



# Achieving India's Renewable Energy Target by 2030

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Recommendations and solutions for overcoming  
existing challenges and regulatory bottlenecks

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India has ambitiously aimed for 500 gigawatts (GW) of renewable energy capacity by 2030, a crucial step towards sustainable energy independence. As of March 2024, the country has successfully installed approximately 190GW\* of renewable energy, indicating significant progress.

However, to meet the 2030 target, an annual installation rate of around 50GW is imperative. To put this into perspective, in the fiscal year (FY) 2023-24, India added only a little over 18GW of renewable energy capacity. Investments into the renewable energy sector also marginally declined from US\$11.7 billion in FY2022-23 to US\$11.4 billion in FY2023-24. Consequently, the country must accelerate its efforts, requiring more than 2.5 times the installation compared to the previous fiscal year.

These challenges underscore the complexities inherent in the renewable energy sector, hindering the seamless translation of issued tenders into tangible on-ground projects and impeding investment inflow. Addressing these issues is paramount to expediting renewable energy deployment and attracting the necessary investment. Therefore, this note outlines recommendations for implementation in the immediate and medium term, offering viable solutions to navigate the sector's challenges and foster its growth.

\* Including large hydro



# Recommendations Overview



Recommendation						
	Solar Photovoltaic (PV) Supply Chain	Utility-Scale Solar	Rooftop Solar	Open Access	Energy Storage	Utility-Scale Wind
<b>Easing of Import barriers</b>	<b>Sector-wise Applicability</b>					
-Lesser Import Duties -No Non-Tariff Barrier, such as Approved List of Models and Manufacturers (ALMM)	✓	✓	✓	✓	✓	✓
<b>Tax Breaks</b> -Lower Goods and Services Tax rates -Special tax credit mechanism	✓	✓	✓	✓	✓	✓
<b>Strict Renewable Purchase Obligation (RPO) and Energy Storage Obligation (ESO) implementation</b>		✓	✓		✓	✓
<b>Transmission Infrastructure Upgrade</b>		✓		✓		✓
<b>Subsidy support</b>	✓		✓		✓	
<b>More robust payment security and credit guarantee mechanisms</b>		✓	✓		✓	✓
<b>Enhanced emphasis on Research &amp; Development (R&amp;D)</b>	✓				✓	
<b>Long-term regulatory clarity</b>	✓		✓	✓	✓	



Challenges	Recommendations	Stakeholders
<p><b>Expensive Modules</b></p> <p>There is a considerable price gap between domestic and imported modules. After the introduction of Approved List of Models and Manufacturers (ALMM) and the levy of Basic Customs Duty (BCD), module prices have increased.</p>	<p><b>ALMM enforcement in solar modules should be relaxed for open access projects (including group captive), rooftop solar projects (without government subsidy).</b></p>	<p><b>Regulatory Intervention:</b> Ministry of Power (MoP), Ministry of New and Renewable Energy (MNRE)</p>
<p><b>Current nameplate capacity is not enough</b></p> <p>The current module nameplate capacity of 68 gigawatts (GW) is insufficient. After accounting for operational efficiency, exports and low-quality modules, the supply of high-efficiency domestic modules to the Indian market will only be around 20-22 GW, much less than the annual solar installation target of 30-35 GW, apart from another 5 GW target for rooftop solar.</p>	<p><b>ALMM should include leading global manufacturers in the ALMM list until March 2026. It should also include cells and other solar value chain components.</b></p>	<p><b>Global Manufacturers Enlistment:</b> MNRE</p>
<p><b>Lack of skilled PV manufacturing technicians</b></p> <p>Indian companies require the help of skilled Chinese technicians to commission integrated facilities. However, due to ongoing socio-political tensions between China and India, acquiring visas for Chinese nationals is very challenging.</p>	<p>For skilled solar PV technicians, the government must expedite the visa approval process so that the expansion plans of Indian manufacturers to set up solar manufacturing plants do not get hampered.</p>	<p><b>Regulatory Intervention:</b> Ministry of External Affairs, MNRE</p>



Challenges	Recommendations	Stakeholders
<p><b>No upstream capacity</b></p> <p>There is a huge mismatch between domestic module manufacturing capacity and the upstream components capacity of cells, wafer/ingot, and polysilicon.</p>	<p><b>Rather than a combined production-linked incentive (PLI) for integrated PV production, it should be de-linked and disbursed separately for stage-wise production output.</b> PLI should also include ancillary components production.</p>	<ul style="list-style-type: none"> <li>• <b>Regulatory Intervention:</b> MNRE</li> <li>• <b>Implementing Entities:</b> ALMM: MNRE PLI: Solar Energy Corporation of India (SECI)</li> </ul>
<p><b>Weak R&amp;D investment</b></p> <p>Indian manufacturers are not competitive with their global counterparts with respect to technological advancements and research &amp; development (R&amp;D) investments.</p>	<ul style="list-style-type: none"> <li>• <b>PV manufacturers with annual production capacity of &gt;1GW must be encouraged to invest at least 3-5% and other manufacturers 1-3% of their gross revenue in R&amp;D activities.</b></li> <li>• The government must compensate for this investment by providing tax rebates.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Regulation Formulation:</b> MNRE</li> <li>• <b>Tracking and Enforcement:</b> MNRE</li> <li>• <b>R&amp;D Entities:</b> National Institute of Solar Energy (NISE), IITs, IISc Bangalore</li> </ul>



Challenges	Recommendations	Stakeholders
<p><b>Inter-State Transmission System (ISTS) Market Challenges</b></p> <p>The ISTS market plays a key role in the even growth of renewable energy capacity across states. The current 100% waivers on ISTS charges are only for projects commissioned until June 2025. After that, the exemption will be annually reduced by 25%. Without waivers, ISTS projects will be financially unviable. There is a vast disparity between demand and the actual number of ISTS substations and there is huge delay in setting up new transmission lines.</p>	<ul style="list-style-type: none"> <li>• <b>The 100% exemption in ISTS charges should be extended until 2030.</b></li> <li>• Substations on ISTS need to be strategically installed near areas of high renewable energy resources. As the trend has moved towards wind-solar hybrid projects, installing substations closer to high wind and solar resource areas needs to be prioritised.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Regulatory Intervention:</b> Ministry of Power</li> <li>• <b>Implementing Entities:</b> Central Transmission Utility (CTU), Respective load dispatch centres (LDCs)</li> </ul>
<p><b>Lax Renewable Purchase Obligation (RPO) compliance</b></p> <p>The state electricity distribution companies (DISCOMs) are generally lax in pushing the renewable energy transition in states where the penalty for lack of RPO compliance in the past was relaxed or pardoned.</p>	<ul style="list-style-type: none"> <li>• <b>A minimum penalty of Rs1 per kilowatt-hour (kWh) of RPO annual energy shortfall must be strictly implemented across states on all obligated entities.</b></li> <li>• To provide long-term clarity for all stakeholders, the RPO trajectory must be fixed for at least the next five years and should not be tinkered with.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Regulation Formulation:</b> Ministry of Power</li> <li>• <b>Enforcement:</b> MNRE, State Electricity Regulatory Commissions (SERCs), Respective LDCs</li> </ul>
<p><b>State-level energy policy</b></p> <p>Some states still lack core state-level renewable energy policies or have yet to update them, even after they expire, leaving the long-term development trajectory in limbo. Adoption of renewable energy by states is also contingent on wider market sector reforms.</p>	<ul style="list-style-type: none"> <li>• <b>Penalising states by asking them to bear transmission losses beyond a pre-fixed target, if annual reduction in AT&amp;C losses and rationalisation of cross-subsidies is not achieved.</b></li> <li>• <b>Promote public-private partnerships or private ownerships of loss-making DISCOMs to improve operational and financial performance.</b></li> <li>• <b>States should strictly adopt the Time of Day tariff for Commercial and Industrial (C&amp;I) consumers from 2025 and progress to extending it to Residential Consumers from 2026.</b></li> </ul>	<ul style="list-style-type: none"> <li>• <b>Regulatory Directive:</b> Ministry of Power, MNRE</li> <li>• <b>State Policy Formulation:</b> SERCs, CERC</li> </ul>



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<p><b>State-level energy policy</b></p> <p>Some states still lack core state-level renewable energy policies or have yet to update them, even after they expire, leaving the long-term development trajectory in limbo. Adoption of renewable energy by states is also contingent on wider market sector reforms.</p>	<ul style="list-style-type: none"> <li>• <b>State DISCOMs credit rating to factor state efforts towards energy transition. Inputs on this can be taken from IEEFA’s report on the State Electricity Transition Index. Develop a mechanism where states doing well in energy transition efforts should be accorded higher ratings and vice versa.</b></li> <li>• Pool all generating resources and shift to Security Constrained Economic Dispatch (SCED) for better utilisation of resources efficiently and price discovery</li> <li>• The renewable energy policy should include incentives or waivers to kickstart development, especially in states with high renewable energy potential and low installations.</li> <li>• An incentive mechanism should be devised for states that maintain an updated state-level renewable energy policy with a sector-wise and technology-wise target trajectory.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Regulatory Directive:</b> Ministry of Power, MNRE</li> <li>• <b>State Policy Formulation:</b> SERCs, CERC</li> </ul>
<p><b>Underwhelming Kisan Urja Suraksha Evam Utthaan Mahabhiyan (KUSUM) performance across states</b></p> <p>The tendering process for solar pumps allotted through KUSUM has been slow. As of December 2023, almost 12,23,721 had been allotted to states, and 284,607 pumps had been installed. More than 80% of this is only in five states: Rajasthan, Uttar Pradesh, Madhya Pradesh, Gujarat and Maharashtra.</p>	<ul style="list-style-type: none"> <li>• <b>The scheme should be re-evaluated and customised to fit the local context and energy-water-agriculture nexus.</b></li> <li>• <b>In states where KUSUM has underperformed, state governments must offer enhanced financial support to the farmers, such as increased subsidy rates, reduced interest rates, extended repayment periods, maintenance support, etc.</b></li> <li>• A stronger emphasis on awareness enhancement and feedback evaluation to optimise the impact of the KUSUM scheme for the farmers.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Regulatory Directive:</b> MNRE, SERCs</li> <li>• <b>Implementing Entity:</b> Financing institutions, State DISCOMs</li> </ul>
<p><b>Geographical constraints</b></p> <p>Due to geographical constraints, such as challenging terrain or a lack of grid connectivity, places such as Ladakh, Andaman, and Nicobar fail to fulfil their strong solar and wind potential.</p>	<ul style="list-style-type: none"> <li>• The government must prioritise the construction of dedicated transmission lines/corridors for these particular geographical regions.</li> <li>• At the same time, energy storage capabilities must be developed at local and regional levels to cope with weak long-distance transmission infrastructure.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Regulatory Directive:</b> Ministry of Power</li> <li>• <b>Transmission Development:</b> Central and State Transmission Utilities</li> </ul>





Challenges	Recommendations	Stakeholders
<p><b>Residential rooftop roadblocks</b></p> <p>There is a high payback period in some consumer segments and non-conducive net metering regulations. Other challenges in residential rooftops include a lack of awareness/handholding and non-receipt of payment for exported units.</p>	<ul style="list-style-type: none"> <li>• <b>A specialised agency should bridge customers and DISCOMs, conducting awareness campaigns, outreach, and offering handholding support. Public banks’ sales teams have excellent retail experience and, if incentivised, can handhold and offer loans, enhancing this connection.</b></li> <li>• <b>Customers consuming below 150 units (comprising almost 80% of Indian households) face a very high payback period. To address this, higher subsidies or a different business model will be necessary.</b></li> <li>• Net metering regulations vary widely among states, leading to unnecessary complications. It’s crucial to streamline these regulations, including an annual settlement cycle to address seasonal fluctuations.</li> <li>• Ensuring a suitable feed-in tariff for surplus units post-settlement.</li> <li>• Peer-to-peer power sales and virtual net metering would facilitate energy exchange and distribution for houses with limited rooftop space.</li> <li>• Move completely to the MNRE portal scheme and avoid running parallel schemes through DISCOMs.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Regulatory Intervention:</b> MNRE, SECI, SERCs</li> <li>• <b>Implementing Entities:</b> State DISCOMs, Urban Local Bodies, Village Panchayats</li> </ul>



Challenges	Recommendations	Stakeholders
<p><b>Untapped MSME sector</b></p> <p>Most creditworthy consumers (C&amp;I consumers with BBB+ rating and above) have already installed rooftop solar systems. The lack of an adequate consumer base drives developers and investors away from the rooftop solar segment. However, MSMEs' rooftop solar potential remains untapped.</p>	<ul style="list-style-type: none"> <li>• <b>MSMEs generally fall outside the traditional credit rating purview. Their financial health must be assessed by other parameters, such as revenue/income, assets under management, vendor relations etc.</b></li> <li>• The central government, in collaboration with entities such as SIDBI, should facilitate the creation of a detailed nationwide database of MSME consumers. This database should include parameters such as revenue/income, assets under management, vendor relations, and other relevant financial and operational data, which would help solar developers target them.</li> <li>• All leading financiers must have a robust credit enhancement scheme to help MSMEs install rooftop solar systems.</li> <li>• Each of the DISCOM should be given a target for implementing MSME Rooftop Solar.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Database Formulation:</b> SERCs, State DISCOMs</li> <li>• <b>Implementing Entities:</b> National banks, non-banking financial companies (NBFCs), SIDBI</li> </ul>
<p><b>Lack of support from state DISCOMs</b></p> <p>Local DISCOMs are generally less supportive of rooftop solar. Critical issues faced include approval delays for net metering, incorrect interpretation of regulations, and offering low tariffs for exported solar units.</p>	<ul style="list-style-type: none"> <li>• <b>All state governments must set fixed rooftop solar targets. A single-window portal with a fixed turnaround time should ensure transparency for clearing all rooftop solar and net metering applications and simplify the documentation process.</b></li> <li>• The Ministry of New and Renewable Energy should provide clear guidelines to all DISCOMs, instructing them not to levy network charges on rooftop solar consumers.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Regulatory Intervention:</b> MNRE, SERCs</li> <li>• <b>Implementing Entities:</b> SERCs, State load dispatch centers (SLDC)</li> </ul>
<p><b>Financing challenges</b></p> <p>Access to ample financing with favourable terms for residential and distributed segment consumers continues to be challenging. The key roadblock is the failure to put up collateral.</p>	<ul style="list-style-type: none"> <li>• <b>The PM Surya Ghar Yojana scheme suggest a low interest loan products in the range of benchmark rates (Repo + 50 bps) for residential rooftop solar. Along with that loan sanctions process can be simplified based on KYC and electricity bills only.</b></li> <li>• <b>The government must offer special incentives to banks and NBFCs that offer rooftop solar-focused financing products. The financing solution must be designed to lessen the emphasis on the requirement of strong collateral.</b></li> </ul>	<ul style="list-style-type: none"> <li>• <b>Regulatory Intervention:</b> Ministry of Finance</li> <li>• <b>Implementing Entities:</b> Financing Institutions (including banks and NBFCs)</li> </ul>



Challenges	Recommendations	Stakeholders
<p><b>Regulatory irregularity, uncertainty and flip-flops</b></p> <p>Frequent and arbitrary changes in policies act as a deterrent to investments as investors seek long-term policy certainty. For e.g. Cross subsidy surcharge (CSS) and additional surcharge (AS), which can be more than 50% of entire open access charges, are frequently revised without any long-term vision. Also, banking charges and settlement period are widely inconsistent across states.</p>	<ul style="list-style-type: none"> <li>• <b>All key national-level policies must have a 5-year lock-in period before they can be extensively modified.</b></li> <li>• Arbitrary changes to various policies (e.g. open access charges imposed by states, tariff barriers, RPO etc.) should be avoided.</li> <li>• ALMM should be dropped for open access projects.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Regulation Formulation:</b> Ministry of Power</li> <li>• <b>Enforcement:</b> Central Electricity Regulatory Commission (CERC), SERCs, Appellate Tribunal For Electricity (APTEL)</li> </ul>



Challenges	Recommendations	Stakeholders
<p><b>Underutilised power exchange market</b></p> <p>Only around 5% of electricity in India is transacted on power exchanges. There is a lack of price visibility on power exchanges as opposed to a PPA where prices are fixed. Hence, developers struggle to raise debt for uncontracted capacity envisaged to be used as merchant. Bilateral deals on the exchange are unreliable due to the price ceiling.</p>	<ul style="list-style-type: none"> <li>Ministry of Power should consider a pilot power exchange-based Contract for Difference (CfD) project for a small renewable energy capacity to demonstrate as a use case.</li> <li>The exchange’s price ceiling should be rationalized so that more renewable energy players can participate as merchant suppliers in the day-ahead markets.</li> <li>Ministry of Power should assist the development of a merchant-based market in India through subsidies, tax breaks, setting clear regulatory guidelines, etc.</li> <li>Market Coupling of Power Exchanges for better price discovery and better integration of renewable energy</li> </ul>	<ul style="list-style-type: none"> <li><b>Regulatory Intervention:</b> CERC, Ministry of Power</li> <li><b>Implementing Entities:</b> Respective LDCs, CTU, STUs</li> </ul>
<p><b>ISTS waivers and connectivity issues</b></p> <p>Nearest CTU substation connectivity is crucial. C&amp;I consumers are required to build the transmission lines themselves to connect to CTU ISTS substations, which may be as far as 100 km. Smaller C&amp;I consumers cannot afford to do this, hindering the market penetration potential of ISTS.</p>	<ul style="list-style-type: none"> <li>To facilitate last-mile connectivity of ISTS power, CTU should extend dedicated feeder lines until the mid to large-scale industrial clusters. More than 350 such industrial clusters are spread across India.</li> <li>Even for open access, the 100% exemption in ISTS charges should be extended until 2030.</li> </ul>	<ul style="list-style-type: none"> <li><b>Regulatory Directive:</b> Ministry of Power</li> <li><b>Transmission Development:</b> Central and State Transmission Utilities</li> </ul>
<p><b>Financing challenges in open access</b></p> <ul style="list-style-type: none"> <li>Indian FIs usually offer higher rate of interest to Open access C&amp;I developers.</li> <li>While renewable energy lending falls within the priority sector lending category, it gets amalgamated with the broader infrastructure sector. This, in turn, restricts the flow of funds to open access C&amp;I developers. Currently, developers’ capital in the open access C&amp;I segment is locked as most projects are being built in the RESCO model.</li> </ul>	<ul style="list-style-type: none"> <li><b>Financing structures, such as an InvIT or an aggregated bond, must be implemented to unlock the developers’ capital.</b></li> <li>Government financial institutions- Power Finance Corporation, REC and Indian Renewable Energy Development Agency (IREDA) should also aggressively increase their debt exposure for open access renewable energy projects.</li> </ul>	<ul style="list-style-type: none"> <li><b>Regulatory Authority:</b> CERC, Securities and Exchange Board of India (SEBI)</li> <li><b>Beneficiary Entities:</b> Project Developers, tender inviting entities such as SECI, NTPC etc.</li> </ul>





Challenges	Recommendations	Stakeholders
<p><b>High capex cost of Battery Energy Storage Systems (BESS)</b></p> <p>High system costs are partly due to taxes and duties</p>	<ul style="list-style-type: none"> <li>• <b>To improve the affordability of BESS, a 5% lower GST rate should be applied to the sale of BESS integrated systems and BESS components—batteries and cell modules—for the next 5 years.</b></li> <li>• Similar to the solar and wind segments, BESS must also receive tax and duty waivers in the initial years to help it achieve a critical threshold and momentum.</li> <li>• A five-year custom duty exemption on the import of various other components required for BESS should be granted.</li> <li>• Custom duty should be exempted for BESS being imported, particularly from the countries with whom India has free trade agreements like Vietnam, Cambodia, Philippines, etc.</li> </ul>	<ul style="list-style-type: none"> <li>• Central Board of Excise and Customs, Department of Revenue, GST Council</li> <li>• Ministry of New and Renewable Energy</li> </ul>
<p><b>Dormant Pumped Hydro Storage (PHS) Capacity</b></p> <p>Only 3.3GW of the 4.7GW PHS capacity is operational. The rest is dormant or not working due to operational issues or topographical vibrational challenges.</p>	<ul style="list-style-type: none"> <li>• <b>The government must issue operations &amp; maintenance (O&amp;M) tenders to hire entities to bring this dormant capacity online.</b></li> <li>• The issues with non-operational PHS projects must be resolved as a priority</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Regulatory Directive:</b> Ministry of Power</li> <li>• <b>Tender Inviting Entities:</b> SJVN, NHPC, respective PHS project owner</li> </ul>
<p><b>Taxation issue for PHS</b></p> <p>PHS project components are levied an aggressive tax rate of 18% or higher. In addition, the power delivered by PHS plants is taxed twice, once upon the stored energy and again on its final supply to the off-taker.</p>	<ul style="list-style-type: none"> <li>• <b>GST applicable on hydropower project components should be lowered to 12% (as in the case of solar and wind project components) from the currently applicable 18-28%.</b></li> <li>• Electricity Duty and Cross Subsidy Surcharge should be avoided on the input power of storage projects.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Regulatory Intervention:</b> Ministry of Power/Ministry of New and Renewable Energy</li> <li>• <b>Implementing Entities:</b> SERCs, Central Board of Excise and Customs, Department of Revenue, GST Council</li> </ul>



Challenges	Recommendations	Stakeholders
<p><b>Participation of BESS in Primary Reserve Ancillary Service (PRAS)</b></p> <p>Lack of revenue stacking opportunities for BESS besides energy shifting. At present, BESS's participation in the PRAS market is limited despite the provision made by the Ancillary Services Regulation, 2022.</p>	<ul style="list-style-type: none"> <li>• <b>Adopting a market mechanism for the procurement of PRAS by creating a performance incentive structure for participating assets.</b></li> <li>• Creating a dedicated fast response market</li> <li>• For the Secondary Response Ancillary Service (SRAS), providing a capacity/commitment charge for market participants will promote the BESS business case.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Regulatory intervention:</b> Ministry of New and Renewable Energy, SECI</li> </ul>
<p><b>Slow deployment of BESS</b></p> <p>Protracted auction-to-power purchase agreement (PPA) cycle</p>	<ul style="list-style-type: none"> <li>• <b>Operationalising the firm and dispatchable renewable energy (FDRE) pool and renewable energy + storage central pool to extend the benefit of a pooled tariff to DISCOMs to alleviate their concerns on discovered tariff.</b></li> <li>• Obtaining a PSA or offtake commitment from a DISCOM, before the auctions with storage component must be made a norm for the Renewable Energy Implementing Agencies(REIAs) for all framework of tenders to reduce the PPA signing risk and the delay.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Regulatory Intervention:</b> Ministry of Power</li> <li>• <b>Implementing Entities:</b> Tender inviting entities</li> </ul>
<p><b>Higher lead time of PHS Projects</b></p> <p>Construction of PHS projects is capital-intensive and can take 5-8 years, which can lead to project cost overruns.</p>	<ul style="list-style-type: none"> <li>• <b>Implementing special environmental approvals and forest clearance windows.</b></li> <li>• <b>Pre-identification of project sites and clearances/approvals to be obtained prior to the project's bidding. This will reduce the bid prices as construction risks are lowered.</b></li> <li>• Development of enabling infrastructure surrounding the project beforehand such as connecting roads, bridges etc.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Regulatory Intervention:</b> Ministry of Power/ Ministry of New and Renewable Energy</li> <li>• <b>Database Formulation:</b> Indian National Hydropower Association</li> <li>• <b>Implementing Entities:</b> State governments</li> </ul>



Challenges	Recommendations	Stakeholders
<p><b>Elevated project costs</b></p> <p>Elevated project capex, mainly due to wind turbine costs, have strained developers' balance sheets. They are now increasingly cautious while bidding for wind tenders. It has also led to a stable yet continuous rise in wind tariffs in the past few years.</p>	<ul style="list-style-type: none"> <li>• <b>The GST on wind projects should be reduced from 12% to 5% in the interim.</b></li> <li>• Until wind turbine costs come down, the government should relax the restrictions on developers and OEMs through reduced import duties and GST.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Regulatory Intervention:</b> Ministry of Power, Ministry of New and Renewable Energy</li> <li>• <b>Implementing Entities:</b> Central Board of Excise and Customs, Department of Revenue, GST Council</li> </ul>
<p><b>Flip-flop in auction methodology</b></p> <p>Within the past two years, the government removed reverse auctions from wind tenders and then enacted them back. This flip-flop in auction methodology has confused the market stakeholders, hampering their long-term vision.</p>	<ul style="list-style-type: none"> <li>• <b>Reverse auctions must not be reinstated in wind tenders. Conventional closed bidding without reverse auctions would be the best pathway to catalyse growth in the wind sector.</b></li> </ul>	<ul style="list-style-type: none"> <li>• <b>Regulatory Intervention:</b> Ministry of Power</li> <li>• <b>Implementing Entities:</b> Ministry of New and Renewable Energy, National Institute of Wind Energy (NIWE)</li> </ul>
<p><b>Untapped offshore wind</b></p> <p>Even with the government setting up a target of 5GW (2022) and 30GW (2030), there is no installed offshore wind project in India.</p>	<ul style="list-style-type: none"> <li>• Under the national bidding trajectory plan of 50GW, the <b>offshore wind sector should be given a separate agency-wise annual target.</b></li> <li>• Evacuation infrastructure for high-potential offshore wind sites must be built on priority by the government.</li> <li>• Also, ISTS waivers for offshore wind projects must also be extended until 2030.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Regulation Formulation:</b> Ministry of Power</li> <li>• <b>Implementing Entities:</b> Wind tendering authorities, transmission utilities</li> </ul>



Challenges	Recommendations	Stakeholders
<p><b>Issues in project execution</b></p> <p>Onshore wind faces headwinds regarding capacity for doing balance-of-plant (BOP) work. There are hardly any large players in project execution. Hence, even if bids are rolled out and won, execution is mostly delayed.</p>	<ul style="list-style-type: none"> <li>• <b>Incentivise bidders with execution capabilities so that project timelines do not suffer and in-house expertise in BOP work is developed.</b></li> <li>• Offer tax breaks (on annual income generated from the project) to developers who execute the wind project on time.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Regulation Formulation:</b> Ministry of Power</li> <li>• <b>Implementing Entities:</b> All leading wind tendering authorities (SECI, SJVN, NTPC etc.)</li> </ul>
<p><b>Wind repowering challenges</b></p> <p>Wind repowering is facing challenges due to state-level issues related to the sale of power and a lack of a viable business model.</p>	<ul style="list-style-type: none"> <li>• Ministry of Power has provided repowering and life extension for wind power projects, allowing such generators to supply excess power on the power exchange if a state DISCOM does not want to offtake the surplus power. So, if the state does not offtake the power, then open access needs to be viable and state transmission charges should be rationalised.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Regulatory Oversight:</b> Ministry of Power (Green Open Access Rules)</li> <li>• <b>Enforcement:</b> SERCs</li> </ul>
<p><b>Saturation of good wind sites</b></p> <p>Most of India’s good wind potential locations have already been taken over. Even when suitable locations are available, state authorities are reluctant to lease land for wind projects auctioned by the central agencies.</p>	<ul style="list-style-type: none"> <li>• <b>Central and state governments must collaborate on a detailed pan-India land adequacy study for wind projects. This will alleviate the complex and challenging land acquisition process that wind developers encounter.</b></li> </ul>	<ul style="list-style-type: none"> <li>• <b>Regulatory Directive:</b> Ministry of New and Renewable Energy</li> <li>• <b>Implementing Entities:</b> NIWE, Indian Wind Power Association</li> </ul>





# About us

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## About IEEFA:

The Institute for Energy Economics and Financial Analysis (IEEFA) examines issues related to energy markets, trends and policies. The Institute's mission is to accelerate the transition to a diverse, sustainable and profitable energy economy. [www.ieefa.org](http://www.ieefa.org)

## About JMK Research & Analytics:

JMK Research & Analytics provides research and advisory services to Indian and international clients across renewable energy, electric mobility and the battery storage market. [www.jmkresearch.com](http://www.jmkresearch.com)



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