

Chapter 9: FEDERAL ENERGY & CARBON MANAGEMENT

BACKGROUND

- The U.S. government is the largest single energy consumer in the world, responsible for nearly 1.5 percent of the energy consumed in the United States and 1.6 percent of U.S. greenhouse gas emissions. Federal energy consumption is split between two categories: buildings (55 percent) and transportation (45 percent).
- In 2006, the Federal Government spent approximately \$17.7 billion on energy and \$10 billion on energy-using products. Federal energy consumption is split between two categories: buildings (55 percent) and transportation (45 percent).
- Due to legislative and executive action, the federal government has made significant progress in recent years toward improving its energy efficiency and increasing the use of renewable energy. Between 1990 and 2005, federal emissions declined by 22 percent. Large cost-effective savings opportunities remain, however. Recognizing this, Congress and the president have set aggressive requirements for future energy reductions in federal buildings and facilities that by 2015 could yield annual savings of an additional 0.1 quadrillion Btu of site energy, reduce the federal energy bill by more than \$1.6 billion, and reduce CO₂ emissions by almost 12 million metric tons. Cumulative emissions reductions associated with these energy savings could total 55 million metric tons of CO₂ through 2015. Taxpayers would save \$8 billion cumulatively through 2015.
- Numerous barriers prevent federal agencies from implementing new energy management policies quickly or at all. For example, energy efficiency is not their core mission; agencies lack personnel skilled in energy management; the capital budgeting process is fragmented; agencies often have insufficient budgets; multiple decision-makers are involved; and agencies lack incentives for achieving energy and carbon management targets, or consequences for failing.
- Although current goals are aggressive, they can be improved: They do not apply to all areas of government transport vehicles and activities; they do not extend beyond 2015; and targets are not set in terms of greenhouse gas emission reductions.
- PCAP proposes that federal carbon emissions be reduced 80 percent below 1990 levels by 2050. This goal is aggressive. For example, the Alliance to Save Energy estimates that to achieve the 80 percent reduction, the federal government would have to obtain 65 percent of its energy from renewable and low-carbon resources by 2050. However, the goal is achievable and the stakes are large: With an 80 percent reduction, the federal government could avoid about 24 million metric tons of carbon annually in 2050 – equal to the annual carbon emissions from more than 16 million passenger vehicles – and more than 500 million metric tons cumulatively.

FRAMEWORK FOR FEDERAL POLICY

- An [analysis](#) conducted for PCAP by the Alliance to Save Energy concludes that if current energy intensity targets were applied to all federal activities; if federal agencies were directed to reduce their energy use 2 percent annually from 2015 through 2050; and if efficiency improvements were supplemented by the substantial use of low- and no-greenhouse gas energy resources, the U.S. government could cut its greenhouse gas emissions 80 percent below 1990 levels by 2050, in line with the target endorsed by PCAP for the nation as a whole.
- As the United States moves to reduce its greenhouse gas emissions, the federal government must lead by example. With its power as the nation's primary purchaser of energy and energy-related services, the federal government should help establish markets for low-carbon resources and goods.
- The federal government's goals for energy management – and by extension, its management of greenhouse gas emissions – were established in [Executive Order 13123](#), "Greening the Government Through Efficient Energy Management" issued on June 3, 1999, by President Bill Clinton. EO 13123 directed federal agencies to reduce their energy intensity 35 percent by 2010 compared to a 1985 baseline; to reduce greenhouse gas emissions 30 percent by 2010 compared to a 1990 baseline; and to install 20,000 solar energy systems on federal buildings by 2010.
- EO 13213 was amended by [Executive Order 13423](#) issued on Jan. 24, 2007, by President George W. Bush. The new order requires federal agencies to reduce their energy intensity 30 percent through the end of 2015 compared to 2003; to ensure that at least half of the renewable energy consumption required by law comes from new renewable sources; to reduce petroleum consumption by federal fleets 2 percent annually through 2015; and to use plug-in hybrid vehicles once they become available at a cost comparable to conventional vehicles. However, EO rescinded the requirement that agencies reduce their facilities' greenhouse gas emissions by 30 percent below 1990 levels by 2010.
- Additional requirements for federal energy and carbon management have been established by Congress, most recently in the [Energy Independence and Security Act of 2007 \(EISA\)](#). Several of EISA's requirements are discussed below.

EXECUTIVE ACTIONS

1. Establish a **zero-net-emissions goal** for federal buildings. EISA directs agencies to reduce energy use per square foot in buildings and facilities by 30 percent in 2015 compared to 2003. Given the difficulties in implementing improved energy efficiency at the federal government, this is an aggressive goal. However, it is far below the goals being set by other sectors.

The American Institute of Architects, the U.S. Green Building Council, the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) and the U.S. Council of Mayors have endorsed [targets](#) to reduce energy use and greenhouse gas emissions 30-50 percent for new buildings by 2010 and 100 percent – or net-zero emissions – by 2030. The President should:

- Direct agencies to apply the same targets to new federal buildings, major renovations, build-to-lease federal facilities and privatized military housing, and require that new or renewed federal leases in existing buildings give preference to buildings that meet Energy Star rating requirements.
- Direct agencies to take full advantage of the statutory provision that allows government agencies (which are tax-exempt) to assign the commercial building tax deduction¹ to the architect or energy service company responsible for the construction or retrofit of a federal building.

- Direct DOE to update the federal building standards to add a requirement that buildings over a specified size (or peak electricity demand) must include advanced (interval) electricity meters as well as sub-metering of major equipment and end-uses.
 - Direct DOE to periodically update federal building energy standards to ensure buildings are ready to incorporate new and emerging technologies, as applicable.
- 2. Increase **renewable energy goals.**** EO 13423 requires agencies to obtain at least 7.5 percent of their electricity from renewable energy resources in 2013 and thereafter. Currently, federal agencies are meeting about 75 percent of this requirement by purchasing renewable energy credits (RECs) rather than generating their own power. This is allowed under a 2006 DOE rule. The President should:
- Direct DOE to develop a road map for agencies to receive 70 percent of their electricity from renewable resources by 2050.
 - Direct that all federal RECs be required to meet the criteria of the [Green-e Energy National Standard](#).
- 3. Restore **specific goals for cutting greenhouse gases.**** Because reductions in energy intensity do not necessarily equate to reductions in emissions, the President should amend EO13423 to reinstate greenhouse gas emissions as a specific government-wide performance measure.
- 4. Expand greenhouse gas reduction goals to all federal transportation activities.** Current energy-efficiency targets for federal agencies neglect the majority of fuel used in federal vehicles. EO 13423 sets standards for non-military federal fleets but these represent less than 20 percent of the transportation energy consumed by the federal government. The government's largest consumer of transportation energy and emitter of associated greenhouse gases is the military, led by emissions from jet fuel for military aircraft and ship bunker fuel. The President should direct the Department of Defense to:
- Propose specific performance targets for reducing the use of greenhouse gas intensive fuels in 2015, 2020 and beyond;
 - Report on its efforts to improve the efficiency of aircraft, ships and field equipment including fossil-fueled generators and determine the cost-effectiveness of additional efficiency investments based on the full cost of delivering the fuel to the point of use;
 - Rapidly implement the recommendations of the [Defense Advisory Board Task Force](#) to use the fully burdened cost of fuels in all agency procurement requests and in the acquisition of fuel-consuming equipment.

The President should direct all agencies to:

- Establish an aggressive renewable fuels portfolio standard and performance standards related to greenhouse gas emissions;
- Adopt California's tough greenhouse gas emissions standards for light- and medium-duty passenger vehicles, vans and trucks;
- Require the use of high-efficiency, ultra-low-emission fleet vehicles in short-distance environments such as military bases and federal office and hospital complexes.

5. **Hold agencies accountable** for meeting targets. At least nine agencies did not meet their 2005 targets for reducing building energy use. Three of these had not even achieved 1995 goals by 2005. Reporting mechanisms have either not been established or have been allowed to be ignored. Agencies should face stiff penalties for failing to provide reports on progress toward meeting established energy efficiency goals. Compliance “report cards” should be public record. The President should:

- Tighten oversight and enforcement by defining these penalties and necessary enforcement procedures;
- Ensure that agencies follow established DOE rules when they exclude buildings from energy-intensity targets, and enforce implementation of all available cost-effective measures in facilities that are excluded from the intensity reduction requirements. Compliance with the DOE protocol should be tracked in the Federal Energy Management Annual Report to Congress;
- Require agencies to apply the energy efficiency and greenhouse gas reduction goals to source rather than site energy.

6. Enforce requirements for buying **energy-efficient products**. Again, although executive orders are in place, enforcement is lacking. There is no effective central tracking of purchases and evidence shows a failure to comply and lax enforcement. The President should direct:

- The General Services Administration (GSA) and the Defense Logistics Agency (DLA) to comply immediately with energy efficiency purchase requirements;
- Inspectors general to conduct periodic audits of large solicitations for energy-consuming products;
- The GSA to create a mechanism for vendors to report federal procurement solicitations that do not comply with energy efficiency requirements. (Both EAct 2005 and EISA codified these regulations, however enforcement is lacking.)

Section 525 of EISA contains an August 2008 deadline for GSA and DLA to list energy-efficient products exclusively on their government purchasing websites. According to the Alliance to Save Energy, the two agencies may need to continue listing inefficient products along with the compliant products on their online shopping sites so that agencies with written exceptions can purchase the products they need and so that combat-related purchases can still be made on those sites. These purchases should be the exception, not the rule, however; the online shopping sites should be redesigned so that queries into their main search engines return only compliant products. If an agency needs a non-compliant product, there should be a separate search engine, much as GSA has a separate Environmental Aisle.

7. Create **binding and understandable requirements** for facility managers. EAct 1992 directed all buildings and facilities to implement energy-efficiency measures with simple paybacks of 10 years or less by 2005. **EISA Section 432 requires agencies to audit 25 percent** of qualifying building and facility building space each year. The Secretary of Energy is charged with developing the criteria for qualifying buildings and facilities, which at a minimum must comprise 75 percent of facility energy use at each agency. Full implementation of this EISA provision is by no means guaranteed as agencies, and even DOE, have to date shown little enthusiasm for meeting it.

The President should **declare the administration’s commitment to fully implement this policy**, ensure that financial and technical resources are available to agencies to help in compliance, and impose penalties on agencies that fail to demonstrate meaningful progress towards compliance.

The President should direct agencies to:

- **Meter all energy use and report annually** to DOE on how metering data are being used.
 - **Hire Resource Efficiency Managers** where potential energy-cost savings are sufficient to pay their salaries.
 - **Implement all measures identified in the audits** that have a simple payback of less than 12 years. The calculation of net savings should consider not only energy and water costs but also operations, maintenance, repair and replacement costs. Congress should enact legislation requiring agencies to implement all cost-effective measures.
8. Champion sufficient **federal investment** to meet efficiency and emission goals. To meet current energy efficiency targets, the federal government will have to invest nearly \$1.5 billion each year through 2015. Recent appropriations have ranged from only \$100 million to \$300 million. The President should direct agencies to submit annual budget requests sufficient to meet the new energy efficiency and emission reduction targets proposed in PCAP. 9. Use federal buying power to **open green markets**. The government should exert its purchasing power upstream by creating goals and incentives for its suppliers to improve their energy and emissions profiles, and downstream by linking energy and emissions goals to financial assistance. In its role as a consumer the government can become a leading technology innovator. The President should:
- Direct the Office of Management and Budget to develop a pilot program to influence the efficiency and emissions profiles of the federal supply chain, to measure results within three years and to report results in terms of reductions in fossil energy use and greenhouse gas emissions;
 - Request that the Government Accountability Office conduct an independent review of the full range of federal financial assistance programs to identify opportunities to leverage energy efficiency improvements, renewable energy use and greenhouse gas reductions by the recipients of the assistance;
 - Direct GSA to propose a program of advance purchase commitments by the federal government for energy efficiency equipment, low-carbon fuels and ultra-low-emission or no-emission vehicles, designed to provide industries with long-term and sizeable markets for these green products.
10. **Reduce vehicle travel** for government customers and employees. The President should direct that:
- GSA establish location efficiency criteria for each new or expanded federal facility of more than 50,000 square feet or employing more than 500 people. These criteria would require agencies to seek locations that are close to mass transit and other forms of mobility that don't require the use of personal automobiles;
 - All agencies increase the use of telecommuting and alternative work schedules that reduce the number of days employees must commute to work;
 - GSA create telework centers in cities with large numbers of federal employees;
 - All agencies maximize the use of E-government, which gives citizens online access to federal services.²
11. Offset remaining greenhouse gas emissions with **clean energy projects** in developing nations. The federal government may be able to achieve virtual net-zero greenhouse gas emissions if it reduces actual emissions by 80 percent and offsets remaining emissions by funding clean energy, greenhouse gas mitigation, reforestation and other sequestration projects in developing

nations. Offsets should comply with clear criteria such as the [Open Market Trading Rule for Ozone Smog Precursors](#) (set in response to “Reinventing Environmental Regulations; Clinton/Gore, 3/16/1995”) and the emissions trading rules established by the Clean Air Act and used by EPA to credit state and local emission reduction programs.

12. Direct the General Services Administration (GSA) to advance incentives in federal construction for the use of permeable pavements, green roofs, and other green building approaches that contribute to water and energy conservation.
13. Direct the Department of Defense to rapidly implement the other elements of the Defense Science Board Task force, including the use distributed energy technologies to reduce the risk that military installations will be affected by interruptions in commercial power, and investments in energy efficiency and renewable energy technologies at a level commensurate with their operational and financial value

LEGISLATIVE ACTIONS

14. The President should seek authority from Congress to conduct pilot projects that use Energy Savings Performance Contracts for retrofitting federal mobility systems, including military systems.

FOR MORE INFORMATION:

Reducing Greenhouse Gas Emissions in Federal Buildings, Facilities and Vehicles. Loper, Joe; Capanna, Steve; Harris, Jeffrey; commissioned by PCAP from the Alliance to Save Energy. April, 2008. www.ase.org/content/article/detail/3996

The Boundaries of Executive Authority: Using Executive Orders to Implement Federal Climate Change Policy. Vol 1. Center for Energy & Environmental Security. Boulder, Colorado. February, 2008.

The Boundaries of Executive Authority: An Evaluation of Priority Proposals from the Presidential Climate Action Plan. Center for Energy & Environmental Security. Boulder, Colorado. July, 2008. www.climateactionproject.com/docs/Executive_CEES_PCAP_II_Report_Jul_17.pdf

Clean Vehicles. Union of Concerned Scientists Fact Sheet
http://www.ucsusa.org/clean_vehicles/solutions/cleaner_cars_pickups_and_suvs/how-can-you-save-drivers-more.html

Energy Independence and Security Act (EISA) of 2007: New and Enhanced FEMP Responsibilities. U.S. Department of Energy. http://www1.eere.energy.gov/femp/pdfs/eisa_femp.pdf

¹ This tax provision was extended by Congress under the recently enacted [Emergency Economic Stabilization Act of 2008](#).

² PCAP proposes similar measures nationwide in its Low Carbon Transportation/Mobility chapter.