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White Sands Missile Range – U.S. Army

The Army's Largest Renewable Energy Project Achieves Sustainability Objectives while Leaving Capital Funds Intact

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Central New Mexico – A longstanding, preeminent military test facility, the White Sands Missile Range is one of the largest military installations in the U.S., covering approximately 3,200 square miles. It provides Army, Navy, Air Force, NASA, Department of Defense (DoD), and other customers with research, development, and training for weapon and space systems, subsystems, and components. In addition to supporting the Army's core values and emphasizing customer service, the U.S. Army looks to take advantage of renewable and alternative energy resources in an effort to create more energy security for the site, reduce costs in a fiscally-challenging environment, and be environmentally responsible.

In 2012, the U.S. Army Engineering and Support Center awarded the Building Technologies division of Siemens Industry, Inc., and Siemens Government Technologies, Inc., an energy savings performance contract (ESPC) to implement energy-conserving upgrades for the White Sands Missile Range facility. This ESPC puts the Army on track to meet its share of the government-wide goal to award \$2 billion in ESPCs by the end of 2013¹. A primary component of the White Sands Missile Range ESPC is a 4.465MW solar photovoltaic (PV) power generating system.

Objectives

Like most customers today, White Sands recognizes that it lives and works in a fiscally stringent environment, and continuously seeks ways to improve efficiencies. Additionally, White Sands has established six goals to achieve its strategic plan for 2015; one of these goals is to "develop a sustainability mindset." That is, White Sands looks to:

- Reduce energy consumption
- Eliminate water waste
- Reduce the amount of waste generated
- Become good stewards of the environment and the budget
- Promote the Army's Net Zero Installation program

The Net Zero program is the cornerstone of the Army's strategy for sustainability and energy security. Combining reduction, re-purpose, recycling and composting, energy recovery, and disposal, a Net Zero Energy Installation produces as much energy onsite as it uses over the course of a year. This strategy is essential to the Army's current security and future operational missions, and as part of the 25-year ESPC with Siemens, White Sands is looking to create the Army's largest solar array while leaving the facility's capital budget intact.

¹Medici, Andy. "Army on Track to Meet Contracting Goal for Energy Projects." Federal Times. Gannett, 10 Jan. 2013.

Photographs by the U.S. Army. Photo this page photo illustration.

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Siemens Solutions

The ESPC project at White Sands will include a wide variety of energy conservation improvements, but the primary project is the 4.465MW solar photovoltaic power generating system—the largest to date for the U.S. Army. The Building Technologies division of Siemens Industry, Inc., is implementing the solar array, which meets the Net Zero program's objectives and will generate enough energy to support base load demand for the missile range.

The ground mount system uses a single access tracker design, which maximizes power generation by following, or tracking, the path of the sun. When combined with the solar implementation location—in a geographically ideal area of the U.S.—the system produces nearly 10 Million kWh of energy. The result is a more efficient system that provides a higher return on investment for White Sands and the Army.

Siemens has been able to implement the solar array while working within the requirements of a highly secure army base. Coordinating subcontractors, deliveries, and logistics requires specialized clearances, Unexploded Ordnance (UXO) orientations and briefings, and environmental assessments, all of which have been completed in an expedited manner to keep the project on schedule.

Customer Results

Although many of the facility improvement measures for the ESPC are still underway, the solar array at White Sands is producing power today. The renewable energy solution means that White Sands can offset its base load demand—producing enough energy from the solar installation to power the facility—while leaving capital funds intact. In total, the White Sands Missile Range will achieve 10.8% renewable energy in 2013, up significantly from 0.5% and overachieve the federal mandate by more than three percentage points.

The U.S. Army will also receive approximately 10,000 solar renewable energy credits (REC), and the project represents the first DoD facility in which the customer keeps all RECs as a result of producing renewable energy on the White Sands property. In addition to the RECs and supporting the Army's renewable energy and Net Zero objectives, the project qualifies the U.S. Army for a cash grant of more than \$4.8 million and supports President Barack Obama's directive that federal agencies use ESPCs to make more than \$2 billion worth of energy efficiency upgrades by the end of 2013.



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