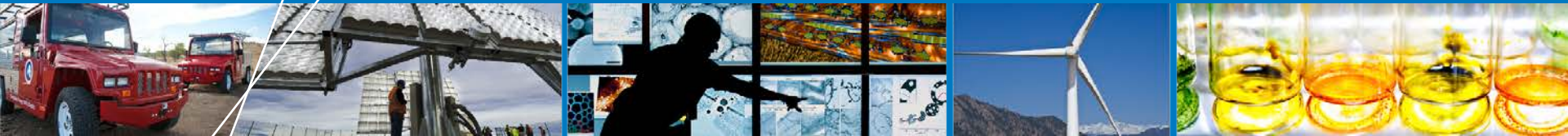


GSA's Green Proving Ground: Identifying, Testing and Evaluating Innovative Technologies



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Presentation Overview

- **General Services Administration and Green Proving Ground Introduction**
- **GPG 2011 Program**
 - Process
 - Technologies
 - Results
- **GPG 2012 Program**
 - Process
 - Next Steps
- **Future of GPG**

GSA Overview

GSA = General Services Administration

<http://www.gsa.gov/portal/category/100000>

- GSA's Public Buildings Service (PBS)
 - acquires space on behalf of the federal government through new construction and leasing
 - acts as a caretaker for federal properties across the country
- PBS owns or leases 9,624 assets and maintains an inventory of more than 370.2 million square feet of workspace¹

¹ <http://www.gsa.gov/portal/content/104444>

GPG Overview

GPG = Green Proving Ground

<http://www.gsa.gov/portal/category/102491>

- GSA's GPG program utilizes GSA's real estate portfolio to test and evaluate innovative and underutilized sustainable building technologies and practices.
- Findings are used to support the development of GSA performance specifications and inform decision making within GSA, other federal agencies, and the real estate industry.
- The program aims to drive innovation in environmental performance in federal buildings and help lead market transformation through deployment of new technologies.

GPG Overview (cont)

GPG = Green Proving Ground

- Innovative and underutilized sustainable building technologies and practices receive testing and evaluation through enhanced measurement and verification (M&V).
 - Technical support is provided by Department of Energy (DOE) national laboratory staff
 - verification of performance claims
 - end user acceptance
 - maintainability
 - return on investment
 - M&V lasts from 4-12 months

GPG 2011 Program

- **Project submittal process for GSA employees**
 - Data call sought funded, underutilized, and innovative technologies or practices for possible inclusion in the GPG program
 - One hundred forty seven submittals were received
 - Review process included a third-party review by the Pacific Northwest National Laboratory (PNNL) and GSA staff reviews
 - Criteria for evaluation:
 - Degree to which the technology or practice is innovative or underutilized
 - Potential to be widely deployed
 - Ability to provide practical data needed to measure results and/or outcomes
 - Ability to establish quality baselines in a timely manner
 - Probability of success commensurate with projected risk
 - Wide deployment likely to be life-cycle cost effective
 - Availability on the market.

GPG 2011 Technologies

- **Building Envelope**
 - High R-Value Windows
 - Smart Windows
- **Lighting**
 - Occupant Responsive Lighting Solutions
 - Integrated Daylighting Systems
- **Metering**
 - Plug Load Reduction
- **Policy**
 - On-Site Renewable Technologies
- **Power Generation**
 - Photovoltaic (PV)
- **HVAC**
 - Chilled Beams
 - Condensing Boilers
 - Variable-Speed Chiller Plant Controls
 - Magnetic Bearing Compressor
 - Variable Refrigerant Flow
 - Commercial Ground-Source Heat Pump
 - Wireless Mesh Sensor Network
- **Water**
 - Non-Chemical Water Treatment
- **Solar Water Heating**
 - PV with Solar Water Heating

GPG 2011 Project Status

- **Wireless Mesh Network complete**
 - Findings:
 - Large reduction in cooling load (48%)
 - Significant savings (17% overall energy savings, \$30k energy cost savings)
 - Findings and Report:
<http://www.gsa.gov/portal/content/121031>
- **All other projects will be concluded by end of calendar year 2012**

GPG 2012 Program

- **January 2012: data call solicited information on innovative building technologies for possible inclusion in the GPG program:**
 - Internal, funded projects (46 submittals received)
 - External gifted technologies (71 submittals received)
- **The technology categories of interest included:**
 - Energy management
 - On-site energy generation
 - HVAC
 - Lighting
 - Building envelope
 - Water use reduction
 - Other

GPG 2012 Project Selection

- **Internal GSA staff reviews and third-party review conducted by NREL.**
 - Criteria for evaluation:
 - Degree to which the technology or practice is innovative
 - Cost-effectiveness of technology or practice, including life-cycle benefits, first cost, and annual savings potential
 - Risk, relative to magnitude of potential success;
 - Potential for the technology to be broadly deployed and result in large, agency-wide cost saving
 - Likelihood of GPG project success, including the ability to provide practical data needed to measure results and/or outcomes and the ability to establish quality baselines in a timely manner.
- **The projects selected for GPG 2012 will be announced in mid-2012.**

