

Fort Knox Strikes Energy-Savings Gold in Partnership with Utility

Rural electric cooperatives can offer unique advantages to the federal sector:

Overview

The U.S. Army's Fort Knox in Kentucky, "The Home of Armor," and guardian of one of the nation's gold reserves, faced a big challenge: along with the other half million or so federal facilities nationwide, the Army installation needed to cut energy use but did not have funding to make energy-conserving upgrades.

Under federally mandated energy-reduction goals, all federal facilities must reduce energy use 35% by 2010. Gary Meredith, Energy/Project Manager at Fort Knox, struck gold in a partnership with Nolin Rural Electric Cooperative. Meredith and Nolin Vice President Vince Heuser sat down to talk about energy conservation at Fort Knox and came away with a plan that allowed Fort Knox to meet energy-reduction goals through investments financed by the electric cooperative.

The purpose of the contract is to save energy—to directly or indirectly reduce the peak demand and total consumption of electric power, natural gas, and water. Annual savings are more than \$2.8 million due to reducing usage by 13.8 million kWh of electricity and 280,000 million cubic feet of natural gas.

Background

About 35 miles south of Louisville, Kentucky, Fort Knox, population 26,900, is virtually a small city served by multiple utilities and businesses. The base has 5 substations; its peak load is 40 MW; and its on-post population is 24,000. Situated on 109,000 acres, Fort Knox has more than 3000 buildings including its famous gold vault, the Ireland Army hospital, and a 3100-student school system.

Project Summary

Nolin's dedication to customer service and relations facilitated Fort Knox's energy program. Many companies wouldn't be interested in reducing customer usage of their product. Heuser says Nolin is "committed to helping our members in whatever way we can. As a member-owned cooperative, our primary focus is not increasing revenue, but helping our members conserve energy." And this is exactly what the utility did for Fort Knox.

Nolin and Fort Knox entered into a utility energy savings contract (UESC) in 1996 that now totals nearly \$18 million in project investment and spans numerous delivery orders. This long-term partnership is typical of utilities and federal agencies

interested in achieving real energy savings.

Says Meredith: "I like working with the cooperative because of their no-nonsense approach to getting the job done to our specifications with the minimum amount of paperwork. Keeping it simple has kept costs down and is a key to success. The efforts of the entire utility and especially Mr. Vince Heuser have reflected a can-do attitude and have always been positive."



Fort Knox's Army Ireland Hospital represented a major conservation project involving a \$4.8 million boiler-chiller replacement.

Together, the co-op and base identify viable projects and formalize them in simple delivery orders. These have included geothermal heat pump installation, boiler-chiller replacements, lighting retrofits, window replacements, and high-efficiency motor retrofits. After each project is approved and implemented, Fort Knox repays the loan over a 10-year period as part of its electricity bill. Fort Knox's project costs are offset by the energy savings generated by the retrofits. HQ TRADOC, Fort Knox's major command, reimburses the installation for payments made to the utility company for these projects as an incentive to aggressively pursue energy conservation measures and meet assigned goals.

One of the more ambitious energy conservation projects Nolin undertook, in partnership with the Trane Company, is a \$4.8 million boiler-chiller replacement at Fort Knox's Ireland Army Hospital. Annual energy cost savings from this delivery order



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are \$1,004,011; annual energy savings are 131,756 MMBtu. Project payback is less than 5 years.

Another high-profile project was the installation of Fort Knox's Supervisory Control and Data Acquisition (SCADA) system, which gives up-to-the-second information on load, voltage, and current, as well as status of capacitor banks, circuit breakers, and voltage regulators. SCADA allows Fort Knox to achieve faster service restoration, greater reliability, and better quality service for the base.

According to Heuser, "Nolin recognizes that Fort Knox is a vital part of our community; therefore we want to do everything we can to help the base continue to grow and efficiently serve the needs of our military in the future."

Nolin helps Fort Knox meet energy-reduction goals by keeping its energy use down and improving the living and working conditions of its soldiers and civilians on base.

Benefits of Contracting with Rural Electric Cooperatives

Utility contracting with rural electric cooperatives offers many benefits to Federal agencies, including access to a wealth of expertise. UESCs can reduce procurement time and reduce the resources required to put the projects together. UESCs also offer the flexibility to allow agencies to choose options such as guaranteed savings and measurement and verification.

Rural electric cooperatives can offer federal agencies energy-efficiency and renewable-energy projects with a key advantage—low-interest financing from their own "bank"—the National Rural Utilities Cooperative Finance Corporation (CFC). CFC is a \$20 billion finance organization that was created in 1969 to serve its approximately 1000 rural electric cooperative member-owners.

The variable interest rate Nolin charges Fort Knox has been under 4% and has risen above 7% only once in the past 5 years. Interest payments can form a significant portion of any financed project, so the low rates available through a UESC with rural electric cooperatives can be a great deal for government customers. Electric cooperatives have expressed strong interest in serving their federal customers. The National Rural Electric Cooperative Association (NRECA) and CFC recently hosted a FEMP workshop to train other cooperatives in developing UESC business; Meredith and Heuser were featured speakers.



Geothermal heating and cooling was installed in some buildings to save energy at the base.

Lessons Learned

Both utility and base personnel are learning valuable lessons through their experience at Fort Knox and are applying them to ongoing projects. They recommend the following actions to ensure successful projects:

- Educate occupants about projects.
- Choose reliable contractors.
- Start with small projects—work up to larger ones.
- Minimize disruption for building occupants.
- Choose projects that contribute the quality of life for building occupants.
- Promote the goodwill and benefits of the projects through Co-op newsletters and news media.

Looking Ahead

Fort Knox has received a lot of recognition for its energy-efficiency efforts under this project, including the Army Energy Conservation Award for 1997. The base's energy-savings achievements are held up as a model for other Army installations. Fort Knox continues to realize energy savings through this important partnership.

For More Information

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