

# GPG Program Overview

Green Proving Ground Program | U.S. General Services Administration | 2015



# GSA LEADERSHIP IN SUSTAINABILITY

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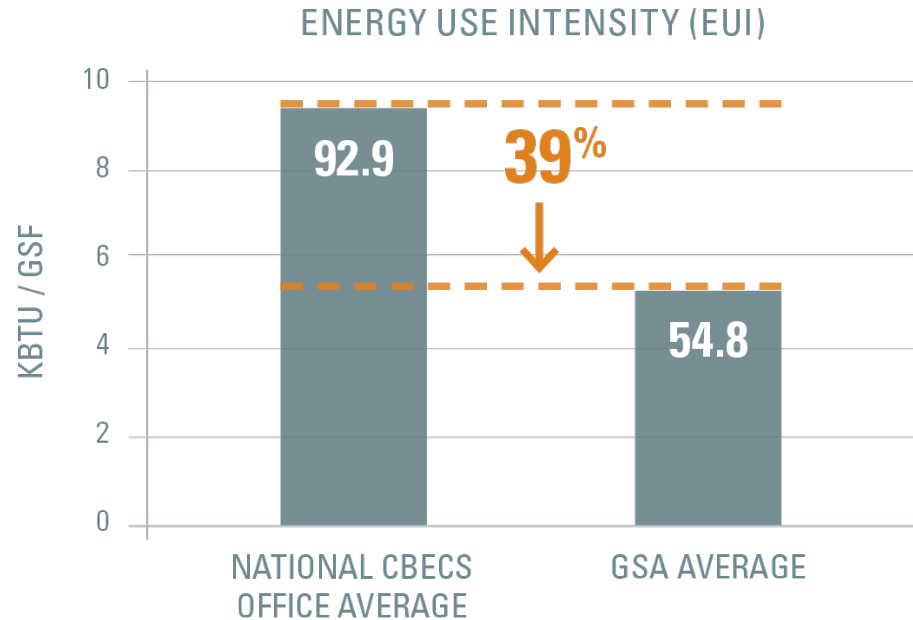


Green Proving Ground leverages GSA's real estate portfolio to evaluate innovative sustainable building technologies.

# GSA FOSTERS OUTSTANDING BUILDING PERFORMANCE

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GSA buildings are **39%** more efficient than typical U.S. commercial buildings.



# FEDERAL MANDATES SET THE PACE

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## Efficiency results from innovation and policy

Energy Independence and Security Act, 2007

30% reduction in energy use intensity (EUI) by 2015, over 2003 levels

Executive Order 13693, 2015

2.5% annual reduction in EUI through 2025, over 2015 levels

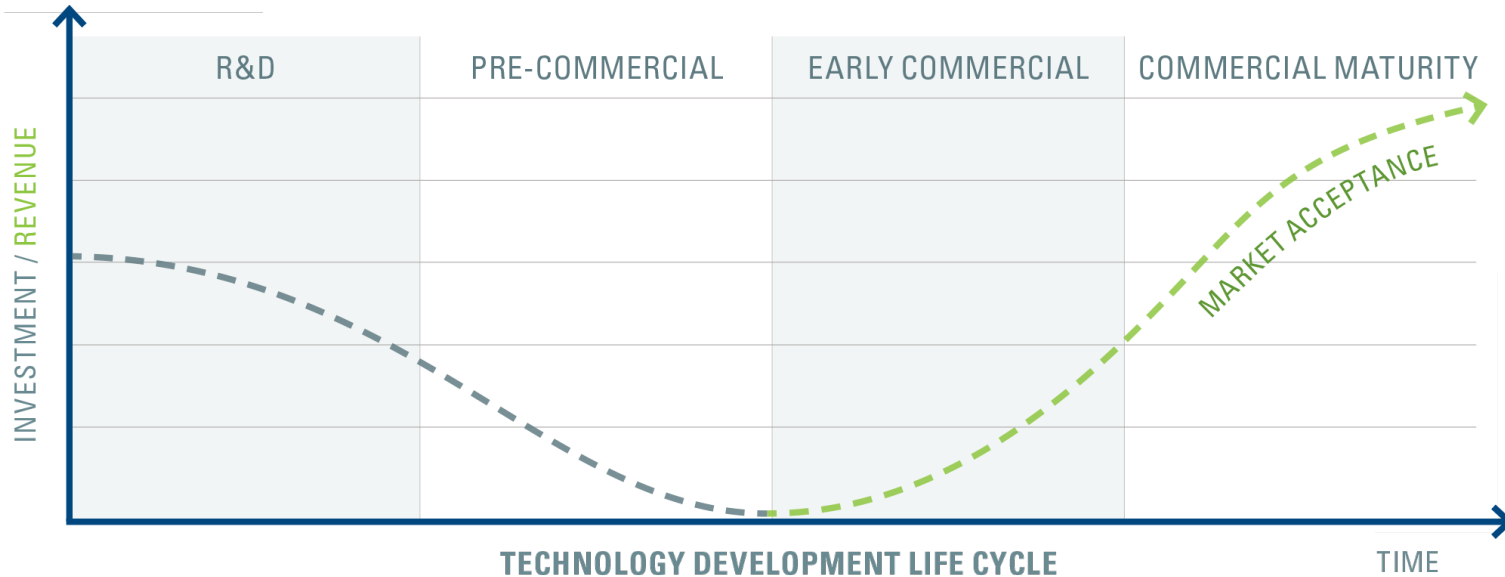




Innovative building technologies are critical for GSA to meet its sustainability goals

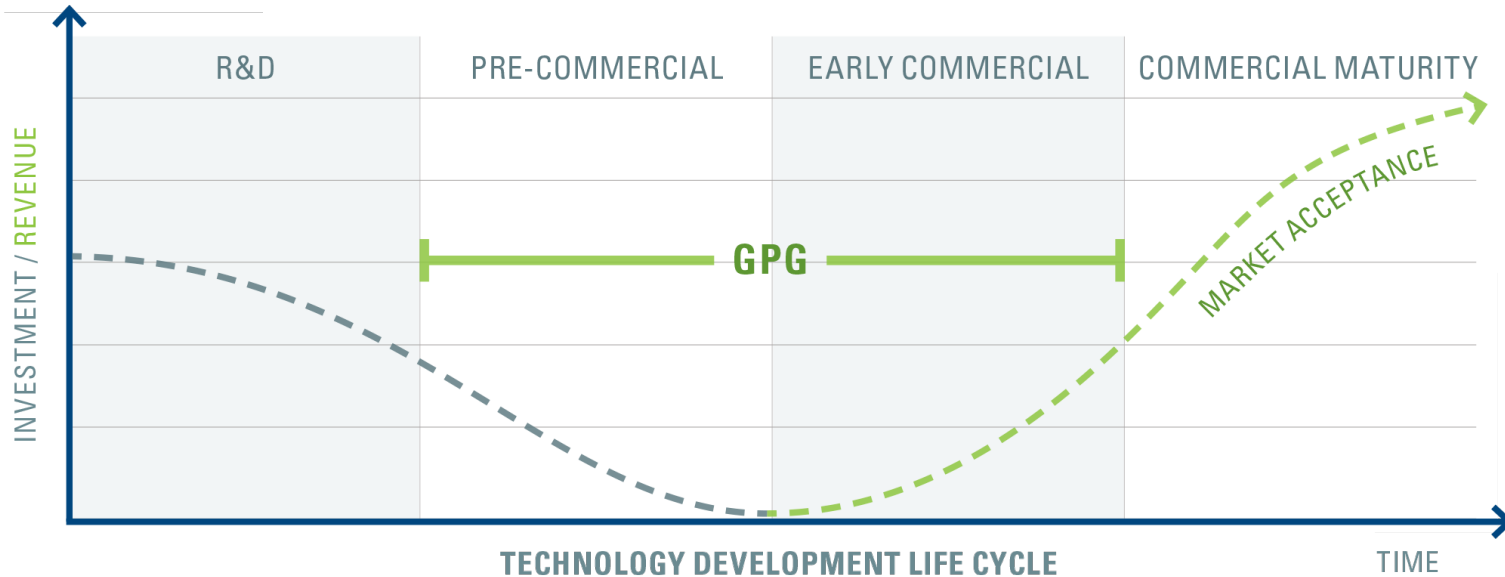
# INNOVATION REQUIRES SUPPORT

4 out of 5 technologies fail to cross the Technological Valley of Death and achieve market acceptance because of the financial and operational risks they pose to early adopters.



# GPG SUPPORTS DEVELOPMENT OF INNOVATIVE TECHS

GPG assumes first-use risk and accelerates market acceptance by objectively assessing innovative sustainable building technologies in real-world environments.





# HOW DOES GPG WORK?

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Identify promising technologies at the edge of commercialization



Pilot technology installations within GSA's vast real estate portfolio



Partner with Department of Energy national laboratories to objectively evaluate real-world performance



Recommend technologies with broad deployment potential

# TECHNOLOGY SUCCESS FACTORS

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Evaluation success criteria may include:

- Reduce energy or water use
- Decrease reliance on non-renewable energies
- Decrease operational costs
- Improve tenant satisfaction
- Market transformation potential through broad deployment

# POST-EVALUATION IMPLEMENTATION

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Possible follow-on actions for technologies that are identified to have broad deployment potential:

- Incorporation of evaluation findings into specifications for future procurements
- Engagement of GSA property managers and portfolio managers
- Support for participation in GSA Schedules
- Engagement with ESCOs

# GREEN PROVING GROUND, 2011-2015

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Received	450	technology applications
Selected	42	technologies for M&V
Published	21	DOE laboratory assessments
Identified	12	broad deployment potential

## Google Ranking

GPG Technology

Findings consistently  
appear within the top 5

Google search results



# GPG PROGRAM INVESTMENTS, 2011-2014

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## ENERGY MANAGEMENT

Advanced Power Strips, 09.12 \*  
Wireless Sensor Networks, 03.12 \*  
Socially Driven HVAC  
Passive Thermal Storage Platform  
Predictive HVAC Optimization  
Virtual Energy Audit  
Central Plant Optimization Strategy  
Variable-Speed Chiller Plant Control

## LIGHTING

Integrated Daylighting Systems, 08.14 \*  
Occupant Responsive Lighting, 09.12 \*  
Wireless Lighting Controls  
LED Lighting with Integrated Controls  
LED Replacement Lamp for CFLs  
T-LED Retrofit for Fluorescent Luminaires  
Networked Lighting

## BUILDING ENVELOPE

Applied Solar Control Retrofit Films, 01.15 \*  
Vacuum Insulated Panels, 03.14  
Chromogenic Windows, 03.14  
High R Value Windows, 10.13 \*  
Electrochromic Windows  
Electrochromic Windows with Dynamic Controls  
Low-Emissivity Window Film

## HVAC

Wireless Pneumatic Thermostat, 03.15 \*  
Multistaged Indirect Evaporative Cooler, 03.14  
Synchronous and Cogged Fan Belts, 03.14 \*  
Variable Speed Maglev Chiller, 10.13 \*  
Variable Refrigerant Flow, 12.12  
Condensing Boilers, Updated 07.14 \*  
Variable Speed Screw Chiller  
High Efficiency HVAC  
Modular Absorption Chiller

## ON-SITE POWER & RENEWABLES

Photovoltaic-Thermal Hybrid System, 01.15  
Wood-Pellet-Fired Biomass Boilers, 06.14  
PV Guidance, 10.13  
Photovoltaic Systems, 12.12  
Honeycomb Solar Thermal Collector

## WATER

Wireless Moisture Sensing Irrigation System, 04.15  
Catalyst-Based Non-Chemical Water Treatment, 03.15 \*  
Weather Station for Irrigation Control, 01.15 \*

More information  
available at [gsa.gov/GPG](http://gsa.gov/GPG)

### **M&V STATUS** (as of May 2015)

Completed – 21  
To Be Published in FY 2015 – 4  
Continuing Evaluations – 16  
\* identified for broad deployment

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### DEPLOYMENT STATUS *(As of May 2015)*

Deployed — 5

Pending — 1

† deployment through ESPC — 4



# ENERGY IMPACT OF DEPLOYED TECHNOLOGIES

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ANNUAL ENERGY REDUCTION

**170,000** MMBtu/yr

EUI REDUCTION

**0.65** kBtu/sf/year

*(As of May 2015)*



# HOW TO PARTICIPATE IN GPG

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GPG issues an annual Request for Information

- Typically released in Fall (between September - November)
- If selected for the program, technology must be gifted unconditionally to the Federal Government
- Participation typically spans up to 2 years, from technology selection to report publication
- Check [gsa.gov/GPG](https://gsa.gov/GPG) and [fbo.gov](https://fbo.gov) for updates



For more information: [gsa.gov/GPG](https://gsa.gov/GPG)

