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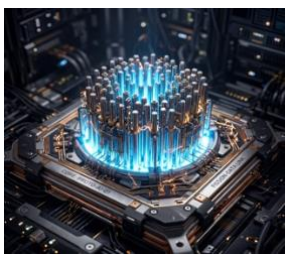
In this Bulletin

The Science, Technology and Security (STS) Bulletin is edited by the FIT research cluster and features thought pieces on key emerging technologies, such as artificial intelligence (AI), space, quantum technologies, energy, and biotechnology. For its sixth issue, we bring together perspectives on the nexus of AI and nuclear energy. The contributors examine nuclear power's renewed relevance as a stable, low-carbon solution capable of meeting the immense energy demands of AI-driven computing. They also explore the strategic, regulatory, and geopolitical implications of integrating advanced AI systems with nuclear infrastructure, including questions of governance, safety, and public trust. Images below were generated by AI (imagine.art).



Powering the AI Era: Nuclear Power in the Age of Artificial Intelligence
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Electricity Demand by AI Data Centres and the Role of Nuclear Energy
Yongsoo Hwang and Dongkeun Lee

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

The Mekong's Energy Dilemma: Climate Pressure, Technological Shifts, and the Future of Hydropower
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Powering the AI Era: Nuclear Power in the Age of Artificial Intelligence | Ysa Marie Cayabyab, Benjamin Ang, and Karryl Kim Sagun Trajano

This introductory article examines the emergence of electricity as a strategic constraint in the AI era. As AI workloads, cloud computing, and data-intensive services drive rapid growth in electricity demand, energy systems are becoming central to digital competitiveness and are reshaping the geography of digital expansion. Growing dependence on reliable and affordable power for AI ecosystems, advanced manufacturing, and data centres has now elevated nuclear energy into a key geopolitical and industrial priority. Click to read more.

Ysa Marie Cayabyab and Karryl Kim Sagun Trajano is an Associate Research Fellow and Research Fellow at FIT, respectively. Benjamin Ang is Head of the Centre of Excellence for National Security (CENS), FIT, and DIR at RSIS, NTU, Singapore.

Electricity Demand by AI Data Centres and the Role of Nuclear Energy | Yongsoo Hwang and Dongkeun Lee

This article discusses how nuclear energy is increasingly viewed as a reliable long-term solution to rising electricity demand, which is mainly driven by AI data centres and expansion. Enhancing existing nuclear capacity through plant life extensions, uprates, and restarts offers the fastest path to sustainability. However, concentrated demand in major economies, particularly the US and China, is straining infrastructure and transmission systems. As AI-driven demand spreads across Asia, stronger industrial capacity and greater international coordination are becoming increasingly crucial. Click to read more.

Yongsoo Hwang is a Distinguished Professor at KEPCO International Nuclear Graduate School, specialising in nuclear non-proliferation, security, Small Modular Reactors (SMRs) implementation, and nuclear fuel cycle management. Mr Dongkeun Lee is a Policy Fellow at the Asia-Pacific Leadership Forum, and his main research interest is international relations in the Indo-Pacific, with a focus on maritime security.

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

This article examines the Philippines' ambition to become a regional AI hub under its National AI Strategy Roadmap 2.0. However, rapid data centre growth and rising electricity demand are placing increasing strain on the country's energy system, while high electricity costs and continued reliance on coal constrain further expansion. In response, the government is reviving its nuclear programme through policy and regulatory reforms, with the Bataan Nuclear Power Plant seen as a potential source of stable, low-carbon energy to support growing AI-driven demand. Click to read more.

Ms Ana Elena L. Conjares was Chief Science Research Specialist, Technology Diffusion Division of the Philippine Nuclear Research Institute and served as National Liaison Officer for the International Atomic Energy Agency (IAEA) Technical Cooperation Programme until her retirement from government service in April 2026.

The Mekong's Energy Dilemma: Climate Pressure, Technological Shifts, and the Future of Hydropower | Zhang Hongzhou

This article examines the Mekong region's dual energy dilemma, where reliance on fossil fuels drives price volatility and insecurity, while hydropower remains contested due to its environmental, social, and geopolitical impacts. These pressures are intensifying as AI data centres and electric vehicles push the rapid growth in electricity demand. With energy consumption projected to rise among the fastest in Asia, there is a need for greater investment in clean energy, improved hydropower development, and more coordinated, socially conscious energy governance. Click to read more.

Zhang Hongzhou is an Assistant Professor and Coordinator of the MSc (International Political Economy) Programme at RSIS. His research focuses on regional and global resource conflicts and governance, the role of Big Tech in international politics, and the governance of emerging technologies.

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