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MP-IDSA
Commentary

Atoms for AI: The Promise of SHANTI Act

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Summary

The SHANTI Act sets the tone for the promise of nuclear power to support rising electricity demand from the growth of AI data centres.

The International Atomic Energy Agency (IAEA) hosted its first-ever International Symposium on Artificial Intelligence (AI) and Nuclear Energy in December 2025. The symposium aimed to bring together relevant stakeholders in both fields to discuss the prospects of cooperation ahead. The Director General of the IAEA, Rafael Grossi, in his speech at the opening ceremony, reiterated that, "…AI revolution…was always going to choose nuclear energy as a partner; it was an inevitable partnership, the only question was when…".[1]

The idea that nuclear energy is well placed to support rising electricity demand from the growth of AI data centres is not new. There is now a growing and accepted consensus that nuclear power, particularly the Small Modular Reactors (SMRs), are uniquely positioned to meet the baseload power requirements of AI data centres.

In the US, tech giants such as Meta, Microsoft, Google and Amazon have signed contracts with nuclear power reactor developers/utilities such as TerraPower-Oklo, Constellation Energy, Kairos Power, Energy Northwest and Dominion Energy[2] to support data centre operations by a certain timeframe. In June 2025, Amazon Web Services (AWS) signed a contract with Talen Energy (TLN.O), lasting until 2042, to supply up to 1,920 megawatts of electricity from its Susquehanna plant in Pennsylvania to AWS data centres.[3]

More recently (July 2026), the US government entered into negotiations with Amentum to develop an AI data centre with a dedicated on-site energy generation source at the Savannah River Site in South Carolina. This is in line with President Trump's Executive Order on 'Accelerating Federal Permitting of Data Center Infrastructure (2025)'.[4]

Indeed, nuclear power, being a low-carbon electricity source, is increasingly being viewed as a part of the sustainable solution to meet the rising demand of data centres, particularly through the on-site deployment of reactors. On the other hand,

[1] Monika Shifotoka, **"IAEA Hosts First International Symposium on AI and Nuclear Energy"**, International Atomic Energy Agency (IAEA), 3 December 2025.

[2] Isabel Jones, **"Why Are US Data Centers Turning to Nuclear Power?"**, *nesfircroft.com*, 23 July 2026.

[3] **"Talen Energy and Amazon Sign Nuclear Power Deal to Fuel Data Centers"**, *Reuters*, 11 June 2025.

[4] **"NNSA Selects Amentum for AI Data Center and Energy Project at Savannah River Site"**, National Nuclear Security Administration, U.S. Department of Energy, 20 July 2026; **"Accelerating Federal Permitting of Data Center Infrastructure"**, Presidential Executive Order-14318, The White House, 23 July 2025.

AI is also being viewed as positively contributing to nuclear energy expansion through its tools for optimising reactor performance, etc. The International Energy Agency (IEA) suggests that electricity consumption from data centres was "estimated to amount to around 415 terawatt hours (TWh), or about 1.5 per cent of global electricity consumption in 2024…".[5] It is forecast to further double by 2030, to about 945 TWh.

All this is not lost on India, which recently passed the Sustainable Harnessing and Advancement of Nuclear Energy for Transforming India Act (SHANTI Act). The Act's preamble paragraph notes, "…accelerated growth of Artificial Intelligence, high-performance computing and large-scale data-driven research *requires* stable, reliable, abundant, clean and round-the-clock power supply,…can be ensured through expanded deployment of nuclear energy…".[6] An important aspect that, for some time, has escaped the attention in the wide-ranging discussion surrounding nuclear energy expansion in India is this very promise of anticipated, mutual growth of nuclear energy and AI towards the *Viksit Bharat* goal of 2047.

There is no denying that India is embracing AI at an unprecedented pace not only to support industrial-scale applications but also to transform everyday living. India's assertive embrace of AI implies including one–sixth of humanity in the AI ecosystem, with the aspiration of transitioning from being an 'AI user nation' to an 'AI provider'. Its domestic AI market, "currently worth about $7.6 billion, is forecasted to grow to $131.31 billion by 2032, a more than 17-fold increase…",[7] reflecting rapid digital transformation and infrastructure build-out.

Clearly, technology will continue to drive and dominate the growth economics and strategic autonomy for India's domestic and foreign policy imperatives. For instance, semiconductors, AI, quantum technologies, supercomputing, blockchain, and cloud infrastructure as long-term policy investments will not only shape national capacities but also contribute to the nation's future readiness.

As per official sources, the currently operational data centres in Maharashtra, Hyderabad, Bengaluru, Gujarat, etc., are already witnessing an increase in electricity

[5] **"Energy Demand from AI"**, International Energy Agency (IEA), 2024.

[6] **"The SHANTI Act-2025"**, The Gazette of India, Ministry of Law and Justice, 21 December 2025.

[7] **"India's AI Market Set to Surge to Over $130 Billion by 2032"**, *DigWatch*, 13 February 2026.

demand, "from about 375 MW in 2020 to around 1500 MW in 2025…".[8] Further, the same demand is expected to reach 13.56 GW by 2031–32. The SHANTI Act has opened up pathways for private firms to explore, build and support the growth of India's nuclear energy ecosystem. SMRs, in particular, are being viewed as an important part of a reliable power solution for these strategic sectors. SMRs, being less space-intensive, offer flexibility in site selection and land procurement and are deemed optimal for powering remotely located data centres.

In theory, this new energy playbook encompassing two transformative forces of technologies, i.e., SMRs and AI, seems perfect. However, SMRs are yet to become commercially viable to power data centres. India is expected to witness the "…peak in its population in the early 2060s at about 1.7 billion…".[9] The Government of India has recently approved a new set of Nationally Determined Commitments (NDCs) under the Paris Agreement, to "…further reduce-carbon emissions by 47 per cent by 2035 and to achieve a cumulative installed electricity capacity of 60 per cent from non-fossil sources by the same year".[10]

Thus, this emerging promise of 'Atoms for AI' is serious for India, more so because in 2025, India achieved a "…milestone of 50 per cent of its cumulative electric power installed capacity from non-fossil fuel sources…".[11] This is five years ahead of the 2030 target under the NDC. Therefore, while it may seem unrelated, the future of India's sustainable energy landscape in the backdrop of AI-driven comprehensive national growth is not just connected but deeply intertwined. From today to the *Viksit Bharat* of 2047, a timeline of 21 years, needs to be utilised optimally, as the scope for lead time is zero. The SHANTI Act, though, has set the tone for the promise of nuclear power for AI.

[8] **"Data Centre Capacity in the Country has Increased from About 375 MW in 2020 to around 1500 MW by 2025"**, Press Information Bureau, Ministry of Electronics and IT, Government of India, 13 March 2026.

[9] **"India's Population to Peak in Early 2060s to 1.7 Billion Before Declining: United Nations"**, *The Hindu*, 12 July 2024.

[10] **"Building Critical Mineral Resilience for Empowering and Aiding Nuclear Energy and Clean Energy Transition"**, Report, Ashoka Centre for a People-Centric Energy Transition (ACPET), Ashoka University, May 2026.

[11] Ibid.

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