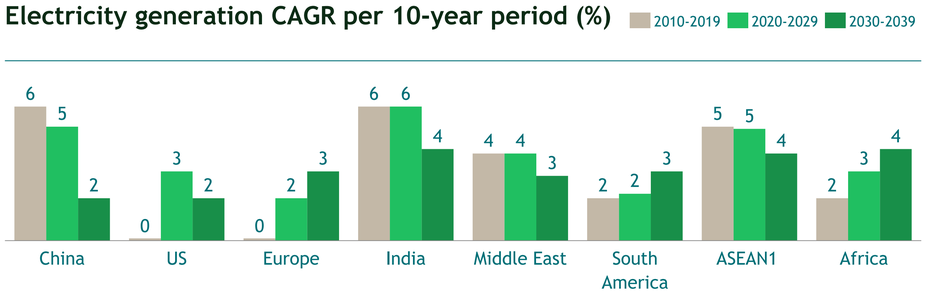
Industry Outlook

Global electricity generation has entered a structural super-cycle fueled by…



India forecasted to have fastest growth pace over next 1.5 decade

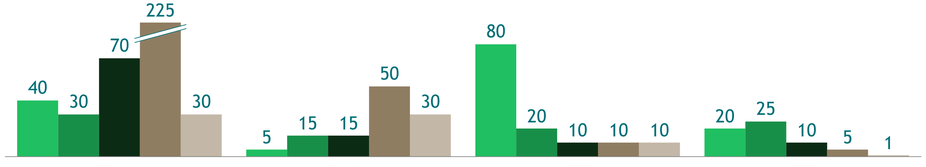
Sources: Energy Institute; Enerdata; EIA; IEA; BCG Analysis
Note: Based on Enerfuture Base Case scenario, EIA Reference Case, IEA Stated Policies (STEPS). All decade intervals run from January 1 of the start year through December 31 of the end year. CAGR = compound annual growth rate; PWh = petawatt-hour.
1. Includes data from Indonesia, Malaysia, Philippines, Singapore, Thailand, and Vietnam.

Total absolute increase in global power generation by decade

2010-2019	+5300 TWh
2020-2029	+7100 TWh
2030-2039	+7400 TWh

…structural demand drivers across major economies (esp. China + India)

Projected annual electricity growth by driver, 2025-2030 (TWh)[1]



The Global South is leading this shift - China and India alone are expected to drive 30% to 50% growth in national consumption by 2030, with many ASEAN and African economies on similar trajectories

Sources: Energy Policy Simulator; Energy Institute; EIA; IEA; TSE Research; Vasudha (2024); BCG Analysis
Note: Sectoral global split follows the IEA and BCG data center model. TWh = terawatt-hours.
1. Data is for the EPS BAU and IEA STEPS scenario.

Global split by driver (TWh)

+110-170 Data Centers
~**3X** jump in DC power demand by 2030

+120-140 Transport
50% of new vehicle sales electric by 2035; 50M EVs already on road in 2025

+240-300 Buildings
~**50%** growth in floor area and building electrification helps drive 3× rise

+300-600 Industry
Power for **Green H2/molecules** a significant driver for growth

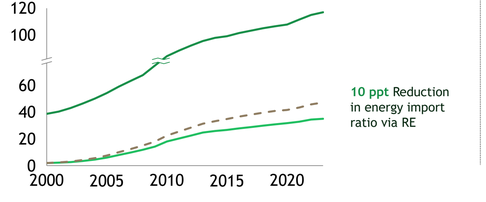
+80-120 Cooling
AC to drive **>20%** of India's electricity demand growth by 2030

Energy security is replacing climate ambition as the primary policy driver – and renewables form the backbone of an electro-state

Trajectories of China & Germany show that scaling renewables structurally reduces dependence on imported energy

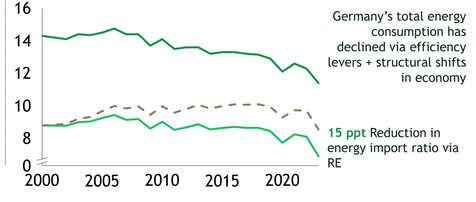
China: Growth economy - RE contained imports below what demand growth would have implied

Annual net energy imports and total energy consumption (EJ)



Germany: Mature economy - imports fell in absolute EJ terms driven by efficiency + accelerated by RE

Annual net energy imports and total energy consumption (EJ) - Estimated



Total Energy Supply / TES (EJ) — Actual Net Energy Imports (EJ) — Net Energy Imports if no RE growth (EJ)

Sources: IRENA; IEA World Energy Balances 2024; Energy Institute Statistical Review of World Energy 2024; World Bank WDI (EG.IMP.CONS.ZS); Energy Institute Statistical Review of World Energy 2024; IEA World Energy Balances 2024; ODYSSEE-MURE Germany Country Profile; World Bank WDI (EG.IMP.CONS.ZS); Umweltbundesamt; BCG Energy Transition's Next Chapter (Sep25); BCG analysis
Note: Counterfactual assumes each additional EJ of domestic RE directly displaces 1 EJ of fossil fuel imports (IEA marginal fuel convention for Germany). EJ = exajoule;

#1

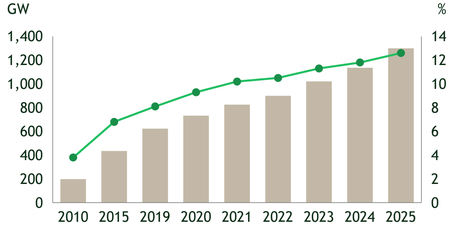
Energy security now cited as #1 transition driver across US, EU, China, and India policy frameworks

The policy shift from "climate subsidy" to "energy sovereignty mandate" fundamentally changes the durability of RE policy — it is now backed by national security logic as indigenous generation reduces import exposure and stabilizes industrial energy costs

Globally wind is sustainably outpacing total power capacity growth; In India, Opportunity for Industry to drive inflection in trajectory to 13-15 GW/year

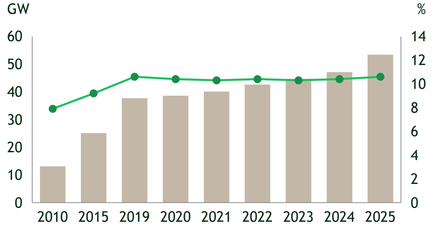
Global | Wind has steadily increased power capacity share to 13%; ~2X abs. capacity growth in last 5 years

Global | Wind installed capacity (GW) & share of total installed capacity (%)



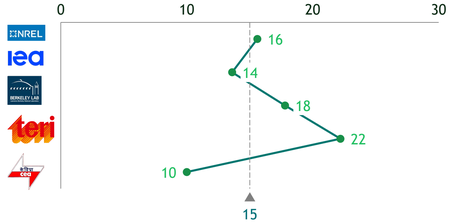
India | Accelerating pace of capacity addition in recent years – need for industry to sustain trajectory

India | Wind installed capacity (GW) & share of total installed capacity (%)



India | All scenarios forecast 100GW+ (avg. ~130 GW) of wind by 2030; 13-15 GW/year avg. required pace

India | Annual pace of wind addition needed to meet 2030 target wind capacity in scenario (GW/year)



Wind as % of Total Installed Capacity (%) - right axis

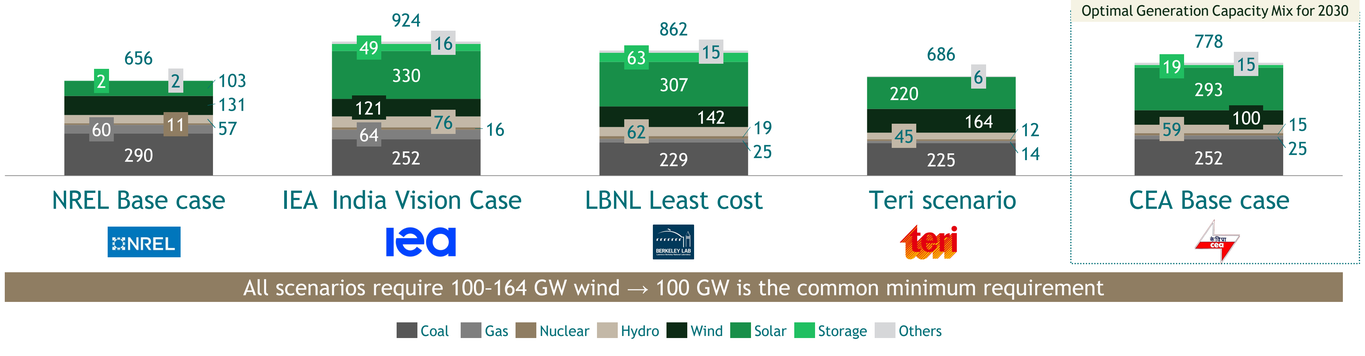
Wind Installed Capacity (GW) - left axis

Source: IRENA, GWEC, LBNL; NREL; IEA; CEA – Apr 2023; Teri

Wind already on track to become 100GW+ by 2030 …

General Consensus on avg. 130 GW Wind in India by 2030

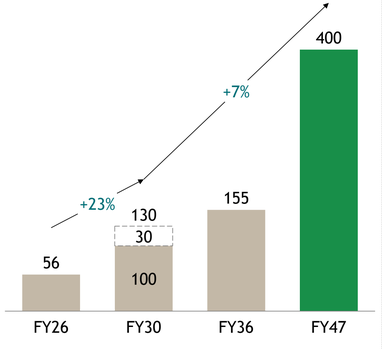
Planned supply mix for 2030 GW



Source: LBNL; NREL; IEA; CEA – Apr 2023; Teri; MEC+ analysis

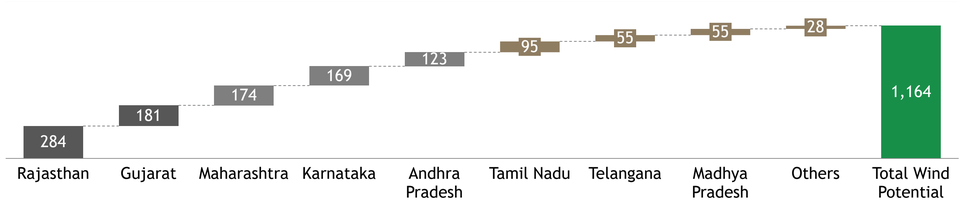
… and even at projected 2047 capacity, accounts for <35% of total wind potential

Wind capacity addition is expected to reach 400 GW by 2047…



… this will be 1/3rd of Wind Energy Potential of 1164 GW

Wind Energy Potential in India at 150 m hub height (in GW)



- India has 1,164 GW of wind potential, primarily concentrated in eight states
- Rajasthan has the highest potential at 284 GW, followed by Gujarat with 181 GW
- With 56 GW of installed capacity, India still has 1,108 GW of untapped wind energy potential

Source: India's Wind Potential at 150m; NIWE; Global Wind Atlas; CII report "Energy transition for Viksit Bharat 2047"; CEA Optimal Generation Mix 35-36

Key Market Trends

We see 3 key trends for the industry to capitalize on

1

Dispatchability is the new value driver & wind can play a critical role in lowering system LCOE

As grids shift from baseload to peak-demand logic, wind's evening profile naturally complements solar

Paired with solar and storage, wind lowers system LCOE by cutting the storage burden solar-only FDRE requires

Recent auctions validate this by pricing in wind's firm-power contribution, not just generation cost

2

Wind in India faces a supply (not demand) gap; Building execution capacity is a key unlock

Demand for wind in India is unambiguous — every credible scenario requires 100+ GW by 2030

The binding constraint is execution: wind trails on delivery due to land acquisition, skilled-manpower, and grid-connectivity challenges

Closing this execution gap will determine the realization rate of India's wind ambition

3

ALMM (Wind) equalizing with global frameworks - rewarding deep domestic supply chains

India's ALMM framework for wind turbines now mirrors EU and US trade and industrial policy

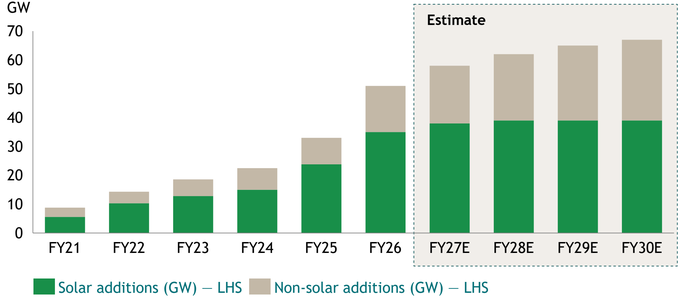
Both actively incentivise domestic content in clean-energy manufacturing and tighten cyber-security in critical infrastructure

This rewards OEMs and developers with deep, localised supply chains, building durable competitive advantage

Implications on capacity planning given need for improved system dispatchability

Solar to lead absolute capacity addition (as low cost) but growth to flatten/slow due to large surplus in solar hours

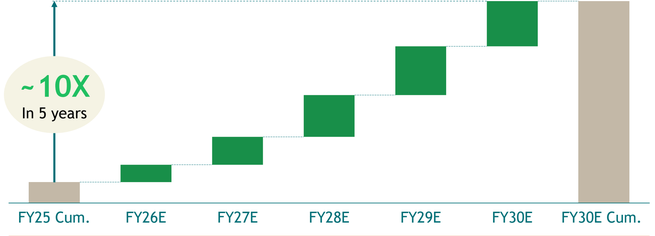
India annual capacity additions (GW) by source



Source: Central Electricity Authority - Optimal Genration Mix & Capacity addition data
Note: FY27-FY30E is.a derived path basis FY30E Optimal Generation Mix

Need for storage (BESS + PSP) at urgent levels given solar curtailement risks - capacity addition needs ~10x ramp up

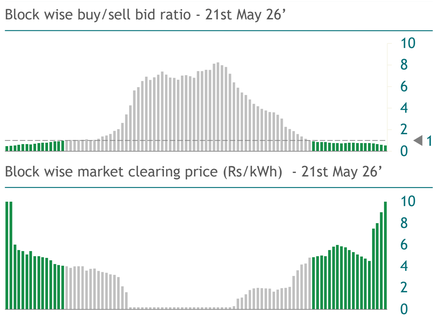
India annual BESS + PSP energy storage capacity addition required to be meet FY30 optimal mix target (GWh)



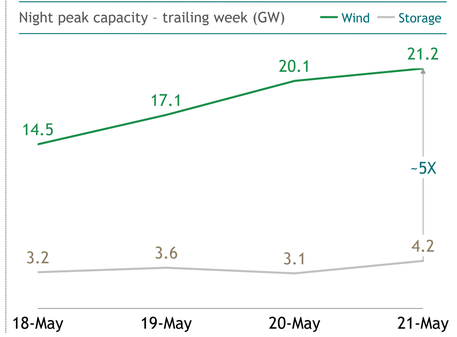
In addition to storage, significant Wind capacity (~2x by 2030) needed to improve system dispatchability (as Solar + Wind + Storage creates ideal profile)

Market trends show growing role of wind in improving dispatchability of system

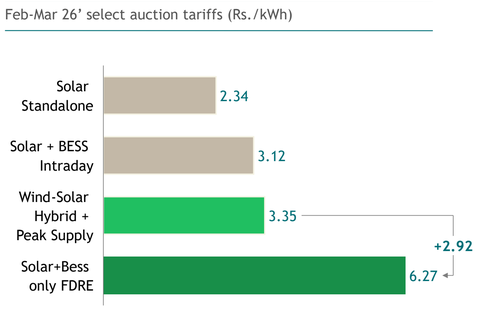
Merchant market dynamics indicate a growing supply gap in evening/ night peaks which command a premium



Wind plays a ~5x larger role than storage in filling this gap; Recent week has shown a ~50% uptick in night wind



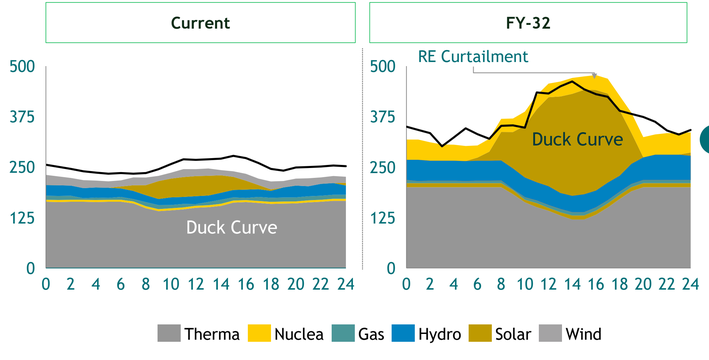
Recent tender results also price wind's complementarity in FDRE at a Rs. ~2.9/kWh discount



Source: IEX Market Data – 21st May 26', NLDC / SCADA daily generation reports, Select auction results

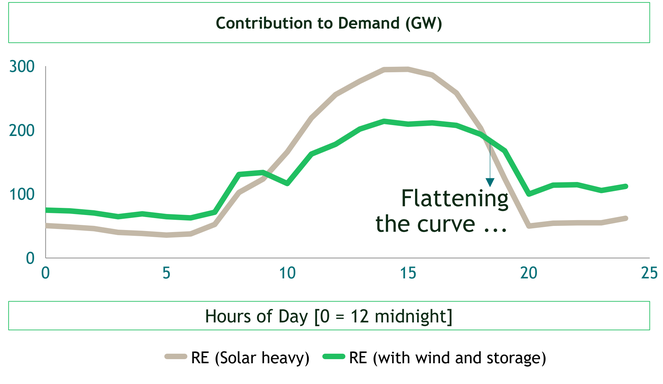
Favorable profile driving acceleration in pace of wind addition

As we exceed 15% intermittent RE in Generation mix, continued solar heavy growth will accentuate Duck curve



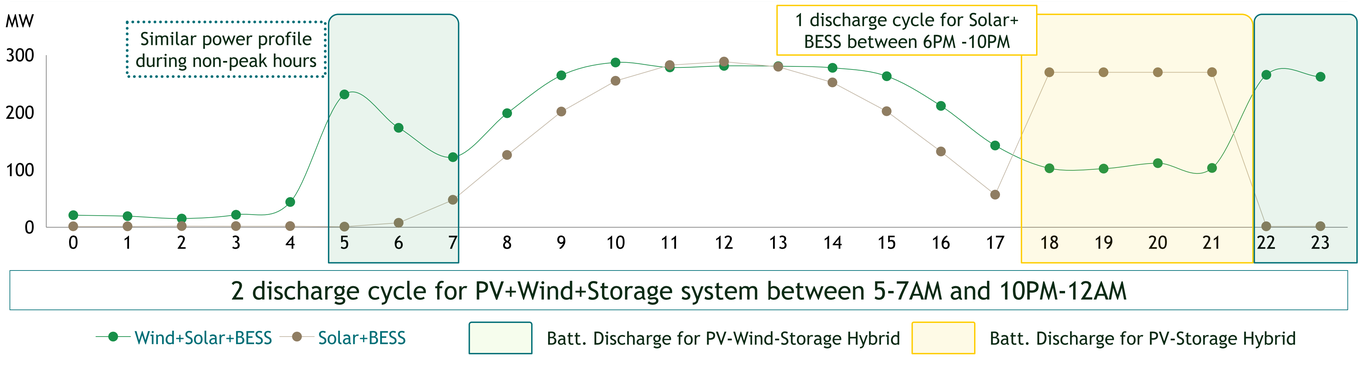
Source: CEA Optimal Generation Mix 2029-2030; MEC+ Analysis

Forward looking solar addition pace to be capped by Wind and storage addition



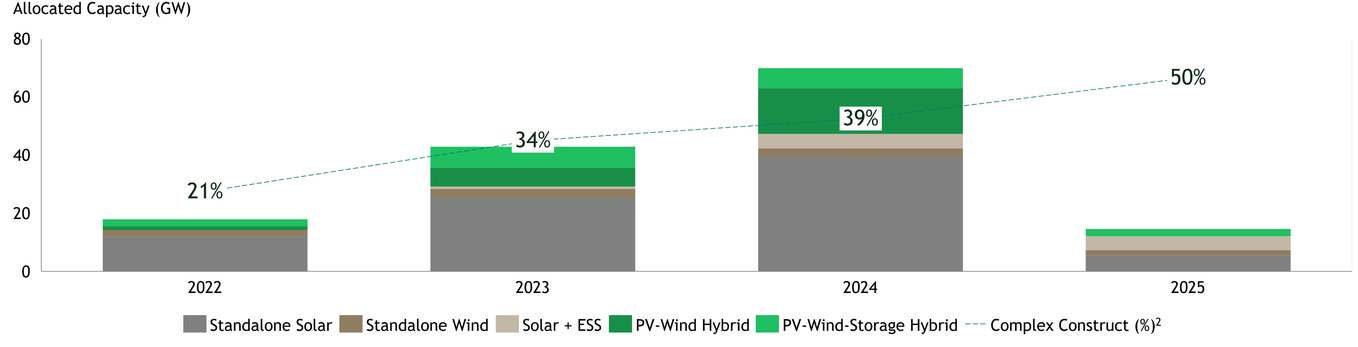
Solar+Wind+BESS Hybrid best suited for meeting baseload req. with 2 peak scenario whereas Solar+BESS preferred for peak need augmentation

Sample power profile comparison of Solar+BESS and Solar+Wind+BESS



… same reflected in share of complex constructs in tenders

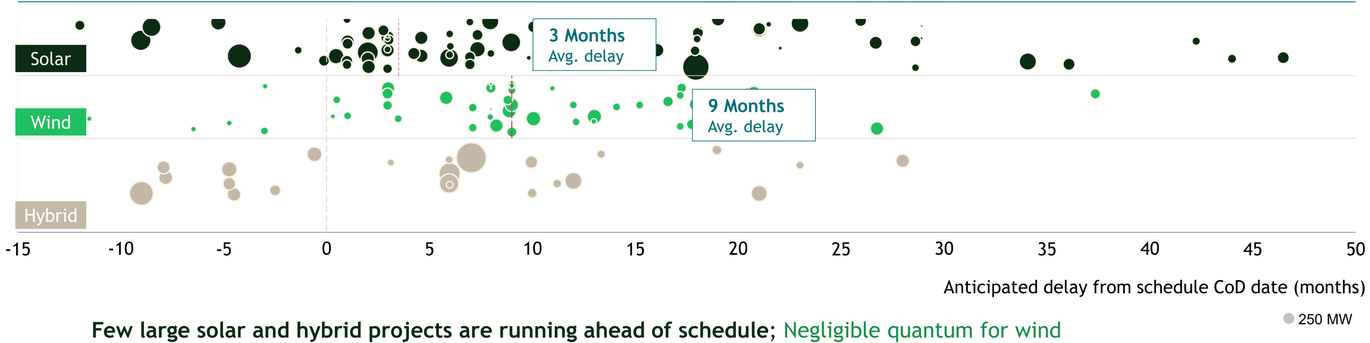
Shift already visible through increase in share of Hybrid/RTC tenders



Source: Tender allocation data from public sources

Industry needs to ramp up execution reliability to support growth momentum

Wind projects are running on avg. ~9 months delayed vs. ~3 months delay for Solar projects (for which few large projects running ahead of schedule)



Few large solar and hybrid projects are running ahead of schedule; Negligible quantum for wind

Source: Central Electricity Authority, Renewable Project Monitoring Division, Quarterly Report on Under-Construction RE Projects, December 2025

Wind-specific industrial-policy levers have converged across India, EU, and US

Tailwind for players with deep domestic supply chains – to build durable competitive advantage

Lever	India - ALMM (Wind), Jul 2025	EU - Wind Power Package & NZIA	US - IRA 45X & Section 232
National security framing	Wind classified as critical infrastructure; data sovereignty mandate (no real-time data export)	European Wind Charter signed by 26 member states + EC commits to "Made in Europe" wind supply base	Section 232 national-security investigation into wind turbine imports launched Aug 2025 — tariffs likely 25-50%
Mandatory local supply chain	ALMM-WTC component list: blades, towers, gearboxes, generators & bearings must be sourced from approved domestic vendors	"Resilience" criterion mandatory in >30% of wind auction volume from Dec 2025	Per-MW manufacturing tax credit for US-made wind blades, nacelles, towers & offshore platforms
In-country R&D / IP	R&D centres & control systems must be physically located in India; domestic prototyping required for ALMM listing	"Innovation" weighted as award criterion (15–30%); EU-developed IP preferred in non-price scoring	Credits tied to US-produced technology; advanced energy project credit for US wind manufacturing facilities
Cyber-security & quality	Wind farms must implement cyber risk-management; incidents reported to national CSIRT; type cert tailored to Indian conditions	Cyber-security & data security as mandatory pre-qualification criterion under NZIA (binding from Jan 2026)	NERC CIP cyber standards mandatory for grid-connected wind; FERC Order 2222 cyber compliance for aggregators
Market access enforcement	Non-listed turbines barred from all government-supported tenders; physical plant inspection by MNRE	Non-price criteria carry 15–30% of auction scoring weight; supply chain depth a pre-qualification gate	Steel/aluminium content already subject to 50% Section 232 tariffs from Aug 2025; direct-pay credits conditional on domestic content

Source: Secondary research on select policy documents

We see 2 key themes in conversations with the Industry: Need for execution certainty + shift towards integrated/firm constructs

Theme 1 | Wind demand is unambiguous; Execution is the binding constraint

"We want to do far more wind than we are doing — but we are struggling to execute at the pace we need"

— Central public-sector generator

"Wind fits our tender load profile better than solar — but solar + BESS gives us the execution certainty we need to bid."

— Large IPP

"We need OEMs to deliver to schedule — execution reliability is now the decisive factor"

— Recurring theme, multiple customers

Theme 2 | Shift toward hybrid and firm-dispatchable constructs as the new procurement norm

"We need a hybrid profile to maximise our green replacement"

— Cement major (C&I offtaker)

"We will have to back down our thermal PPAs to accommodate must-run solar — wind fits better with the load profile.

— State Discom

Net implication: Across central PSUs, DISCOMs, C&I offtakers and large IPPs, the ask is no longer the cheapest turbine — it is firm, dispatchable RE delivered on time

Key considerations to capitalize on the opportunity

#1

Value chain integration as the engine of market development

The market has moved from “who has the lowest turbine cost” to “who can deliver guaranteed firm power across a 25-year lifecycle”

Players with the right vertical and technological stack stand to capture greater share of the opportunity

#2

E2E ownership required to build a competitive moat and lead the industry

Efficiently managing risk for the customer requires controlling the full asset lifecycle — from site development and turbine supply through to long-term O&M and performance guarantees

E2E players will command stronger customer relationships, higher margin capture, and a flywheel that pure-play equipment suppliers cannot replicate