

Increasing Adoption of Energy Performance Contracts

Performance contracting has seen an increase across the services as a cost-effective way to implement needed energy and resilience upgrades; however, additional flexibility in leveraging these vehicles is needed to best take advantage of their potential capabilities.

By Jennifer Schafer

As mission priorities change and evolve, the Department of Defense (DOD) also faces pressing infrastructure challenges: aging buildings, facility maintenance backlogs in the billions of dollars, and a need to address mission-critical resilience and cybersecurity requirements.

These interrelated issues are being addressed holistically through Installation Energy and Resiliency Plans (IERPs) that each service is developing. But as energy becomes a larger share of each service's budget, it is increasingly more difficult to forecast and plan for fluctuations in costs.



With a chronic shortage of funding, DOD may not be able to implement the projects identified in the IERPs. For example, the services are tasked with executing energy and resiliency goals with limited Energy Resilience and Conservation Investment Program funding and significantly underfunded Sustainment, Restoration, and Modernization accounts. Performance contracts can play a pivotal role in addressing these needs. But without strong advocacy for them from within DOD, Energy Savings Performance Contracts (ESPCs) and Utility Energy Savings Contracts (UESCs) will continue to be under-utilized.

FACILITATING NEEDED UPGRADES

Since the mid-1990s, DOD has led the federal government in the execution of ESPCs and UESCs. These acquisition vehicles have facilitated upgrades of energy-related systems across installations using private sector financing and expertise. Until recently, these contracts primarily addressed building energy efficiency, helping facilities stay on mission while also addressing quality of life, maintenance backlogs, and energy security.

Importantly, ESPCs provide guaranteed savings and reduce risk to military installations. And they are effective. A 2020 review of the annual measurement and verification reports required on all ESPCs revealed that actual achieved savings were 110 percent of guaranteed energy savings. The additional “above guarantee” savings accrue directly to DOD in the form of lower energy bills.

Early ESPCs included energy conservation measures that focused on improved lighting, HVAC equipment, controls, and other energy systems. These projects created energy improvements for DOD facilities and large utility bill savings. Energy Service Companies (ESCOs) helped reach the energy and water reduction targets and enabled facilities to become more energy efficient while also addressing critical infrastructure needs. These projects have been very successful in providing benefits to the services while requiring no incremental funding.

- In 2009 and 2015, Constellation entered into two separate ESPCs with the U.S. Navy at Naval Station Great Lakes, Ill., totaling \$62.7 million in capital investment. The base is the Navy’s only recruit training command and is comprised of 280 buildings. The ESPC projects included lighting, HVAC, building automation controls, renewable energy, and other energy conservation measures totaling over \$127 million in guaranteed energy

savings. To date, the projects have outperformed the energy savings guarantee by more than \$3.8 million.

- An ESPC awarded in 2008 at Naval Air Station Dam Neck Annex, Va., with a \$32 million investment by ESCO partner Trane, garnered a Presidential Award for Leadership in Federal Energy Management. The project has achieved \$36.3 million in verified energy savings over a 12-year period and has met, or exceeded, the annual guarantees for every performance year. Investments included geothermal heat pumps; a comprehensive energy management control and monitoring system; 2,192-T of installed HVAC; and energy efficient lighting and water conservation fixtures. The project utilized an innovative heat exchange process with the neighboring Sanitary District, using earth-temperature gray water as a heat exchange medium.
- The U.S. Army Garrison Fort Riley, Kan., was awarded the Army Energy Efficiency 2020 Project of the Year Award for its ESPC, completed by Southland Energy, which incorporated energy conservation measures from 11 technology categories in over 445 facilities on the installation. It is the first Army ESPC to incorporate the DOD Risk Management Framework to achieve an Authority to Operate for the base’s energy management control system. The \$62.5 million in infrastructure improvements is providing annual energy savings of \$4.3 million, 8 percent greater than the guaranteed savings.

These are just a few of many examples where installations have acquired much-needed infrastructure improvements and fulfilled other installation and agency needs through use of private sector innovation, expertise, and financing.


Today, ESPCs incorporate critical infrastructure improvements that include microgrids, cybersecurity upgrades, on-site generation, and back-up power. Considering that the ESCO is paid back over time through measured, verified, and guaranteed savings, DOD faces minimal risk for a tremendous benefit.

CHANGING ENVIRONMENT

DOD and the services are facing a changing threat environment. Because installations are largely dependent on the national electrical grid, physical threats, cyber concerns, and severe weather events can jeopardize power supplies and potentially affect critical military missions. Accordingly, over the past several years, DOD has charged ESCOs to go beyond traditional energy efficiency upgrades and incorporate resiliency, cybersecurity, and process energy improvements into ESPCs and UESCs.

As mission goals have changed to include readiness and resiliency, ESPCs have adapted alongside, embedding large-scale resiliency, security, and process energy improvements into projects.

- In FY2019, the Navy awarded the largest ESPC in U.S. government history. Siemens teamed with AECOM to bring state-of-the-art resiliency, innovation, energy security, and energy



Naval Station Great Lakes, Ill., carried out two ESPCs in 2009 and 2015 that have seen an outperformance of the energy savings guarantee to date by more than \$3.8 million. U.S. NAVY
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