

Performance Contracting & MRR

United States Military Academy West Point, NY

Project Cost: \$35 million ESPC and MRR task orders

Annual Cost Savings: \$2.13 million

Facility Description: Military academy comprised of over 100 buildings and more than 400 housing units, with over 6 million square feet of facility space.

Contract Term: ESPC and MRR contracts up to 25 years



The United States Military Academy (USMA) at West Point is saving more than \$2 million a year because of energy improvements implemented in over half of its major buildings. NORESKO, selected from a field of 29 competitors, initially identified over \$8 million worth of potential energy conservation measures. West Point also selected NORESKO to supply its power under the existing contract framework as part of an electricity deregulation pilot program.

“NORESCO is very professional and competent. I find NORESKO employees to be conscientious and would recommend them to anyone looking for a solid company.”

Robert Lewis
Acting Utility Systems Supervisor
USMA- West Point

With a federal mandate to reduce energy costs by 30 percent, the USMA awarded NORESKO a campus-wide Energy Savings Performance Contract (ESPC). Energy conservation measures already completed include comprehensive lighting improvements, replacement of a chiller plant and cooling tower evaporative condenser upgrade, installation of

a heat reclamation system, numerous high efficiency motor replacements and VFD installations, and addition of an electric peak shaving generator. NORESKO also successfully implemented a fast tract project involving the refurbishing of the ice making system and the installation of a new dehumidification system at the Tate Ice Skating Rink. Additional mechanical system improvements are continuing.

By replacing the existing cooling tower, installing a diesel generator used during peak energy usage times, and replacing lighting fixtures in all of the base's major historic buildings, energy-cost savings have reached more than \$1,000,000 annually. Savings due to lighting improvements alone have cut expenditures on lighting by 40% while simultaneously improving quality. Among continuing improvements are constant-volume to variable-volume conversions, chiller plant replacement, heating system improvements and motor replacements.



In 2001, NORESKO began implementation of Phase II of the project that included the design engineering and installation of two new 125,000 lb/hr high efficiency central steam boilers, a new 6-mile natural gas supply pipe line, ancillary boiler equipment, and the demolition of two bulk fuel oil storage tanks.

Central Steam Boilers

As part of the Phase II implementation, NORESCO design-engineered and is installing two new 125,000 lb/hr high-efficiency central steam boilers, a new 6-mile natural gas supply pipe line, ancillary boiler equipment, and demolished two bulk fuel oil storage tanks.

Lighting Improvements

The installation of energy-efficient lighting in 36 buildings at West Point saved an average of 40 percent on lighting costs. NORESCO installed T-8 lamps and electronic ballasts to save energy and increase lighting levels in those facilities. NORESCO successfully completed the 10,000 + fixture dorms/barracks portion of the project of the project in less than 8 weeks to meet the summer break schedule.

Cooling Tower Replacement

NORESCO replaced existing cooling towers at the base library with a new high-efficiency cooling tower that includes a variable frequency drive to modulate the tower's fan motor.

Heat Reclamation

An inoperable waste heat recovery system in the West Point laundry facility was replaced with a new system. This system enables the campus to preheat laundry supply water with heat extracted from laundry wastewater.

Electric Peak-Shaving Generator

NORESCO installed a diesel generator in the central plant. This generator will provide emergency power for the main power plant and the headquarters building during a loss of electric utility service. It also is used to reduce utility demand charges by operating during peak demand periods.

Energy Saving Variable-Flow Systems

NORESCO installed many variable flow systems at West Point, including both air- and water-side systems. The air-side retrofits included new thermostats and controls for improved comfort and savings. Additionally, NORESCO completed a variable flow fine bubble aeration system for the waste-water treatment plant.

Fuel Switching Opportunities

NORESCO replaced several single-stage absorption chillers with more cost effective centrifugal and screw chillers. The single-stage, steam-driven equipment was operating at 18lbs/steam per ton of cooling. The resultant fossil fuel cost to produce the steam for the old absorbers was far greater than new electric driven chillers operating at 0.6KW per ton of cooling.

“By implementing energy-efficient measure NORESCO has been able to reduce energy costs for the U.S. Military Academy at West Point, enabling them to meet their federal mandate.”

David Mannherz
Executive Vice President NORESCO

NORESCO is the nation's most experienced energy service company providing comprehensive and proven energy-efficiency solutions and infrastructure development and operations strategies to a wide range of customers. A recognized industry leader installing and operating over \$1.4 billion of proven energy solutions in diverse markets across the nation, NORESCO has built on-site energy infrastructure generating more than 300 megawatts of power, and has helped customer improve energy efficiency saving over 31 billion-kilowatt hours of electricity and 71 trillion Btus of fuel.

