

Contract Details

Contract Type:

Energy Savings Performance Contract; Guaranteed Energy Savings; Operations and Maintenance

Technology Type:

Boiler plant decentralization; water and sewer conservation; lighting retrofits and controls; steam valve upgrades

Facility:

Over 4 million square feet

Energy Savings:

\$4.4 million annually

Energy Project Size:

\$32.5 million

Summary

In 2002, the U.S. Marine Corps selected Ameresco to develop, design, and construct comprehensive energy conservation measures (ECMs) at Marine Corps Base Quantico outside of Washington, D.C. near Triangle Virginia. Ameresco implemented a second phase of this energy efficiency project in 2007. The foundation of the project included a boiler plant decentralization to allow for the conversion of steam to natural gas powered boilers. Today, Marine Corps Base Quantico operates with increased energy efficiency and benefits from the multiple energy savings improvements installed by Ameresco.



Marine Corps Base Quantico

Customer Benefits

Ameresco was selected by Marine Corps Base Quantico through the Department of Energy's Energy Savings Performance Contract (ESPC) to design and implement multiple ECMs at the base. The ECMs included boiler plant decentralization, water and sewer conservation, lighting retrofits and controls, and steam valve upgrades. Since the implementation of both phases of the ESPC, Ameresco has reduced energy and water consumption at the base.

Ameresco continues to provide operation and maintenance (O&M) services on the base to ensure the performance of the systems installed. Overall, the project revitalized Quantico's existing infrastructure and enhanced the reliability and functionality of the base's buildings and facilities.

Environmental Benefits

Through the Marine Corps Base Quantico's partnership with Ameresco, Quantico is expected to save the equivalent of 40,104 metric tons of CO2 per year. The green benefit from this carbon reduction is roughly equal to:

- ▶ 8,551 acres of pine forest absorbing carbon
- ▶ 7,864 cars taken off the road for one year
- ▶ 5,001 households powered for one year

Accolades

"The decentralization portion of this project was very well coordinated by Ameresco. All buildings were occupied during the conversion from central steam to gas fired boilers. The conversions done during cold weather were scheduled for little, if any, disruption to the occupants. Most occupants never realized that their buildings were being converted to the new systems. The use of directional drilling to install the natural gas system was done with no road closings, no impact on traffic movement, and minimal utility disruption."

*- Jim Naylor, PE
Special Project Manager
MCB Quantico*

Services Provided

In the first phase of Ameresco's ESPC project at Quantico, Ameresco decentralized the aging boiler plant system. This measure consisted of installing independent boilers and other heating equipment in all permanent buildings that were previously served by the main central steam plant. Ameresco installed over seven miles of medium-density polyethylene piping for natural gas, along with conduit for fiber-optic cabling to support the communications network. Horizontal, directional drilling was used to thread piping past existing utilities, underground structures, railroads, streams, and other obstacles. New gas distribution piping and a propane-air system were



About Marine Corps Base Quantico

MCB Quantico builds on its proud tradition of excellence to provide world-class support and quality of life services that are responsive to Marine Corps Base, MCCDC, Training and Education Command and tenant requirements, and the needs of our military members, families, and civilians within a safe and secure environment. MCB Quantico has traditionally played an important role in the Marine Corps and has established a reputation for innovation.

Learn more at www.quantico.marines.mil.

About Ameresco

Ameresco, Inc. (NYSE:AMRC) is one of the leading energy efficiency and renewable energy services providers. Our energy experts deliver long-term customer value, environmental stewardship, and sustainability through energy efficiency services, alternative energy, supply management, and innovative facility renewal all with practical financial solutions. Ameresco and its predecessors have constructed billions in projects throughout North America.

For more information about Ameresco and our full range of energy efficiency and renewable energy solutions, please visit www.ameresco.com.



Medium Pressure Steam Boiler Plant

Services Provided (cont.)

installed to provide backup to the gas distribution system. A propane/air system is used during curtailments. The propane system also enhances energy security as a backup to the natural gas lines outside the fence in the event that they experience a catastrophe failure. This system allows the base to qualify for lower-cost natural gas rates. A central monitoring system was also installed, along with a fiber optic communications network. With completion of the new decentralized heating system the old main central plant was decommissioned. Ameresco will provide O&M for the newly installed equipment for the duration of the contract performance period.

Additionally, Ameresco implemented water and sewer conservation measures which consisted of retrofitting showers and faucets with new, water-conserving devices. Existing high-flow flush-valve toilets were replaced with water-conserving units, high-flow flush-valve urinals were retrofitted with lower flow flush valves, and troublesome tank-type gravity-fed toilets were replaced with water-conserving pressure-assisted tank toilets.

During the second phase of the ESPC, Ameresco retrofitted existing light fixtures with high-efficiency lamps, ballasts, and reflectors. In areas that were significantly overlit, Ameresco provided new highly-efficient lighting equipment while reducing

lighting levels to acceptable levels within industry standards and mission needs. This measure also added occupancy sensors to further enhance energy efficiency.

The retrofits and controls were installed in offices, corridors, restrooms, conference rooms, classrooms, and other administrative and recreational areas. Energy cost savings are generated by reducing light fixture electrical power requirements (through high-efficiency retrofits) and reduced operating hours (through controls and sensors). The new extended-life lamps and ballasts along with reduced operating hours resulting from the controls and sensors will also result in O&M cost savings.

Lastly, Ameresco upgraded steam radiator control valves throughout the base, which minimizes steam use and improves occupant comfort in areas with steam radiators. Ameresco retrofitted existing radiators with self-contained thermostatic control valves. The original, manual globe valves did not properly regulate steam flow and led to overheating and discomfort. The valves were manually adjustable; however, the thermal "inertia" of the cast-iron radiators resulted in a significant lag in response time. As a result, occupants were uncomfortably warm and opened windows to cool spaces down during the winter. Ameresco's improvements reduced overheating through regulator control and eliminated infiltration losses from open windows.



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