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## **Maximizing efficiency project benefits by leveraging SRM funding through an energy savings performance contract at West Point**

By Col. Nello Tortora, PMP, John Saams, P.E., and Paul Simihtis P.E.

Executing planned Sustainment, Restoration and Modernization projects within an Energy Savings Performance Contract allows for an increase in the size and scope of energy efficiency, water conservation and renewable projects, leading to accelerated progress toward sustainability goals. The United States Army Garrison West Point was able to double the impact of available SRM funding through strategic use of their ESPC program. In addition, the SRM-funded work was provided with a performance guarantee, which is not available with traditional SRM contracting mechanisms. These benefits were critical to West Point meeting its Net Zero Energy objectives.

### **Project highlights**

West Point is faced with a wide range of challenges similar to many Army garrisons from aging and constrained infrastructure, to expanding mission and facilities due to Base Realignment and Closure, and aggressive energy reduction goals, combined with limited staff and funding to accomplish projects. The garrison's unique mission requires special project considerations and close coordination of all work activities. In addition, West Point was chosen as an Army Net Zero Energy pilot with the goal of effectively producing only as much energy as it consumes by 2020 without receiving additional funding or staffing.

These challenges required that West Point maximize the impact of every available project dollar. Previous experience implementing more than 10 ESPC task orders in the late 1990s and early 2000s provided an obvious path for West Point to make progress against its energy goals and many of its infrastructure challenges. A new ESPC task order was pursued with the support of the Army Corps of Engineers, Engineering and Support Center, Huntsville. The first task order under this contract was a \$26.6 million project consisting of six energy conservation measures including lighting upgrades, installing a new energy management control system in 43 buildings across the garrison, mechanical upgrades, kitchen hood improvements, steam system repairs and upgrades as well as a photovoltaic system to be that showcases renewable energy. The initial investment will be paid from guaranteed savings over an 18-year contract term. The task order also included \$1.2 million in SRM funds to support the replacement of aging equipment that could not be paid from savings. The combination of these funding streams was allowed through the Energy Independence and Security Act of 2007.

An additional \$1.8 million in SRM funds were identified by West Point subsequent to the task order award that could be applied to the ESPC project to further maximize the energy savings impact. Through the close partnership that was formed between West Point, Huntsville Center and the ESPC Contractor, NORESKO, the impact of additional SRM-funded work was evaluated and tracked, resulting in the ability to capture deeper energy savings opportunities that could be implemented as part of the project.

By combining the \$1.8 million in SRM funds together with more than \$400,000 in additional annual energy savings generated by the SRM proposed improvements, the overall scope and size of the ESPC project increased by an additional \$3.4 million. The additional scope included expanding the Energy Management Control System to 10 more buildings, providing a roof replacement, increasing the size of the PV system from 50 to 200 kW and implementing other activities to support the ESPC project (e.g., installation of a natural gas line for a boiler conversion). By applying this strategy, West Point was able to accomplish much more within the same budget, expanding the project from \$26.6 million to almost \$30 million without altering the overall contract term.

The success of the project is illustrated in Figure 1. By maximizing available resources, West Point will meet its 2015 energy goal two years early. Furthermore, the synergy of using the SRM funds within the ESPC is demonstrated by the energy consumption savings. The SRM project, if executed outside of the ESPC, generates 1,629 MBTU/year savings. The original ESPC project, without leveraging the additional SRM funds, generates 179,461 MBTU/year savings. The combined funded project generates 194,798 MBTU/year of savings. This represents an increase of 13,708 MBTU/year over executing the ESPC and SRM projects separately.

## **Benefits of leveraging SRM funding within ESPC**

### **Benefit 1: Accomplish projects with inadequate SRM funding**

In the case where a planned SRM project is not sufficiently funded, the energy savings from such combined projects may be able to finance the remaining cost of that project and allow it to move forward under an ESPC.

### **Benefit 2: Expand project scope to accelerate progress toward energy goals**

If savings are not needed to support the SRM project, then the amount financed through the ESPC can be increased and the scope of the project expanded. In cases where the expanded scope also generates additional savings, this allows for even further expansion of scope without changes to the financial structure of the project. In the case of West Point, this approach effectively doubled the value of the SRM funding applied to the ESPC project. This leverage effect is effected by a number of economic factors of the ESPC project and the specific work identified including simple payback of SRM funded and expanded scope work, interest rate, financing term as well as other project variables.

### **Benefit 3: Streamline contracting and oversight responsibilities**

Combining related energy projects allows a site to standardize designs and equipment which will also simplify training of operations and maintenance staff and reduce inventory requirements. Unlike the implementation of standard SRM projects, these benefits are also supported by a long-term performance guarantee.

## **How it works**

The basis of this strategy is to take advantage of the savings generated by SRM-funded work. When executed outside of an ESPC, the utility savings generated by an SRM project is immediately realized by the garrison, but usually results in a corresponding reduction in “J” account funding. The advantage of combining the SRM work within an ESPC is that those savings can be turned into additional project funds.

The additional funds can then be used by the garrison to address the most pressing challenges and obstacles. This strategy of combining SRM and ESPC projects will move a garrison more quickly toward its energy reduction goals and ultimately toward achieving Net Zero energy status.

West Point effectively doubled the SRM funds applied to their ESPC project through monetizing the savings generated by the SRM-funded work. While the amount of leveraging is related to numerous factors including the payback of the funded and expanded scope as well as financing terms, it is also flexible in how it is used by the garrison. In some cases, the garrison may choose to use the savings to expand program or technical support that do not directly generate savings but may address other resource issues that are hampering energy program progress. The key is for the garrison to determine where best to use its savings and to maximize the benefit of those savings through the use of ESPC.

For a more detailed analysis of the financial and energy efficiency benefits of combining SRM funds with ESPC, see the report “Mixing Appropriations and Private Financing to Meet Federal Energy Management Goals” by Mr. John Shonder of Oak Ridge National Laboratory at the following link:

[http://www.ornl.gov/sci/ees/etsd/btrc/publications/ORNL%20TM%202012\\_235.pdf](http://www.ornl.gov/sci/ees/etsd/btrc/publications/ORNL%20TM%202012_235.pdf)

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