



Winner of the Secretary of the Army
Energy & Water Management Award
2nd Place Winner of the AMC Energy Award
in Energy Efficiency/Energy Management



Arsenal-Wide Heating Decentralization Project & Ongoing Maintenance Program

Picatinny Arsenal, New Jersey

Situation: Decentralization Project

Established in 1880, Picatinny Arsenal is one of the oldest military installations in the U.S. Situated on a 6,500-acre research and development campus in the northwest corner of northwestern New Jersey, Picatinny contains two lakes, operates 2.7 million square feet of indoor floor space, and supports approximately 3,000 federal and 1,000 contractor personnel. The air at Picatinny Arsenal is often punctuated with bursts of submachine gun fire, booms of large caliber guns, and the hum of M1A1 tank turbine engines.

Picatinny's Garrison, Utilities Directorate had provided heat to the Arsenal's buildings by generating high-pressure steam at a central heating plant (CHP) that was built more than 60 years ago. The steam was distributed through approximately 30 miles of above- and below-ground steam piping. Picatinny's boilers and steam distribution system had

seriously deteriorated over the years, leaving a highly inefficient system that required several hundred thousand dollars per year in funding just to maintain some degree of structural and thermal integrity.



Contract Value

\$32,300,000

Total Energy/Operational Savings

\$107,748,821

Equipment Installed/Services Provided

- 120 boilers and auxiliaries providing 150 MMBtu of heat and serving 265 buildings
- Renovation of over 6,000 feet of steam distribution lines
- Base-wide energy management and control system serving 121 buildings
- Redesign and replacement of building interior heat distribution systems
- Coordination of all air emissions permitting
- Electric back-up generation to the boiler plants to ensure that steam is available for heating during electrical outages
- Ongoing operations, maintenance, and repair/replacement of installed units

Solution

Chevron Energy Solutions reconfigured the Arsenal's central heating system by installing new steam boilers, hot water boilers, furnaces, or unit heaters to serve the facility's 250+ existing buildings. An industrial-grade monitoring and control system was installed to support future operation and maintenance requirements. The 18-month construction schedule required detailed coordination between several subcontractors, the local gas utility that installed a natural gas distribution system, numerous Arsenal employees and decision makers, and a sizable number of Chevron ES employees.

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Arsenal-Wide Heating Decentralization & Ongoing Maintenance Program (continued)

Chevron ES will operate and maintain the system for 18 years under the operations portion of the contract allowing the Arsenal to significantly downsize their work force and focus greater resources on its core missions. Over the contract term, the project will reduce Picatinny's long-term operating costs by over \$100 million and reduce harmful carbon, sulfur, and nitrogen dioxide emissions by an estimated 1 million tons. The project is paid for from operational cost savings at no expense to the government or taxpayers.

Benefits

Meticulous coordination, planning, and construction resulted in a decentralization project that provides Picatinny Arsenal new alternatives in developing long-term plans for facility use. The new natural gas distribution system and delivery of gas directly to most facilities allows the Arsenal flexible heating solutions when determining facility use, future expansion, and improvement of current facility conditions. It also provides for major infrastructure improvements and progress towards standardization and modernization of systems and equipment. Additionally, Picatinny is able to mitigate risks associated with a centralized plant, including catastrophic plant or steam distribution system failure and lack of system redundancy.

Ongoing Maintenance Program

Under a separate, multi-year contract, Chevron ES is providing preventative maintenance services in approximately 100 buildings, Arsenal-wide repair response for needed work in 300+ facilities, and value engineering services related to mechanical system replacements. Chevron ES's excellent customer service and technical expertise in performance of a previous two-year maintenance commitment to the Arsenal resulted in a renewed contract award for these services. Daily operations consist of the following:

- Development and execution of preventative maintenance programs and activities
- Service Desk response to all trouble calls
- Database tracking and reporting of all service and preventative maintenance activities via a web-based CMMS program
- Monitoring of building automation systems for building comfort and indoor air quality

