Science Societies

DoD Research programs target environmental challenges

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Air Force Staff Sgt. Cody Nell lights a controlled burn, which helps prevent future wildfires. SERDP and ESTCP support management-relevant science for fire managers and researchers with a focus on next-generation fire behavior and smoke dispersion models.

Over the past three decades, the Department of Defense (DoD) has prioritized addressing the environmental impact of past military operations—ranging from the remediation of chemical contamination caused by the manufacture and maintenance of weapons systems to the management of unexploded ordnance on current and formerly used training sites. These efforts have evolved into targeting the full spectrum of environmental and installation energy requirements of the Services. The DoD pursues solutions to these challenges through the execution of two companion programs: the Strategic Environmental Research and Development Program (SERDP) and the Environmental Security Technology Certification Program (ESTCP).

SERDP addresses basic and applied research, planned and executed in partnership with the Department of Energy and the Environmental Protection Agency. The program focuses on cross-service requirements to sustain and enhance military readiness and involves the participation of numerous other federal and non-federal organizations.

Bridging the ‘Valley of Death’

After researchers develop a technology, they still face barriers transitioning their work to the field—a challenge commonly referred to as bridging the “valley of death.” ESTCP facilitates technology transfer by supporting the demonstration and validation of energy and environmental technologies. Project teams (which often include technology developers, end-users, and state and federal regulators) conduct formal demonstrations at military sites to document and validate improved performance and cost savings.

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Together, SERDP and ESTCP have significantly impacted military and commercial industries with their strategic approach that fosters the collaboration of government, industry, and academic partners. Through these programs, per- and polyfluoroalkyl substances (PFAS), chlorinated solvents, and perchlorates in groundwater are sustainably and cost-effectively managed. Hazardous materials used in the production and maintenance of weapons systems are being replaced with safe, non-toxic alternatives. ESTCP also funded some of the earliest deployments of large-scale microgrids to enhance energy security. The program continues to advance energy resiliency by developing cybersecurity technology necessary for protecting interconnected renewable sources.

Events to Facilitate Technology Transfer, Information Exchange

SERDP and ESTCP host a variety of in-person and virtual events to facilitate technology transfer and provide information to defense end-users and the regulatory community. The annual SERDP and ESTCP symposium is the programs' largest event, bringing together more than 1,000 attendees working at the forefront of energy and environmental technology innovation.

After conducting the symposium virtually in 2020, SERDP and ESTCP will hold the 2021 event in Arlington, VA at the Crystal Gateway Marriott. The event includes technical sessions, short courses, and poster session receptions featuring approximately 400 projects. The annual symposium provides a platform for highlighting innovative technologies and exchanging knowledge so that leadership can effectively carry out sustainable and cost-effective environmental solutions. SERDP and ESTCP also host a **webinar series** to promote the transfer of technologies developed through projects funded by these programs. The goal of the webinar series is to provide cutting-edge and practical information that is easily accessible at no cost.

With SERDP and ESTCP, the DoD anticipates, manages, and combats evolving risks to the environment, human health, and military readiness. The continued success of these programs depends largely on the participation of and partnerships with industry, academia, and defense communities.

Military land management and range sustainability are key DoD initiatives. Installations in the United States encompass about 25 million acres, of which a significant portion are habitats for threatened and endangered species. SERDP and ESTCP efforts support the ability of natural resource managers to effectively address erosion and water quality, dust generation, threatened and endangered and invasive species (TES-I) management, and fire management on DoD land. As an example, SERDP and ESTCP research has been instrumental in proving that endangered species management and military training are compatible land uses with the recovery of the red cockaded woodpecker. Recognizing the threats posed by wildfires, a suite of SERDP and ESTCP research projects currently focuses on next-generation fire behavior and smoke dispersion models. To protect installations and the surrounding communities, the

programs also fund the development of region-specific tools and models to better predict climate change impacts.

Please visit **www.serdp-estcp.org** for more information on the programs, past and current investments, funding opportunities, events, or to connect on social media.

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