

Note: This presentation represents the deliberations of a task group to an independent advisory committee, and as such, may not be consistent with current GSA or other Federal agency policy.

Accelerate the Adoption of High Performance Federal Buildings

Green Building Advisory Committee
October 24, 2017

Task Group Objective

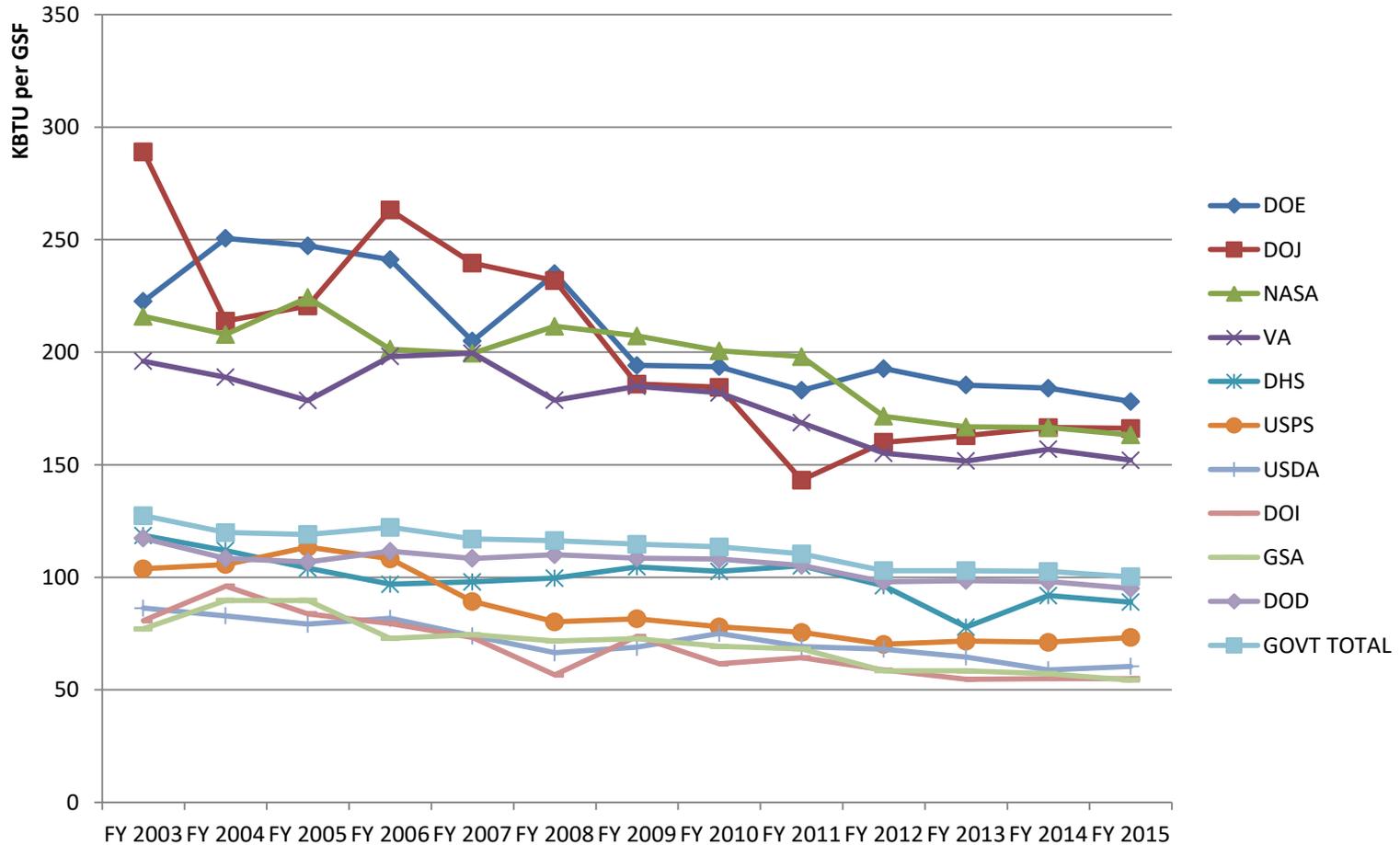
Accelerate the deployment of technologies and practices to upgrade existing Federal facilities towards high performance levels.

Business Case

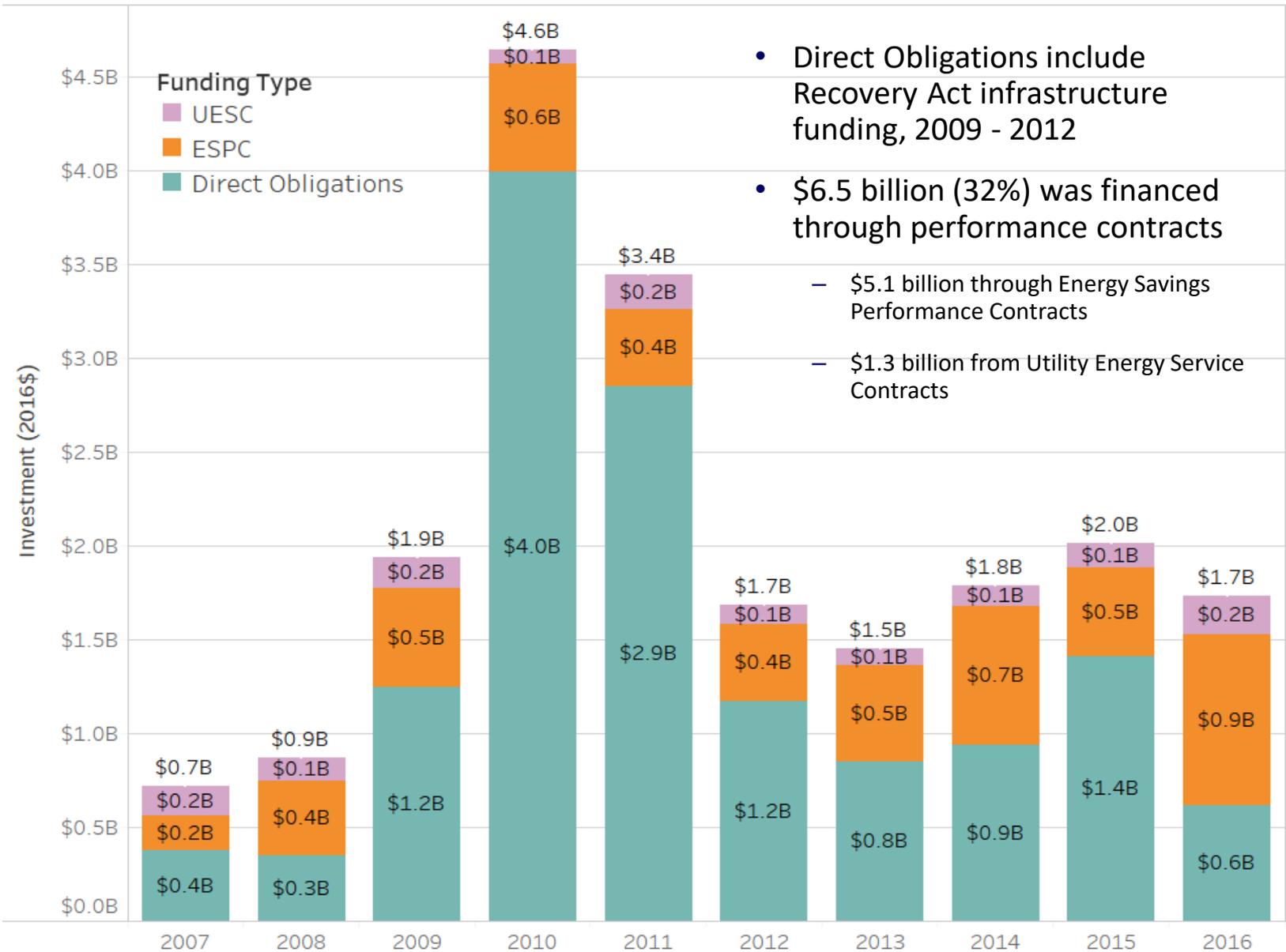
- The business case for Federal high performance building retrofit centers on four principles:
 - Saving money by saving resources
 - Protecting the health & productivity of the Federal workforce
 - Maintaining and enhancing the value of the Federal building portfolio, particularly through greater Federal building energy and water security and resilience
 - Promoting U.S. economic development

Energy Use Intensity (EUI)

Table I: Agency EUI trend, 2003-2015

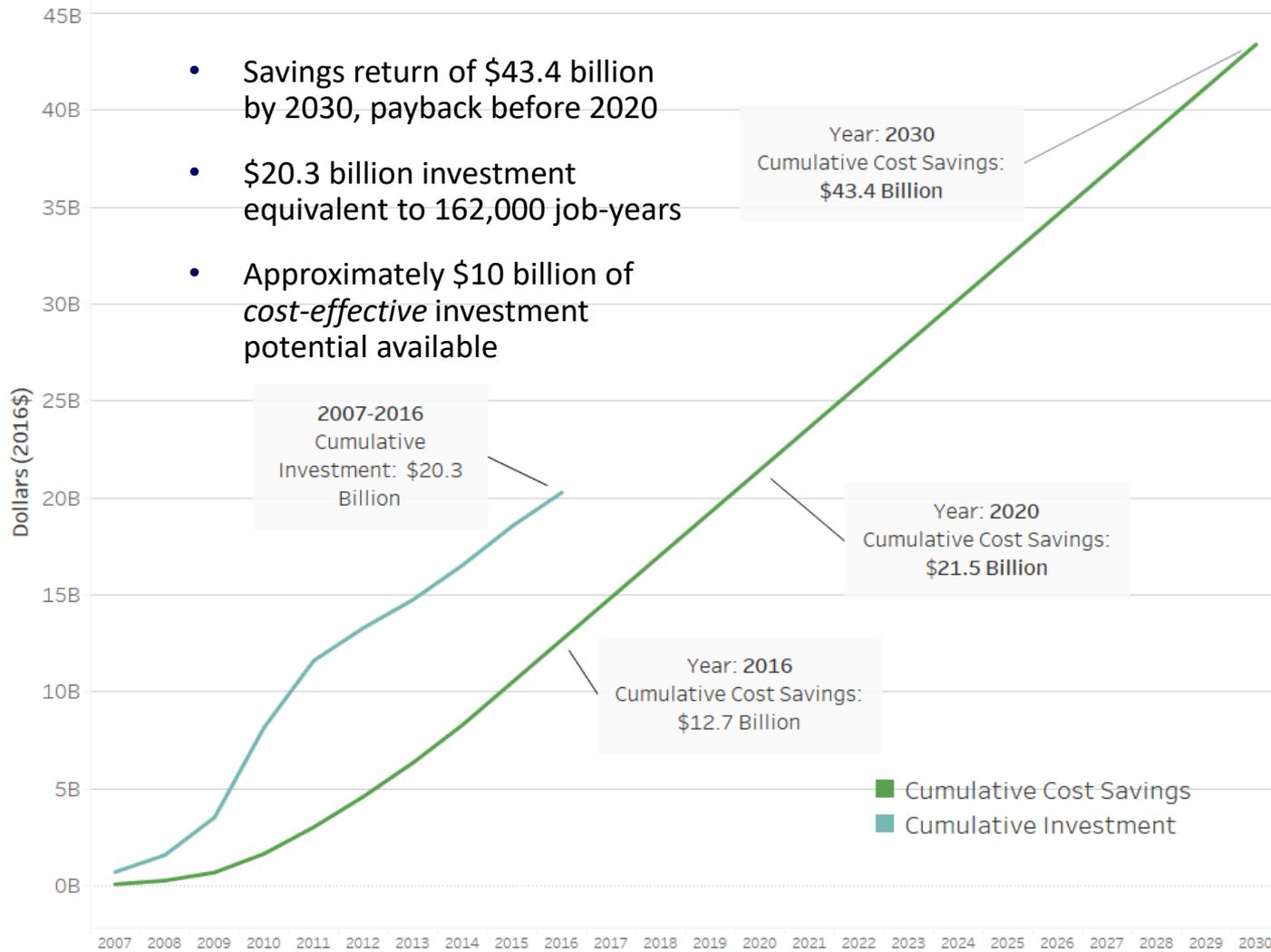


Federal Government Invested \$20.3 Billion in Facility Efficiency from 2007 through 2016 (2016\$)



Federal Building Energy Return on Investment*

Savings Return on Federal Facility Energy Efficiency Investment of \$20.3 Billion (2016\$)

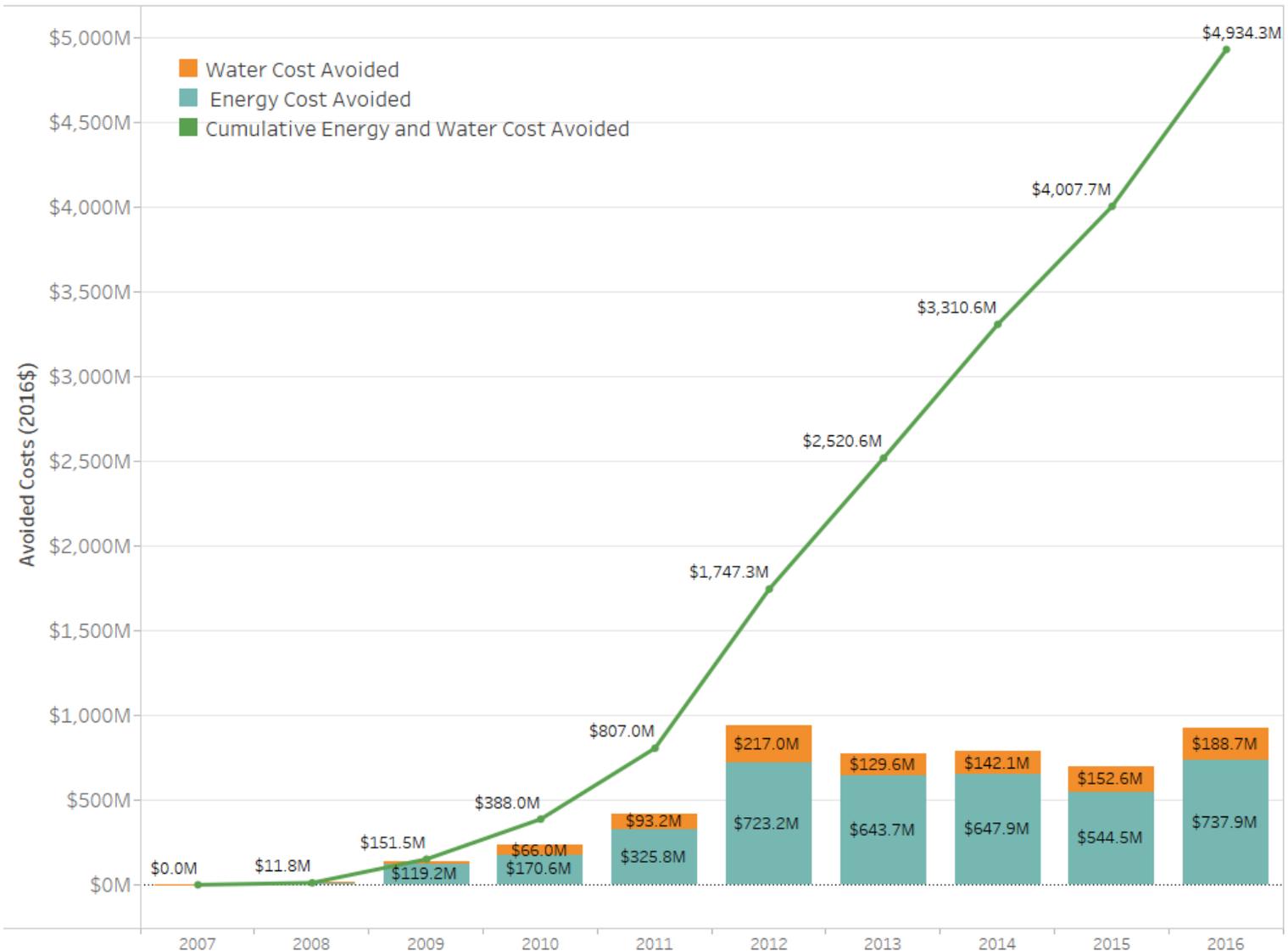


- Savings return of \$43.4 billion by 2030, payback before 2020
- \$20.3 billion investment equivalent to 162,000 job-years
- Approximately \$10 billion of *cost-effective* investment potential available

*(FY16 figures subject to change)

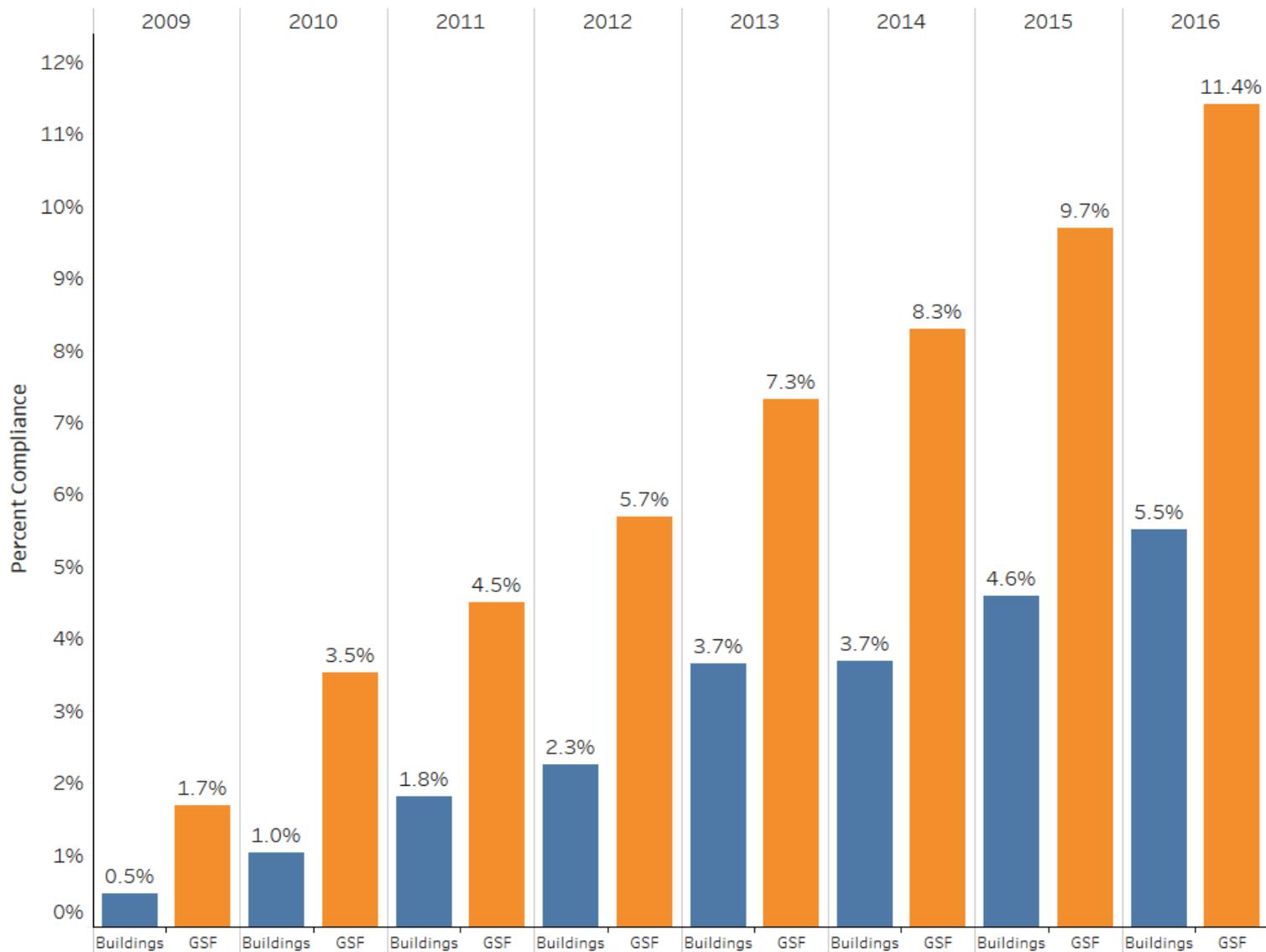
Federal Building Energy & Water Cost Avoidance

Cost Avoided from Reduced Energy and Water Use in Buildings (2016\$)



Federal Buildings Meeting Sustainable Guiding Principles

Federal Government Compliance with Guiding Principles for Sustainable Buildings



High Level Recommendation

- *Double annual rate of high performance retrofit of Federal buildings by portfolio square footage over the next five years.*

Supporting Recommendation

- Expand the use of enhanced financing opportunities to provide necessary capital for building efficiency and high performance improvements.
 - Expand use of ESPCs, UESCs and PPAs
 - Consider blending existing agency appropriated funding with performance contracting mechanisms
 - Review utility contracts with agencies, optimize agency rate schedules and identify opportunities for cost reductions resulting from participation in demand response, time-of-use and other incentive programs
 - Expedite performance contracting

Supporting Recommendation

- The Federal Director of the Office of Federal High Performance Buildings, in coordination with OMB, should explore measures for Federal agencies to retain the maximum feasible savings accrued as a result of the use of cost-effective technologies for future high performance building initiatives, as directed in the Energy Independence and Security act (2007), Sec. 436, parts (e) and (f), and Sec. 439, part (d)(3).

Supporting Recommendation

- GSA and DOE should provide guidance to Federal agencies to create more robust datasets on performance of high performance building retrofit projects and contracts to increase confidence in savings, and ensure outcomes are delivered.
 - All Federal Agencies should ensure they are complying with the EISA 2007 Section 432 requirement to report on EISA covered facilities.
 - Track additional project metadata not covered by EISA 2007 Section 472 including project area, projected and actual cost savings, and M&V results.
 - Leverage advances in automated M&V.
 - Create and publish open datasets, where possible

Supporting Recommendation

- Look at, leverage and broadly replicate best practices in private and public sectors, for high performance renovation, operations and maintenance across the portfolio, as appropriate.

HPB Retrofit Best Practices

- Expand Campus/Installation-wide high performance building upgrades
- Expand aggregation of multiple buildings at various locations for HPB projects at Federal agencies where feasible.
- Set aggressive energy and water reduction goals (>35% of existing consumption).
- Adopt national standards for project development and technical due diligence, such as the protocols used by the Investor Confidence Project.
- Expand life cycle cost analysis (LCCA) to determine most effective options.
- Use integrated design approaches or integrated project delivery methods to inform the early design with cost, feasibility, and technological input to collaboratively focus energy saving strategies.
- Develop and utilize energy performance targets by building type and climate zone to drive project performance throughout design, construction and operations.
- Analyze options for the integration of energy efficiency, renewable energy systems, energy storage to take advantage of utility demand response and other programs that will save agency funds to improve grid operation and resilience.

HPB Retrofit Best Practices

- Bundle energy and water conservation measures into comprehensive packages.
- Explore the potential for zero net energy (ZNE) performance at the outset of the project and achieve ZNE where possible.
- Consider enhanced use leases as an option for agencies with extensive land holdings.
- Consider using contract performance guarantees, such as those structured within the Investor Confidence Project (ICP) model and GSA performance guarantee contracts for contractors (fee held for 12 month proven performance period, as in the Federal Center South Region 10 project).

Task Group Members/Designees

Ash Awad, McKinstry

Nic Baker, DOE FEMP

Paul Bertram, PRB Connect

Ralph DiNola, New Building Institute

Jennifer Frey, Sellen

David Kaneda, Integral Group

Greg Kats, Capital E

Tracy Niro, DOE FEMP

Victor Olgyay, Rocky Mountain Institute

Kent Peterson, P2S Engineering

Sarah Slaughter, Built Environment Coalition

Maureen Sullivan, Department of Defense

Chris Tremper, DOE FEMP

Task Group Observers & Presenters

- GSA:

- Ken Sandler, Kevin Kampschroer, Don Horn

- Other:

- Dan Burgoyne, State of California
- Gerry Coons, OPEI
- Matt Golden, ICP
- Jenna Hamilton & Micah Thomas, GBI
- Christopher Lindsay, IAPMO
- Cristina Schulingkamp, EPA
- Todd Sims, ACC
- Dave Walls, ICC