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# India's Data Centre Capacity to Hit 12 GW by 2030: The Energy and Water Trade-Off

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# India's Data Centre Capacity to Hit 12 GW by 2030: The Energy and Water Trade-Off

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✓ Every fact web-verified against primary sources

*A Wood Mackenzie report released in late July 2026 projected India's operational data centre capacity rising from 2.2 GW in 2025 to 12 GW by 2030, driven overwhelmingly by artificial intelligence (AI) workloads, and flagged electricity availability rather than land or capital as the sector's binding constraint.*

## THE HEADLINE NUMBERS

| PARAMETER                              | 2025   | 2030 (PROJECTED)                                                     |
|----------------------------------------|--------|----------------------------------------------------------------------|
| Total operational data centre capacity | 2.2 GW | 12 GW                                                                |
| AI-dedicated capacity                  | 275 MW | 6,546 MW                                                             |
| Data centre electricity demand         | 10 TWh | Rising toward roughly 7 per cent of total electricity demand by 2040 |

The capacity growth implies a compound annual growth rate of roughly **40 per cent** over 2025-30, with the AI-dedicated segment growing nearly **24-fold**, far faster than conventional enterprise and cloud capacity. This **asymmetry** matters because AI training and inference workloads are far more power- and water-intensive per rack than traditional hosting, storage or web-serving workloads.

## WHY POWER IS THE CONSTRAINT, NOT LAND OR CAPITAL

A conventional data centre is primarily a real-estate and connectivity decision. An **AI data centre** is primarily an **energy-procurement** decision, for four linked reasons:

- 1 **Power density.** AI training clusters using high-end GPUs draw several times the power per rack of conventional servers, so a data centre of a given AI capacity needs a proportionally larger, firmer power supply.

- ② **Grid connection timelines.** Securing a large, dedicated grid connection, or building a captive renewable-plus-storage supply, now takes longer than the physical construction of the building itself in many Indian States.
- ③ **Cooling load.** Higher power density means higher heat rejection, which pushes operators toward **liquid cooling** and raises **water demand**, especially in water-stressed regions.
- ④ **Renewable matching.** Global technology firms increasingly require data centres to be matched with renewable power purchase agreements, adding a further sequencing constraint on top of raw grid capacity.

Wood Mackenzie's report specifically flags **Tamil Nadu and Karnataka**, both major existing data centre hubs, as facing **water stress** risk as AI-driven cooling demand scales up.

## WHERE THIS FITS INDIA'S DIGITAL AND ENERGY STRATEGY

This report should be read alongside, and distinguished from, the **Odisha Sovereign AI Park** announcement of July 24, 2026 (HCLTech, Sarvam AI and the Government of Odisha), which is one specific project. The Wood Mackenzie projection is the **aggregate national outlook**: the sum of many such projects, hyperscaler build-outs (Amazon Web Services, Microsoft, Google), and India-focused sovereign compute initiatives under the **IndiaAI Mission**.

| LAYER OF THE AI STACK | WHAT IT MEANS                     | RELEVANT INDIAN INITIATIVE                          |
|-----------------------|-----------------------------------|-----------------------------------------------------|
| Hardware/compute      | Chips, servers, data centres      | IndiaAI Mission compute pillar, GPU procurement     |
| Data                  | Training and inference datasets   | Data localisation and DPDP Act, 2023 compliance     |
| Models                | Foundation models tuned for India | Sarvam AI and other IndiaAI Mission-backed startups |

The **convergence** of digital-economy and energy-security planning is the examinable thread: India's target of raising the **share of non-fossil capacity** in its electricity mix, and its **National Green Hydrogen Mission**, both bear directly on whether data centre power demand can be met without displacing other priority uses or raising **emissions intensity**.

## UPSC RELEVANCE

**GS Paper 3:** Infrastructure, Energy; Science and Technology, developments in IT and their applications; Conservation, environmental pollution and degradation (water stress).

**GS Paper 2:** Government policies for digital-economy development (IndiaAI Mission) and their design and implementation challenges.

**Prelims pointers:**

- India's data centre capacity: **2.2 GW (2025) to 12 GW (2030)**, per Wood Mackenzie.
- AI-dedicated capacity growth: **275 MW to 6,546 MW** by 2030, about a 24-fold rise.
- Data centre electricity demand projected to reach about **7 per cent** of India's total electricity demand by 2040.
- **Power availability**, not land or capital, is the binding constraint identified by the report.
- **Tamil Nadu and Karnataka** are flagged for data centre-linked water stress.
- The report is distinct from, but related to, the **Odisha Sovereign AI Park** (HCLTech, Sarvam AI), announced July 24, 2026.

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**INDIA DATA CENTRE OUTLOOK (WOOD MACKENZIE, 2026):**

Total capacity: 2.2 GW (2025) to 12 GW (2030).

AI-dedicated capacity: 275 MW (2025) to 6,546 MW (2030).

Electricity demand: 10 TWh (2025), rising toward about 7 per cent of total electricity demand by 2040.

Binding constraint: power availability, not land or capital.

Water stress flagged in Tamil Nadu and Karnataka.

**AI STACK LAYERS:**

Hardware/compute: chips and data centres.

Data: training and inference datasets, governed by the DPDP Act, 2023.

Models: foundation models, e.g. Sarvam AI under the IndiaAI Mission.

**RELATED INITIATIVE:**

Odisha Sovereign AI Park: HCLTech and Sarvam AI with the Government of Odisha, announced July 24, 2026, about Rs 14,257 crore, operational by 2028.

*Sources: Wood Mackenzie, Business Standard, Ministry of Electronics and Information Technology*

Source: India's Data Centre Capacity to Hit 12 GW by 2030: The Energy and Water Trade-Off — Ujjayari.com | Free

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