

SPECIAL REPORT |

Vedanta bets on cleaner coal to anchor grid stability

As per projections, thermal (coal and lignite) capacity requirement by FY34-35 is estimated at approximately 307 GW as against the current installed capacity of 212 GW. To bridge this gap, the Ministry of Power has envisaged adding an additional 97 GW of coal- and lignite-based thermal capacity by FY 34-35.



The energy landscape is evolving rapidly. India today requires both reliable baseload power and accelerating clean energy capacity. Over the years, it has become evident that thermal and renewable energy must co-exist to ensure energy security, grid stability, and uninterrupted power supply.

As per projections, thermal (coal and lignite) capacity requirement by FY34-35 is estimated at approximately 307 GW as against the current installed capacity of 212 GW. To bridge this gap, the Ministry of Power has envisaged adding 97 GW of coal- and lignite-based thermal capacity by FY 34-35.

At Vedanta Power, our role is to ensure that India's growth engine never pauses. We are committed to contributing as a reliable and efficient power supplier while remaining a strong anchor for grid stability. As of Q3FY26, we have a thermal power capacity of 4180 MW, with an additional 600 MW at the Vedanta Ltd Chhattisgarh Power Plant (VLCTPP) in the pipeline.

At the same time, the company is progressively integrating sustainable practices across all our operations. Its thermal assets are being made

cleaner and more efficient. At Talwandi Sabo Power Limited (TSPL) in Mansa, Punjab, for instance, Vedanta is consistently co-firing over 5 percent biomass, supported by two 500-TPD biomass processing facilities. This not only reduces emissions but also addresses the challenge of agricultural residue burning, contributing to an 87 percent reduction in stubble burning in 2025 compared to 2023 in states of Northern India. Additionally, our long-term 100 percent ash utilisation partnerships with cement manufacturers ensure a circular and environmentally responsible approach.

Vedanta Power's diversified portfolio enables it to support the national grid with reliable power while steadily transitioning toward a lower-carbon footprint.



Modernising and revitalising existing assets

The company's strategy is very clear. Vedanta is maintaining the reliability of its thermal assets while transforming them to meet future standards.

TSPL's priority is high availability and operational excellence. Through targeted retrofits, timely overhauls, and the ability to co-fire one of the highest biomass volumes in India, it is enhancing both efficiency and sustainability.

Meenakshi Energy in Nellore, Andhra Pradesh, is executing one of the most strategic transitions in the sector, from 100 percent imported coal to >80 percent domestic coal. This makes the firm more cost-competitive, strengthens energy security, and reduces supply-chain vulnerabilities. The plant is being upgraded to handle domestic coal characteristics and elevated ash levels, with full ash utilisation tied up with the cement industry. Importantly, the plant operates on 100 per cent seawater (saline), fully eliminating freshwater dependence and achieving zero freshwater consumption.

This modernisation journey ensures that our assets remain future-ready, cost-efficient, and environmentally compliant.

Sustainability-led interventions

Sustainability for Vedanta is not a parallel agenda; it is embedded in how



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the company operates. Its interventions are delivering both environmental and operational results.

TSPL's retrofit initiatives have enabled biomass co-firing of over 15 percent on certain days, significantly strengthening its clean energy transition. These efforts have contributed to an approximately 90 percent reduction in stubble burning in the Mansa district between 2023 and 2025, from where the firm sources the stubble. In 2025, 104 out of 244 villages, including several high-incidence hotspots, were declared fire-free. This has played a meaningful role in mitigating the impact of stubble burning on air quality across Punjab and neighbouring states.

All the plants are equipped with advanced ESP (Electrostatic Precipitator) systems, ensuring emissions remain well within regulatory limits.

On water stewardship, TSPL operates on a Zero Liquid Discharge system, ensuring every drop of water is treated, recycled, and reused. Meenakshi Energy goes a step further by using seawater and achieving zero freshwater consumption, a vital commitment in a water-stressed country.

These initiatives allow us to maintain high plant load factors while significantly reducing our environmental footprint.

Leveraging technology and governance frameworks

Digital transformation is at the heart of Vedanta's operational philosophy. The company has deployed OSI PI systems across its power assets to enable real-time visibility into key performance parameters. These digital dashboards are seamlessly integrated with national scheduling platforms, ensuring precise adherence to grid commitments.

The next leap for the company is predictive maintenance. By utilising advanced analytics, it aims to identify potential failures well before they occur. This means fewer unplanned outages, enhanced safety, longer equipment life, and a shift from reactive to proactive asset management.

Vedanta Power is building the power plants of the future: digitally intelligent, efficient, and highly reliable.

Strategic role

Vedanta Power is fundamentally aligned with India's mission of building a resilient, reliable, and globally competitive energy ecosystem. The company's large-format, high-availability power assets play a critical role in stabilising regional grids and ensuring uninterrupted supply to state utilities and key industrial growth clusters.

In an environment where demand volatility, renewable intermittency, and regional imbalances are increasing,



dependable thermal capacity remains the backbone of grid stability. Vedanta Power's assets operate at high availability and efficiency levels, enabling us to provide firm, dispatchable power that supports both peak demand management and long-term supply security.

A key strategic advantage for Vedanta Power is that nearly 40 percent of its total capacity remains untied. This provides the company with the flexibility to respond dynamically to market opportunities and to supply reliable, competitively priced power to Commercial & Industrial (C&I) consumers. As industries increasingly seek dependable, cost-efficient energy solutions, this flexibility positions us as a preferred partner.

Vedanta Power continuously evaluate emerging opportunities across merchant markets, bilateral arrangements, and long-term contracts to optimise portfolio value while strengthening our contribution to India's energy security.

The company's vision of becoming India's most competitive and future-ready power portfolio is built on three pillars: operational excellence, portfolio flexibility, and progressive integration of sustainable practices. By combining large-scale, reliable assets with market agility and a transition-focused strategy, Vedanta Power is well positioned to support India's growth while preparing for the evolving energy landscape. ⚡

By:
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