



Army Energy Conference

January 2007

US Army Soldier Systems Center
Natick, MA

Natick Soldier Systems Center Energy Consumption

- ▶ 55 buildings, 815,000 Square Feet
- ▶ Electricity usage: 15 MWH, \$1.6 million
- ▶ Natural Gas Consumption: 530,000 Therms, \$500,000
- ▶ #6 Fuel Oil: 276,000 Gals, \$180,000
- ▶ Annual Boiler Plant Repair Costs: \$125,000



NATICK ESPC OVERVIEW

Fully Addresses Most Serious Infrastructure Problems

- ▶ Replace an old, inefficient central boiler plant with a more efficient decentralized system
- ▶ Eliminate highly inefficient steam distribution system
- ▶ Substantially reduce future maintenance and repair/replacement costs associated with central boiler plant and distribution systems.
- ▶ Install new high-efficiency lighting
- ▶ Upgrade and expand Energy Management System



Energy Conservation Measures

- ▶ ECM-1: Lighting Improvements
- ▶ ECM-2: Energy Management System Improvements
- ▶ ECM-3: Boiler Plant Decentralization
- ▶ ECM-4: Steam Trap Maintenance



Lighting Improvements

- ▶ Ameresco will install state-of-the-art high-efficiency lighting improvements in 35 SSC Natick buildings
- ▶ Retrofit of existing fixtures with high efficiency lamps and ballasts
- ▶ Complete fixture replacements
- ▶ Installation of lighting occupancy sensors and controls in selected
- ▶ Upgrades will be applied to over half of the 12,000 light fixtures identified at SSC Natick



Energy Management System Improvements

- ▶ Expand existing controls network to provide monitoring, setback programming, and scheduling control of selected HVAC equipment currently not on the network
- ▶ Re-commission the monitoring, setback programming, and scheduling control of HVAC equipment currently on the controls network.
- ▶ Objective to reduce HVAC equipment run-time hours to match occupancy.
- ▶ Upgrade of existing controls network will improve the efficiency and reliability of the SSC Natick HVAC systems and allow facility personnel greater control over building operation and occupant comfort.



Boiler Plant Decentralization

- ▶ Abandon the central boiler plant and install decentralized gas fired heating and process steam cooling to replace the central steam system.
- ▶ Installation of new gas-fired equipment to serve ten (10) buildings that remain on the central system.
- ▶ Installation of decentralized gas-fired equipment would include the following benefits:
 - » Substantial reduction in fuel consumption
 - » Elimination of No. 6 fuel oil
 - » Eliminating the substantial maintenance burden associated with the steam distribution system
- ▶ Replacing the old, inefficient and maintenance-intensive absorption chillers serving buildings 3 and 4



Steam Trap Maintenance

- ▶ Implementation of a regular steam trap inspection and maintenance program.
- ▶ Failed traps will be repaired or replaced as necessary Annually inspect a portion of the steam traps, repairing or replacing any failed traps.



Some Boiler Plant Decentralization Being Done In-House

- ▶ SSC Natick received \$3 million in end-of-Fiscal Year funds and has applied to implementing some of the boiler plant decentralization work.
- ▶ Ameresco Select adapting ESPC proposal to redefine scope and design as appropriate
- ▶ Program economics improve substantially
- ▶ Maintain momentum by implementing work in two Phases

