
Working With DoD's ESTCP Energy and Water Program

Presentation to

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Defense, National Security and
Climate Change Workshop**

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Outline of Presentation

- DoD infrastructure and energy use
- DoD energy mandates and goals
- SERDP/ESTCP
- Energy and Water Program
- Project activities

DoD Built Infrastructure*

- 539,000 buildings and structures
 - 307,000 buildings
 - 232,000 other structures
 - 2.2 **billion** square feet
- By comparison:
 - GSA: 1,500 USG buildings, 176 million square feet
 - Wal-Mart US: 4,200 buildings, 687 million square feet
- Fleet vehicles: 160,000

* Data source: Dr. Jeff Marqusee, Director, ESTCP

DoD Energy Use: FY2009

- Total energy costs: \$13.35B
- Operational energy use: \$9.34B
 - Jet fuel: 78.4%
 - Navy special: 12.2%
 - Diesel: 6.4%
 - Other: 3%
- Facilities energy use: \$4.01B
 - Electricity: 63.6%
 - Natural gas: 14.9%
 - Fuel oil: 7.5%
 - Fleet fuel: 6.3%
 - Steam: 3.8%
 - Other: 3.9%

Mandates and Goals

- **Legislation and Executive Orders**
 - Energy Policy Act of 2005
 - Energy Independence and Security Act of 2007
 - National Defense Authorization Act
 - Executive Order 13423
 - "Strengthening Federal Environmental, Energy, and Transportation Management"
 - Executive Order 13514
 - "Federal Leadership in Environmental, Energy, and Economic Management"
- **Energy goals:**
 - Reduce facilities energy intensity
 - 30% by 2015, 37.5% by 2020
 - 25% of facilities energy from renewable sources by 2025
 - Reduce greenhouse gas emissions from facilities 34% by 2020
 - 2008 baseline

SERDP and ESTCP

- SERDP: Strategic Environmental Research & Development Program (1990)
- ESTCP: Environmental Security Technology Certification Program (1995)
- **SERDP and ESTCP are the DoD's environmental research programs**
 - respond to environmental technology requirements common to all the military Services and complement the Services' research programs.
 - **ESTCP** is DoD's environmental technology demonstration and validation program
 - promotes the transfer of innovative technologies that have successfully established proof of concept to field or production use
 - recently reorganized to manage investments in five program areas, including **Energy and Water**

Energy and Water Program

- Areas of investment:
 - technologies that support **sustainable building design and operations**, including innovative energy-efficient lighting, heating, and air conditioning systems
 - **renewable energy**, such as solar and wind power, and other distributed-energy generation sources
 - systems that enable **better management of energy resources**, such as improved energy storage and control techniques
 - methods and technologies to **reduce water demand**
- Methodology
 - Partner with stakeholders – developer and end user
 - Test at DoD facilities
 - Independent test and evaluation
 - Identify DoD market opportunities
 - Technology transfer

Energy & Water Program Participants

- OSD-Energy Conservation Investment Program (ECIP)
- Army
- Navy
- Marine Corps
- Air Force
- Department of Energy

A Sampling of Project Activities

([www.serdp-estcp.org/energy and water](http://www.serdp-estcp.org/energy%20and%20water))

- Architectural Daylighting System
- Coupling GHP's With Underground Thermal Storage
- Grid-Parity Solar Power for DoD installations
- High Gain Solar Technology for Distributed Generation
- Solar Combined Heat and Power
- Microgrid Enabled Distributed Energy Solutions
- Systems Approach to Improved Facility Energy Performance
- Integrated Water Planning Through Cascade of Water Use

THANK YOU

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