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The Bataan Nuclear Power Plant: A Potential Energy Solution for AI Growth in the Philippines | Ana Elena L. Conjares

Global electricity consumption by data centres is projected to more than double by 2030, driven by the escalating computational demands of artificial intelligence (AI).¹ As AI systems grow in scale and complexity, they require continuous, high-density power for intensive data processing, storage, and training. This surge has positioned energy reliability and sustainability as critical concerns for countries seeking to expand their AI capabilities. Consequently, nuclear energy has emerged as a premier solution; a single nuclear reactor can provide large quantities of carbon-free electricity continuously over several decades,² making it particularly suited to powering energy-intensive AI facilities. To meet rising power demands, major technology companies are pivoting toward nuclear energy to ensure long-term energy security for their AI infrastructure. Meta and Microsoft have already committed to nuclear power agreements to supply electricity to their data centers, while Amazon Web Services has explored the use of small modular reactors to secure a dedicated and reliable power supply.³ These developments illustrate a broader global trend: nuclear energy is increasingly viewed as a stable baseload option to support the rapid expansion of AI-driven digital infrastructure.

The Philippines has similarly recognised the transformative potential of AI. The launch of the National AI Strategy Roadmap 2.0 (NAISR 2.0) in 2024 reflects the country's ambition to position itself as a regional AI hub by fostering innovation, competitiveness, and sustainable economic growth.⁴ In line with this strategy, investments in AI-driven digital infrastructure have increased. The Philippine data centre market is projected to nearly

¹ "Is nuclear energy the answer to AI data centers' power consumption?," Goldman Sachs, Jan. 23, 2025. [Online]. Available: <https://www.goldmansachs.com/insights/articles/is-nuclear-energy-the-answer-to-ai-data-centers-power-consumption>

² Kevin Kong, "How Nuclear Power and AI Can Solve Each Other's Biggest Problems," The AI Navigator, December 12, 2025 [Online]. Available: <https://theaiinnovator.com/how-nuclear-power-and-ai-can-solve-each-others-biggest-problems/>

³ S. M. Cfa and S. M. Cfa, "Data centers embracing nuclear, SMRs for AI needs," ETF Trends, Oct. 28, 2025. <https://www.etftrends.com/disruptive-technology-content-hub/data-centers-embracing-nuclear-smrs-ai-needs/>

⁴ R. L. Albay, "High costs, higher risks: Can the Philippines power its data centre hub ambitions?," Eco-Business, Jan. 19, 2026. [Online]. Available: <https://www.eco-business.com/news/high-costs-higher-risks-can-the-philippines-power-its-data-centre-hub-ambitions/#:~:text=The%20Philippine%20data%20centre%20market,data%20storage%20continues%20to%20rise>

triple between 2024 and 2030,⁵ signaling strong demand for computing capacity. While telecommunications operators have already begun responding to this demand by commissioning facilities, including a 50 MW facility that became operational in 2024 and a larger 100 MW campus in development, significant structural challenges remain.^{6,7} Elevated electricity prices and coal-dependent power mix continue to dampen investor confidence, exemplified a major conglomerate's recent decision to withdraw from a data centre venture due to concerns over power cost and reliability.⁸ Such challenges highlight the importance of exploring more stable and cleaner energy sources, including nuclear power, to support the Philippines' AI ambitions.

The Philippines possesses a long-standing history in nuclear science and technology, beginning with the establishment of the Philippine Atomic Energy Commission in 1958 and its early membership in the International Atomic Energy Agency. In 1987, the Commission was reorganised into the Philippine Nuclear Research Institute (PNRI) under the Department of Science and Technology, maintaining a dual mandate to regulate and promote nuclear science and technology. Over several decades, the country developed foundational nuclear infrastructure, including the Philippine Research Reactor-1, which operated from the 1960s until 1984. The facility now houses the Subcritical Assembly for Training, Education and Research (SATER) that uses TRIGA fuel rods for nuclear education. While construction of the Bataan Nuclear Power Plant (BNPP) was completed in the 1980s, although the facility was never commissioned. At present, DOST-PNRI serves as the central institution for nuclear knowledge, research, and activities in the country.

In recent years, the Philippines has intensified efforts to revitalise its nuclear power programme, recognising that nuclear energy can provide reliable, non-intermittent baseload power to complement renewable energy sources. This renewed interest aligns with the country's broader objectives of ensuring long-term energy security and supporting economic development. Key policy developments have laid the groundwork for this effort. Executive Order No. 116, issued in July 2020, established the Nuclear Energy Program Inter-Agency Committee, while Executive Order No. 164, issued in February 2022, adopted the National Position for a Nuclear Energy Program. Together, these instruments provide a coordinated framework in line with the International Atomic Energy Agency Milestones Approach, which guides countries through the necessary stages of commitment, preparedness, and capability-building for a safe, secure, and sustainable nuclear power programme.⁹

⁵ "Philippines: Southeast Asia's next powerhouse for data centers – w.media." <https://w.media/philippines-southeast-asias-next-powerhouse-for-data-centers/#:~:text=Philippine%20Data%20Center%20Market%20%C2%A0,Image%20Credit%3A%20Research%20and%20Markets>

⁶ D. N. Flores, "Can the Bataan Nuclear Power Plant run? The body that decides on its fate," Philstar.com, Nov. 19, 2025. [Online]. Available: <https://www.philstar.com/headlines/climate-and-environment/2025/11/17/2487900/can-bataan-nuclear-power-plant-run-body-decides-its-fate>

⁷ "Advantages and Challenges of Nuclear-Powered Data Centers," Energy.gov. <https://www.energy.gov/ne/articles/advantages-and-challenges-nuclear-powered-data-centers/#:~:text=,24%2F7%20power>

⁸ "Philippines: Southeast Asia's next powerhouse for data centers – w.media." <https://w.media/philippines-southeast-asias-next-powerhouse-for-data-centers/#:~:text=Philippine%20Data%20Center%20Market%20%C2%A0,Image%20Credit%3A%20Research%20and%20Markets>

⁹ Ibid.

Further strengthening the country's nuclear governance framework is the enactment of the Philippine National Nuclear Energy Safety Act, which established the Philippine Atomic Energy Regulatory Authority (PhilATOM) in 2025. This was accompanied by ongoing deliberations on the proposed Nuclear Liability Law, reflecting the Philippines' recognition of the importance of an independent and competent regulatory authority in ensuring nuclear safety, security, and safeguards, particularly as the country considers future nuclear power deployment.

Under the Draft Philippine Nuclear Energy Program, the government has set ambitious nuclear capacity targets of 1,200 MW by 2032, 2,400 MW by 2035, and up to 4,800 MW by 2050.¹⁰ Meeting these targets will require a massive expansion of the nation's energy infrastructure through the construction of multiple plants. These targets reflect the scale of electricity demand anticipated in the coming decades—specifically the continuous, high-density power required by data centres and AI-driven technologies.

Within this policy and planning context, the long-mothballed 621 MW BNPP has been identified as a possible source of stable power for the country,¹¹ with potential relevance to supporting the growing AI ecosystem. Unlike the variability of intermittent renewables, nuclear energy provides the high-availability baseload power required by energy-intensive AI systems.^{12,13} Experts suggest that rehabilitating BNPP could potentially add nuclear capacity within a shorter timeframe compared to constructing a new reactor.¹⁴ Interest in BNPP's rehabilitation remains evident among potential nuclear power plant operators, as reflected in discussions held with officials from the Department of Energy and DOST-PNRI, attended by the IAEA Director General during his visit in the Philippines in November 2025. During these engagements, stakeholders expressed the view that BNPP's rehabilitation remains the fastest pathway toward operating a nuclear power plant in the Philippines.

Despite these potential advantages, significant challenges remain. BNPP has been inactive for decades, necessitating extensive technical upgrades, comprehensive safety assessments, and rigorous regulatory review. Public safety and regulatory compliance are paramount considerations, and PhilATOM will not issue a license unless BNPP fully meets modern nuclear safety standards. Economic considerations also persist, with critics raising concerns that electricity generated from BNPP could be more costly than power from equivalent renewable energy capacity.¹⁵ The government, in coordination with international partners, continues to reassess these technical, regulatory, and economic issues. If these challenges can be successfully addressed, the revival of BNPP could provide a large-scale, low-carbon power source that supports the Philippines' expanding

¹⁰ "Philippines prepare nuclear new-build," World Nuclear News. <https://www.world-nuclear-news.org/articles/philippines-prepares-for-nuclear-new-build#:~:text=The%20country%20aims%20to%20have,reachin%204%2C800%20MW%20by%202050>.

¹¹ "Advantages and Challenges of Nuclear-Powered Data Centers," Energy.gov. <https://www.energy.gov/ne/articles/advantages-and-challenges-nuclear-powered-data-centers#:~:text=,24%2F7%20power>

¹² "Is nuclear energy the answer to AI data centers' power consumption?," Goldman Sachs, Jan. 23, 2025. [Online]. Available: <https://www.goldmansachs.com/insights/articles/is-nuclear-energy-the-answer-to-ai-data-centers-power-consumption>

¹³ "IAEA Milestones Approach: Developing the National Infrastructure for Nuclear Power," <https://www.iaea.org/sites/default/files/18/01/developing-the-national-nuclear-infrastructure-for-nuclear-power.pdf>

¹⁴ "Advantages and Challenges of Nuclear-Powered Data Centers," Energy.gov. <https://www.energy.gov/ne/articles/advantages-and-challenges-nuclear-powered-data-centers#:~:text=,24%2F7%20power>

¹⁵ Ibid.

AI infrastructure while contributing to broader national goals of energy security and sustainable development.

About the Author

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