

Environmental Security Technology Certification Program (ESTCP)

BUILDING LEVEL ENERGY STORAGE SYSTEMS

OBJECTIVE

The Department of Defense (DoD) Installation Energy Test Bed seeks demonstration projects of innovative technologies to deploy and operate building level energy storage systems. Technologies of interest are limited to building level energy storage systems that are projected to provide enough cost savings on a stand-alone basis to support a future utility energy services contract (UESC) or energy savings performance contract (ESPC) award. The demonstration should provide information on the technology's cost, performance, and approach for predicting future guaranteed savings as well as replication potential through UESC or ESPC transactions within the host installation and to additional military installations.

Project teams are highly encouraged to partner with a UESC or ESPC contract holder that can serve the military installation at which the demonstration project will be performed. Utilities and ESPC contract holders are encouraged to collaborate and partner with installations as well as technology providers to identify innovative and impactful technologies for demonstration.

Demonstration projects should be structured in two phases with a go/no-go decision between each phase as described below.

- Phase I: Development of a site-specific design, a techno-economic analysis of the system's expected performance, and an approach to calculate guaranteed savings.
- Phase II: Deployment of the energy storage system and execution of the demonstration for enough time to validate the Phase I projections.

If the demonstration is successful and the technology is sufficiently mature (i.e., commercially available and warrantied), the host site may be interested in continuing to operate the system beyond the ESTCP contract period. Proposals should include plans for transitioning from the demonstration contract to an ongoing support contract (UESC, ESPC, other) to provide operations and maintenance.

BACKGROUND

Building level energy storage systems offer multiple opportunities for energy savings and revenue. The primary economic value is anticipated to come from reduction in demand charges though peak demand reduction. Demand charges at DoD installations can be as high as 30% to 70% of annual electric energy costs. In addition to demand charge reduction, there can be the potential to shift loads to take advantage of time of use rates, increase participation in demand response programs, and/or earn revenues from ancillary service or other wholesale markets. The deployment of cost-effective energy storage through UESCs or ESPCs can also contribute to energy resilience and support future microgrids. Currently, critical loads that require 24/7 power are supported by uninterruptible power supplies (UPS) that provide a singular service and have an associated

maintenance cost. Batteries may be able to replace UPSs while providing additional benefit for the same maintenance burden. That said, implementing batteries for this purpose is more complex and integration costs are not well understood.

UESCs and ESPCs are one of a few mechanisms through which military installations can procure energy projects that improve facilities performance and reduce energy related operations and maintenance costs without access to appropriated funds. The Department of Energy's Federal Energy Management Program (FEMP) offers information. Below are links to the FEMP websites:

FEMP UESC Website: <http://energy.gov/eere/femp/utility-energy-service-contracts-federal-agencies>

FEMP ESPC Website: <https://www.energy.gov/eere/femp/energy-savings-performance-contracts-federal-agencies>

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For pre-proposal submission due dates, instructions, and additional solicitation information, visit the [ESTCP website](#).