

SIEMENS

Ingenuity for life

Island Innovation.

Siemens Delivers Fence-to-Fence Energy-Efficient and Resilient Solutions for Overseas Installations.

Military commanders understand the inherent advantages of an “island” energy strategy: reducing reliance on external energy resources to fulfill their critical missions. But when the mission is based on an island – as at Naval Station Guantanamo Bay (NSGB), Cuba – energy independence and resilience are not just desired goals or tactical advantages; they are, in fact, a necessity.



Photo by Colbey L Livingston Navy Public Affairs Support Element East - (Active) 07.28.2018

Island Life

NSGB operates as an islanded base in Cuba with no outside connection to electric or water utilities. All electricity and fresh water is generated using electricity provided by aging diesel engine generators. Stable electricity generation and distribution is critical for base operations, and is the reason why a new natural-gas burning power facility is a cornerstone of the project.

Supply Side

Siemens will draw on its expertise across the entire energy value chain by applying energy conservation measures (ECMs) to both the supply and demand side of the energy equation on the base. The highlight of the supply side will be the construction of the new Corinaso Point Power Plant and liquefied natural gas (LNG) terminal – representing the first use of LNG at an overseas military installation – supported by the Defense Logistics Agency. The nominal 24MW plant will be powered by two Siemens SGT-A05 high-efficiency dual fuel gas-turbine generators, one SST-300 steam-turbine generator and two natural-gas engine generators. The new power plant will reduce overall carbon footprint and lower costs thanks to cleaner and less expensive natural gas as a primary fuel source.

Demand Side

Equally important to the project are upgrades to significant energy consumers that generate demand load, including chiller replacements, HVAC controls, lighting upgrades with new LED technology, refrigeration systems, and water system upgrades. Siemens is teamed with AECOM, a strategic ESCO partner with experience implementing projects at NSGB, who will perform the majority of the work on the demand side ECMs. AECOM will design, install, and maintain the systems, guaranteeing the energy savings related to the improvements.

The NSGB project supports the Navy's three pillars of energy security: resiliency, reliability and efficiency.

Period of Performance:

21.2 years

Contract Value:

\$829M

Siemens Partners:

- AECOM
- Naval Station Guantanamo Bay
- Naval Facilities Engineering Command

Projected Savings:

\$845 million

Impact:

The project will save NSGB 49% in annual energy costs



Project includes the first Liquefied Natural Gas (LNG) terminal installed in a Department of Defense facility.

Renewables & Intelligent Energy Management Systems

Energy generation isn't limited to conventional means alone, and the incorporation of solar photovoltaic (PV) arrays will generate 20 GWh per year, approximately 18% of projected future demand on base. And to fully harness the sun, a battery energy-storage system will be introduced, allowing for the storage of excess renewable energy, and returning free energy to the grid as needed, ultimately adding resiliency, reliability and grid stability.

Tying it all together is an intelligent energy-management approach, enabled by Siemens Spectrum Power 7™ Microgrid management system (MGMS). The MGMS will allow the Navy to manage the NSGB grid in the most efficient means possible, aiding in the determination of the lowest cost of energy generation in near real time.

Key features include a rules-based approach to ensure enough rotating machinery is online at all times with operating reserve should the largest online generator fail, and the ability to accommodate for weather and cloud cover to anticipate declines in PV production and plan ahead for power-generation asset allocation.

Financing

This project is financed through an Energy Savings Performance Contract (ESPC), a private-public partnership available to U.S. government agencies for reducing their energy intensity and/or energy costs by accelerating investment in conservation measures while incurring minimal upfront capital costs. Under this contract, Siemens has arranged for all financing to facilitate the total project implementation costs, and guarantees savings sufficient to cover construction and implementation costs over the full project term. The Navy benefits from upgraded efficient infrastructure and pays for the program through guaranteed energy cost savings.



About Siemens Government Technologies, Inc.

Siemens Government Technologies is the integrator of Siemens' innovative products, technologies and services for programs and requirements led by federal government agencies and departments in the areas of energy generation, transmission, distribution and efficiency, infrastructure modernization, industrial applications and integrated electric power solutions for the air, land and sea domains.

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