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ESPCs help installations meet mandated energy, water reduction goals.

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Garrison commanders and directors of public works are challenged with finding the means and resources to meet mandated 30 percent energy and 15 percent water reduction goals by 2015. Existing appropriated funding sources are often inadequate to accomplish the immense task of replacing existing infrastructure with more energy efficient infrastructure such as hot water or steam distribution systems; chillers; boilers; heating, ventilation and air conditioning (HVAC) systems and controls; building envelopes; lighting; and renewable energy production (photo voltaic, solar, wind, etc.).

The Energy Conservation Investment Program (ECIP) and Military Construction (MILCON) are appropriated funding sources for energy infrastructure. It is worth the try to submit a DD1391 for a MILCON energy project, especially one that is \$10 million or more. ECIP normally funds energy projects in the range of \$2 million to \$5 million each. Regardless, the funding investment required to continue reducing energy consumption by 3 percent per year (more if the installation hasn't done so every year since 2003) is usually too great for an installation to count upon appropriated funding sources to satisfy this requirement.

For those unfamiliar, Energy Savings and Performance Contracts (ESPC) is a partnership between the Army and an energy service company (ESCO). In consultation with the garrison, the ESCO provides capital and expertise to make comprehensive infrastructure energy improvements or implements new renewable capability where economics permit, on facilities to reduce Army energy consumption and costs and maintains them in exchange for a portion of the generated savings. With an ESPC task order: (a) energy savings guarantees are mandatory, (b) savings must exceed ESPC payments each year, (c) measurement and verification (M&V) is mandatory and (d) contract term cannot exceed 25 years, i.e., that the Army must pay off the capital investment including operation and maintenance performed by the ESCO within that time frame. Garrisons use their Operations and Maintenance, Army J Account to make the payments.

An alternative is Utility Energy Savings Contract (UESC). These contracts also provide private sector financing for ECMs at Department of Defense garrisons. A utility company provides capital and expertise to make infrastructure energy improvements on government facilities to reduce Army energy utilization in exchange for a portion of the generated energy savings. The primary difference between ESPC and UESC is the former requires M&V of the actual energy savings and operations and maintenance whereas the latter does not. The capital investment is amortized under UESC through the utility billings payable from the installations OMA J Account to the utility company.

Paying interest is the downside to using private sector financing. Interest rates are typically 7 to 9 percent for ESPC. These rates reflect the ESCO's assumed risk that the resultant energy savings will meet or exceed the minimum

guarantees in order to receive payment from the Army. Rates also reflect current market conditions for long-term commercial/industrial investments. UESCs have lower rates but the Army does not have the maintenance and M&V assurance under UESC to ensure optimal equipment operation and to prevent overpayment to the UESC based upon actual yearly energy savings. Installations don't see much if any reductions to their J account expenditures until after the ESPC or UESC project is paid off because most, if not all, the energy savings achieved by the ESPC or UESC are paid toward amortizing the capital investment of the improvements. The latter is a frequently perceived disadvantage. If you think about it, what's the difference between paying 100 percent of the J account to the utility company versus 80 percent to the utility company (from reduced energy consumption) and 20 percent to the ESCO or UESC for the facility improvements that produced energy savings? It still totals 100 percent -- and that is the worst case. ESPCs and UESCs can be structured where the Army receives a small portion of the savings, typically 5 percent. (Army policy calls for paying off the ESPC/UESC as early as possible in order to realize 100 percent of the energy savings as soon as possible.)

The benefits of ESPC and UESC, besides not having to pay upfront for the capital investment, include: obtain needed infrastructure improvements when existing operating funds or other funding sources are not available in the required timeline, obtain operation and maintenance of new complex equipment when the Directorate of Public Works does not have an experienced work force, allow leveraging of additional projects by utilizing existing funding to shorten term or generate more savings, avoid the cost from the inevitable utility rate increases levied upon higher utility consumption if the ESPC or UESC were not implemented, and last but not least, all equipment installed under ESPC is maintained by the contractor and replaced if it fails before the end of the contract. This helps take pressure off the annual base operations and sustainment, restoration and modernization budgets.

The best use for ESPC or UESC is obviously those projects that are high dollar, high energy savings (quick payback) and high maintenance. The reality is ESPC and UESC are typically comprised of a combination of short- and long-term pay back projects based upon what the installation needs, what the state-of-the-art technology can deliver and the financial market conditions at the time of contract negotiations. Recent Army Audit Agency draft findings on the ESPC Program were that Army needs to utilize this vehicle more. It noted that 64 percent of IMCOM installations are not meeting energy goals whereas 99 percent of IMCOM and Army Materiel Command garrisons that have ongoing ESPC projects are meeting energy goals. Those same garrisons also are aggressively using other funding sources for energy use reduction. The U.S. Army Engineering and Support Center, Huntsville, has a nationwide ESPC Indefinite Delivery Indefinite Quantity Multiple Award Task Order Contract with 15 ESCOs with a capacity of \$900 million. IMCOM garrisons obtain Huntsville Center services without cost because Headquarters, IMCOM provides funding to Huntsville Center to administer this contract and provide program and project management. Huntsville also can award and administer UESC contracts for garrisons.

Huntsville Center has awarded ESPC projects that have a capital investment of \$397 million with energy savings of approximately \$801 million. These projects provide a wide variety of infrastructure improvements to include more efficient boilers, chillers, controls, lighting, air handlers, generators, and like equipment to reduce the energy demand on the garrisons. The ESPC projects in the pipeline will have an initial investment of \$180 million and an estimated savings of \$324 million over approximately 20 years.

The Army is taking advantage of the private sector to provide capital and expertise just like it did to replace and maintain outdated family housing and utility systems.

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Acronym List

ECIP	Energy Conservation Investment Program
ECM	Energy Conservation Measures
ESCO	Energy Savings Contractor
ESPC	Energy Savings and Performance Contracts
HVAC	Heating, Ventilation and Air Conditioning
IMCOM	Installation Management Command
MILCON	Military Construction
UESC	Utility Energy Savings Contract

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