Executive Order 13514: Sustainability and Greenhouse Gas Emissions Reduction

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Summary

On October 5, 2009, President Obama signed Executive Order 13514, *Federal Leadership in Environmental, Energy, and Economic Performance*, to establish an integrated strategy towards sustainability in the federal government and to make reduction of greenhouse gas (GHG) emissions a priority for federal agencies. Executive Order 13514 (EO 13514) requires federal agencies to set GHG emissions reduction targets, increase energy efficiency, reduce fleet petroleum consumption 30% by 2020, conserve water, reduce waste, support sustainable communities, and leverage federal purchasing power to promote environmentally-responsible products and technologies.

Under the previous administration, EO 13423, *Strengthening Federal Environmental, Energy and Transportation Management*, replaced five earlier executive orders addressing energy and environmental management by federal agencies, established goals, practices, and reporting requirements for environmental, energy, transportation performance, and accountability.

The terms "sustainability and sustainable" carried over from EO 13423 without a discussion of the concepts or how the concepts apply outside of the federal government. Given that EO 13423 elevated "sustainable" to a high priority, discussion of the concept may promote better solutions.

The new EO 13514 does not revoke any provision of the previous EO 13423. It does establish new goals and provisions, augments or expands many existing provisions, and extends some dates for compliance. Much of Executive Order 13514 requires the agencies to examine the environmental and social impacts of their mission, personnel, and logistical operations with regard to sustainability.

EO 13514 requires federal agencies to assess and measure their GHG footprint and submit emissions targets (within 90 days of the order). A requirement to weigh both "economic and social benefits and costs" of these targets may require further clarification as value systems may enter the solution evaluation process. Environmentally sustainable products and services are required immediately for 95% of all new procurements. The new order adds a requirement to reduce water use in federal industrial, landscaping, and agricultural applications by at least 20% from 2010 levels. The new order also increases the energy efficiency levels required of new building designs, and sets a target of zero net-energy consumption for new buildings by 2030.

EO 13514's most significant new goal is reducing greenhouse gas emissions. Fossil fuel use constitutes the federal government's major source of GHG emissions. GHG emission-reduction targets may require federal agency managers to weigh the potential impacts on their agency missions, considering available technology and the timeframe needed for complying.

Conflicting priorities may emerge in implementing the goals of the new executive order. Consideration of unintended consequences and their potential impacts on the priorities of other agencies is likely to be an area of considerable focus.

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Introduction

On October 5, 2009, President Obama signed Executive Order (EO) 13514, *Federal Leadership in Environmental, Energy, and Economic Performance*, to establish an integrated strategy towards "sustainability" in the federal government and to make reduction of "greenhouse gas" (GHG) emissions a priority for federal agencies.[1] The order requires federal agencies to set GHG emissions reduction targets, increase energy efficiency, reduce fleet petroleum consumption, conserve water, reduce waste, support sustainable communities, and leverage federal purchasing power to promote environmentally-responsible products and technologies.[2]

The federal government represents the largest single consumer of energy in the U.S. economy, occupying nearly half a million buildings, operating more than 600,000 vehicles, and purchasing over $500 billion in goods and services annually.[3] EO 13514 directs federal agencies to lead by example in setting sustainability performance standards "to create a clean energy economy" in order to increase the Nation's prosperity, promote energy security, protect the interests of taxpayers, and safeguard the health of the environment.[4] Federal agencies must weigh both economic and social benefits and costs in annual evaluations of project performance, expanding projects with net benefits, and reassessing or discontinuing under-performing projects.[5] These evaluations must be transparent, with actions taken to comply with the Order disclosed on publicly available federal websites. Military and related national security activities appear to be exempted from the requirements of EO 13514.[6]

This report discusses the more significant provision of EO 13514. However, the concept of "sustainability" is left for a separate report.

[1] Executive Office of the President, "Federal Leadership in Environmental, Energy, and Economic Performance," 74 *Federal Register* 52117, October 8, 2009.

[2] Greenhouse gases are carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride.

[3] The White House, Office of the Press Secretary, *President Obama signs an Executive Order Focused on Federal Leadership in Environmental, Energy, and Economic Performance*, October 5, 2009, http://www.whitehouse.gov/the_press_office/President-Obama-signs-an-Executive-Order-Focused-on-Federal-Leadership-in-Environmental-Energy-and-Economic-Performance/.

[4] As defined in EO 13514, "sustainability and sustainable" means to create and maintain conditions under which humans and animals can exist in productive harmony, that permit fulfilling the social, economic, and other requirements of present and future generations. As previously defined in EO 13423, ''sustainable'' means to create and maintain conditions, under which humans and nature can exist in productive harmony, that permit fulfilling the social, economic, and other requirements of present and future generations of Americans.

[5] EO 13514 provides exemptions to national intelligence and law enforcement activities when necessary to protect their unauthorized disclosure, and activities and facilities of agencies when it is in the interest of national security.

[6] EO 13514 states: "To the maximum extent practicable, and without compromising national security, each agency shall strive to comply with the purposes, goals, and implementation steps in this order."

Summary of Executive Order 13514 and Comparison to Previous Orders

EO 13514 establishes new goals and provisions, augments or expands many existing provisions, and extends some dates for compliance. It does not revoke any provision of previous Executive Orders.[7]

Previous administrations issued several executive orders addressing various energy and environmental goals and practices of federal agencies. Specifically, EO 13423—*Strengthening Federal Environmental, Energy and Transportation Management* (January 24, 2007)—replaced five earlier executive orders addressing energy and environmental management by agencies of the federal government, establishing goals, practices, and reporting requirements for environmental, energy, transportation performance, and accountability.[8] Refer to this report's **Appendix** for a summary of EO 13423 provisions.

The following sections summarize the major energy and environmental provisions and goals in the new EO 13514. They also compare provisions and goals to previous environmental and energy efficiency goals of EO 13423, with a summary provided in **Table 1**.

Greenhouse Gas Emissions Reduction Goals

EO 13514 now directs federal agencies to establish GHG percentage reduction targets for *scope 1* (federally owned or controlled sources) and *scope 2* (federally purchased or generated energy) GHG emissions by FY2020.[9] Agencies must report their reduction targets to both the Chair of the Council of Environmental Quality (CEQ) and to the Director of the Office of Management and Budget (OMB Director).[10] In establishing the target, the new order directs each agency to consider reductions associated with

- reduced energy intensity in buildings,
- increased use of renewable energy,
- implementing renewable energy projects on agency property, and
- reduced use of fossil fuels in vehicles.[11]

Each agency also must develop and implement a *Strategic Sustainability Performance Plan* (SSP) (within 240 days of the order). Thereafter, an annually updated plan is due. The SSP will establish priorities for agency actions based on a lifecycle return on investment, as detailed in Section 8 of

[7] Presidents of the United States may issue executive orders to manage the operations of the federal government.

[8] Executive Order 13423, "Strengthening Federal Environmental, Energy and Transportation Management," 72 *Federal Register* 3919-3923, February 5, 2007.

[9] Reductions are relative to a FY2008 baseline. Scope 1 direct GHG emissions are defined in EO 13514 as being from sources which are owned or controlled by the federal agency. Scope 2 direct GHG emissions are those resulting from the generation of electricity, heat, or steam purchased by a federal agency.

[10] Reporting is due within 90 days of the executive order's issue.

[11] Agencies must reduce the use of petroleum 30% for vehicle fleets of more than 20 vehicles. Executive Order 13415 extends by five years the date of required compliance to 2020.

the order. Along with the SSP, a percentage reduction target for *scope 3* (federally contracted actions) GHG emissions must be established and reported to the Chair of the CEQ and the Director of OMB.[12]

Each agency head is to designate a "Senior Sustainability Officer" who will be accountable for accomplishing the new EO 13514 goals. The order includes the key requirement for integrating the SSP into the agency's strategic planning and budget process, including the agency's strategic plan under section 3 of the Government Performance and Results Act of 1993 (GPRA).[13]

Within 15 months, each agency is to report a comprehensive inventory of *scope 1*, *scope 2*, and *scope 3* emissions to the CEQ Chair and the OMB Director.

EO 13423 had no specific GHG emission reduction target. Instead, that order set a goal to improve energy efficiency, and reduce GHG emissions through a 30% reduction in "energy intensity" by 2015.[14] At least half of the renewable energy purchased annually for agency consumption was required to come from new renewable energy sources, and these projects where feasible were to be located on agency property.

General Comments: The new EO 13514 will require federal agencies to understand and measure their GHG footprint before making recommendations about reducing the size of that footprint. The requirement to weigh both economic and social benefits and costs may require further clarification as value systems may enter the solution evaluation process. Federal contractors may be required to sign up with a voluntary registry to report GHG emissions.

Water Conservation

EO 13514 increases goals for water use efficiency and management to reduce potable water consumption by 2% annually through FY2020. [15] Federal agency industrial, landscaping, and agricultural water consumption must be reduced 2% annually through FY2020.[16] Water reuse strategies and storm water management are part of these goals.

EO 13423 had set a goal for federal agencies to reduce water consumption intensity 16% by FY2015 (relative to a FY2007 baseline) through life-cycle cost-effective measures.[17] The requirement incorporated the "Federal Leadership in High Performance and Sustainable Buildings Memorandum of Understanding (2006)" to reduce potable water use.[18]

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[12] The Executive Order defines *scope 3* GHG emissions as from sources not owned or directly controlled by a federal agency but related to agency activities such as from vendor supply chains, delivery services, and employee travel and commuting.

[13] GPRA promotes federal program and agency accountability. 5 U.S.C. 306.

[14] Reduction targets are relative to a FY2003 baseline.

[15] Future reductions are equivalent to 26% relative to a 2007 base year. The Executive Order defines "Water consumption intensity" as water consumption per square foot of building space.

[16] Future reductions are equivalent to 20% relative to a 2010 base year.

[17] Executive Order 13423 defines ''life-cycle cost-effective'' as the life-cycle costs of a product, project, or measure estimated as equal to or less than the base case (i.e., current or standard practice or product).

[18] In the Memorandum of Understanding, agencies agree to employ strategies to use a minimum of 20% less potable water indoors, and reduce outdoor usage of potable water by a minimum of 50%. See *Guiding Principles for Federal Leadership in High Performance and Sustainable Buildings*, http://www.fedcenter.gov/_kd/Items/actions.cfm?action=
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General Comments: EO 13514 adds five years to the deadline for meeting the water efficiency target. While estimates indicate that overall water use in the United States has been declining,[19] water shortages in various regions show that continued improvement in water use efficiency can be of benefit.[20] The benefits of increasing energy efficiency are also apparent with almost half of the 410 billion gallons of daily water use going to the thermoelectric production of power.[21]

Pollution Prevention and Waste Elimination

EO 13514 sets goals for pollution prevention and waste elimination that rely on measures to reduce waste and pollutant generation before the effluents enter the waste stream. Agencies must divert at least 50% of their construction demolition debris and 50% of other non-hazardous solid waste from landfill disposal to recycling or recovery operations.[22] Other pollution prevention goals include pest management programs and controls for chemical uses and processes.

EO 13423 did not set any specific quantitative goals for pollution prevention or waste elimination. It did direct agencies to reduce the quantity of toxic and hazardous chemicals and materials acquired, used, and disposed of by the agency. It also called for the increased diversion of solid waste, as appropriate, and directed agencies to conduct cost-effective waste prevention and recycling programs at their facilities.

High Performance Buildings

EO 13514 directs that the design of all planned new federal buildings beginning in 2020 achieve zero net-energy use by 2030.[23] Existing buildings must reduce their consumption of energy, water, and materials, and identify alternatives to renovation. It encourages cost-effective, innovative strategies to minimize water and energy consumption, for example, reflective or vegetated roofs. Rehabilitation of federally owned, historic buildings should employ "best practices" and technologies to promote long-term viability. The new order also gives priority to the developing site selection procedures to site federal buildings in sustainable locations.[24]

EO 13423 had required new construction and major renovation of agency buildings comply with the *Guiding Principles for Federal Leadership in High Performance and Sustainable Buildings* established in the *Federal Leadership in High Performance and Sustainable Buildings Memorandum of Understanding*.[25] At least 15% of each agency's existing federal capital asset

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[19] U.S. Geological Survey, *United States Using Less Water than 35 Years Ago*, November 15, 2009, http://www.sciencedaily.com/releases/2009/11/091106120807.htm (U.S. Geologic Survey, 2009).

[20] David Gutierrez, *At Least 36 U.S. States Face Water Shortage*, Natural News, April 15, 2008, http://www.alternet.org/water/82378/.

[21] U.S. Geologic Survey, 2009.

[22] Excludes diversion to a waste-to-energy facility.

[16] A "zero net-energy" building is defined in the Executive Order as an economically viable building, designed and constructed to require a greatly reduced quantity of energy to operate, with the balance of energy needs being met from sources of energy which do not produce GHGs and thus results in no net emissions of GHGs.

[24] Based on criteria in section 10(b) of EO 13514.

[25] Specific energy reduction targets for new construction and renovations were included in the Memorandum, calling (continued...)

building inventory had to incorporate the sustainable practices in the *Guiding Principles* by the end of FY2015.

General Comments: The new order takes the next step by raising the bar on energy efficiency to aim for zero net-energy buildings. To achieve this goal in new buildings, it may be necessary to incorporate solar photovoltaic (and other technologies) into windows and other aspects of building design. Life-cycle considerations may require modular design of both internal and external components to ensure that these features will continue to be productive (or enable improvements) over the useful life of such buildings. To ensure full functionality and safety for public buildings, new standards may be required which consider human comfort and productivity levels in zero net-energy building environments.

Sustainable Acquisition Practices

EO 13514 requires sustainable acquisition practices to ensure that 95% of new contracts for products and services, including task and delivery orders (but excluding weapons systems) be

- energy-efficient (i.e., *Energy Star or Federal Energy Management Program* (FEMP) designated criteria),
- water-efficient,
- biobased,[26]
- environmentally-preferable (i.e., *Electronic Product Environmental Assessment Tool* (EPEAT) certified),
- non-ozone depleting,
- contain recycled content, and
- non-toxic or less-toxic alternatives.

Sustainable practices promote the procurement of Energy Star or FEMP-designated electronic equipment (ensuring a procurement preference for EPEAT-registered electronic products), and the implementation of "best management practices" for energy-efficient servers and federal data centers. Disposal of excess or surplus electronics must employ environmentally sound practices. All agency electronic products are to enable power management, duplex printing, or other energy efficient or environmentally preferable features.

EO 13423 stated that agency acquisition of goods had to use sustainable environmental practices, including the acquisition of biobased, environmentally preferable, energy-efficient, water-efficient, and recycled content goods. Paper used by agencies was required to have at least 30% post-consumer fiber content. At least 95% of electronic products had to satisfy the requirements for EPEAT registered equipment, and computers and monitors had to include Energy Star

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for new buildings to be 30% more cost efficient than a pre-2003 baseline.

[26] Biobased products may be defined as "a product determined by the [U.S. Department of Agriculture] Secretary to be a commercial or industrial product (other than food or feed) that is composed, in whole or in significant part, of biological products or renewable domestic agricultural materials (including plant, animal, and marine materials) or forestry materials." See http://www.biorenew.iastate.edu/resources/frequently-asked-questions/biobased-products.html.

features. It also directed agencies to implement policies that extended the useful life of agency electronic equipment and used environmentally sound practices to dispose of electronic equipment at the end of its useful life.

Table 1. Executive Orders Comparison

Goals	EO 13423 (Previous)	EO 13514 (New)
Greenhouse Gas Emissions Reduction Goals	Improved energy efficiency and reduced GHG through 30% reduction in energy intensity by 2015, relative to a FY2003 baseline (GHG reduction targets not specified)	Establishes a percentage reduction target for agency-wide reduction of scope 1 and scope 2 GHG emissions by FY2020 (relative to a FY2008 baseline) Establishes a separate percentage reduction target for scope 3 GHG emissions *Scope 1* sources are federal agency owned or controlled. *Scope 2* sources result from the generated electricity, heat, or steam purchased by a federal agency. *Scope 3* GHG sources result from vendor supply chains, delivery services, and employee travel and commuting Directs agencies to develop, implement, and annually update a Strategic Sustainability Performance Plan (SSP) to prioritize agency actions based on a lifecycle return on investment
	Required at least one-half of annual renewable energy purchases to come from new renewable energy sources, with projects located on agency property where feasible	
Water Conservation	Reduced water consumption intensity 16% by 2015, relative to a FY2007 baseline through life-cycle cost-effective measures	Reduces potable water consumption intensity by 2% annually through FY2020 relative to a 2007 base year (for 26% total reduction) Reduces industrial, landscaping, and agricultural water consumption by 2% annually through FY2020 relative to a 2010 base year (for 20% total reduction) Expands upon EO 13423 goals with the new goal for water reduction for federal industrial, landscaping, and agricultural uses Adds five years to the deadline for meeting the water efficiency target
Pollution Prevention and Waste Elimination	Directed reduction of toxic and hazardous chemicals and materials acquired, used, or disposed of by the agency, but set no specific quantitative reduction goals Directed increased diversion of solid waste, and cost-effective waste prevention and recycling programs maintained in agency facilities as appropriate	Reduces federal generation of waste and pollutants before they enter the waste stream Diverts at least 50% of non-hazardous solid waste and at least 50% of construction and demolition materials and debris from landfills to recycling or recovery operations, excluding diversion to a waste-to-energy facility

Goals	EO 13423 (Previous)	EO 13514 (New)
High Performance Buildings	Directed new federal buildings and major renovations of existing federal buildings to comply with "Guiding Principles for Federal Leadership in High Performance and Sustainable Buildings"	Design all new federal buildings are to achieve zero net-energy use by 2030 Encourages cost-effective, innovative strategies to minimize water and energy consumption Reduces existing federal buildings consumption of energy, water, and materials, and identify alternatives to renovation Rehabilitated federally-owned historic buildings should employ "best practices" and technologies to promote the long-term viability of the buildings
Sustainable Acquisition Practices	Directed acquisition of goods is to use sustainable environmental practices, including the acquisition of biobased, environmentally preferable, energy-efficient, water-efficient, and recycled content goods	Acquisition practices must ensure that 95% of new contract actions for products and services are • energy efficient • water efficient • biobased • environmentally preferable • non-ozone depleting • contain recycled content • non-toxic/less-toxic alternatives Includes all task and delivery orders but excludes weapons systems Refers to *Energy Star products* *Federal Energy Management Program (FEMP)* *Electronic Product Environmental Assessment Tool (EPEAT)*

Implementation and Management of Executive Order 13514

EO 13514 creates an implementation team and a management structure to coordinate federal agencies activities that is similar in structure and make-up to the management and reporting structures created previously by EO 13423. While the new order continues to afford federal agencies flexibility in making recommendations to meet the goals, it should guide the agencies as to the types of actions they can consider and hold them accountable for meeting the requirements.

Strategic Sustainability Performance Plan and the Steering Committee

EO 13514 establishes an interagency committee composed of the Federal Environment Executive and agency Senior Sustainability Officers to advise the CEQ Chair and the OMB Director on the

implementation of the order and to facilitate implementation of each agency's SSP. The Steering Committee will also determine what federal actions are appropriate to achieve the order's policy goals.

Each agency's SSP will be subject to the OMB Director's approval. The SSP is to identify the activities, policies, plans, procedures, and practices of the agency that are relevant to the implementation of the order. Specific agency goals, schedules, milestones, and quantifiable metrics are to be developed. These should consider environmental measures as well as economic and social benefits and costs in evaluating projects and activities based on a lifecycle return on investment. The SSP should also evaluate climate change risks and vulnerabilities of the agency's operations and mission in both the "short and long term."

Greenhouse Gas Accounting and Reporting

EO 13514 directs the Department of Energy (DOE) (through FEMP) in coordination with the Environmental Protection Agency (EPA), the General Services Administration (GSA), the Departments of Commerce, Defense, and the Interior, and other federal agencies to develop recommendations for reporting and procedures for accounting GHG emissions. The recommendations and procedures are due for submission to the CEQ Chair and OMB Director within 180 days of the date of the order. The order emphasizes accuracy and consistency in quantifying and accounting for GHG emissions from all *scope 1, 2, and 3* sources. If significant changes in agency missions render the initial baseline information unsuitable as a benchmark, the order permits choosing an alternative to the FY2008 baseline. Recommendation must consider past federal agency efforts to reduce GHG emissions.

Guidance for Federal Fleet Management

EO 13514 directs DOE to coordinate with the General Services Administration and issue guidance on federal fleet management within 180 days of the order. The guidance must address the acquisition of alternative fuel vehicles, the use of alternative fuels with the goal of improving fleet fuel economy, and the reduction of fleet petroleum use 30% by 2020. The guidance must consider electric vehicles for appropriate functions.

Recommendations for Vendor and Contractor Emissions

EO 13514 directs GSA to coordinate with EPA and the Department of Defense to provide recommendations on working with the federal vendor and contracting community to reduce *scope 3* emissions.[27] These are emissions derived from the supply of products and services to the federal government. The recommendations should consider the potential impacts on the procurement process, and on the federal vendor and contracting community.

[27] Reporting is due within 180 days of the order.

Leveraging the Private Sector

Federal agencies may consider various market-based solutions in making sustainability improvements. Using the private sector in this way can help federal agencies meet the goals of EO 13514 while conserving financial resources to meet their primary missions. Two widely used contracts ─ Energy Savings Performance Contracts (ESPCs) and Utility Energy Savings Contracts (UESCs) ─ provide federal agencies with the means of improving energy efficiency through private sector financing.

Under an ESPC, a private-sector energy services company (ESCO) develops and installs energy improvements such as energy efficient lighting or heating, ventilation and air conditioning systems (HVAC).[28] The federal agency then repays the ESCO for the capital expenditure over a maximum of 25-year period from resultant energy savings. EPSCs, in particular, have gained widespread use throughout the federal sector. Federal agencies have invested approximately $2.3 billion through ESPCs, with more than 460 contracts awarded in 47 states.[29] ESPCs come with an incentive that allows facility managers to apply the cash benefit of energy savings to other improvements or programs.

The Congressional Budget Office's (CBO) view of ESPCs is that they impose a future financial obligation on the federal government. CBO began scoring ESPCs as mandatory spending, coinciding with the expiration of the 1990 Budget Enforcement Act pay-as-you-go (PAYGO) rules.[30] The CBO scoring reflects how ESPCs create future commitments to appropriations. The Government Accountability Office (GAO) finds that the benefits of ESPCs could be achieved using upfront funds (that is, fully funded in advance) and with lower financing costs, but agencies generally do not receive sufficient funds upfront for doing so and see ESPCs as a necessary supplement to upfront funding in order to achieve the longer-term energy savings benefits.[31]

UESCs can accomplish the energy efficiency improvements similar to ESPCs.[32] With a UESC, a utility finances the costs of capital improvements and recovers its investment over the contract term from the customer's utility rates. The utility benefits by reducing its customer's demand for energy, thus increasing its spare capacity for periods when energy demands peak. Unlike ESPCs, however, there are no statutory requirements that an agency realize savings from reduced energy consumption. Facility managers, however, can stipulate terms for energy cost savings.

Policy Challenges and Considerations

Much of EO 13514 requires federal agencies to examine the environmental and social impacts of their mission, personnel and logistical operations with regard to sustainability. The definition of

[28] Congress enacted Legislation authorizing energy savings performance contracts (ESPCs) in 1992, and the Department of Energy (DOE) promulgated regulations for their use in 1995. Congress made ESPC authority permanent in 2007. See 42 U.S.C. § 8287.

[29] U.S DOE, Federal Energy Management Program, http://www1.eere.energy.gov/femp/financing/espcs.html

[30] P.L. 101-508 as codified in 2 U.S.C. § 902.

[31] U.S. Government Accountability Office, *Energy Savings Performance Contracts Offer Benefits, but Vigilance is Needed to Protect Government Interests*, GAO-05-340, June 2005, http://www.gao.gov/new.items/d05340.pdf.

[32] 10 U.S.C. § 2913.

sustainability carries over from EO 13423, without discussion of how the private sector views or generally implements the concept.[33] Given that the order has elevated sustainability to a high priority, a broader discussion would help clarify the concept and possibly promote better policy solutions.

Reducing greenhouse gas emissions is EO 13514's most significant requirement. Energy consumption, and thereby fossil fuels use, is arguably involved in almost every aspect and activity of all federal agencies. In establishing targets for reducing GHG emissions, agencies may need to weigh the potential impacts on their missions while also considering whether advances in technology are likely over the timeframe of compliance.

The requirement for federal agencies to reduce *scope 3* GHG emissions could have many implications, including the evaluation of telecommuting as an imperative for many federal employees to reduce gasoline consumption. Upgrading security for computer-based systems and adding equipment for communications could be major considerations on the cost side.

This latest energy- and environment-related executive order requires federal agencies to recommend how they will achieve mandatory goals, but CEQ and OMB must approve and decide the federal actions that agencies may actually employ. CEQ and OMB may become arbiters of these recommendations, weighing the mission and criticality of agency activities, as solutions deemed appropriate in some circumstances may not be appropriate for others.

Conflicts between priorities can emerge. For example, if more electricity is required to charge hybrid and electric vehicles and that electricity comes from traditional steam-electric power plants, water consumption could increase thus making water-use goals less achievable.[34] Increased coal use to generate the electricity could exacerbate GHG emissions. Such potential conflicts and possible impacts on the priorities of other agencies are likely to be taken up by the Steering Committee. The development of a process for resolving such issues is likely be an area of considerable focus.

[33] The United Nations World Commission on Environment and Development's 1987 report, *Our Common Future,* defines sustainability as "meeting the needs of the present without compromising the ability of future generations to meet their own needs."

[34] American Chemical Society , *Thirsty Hybrid And Electric Cars Could Triple Demands On Scarce Water Resources*, March 11, 2008, http://www.sciencedaily.com/releases/2008/03/080310094555.htm.

Appendix. Executive Order 13423

In signing Executive Order (EO) 13423, *Strengthening Federal Environmental, Energy and Transportation Management*, President George W. Bush revoked five earlier executive orders affecting federal agencies' energy and environmental management.[35] Section 11 of the order consolidated and strengthened the five executive orders and two memorandums of understanding (MOU) and established new and updated goals, practices, and reporting requirements for environmental, energy, and transportation performance and accountability.[36] In some cases, the Bush order put in place replacement energy and environmental efficiency goals for previous goals with target dates that had passed.

EO 13423 also implemented and supplemented provisions of the 2005 Energy Policy Act (EPACT; P.L. 110-140) dealing with energy and environmental management by federal agencies. The combination of EPACT (Title I, Part A) and EO 13423 defined the energy efficiency objectives for federal agencies under the Bush Administration. EO 13423 directed all federal agencies to improve energy efficiency and reduce greenhouse gas emissions through reductions in energy intensity (3% annually through the end of FY2015, and 30% by the end of FY2015, relative to each agency's baseline energy use in FY2003). Agencies scored progress in reaching building energy-efficiency goals in terms of reductions in energy consumption versus gross building area. For the energy reduction goals of EPACT, EO 13423 excluded some inherently inefficient industrial types of buildings were from this scoring.

EO 13423 (Section 2f) mandated specific energy reduction targets for new construction and renovations. Further, it directed federal agencies to meet objectives set in the *Federal Leadership in High Performance and Sustainable Buildings Memorandum of Understanding* ("Sustainable Buildings MOU").[37] The Sustainable Buildings MOU called for new buildings to be 30% more cost efficient than industry standards, and for buildings undergoing major renovations to be 20% more cost efficient than a pre-renovation, 2003 baseline. The order also encouraged federal agencies to incorporate sustainable practices into projects underway, and sell or dispose of unneeded assets.[38]

The revoked EO 13123 had directed improvements in building energy efficiency, promoted the use of renewable energy, and set goals for reduction of greenhouse gas (GHG) emissions associated with energy use in buildings, among other energy-related requirements. In contrast, Bush's EO 13423 had no specific GHG reduction target. However, Section 2.a of EO 13423 did

[35] The President, "Strengthening Federal Environmental, Energy, and Transportation Management," 72 *Federal Register* 3919-3923, January 26, 2007.

[36] Specifically, Section 11 of EO13423 revokes the following prior executive orders: EO13101, *Greening the Government Through Waste Prevention, Recycling, and Federal Acquisition* (September 14, 1998), EO13123, *Greening the Government Through Efficient Energy Management* (June 3, 1999), EO13134, *Developing and Promoting Biobased Products and Bioenergy* (August 12, 1999), EO13148, *Greening the Government Through Leadership in Environmental Management* (April 21, 2000), and EO13149, *Greening the Government Through Federal Fleet and Transportation Efficiency* (April 21, 2000). See "Fact Sheet, Executive Order 13423, Strengthening Federal Environmental, Energy and Transportation Management," Office of the Federal Environmental Executive at http://ofee.gov/eo/EO_13423FactSheet.pdf.

[37] The Sustainable Building MOU is available at http://www.fedcenter.gov/_kd/Items/actions.cfm?action=Show&item_id=4713&destination=ShowItem (accessed on November 17, 2008).

[38] Office of Management and Budget, *Instructions for Implementing Executive Order 13423*, March 29, 2007, p. 25, http://www.whitehouse.gov/omb/memoranda/2007.html.

include the goal of cutting GHG emissions by federal agencies through reductions in the energy intensity of agency operations, but does not specify a GHG reduction target.

EPACT only credited electricity from renewable energy sources in meeting federal purchase requirements. EO 13423 required that at least half of the EPACT renewable energy requirement comes from new (put in service after January 1, 1999) renewable energy sources. Agencies could also use new non-electric renewable energy sources to meet the requirement for new renewable energy. (Examples of non-electric renewable energy include thermal energy from solar ventilation pre-heat systems, solar heating and cooling systems, solar water heating, ground source heat pumps, biomass heating and cooling, thermal uses of geothermal and ocean resources.) However, these non-electric renewable energy sources could not apply toward meeting the EPACT renewable electricity requirement.[39] In meeting EPACT's energy-intensity reduction goals (Btu/gsf), agency credits for renewable energy purchases started to phase out in FY2008 and reduce to zero by FY2011.

Finally, EO 13423 required each federal agency to annually report to the President. The Office of Management and Budget (OMB) provided general reporting guidance in Circular No. A-11 (Section 55, *Information on Energy Use, Costs, and Efficiency*). A 2008 DOE memorandum provided detailed reporting guidance in to federal agency energy coordinators.[40]

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[39] U.S. Department of Energy, Energy Efficiency and Renewable Energy, *Renewable Energy Requirement Guidance for EPACT and Executive Order 13423*, January 28, 2008, p. 5, http://www1.eere.energy.gov/femp/pdfs/epact05_fedrenewenergyguid.pdf.

[40] Letter from Richard Kidd, Program Manager, Federal Energy Management Program, Office of Energy Efficiency and Renewable Energy, to Federal Agency Energy Coordinators, Reporting Guidance for FY2008 Annual Report on Federal Government Energy Management, September 8, 2008, http://www1.eere.energy.gov/femp/about/reporting_guidance.html.