



Good tidings: Power-gen equipment manufacturing in India

India – Q3/2026

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Background

We regularly reach out to leading businesses and try to understand their orientations, concerns and interests.

This document presents an outcome of a similar assessment conducted in June 2026 with a focus on companies with an exposure to Power Generation equipment and how they perceive the future to be



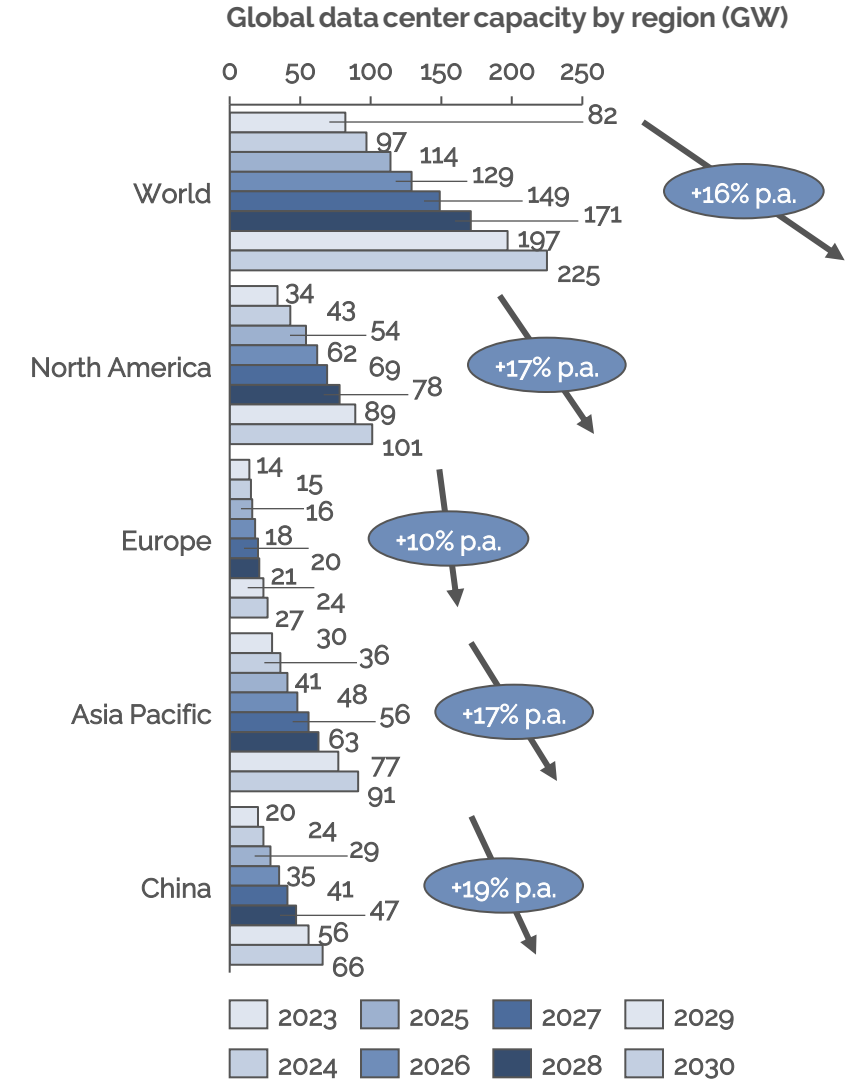
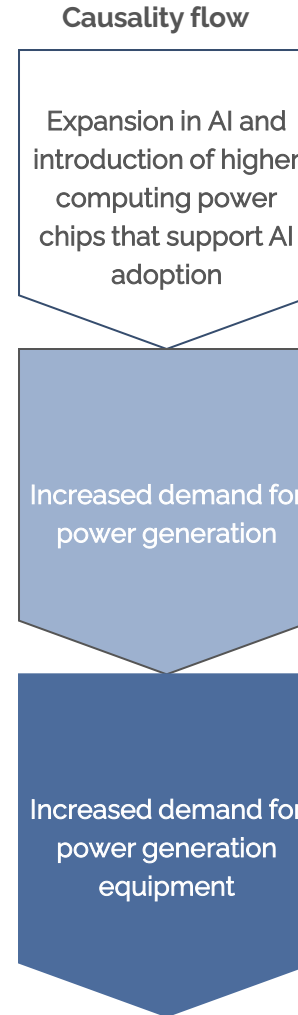
Management Summary

- India's power generation equipment manufacturers are entering a period of significant opportunity, but their growth strategy should be shaped not only by domestic demand but also by developments in global markets, particularly the United States. The AI-driven expansion of data centers, increasing electrification, and the acceleration of renewable energy worldwide are creating unprecedented demand for transformers, switchgear, substations, turbines, generators, and energy storage equipment. While much of this demand is being led by the U.S., its impact is global, tightening supply chains and creating export opportunities for competitive manufacturers.
- The U.S. market provides an important indicator of future trends that are likely to influence global demand. Rapid AI data center construction has significantly increased requirements for electrical infrastructure, while utilities are simultaneously investing in grid modernization and renewable energy integration. However, shortages of transformers, switchgear, substations, and skilled labor have resulted in lead times of two to four years for many critical components. As global original equipment manufacturers (OEMs) struggle to expand capacity quickly, countries with growing manufacturing capabilities, including India, are well positioned to become alternative suppliers to both domestic and international markets.
- Indian manufacturers should also recognize that energy security has become a strategic priority worldwide. Geopolitical uncertainties and volatile fossil fuel prices are accelerating investments in renewable energy, battery energy storage systems, distributed generation, and electric vehicles. India is following the same trajectory through faster approvals for renewable projects, expansion of transmission infrastructure, and ambitious electrification targets. This convergence of domestic policy and international demand creates a sustained growth environment for manufacturers of transformers, transmission equipment, switchgear, generators, power electronics, and balance-of-plant equipment.
- The global shift toward distributed power systems also presents new opportunities. As grid expansion struggles to keep pace with demand, particularly for AI data centers, industries are increasingly adopting "Bring Your Own Generation" (BYOG) solutions, combining gas generation, renewables, and battery storage. Although India's energy mix differs from that of the U.S., similar requirements for modular power systems, microgrids, and energy storage are emerging across industrial parks, commercial facilities, and digital infrastructure. Manufacturers that diversify into these technologies can address both domestic needs and growing international demand.
- For Indian power equipment manufacturers, the key strategic implication is that global supply shortages are likely to persist for several years despite planned capacity expansions. Companies that invest early in manufacturing capacity, technology upgrades, quality certifications, and supply-chain resilience will be well positioned to benefit from rising domestic infrastructure spending while also capturing export opportunities. Monitoring developments in the U.S. market is therefore essential—not because India will replicate its energy pathway, but because U.S. demand is shaping global equipment availability, pricing, technology trends, and investment priorities that will influence the entire power equipment industry.



AI – trend#1 driving demand for increased power generation

- The rapid expansion of artificial intelligence is transforming electricity into a strategic resource, making reliable power access a critical competitive advantage rather than simply an infrastructure requirement. AI model developers and hyperscale cloud providers are increasingly securing dedicated compute and power capacity through long-term agreements, reflecting growing concerns over electricity availability. Global data center electricity demand increased by 17% in 2025, with AI-focused facilities expanding even faster. In the United States, much of this incremental demand is being met through natural gas-fired generation, while shortages of transformers, switchgear, turbines, substations, fuel cells, and skilled labor have emerged as major constraints to capacity expansion.
- Growth is not linear or symmetrical across all geographies with some geographies clearly outperforming others
- The tightening supply of power infrastructure has created a divide between companies that can secure dedicated energy resources and those that depend on third-party capacity. At the same time, the industry is pursuing significant efficiency improvements through more energy-efficient chips, advanced cooling technologies, optimized software, and better data center power usage effectiveness (PUE). However, these efficiency gains are unlikely to reduce overall electricity demand. Instead, lower computing costs are expected to increase AI adoption and inference workloads, consistent with the Jevons Paradox, where improved efficiency stimulates higher overall consumption. Although AI model architectures continue to evolve through reinforcement learning and other advanced techniques, the race to develop more capable AI systems is sustaining strong investment in compute infrastructure and reinforcing long-term demand for power generation, transmission, and electrical equipment.



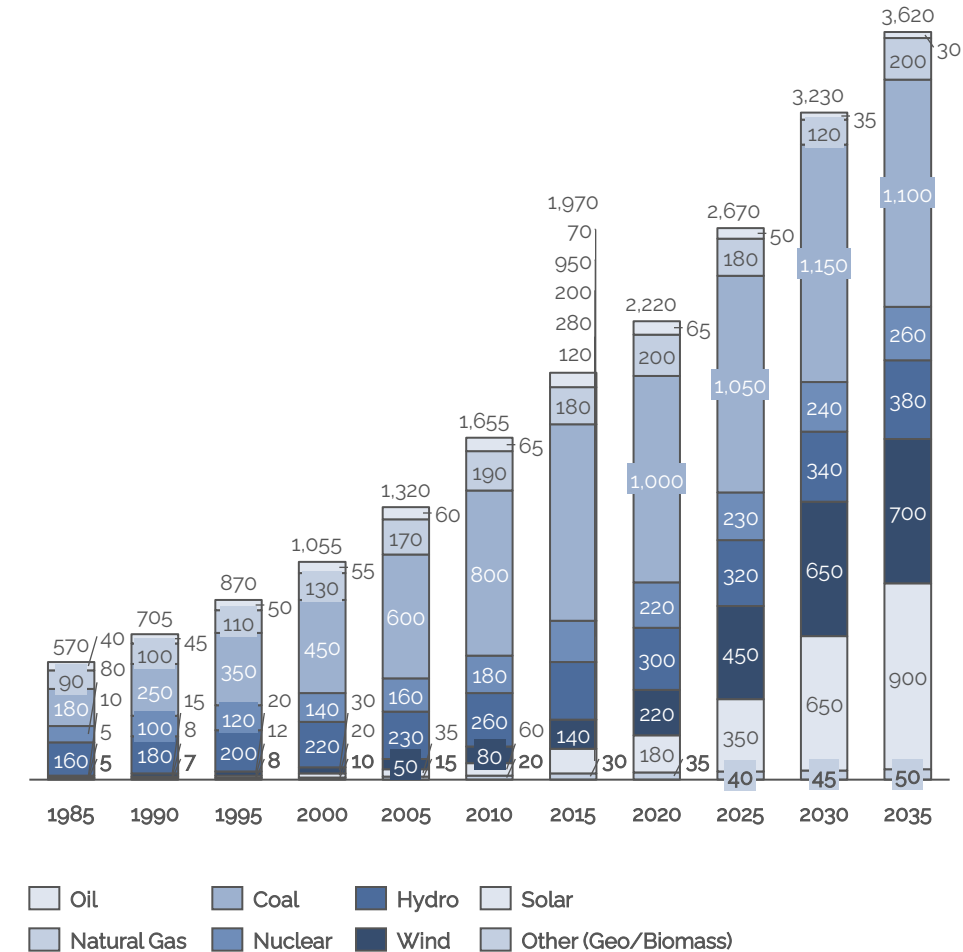
Energy Security – trend#2 driving Power generation demand

- Geopolitical tensions in the Middle East and heightened volatility in global oil and LNG markets are accelerating the transition toward domestically sourced energy, particularly renewables, battery storage, and electrification. Countries are increasingly prioritizing energy security by reducing dependence on imported fossil fuels through greater deployment of solar, wind, hydro, batteries, nuclear power, and electric vehicles (EVs). However, the pace of this transition remains constrained by shortages of critical power equipment, grid infrastructure, and financing, making investments in transmission, substations, grid-scale storage, and generation assets essential over the medium term. While global electricity demand continues to grow, stronger renewable capacity additions are expected to gradually reduce dependence on LNG, particularly across Europe and Asia.
- For India, these global trends reinforce the strategic importance of accelerating renewable energy deployment while strengthening domestic power infrastructure. The government has already expedited approvals for wind projects and battery energy storage systems in response to gas supply uncertainties and price volatility. At the same time, rising EV adoption, supported by higher fuel prices and improving affordability, is expected to drive sustained growth in electricity demand. Despite continued reliance on coal to ensure energy security, India is likely to witness increasing investments in transmission equipment, transformers, substations, batteries, and renewable integration. For Indian power equipment manufacturers, this represents a significant long-term opportunity as both domestic and international markets seek reliable suppliers capable of supporting the global energy transition and expanding electricity infrastructure.

Causality flow



Global data center capacity by region (GW)



Impact of additional demand on equipment supply : Opportunity implication for Indian suppliers

Equipment	Primary Demand Drivers	Overlap Between Data Centers & Energy Transition	Expected Peak Supply Shortfall	Existing Manufacturing Capability in India	Typical Share of Total Project Spend*	Outlook for Indian Manufacturers
Large Power Transformers (LPTs)	AI data centers, utilities, transmission expansion	Very High	5-10 Years	High	8–15%	Significant export opportunity as global supply remains constrained for the rest of the decade.
Generator Step-Up Transformers (GSUs)	Gas plants, solar, wind, battery projects	Very High	2-5 Years	High	3–8%	Strong growth driven by renewable energy, captive power and utility-scale storage projects.
Substation Transformers	Distribution, renewable integration, industrial parks	Very High	2-5 Years	High	5–12%	Well positioned to benefit from India's grid expansion and increasing export demand.
High Voltage Switchgear & Circuit Breakers	Grid expansion, substations	High	2-5 Years	High	5–10%	Demand will rise with transmission upgrades and hyperscale data center development.
Medium Voltage Switchgear	Data centers, factories, solar, storage	High	2 Years	High	4–8%	Attractive domestic market supported by industrial, commercial and data center investments.
HV/EHV Cables & Conductors	Transmission corridors, offshore wind, campuses	High	5 Years	High	10–20%	One of India's strongest export opportunities as transmission investments accelerate globally.
Battery Energy Storage Systems (BESS)	Grid balancing, AI backup, renewable integration	Medium-High	2-5 Years	Medium	25–50% (storage projects)	High-growth market with opportunities in system integration and domestic value addition.
Gas Turbines & Gas Engines	Captive generation, grid flexibility	Medium	5 Years	Low	20–35% (gas power projects)	Opportunities mainly in EPC, packaging and servicing rather than OEM manufacturing.
HVDC Converters	Long-distance transmission, offshore wind	Medium	5-10 Years	Low-Medium	20–35% (HVDC projects)	Best addressed through technology partnerships with global equipment manufacturers.
Protection Relays, Controls & Meters	Digital substations, automation	Medium	2 Years	Medium-High	2–5%	Increasing digitalization of grids creates steady demand for locally manufactured solutions.
Power Conversion Systems (PCS)/Inverters	UPS, battery systems, solar, storage	Medium	2 Years	Medium-High	8–20%	Rapid growth expected as storage, solar and UPS markets continue to expand.
Cooling Equipment	Data centers	Low	2 Years	High	10–20% (data centers)	Beneficiary of India's fast-growing data center ecosystem and commercial infrastructure.
Solar Modules	Renewable generation	Low	> 10 years	High	30–40% (solar projects)	Domestic demand remains healthy, although export competition will remain intense.

1. The biggest opportunity is in grid infrastructure where the strongest investment themes are transformers, switchgear, cables and substation equipment. These categories already have an established manufacturing base in India, making them the most attractive for capacity expansion and exports.
2. India's competitive advantage lies in scaling existing capabilities especially in transformers, switchgear, cables, cooling equipment and solar modules. Manufacturers can capitalize on the opportunity by expanding capacity, improving technology, and strengthening global supply chains, particularly as customers seek alternatives to concentrated sourcing from China.
3. The next 5–10 years present a rare export window —especially in large power transformers, HV equipment and transmission infrastructure.



Power generation equipment – Opportunities and business models that Indian players need to consider for success

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Business model 1

Plain vanilla equipment supply

Examples of current product shortages that can be plugged through equipment supply:

1. **Large transformers:** Industry currently estimates upto a 30% Gap between demand and supply. The demand surge growth has been driven by rapid data-center expansion fueled by tax incentives of the 2022 Inflation Reduction Act, and widespread electrification. Current lead times are between 24-48 months
2. **Generator step-up transformers:** There is a significant shortage for Step-up transformers lead times of 36-48 months arising from natural gas-fired power plants, solar/wind/storage plants and BYOG facilities.
3. **Medium/high-voltage switchgear and breakers:** The shortage in this segment arises from data center electrical rooms, substations, and grid interconnects. Typical product supplies in this category also demand high customization and this is resulting in lead times of 12-36 months

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Business model 2

Large system integration play arising from bring your own generation (BYOG)

The world's largest cloud companies ("hyperscalers") are overcoming the shortage of electricity arising out of AI expansion and Data centre needs through "speed-to-power" — ie quickly securing enough electricity to operate AI/Data centre infrastructure. In this aside from the traditional routes of Colocation with generation to bypass local grid and Underwriting of supply such as PPAs or direct investments, The market is shifting to behind-the-meter/onsite generation and storage (BYOG) ie Hyperscalers wanting onsite generation and storage to reduce multiyear wait for power access or infrastructure upgrades. The material impact of BYOG is on demand for

1. Gas turbines,
2. Reciprocating engines,
3. Solid oxide fuel cells (SOFC),
4. Diesel backup generators
5. Energy storage systems.



To know more

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