Environmental Security Technology Certification Program (ESTCP)

IMPROVING CLIMATE RESILIENCE OF DOD INSTALLATION AND SURROUNDING COMMUNITY INFRASTRUCTURE

OBJECTIVE
The Department of Defense (DoD) seeks an evaluation of methods that result in an improved ability of DoD installations and planners to work with surrounding communities to develop and implement strategies and investments that improve infrastructure climate resilience. Evaluations and explorations that include technological solutions to identified gaps in installation climate resilience, may be invited to submit proposals for demonstration projects following the completion of the study.

Department of Defense (DoD) installations rely on surrounding communities for electricity, water, roads, and telecommunications. There is a need and opportunity to coordinate with communities to build resilient infrastructure for mutual benefit.

Aging infrastructure is susceptible to changing climate and related weather events. Current climate conditions as well as anticipated future changes in the climate may result in increased threat to the mission, increased maintenance costs, or increased capital costs due to unexpected disruptions and infrastructure failures.

ESTCP seeks proposals that in Phase I assess the impact of current and future climate change and related weather events on DoD installation infrastructure as well as surrounding community infrastructure (including access roads, gas/oil pipelines, water infrastructure, energy power grid, etc.). These examinations should help improve visualization and quantification of future climate impacts, and/or visualization and quantification of potential climate mitigation and adaptation measures on both DoD and community infrastructure. In addition, the analysis should help inform strategies, methodologies, models and/or investments and improvements to reduce or mitigate potential impacts of climate change on infrastructure integrity, both on DoD installations and within surrounding communities.

Proposers are encouraged to partner with subject matter experts from within the government, academia and/or the private sector. Wherever possible, proposers are encouraged to design studies that will effectively integrate with existing DoD planning tools (including DCAT, DRSL, Advana, System Master Planner / New Zero Planner (SMPL/NZP) Tool, etc.) to ensure maximum effectiveness and ease of transition to end users.

Because of mission-critical dependencies outside the fence line, platforms that allow for safe, secure collaboration with communities surrounding DoD installations are essential to meet this emergent challenge. Of particular interest in Phase I are projects that address the following elements:
• Climate modeling technologies that generate higher fidelity depictions of the likely impact of future climate conditions and to better visualize localized effects climate impacts may have on installation and community natural and built infrastructure.
• Simulation technologies and tools that allow installations to visualize and better understand how climate resilience tactics and strategies may improve climate resilience of existing installation and community built and natural infrastructure. (For example, visualizing the impact of incorporating green infrastructure for maximum resiliency improvement, or the improved resiliency that may be achieved through deployment of secondary seawalls).
• Models, measures, metrics, and methodologies that measure baseline climate resilience, monetize the effects of future climate impacts on mission, and enable risk/reward modeling of climate resilience mitigation strategies are required to measure the potential impact of future climate resilience projects, effective economic analysis, and investment prioritization.
• Efficient approaches to identifying, prioritizing, and implementing mitigation and adaption measures to climate impacts on installation and surrounding community infrastructure.
• Studies that demonstrate ways to share and integrate data efficiently and securely among communities and installations, to better inform both installation and community-based investments.
• Approaches and tools for logistics planning for potential supply chain disruptions such as delivery disruptions, lack of mission critical commodities, increased competition for resources as a result of climate change.

Recommendations that include technological solutions that address the above elements may be invited to submit Phase II proposals for demonstration projects following the completion of the Phase I efforts. Pre-proposals are requested for Phase I only.

BENEFITS
As DoD installations depend on their surrounding communities’ infrastructure to ensure mission assurance, improving the resilience of these communities’ infrastructure enhances DoD installation’s adaptation and resilience to climate change and extreme weather. These measures will mutually benefit both DoD and the communities in reducing adaptation costs and building a shared climate ready infrastructure.

BACKGROUND
On January 27, 2021, President Biden issued Executive Order (EO) 14008, Tackling the Climate Crisis at Home and Abroad, which requires climate considerations to be an integral component of all DoD strategy, planning and programming activities. On September 1, 2021, DoD issued the Department of Defense Draft Climate Adaptation Plan (CAP), which describes the key lines of effort and the strategic framework for this activity. Line of Effort 5 of the CAP provides information specific to the need to enhance adaptation and climate resilience through collaboration with other agencies, partner nations, and communities.

Specific highlights and examples of DoD / Community collaboration efforts are described in the following document, beginning on page 22: Department of Defense Office of the Undersecretary

The pre-proposals shall follow the general instructions provided on the ESTCP website and should consider the following information:

- In the Technology Description section, proposers should provide information that generally describes their approach to assess the impact of current and future climate change and related weather events on DoD installation infrastructure as well as surrounding community infrastructure (including access roads, gas/oil pipelines, water infrastructure, energy power grid, etc.).
- In the Technical Approach section, proposers should provide sufficient detail that the technical approach can be clearly understood by the reader. No demonstration plan will be required for Phase I efforts.
- In the Expected Benefits section, a qualitative and semi-quantitative description of the expected benefit of the resultant analysis should be included.
- The Technology Transfer section should discuss activities to engage with key stakeholders involved with potential Phase II development for military installations to facilitate information exchange and explore collaboration for a potential Phase II demonstration.

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