

FEDERAL HIGH-PERFORMANCE  
GREEN BUILDINGS  
AND THE  
AMERICAN RECOVERY  
AND REINVESTMENT ACT

DARPA-E



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# General Services Administration (GSA) Mission

We help federal agencies better serve the public by offering, at best value, superior workplaces, expert solutions, acquisition services and management policies.

# Public Buildings Service (PBS) Mission

To provide a superior workplace for the federal worker at superior value for the American taxpayer.

# GSA'S PUBLIC BUILDINGS SERVICE (PBS)

Landlord for over 400 federal agencies, bureaus & commissions

- Portfolio of 353.9 M rentable square feet
- Space for over 1,000,000 tenants
- 8,603 owned and leased assets
- 30 LEED certified properties
- FY' 08 revenue—\$8.23 B
- \$881.2 M in project starts in FY' 08

# GREEN BUILDING NEW CONSTRUCTION

## \$1.1 B Focused On High-Performance Green Building Projects

- Limited By The Constraints Of The Act
- Half for St. Elizabeths Campus
- Land Ports of Entry
- Federal Buildings/Courthouses
- ISSUES:
  - Existing Designs
  - Old Standards
  - Out-dated Performance Requirements
  - Budget Constraints
  - Timing—Speed
  - Resistance to Changing Designs

# GREEN BUILDING MODERNIZATIONS

\$4.5 B Focused On High-Performance Green Building Projects

\$3.2 B For Full And Partial Building Modernizations With High-Performance Features And Existing Modernization Designs

- 43 Projects Selected For:
  - High-Performance Features Concentrating On Energy Conservation And Renewable Energy Generation
  - Speed of Construction Start (Creating Jobs)
  - Execution Risk
  - Facility Condition
  - Improving Asset Utilization
  - Return on Investment
  - Avoiding Lease Costs
  - Historic Significance

# GREEN BUILDING MODERNIZATIONS

Existing Designs + New Goals = ISSUES

- How Do You Set Priorities?
- Triage Process
- Integrated Design
- New Technologies
- Design/Build Contracting Techniques
- Measurement Changes:
  - Process vs. End State
  - Budget & Schedule vs. Budget & Schedule & Green
  - Reliability of Modeling
  - Quality of Review Process
  - Ability To Apply Rigorous Life-Cycle Methods

# GREEN BUILDING LIMITED SCOPE

\$800 M focused on high-performance green building projects

- Tiered Structure:
  1. Building Tune-Up (Re-Commissioning + Controls +)
  2. Lighting Replacement
  3. Mechanical Systems
- Includes such improvements as:
  - Renewable energy—photovoltaics and wind
  - Roofing, including green roofs
  - Windows
  - Lighting replacement
  - High-performance building systems
  - Advanced metering

# GREEN BUILDING SMALL PROJECTS

\$300 M focused on high-performance green building projects

- Includes such improvements as:
  - Renewable energy—photovoltaics and wind
  - Roofing, including green roofs
  - Windows
  - Lighting replacement
  - High-performance building systems
  - Advanced metering

# EXAMPLE: ARRA PROJECT

## Broad Range of Opportunities and Challenges

- 1975 Federal Building
- Never Upgraded

### Plan:

- Updating Cutting Edge 'Green' Design
- \$133 M from Recovery Act
- Full Building Modernization
- High Aims for Sustainability and Curb Appeal
- Construction procurement underway



Portland, OR

# EXAMPLES: “SHOVEL READY” PROJECTS

## Broad Range of Opportunities and Challenges

- Historic 1917 Building
- Last Upgraded in 1935

### Plan:

- Modernization with Infill
- \$161 M from Recovery Act, as Phase I
- Must Redesign for Energy Goals
- Future Funding Needed for Phase II



# Proving Ground

- Incorporating Emerging Or Under-used Energy and Resource Effective Technologies into Building Renovation and New Construction
- Measuring And Publishing the Results:
  - Chilled beams,
  - Natural ventilation,
  - Demand-side ventilation control
  - O&M training
  - Vermiculture
  - Solar hybrid lighting
  - Piezoelectric
- New Forms of Contracting
- Process Changes Needed Of Make The New Technologies Successful
- “Smart Buildings” Controls Integration

# Measurement

- Energy Intensity
- Fuel Source
- LEED
- Building
- Organization
- GHG Emissions
- Fuel Result
- LEEP
- Portfolio
- Enterprise....Country

# Can We Avoid Sinking This?



Or This?



QUESTIONS?

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