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What happens when AI meets India's 300 GW power future?

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India's energy transition for years has been about the addition of renewable capacity. AI may be transforming businesses through software, but its physical foundation is electricity.

While addressing the India Energy Storage Week 2026, Union Power Minister Manohar Lal highlighted that India's peak electricity demand could touch 300 GW by 2027. He also pointed out the drivers of the growth: AI, data centres, EVs, and increased industrial activity.

India's energy transition for years has been about the addition of renewable capacity. AI may be transforming businesses through software, but its physical foundation is electricity. Every AI model, cloud platform, industrial automation system, and digital service depends on reliable power. As India embraces AI across sectors, the country's power infrastructure is entering a new phase where resilience will become just as important as generation capacity.

AI is creating a new pattern of electricity demand

AI-driven infrastructure demands uninterrupted computing power. Every AI application runs on data centres that operate continuously, processing enormous volumes of information through high-performance computing systems. And for successfully doing these, AI workloads rely on GPU-intensive infrastructure that consumes substantially more electricity while generating far greater heat. Traditional enterprise server racks typically draw 5 to 10 kilowatts (kW) of power. Modern AI server racks, however, require anywhere between 40 and more than 100 kW per rack, which is about a 4-to-10 fold increase in power density. These systems operate at near full capacity around the clock, leaving virtually no off-peak period for the grid to recover.

AI workloads demand high-performance processors that consume much more power than traditional processors and require more cooling.

As the energy demand is increasing enormously, Cooling has become one of the largest contributors to electricity consumption in AI data centres. It represents 38-40% of the overall energy consumption of a facility, while operators strive to keep the high-performance processors at optimal temperatures.

At the global level, the International Energy Agency estimates that electricity consumption by data centres could more than double to around 945 terawatt-hours (TWh) by 2030, while Goldman Sachs Research projects that AI-driven electricity demand alone could rise by nearly 50% by 2027.

With the digitalisation process, cloud computing, fintech, e-commerce, and the various government digital initiatives, the data centre industry in India is booming. As these AI applications are increasingly adopted in the manufacturing, healthcare, financial services, and public administration sectors, their energy consumption is expected to continue to grow. This requires power systems that can respond quickly to the different load demands while maintaining reliability.

We Should Focus on Both Reliability and Sustainability

India is leading one of the fastest-growing renewable energy programmes in the world. The ongoing development of solar parks, wind farms, and other hybrid renewable energy initiatives further enhances the nation's clean energy goals and decreases reliance on imported fossil fuels. But a reliance on renewable energy is insufficient to sustain an AI economy.

Solar generation, of course, decreases after sunset, and wind generation varies with the weather. However, AI infrastructure, industrial automation systems, and hyperscale data centres need to consume electricity every second of every day.

This is why energy storage has emerged as the missing link in India's clean energy transition. Speaking at the same event, the Power Minister highlighted that India could require nearly 888 GWh of battery energy storage by FY36. Meanwhile, the Central Electricity Authority estimates that the country's storage capacity is going to reach 174 GW by 2035-36, including both battery storage systems and pumped hydro projects.

Battery storage enables renewable electricity generated during the day to be stored and supplied when demand rises, making clean energy dependable rather than intermittent.