Bangkok pumped hydro storage

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"USTDA has a 30-year history of partnering with EGAT on the development of Thailand"s energy infrastructure priorities. Our support for this project reflects a shared goal of expanding renewable energy integration and reliability and promoting inclusive and sustainable economic growth," said Enoh T. Ebong, USTDA"s Director. "At the same time, this project will create opportunities for U.S. solutions to be deployed in the development of the PSH plant."

PSH plants contain two water reservoirs at different elevations. The plants pump water to an upper reservoir using excess electricity when power supply exceeds demand, where it is stored until it is needed to produce additional hydroelectric power during peak demand periods. USTDA"s study will assess the technical and economic viability of the proposed PSH plant, including a geotechnical and geological analysis of the project site, PSH plant design, preliminary environmental and social impact assessment, risk assessment, cost and economic analysis and an implementation plan.

"This project is a perfect example of how the United States is helping Thailand meet its ambitious climate goals, not only by reducing emissions through clean energy generation, but while also by ensuring the security of Thailand"s power system," said U.S. Ambassador to the Kingdom of Thailand Robert F. Godec. "Through USTDA, the U.S. government is proud to work together with Thailand on innovative solutions to promote the clean energy transition and to support Thailand"s Bio-Circular-Green economic model."

The grant highlights how USTDA advances the Indo-Pacific Economic Framework in collaboration with public and private sector partners across the region. USTDA"s grant also advances the goals of the Partnership for Global Infrastructure and Investment to support implementation of clean energy infrastructure globally.

The U.S. Trade and Development Agency helps companies create U.S. jobs through the export of U.S. goods and services for priority infrastructure projects in emerging economies. USTDA links U.S. businesses to export opportunities by funding project preparation and partnership building activities that develop sustainable infrastructure and foster economic growth in partner countries.

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Although private power producers generate more than half of Thailand"s electricity, the wholesale market and grid operations are dominated by three state-owned utilities. As such, government procurement plays a key role in the deployment of new infrastructure.

As part of the renewable energy procurement round in 2022, the government awarded projects to 24 solar plus

co-located BESS projects, with a total capacity of 994 MW. The power purchase agreements (PPAs) with the Electricity Generating Authority of Thailand (EGAT), a government utility responsible for wholesaling and transmission, will be on a semi-firm basis. This contrasts with most existing ground mounted solar projects, where the PPAs are typically a non-firm structure, where the generator does not take on any minimum availability guarantees.

Thailand"s current thermal power plants typically supply heat (along with power) to purchasers in neighbouring industrial estates. As the energy transition results in fewer power plants fuelled by coal and natural gas, industry will need to procure heat from alternative sources.

The US-based Rondo Energy signed an agreement with Siam Cement Group, one of Thailand"s largest industrial conglomerates, to manufacture the former"s heat batteries. In addition to being manufactured in Thailand, the domestic industrial sector presents a potentially attractive customer base.

Regulations in Thailand already permit behind-the-grid technologies such as rooftop solar and storage to be deployed, subject to the Energy Regulatory Commission (ERC)"s licensing regime. However, many small to medium-sized buildings are not attractive behind-the-meter developers, since excess power cannot be sold to the grid or to third parties via grid infrastructure.

The ERC has initiated a process of requiring the power utilities to develop third party access codes (TPA Codes), which would allow buyers and sellers of power to use grid infrastructure to trade at a distance. The TPA Codes are still in draft form and there is no clear timeline of when they will be approved. Once they come into force, it is likely that we will see an influx of solar and storage projects to enable purchasers, particularly businesses with decarbonisation commitments, to purchase more or all of their power from renewable sources.