



**FEMP** 50  
50 Years of Federal Energy Management

# History of Federal Energy Management

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September 12, 2023

# Birth of the Federal Energy Management Program

## Energy Conservation by the Federal Government

### *The President's Memorandum for Heads of Departments and Agencies. June 29, 1973*

You are hereby directed to review the activities of your agency and your contractors which place demands on our energy resources and determine how demand can be reduced. You are to provide by July 31, 1973, an accounting of your agency's energy consumption and a plan with specific actions and timetables to reduce demands.

I have today established a nationwide goal of reducing expected energy demand by 5 percent over the next twelve months. The Federal Government goal is to reduce the expected demand for energy by 7 percent during this same period.

Steps that should be taken by all agencies include reducing the level of air conditioning in office buildings, with appropriate relaxation of employee dress standards; using more energy efficient automobiles in Federal activities; reducing employee business trips; reducing unnecessary lighting in your agency's buildings; and encouraging greater use of carpools and mass transit by your employees. In addition, several agencies have laboratories and industrial type facilities, some of which are operated by contractors, that provide special opportunities for significant energy conservation measures.

The reports that are due by July 31, 1973, are to be submitted through Secretary Morton. In addition, you are to provide such additional follow-up reports as he may require and to assist him and his new Office of Energy Conservation in identifying new conservation measures.

RICHARD NIXON

NOTE: The text of the memorandum was released at San Clemente, Calif.

For a statement by the President on energy and natural resources, see page 867 of this issue.

- Agencies given the whole month of July 1973 to provide:
  - Accounting of agency energy use
  - Plan w/ timetables and actions
    - July 1 to June 30 fiscal year prior to FY 1977
- Reports submitted to Interior's new Office of Energy Conservation
- Steps include:
  - Reduce AC w/ relaxed employee dress code
  - Reduce unnecessary lighting
  - Fuel-efficient automobiles
  - Reduced business travel
  - Labs, industrial facilities (GOCOs) recognized as conservation opportunities
- Goal of 7% annual energy reduction
  - Exceeded with a 24% reduction—saving \$725M (\$3B in 2022\$), 90 million barrels of oil equivalent, 525 trillion source Btu
    - Oil shock of October 1973–January 1974
    - Mild winter

## CONSERVATION

### *The Federal Effort*

In my Energy Message of April 18, I announced preliminary steps to conserve America's fuel supplies. I said at that time that while energy conservation is a national necessity, conservation efforts could be undertaken on a voluntary basis. I still believe this.

However, public persuasion alone is not sufficient to the challenge confronting us. The Federal Government is the largest consumer of energy in the country, and, as such, it has its own unique role to play in reducing energy consumption and thus setting an example for all consumers.

Effective today, I am therefore ordering the Federal Government to achieve a 7 percent reduction in its anticipated energy consumption over the next 12 months.

I have directed the heads of all Cabinet departments and other Federal agencies to report by July 31 on the specific steps they will take to meet this target. Secretary Morton will be responsible for monitoring agency efforts and reporting their progress to me.

These conservation measures are to be designed to ensure that no vital services are impaired nor the proper functioning of these departments and agencies curtailed. Exceptions will be permitted only in unique circumstances, such as the program of uranium enrichment at the AEC where a substantial reduction in energy consumption would have a detrimental effect on our efforts to provide new forms of energy.

While the precise means of conserving energy will be left to the discretion of Cabinet and agency heads, I am directing that conservation efforts include the following measures:

—Reduction in the level of air-conditioning of all Federal office buildings throughout the summer.

—Reduction in the number of official trips taken by Federal employees.

—Purchase or leasing of automobiles and other vehicles which provide good gasoline mileage.

Each department and agency is expected to review all of its activities to determine how its own demands might be reduced. The Department of Defense, the largest single consumer of energy within the executive branch, has already examined its activities and has taken steps to reduce its energy demands by 10 percent over last year—steps which will in no way jeopardize our military preparedness.



# President Nixon's Organizing Authorities

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- Executive Order 11748—Federal Energy Office, December 4, 1973
  - SECTION 1. There is hereby established in the Executive Office of the President a Federal Energy Office. The Office shall be under the immediate supervision and direction of an Administrator and a Deputy Administrator of the Federal Energy Office. The Administrator shall be the Deputy Secretary of the Treasury.
  - SEC. 4
    - (a) There is hereby delegated to the Administrator the authority vested in the President by Section 203 (a) (3) of the Economic Stabilization Act of 1970, as amended.
    - (b) The Chairman of the **Cost of Living Council** shall, from time to time, delegate to the Administrator such authority under the Economic Stabilization Act as may be necessary to carry out the purposes of that Act with respect to energy matters.
- Federal Energy Administration Act, Public Law 93-275, June 27, 1974
  - SEC. 6. (a) There are hereby transferred to and vested in the Administrator all functions of the Secretary of the Interior, the Department of the Interior, and officers and components of that Department—
    - (1) relate to or are utilized by the Office of Petroleum Allocation;
    - (2) as relate to or are utilized by the Office of Energy Conservation;
    - (3) as relate to or are utilized by the Office of Energy Data and Analysis; and
    - (4) as relate to or are utilized by the Office of Oil and Gas.
  - (b) There are hereby transferred to and vested in the Administrator all functions of the Chairman of the **Cost of Living Council**, the Executive Director of the Cost of Living Council, and the Cost of Living Council, and officers and components thereof, as relate to or are utilized by the Energy Division of the Cost of Living Council.



# Ford Administration Executive Directives

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- President Ford's Memorandum of October 18, 1974
  - Recognized 24% reduction in Federal energy use FY 1973 to FY 1974
  - Established a 15% reduction goal for FY 1975 vs. FY 1973 base year
    - Exceeded with a reduction of 23% vs. FY 1973
- President Ford's Executive Order 11912—Delegation of Authorities Relating to Energy Policy and Conservation
  - The Administrator of the Federal Energy Administration, in consultation with the Administrator of General Services and the Administrator of Energy Research and Development, shall coordinate the overall development of the 10-year plan for energy conservation with respect to Government buildings, as provided by Energy Policy and Conservation Act (89 Stat. 939, 42 U.S.C. 6361(a)(2)).



# Carter Era Goals Continue into the Reagan Administration

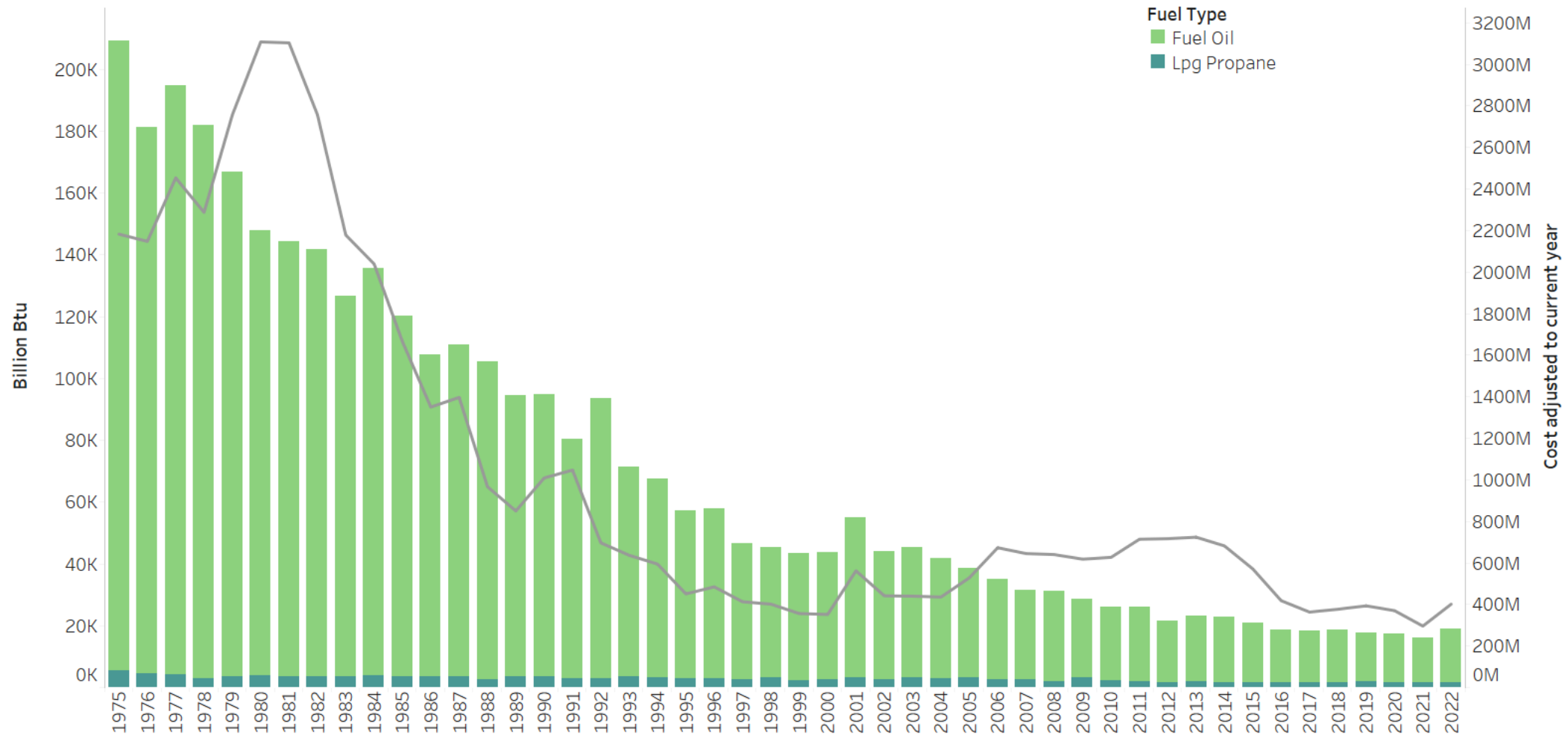
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- President Carter's Executive Order 12003—Energy Policy and Conservation, July 20, 1977 amends Executive Order 11912
  - For the total of all Federally owned existing buildings the goal shall be a reduction of 20 percent in the average annual energy use per gross square foot of floor area in 1985 from the average energy use per gross square foot of floor area in 1975.
  - In FY 1985, the Government reduced energy intensity (Btu/Sqft) in these buildings by 16.6 percent compared to FY 1975 in terms of source energy (including electricity generation and transmission losses)
  - In terms of site-delivered energy, the Government achieved a 25.7 percent reduction in Btu/Sqft in FY 1985 compared to 1975.
- 1979 Reduction Goal for Petroleum-Based Fuels in Buildings (formerly 10 CFR Part 436, Subpart C)
  - Reduce 30 percent in FY 1985 vs. FY 1975 (applies to heating fuel oil and LPG/propane)
  - Goal exceeded with a 43 percent reduction in FY 1985
  - Petroleum-based fuel use in buildings in FY 2022 has declined 91 percent since 1975



# Petroleum-Based Fuels in Federal Facilities, 1975 to 2022

Federal Government Facility Fuel Oil and LPG Consumption  
FY 1975 - FY 2022





# DOE Organization Act—October 1, 1977

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- Consolidated into one Federal Department:
  - Atomic Energy Commission
  - Federal Energy Administration
  - Energy Research and Development Administration
  - Power Marketing Administrations (from Interior), Naval Reactors, Petroleum Reserves (from Navy)
- Federal Interagency Energy Policy Committee (“656” Committee)

## **SEC. 656. DESIGNATION OF CONSERVATION OFFICERS.**

The Secretary of Defense, the Secretary of Commerce, the Secretary of Housing and Urban Development, the Secretary of Transportation, the Secretary of Agriculture, the Secretary of the Interior, the United States Postal Service, and the Administrator of General Services shall each designate one Assistant Secretary or Assistant Administrator, as the case may be, as the principal conservation officer of such Department or of the Administration. Such designated principal conservation officer shall be principally responsible for planning and implementation of energy conservation programs by such Department or Administration and principally responsible for coordination with the Department of Energy with respect to energy matters. Each agency, Department or Administration List, publication, required to designate a principal conservation officer pursuant to this section shall periodically inform the Secretary of the identity of such conservation officer, and the Secretary shall periodically publish a list identifying such officers.



# Reflections on how we worked back in the day (mid-80s)

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- Smoke 'em if you have 'em; desk-drawer tequila
  - Not exactly Mad Men, but more than half-way there
- Research? Telephone and letters through the U.S. mail, libraries
  - Conservation and Renewable Energy Inquiry and Referral Service (CAREIRS)
    - Clearinghouse on Energy Financing Partnerships
    - FEMP Help Desk
- Computers shared office-wide, Fax machines just arrived on the scene
  - Dialed-up the IBM mainframe in Germantown. Print-outs at Forrestal picked up by daily courier
  - DECmate word processors (for secretaries only)
  - Graphics paste-up, hot wax mechanicals
- Federal *quarterly* energy data moved to desktop computers (IBM PC) during this period
  - Foxbase/FoxPro, IBM Lotus 1-2-3, WordPerfect, Xerox Ventura Publisher (WYSIWYG)
- Binders, GBC-bound documents, Holy Joes or Holy Joulies (inter-office reusable yellow envelopes), routing slips, carbon paper business processes





# Long Incubation and Evolution of Performance Contracting

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- FEMP championed the cause early '80s (Clearinghouse on Energy Financing Partnerships)
  - State Governments as the laboratories of democracy
- Shared Energy Savings (SES)
  - Navy spearheaded initial efforts/projects but multi-year contracting authority was needed
- President Reagan signs Consolidated Omnibus Budget Reconciliation Act of 1985 (4/7/1986) granting 25-year contracting authority with ESCOs (Title VIII—Shared Energy Savings)
  - U.S. Postal Service first to award SES (12/14/1987) San Diego General Mail Facility lighting retrofits
    - Continued SES model into FY 2001 under separate procurement authority
- SES renamed Energy Savings Performance Contracts by Energy Policy Act of 1992
  - Super ESPCs (Technology Specific, Regional>current IDIQ)
    - (briefly renamed FREESavings Contracts in 1998)
    - Biomass and Alternative Methane Fuel (BAMF) Super ESPC (2002)
      - Combined Heat and Power (CHP) plants
- Utility Energy Service Contracts
  - Demand Side Management incentives
  - Sole-Source authority to enter contracts through utilities (EPA Act 1992)
    - Implementing guidance (with Congressional notification) 1998



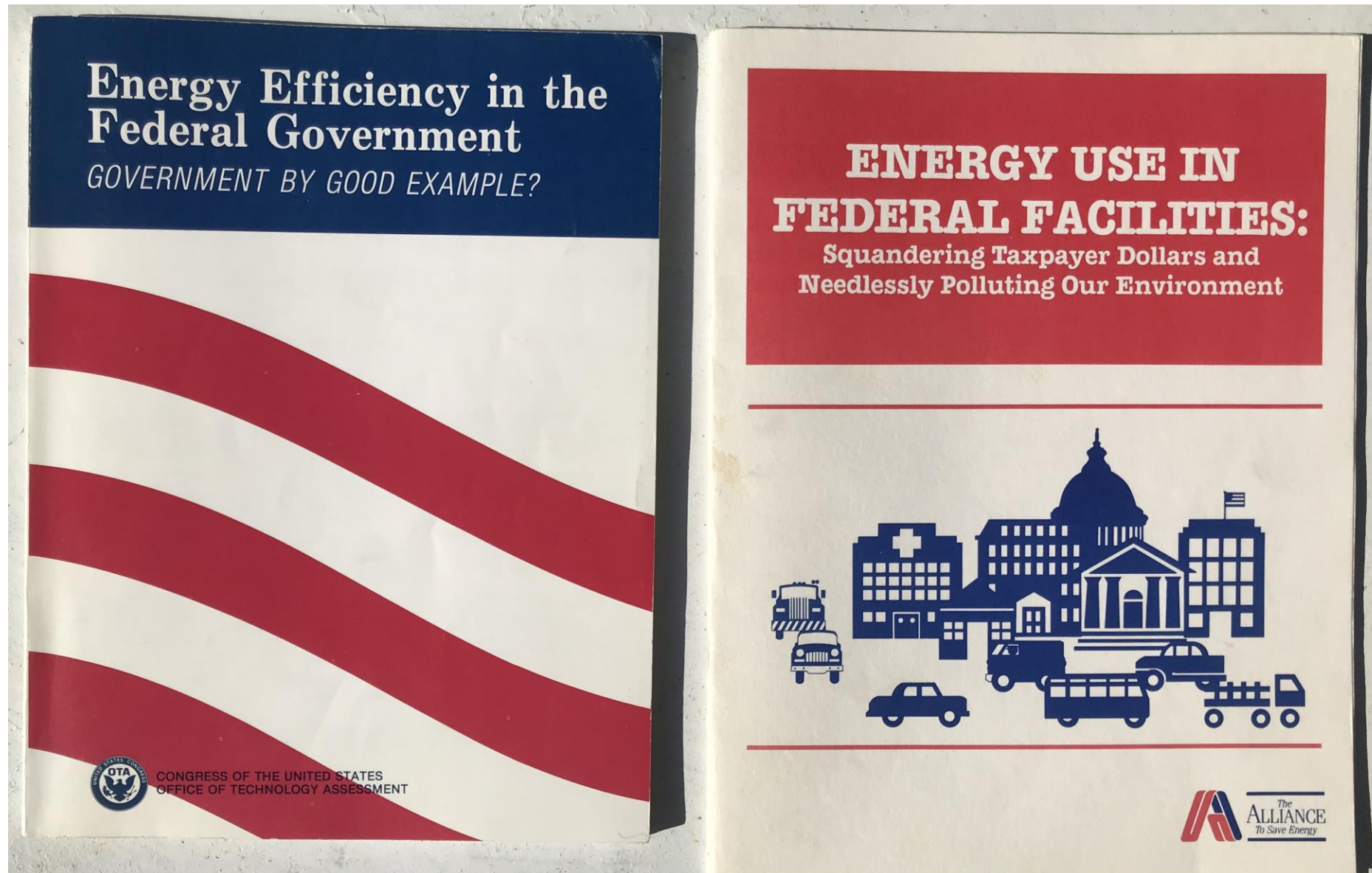
# President Reagan Signs Federal Energy Management Improvement Act

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- 10 percent Btu/Sqft reduction goal for FY 1995 vs. FY 1985. Exempts from such requirement buildings in which energy intensive activities are implemented
- Redescribed procedures involved in the establishment and use of life cycle cost methods
- Required the establishment by each agency of an incentives program using internal resources to encourage energy conservation and efficiency by allowing the retention of a portion of the dollar savings resulting from the agency's energy conservation measures
- Directed the Secretary of Energy to establish an Interagency Energy Management Task Force to coordinate Federal energy savings and disseminate information on energy efficiency
  - Task Force, chaired by FEMP Director, reports to “656” Committee
- Required the Secretary, to carry out an energy survey to:
  - (1) determine the potential maximum cost-effective energy peak demand savings achievable in a limited representative sample of federally-owned or leased buildings; and
  - (2) recommend cost effective energy efficiency and renewable energy improvements in such buildings.



# 1991: Constructive Criticism from Congress, NGOs



# Energy Policy Act of 1992

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- Codifies President GHW Bush's 20% Btu/Sqft reduction for 1985 to 2000 (goal to requirement)
- Establishes ESPC Program with “guaranteed savings”
  - Subsequent rulemaking
- Install all LCC-effective measures with payback periods 10 years or less
- Incentives for agencies
  - Federal Energy Efficiency Fund (FEEF)
    - Authorized \$60M in FY94 and FY95, only \$8 million appropriated
    - \$8 million in FEEF funding + \$4 million in 37 projects (and saving \$54M, 4.5 ROI) (\$14 million + \$7 million in today's dollars)
  - Utility incentive program
  - Financial incentive program for facility energy managers
- Alternative Fuel Vehicles



# President Clinton's Executive Order 12902, March 8, 1994

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- Increased Btu/Sqft goal to 30% reduction by FY 2005 vs. FY 1985
- Introduced goal for Industrial facilities: 20% reduction by FY 2005 vs. FY 1990
- Conduct prioritization surveys for conducting comprehensive facility audits (10-year plan to complete)
- DOE to develop renewable energy program
- Designate showcase facilities
- Product procurement (top 25% of their class for energy efficiency)

Announced by Vice President Al Gore  
(introduced by Secretary of Energy Hazel O'Leary)  
at GSA's National Conference of Federal Energy and Environmental Managers  
(Pre-cursor to Energy 'XX/GovEnergy/Energy Exchange)



# President Clinton's Executive Order 13123, June 3, 1999

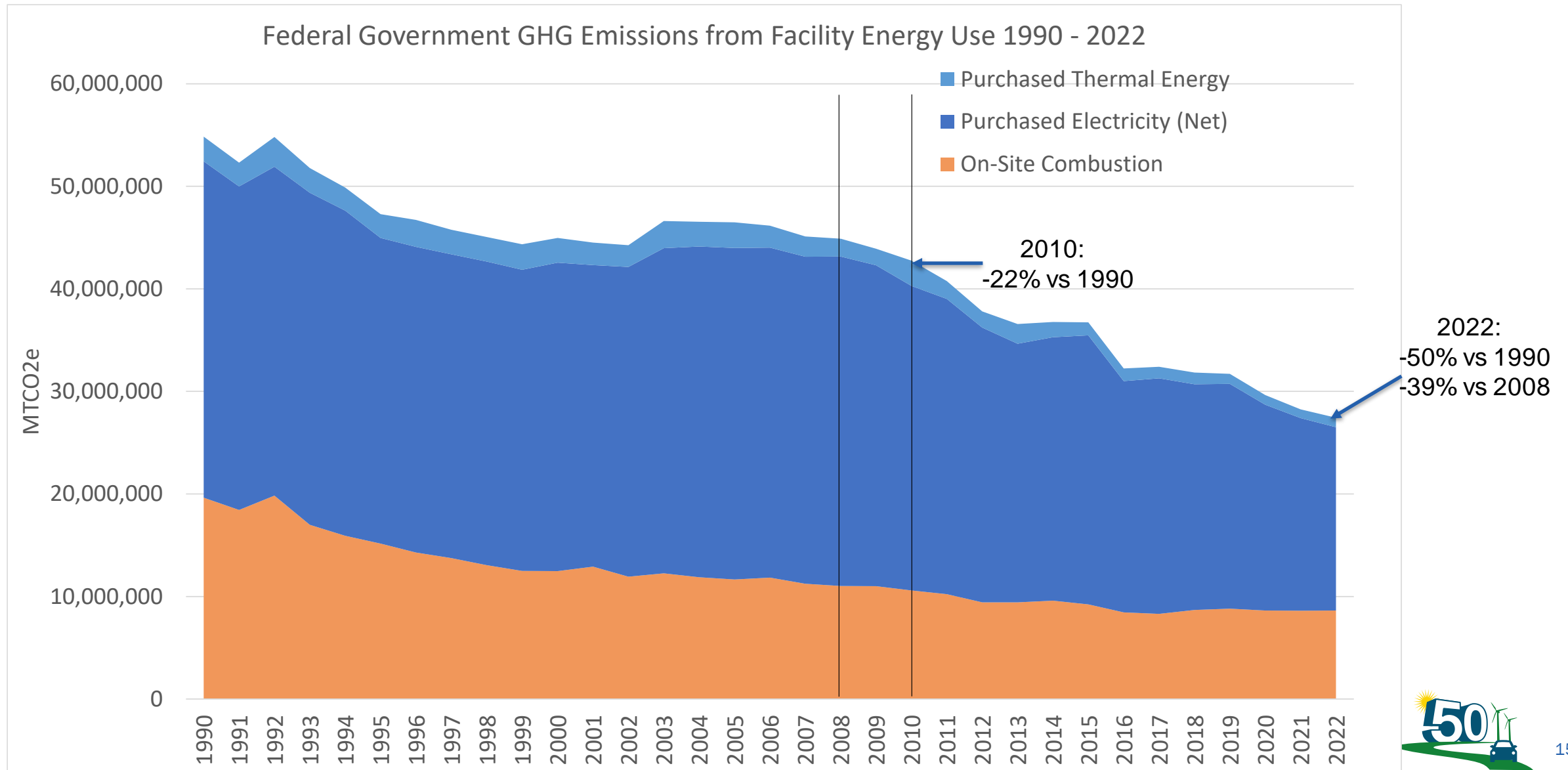
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- Greenhouse Gases Reduction Goal
  - Through life-cycle cost-effective energy measures, each agency shall reduce its greenhouse gas emissions attributed to facility energy use by 30 percent by 2010 compared to such emissions levels in 1990
- Energy Efficiency Improvement Goals
  - . . .each agency shall reduce energy consumption per gross square foot of its facilities, excluding facilities covered in section 203 of this order, by 30 percent by 2005 and 35 percent by 2010 relative to 1985.
- Industrial and Laboratory Facilities
  - . . .each agency shall reduce energy consumption per square foot, per unit of production, or per other unit as applicable by 20 percent by 2005 and 25 percent by 2010 relative to 1990.
- Renewable Energy
  - Each agency shall strive to expand the use of renewable energy within its facilities and in its activities by implementing renewable energy projects and by purchasing electricity from renewable energy sources.
  - In support of the Million Solar Roofs initiative, the Federal Government shall strive to install 2,000 solar energy systems at Federal facilities by the end of 2000, and 20,000 solar energy systems at Federal facilities by 2010.
- Source Energy
  - Agencies shall undertake life-cycle cost-effective projects in which source energy decreases, even if site energy use increases. Agencies will receive credit toward energy reduction goals through guidelines developed by DOE.
- Water Conservation



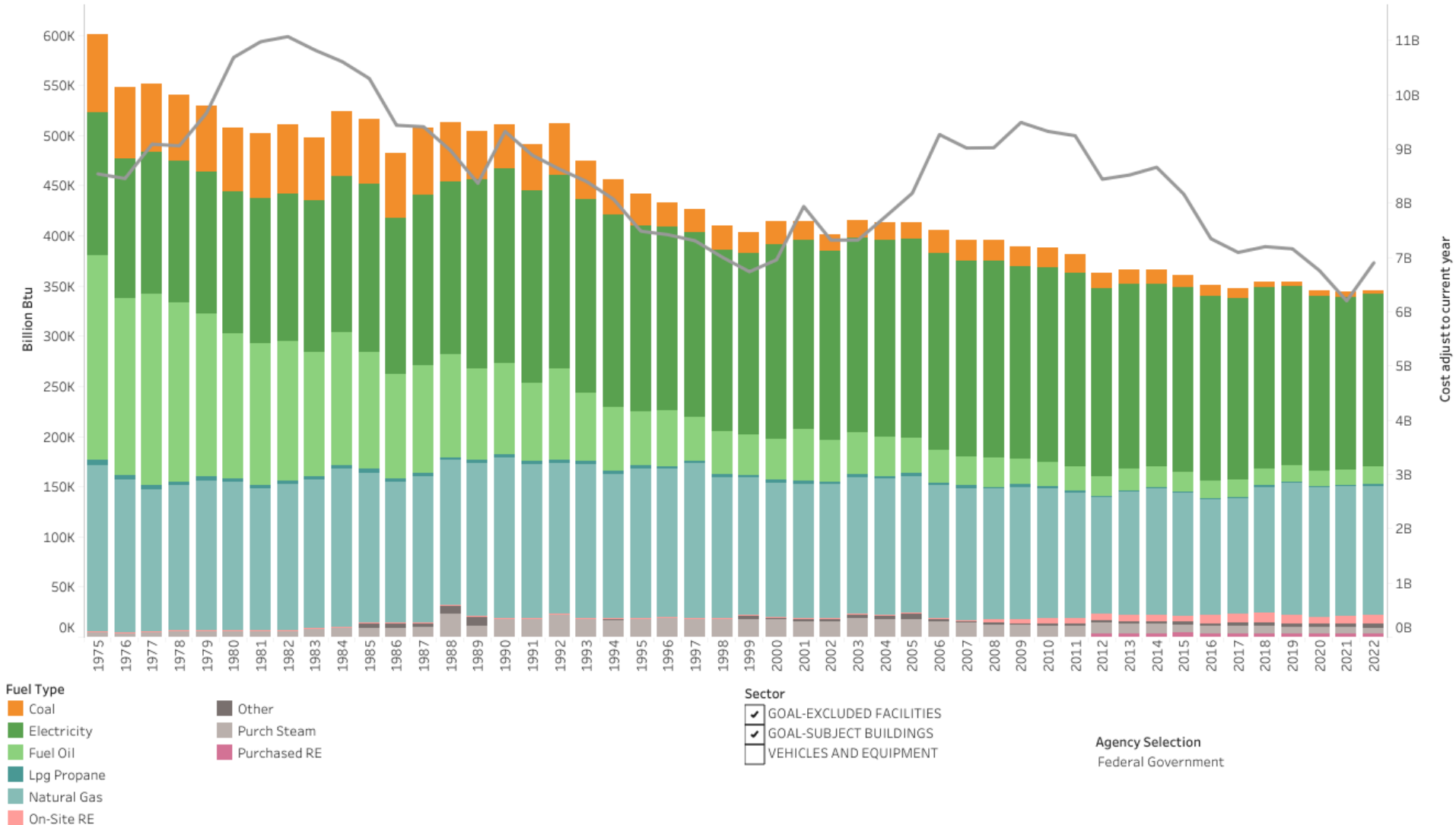


# Federal Facility GHG Emissions from 1990 to Present



# Federal Facility Energy Trends 1975 to 2022

Federal Government Fuel Consumption and Cost by Fuel Type  
FY 1975 - FY 2022



Coal: -95% since 1975

Electricity: +21%

Fuel Oil/LPG: -91%

Natural Gas: -23%

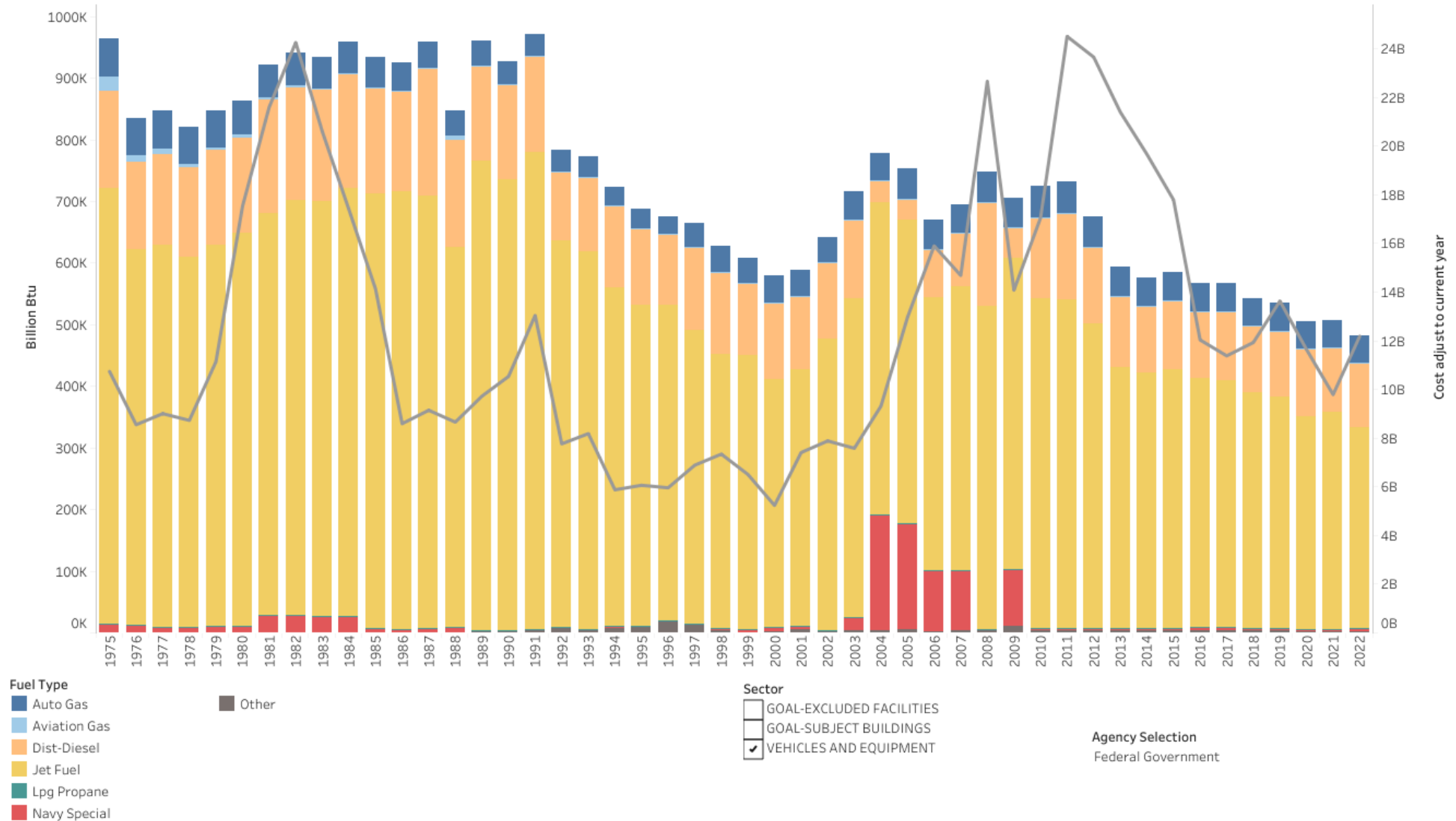
On-Site RE: +∞%  
(since 2008: +126%)

Purchased Other: +153%



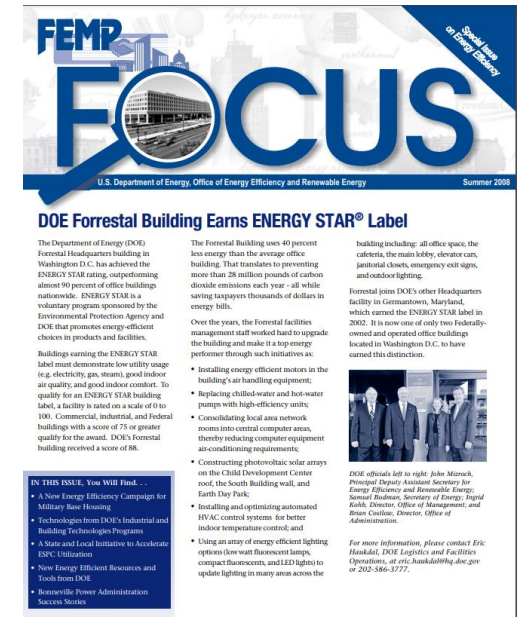
# Federal Mobility Energy Trends 1975 to 2022

Federal Government Fuel Consumption and Cost by Fuel Type  
FY 1975 - FY 2022



# The Golden Days of Energy Awareness, Recognition Awards, and Outreach

- FEMP Focus quarterly long-form newsletter
- Federal Energy (and Water) Management Awards (Since 1981)
  - Facility Showcase Awards
  - FEDS Spotlight Awards
- Presidential Leadership Awards
  - Vice President Dick Cheney presenting
- Energy Awareness Month Poster, tchotchkes
- “You Have the Power Campaign” Champions
- TeleFEMP Satellite Broadcasts (I to IV)
- Greening of the White House
  - Bob Villa, This Old House
  - Solar-Powered National Christmas Tree (Pageant of Peace)
- FEMP Regional Offices



# Post-9/11 and the FY 2003 Base Year

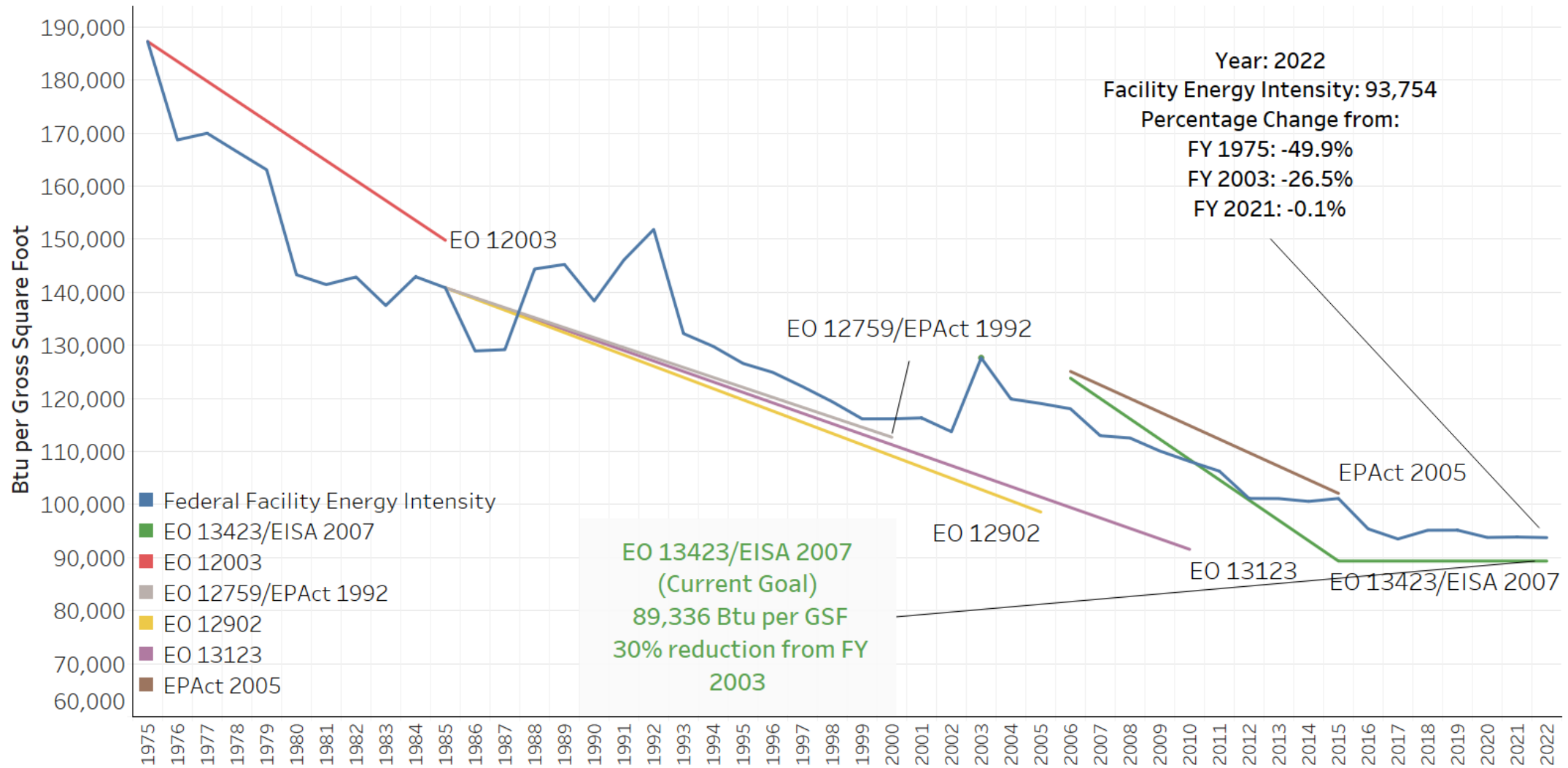
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- Energy Policy Act of 2005
  - 20% Btu/Sqft reduction goal for 2015 vs 2003 (DHS created from existing agencies across the Gov't)
  - Federal renewable electricity requirement: 7.5% of electricity use (FY 2013 and thereafter)
- President Bush's Executive Order 13423—Strengthening Federal Environmental, Energy, and Transportation Management
  - President Bush does Congress one better with a 30% Btu/Sqft reduction goal for 2015 vs 2003
  - Revoked Clinton Executive Orders and the three associated OMB Scorecards (Energy, Environment, Fleet)
    - Executive Order 13101—Greening the Government Through Waste Prevention, Recycling, and Federal Acquisition
    - Executive Order 13123—Greening the Government Through Efficient Energy Management
    - Executive Order 13134—Developing and Promoting Biobased Products and Bioenergy
    - Executive Order 13148—Greening the Government Through Leadership in Environmental Management
    - Executive Order 13149—Greening the Government Through Federal Fleet and Transportation Efficiency
- Energy Independence and Security Act of 2007
  - Codified 30% Btu/Sqft reduction goal for 2015 vs 2003
  - Section 432: Use of energy and water efficiency measures in Federal buildings
    - Prescriptive facility management approach for audits, project implementation, M&V, benchmarking
    - Codified OMB Scorecards



# Energy Intensity 1975 to 2022 with Goals

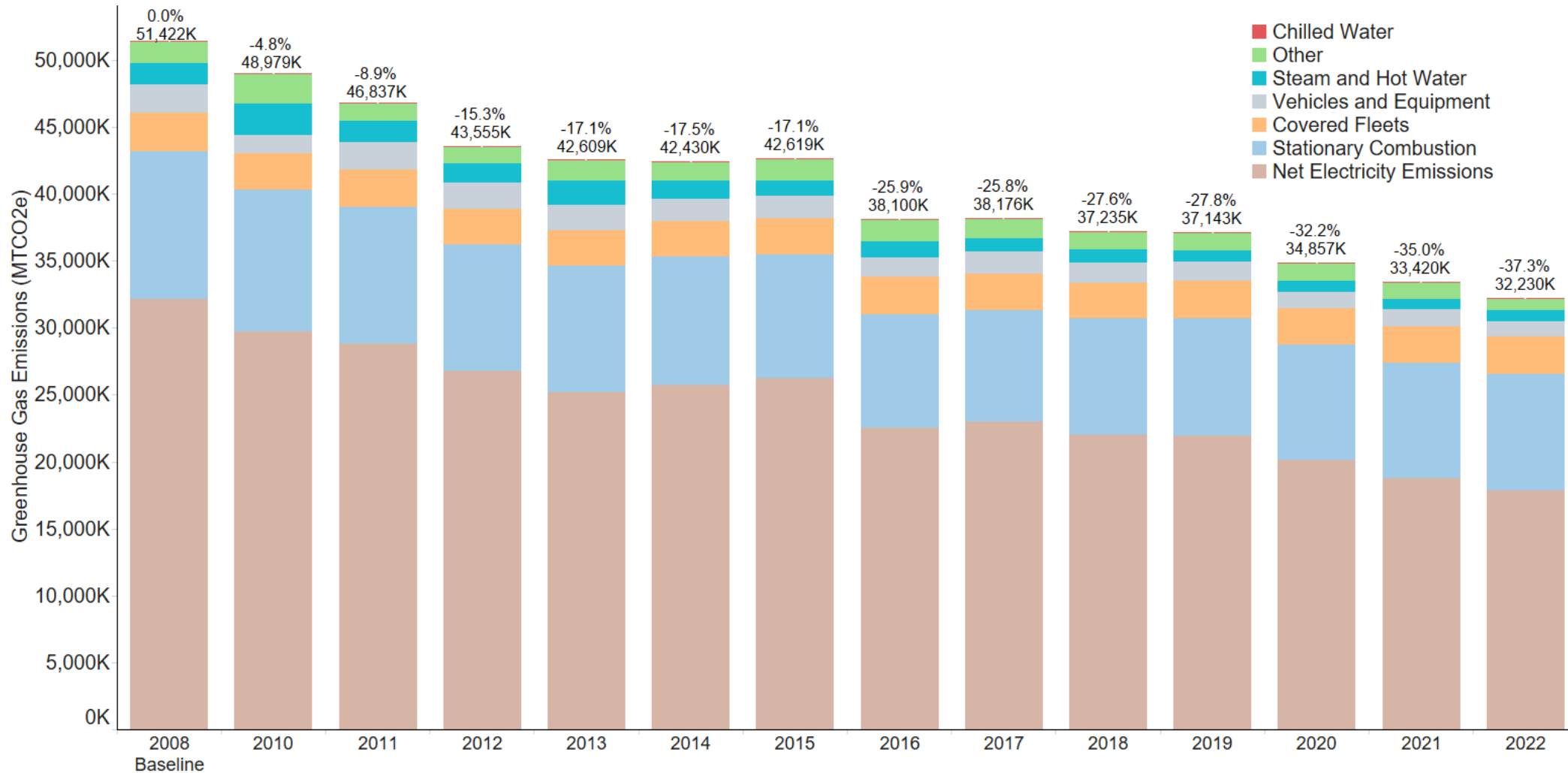
Federal Government Progress Toward Facility Energy Efficiency Goals  
FY 2003 - FY 2022





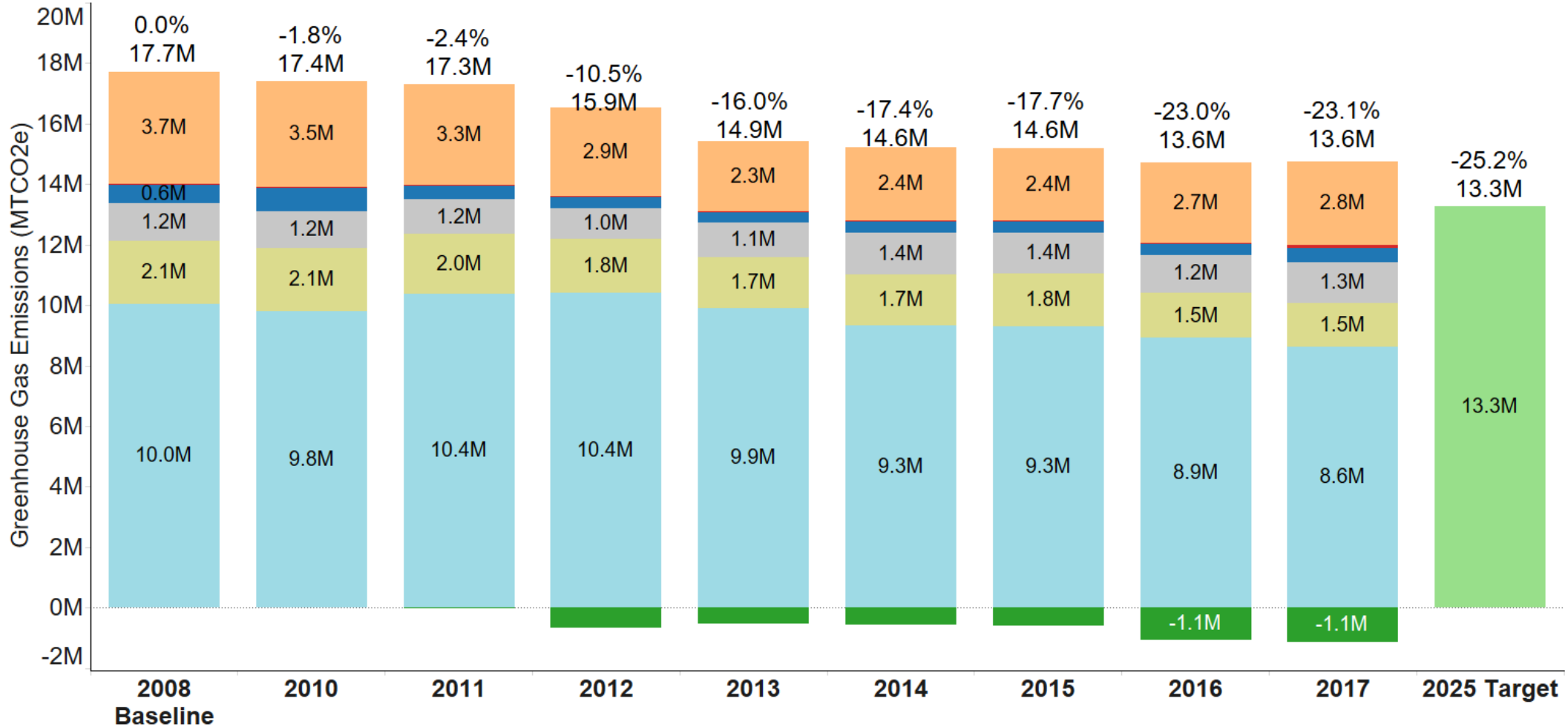
# President Obama's "First-Ever" Federal GHG Reduction Goals

Federal Government Scope 1 and 2 Greenhouse Gas Emissions from Standard Operations



# Scope 3 Indirect GHG Emissions

Federal Government Progress Toward Scope 3 Greenhouse Gas Reduction Goal

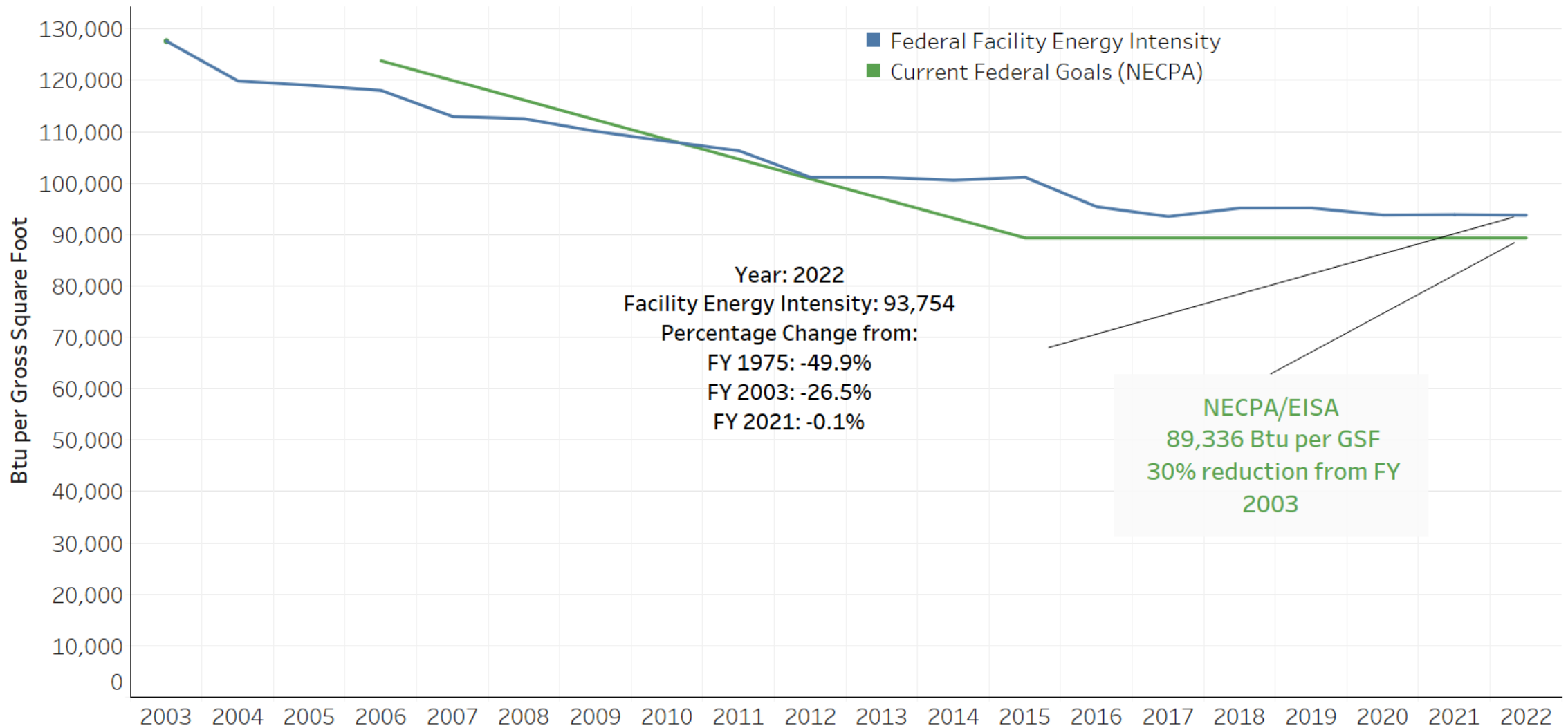


- Business Air Travel
- Contracted Wastewater Treatment
- Business Ground Travel
- Contracted Solid Waste
- Electricity T and D Losses
- Employee Commuting
- Renewable Energy Hosting Credit
- 2025 Scope 3 Target Emissions



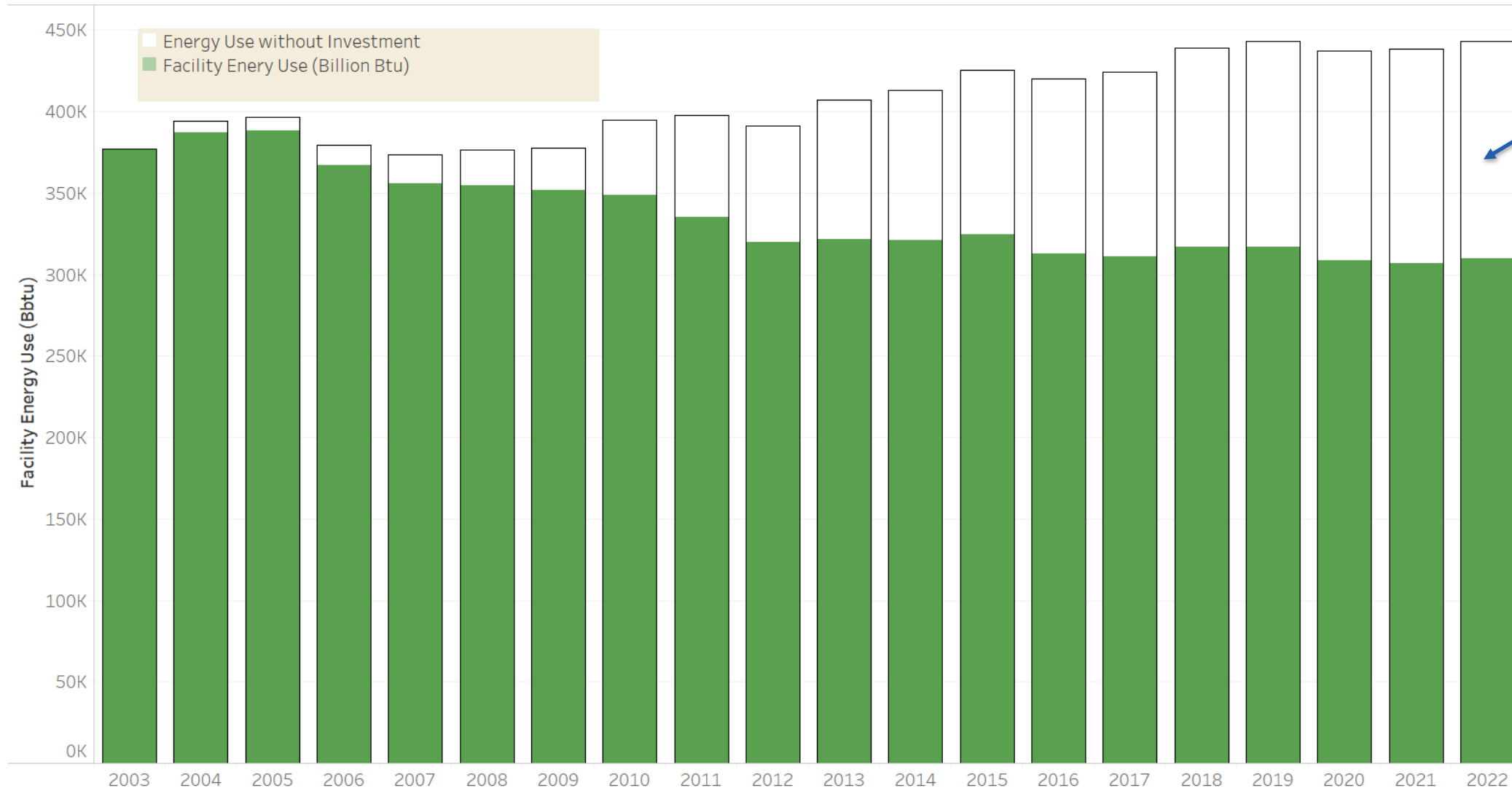
# Btu/Sqft reduction is not a perfect performance metric

Federal Government Progress Toward Facility Energy Efficiency Goals  
FY 2003 - FY 2022



# Impact of Efficiency Investment on Federal Facility Energy Use

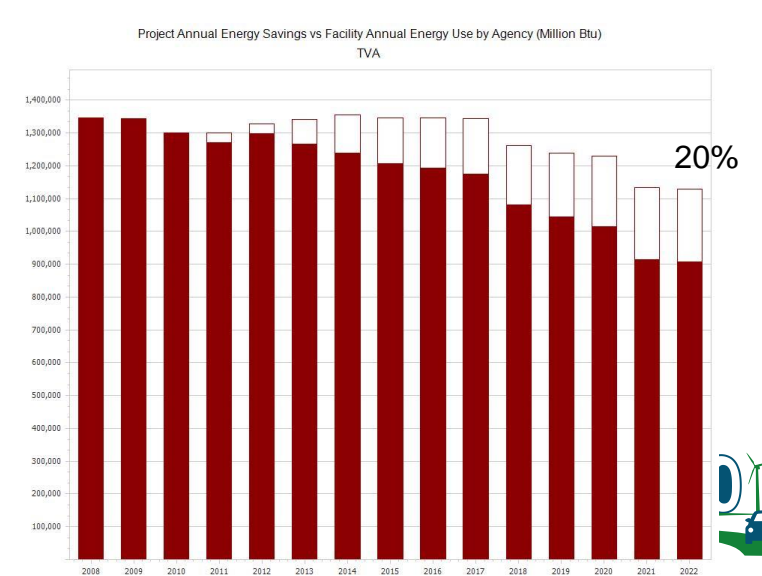
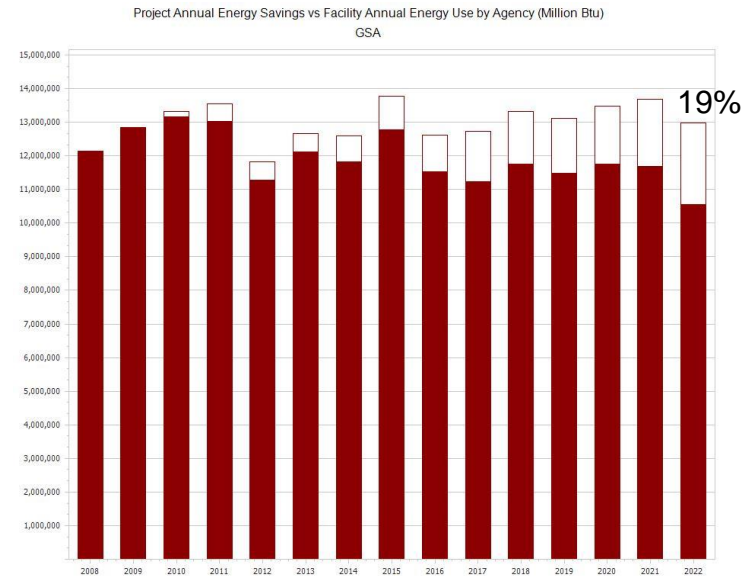
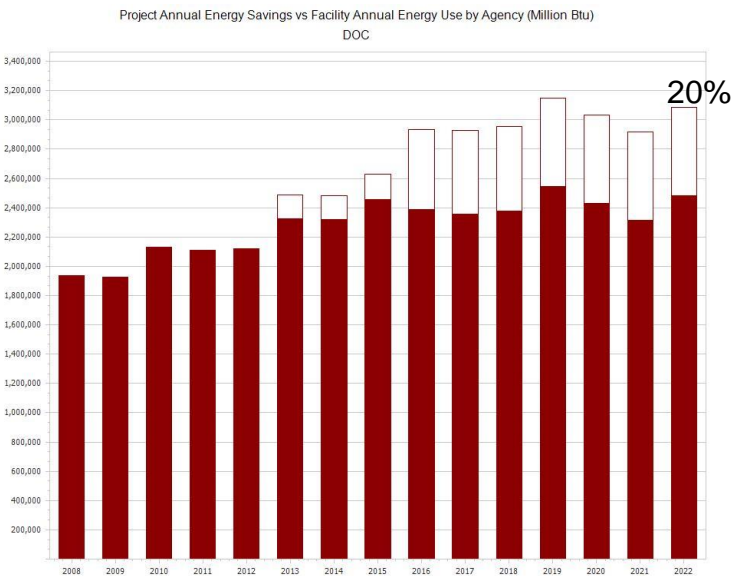
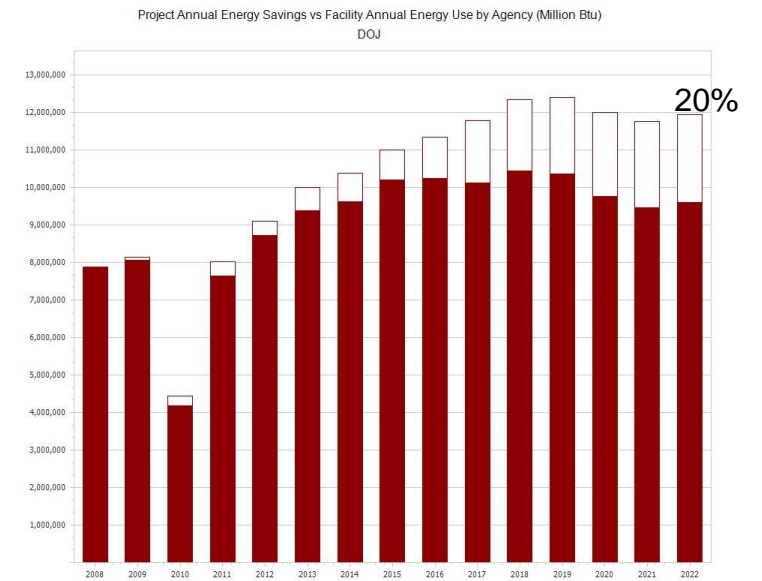
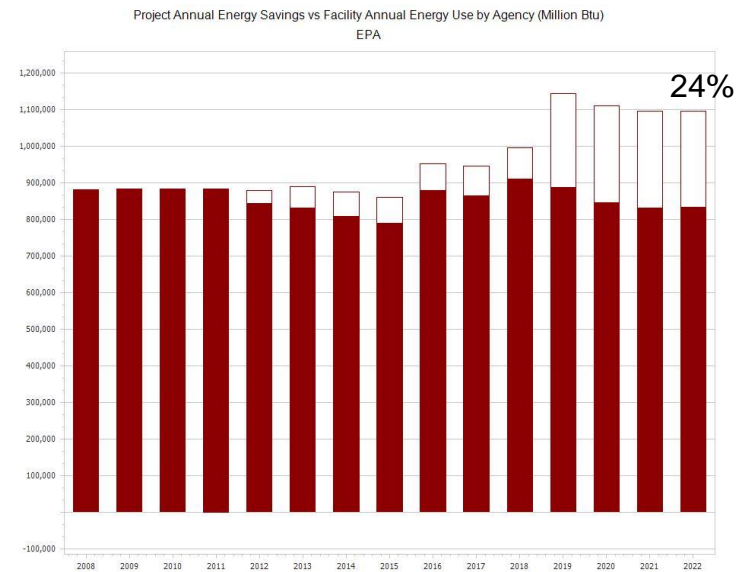
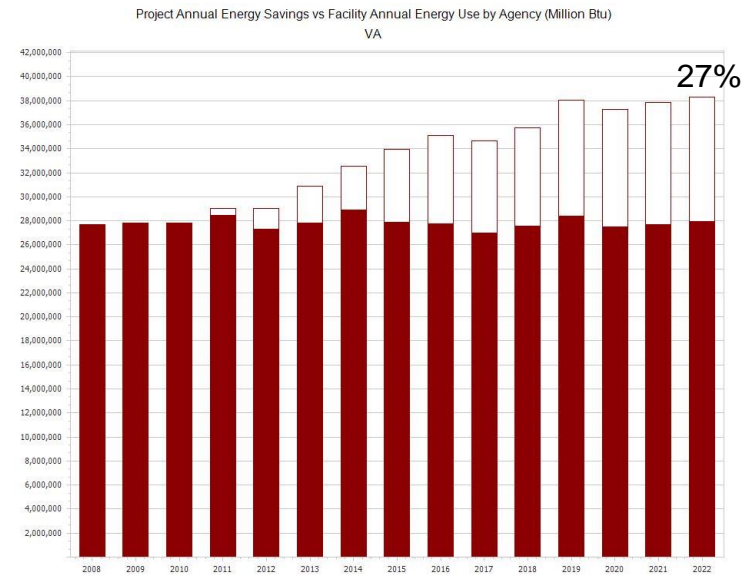
Federal Government Facility Energy Use and Estimated Energy Savings from Investment FY 2003 - FY 2022



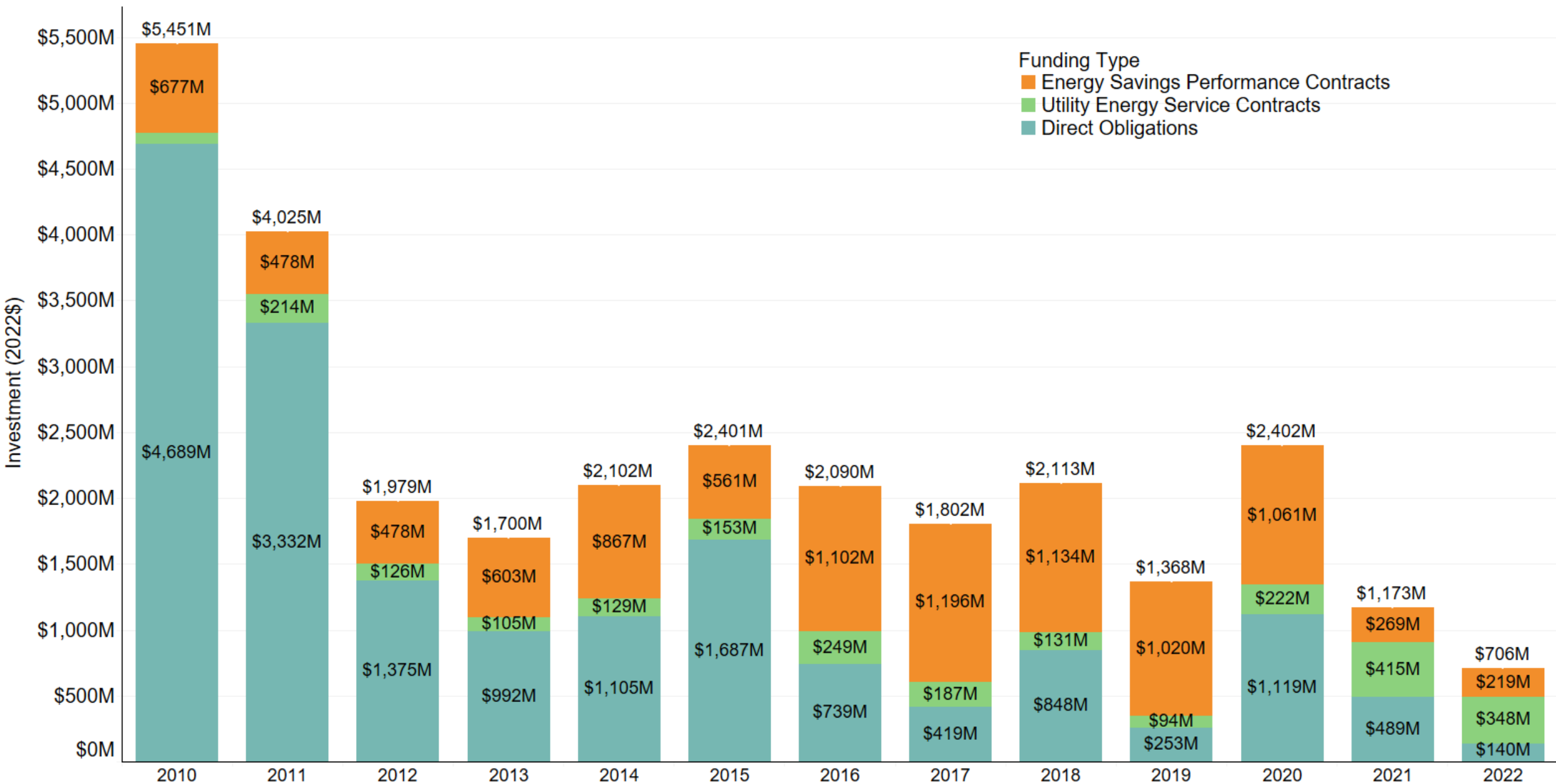
Voilà:  
30% savings  
vs 2003



# Selected Agency Savings from Investment since 2008 (Covered Facilities)



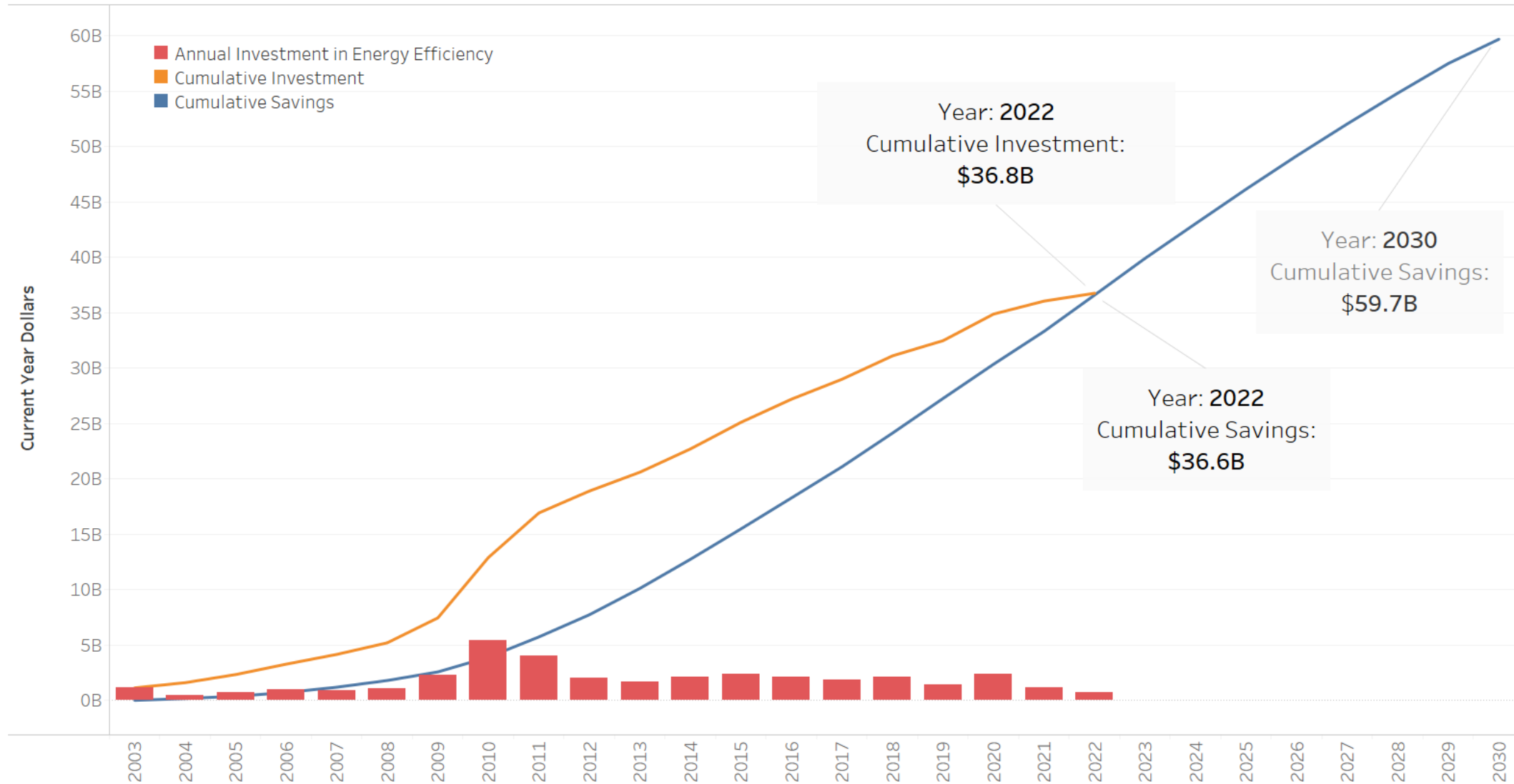
# Federal Government Investment in Facility Efficiency Improvements





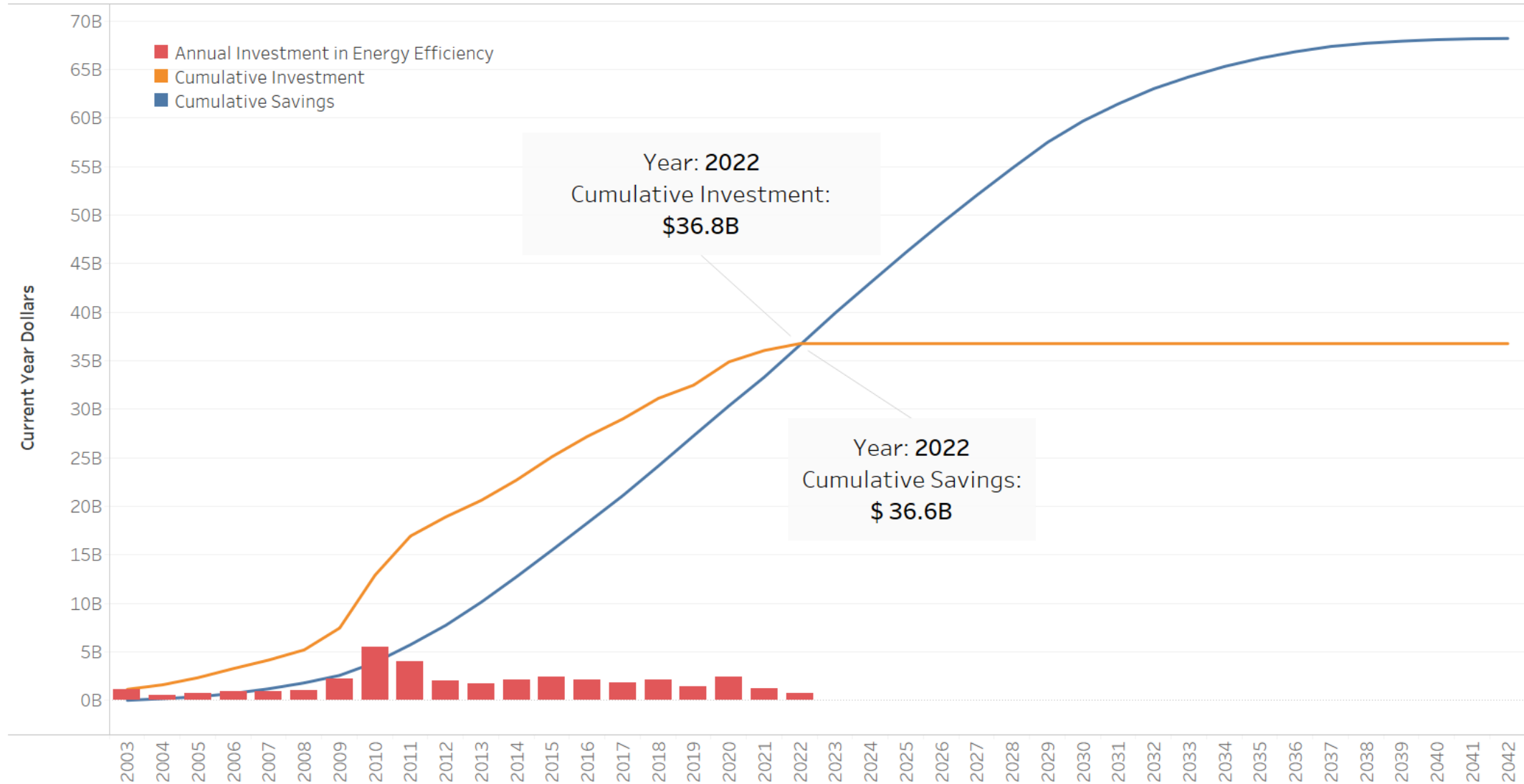
# Importance of life-cycle cost-effective investment

## Federal Government Investment in Energy Efficiency



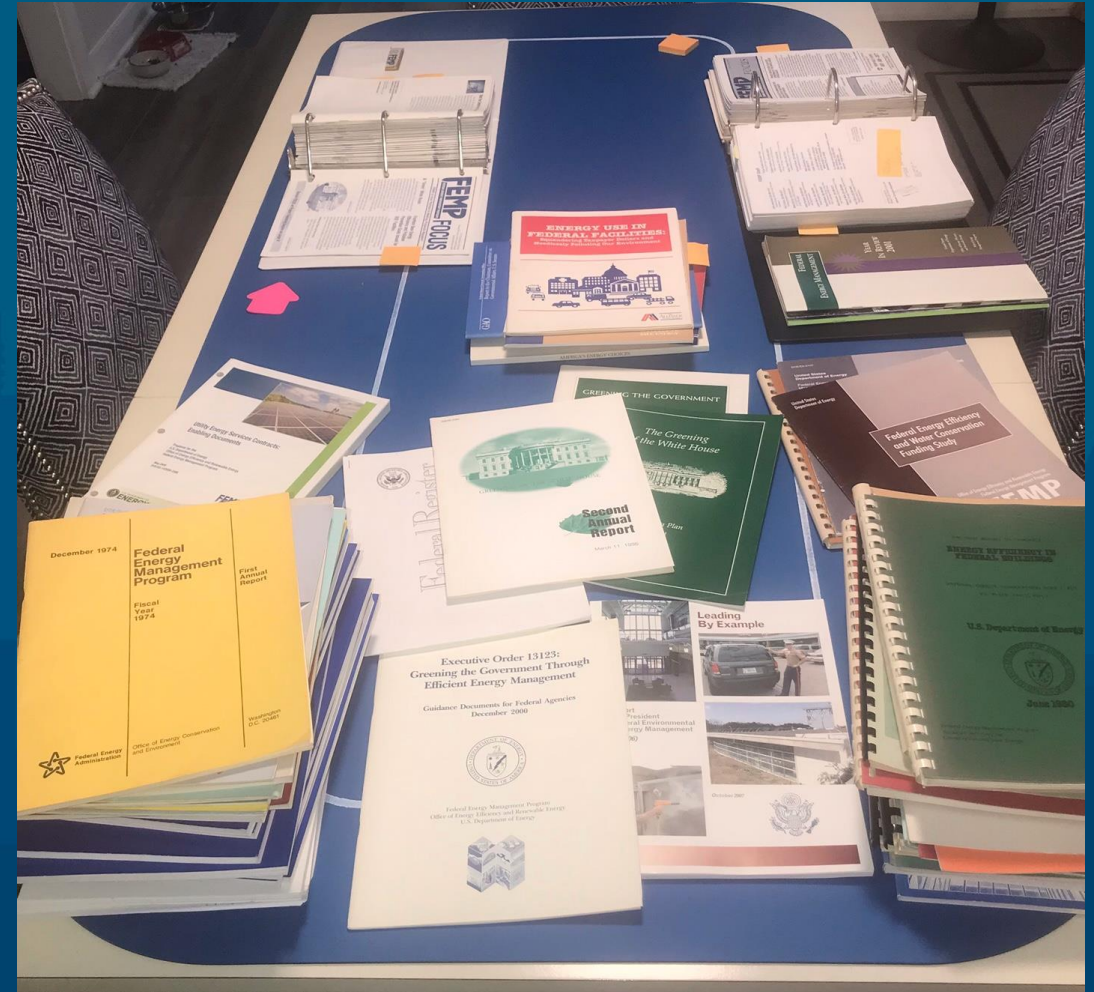
# \$68 Billion return on \$37 Billion invested 2003 to 2022

## Federal Government Investment in Energy Efficiency



# Thank You!

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Annual Energy Performance Data  
Covered Facility Management and Benchmarking Data



**FEMP** 50<sup>th</sup>  
50 Years of Federal Energy Management