



# Ice energy storage system Guam

Does Guam have a smart grid?

Guam Power Authority received a \$16.7 million ARRA Smart Grid Initiative Grant from the Department of Energy to implement a comprehensive deployment of Smart Grid technologies. GPA floated bonds in FY 2010 to come up with the matching \$16.7 million. This project is a transformational project to bring Guam's power grid into the 21st century.

How much does it cost to restore power on Guam?

The estimated cost for capacity restoration is \$5 to \$7 million, with annual operating costs of \$2-3 million. General Manager John M. Benavente, P.E., stated, "We are pleased to see the CCU's endorsement for our short-term projects, which are crucial in addressing the challenges affecting power generation on Guam."

Will Guam reduce electricity rates?

GPA will petition the Guam Public Utilities Commission (GPUC) for the approved reduction. For the average consumer who uses 1,000 kilowatt-hours per month; this means a savings of roughly \$70.43 in their monthly power bill. "The semi-annual adjustments of the rates have been steadily increasing since mid-2021."

Why should you support Guam Power Authority?

At Guam Power Authority, we value our customers. We've overcome challenges together, and ask for your continued support as we work to ensure a reliable power supply. We're addressing issues by boosting capacity and exploring solutions to bridge the gap until the completion of the state-of-the-art Ukudu Power Plant by September 30, 2025.

Does Guam need a solar farm?

The solar farm is another important step toward reducing Guam's reliance on imported oil, estimated at 300,000 barrels in the first year. For several years now, GPA has implemented the Energy Sense Rebate Program which offers cash rebates for customers purchasing more energy-efficient home appliances.

What is GPA doing with Guam ukudu power?

In November 2019 GPA entered into a contract with Guam Ukudu Power, LLC for the construction and operation of a 198 MW Combined Cycle Combustion Turbine Power Plant. This new power plant will allow for the retirement of its oldest plant, Cabras 1&2, and address its emission compliance issues.

GPA looks towards energy storage to address GPA performance to unit outages. GPA intends to address increased penetration of renewables, particularly solar PV systems, using energy storage systems along with new high inertia power generating units.

What is an Energy Storage System (ESS)? A system of devices that enables electricity to be saved so that it can be used at a later time or for another purpose



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In addition, this new power plant will also set the foundation for a more flexible grid that will address grid reliability and stability issues and allow for the increase in inverter based renewable energy and energy storage systems to be integrated into our system.

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started its progression to using Battery Energy Storage Systems (BESS) for fast frequency regulation and rapid reserve. NREL lists fast frequency regulation and rapid reserve as emerging technologies for grid services provided by BESS. GPA is at the forefront of BESS Technology for Grid Services. John wrote a

Solar PV + energy-shifting battery energy storage systems with grid forming capability to provide power after natural disasters such as typhoons especially in southern Guam. Grid Controller - Optimizes all resources to provide the most benefit at the least cost. Improves system stability and system economics. Solar Irradiance Sensor Network ...

The Guam Power Authority is set to begin Phase 1 of its energy storage system project, which will construct and install two utility-scale energy storage units totaling 40 megawatts of...

energy storage system (BESS) has assisted in eliminating most of the short-duration power outages caused by generator and renewable intermittency trips. The system works to smooth out the fluctuating solar output and monitor the frequency, reacting accordingly to stabilize the island-wide grid system.

- o Upgrade to Energy-Efficient A/C Units: Consider replacing older, less efficient A/C units with energy-efficient models. This not only reduces energy consumption but also contributes to long-term cost savings.
- o Seal Leaks around Windows and Doors: Prevent hot air from entering and cool air from escaping

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The Guam Power Authority is set to begin Phase 1 of its energy storage system project, which will construct and install two utility-scale energy storage units totaling 40 megawatts of power. A 24-megawatt unit and a 16-megawatt unit will be installed in the Hagåtña and Talofofu substations, respectively.

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