

2. DESCRIPTION OF PROPOSALS SOUGHT

Technologies are sought that can significantly benefit from a demonstration on a DoD installation. Priority is given to those technologies for which a demonstration on a DoD facility is required to properly assess the cost and performance of the technology and provide information that will accelerate commercialization and broader adoption. Candidate technologies are sought in the following topic areas:

- 1. Smart Secure Integrated Installation Energy Management:** Demonstration projects are sought for innovative approaches to improve the security of an installation's overall energy management, decrease costs, and provide new revenue streams. Technologies are sought to enable the implementation and management of smart micro-grids on Department of Defense (DoD) installations to meet DoD energy security goals. Micro-grid demonstrations should involve the integration of new or existing combinations of controls, generation sources and storage among clusters of buildings. Demonstrations are also of interest which enable participation in the advanced demand response and ancillary services markets and the integration of innovative electric vehicle infrastructure solutions. Demonstrations may involve new integrated initiatives to develop micro-grids on military installations or demonstrations may expand upon existing components that control, generate or store energy to create or enhance a micro-grid infrastructure.
- 2. Cost Effective On-Site Distributed Generation:** Demonstration projects are sought for innovative technologies to increase distributed and renewable energy generation on DoD installations to meet DoD energy goals. Demonstrated technologies must show a levelized cost of electricity that reflects grid parity for the proposed application or a clear pathway to grid parity when mature. Technologies should be economically feasible at the commercial scale. Technologies intended for ultimate deployment at utility scale will not be considered. Innovative building integrated electricity generation systems are of interest. Renewable technologies of interest include, but are not restricted to: Geothermal, Waste-to-Energy, Biomass, and Solar. Proposed biomass and waste-to-energy systems should be economically efficient without import of off-installation resources. Renewable technologies involving hydroelectric, offshore wind or liquid biofuels for transportation will not be considered under this solicitation.
- 3. Advanced Component Technologies to Improve Building Energy Efficiency:** Demonstration projects are sought for cost effective component technologies to increase energy efficiency in DoD buildings to meet DoD energy goals. The DoD seeks proposals that demonstrate innovative technologies appropriate for building retrofits. Technologies of interest include, but are not restricted to: heating, ventilation and air conditioning; building envelope technologies; lighting and waste heat recovery (for heating or cooling). Integrated demonstrations of combinations of technologies are also of interest, including building integrated renewable energy systems.
- 4. Advanced Building Energy Management and Control:** Advanced building controls play a significant role in improving building energy performance. Desired energy use

reductions occur through increased efficiency in commissioning, diagnostics, and operations. The DoD seeks proposals that demonstrate innovative cost-effective technologies or combinations of technologies to meet energy goals by increasing the performance of DoD buildings. Technologies of interest may also improve advanced metering or submetering, increase the quality and reliability of building performance data and ensure compliance with DoD communications and information assurance requirements.

- 5. Tools and Processes for Decision-making Associated with Energy Use and Management:** Demonstration projects are sought for innovative technologies to provide individual energy users, building managers, facility managers, regional managers and/or DoD portfolio and enterprise managers the right amount of information at the right time to make appropriate decisions related to energy usage and investments. The DoD needs tools to provide energy managers, particularly at military installations, with the ability to evaluate the business case for energy infrastructure retrofits and new investments, exploit advanced metering systems, measure and validate energy performance and visualize trends. Individuals and military leaders need tools to provide guidance and feedback to modify behaviors. Commercial best practices, currently not used within the DoD, are appropriate for demonstration if they support the military mission. Holistic management tools that address energy, waste and water on military installations are also appropriate for demonstration.

Mature technologies with well established operational cost and performance criteria are not appropriate for ESTCP. Standard commercially available approaches currently deployed in the United States will likely be too mature.

Proposed technologies and methods should have completed all proof-of-principle work. Specific DoD site(s) may be suggested in the pre-proposal but are not required to be identified until submittal of the full proposal. ESTCP supports demonstration at a scale sufficient to determine the life-cycle operational cost and performance of the technology and its potential contribution to DoD energy security.