ESTCP Funding Opportunities

- You have two options to hear the presentation:

1. Listen to the broadcast audio if your computer is equipped with speakers
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   - Phone Numbers
     - +1 301 715 8592
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     - +1 669 900 6833
   - Conference ID: 949 2611 9115

- For questions or issues please contact the SERDP Office at 571-372-6565.

FY 2022 ESTCP Funding Opportunities

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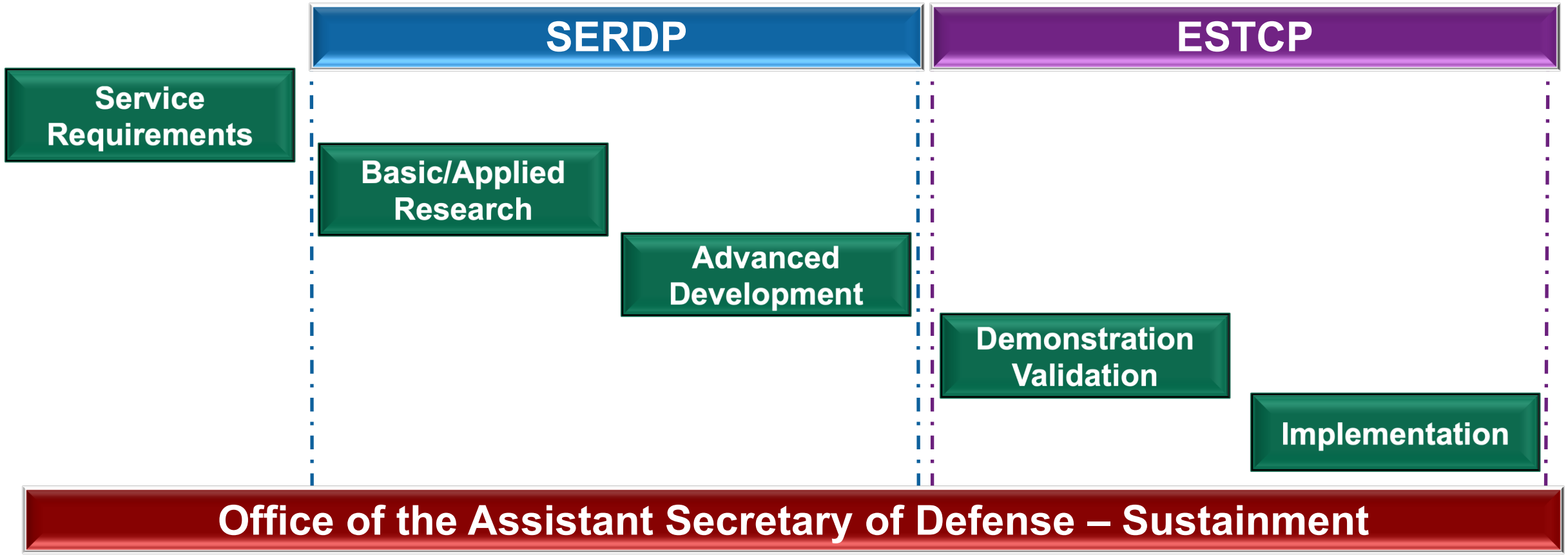
ESTCP

DoD's Environmental Technology Programs

Science and Technology

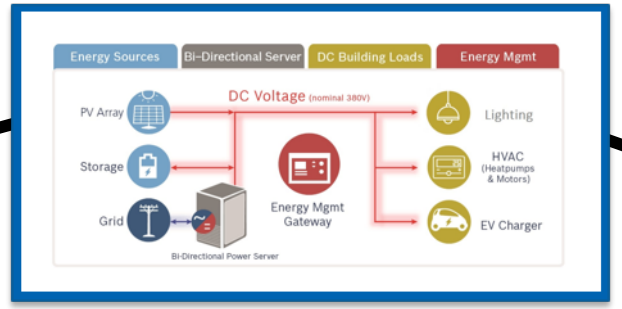
Demonstration and Validation

Environmental Technology Development Process



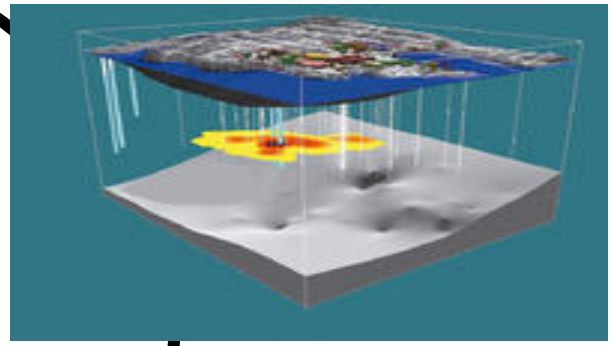
Program Area Management Structure

Weapons Systems & Platforms



Installation Energy & Water

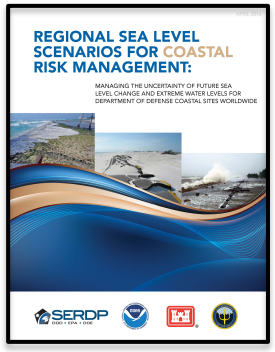
Environmental Restoration



Resource Conservation & Resiliency

Munitions Response

Environmental and Energy Drivers



Installation Resilience

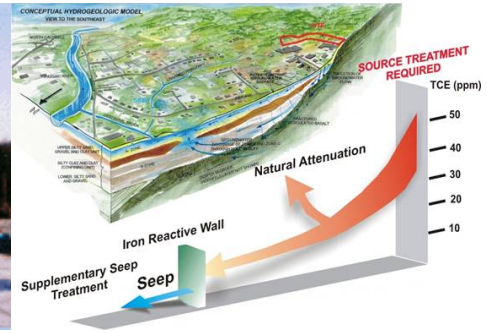
Wildland Fire

Range Sustainment

Threatened and Endangered Species
Marine Mammals

Reduction of Current and Future Liability

Contamination from Past Practices



- Groundwater, soils and sediments
- Large UXO liability
- Contaminants of emerging concern such as PFAS

Control Life Cycle Costs

- Elimination of pollutants and hazardous materials in manufacturing, maintenance, and operations
- Develop and assess alternative technologies and materials (AFFF)

ESTCP Program Goals

- Demonstrate Innovative Cost-Effective Environmental and Installation Energy Technologies
  - ♦ Capitalize on past investments
  - ♦ Transition technology out of the lab
- Promote Implementation
  - ♦ Direct technology insertion
  - ♦ Gain regulatory acceptance
- Priority: Needs of the DoD user community

ESTCP Demonstrations

- Desired Technologies
  - Can significantly benefit from a demonstration on a DoD installation.
  - Require a demonstration to properly assess the cost and performance of the technology.
  - Will utilize information from the demonstration to accelerate commercialization and broader adoption.
- Mature commercial technologies already in use or with well established operational cost and performance criteria are not appropriate for demonstration and validation.

ESTCP Methodology

- Partner With Stakeholders and Test at DoD Facilities
  - Developer, regulators, and end-user
  - Direct transition
- Validate Operational Cost and Performance
  - Independent test and evaluation
  - Satisfy regulatory and user communities
- Identify DoD Market Opportunities
  - Technology transfer

Project Requirements

- Formal Demonstration Plans
  - Detailed performance objectives
  - Independent review
- Execution of Technology Demonstration
  - Collect cost and performance data
- Written Final Report Covering both Technical Performance and Cost
- Support for Transition
  - Regulatory/end-user acceptance
  - Guidance and training

ESTCP Solicitation Process

ESTCP Solicitation Dates

ESTCP Solicitations Released	January 7, 2021
Pre-proposals Due	March 4, 2021, 2:00 p.m. ET
Full Proposal Requested	June 2021
Full Proposals Due	August 2021
Briefings Before ESTCP Technical Committee	September 2021
Project Selection	October 2021
Project Initiation	Spring 2022

DoD Call for Proposals

- Call for Demonstration Projects
  - Address DoD environmental requirements
  - DoD lead is required
- Short Written Pre-Proposal
  - Full proposal requested
  - Modifications recommended
- Selection
  - Full proposal

Broad Agency Announcement and Call for Proposals for Federal Organizations Outside DoD

- Call for Technologies
  - Specific topic areas
- Short Written Pre-Proposal
  - Full proposal requested
  - Modifications recommended
- Identify DoD Liaisons
  - Site selection
  - Technology transition
- Selection
  - Full proposal

Selection Criteria

- Relevance (Pass/Fail)
- Appropriate for Demonstration (Pass/Fail)
- Technical Merit
- Cost/Benefit
- Transition Potential
- Cost

Hallmarks of a Competitive Proposal

- Clearly Address a Topic Area
- Well Defined Demonstration Questions
- Provide Significant Benefit
  - Reduced costs
  - Improved performance
- Technically Sound
  - Detailed technology description
  - Well-defined performance objectives
  - Detailed technical approach

FY 2022 ESTCP Topics

General Interest

Broad Agency Announcement &
Call for Proposals for Federal Organizations Outside DoD

ESTCP

Innovative Technology Transfer Approaches

- Demonstrate innovative technology transfer approaches for technologies that have been successfully demonstrated under ESTCP or for mature bodies of knowledge that are appropriate for direct transfer that have been developed under the Strategic Environmental Research and Development Program (SERDP).
  - The target communities of interest are primarily end users.
  - Target communities will likely benefit from technology transfer approaches specific to their mission, business processes, and manner of receiving information.
- Proposals must address why the focus technology is appropriate, the barriers to adoption, the key stakeholders, stakeholders' information needs, and why the proposed approach is appropriate to the technology and the audience.
- Proposals should comprehensively address all stakeholders that will determine the adoption of the innovative technology.
- Proposals may focus on a broad array of SERDP and ESTCP investment areas or be narrowly targeted.

Environmental Restoration

Broad Agency Announcement &
Call for Proposals for Federal Organizations Outside DoD

ESTCP

Management of Impacted Groundwater

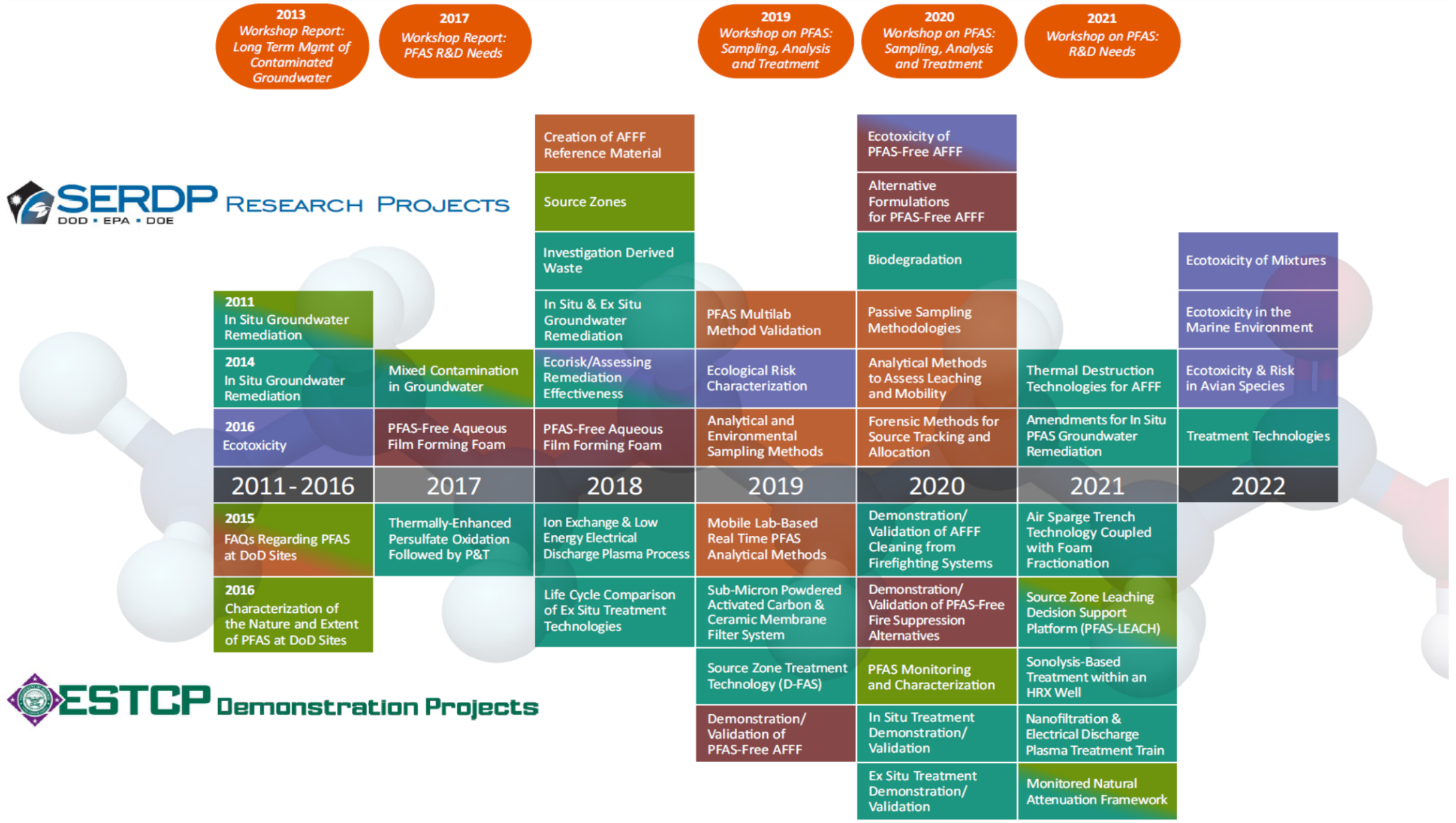
- Demonstrate tools, methodologies, or technologies that can reduce the cost of managing DoD's long-term liability associated with groundwater impacted by chemicals of concern.
  - Chemicals of concern include per- and polyfluoroalkyl substances (PFAS), chlorinated solvents, energetic compounds, emerging contaminants of interest to DoD, or mixtures of these chemicals.
  - Sites and associated risks where contamination will persist for a significant period of time after an initial remedy is selected.
- Areas of interest:
  - Management tools or technologies to specifically address contaminant source zones in complex geological environments that cause persistent groundwater plumes.
  - Management tools or technologies to address groundwater impacted by emerging chemicals of concern and common co-contaminants.
  - Assessment of how to better combine existing or new technologies to address complex contaminated sites and make informed decisions on transitions from active remediation to passive technologies.
  - Optimization, assessment, and/or long-term monitoring tools related to remediation of impacted groundwater.
  - Tools to collect more site data of better quality at lower cost.

Chlorinated Solvents Workshop Report - https://serdp-estcp.org/content/download/47975/456978/file/Chlorinated%20Solvents%20Workshop%20Report%202018.pdf

PFAS QA/QC Guidelines - https://serdp-estcp.org/Investigator-Resources/ESTCP-Resources/Demonstration-Plans/Requirements-for-PFAS-Projects

PFAS Workshop Report - https://www.serdp-estcp.org/Featured-Initiatives/Per-and-Polyfluoroalkyl-Substances-PFASs/2017-Workshop-Report-on-Per-and-Polyfluoroalkyl-Substances

SERDP and ESTCP efforts on PFAS



Map.serdp-estcp.org/Featured-Initiatives/Per-and-Polyfluoroalkyl-Substances-PFASs/pfas_efforts.pdf

Treatment | Ecotoxicity | Fate, Transport and Characterization | Analytical and Sampling Methods | PFAS-Free AFFF

Environmental Restoration

Call for Proposals for DoD Organizations

ESTCP

Environmental Restoration

- **Monitoring:** Demonstrate technologies for the assessment or long-term monitoring of chemical contamination or biogeochemical indicators in soils, sediments, and water.
- **Reduction in Cost to Complete:** Reduce the Cost to Complete for contaminated groundwater or aquatic sediments by improving performance assessment or optimizing treatment.
- **Reduce Source Loading of Munitions Constituents:** Reduce source loading of munitions constituents during routine DoD operations and demilitarization activities.
- **Stormwater Treatment:** Management and treatment of stormwater runoff from DoD facilities.
- **Wastewater Treatment:** Innovative, energy efficient, low maintenance systems for decentralized treatment or recycling of wastewater on fixed installations.
- **Risk Assessment:** Demonstrate technologies that are focused on improving the military's ability to assess and predict human and ecological risk from contaminants of concern including PFAS, chlorinated solvents, munitions constituents, PCBs, and PAHs.
- **Innovative Technology Transfer Approaches:** DoD investigators are encouraged to submit proposals through the DoD submittal process that respond to this BAA topic area.

https://www.serdp-estcp.org/News-and-Events/Conferences-Workshops/Past-ER-Workshops/Chlorinated-Solvents-Workshop-Report-2018
https://www.serdp-estcp.org/Featured-Initiatives/Per-and-Polyfluoroalkyl-Substances-PFASs/2017-Workshop-Report-on-Per-and-Polyfluoroalkyl-Substances
https://www.serdp-estcp.org/Program-Areas/Environmental-Restoration/Contaminated-Sediments/SERDP-ESTCP-Workshop-on-Research-and-Development-Needs-for-Long-Term-Management-of-Contaminated-Sediments-2016
https://www.serdp-estcp.org/content/download/36213/346223/file/MC%20Workshop%20Report%20November%202015.pdf

Munitions Response

Broad Agency Announcement &
Call for Proposals for Federal Organizations Outside DoD

ESTCP

Detection, Classification, Localization and Remediation of Military Munitions in Underwater Environments

- Demonstrate technologies that detect, classify, or remediate military munitions found at underwater sites. Technologies that will facilitate management of underwater munitions sites are also of interest.
- Geophysical Description of Live Sites: Methods and techniques to provide detailed knowledge of the geophysical environments in which detection, localization and classification systems operate.
- Wide Area and/or Detailed Survey Techniques: Systems are needed to cost-effectively survey large areas to identify concentrations of munitions and areas free of munitions.
- Cost-Effective Recovery and Disposal Methods: Improved methods are needed to cost-effectively and safely recover munitions from the underwater environment.
- Mobility and Transport of Munitions: Improved understanding of munitions transport and fate may help inform site munitions response management decisions. Proposals to test and demonstrate/validate models addressing this topic will be considered.

Munitions Response

Call for Proposals for DoD Organizations

ESTCP

Munitions Response in Underwater Environments

- Geophysical Description of Live Sites
  - Methods and techniques to provide detailed knowledge of the geophysical environments in which detection, localization and classification systems operate.
- Wide Area and Detailed Surveys
  - Cost-effectively survey large areas to identify concentrations of munitions and areas free of munitions.
  - Proposals addressing novel sensors, platform integration, or large-scale collection of field data at real munitions sites will be considered.
- Cost- Effective Recovery and Disposal
  - Technologies to cost-effectively and safely recover munitions in the underwater environment.
  - Focus on recovery in the shallow water environment and should address explosive safety issues.
- Mobility and Transport of Munitions
  - Improved understanding of munitions transport and fate may help inform site munitions response management decisions.
  - Proposals to test and demonstrate/validate models addressing this topic will be considered.
- Innovative Technology Transfer Approaches
  - DoD investigators are encouraged to submit proposals through the DoD submittal process that respond to this BAA topic area.

Resource Conservation and Resiliency

Broad Agency Announcement &
Call for Proposals for Federal Organizations Outside DoD

ESTCP

Climate Model Comparative Assessment for DoD Infrastructure Applications

- Assess the currently available approaches regarding statistical and dynamical downscaling of climate-related data that can be applied to the 6th Coupled Model Intercomparison Project (CMIP6) climate model data for the purpose of informing DoD infrastructure planning.
- Compare, contrast, and identify technical readiness and maturity of currently available state-of-the-science and engineering practice approaches that support infrastructure site planning and engineering design needs for DoD installations.
- Proposed projects should assess the following:
  - Strengths and weaknesses of current state-of-the-science downscaling approaches as related to DoD infrastructure planning and design needs.
  - Extent to which various downscaling approaches may or may not be particularly suited for regional application.
  - Uncertainty impacts inherent in the use of different gridded historical datasets used for the purpose of providing local reference climate data for the different approaches examined.
  - Capability to use the downscaled climate data within the context of plausible scenarios while following robust decision-making principles.

Improved Threatened, Endangered, and At-risk Species' Monitoring Tools for Improved Training and Testing Land Utilization

- Develop innovative tools, methodologies, or technologies that improve the DoD's ability to monitor and influence relevant threatened, endangered, at-risk species (TES) populations, and invasive species.
- Priority to proposals that address the application of inventory and monitoring technologies and methodologies affecting multiple vertebrate species at DoD installations.
- Technologies and methodologies that can be used to inventory species relevant to the DoD are of interest.
- Demonstration must be performed at a scale sufficient to determine the operational performance of the technology or methodology and to estimate its expected full-scale implementation costs.
- Some species- or site-specific field work may be allowed prior to the actual field demonstration if it can be completed during the first year of the project.

Resource Conservation and Resiliency

Call for Proposals for DoD Organizations

ESTCP

Resource Conservation and Resiliency

- Natural Resources
  - Focus on ecological systems; aquatic and marine resources; terrestrial ecology; threatened, endangered, and at-risk species management; and invasive species.
- Emissions
  - Focus on the tools, technologies, and methodologies for the active management of dust, fire, and other emissions from training, testing, and other DoD activities to include both wildfires and prescribed burns.
- Resilient Infrastructure
  - Focus on tools, technologies, and methodologies for the continuum of infrastructure, both natural and built, required by the DoD for the maintenance of capabilities, training, and testing of new systems.
- Special Interest Topics
  - Improved threatened, endangered, and at-risk species' monitoring tools for improved training and testing land utilization.
  - DoD infrastructure resiliency, climate model comparative assessment for DoD infrastructure applications.
  - Innovative technology transfer approaches.

Weapons Systems and Platforms

Broad Agency Announcement &
Call for Proposals for Federal Organizations Outside DoD

ESTCP

Demonstration and Validation Of PFAS-free Fire Suppression Alternatives

- Demonstrate and validate more environmentally sustainable PFAS-free fire suppression alternatives against the current performance requirements.
- Determine the maximum available performance using mature PFAS-free firefighting agents against the current military requirements and uses.
- The following considerations are of interest:
  - Demonstration of PFAS-free fire suppression agents that can be utilized with the delivery mechanisms and rates specified in the current performance requirements noted above.
  - Demonstration of PFAS-free fire suppression agents that utilize alternative delivery mechanisms or rates, but still meet other critical performance criteria.
  - Evaluation of current test methodologies in MIL-PRF-24385F to determine minimum performance requirements needed to mitigate fires in operational environments or development of novel test methodologies for screening firefighting formulations for liquid pool fires.
  - Evaluation of the impact that elevated ambient air temperatures have on the fire performance of PFAS-free firefighting agents and reference MILSPEC qualified aqueous film forming foams in order to address known concerns on the effectiveness of firefighting agents in equatorial environments.

Weapons Systems and Platforms

Call for Proposals for DoD Organizations

ESTCP

Weapons Systems and Platforms

- Manufacturing and Maintenance
  - Alternative materials, processes, and inspection methodologies.
  - Monitoring and control of emissions.
- Energetics
  - Alternative materials and manufacturing processes.
  - Monitoring and control of emissions.
  - Demilitarization of ordnance.
- Waste Reduction
  - Ships and forward operating bases.
- Firefighting
  - Alternative formulations (or associated application technologies) that are PFAS-free and can potentially meet performance requirements in MIL-PRF-24385F.
- Innovative Technology Transfer Approaches
  - DoD investigators are encouraged to submit proposals through the DoD submittal process that respond to this BAA topic area.

Installation Energy and Water

Broad Agency Announcement &
Call for Proposals for Federal Organizations Outside DoD

ESTCP

Improved Energy Resiliency

- Demonstrate innovative technologies and processes to improve energy performance and reduce the cost of providing energy resilience on military installations.
- Of particular interest are pilots and demonstrations that address the following issues:
  - Innovative thermal energy that is inherently resilient and cost effective. Technologies that provide thermal energy independent of off-base supplies that can be disrupted are of particular interest.
  - Innovative on-base electric power generation that provides increased resiliency through higher efficiency or is independent of external supplies.
  - Advanced load management approaches to support mission functions during a grid outage and provide additional revenue when grid tied.
  - Innovative agreements and tariffs that exploit a microgrid's capability while grid tied to provide revenue or cost savings that help offset a microgrid's O&M costs.
  - Low-cost solutions to increase the flexibility of on-site or portable generation assets to adapt to changing energy demands during unplanned outages.
- Other innovative technologies that would enhance energy security on their own or through integration with a microgrid are also of interest.
- Proposals for building microgrid systems and testing common renewable energy generation assets are not of interest.

Affordable Energy Assurance at National Guard Installations

- Innovative approaches to provide affordable energy assurance and resiliency at small installations typical of National Guard, reserve, and small active bases.
- Projects will be executed in two phases.
  - Phase I – Conceptual design and modeling: Organizations must develop a conceptual design and a capital and operational cost model for multiple National Guard installations.
  - Phase II – Technology demonstration and validation: Based on the results of Phase I, projects will be selected to fully design, build, and operate an energy assurance system at a single Nation Guard installation for one year.
- Pre-proposals are requested for Phase I only.

Moisture Control in DoD Buildings

- Demonstration projects that help identify and prioritize investment in preventative and corrective interventions to reduce the negative health and economic impacts of moisture infiltration in DoD buildings.
- Of particular interest are studies and demonstrations that address the following issues:
  - Understanding of the scale of the moisture control problem within DoD owned and operated buildings and actions taken to date.
  - Efficient approaches to identifying, prioritizing and implementing mitigation measures that align with and leverage current facility investment mechanisms and auditing and retrocommissioning processes.
  - Innovative solutions to monitor relative humidity and prevent moisture infiltration.
  - Technologies and solutions that can be implemented through performance contracts.
- Analyses and technologies focused on privatized housing are not of interest and will be considered non-responsive to the solicitation.

Technology Demonstrations to Accelerate Deployment of Energy Efficiency and Energy Resilience Solutions

- Demonstration projects of innovative technologies and approaches to improve the energy and water efficiency of buildings on military installations.
- Must be led by Energy Services Companies (ESCOs) or utilities that perform Energy Savings Performance Contracts (ESPCs) or Utility Energy Services Contracts (UESCs) for the DoD.
- Technologies should be commercially available but not currently widely deployed on military installations due to a lack of available data on system life-cycle cost and performance; or due to other uncertainties that pose a barrier to implementation through performance contracts.
- Demonstrations with the following characteristics are preferable:
  - High likelihood of adoption of the demonstrated technology in future ESPC or UESC projects or through modifications to existing ESPCs or UESCs.
  - Technologies that are commercially available, but not widely utilized due to lack of familiarity by ESPC stakeholders
  - Potential for high energy and water savings, improved facility performance, and/or enhanced energy security.
  - Partnering with key stakeholders to enable shared learning and facilitate technology transfer.
  - Cost sharing.
- BAA only.

Installation Energy and Water

Call for Proposals for DoD Organizations

ESTCP

National Guard Readiness Center Energy Assurance

- Develop innovative approaches to provide affordable and resilient energy assurance at small National Guard Readiness Centers.
- Projects to demonstrate and validate innovative technical and business approaches that can provide affordable energy assurance for a portfolio of sites.
- Areas of interest are pilots and demonstrations that explore the following issues:
  - Exploitation of on-site renewable energy and storage.
  - Exploitation of mobile energy storage and generation assets.
  - Innovative business models that provide the required energy assurance as a service.
  - Consideration of state-wide or regional resilience strategy based on hazard and risk analysis to inform solutions.
- Proposals that address only a single site-specific case will not be considered responsive.
- Projects will be executed in two phases with a Go/No-Go decision point.
  - Phase I will study, analyze, and conduct conceptual designs for providing energy assurance to a portfolio of small Readiness Centers.
  - Phase II will consist of demonstrations at one or more Readiness Centers.

Effective Planning for Electric Vehicle Infrastructure and Management

- Studies and demonstration projects that inform cost-efficient infrastructure investments and/or address barriers to the adoption of electric non-tactical vehicles (NTV) and mission support equipment.
- Studies: Intended to inform installation Master Plans and should be coordinated with ongoing Master Planning efforts to the degree possible.
  - Outlook and timeline for electrification of NTV fleet and mission support equipment.
  - Impact of vehicle and mission support equipment electrification on installation-wide electrical demand.
  - Impact of future developments in electric vehicle (EV) and electric vehicle support equipment (EVSE) technology on infrastructure planning and strategies to minimize technology transition costs.
  - Demand management strategies to minimize utility and infrastructure costs.
  - Use of bi-directional chargers for installation grid support or building-level energy resilience.
  - Strategies for leveraging current infrastructure upgrades to include additional capacity or “make-ready” designs to accommodate future EVSE infrastructure.
- Technology Demonstrations: Address barriers to the adoption of electric NTV and mission support equipment.

Installation Energy and Water

- The following topics from the FY 2022 BAA and Call for Proposals for Federal Organizations Outside DoD are also available to DoD organizations:
  - Improved Energy Resilience
  - Moisture Control in DoD Buildings
  - Innovative Technology Transfer Approaches

For more information

https://www.serdp-estcp.org

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