

# FEDERAL UTILITY PARTNERSHIP WORKING GROUP SEMINAR

April 19-20, 2018  
Nashville, TN

## Federal Agency Performance and Reporting Requirements

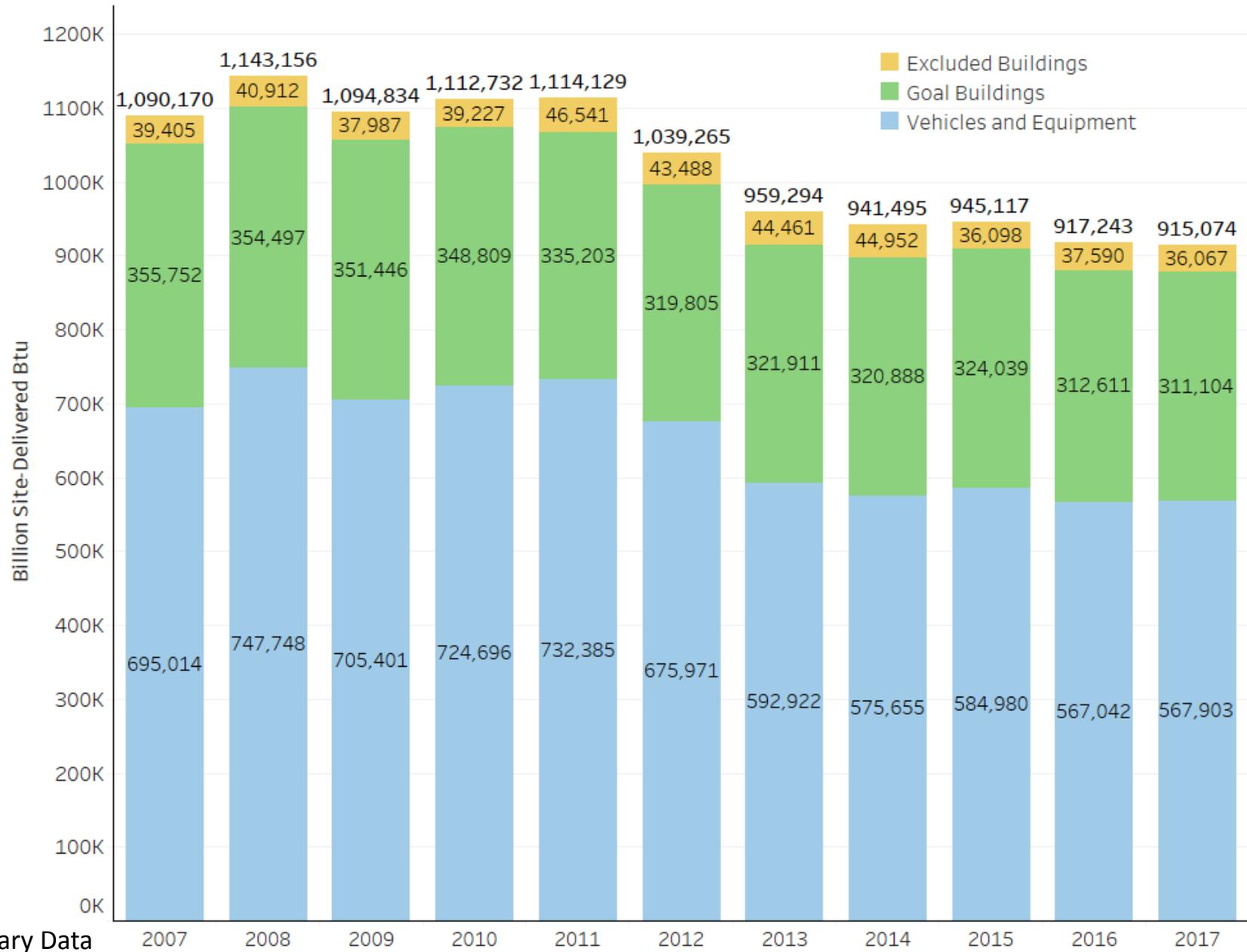
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# Key Findings for FY 2017

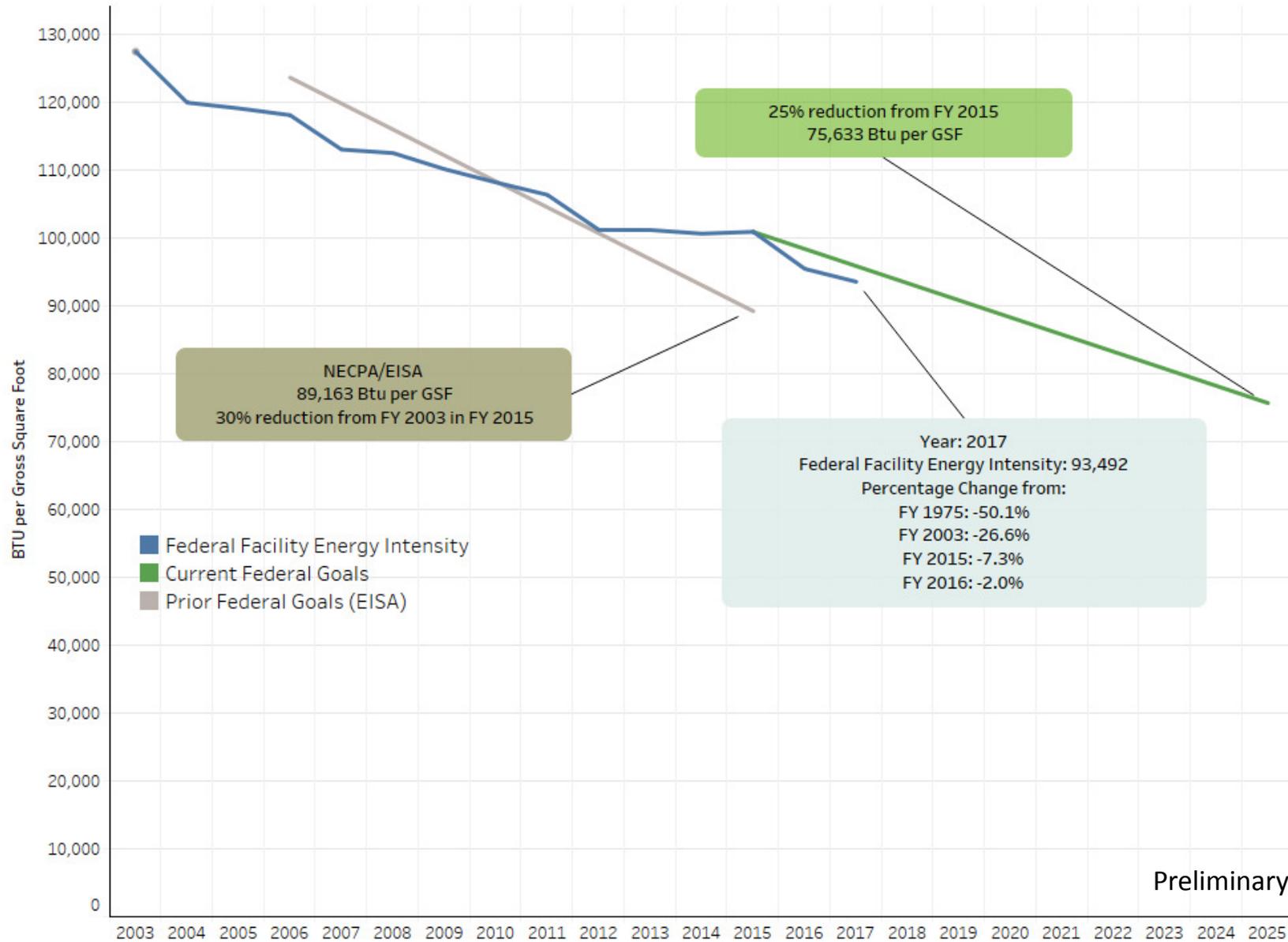
- Facility energy intensity reductions exceeded the 5% goal with a 7.3% reduction from 2015
  - 2% reduction vs. 2016
  - 27% reduction vs. 2003
  - 50% reduction vs. 1975
- Clean energy goal of 10% was exceeded (14.2% of facility energy use)
- Renewable electricity goal of 10% was exceeded (10.6% of electricity use)
- Potable water intensity reduction goal of 20% was exceeded (25.8% reduction vs. 2007)
- Industrial/Landscaping/Agricultural (non-potable) water use was reduced 33.7% vs. 2010 (Goals: 20% in 2020, 30% in 2025)
- Efficiency investment in Federal facilities decreased 15.3% from 2016
  - Direct funding investment: \$346 million in FY 2017
  - ESPC investment: \$1,009 million
  - UESC Investment: \$145 million

Federal Government Energy Use by Sector (FY 2007 - FY 2017)



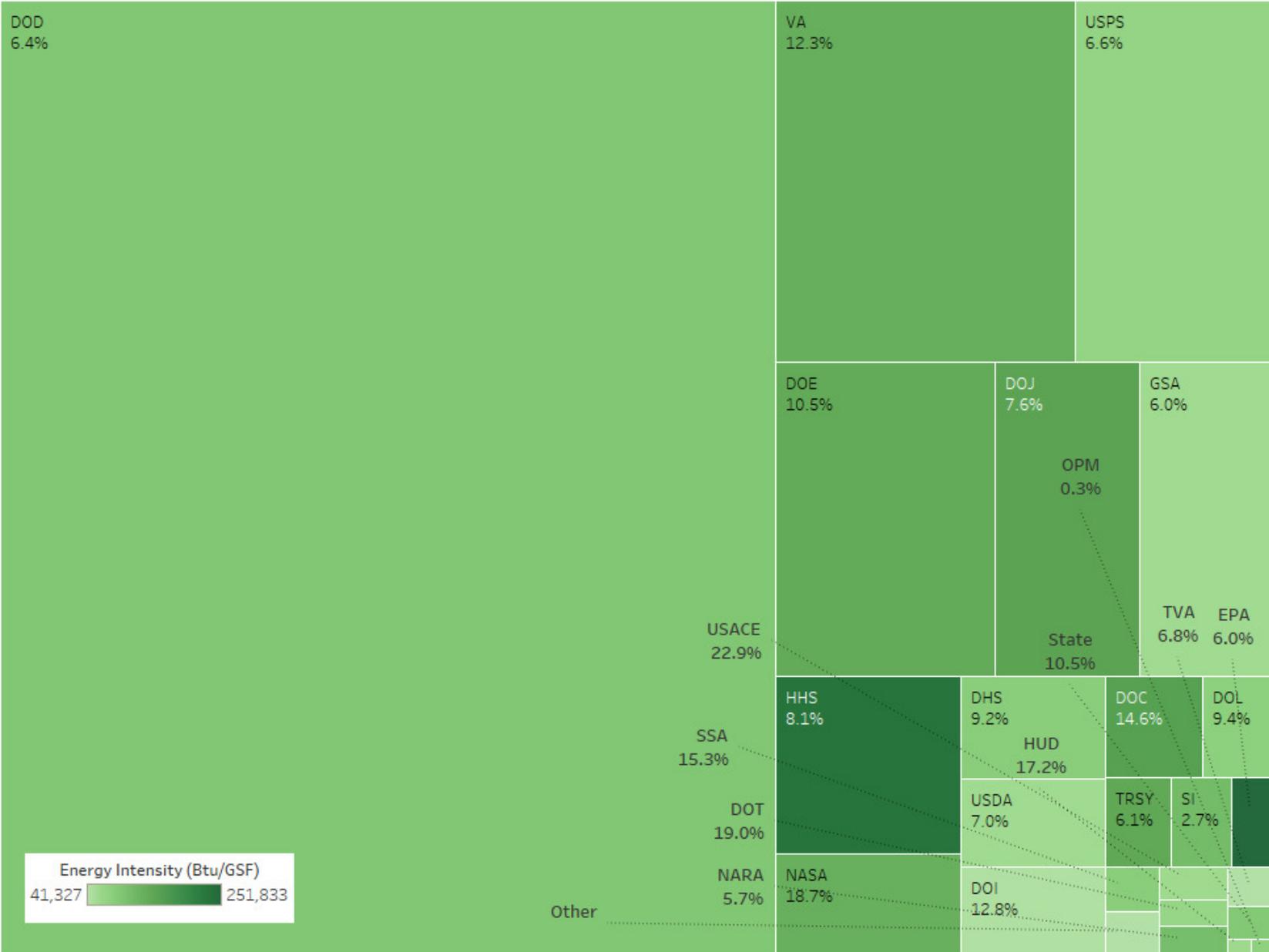
Preliminary Data

## Federal Government Progress Toward Facility Energy Efficiency Goals FY 2003 - FY 2017



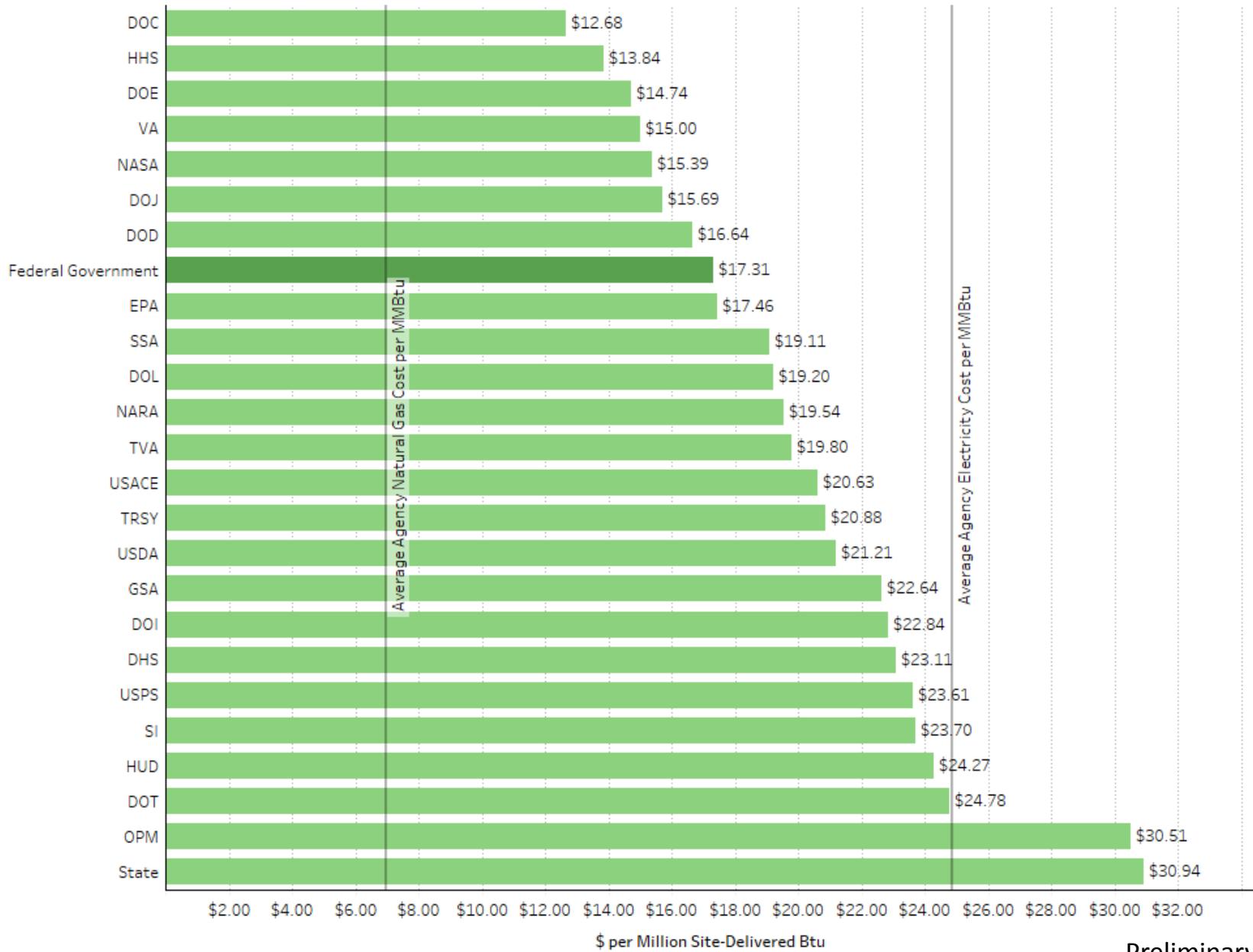
Preliminary Data

# Goal Building Energy Use, Intensity and Reduction Progress 2017 vs 2015: 311 Trillion Btu



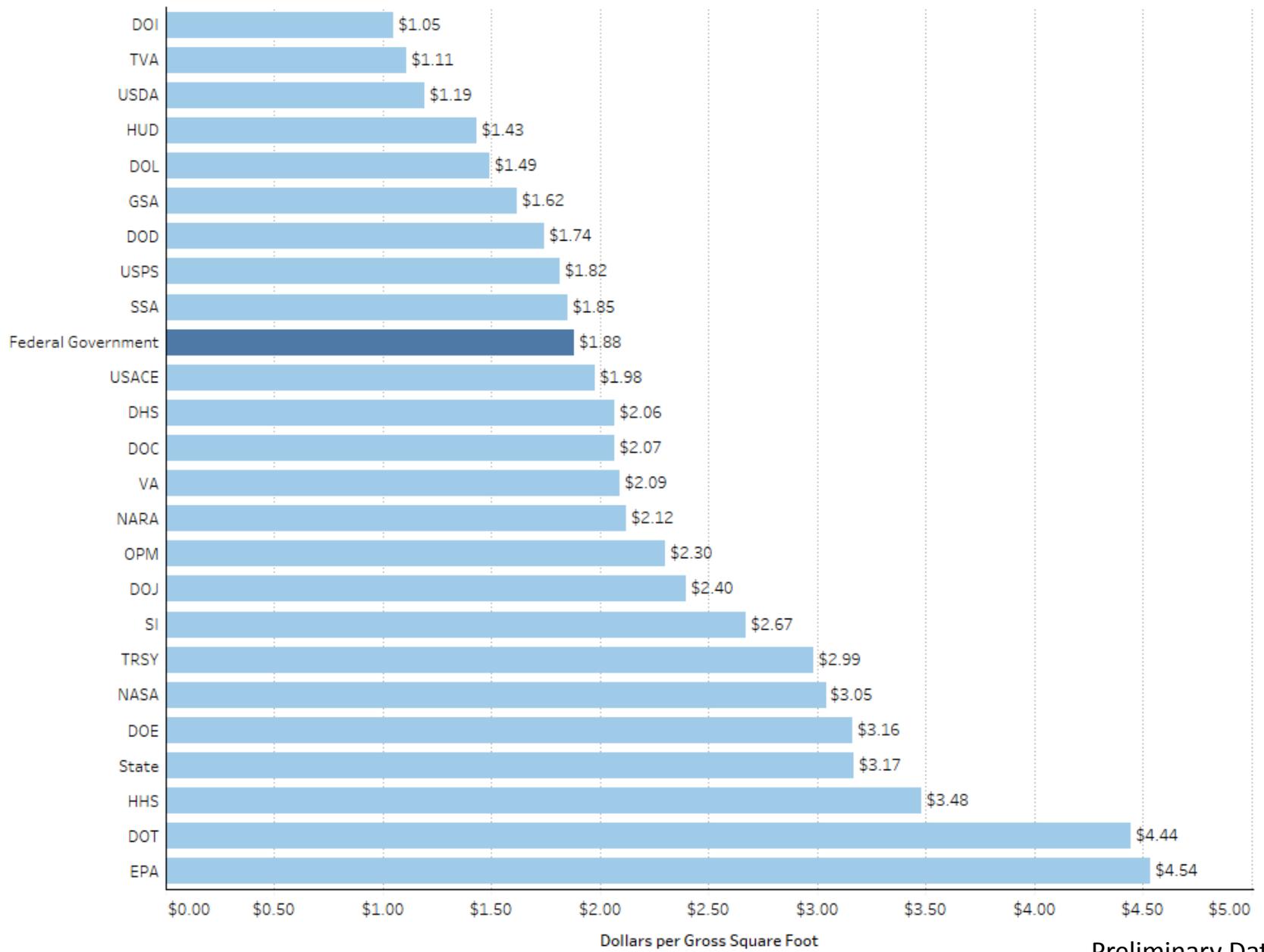
Preliminary Data

### FY 2017 Facility Energy Cost per Million Btu by Agency



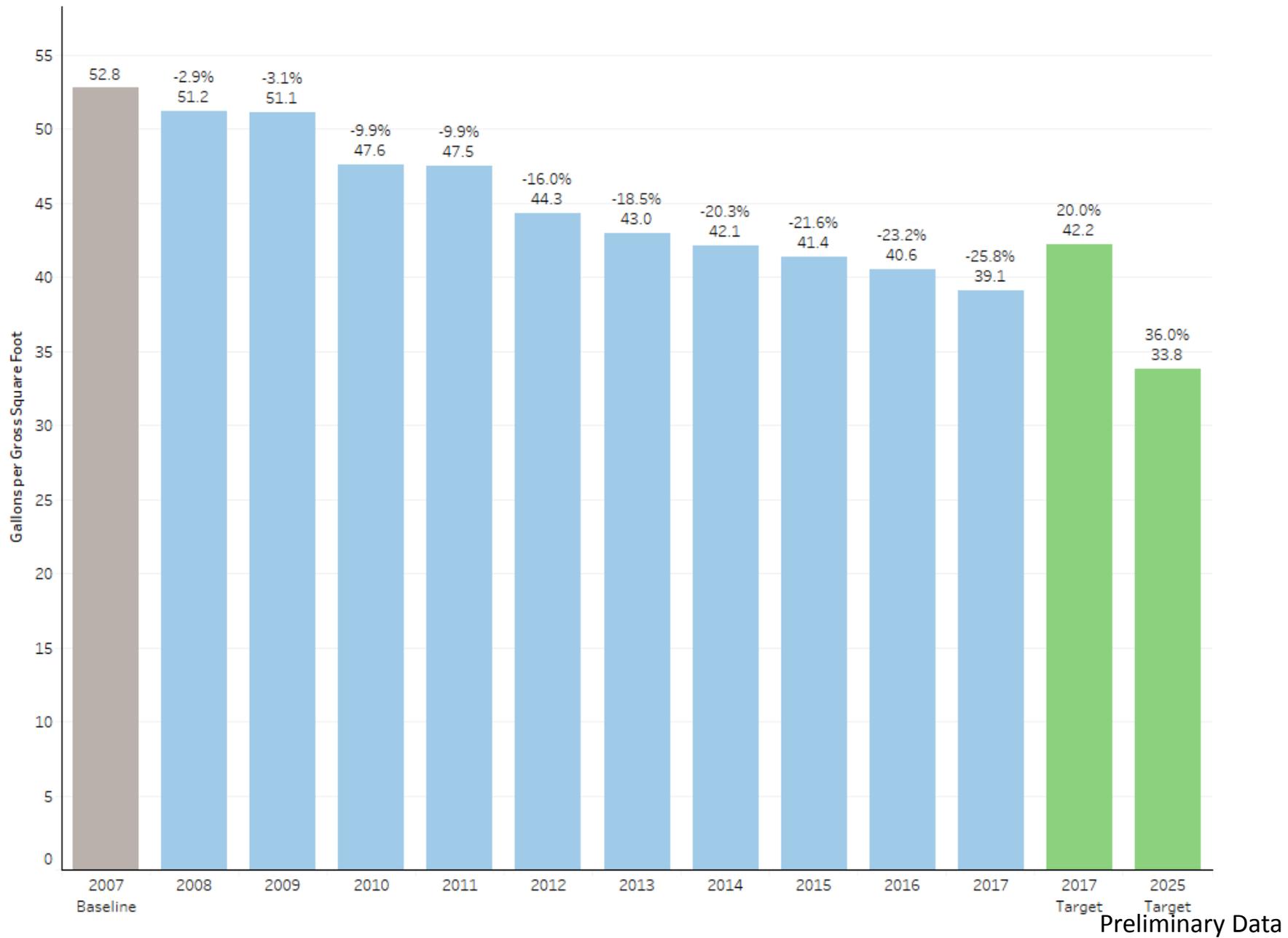
Preliminary Data

### FY 2017 Facility Energy Cost per Gross Square Foot by Agency

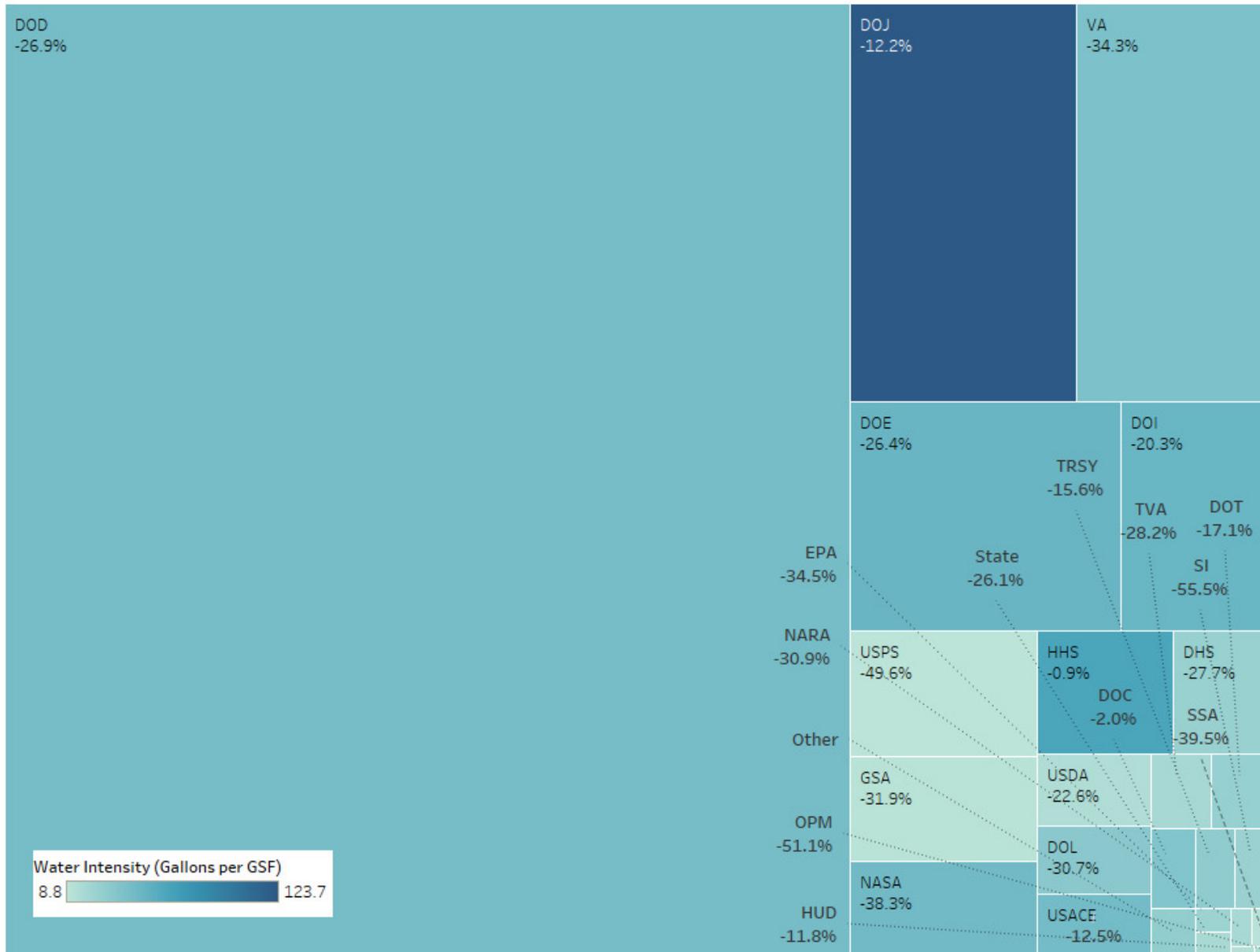


Preliminary Data

# Federal Government Progress Toward the Potable Water Intensity Reduction Goal

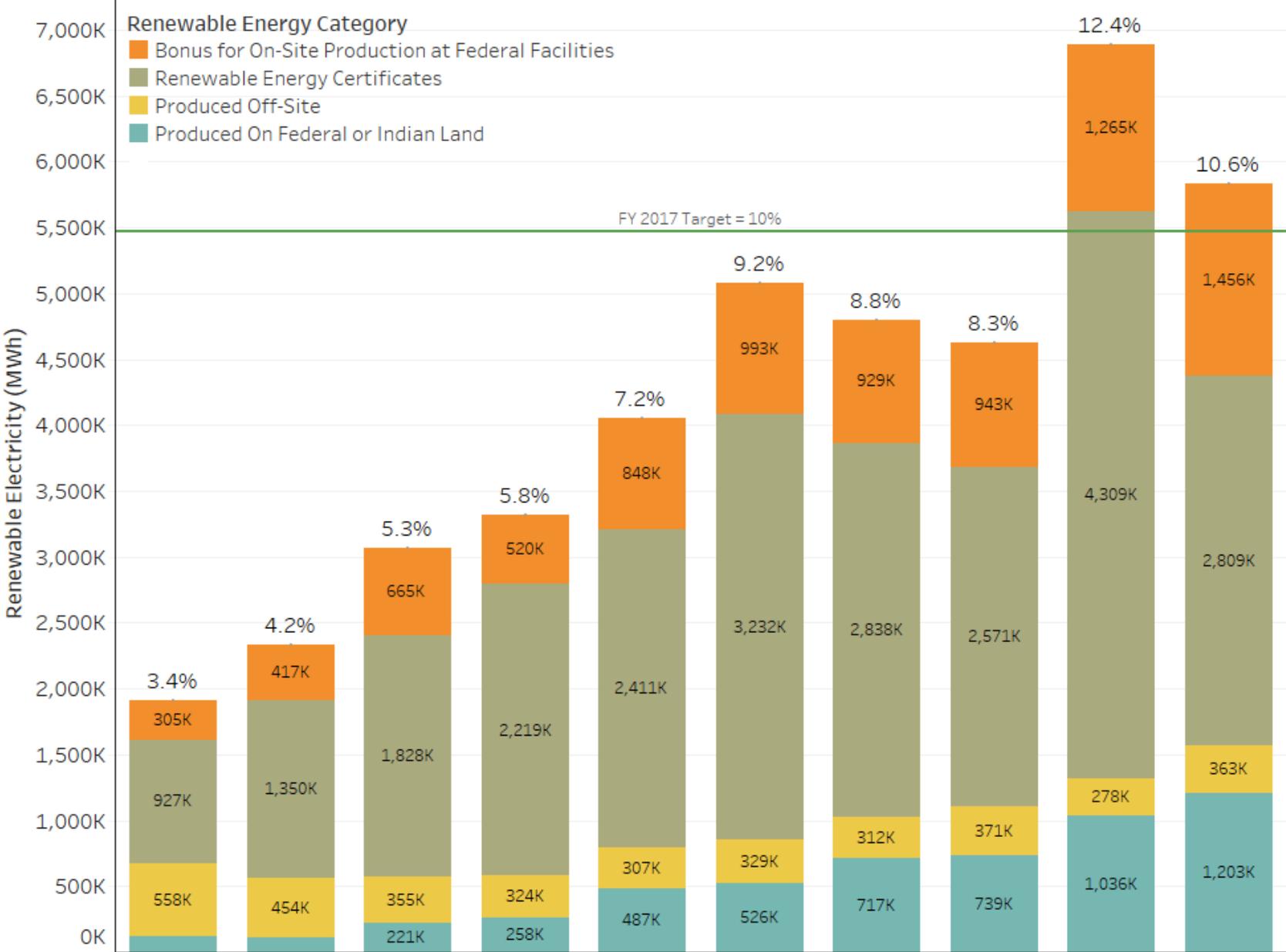


Potable Water Use, Intensity and Reduction Percentage 2017 vs. 2007: 124 Billion Gallons Used



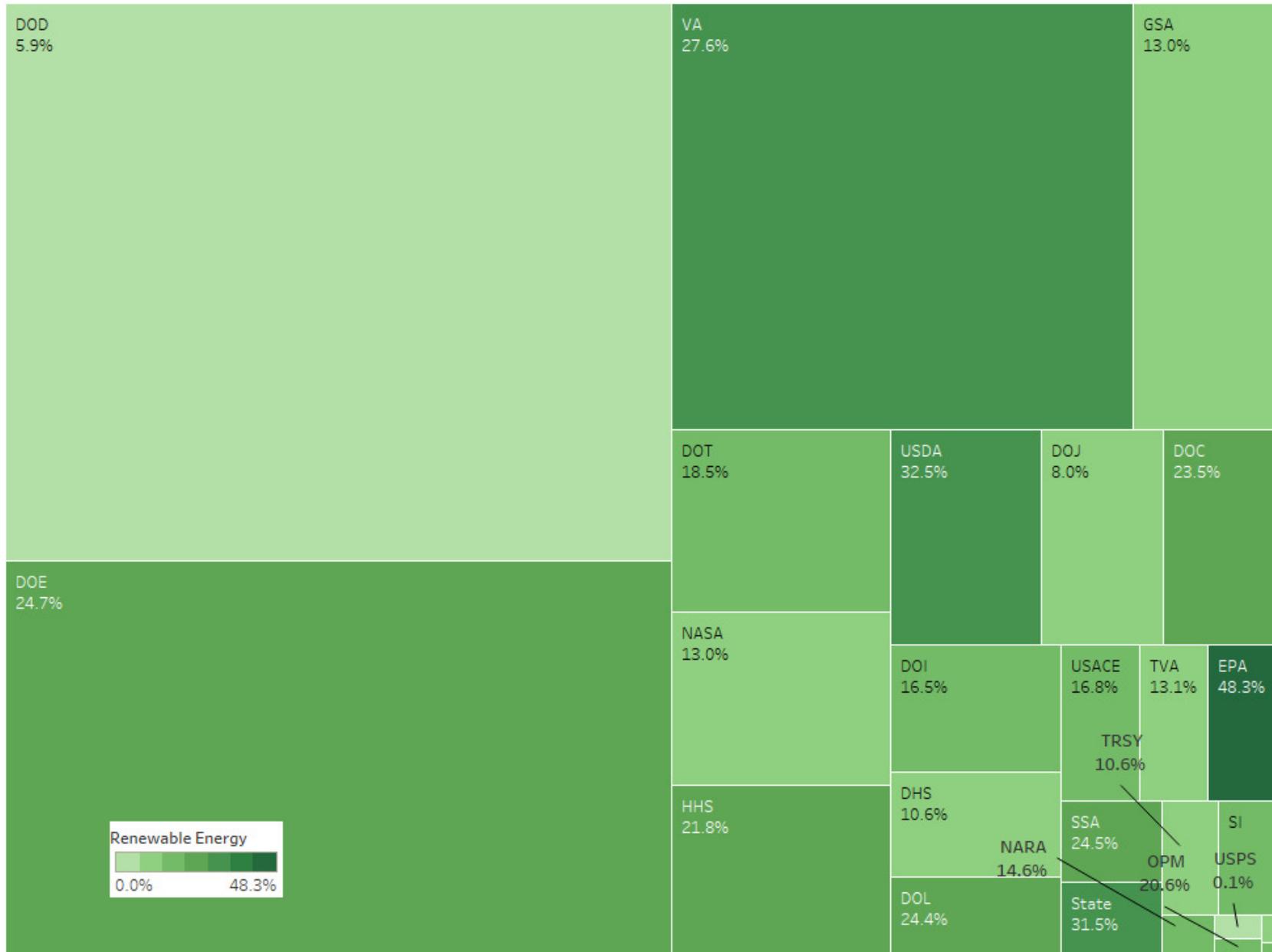
Preliminary Data

# Federal Government Renewable Electricity Use as a Percentage of Facility Electricity Consumption



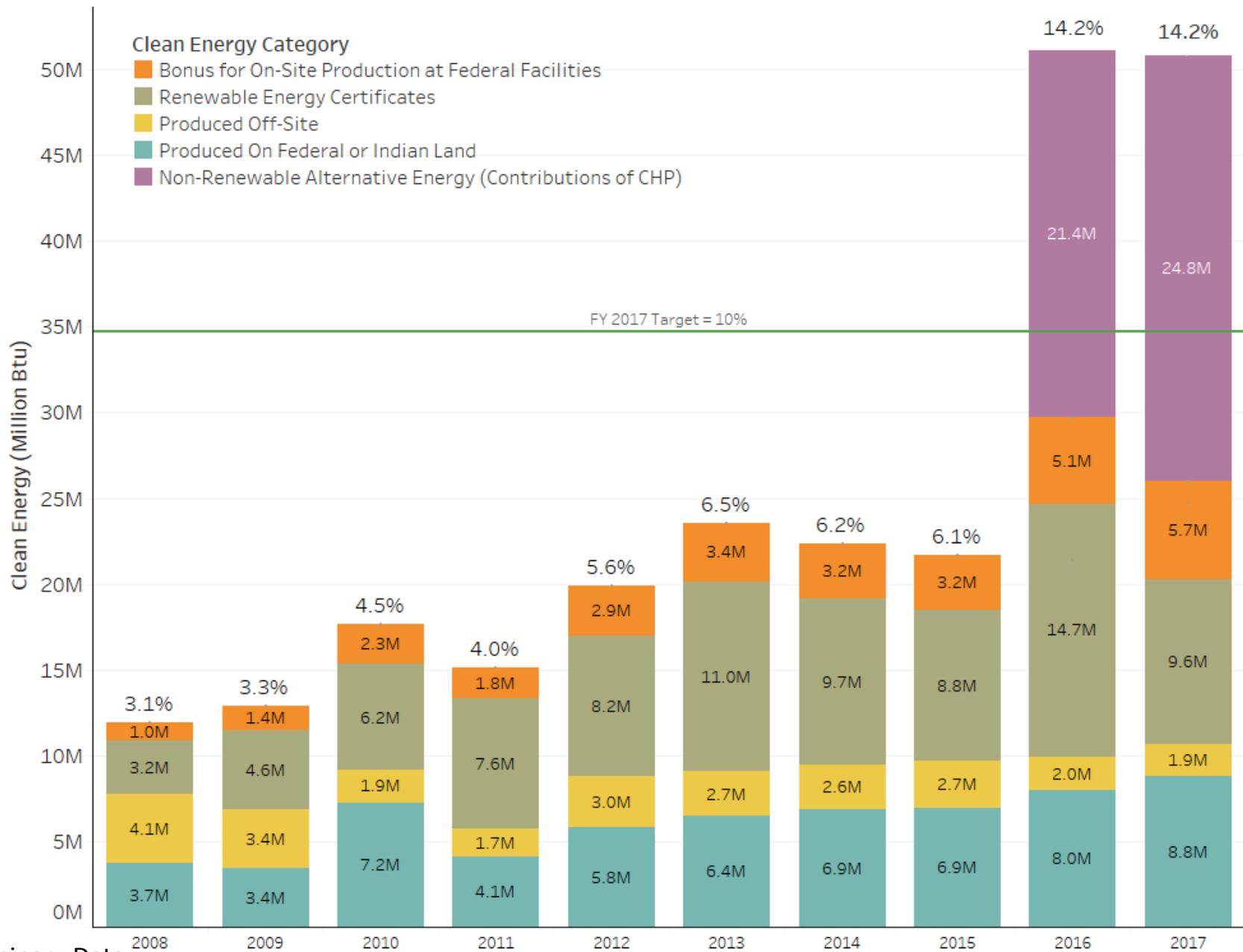
Preliminary Data

# FY 2017 Renewable Electricity Use and Percentage of Electricity Consumption: 5.8 Million MWh



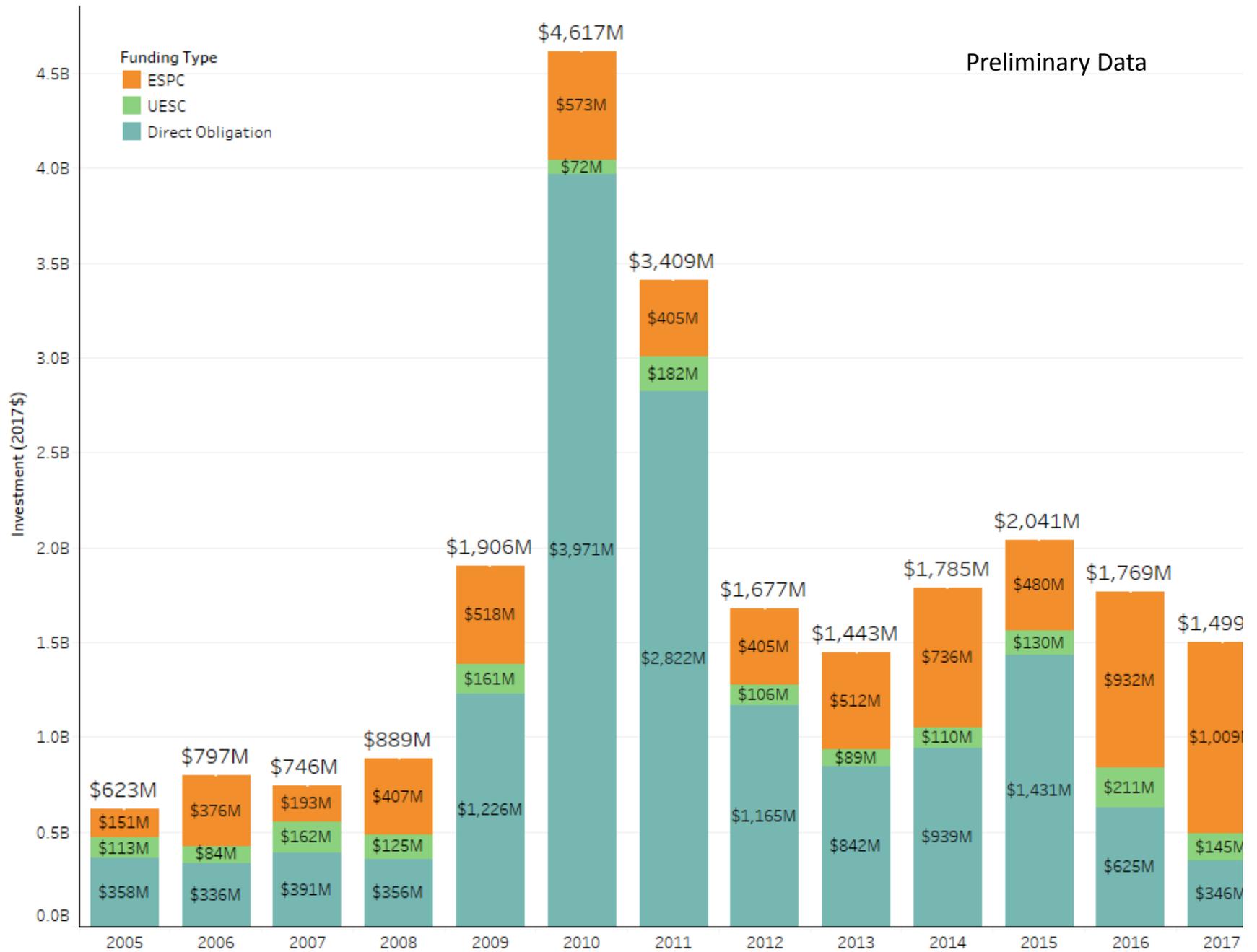
Preliminary Data

## Federal Government Clean Energy Use as a Percentage of Facility Energy Consumption

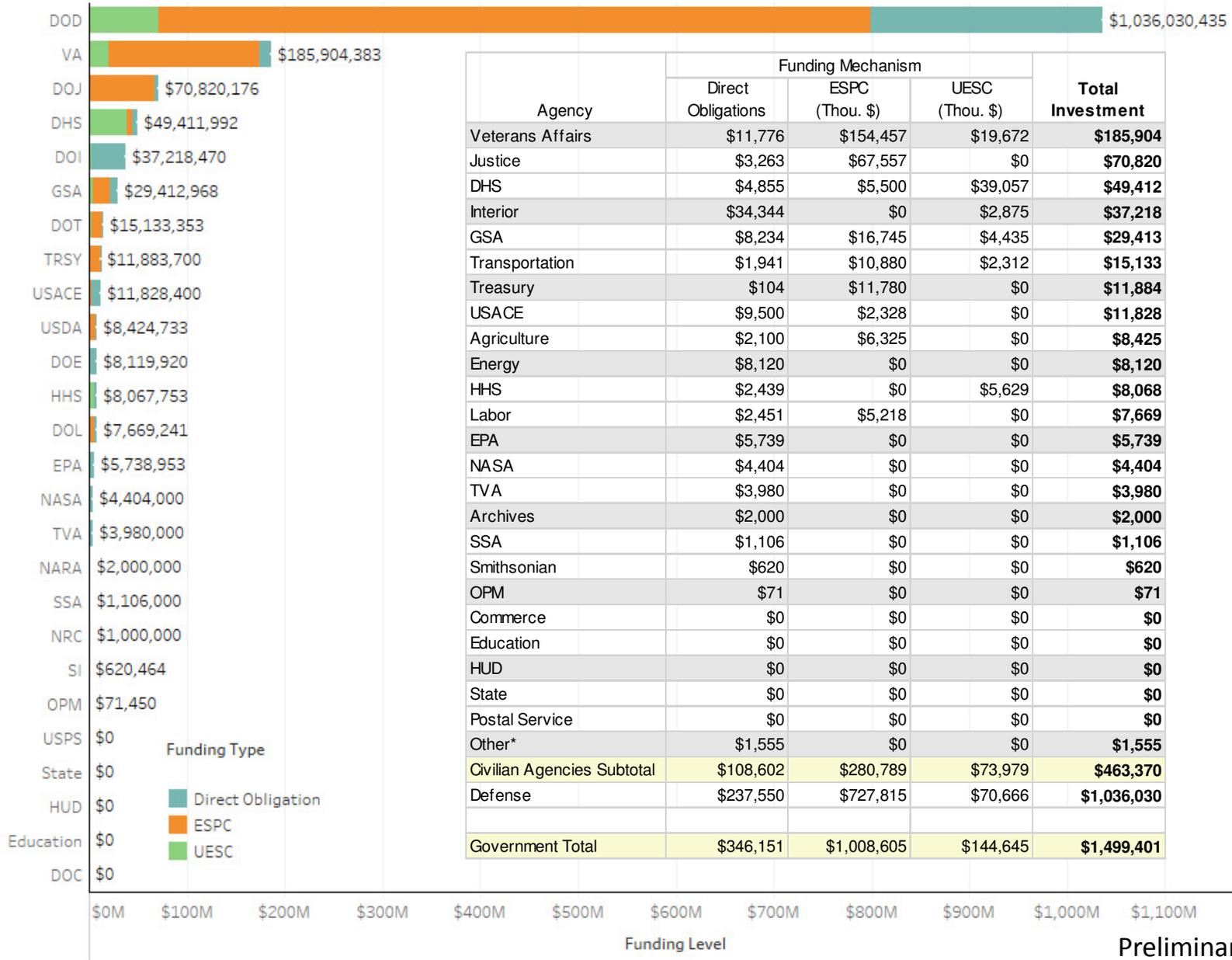


Preliminary Data

## Federal Government Investment in Energy Efficiency and Renewable Energy

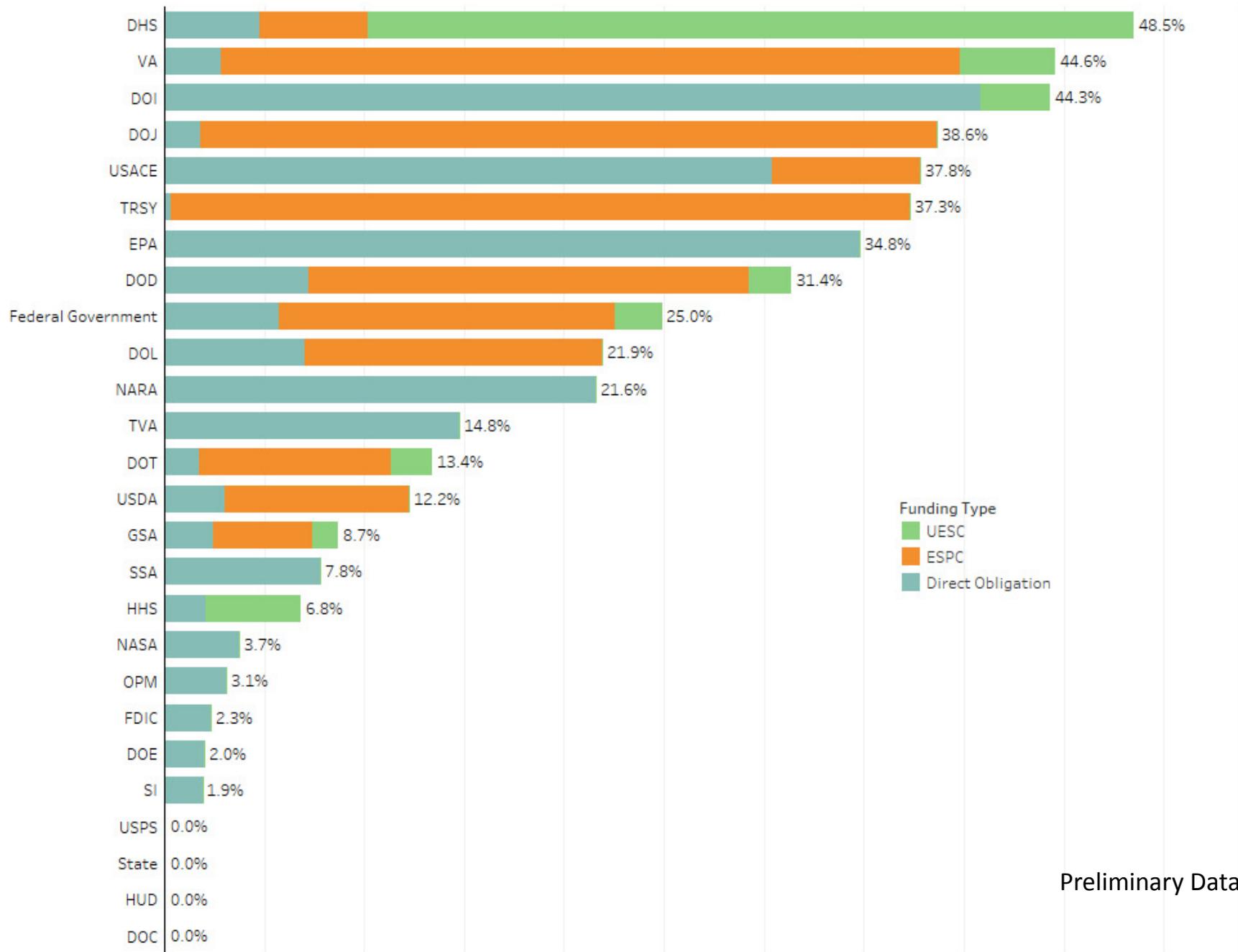


# FY 2017 Federal Agency Investment in Energy Efficiency and Renewable Energy



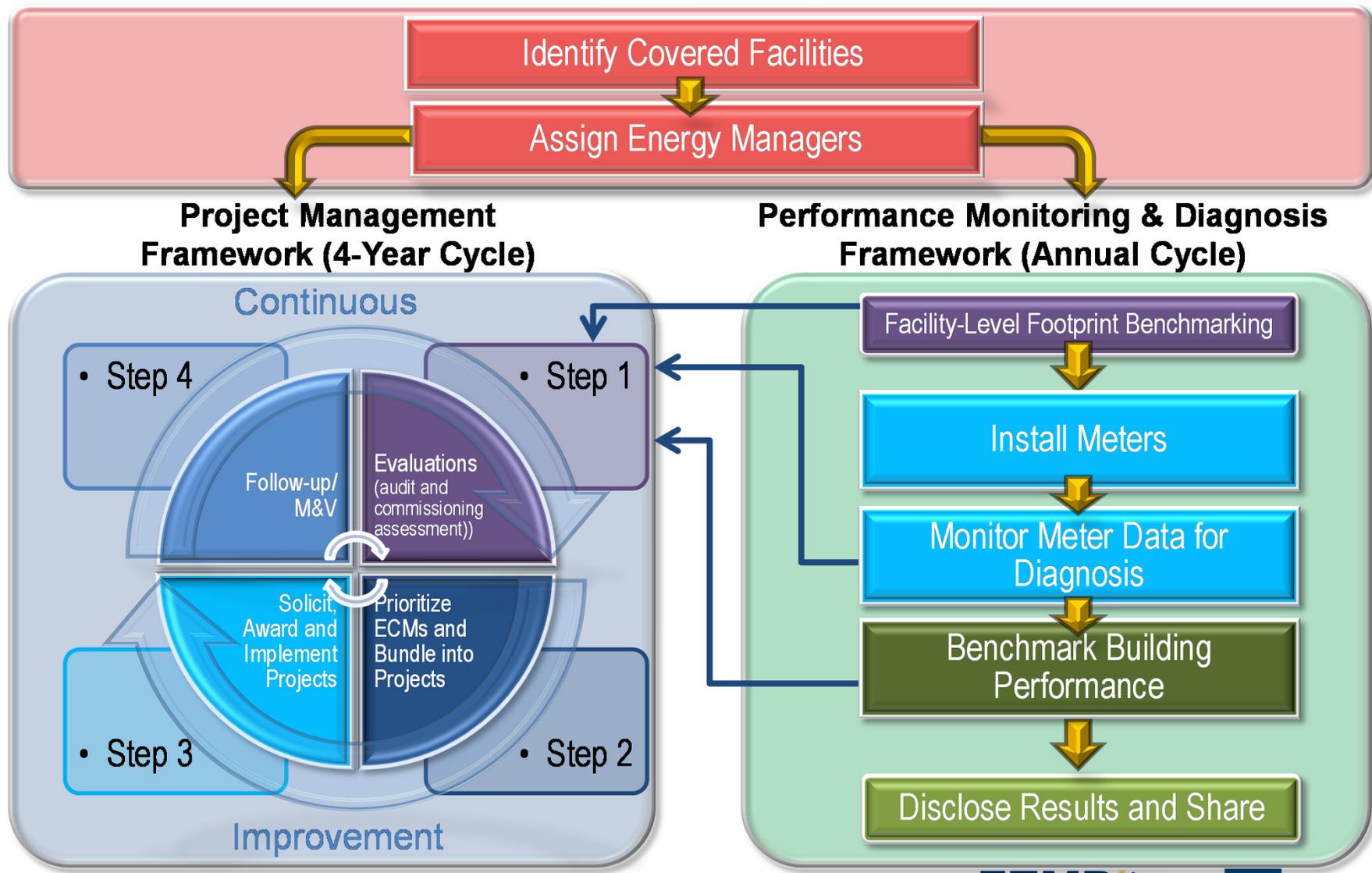
Preliminary Data

### FY 2017 Investment in Energy Efficiency and Renewable Energy as a Percentage of Facility Energy Costs



Preliminary Data

# Energy Independence and Security Act of 2007 (EISA), Sect. 432, Approach to Facility Resource Management



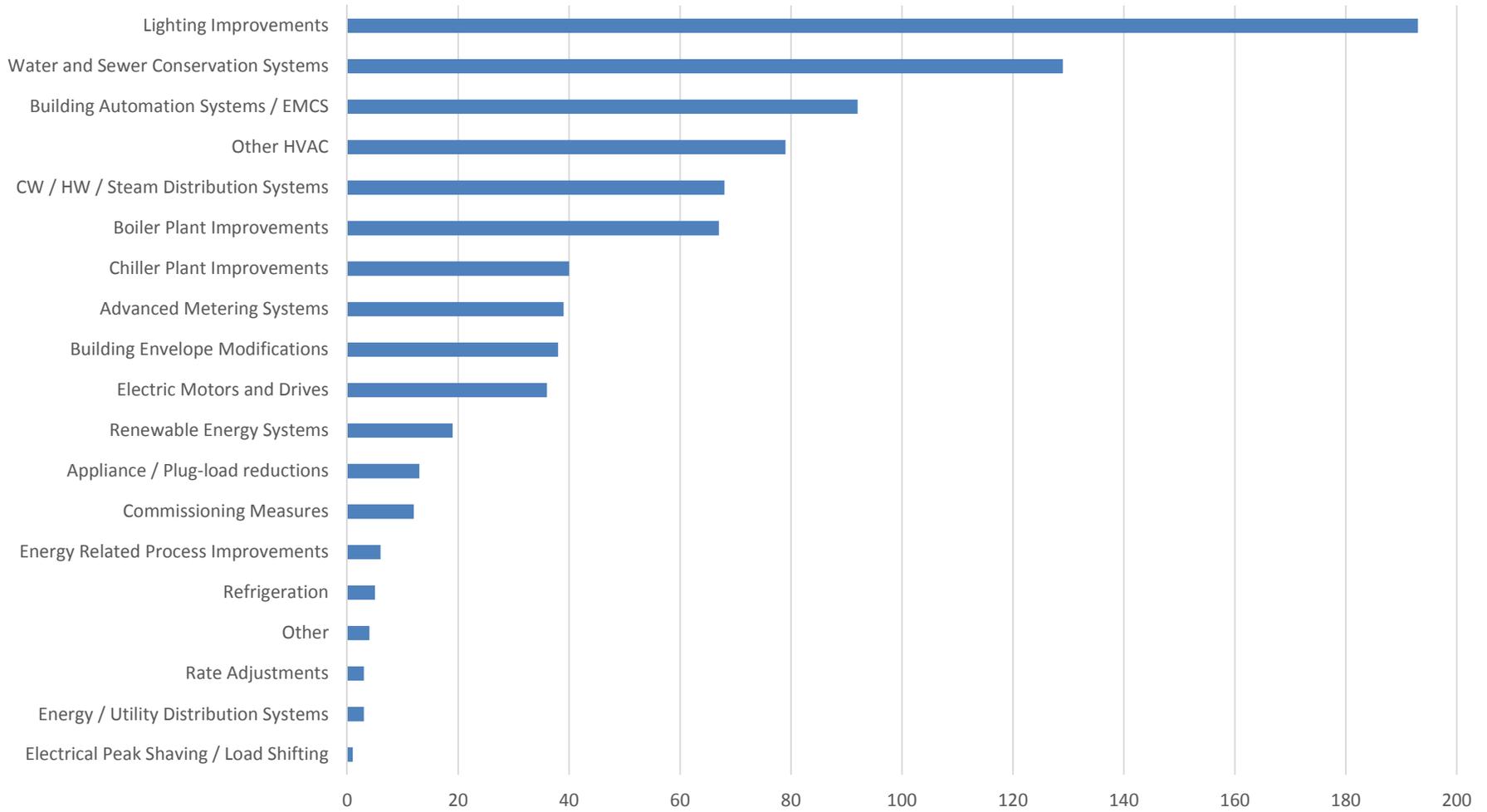
# Reported Findings in EISA 432 Compliance Tracking System

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- Public data site: <http://ctsedweb.ee.doe.gov/CTSDDataAnalysis/ComplianceOverview.aspx>
- 8,430 Covered Facilities, 2.7 billion square feet
  - 89% of total facility energy use
- 62% of Covered Facility Sqft evaluated within the last four years
  - \$8.4 Billion in potential ECMs identified with annual savings of \$791 million (~85,000 ECMs)
  - Potential annual savings of 35 trillion Btu (10% of total) and 10 billion gallons of water (8%)
- \$4.3 billion in implemented projects (2,774) reported
  - 14 trillion Btu in annual savings (4% of total) and 7 billion gallons of water (5%)
  - ~14,000 ECMs
- 169 UESC projects reported in CTS totaling \$329M in investment
  - 1.2 trillion Btu and 969 million gallons of water saved annually
  - 847 ECMs
- 19% of metered buildings benchmarked at least once
  - 9,823 of 51,017 individually-metered buildings

(Data as of 04/10/2018)

### ECMs Installed Under UESCs Reported to CTS



# Key Fields: CTS Project Data Upload Template

Implemented Project - Data Fields			
Project Identification			
Project Name	The agency designated implemented project name.	Text: (100 char max)	Required
Agency Designated Project ID	Internal agency defined project identifier. It must be unique across the sub-agency.	Text: (50 char max)	Required
Project Status			
Project Initiation Date	Typically the date of contract award	Date (mm/dd/yyyy)	Required
Project Implementation Date	Date when majority of the project was completed and implemented. (substantial completion)	Date (mm/dd/yyyy)	Optional
Project Acceptance Date	Date of project completion and formal project acceptance. (equipment commissioned/O&M plan in place)	Date (mm/dd/yyyy)	Optional
Funding Source		Selection: (list)	Required (indicate the Funding Level for at least one Funding Source OR supply the Total Project Implementation Cost)
Funding Level	Dollar value associated with funding source	Numeric: (Dollars)	Required for each funding source type selected
Direct Centralized Capital Funding)		Integer (Dollars)	Required if applicable
Direct (ARRA)	American Recovery and Reinvestment Act funding	Integer (Dollars)	Required if applicable
Decentralized Operating Budgets	Funding for smaller projects from decentralized operating budgets.	Integer (Dollars)	Required if applicable
Utility Energy Service Contract (UESC)		Integer (Dollars)	Required if applicable
Energy Savings Performance Contract (ESPC)	Enter the project implement costs for the project. Do not include financing costs associated with the ESPC.	Integer (Dollars)	Required if applicable
Power Purchase Agreement (PPA)	Enter the project implementation costs associated with the PPA (equivalent to the value of installed equipment plus the labor to install).	Integer (Dollars)	Required if applicable
Enhanced Use Lease (EUL)	Enter the implementation cost for the project (equivalent to the value of the installed equipment and labor costs to install).	Integer (Dollars)	Required if applicable
Incentive Program		Integer (Dollars)	Required if applicable
Other	Funding from sources not listed above.	Integer (Dollars)	Required if applicable
Total Project Implementation Cost	Total Project Implementation Cost may be entered by Funding Source or directly as a total. Does not include financing and interest payments	Integer: (Dollars)	Required
Financing Costs	The cost of financing for projects that are funded over time through performance-based contracts.	Integer: (Dollars)	Required (if applicable)
Total Awarded Contract Value	Calculated field: Total Project Implementation Costs + Total Financing Costs for all sources	Numeric: (Dollars) system calculated total	Required

# Key Fields: CTS Project Data Upload Template (Cont'd)

Estimated LCC Net Savings	Measure of cost effectiveness used to validate this project. Value in \$ entered directly.	Integer: (Dollars)	Optional
Life of Project	The estimated life of project in years.	Integer: (Years)	Optional
<b>Estimated Energy/Water Savings</b>			
Total Estimated Annual Energy Savings	Combined Estimated Annual Energy Savings entered by Fuel Type or entered directly as Million Btu	Numeric: (Million Btu) Note: Either calculated from native fuel type or entered as a total in Million Btu.	Required (if applicable) At least one: Energy or Water or Renewable Savings, is required.
Estimated Annual Energy Savings by Fuel Type	Estimated annual energy savings entered in the native units shown below.	Numeric: (Saved in native units by fuel type as indicated)	Required (if applicable)
Electricity Savings	Electricity Savings (kwh) [0.0034123 MBtu/kwh]	Numeric (kwh)	Required (if applicable)
Natural Gas Savings	Natural Gas Savings (thou cu ft) [1.028 MBtu/kscf]	Numeric (thou cu ft)	Required (if applicable)
Coal - Anthracite	Coal - Anthracite (short tons) [25.09 MBtu/short ton]	Numeric (short tons)	Required (if applicable)
Coal - Bituminous	Coal - Bituminous (short tons) [24.93 MBtu/short ton]	Numeric (short tons)	Required (if applicable)
Distillate Fuel Oil #2	Distillate Fuel Oil #2 (gallons) [0.138 MBtu/gallon]	Numeric (gallons)	Required (if applicable)
Distillate Fuel Oil #4	Distillate Fuel Oil #4 (gallons) [0.146 MBtu/gallon]	Numeric (gallons)	Required (if applicable)
Distillate Fuel Oil #5	Residual Fuel Oil #5 (gallons) [0.14 MBtu/gallon]	Numeric (gallons)	Required (if applicable)
Propane	Propane (gallons) [0.091 MBtu/gallon]	Numeric (gallons)	Required (if applicable)
District Steam	District Steam [1.194 MBtu/Thou. Lbs]	Numeric (Thou. Lbs.)	Required (if applicable)
Chilled Water - Electric Driven	Chilled Water - Electric Driven [0.012 MBtu/ton hours	Numeric (ton hours)	Required (if applicable)
Chilled Water - Absorption	Chilled Water – Absorption [0.012 MBtu/ton hours]	Numeric (ton hours)	Required (if applicable)
Chilled Water - Engine Driven	Chilled Water - Engine Driven [0.012 MBtu/ton hours]	Numeric (ton hours)	Required (if applicable)
Diesel	Diesel (gallons) [0.138 MBtu/gallon]	Numeric (gallons)	Required (if applicable)
Other	Savings by fuel type(s) other than those listed above entered in Million Btu.	Numeric (Million Btu)	Required (if applicable)
Estimated Annual Water Saving	Estimated Annual Water Savings	Numeric: (Thou. Gallons)	Required (if applicable) At least one: Energy or Water or Renewable Savings, is required.
Estimated Annual Renewable Electricity Output	Estimated Annual Renewable Electricity Output Savings	Numeric: (Kwh)	Required (if applicable; see note for Total Estimated Energy Savings)
Estimated Annual Renewable Thermal Output	Estimated Annual Renewable Thermal Output Savings	Numeric: (Million Btu)	Required (if applicable; see note for Total Estimated Energy Savings)
Comments	Text field for capturing any notes related to this implemented project	Text (2000 char max)	Optional

# Key Fields: CTS Project Data Upload Template (Cont'd)

Energy Conservation Measures Implemented	List of energy and water Efficiency and Conservation Measures (ECMs) implemented within this project.	Selection: (list) Allow selection of multiple Technology Categories and ECMs.	Required (at least 1 ECM from any Technology Category)
ECM Count per Technology Category			
Boiler Plant Improvements		Integer	At least 1 ECM from the category
Chiller Plant Improvements		Integer	At least 1 ECM from the category
Building Automation Systems/Energy Management Control Systems (EMCS)		Integer	At least 1 ECM from the category
Heating, Ventilating, and Air Conditioning		Integer	At least 1 ECM from the category
Lighting Improvements		Integer	At least 1 ECM from the category
Building Envelope Modifications		Integer	At least 1 ECM from the category
Chilled Water, Hot Water, and Steam Distribution Systems		Integer	At least 1 ECM from the category
Electric Motors and Drives		Integer	At least 1 ECM from the category
Refrigeration		Integer	At least 1 ECM from the category
Distributed Generation		Integer	At least 1 ECM from the category
Renewable Energy Systems		Integer	At least 1 ECM from the category
Energy/Utility Distribution Systems		Integer	At least 1 ECM from the category
Water and Sewer Conservation Systems		Integer	At least 1 ECM from the category
Electrical Peak Shaving/Load Shifting		Integer	At least 1 ECM from the category
Energy Cost Reduction Through Rate Adjustments		Integer	At least 1 ECM from the category
Energy Related Process Improvements		Integer	At least 1 ECM from the category
Advanced Metering Systems		Integer	At least 1 ECM from the category
Appliance/Plug-load reductions		Integer	At least 1 ECM from the category
Commissioning Measures		Integer	At least 1 ECM from the category
Other		Integer	At least 1 ECM from the category

# Key Fields: CTS Project Data Upload Template (Cont'd)

Covered Facility Characteristics - Data Fields			
Facility Characteristics			
Sub-Agency Acronym	The Department/agency or sub-agency/bureau to which the covered facility is associated.	Selection (list) in CTS	Required (Provided by agency)
Facility Name	The name of the Covered Facility	Text: (75 char max)	Required (Provided by agency)
Agency Designated Covered Facility ID	Agency assigned internal covered facility identifier. This identifier must be unique across the top-tier agency.	Text: (25 char max)	Required (Provided by agency)

## When it Comes to Energy Data for Benchmarking, Utilities Are Most Likely to Have What Customers Need

- Utilities may not be the only entity with extensive energy consumption data...
- ...but they are the first place customers are likely turn when seeking data
  - “The utility tracks our consumption and sends us our bill every month – so why can’t they get us data in a format that will make benchmarking easier?”

# Utility Approaches to Providing Data to Customers

- Utilities offer various ways for customers to initiate and manage their requests for aggregate whole-building data
  - Use paper/electronic forms
  - Integrate new functionality into existing customer-facing website or portal
  - Develop new web interface or stand-alone portal
  - Use Portfolio Manager interface
- Common for utilities to use combinations of these approaches
- If offering web services, use of the Portfolio Manager interface will typically be required for initiation of data exchange

# Find Utilities that Provide Energy Data for Benchmarking

**FIND UTILITIES THAT PROVIDE ENERGY DATA FOR BENCHMARKING**

Click on the map or search to quickly determine if your utility provides the energy data you need to benchmark in ENERGY STAR® Portfolio Manager®

Please enter your zip code below to show coverage in your area:

98126

**Utility Name:** Puget Sound Energy  
**Fuel Type:** Electric, Gas  
**Data Type** : Web Services  
**Aggregate Whole-Building Data** : Yes(5)  
**Multifamily Included** : Yes  
**Contact Info:**  
**Email:** [MyData@pse.com](mailto:MyData@pse.com)  
**Web Address:** Click [here](#) for more information.

**Utility Name:** Seattle City Light  
**Fuel Type:** Electric  
**Data Type** : Web Services  
**Aggregate Whole-Building Data** : Yes(2)  
**Multifamily Included** : Yes  
**Contact Info:**  
**Email:** [scf\\_portfolio\\_manager@seattle.gov](mailto:scf_portfolio_manager@seattle.gov)  
**Web Address:** Click [here](#) for more information.

Google

Utilities Providing Energy Data for Benchmarking in ENERGY STAR® Portfolio Manager®

Map data ©2016 Google Terms of Use

[www.energystar.gov/utilitydata](http://www.energystar.gov/utilitydata)

# Explore Utilities That Are Integrating Benchmarking into Program Offerings

- Visit to the ENERGY STAR Directory of Energy Efficiency Programs
- Available [online](#)



## DIRECTORY OF ENERGY EFFICIENCY PROGRAMS LEVERAGING ENERGY STAR® (LAST UPDATED AUGUST 2016)

Utilities and state program sponsors across the country are incorporating benchmarking and other ENERGY STAR tools and resources into their energy efficiency programs. This document provides a quick way to find out which programs sponsors are offering services that will help you improve the energy performance of your commercial buildings using ENERGY STAR. You can quickly search for four types of program offerings: Benchmarking with Portfolio Manager, Portfolio Manager Web Services, Appropriate Whole Building Data Downloads, and Building Performance with ENERGY STAR.

BENCHMARKING WITH PORTFOLIO MANAGER		
Program Sponsor	Program Name and Web or Email Contact Link	Summary
Alabama Power (AL)	<a href="#">State Energy Program</a>	The State of Alabama (ADECA) employs the State Energy Program to decrease energy consumption in public facilities such as K-12 schools, universities, community colleges, state and local governments as well as some privately owned commercial and residential buildings. Alabama Power assesses the state by providing energy data related to these buildings for benchmarking with Portfolio Manager.
Ameren Illinois (IL)	<a href="#">Large Facility Retro-Commissioning (formerly Healthcare and Commercial Building Retro-commissioning)</a>	Large facility customers can receive incentives for conducting a retro-commissioning building survey and implementing low cost (0-1 year payback) measures using a pre-approved Retro-Commissioning Service Provider (RSCP). Applications for funding must include survey results and the building's ENERGY STAR benchmarking score. Facilities with a High Energy Utilization Index (EUI) or low ENERGY STAR score will be ranked higher in the approval process.
American Electric Power (AEP) Southwestern Electric Power Company (SWEPCO) (TX)	<a href="#">SWEPCO SCORE® (Schools Preserving Resources) Program</a>	Through the SCORE Program, K-12 public schools are provided assistance in benchmarking their facilities using Portfolio Manager, developing an energy master plan, identifying and prioritizing energy efficiency projects, and communicating project successes to management and the community.
AEP Texas Central Company (TX)	<a href="#">AEP Texas SCORE® / CitySmart® Program</a>	Through the SCORE / CitySmart Program, K-12 public schools and municipal governments are provided assistance in benchmarking their facilities using Portfolio Manager, developing an energy master plan, identifying and prioritizing energy efficiency projects, and communicating project successes to management and the community.
AEP Texas North Company (TX)	<a href="#">AEP Texas SCORE® / CitySmart® Program</a>	Through the SCORE / CitySmart Program, K-12 public schools and municipal governments are provided assistance in benchmarking their facilities using Portfolio Manager, developing an energy master plan, identifying and prioritizing energy efficiency projects, and communicating project successes to management and the community.
Arizona Public Service (APS) (AZ)	<a href="#">Solutions for Business Program</a>	APS sponsors periodic training classes on Portfolio Manager. Customers are encouraged to use Portfolio Manager to better understand how they use energy and identify opportunities to improve the efficiency of their facilities. Many of these opportunities will qualify for incentives through the APS Solutions for Business program. Additionally, customers must use Portfolio Manager to establish a baseline when pursuing retro-commissioning improvements and incentives.

# For Further Exploration

- ENERGY STAR® Portfolio Manager® [Main Page](#)
- [Interactive Map](#) of Benchmarking Program and Policies Leveraging ENERGY STAR
- ENERGY STAR Interactive [Utility Data Access Map](#)
- ENERGY STAR [Utility Data Access Fact Sheet](#)
- IMT [Utilities' Guide to Data Access for Building Benchmarking](#)
- SEE Action Network [Regulator's Guide to Data Access for Commercial Building Energy Performance Benchmarking](#)
- ComEd [Case Study](#)
- [Creating Value from Benchmarking: A Utility Perspective](#) (a report by the Institute for Market Transformation)

# Benefits of Collecting & Reporting Data

- **Can't manage resources that aren't measured; focuses senior management attention on efficiency/investment and on life-cycle cost-effective opportunities.**
- **Avoids embarrassing ignorance of agency operations; historical record of Government operations**
- **Transparency promotes accountability for efficient operations; complying with statutes insures against potential lawsuits**
- **Leadership by example from promoting efficient technology, savings to taxpayer**
- **A record of success (or lessons learned) to defend past investment or future budget requests**
- **EISA audit findings: pipeline of potential cost-effective efficiency measures for infrastructure programs and performance contracting**
- **EISA project reporting demonstrates results and ensures persistence of savings (get what you paid for)**
- **Building benchmarking tracks performance over time and diagnoses potential problems, instills motivating competition with similar buildings**

# Contact and Links

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- <http://energy.gov/eere/femp/federal-facility-annual-energy-reports-and-performance>
- <http://ctsedweb.ee.doe.gov/Annual/2016/Report/Report.aspx> (direct link and archive for FY 2016 data)
- <http://energy.gov/eere/femp/eisa-federal-covered-facility-management-and-benchmarking-data>