



Georgia thermal energy storage

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Combining two commonly found salts could help store clean energy as heat that can ...

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Photo from Google Earth

Location: Albany, Georgia

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In 2015, the Marine Corps Logistics Base (MCLB) in Albany, Georgia, beat back stifling summer heat with an advanced geothermal heat pump (GHP) project. Called a borehole thermal energy storage (BTES) system, the project advances conventional technology by using underground thermal energy storage.

The base designed the BTES system as a U.S. Department of Defense Energy Security Technology Certificate Program (ESTCP) demonstration project to replace the conventional HVAC system for Building 3700, a 168,000 square foot center for U.S. Marine Corps Logistics Command supporting nearly 800 base personnel.

The building's BTES system is a specialized geothermal closed-loop heat exchanger designed to efficiently store "cold" in the subsurface. The subsurface functions as a thermal battery, storing heat or cold underground, which increases the energy efficiency of the system over conventional geothermal heat pump HVAC systems.

The BTES system is adjacent to the building and spans two acres. The area consists of a compact, radial loop well field with 306 wells each 210 feet deep. A bullseye pattern of concentric thermal zones in the well field maximizes storage efficiency.

In the building's mechanical room, five modular heat recovery geothermal heat pumps replaced two centrifugal chillers and two condensing boilers. Once Georgia's cooling season begins, these geothermal heat pumps withdraw the cool previously stored underground to efficiently keep MCLB personnel comfortable during hot Georgia summers.



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