell bids across all exchanges and trading platforms, leading to the discovery of a single uniform price of electricity. CERC had mandated the process to be introduced gradually, aiming to streamline power market efficiency.

IEX, in its petition under Section 66 of the Electricity Act, 2003 and Regulation 25 of the Power Market Regulations, 2021, also sought approval for the introduction of the Peak Day Ahead Market (Peak DAM) and Peak Real Time Market (Peak RTM). These proposed products are designed to cater to rising peak-hour electricity demand, giving both buyers and sellers additional flexibility.

The appeal comes amid growing debate within the sector on whether market coupling would dilute the autonomy of exchanges and affect competition. IEX, the country's leading power exchange, has expressed concerns about potential operational and market risks arising from the mechanism.

The matter is now under consideration, with further hearings expected to determine the framework for implementation.

Power cost to drop 17-18 paise per unit as GST Council scraps coal cess

The cost of electricity generation is set to decline by about 17–18 paise per unit after the Goods and Services Tax (GST) Council recently removed the Rs 400-per-tonne compensation cess on coal. The change is expected to lower the average price of coal for the power sector by around Rs 260 per tonne, the Ministry of Coal said in a statement.

It said the reform will reduce coal prices across grades G6 to G17 by Rs 13.40 to Rs 329.61 per tonne. The move replaces the earlier flat cess with a uniform tax incidence of 39.81 per cent across coal grades.

Earlier, the cess disproportionately raised the cost of lower-quality coal, such as G-11 non-coking coal produced in large quantities by Coal India Limited, where the tax incidence was 65.85 per cent compared with 35.64 per cent for higher-grade G2 coal.

In its 56th meeting, the GST Council raised the GST rate on coal from 5 per cent to 18 per cent. The ministry said this corrects the inverted duty structure, where coal was taxed lower than input services used by coal companies, typically at 18 per cent.

The mismatch had led to large amounts of unused tax credit accumulating in company accounts. With the higher GST rate, companies will be able to use these credits against their liabilities, releasing blocked funds and improving liquidity.

The removal of the cess also makes domestic coal more competitive against imports. Previously, the flat cess sometimes made high-grade imported coal cheaper than India's low-grade varieties. The ministry said the reform would strengthen domestic coal use and reduce imports.

India is producing more energy than ever before: Union Petroleum and Natural Gas Minister

India is producing record levels of energy to achieve self-reliance in the power sector, supported by a diversification of its supply sources, Union Petroleum and Natural Gas Minister Hardeep Singh Puri said at an industry event here.

"India is producing more energy than ever before... With the rapidly growing demand for energy, India has diversified its energy sources. Earlier, we imported from 27 countries; today, we import from 40 countries," the minister said.

Even for cooking gas, which earlier came predominantly from a single country, we have broadened our supply base. Today, our energy basket includes biofuels, green hydrogen, and other sources, the minister added.

India's economy is growing at approximately 6.5 per cent, with energy consumption increasing six times faster than the global average, the minister noted. International agencies estimate that India will account for approximately 25 per cent of the increase in global energy demand over the next two decades.

India is undergoing a significant drive for energy security under the leadership of Prime Minister Narendra Modi, Puri said, adding that even as our consumption steadily grows, initiatives to strengthen and expand domestic production are afoot. India has already taken major strides in green hydrogen, with the government allocating an annual production capacity of 862,000 tonnes to 19 companies. Additionally, 3,000 MW of annual electrolyser manufacturing capacity has been awarded to 15 firms.

The country has also become one of the world's fastest-growing renewable energy markets, with over 223 GW of installed capacity -- 108 GW from solar and 51 GW from wind -- and is targeting 500 GW of nonfossil capacity by 2030.

The minister earlier this month said that the natural gas contribution in the country's energy mix is set to rise from 6 per cent to 15 per cent by 2030.

India fuel exports surge to multi-year highs on higher refinery runs

Indian oil refiners are increasing gasoline and diesel exports to their highest levels in several years, driven by expanded crude processing capacity and increased domestic ethanol blending that has freed up fuel supplies for overseas markets, traders and analysts said.

Refiners in India, which sources about a third of its crude from Russia, are boosting runs and redirecting surplus barrels abroad.

The rise in exports is expected to help meet Europe's winter heating oil demand and support Indian refining margins, after refiners turned to discounted Russian crude when Europe and the U.S. imposed sanctions on Moscow for its invasion of Ukraine in February 2022.

Washington D.C. has accused India of profiteering by importing Russian oil at lower prices and reselling refined fuel at higher rates; India has said its purchases have stabilised markets.

This year, India's crude processing is expected to increase by 130,000 to 160,000 barrels per day to about 5.51 million bpd, with gasoline exports hitting a record high of around 400,000 bpd, according to consultancy Wood Mackenzie.

An Indian refining source, who declined to be named due to company policy, said exports are rising because of weaker domestic demand during the monsoon season and fewer scheduled maintenance outages.

Data provider Kpler pegs Indiaâ€™s 2025 gasoline exports at 387,000 bpd, mainly to Asia.

"The growth in gasoline exports is supported by a rising share of ethanol blending in domestic gasoline consumption," Woodmac analyst Priti Mehta said.

The world's second-biggest crude importer and consumer increased ethanol blending in gasoline to 20% this year, up from 12% in 2023.

Refiners, led by Reliance Industries and Mangalore Refinery and Petrochemicals Ltd, are boosting exports to capitalise on strong Asian gasoline margins, which have risen 51% since the start of the year to about $11 to $12 a barrel.

EUROPE'S DIESEL BUYING SPREE

India’s gasoil exports are also expected to hit a four-year high this year, with most volumes heading to Europe to meet winter heating demand, analysts said, as global supply may tighten during the fourth quarter because of heavy refinery maintenance in Europe and the Middle East.

Wood Mackenzie expects India's 2025 gasoil exports to reach 610,000-630,000 bpd while Kpler's forecast is at 560,000 bpd.

The rise in India's exports comes as shipments from Saudi Arabia are set to fall by 300,000 bpd to around 400,000 bpd in October -November with several Aramco refineries scheduled for maintenance, according to consultancy Energy Aspects.

In a sign of the shift, Reliance Industries in late August shipped about 2 million barrels of diesel to Europe on the Very Large Crude Carrier Atokos, an uncommon move aimed at accommodating bigger volumes, ship-tracking data showed and two Singapore-based fuel traders said. Diesel cargoes are typically moved on smaller product tankers.

The European Union said in its 18th package of sanctions against Russia in July that it will stop importing petroleum products made from Russian crude after a transitional period of six months. The exemption will continue to apply to imports from Norway, Britain, the U.S., Canada and Switzerland.

Govt to revisit ethanol blending progress before announcing new targets: Puri

Union Petroleum and Natural Gas Minister Hardeep Singh Puri announced that the government will review India’s ethanol blending programme before setting new, higher targets. India achieved its target of 20% ethanol blending in petrol six years ahead of schedule, reaching 10% blending by 2022, five months before its deadline.

Puri rejected concerns about E20 fuel affecting engine health and mileage, stating such claims are inaccurate. He also highlighted broader energy sector reforms, including the Oilfield (Regulation and Development) Amendment Bill to attract global investors and renewed interest in rejuvenating offshore oil basins.

Puri mentioned India’s first bamboo-based ethanol plant in Assam as a significant milestone and expressed confidence in India’s ability to reduce green hydrogen costs to below $3 per kilogramme, making it globally competitive.

PNGRB proposes 24-hour LPG refill guarantee under new framework

The Petroleum and Natural Gas Regulatory Board (PNGRB) recently proposed a new framework for LPG delivery that seeks to guarantee refill supply within 24 hours and remove service delays faced by consumers. The regulator has floated a consultation paper on “interoperable service delivery” for domestic LPG cylinders covering more than 32 crore households.

According to PNGRB, over 1.7 million LPG-related complaints are registered annually, with nearly half linked to delayed refill delivery. At present, OMCs follow a 48-hour delivery norm. The proposed framework provides that if the designated distributor fails to deliver within 24 hours, the nearest available distributor of any PSU oil marketing company will be assigned to complete the supply.

“This will effectively create a unified national LPG service system, with collective accountability across OMCs,” said PNGRB. The regulator has invited public comments on the operational mechanism, technology integration and implementation roadmap. The rollout will be phased, starting with pilot programmes in select regions.

India's crude oil output slips 0.6% in Aug; import bill falls to $9.4 bn

India's crude oil and condensate production fell 0.6 per cent to 2.4 million metric tonnes (MMT) in August 2025 while the country's net oil and gas import bill declined to USD 9.4 billion from USD 11.4 billion a year earlier, according to data from the Petroleum Planning and Analysis Cell (PPAC).

Of the total domestic output, 75.3 per cent came from nomination fields, 13.7 per cent from pre-NELP fields and 10.8 per cent from NELP fields.

Crude oil processing rose 3 per cent year-on-year to 22.3 MMT in August. State-run and joint venture refiners processed 15 MMT, while private refiners handled 7.3 MMT. Out of the total, 2.2 MMT was indigenous crude and 20.1 MMT imported. For April–August of the current fiscal, crude processing grew 1.8 per cent compared to the same period last year.

Crude oil imports declined 2.9 per cent in August but were up 0.7 per cent in April–August. Imports of crude were valued at USD 9.9 billion, LNG imports at USD 1.2 billion, while exports of petroleum products were USD 3.5 billion in August.

Brent crude averaged USD 68.21 per barrel in August compared to USD 70.99 in July and USD 80.91 in August 2024. The Indian basket crude price averaged USD 69.11 a barrel in August against USD 70.95 in July and USD 78.27 a year earlier.

Petroleum product output rose 3.4 per cent to 23.5 MMT in August, with 23.2 MMT from refineries and 0.3 MMT from fractionators. For April–August, product output was 0.3 per cent higher than a year earlier. High-speed diesel accounted for 41.5 per cent of production, motor spirit 18.4 per cent, naphtha 6.2 per cent, ATF 5.8 per cent, pet coke 5 per cent and LPG 4.5 per cent.

POL product imports fell 2 per cent in August and 2.6 per cent in April–August, mainly due to lower imports of fuel oil and pet coke. Exports increased 11.2 per cent in August and 2 per cent in April–August on the back of higher shipments of naphtha, petrol and diesel.
Consumption of petroleum products in April–August was 99.7 MMT, unchanged from the year-ago period. Growth came from LPG (7.5 per cent), petrol (6.5 per cent), ATF (1.3 per cent) and diesel (2.3 per cent). In August alone, consumption rose 2.6 per cent to 18.7 MMT. Ethanol blending in petrol was 19.8 per cent in August and 19.1 per cent during November 2024–August 2025.

India's natural gas production falls 3.7% in July; LNG imports down 20%

India's natural gas production declined 3.7 per cent to 2,967 million standard cubic metres (MMSCM) in July 2025, while liquefied natural gas (LNG) imports contracted by 20.15 per cent year-on-year to 2,946 MMSCM, according to the Petroleum Planning and Analysis Cell (PPAC).

Natural gas availability for sale during the month dropped 13.12 per cent to 5,430 MMSCM as compared to 6,250 MMSCM in July 2024. Total gas consumption in the month was reported at 5,875 MMSCM, the data showed. The fertilizer sector remained the largest consumer, accounting for 29 per cent of total consumption. It, however, saw a 3.5 per cent decline at 1,739 MMSCM. Consumption by the city gas distribution (CGD) segment increased 10.7 per cent to 1,396 MMSCM, while the power sector registered a 2.2 per cent rise to 745 MMSCM. Refineries consumed 428 MMSCM, down 17.2 per cent, whereas petrochemicals recorded a 9.2 per cent growth at 309 MMSCM.

During April–July 2025, cumulative natural gas consumption stood at 23,185 MMSCM, down 7 per cent year-on-year. Fertilizer accounted for 27.4 per cent of total demand, followed by CGD at 23 per cent, power at 13.6 per cent, refineries at 7.2 per cent and petrochemicals at 5.9 per cent.

On a state-wise basis, Gujarat was the highest consumer at 45.4 MMSCMD, followed by Uttar Pradesh at 32.4 MMSCMD and Maharashtra at 27.2 MMSCMD. Other major consuming states included Rajasthan, Delhi and Tamil Nadu.

Natural Gas consumption declined 3.8 per cent year-on-year to 5,822 MMSCM in August. For April–August, total consumption was 28,705 MMSCM, down 7.9 per cent from the year-ago period. Gross gas production in August was 2,971 MMSCM, lower by 2.5 per cent from a year earlier. Cumulative production in April–August was 14,725 MMSCM, down 3 per cent year-on-year. LNG imports fell 5.5 per cent to 2,887 MMSCM in August. Cumulative imports in April–August stood at 14,170 MMSCM, down 12.6 per cent from the same period last year, PPAC said

ONGC, OIL aim to launch ₹3,200 cr stratigraphic drilling campaign next year

State-run oil explorers ONGC and Oil India Ltd are planning to begin a ₹3,200 crore stratigraphic drilling campaign in untapped offshore areas early next year, as part of efforts to discover new hydrocarbon reserves and cut reliance on imports, officials said.

Stratigraphic drilling - also known as a stratigraphic test well - is a type of exploratory drilling aimed at studying underground geological formations rather than producing oil or gas. These wells are drilled to gather data on subsurface layers through continuous coring, petrophysical logging, and seismic data integration. The objective is to build a detailed geological profile to support future hydrocarbon exploration, without any immediate intent to extract resources.

This will help reach a decision if the area holds hydrocarbon resources that could be commercially produced. "ONGC has stated that they have a rig and we hope to start drilling sometime in early 2026," an official involved in the process said.

The government has agreed to compensate Oil and Natural Gas Corporation (ONGC) and Oil India Ltd (OIL) for the cost of the stratigraphic drilling campaign. The ₹3,200 crore estimated cost also includes a fee to be paid to BP for its services, officials said. "The blocks (or areas) where the stratigraphic drilling is to take place is currently owned by the government and it alone will decide how any discovery has to be monetised - either through auctioning the area or giving it to a company or a consortium on a nomination basis," another official said. It is unclear if BP would like to be part of the monetisation. "It is entirely possible that they demand a first right of refusal (ROFR) in any development - getting a predefined percentage of stake in any consortium that monetises a discovery. But nothing has been conveyed so far," the official said.

India imports almost 88 per cent of its oil needs and about half of its natural gas requirement. The government is keen to cut this USD 150 billion import bill by raising domestic production. One way of doing this is to find newer resources and the stratigraphic drilling is a step in that direction.

In a major step towards energy security, the government has reduced 'no-go' zones - areas previously restricted due to strategic interests like defence and space programmes - by 99 per cent, unlocking over 1 million square kilometres of India's Exclusive Economic Zone (EEZ) for oil and gas exploration. To make deepsea exploration viable, the government has refined gas pricing formulas, allowing higher rates for resources produced from difficult areas.

In a bid to attract international exploration interest, India launched a Data Centre at the University of Houston in 2022 to showcase its sedimentary basin data. At the same time, the National Data Repository (NDR) was upgraded to a cloud-based platform, enabling seamless, self-service access to exploration data. Global energy giants like ExxonMobil and Chevron have since acquired Indian basin data, reflecting renewed confidence in the country's exploration and production (E&P) potential.

The Oilfields (Regulation and Development) Act was amended in March to introduce long-pending reforms and bring greater clarity to India's hydrocarbon sector. Key changes include a unified permit system covering both conventional and unconventional resources - such as shale oil/gas, coal bed methane, and gas hydrates - along with defined lease tenures and conditions. The amendments also protect investors from mid-term policy shifts, such as the introduction of new cesses or royalties.

NITI Aayog working on amendments to open nuclear power for private sector: NITI Aayog CEO Subrahmanyam

Federal policy think tank NITI Aayog is working on amendments to open nuclear power for the private sector at a time when nuclear energy is emerging as a key source of sustainable and clean energy, said chief executive officer B. V. R. Subrahmanyam.

Speaking at a WRI India event in the national capital, Subrahmanyam noted that nuclear power would be a key driver for sustainability and bolstering climate finance in the country.

The amendment allowing private sector participation was announced in the Union budget for 2025-26, in which finance minister Nirmala Sitharaman announced the Nuclear Energy Mission.

To facilitate the mission's implementation, amendments to the Atomic Energy Act and Civil Liability for Nuclear Damage Act will be taken up in Parliament. These changes are expected to encourage private-sector investments in nuclear power projects, according to a government statement issued after the budget.

Subrahmanyam added that NITI Aayog was “closely” working on these amendments.

The NITI Aayog CEO also emphasized the need to lower the cost of capital for clean-energy projects. He said banks were reluctant to extend credit to buyers of electric buses and trucks, given their low resale value.

Currently, the cost of capital for renewable-energy projects in India stands at about 15%—significantly higher than in other countries, such as Germany, where it is around 8%.

The think tank is exploring models such as sovereign guarantees and co-lending to reduce the high cost of climate finance, he said. Sovereign guarantees, he added, help reduce uncertainty associated with sustainable projects.

He called on states and other agencies to propose more large-scale initiatives in the renewable energy and sustainability sector, noting a shortage of billion-dollar projects.

“We need more projects, more billion-dollar projects. Which state has tried to start a project to convert all its vehicles into EVs (electric vehicles) by a certain date? There is abundant funding available from institutions such as the World Bank, Asian Development Bank, and others. What we need is a supply of these projects to generate demand for capital,” he said.

India planning legal framework to boost private participation in nuclear sector: AEC Chairman

India is creating a legal framework to encourage private sector participation in the nuclear sector, Atomic Energy Commission Chairman Ajit Kumar Mohanty said, according to PTI. Speaking at the 69th General Conference of the International Atomic Energy Agency in Vienna, he outlined the country’s Nuclear Energy Mission, which aims to raise nuclear power capacity to 100 GW by 2047.

Currently, India operates 24 nuclear power reactors with a combined capacity of 8,190 MWe and plans to increase this to 22 GW by 2032. Mohanty said the government is implementing strategic policy measures and infrastructure investments to support indigenous nuclear technologies and public-private collaborations.

Investment in small modular reactors

As per PTI, the government has allocated more than $2 billion for research and development of Small

Modular Reactors (SMRs). Plans include at least five indigenously designed SMRs to be operational by 2033. Mohanty said the Bhabha Atomic Research Centre is working on a 200 MWe light water-based Bharat SMR, a 55 MWe SMR, and a High Temperature Gas Cooled Reactor intended for hydrogen production in combination with a thermochemical plant.

During 2024-25, the Nuclear Power Corporation of India Limited (NPCIL) achieved a Plant Load Factor of 87 per cent. For the first time in its history, NPCIL's plants generated 50 billion units in the last financial year.

Fast breeder and fuel recycling programmes
The Fast Breeder Test Reactor at Indira Gandhi Centre for Atomic Research (IGCAR) completed 34 irradiation campaigns at a target power of 40 MWt. The Demonstration Facility for recycling Fast Reactor spent fuel was also successfully operated, Mohanty said. He added that India supports the International Atomic Energy Agency's work to provide a global nuclear safety and security framework and affirmed that ensuring the safety and security of nuclear and radiological materials remains a core responsibility of member states.

Centre eyes umbrella law for nuclear energy; special tribunal for disputes:

As India looks to open up a highly restricted nuclear power ecosystem to the private sector, the Centre is mulling a single umbrella law for all nuclear energy-related issues, replacing all existing laws. The Centre is also considering bringing in a specialised tribunal to address all nuclear energy related disputes besides a specialised authority on nuclear safety which will work in close coordination with the International Atomic Energy Agency (IAEA), it is learnt.

The proposed new nuclear energy architecture in India is looking to allow private entities in at least four to five key areas -- from exploration and mining of atomic minerals to the critical area of fuel fabrication - - all held by the government.

Nuclear Safety Vertical

With the entry of the private sector, the biggest concern is ensuring full accountability from the corporate world besides bringing in checks and balances.

The proposed new architecture hopes to address these through the creation of several verticals that will supervise aspects linked to the nuclear fuel cycle. The most critical of these will be a special vertical centred on nuclear safety and safeguards which will work in close coordination with the IAEA, ET has learnt. This will function like a special authority which will be able to deploy inspectors across all nuclear reactors in the country. The authority will be rigorous in its scope and reach and seek account for each gram of nuclear fuel deployed across reactors, from procurement to usage and disposal. The same will be reported to the Indian government which will be communicated to the IAEA, those in the know told ET.

The Centre is also considering restricting use of domestic uranium only for India's own strategic purposes. It is expected that for all commercial purposes/ power generation by any entity, uranium will have to be imported after meeting due quality and safety requirements. That apart, sensitive technology such as heavy water production, segregation and treatment of nuclear waste are expected to stay under the Department of Atomic Energy's control.

A Radioactive Waste Management & Decommissioning Authority and a Fuel and Heavy Water Regulator are envisaged.

The N-Tribunal

ET gathers that at a stakeholders' meet, the private sector is learnt to have raised concerns over possible litigation and prosecution in civilian courts over disputes that may arise over sundry partnership issues such as licensing, mergers and acquisitions and so on.

To resolve this, it is learnt that the Centre is looking at creating a special tribunal for all atomic energyrelated disputes. Only a case found malafide or seen as a deliberate malicious act intended to cause damage will be open to civil prosecution, it is proposed.

The issue of 'liability' under the Civil Liability for Nuclear Damages Act, 2010, has been another sticky point. A suggestion is to assure that the sovereign government will step in after a particular ceiling or cap on compensation amount is breached-provided insurance cover by the private partner takes care of the rest of the compensation.

The Law Book
ET gathers that at a top-level meet, a suggestion was made not just to amend existing legislation on atomic energy but to draft a whole new Act which redraws India's nuclear laws with a new approach and subsumes all existing laws and rule books on the subject.

NTPC forays into atomic energy

PM Modi laid the foundation stone for the Mahi-Banswara nuclear power project in Rajasthan. The project will mark the National Thermal Power Corporation's (NTPC) entry into India's atomic energy sector.

The Mahi-Banswara Rajasthan Atomic Power Project (MBRAPP) will feature four indigenously developed Pressurised Heavy Water Reactors (PHWRs), each with a capacity of 700 MWe. The project is being developed by Anushakti Vidyut Nigam Ltd (Ashvini), a joint venture between NTPC and the Nuclear Power Corporation of India Limited (NPCIL).

The site is located along the banks of the Mahi River near Napla in Banswara district.

NTPC looks to acquire uranium assets overseas to ensure fuel for future nuclear projects

NTPC, which is diversifying into clean energy generation, looks to acquire uranium assets overseas to ensure fuel availability for its future nuclear projects, according to a company official.

To increase its non-fossil fuel-based energy generation capacity, the company has plans to set up nuclear projects at various locations in India both through joint venture route and individually. "For fuel, we are exploring the possibility of acquiring overseas uranium assets. Our board has already approved a draft MoU (memorandum of understanding) with Uranium Corporation of India Limited (UCIL) for joint techno-commercial due diligence of overseas uranium assets in this direction," the official told PTI. Uranium, a naturally occurring metallic element, is used as fuel to power nuclear projects.

NTPC is expected to soon enter the nuclear power business through Anushakti Vidhyut Nigam Ltd (ASHVINI), a joint venture with Nuclear Power Corporation of India Ltd (NPCIL), with 2,800 megawatt (MW) Mahi Banswara Nuclear Power Project at Rajasthan. The JV, in which NPCIL holds a 51 per cent stake and NTPC owns 49 per cent, was formed to build, own and operate nuclear power plants in India in accordance with provisions of the Atomic Energy Act. In January this year, NTPC formed its subsidiary NTPC Parmanu Urja Nigam Ltd (NPUNL) to explore individual nuclear projects. Besides, NTPC is collaborating with various nuclear technology providers and state governments to set up projects on its own.

According to the official, the state-owned power company is also in discussions with US-based Clean Core Thorium Energy (CCTE) to explore development/deployment of ANEEL (Advanced Nuclear Energy for Enriched Life) fuel. The government aims to set up 100 GW of nuclear power capacity by 2047 to increase its share in India's energy mix. As of March 2025, the country's total installed energy capacity of 4,75,212 MW has only 2 per cent or 8,180 MW share of nuclear power. The official further said that while renewable energy sources like solar and wind have witnessed significant growth, their intermittent nature and substantial land requirements limit their ability to meet India's energy demand round-the-clock. "In contrast, nuclear energy presents a robust alternative, offering reliable, high-quality base load power with minimal carbon emissions," he said.

NTPC seeks govt nod for bulk purchase of nuclear reactors

NTPC Ltd, India's largest power producer, has approached the government for approval to make a bulk purchase of nuclear reactors as part of a national plan to expand atomic energy capacity and reduce reliance on fossil fuels, Bloomberg reports.

The state-run company is considering units ranging from 700 megawatts to about 1,730 megawatts each but has not finalised the size of the tender yet. The move is intended to lower costs by consolidating orders, people familiar with the matter told Bloomberg.

India's nuclear expansion target
India has set a target of building 100 gigawatts of nuclear generation capacity by 2047, which is more than 11 times the current total. NTPC is seeking to install nearly a third of that capacity.

Moreover, the government is also preparing changes to existing laws to attract private investment in the sector. The push comes as countries worldwide revisit nuclear energy as a source of round-the-clock, lowcarbon power.

Since commissioning its first reactor in 1969, India has installed 8.8 gigawatts of atomic energy. Achieving the 2047 target capacity would require adding roughly half of that amount every year for the next 22 years.

Challenges for expansion
The expansion faces hurdles, including identifying suitable sites, securing suppliers for different reactor technologies, and gaining local acceptance.

For NTPC, the shift to nuclear is part of its broader plan to reduce coal dependency, which currently accounts for 85 per cent of its generation portfolio.

Russia offers localisation of large & small nuclear power plants in India

Russia has offered India cooperation in localisation of large and small nuclear power plants as part of a civil nuclear energy collaboration between the two countries, it was announced recently. Russia is building the Kudankulam nuclear power plant (NPP) in Tamil Nadu at present.

According to Rosatom, the state atomic energy corporation, its director general Alexey Likhachov made the offer during his meeting with the Indian delegation on the sidelines of the 69th annual session of the General Conference of International Atomic Energy Agency (IAEA) in Vienna.

"Talks with India - one of Rosatom's strategic partners - centred on expanding collaboration in peaceful nuclear energy. Rosatom offered to work with India on localising large- and small-scale nuclear power plant projects, building on India's strong industrial capabilities," a Rosatom release said.

"The parties reviewed progress on the four units under construction at Kudankulam NPP for phases II and III and explored opportunities for further cooperation, including serial construction of Russian-designed large and small NPPs in India," the release added. In the first phase of KudanKulam NPP Rosatom has already commissioned two units.

Nuclear projects seen slowing after record 2024 output

A record level of global nuclear power production seen in 2024 will be hard to maintain in the coming years due to a lack of required investment, aging plants and project disruptions, the World Nuclear Industry Status Report said recently. Nuclear power has experienced a revival in interest from various countries trying to phase out fossil fuels, with the United States recently pushing hard to make nuclear energy a policy focus and securing several agreements with other countries to boost production. Global nuclear power generation reached a record in 2024 of 2,677 terawatt-hours after declining for two years, largely due to growth in China, data from the report showed.

However, to keep global nuclear output steady through 2030 the world would need 44 additional startups beyond those already scheduled, lifting annual startups to roughly two and a half times the past decade's pace, the report said.

Colloquium on "Significance of Safety Culture in the Nuclear Industry"

27 September 2025, AERB Auditorium, Mumbai

Nuclear installed capacity in India is set to increase manifold in the coming decades. In this background, safety culture becomes very important and considering this importance, the India Energy Forum (IEF), in collaboration with the Atomic Energy Regulatory Board (AERB) and the Indian Nuclear Society (INS), organised, in hybrid mode, a colloquium aimed at raising awareness about the significance of safety culture in the nuclear sector. More than one hundred delegates participated in person, and more than fifty professionals joined online. Participants also included those from industry considering owning and operating nuclear reactors in the near future, besides from academic institutions. The colloquium was conceived to sensitise new and emerging players in the nuclear industry about the importance of safety culture in the operation of nuclear power plants and allied facilities.

Dr V. K. Manchanda, President, Indian Nuclear Society, reflected on the future trajectory of nuclear energy in India, predicting a multi-fold increase in its contribution to the national grid.

Setting the context, **Dr R. B. Grover**, Chairman, Nuclear Group, IEF, and a Member of the Atomic Energy Commission, explained how several studies, done by experts from within DAE and outside, have highlighted the importance of nuclear energy in the energy mix of India, leading to the announcement of a target of 100 GW by mid-century by the Government. He pointed out that as nuclear energy is poised for greater adoption in India, the preparedness of new entities to adopt a safety-first culture will define the credibility and success of the sector. He observed that the safety culture encompasses the shared values, beliefs, and behaviours within an organisation related to safety. Dr. Grover expressed his hope of more such colloquiums by IEF jointly with INS with patronage of DAE.

Keynote Address by AERB Chairman

In his keynote lecture on "Developing, Sustaining and Strengthening Safety Culture", Dr D. K. Shukla, the Chairman, AERB, laid strong emphasis on the fact that safety culture is not a mere regulatory requirement but the very foundation of nuclear safety. He stressed that the success of nuclear installations depends not only on robust technology and regulatory frameworks but also on the mindset, values, and commitment of the workforce at all levels. Safety culture has to be nurtured at all levels in the operating organisation.

He observed:

- Leadership commitment is vital for cultivating a safety-first approach.
- Human and organisational factors are the building blocks of safety practices.
- A sustainable culture of safety requires continuous learning, self-assessment, and adherence to best practices.

The timeliness of the colloquium

Speaking after Dr Shukla, **Shri R. V. Shahi**, President of IEF, emphasised the timeliness of the colloquium and reflected on the need to amend the Atomic Energy Act. He offered his insights based on his experience in spearheading the introduction of the Electricity Act, 2003. He appreciated the initiative of AERB to reach out widely for creating awareness on the Safety Culture promoted by AERB.

In his insightful remarks, **Dr Anil Kakodkar**, Chancellor of Homi Bhabha National Institute (HBNI) and Member, Atomic Energy Commission. Dr Kakodkar congratulated AERB for taking the initiative to reach out to professionals, industry stakeholders, and new entrants in the nuclear field. He highlighted that safety culture cannot be enforced by regulations alone and must evolve as a set of personal values and beliefs. According to him, when individuals internalise safety as a way of life, the entire organisation naturally achieves excellence in safe operations.

Broader Impact of the Colloquium

The discussions highlighted that India's ambition to increase the share of nuclear energy in its energy basket must go hand in hand with an uncompromising commitment to safety, transparency, and accountability. The participants, through their questions and observations, emphasised the need for increased vigilance to maintain quality control at all levels when new players enter the sector.

The colloquium began with the welcome remarks by **Shri S. B. Chafle**, ED(RO), AERB and ended with a vote of thanks by **Shri S. K. Bhatia**, Secretary INS.

Glimpses Of The Colloquium

Webinar on
"Enabling Renewable Energy Integration: Addressing Transmission Connectivity and Execution Challenges in India"
29th September 2025

IEF T&D Sectoral Group organised a Webinar on "Enabling Renewable Energy Integration: Addressing Transmission Connectivity and Execution Challenges in India" held on 29.09.2025. Deliberations were held over three sessions viz. Planning & Coordination Challenges - Aligning generation and transmission planning for RE growth; Execution Bottlenecks in Transmission Projects- Overcoming delays, supply chain and construction challenges; and Manpower, Technology & Regulatory Enablers - Strengthening execution capacity and enabling frameworks.

Shri I S Jha, Chairman, T&D Group-IEF welcomed all dignitaries, speakers and participants of the Webinar.

Shri R V Shahi, President, IEF gave opening remarks and highlighted that Transmission planning is a complex and challenging exercise. Type of exercise changes over last 30 years taking into account continuous change of grid configuration as well as development including integration of variable renewable energy sources. Planning and execution of transmission system for evacuation of bulk RE power of about 60-80GW from Khavda and Jaisalmer/Bikaner complex in short span of time is a challenge. Further, Decentralised Distributed RE Generation in rural areas each of 2-5 MW capacity is being integrated with local system. How such type of development is to be factored into in the Transmission planning exercise also needs deliberations. Further, following eminent speakers presented their views and experience on challenges of Transmission planning for RE integration and execution in a timely manner:

- *Planning Gaps in RE and Transmission Development* by **Shri Dilip Rozekar**, COO, CTUIL.
- *Developers' Perspective on Connectivity & Access* by **Shri. Shiva Prasad**, President (Solar Projects), ReNew Power .
- *Tight Schedules vs. Ground Realities – Lessons from Recent Projects* by **Shri Nihar Raj**, Sr. Vice President(O&M), Adani Energy Solution Ltd.
- Challenges in Construction of Transmission System: *Supply Chain Constraints in Transmission Equipment, Skill gaps* by **Shri Ganesh Srinivasan**, President (T&D), KEC.
- *Use of Technology & Digital Solutions for Faster Execution* by **Shri Prashant Sinha**, COO, Resonia.
- *Regulatory Support for Flexibility and Risk Sharing* by **Shri Vamsi Rama Mohan Burra**, Director (Projects), POWERGRID

It was highlighted that there is planning gaps i.e, mismatch in gestation period for RE and Transmission System due to severe stress on the supply chain of skilled manpower and material, limited land availability for installing Solar, Wind and PSP, Connectivity is made pre-condition for LOA/PPA and land allocation, REIAs and BPCs for transmission tendering are working in Silos, lack of planning for addressing Grid inertia and Storage aspect, in-efficient utilisation of transmission capacity etc.

It was presented that transmission line construction is heavily delayed due to Right-of-Way issue, extended land acquisition timelines, restriction on equipment procurement and multi-agency approvals. The problem is severe in Rajasthan. It necessitates unified generation-transmission planning to align timelines between all concerned authorities and Transmission developers, accelerated adoption of storage and re-conductoring to optimise grid use, condition for IPPs to use night time connectivity, compensation for IPPs for curtailment losses, mechanisation in construction etc.

It emerged that to address supply chain issue, policy level actions like PLI schemes for T&D equipment, domestic players to collaborate on tech partnerships with global OEMs, Standardised Tower design prior to bid, enhance modularity across substations etc. Towards skill enhancement, establishment of skill enhancement centers, crane/drone usage in line construction, improve conditions at sites including standard amenities as part of tender.

Ensuring timely availability of land for HVDC station, substation is the key. Multi-tenancy transmission corridor i.e, same multi-ckt tower will carry different developers lines to optimise RoW may be explored. Adopting advanced technologies across Pre, During, Post execution phases is essential to reduce construction time, optimize manpower, enhance overall project efficiency. Align new technologies with existing workflows, leverage AI and IoT for predictive maintenance. It was highlighted that a technology-led execution model is key to delivering transmission projects faster, smarter and leaner. It was highlighted the need for balanced mechanisms that recognise challenges beyond the control of TSP, while ensuring that customers interest are safeguard.

Key takeaway:

i) Transmission implementation takes longer time than RE generation completion. So greater degree of clarity is required in coordinated Transmission planning and undertake its timely execution to avoid RE stranded capacity.

ii) BESS, PSP, Concentrated Solar Plant (CSP), any other storages are the backup arrangement as well as would enable enhancement of transmission capacity utilisation. Due emphasis to be given while planning transmission system on how much storage capacity to be established co-located with RE plants and optimise evacuation capacity.

iii) Transmission planning to take care of integration of Decentralised Distributed Energy Resources for rural areas.

iv) Transmission planning to tendering and start of construction takes 8-9 months. Efforts are required to reduce the timeline significantly as well as building a skilled workforce to speed up the implementation.

v) Execution is badly placed on supply chain issue. Need more realistic timelines and innovative/mechanised construction practices.

vi) Strong case for regulatory flexibility and risk sharing frameworks.

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