

Total-Solutions Approach at White Sands Missile Range

Area-wide contracts used to implement energy efficiency, renewable energy, and water conservation projects

Overview

The resource management program at the White Sands Missile Range (WSMR) is the first large-scale military project to take advantage of the far-reaching, comprehensive benefits of an area-wide contract formed between Public Service Company of New Mexico (PSCNM) and the General Services Administration (GSA) in 1995. Developed through efforts by the U.S. Department of Energy's Federal Energy Management Program (FEMP), the National Renewable Energy Laboratory (NREL), GSA, and PSCNM, this area-wide contract, known as the New Mexico Initiative, is the first to provide Federal agencies with an option to use their utility as the prime contractor for energy efficiency, renewable energy, and water conservation programs.

Under the initiative, WSMR and PSCNM signed a contract in July 1996 for as much as \$18 million to implement a comprehensive, post-wide efficiency plan. The goal of the efficiency plan is to reduce WSMR's \$10.1 million utility budget by as much as \$2.76 million annually by implementing a total-solutions approach to resource management.

Background

The White Sands Missile Range, located in New Mexico, approximately 40 miles north of El Paso, Texas, began as a missile proving grounds in the mid-1940s. Today, WSMR occupies a 2-million-acre area about the size of Delaware and Rhode Island combined that houses state-of-the-art research and test facilities for the U.S. Army, U.S. Air Force, U.S. Navy, and the National Aeronautics and Space Administration. Its 900 housing units, 1000 technical buildings, and more than 7000 employees are supported by an infrastructure equivalent to one that supports a town of 10,000.

To reduce its operational expenses and better manage its resources, WSMR allowed PSCNM to conduct a free on-site energy audit. The audit identified more than 60 energy and water conservation measures that might be used to implement a "total-solutions" approach to resource management.

PSCNM's total-solutions approach examines the integration of all water and energy systems. It examines equipment efficiency and user patterns for

ways to improve the efficiency of water and energy use and recognizes that efficiency improvements in one area can lead to improvements in other areas.

Project summary

A feasibility study of the efficiency measures identified by the audit narrowed the focus of PSCNM's resource management plan to 14 primary projects. Eight of those will be implemented in the near future and will save WSMR more than \$1 million annually. They include:

- Installing a compressed natural gas vehicle fueling station
- Installing a central steam plant to replace broken equipment
- Converting electric boilers to natural gas
- Repairing a photovoltaics system
- Replacing incandescent and low-efficiency fluorescent lights
- Installing energy management control systems
- Improving the efficiency of boilers
- Installing a generating system to supplement the electricity purchased during peak hours
- Installing a supervisory control and data acquisition system to monitor electricity consumption.

The compressed natural gas station was completed less than 1 year after WSMR signed an agreement with PSCNM, demonstrating one



This compressed natural gas station at White Sands Missile Range is one of 14 energy-saving projects under an area-wide contract developed by FEMP in New Mexico that will save the base more than \$2 million per year.



Utility Services Case Study

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of the many benefits of utility contracting—reduced procurement time.

Benefits of using a utility financing program

In addition to reducing the procurement time, utility contracts such as the one between WSMR and PSCNM offer many benefits to Federal agencies. For example, if an agency lacks the appropriations to finance projects, the utility can provide a custom financing package available at a competitive interest rate, because most utilities have long-standing relationships with the financial community. The contracts also reduce the resources required to put the projects together, and they allow agencies the flexibility to choose options such as guaranteed savings and measurement and verification.

Lessons learned

Participant education

Inadequate understanding of the program’s requirements and constraints caused some difficulties in getting contracts started. NREL and FEMP helped clarify the legislative language and contracting process and facilitated face-to-face meetings of the customer, utility, and subcontractors in which a detailed program plan was established.

Communication and strong program management

A lack of communication among participants and inadequate program management initially hampered project implementation. To compensate, monthly telecommunications and quarterly meetings were started to strengthen communication, keep all participants informed of the project’s progress, and reinforce their understanding of the program. Stronger management on the utility’s part also helped to ensure project progress and adequate customer interaction and response.

Quality assurance

Another issue, related to the size and complexity of the WSMR project, was how to ensure that the government would receive the type and quality of equipment expected. Careful review of PSCNM’s initial proposal and subsequent feasibility study proved essential to ensuring that the customer received the type and quality of equipment and service expected.

Looking ahead

The six resource management measures planned for future implementation will save WSMR another \$1 million per year on its utility bill. The measures include the replacement of inefficient lights in commercial buildings and the replacement of ineffi-

The plant at WSMR, which converts natural gas to compressed natural gas for use in converted fossil fuel vehicles, was completed in less than one year after WSMR signed an agreement with the Public Service Company of New Mexico, demonstrating how utility contracting reduces procurement time.



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cient motors and an inefficient, outdated computer. White Sands personnel are also considering water conservation measures.

All 14 projects targeted by PSCNM’s feasibility study will be financed by PSCNM and implemented in four stages throughout 2-1/2 years. The cost will be as much as \$15.1 million, with nearly \$3 million in additional funds for operations and maintenance during the term of the contract. PSCNM’s initial capital investment will be repaid in less than 10 years through a share of the savings to be made from the existing utility budget.

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