

Policy Perspective: Meeting the Challenge of the DOE Order 436.1 Departmental Sustainability – 12527

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ABSTRACT

DOE's Sustainability Performance Office is working to meet sustainability goals at DOE by implementing Executive Orders, Departmental policy, the DOE Strategic Sustainability Performance Plan (SSPP) and legislation related to sustainability.

INTRODUCTION

The Federal government occupies nearly 500,000 buildings, operates more than 600,000 vehicles, employs more than 1.8 million civilians, and purchases more than \$500 billion per year in goods and services.

DOE is the second-largest user of facility energy in the Federal government. In FY 2010, DOE used, occupied and emitted approximately:

- 30 trillion Btus energy; 3% of Government total
- 5.2 million MWH electricity; 9% of Government total
- 7.4 billion gallons of potable water; 4% of Government total
- 129 million square feet; 4% of Government total
- 4.0 million MTCO₂e Scope 1 & 2 GHG; 8% of Government total

DOE Sustainability Performance Office (SPO)¹ operates within the strategic context of:

- Energy Policy Acts (EPA) 1992 and 2005
- Energy Independence and Security Act (EISA) 2007
- Executive Order (EO) 13423
 - “Strengthening Federal Environmental, Energy, and Transportation Management”
- EO 13514
 - “Federal Leadership in Environmental, Energy and Economic Performance”
- DOE 2011 Strategic Plan
- DOE Strategic Sustainability Performance Plan²
- DOE Order 436.1, “*Departmental Sustainability*”

DISCUSSION

DOE Order 436.1

This Departmental policy establishes responsibilities and requirements for managing sustainability within DOE to ensure goals (described in Figure 1) and milestones in the annual Strategic Sustainability Performance Plan (SSPP) are met. It provides an overarching sustainability policy for DOE to ensure compliance with sustainability requirements and statutes, consolidates DOE Orders *Departmental Energy, Renewable Energy, and Transportation*

(430.2B) and *Environmental Protection Program (450.1A)*, and establishes DOE Sustainability Performance Office (SPO) as the Office of Primary Interest (OPI).

The order requires implementation of the SSPP, Site Sustainability Plans (SSPs), and Environmental Management Systems (EMSs). It streamlines the Department’s approach to implementing EO 13514, EO 13423, EPLA 1992 and 2005, EISA 2007, and relevant Contractor Requirements Document (CRD) that incorporates this policy into performance requirements for DOE’s National Laboratories and sites.

Strategic Sustainability Performance Plan (SSPP)

The SSPP is an annual sustainability plan required by EO 13514³. Agency SSPPs⁴ focus on 8 goals that integrate previous EOs, statutes, and requirements into a single framework:

1. Scope 1 & 2 GHG reduction
2. Scope 3 GHG reduction and Comprehensive GHG Inventory
3. High-Performance Sustainable Design/Green Buildings and Regional and Local Planning
4. Water Use Efficiency and Management
5. Pollution Prevention and Waste Elimination
6. Sustainable Acquisition
7. Electronic Stewardship and Data Centers
8. Agency Innovation and Government wide Support

DOE’s sustainability goals are represented in Figure 1 below:

<u>Sustainability Goals</u>	<u>Requirement</u>
Greenhouse Gas Emission Scopes 1 and 2 Reduction	28% (2020)
Greenhouse Gas Emission Scope 3 Reduction	13% (2020)
Energy Intensity Reduction (Btu/ft²)	30% (2003 – 2015)
Renewable Electricity Consumption Increase	7.5% (2013 forward)
Fleet Petroleum Reduction	30% (2005 – 2020)
Fleet Alternative Fuel Increase	10% (2005 – 2015)
Fleet Inventory Reduction	35% (2005 – 2014)
Potable Water Intensity Reduction (gal/ft²)	26% (2007 – 2020)
Industrial/Other Water Consumption Reduction	20% (2010 – 2020)
Recycling & Waste Diversion	50% (by 2015)
Procurements Meet Sustainability Requirements	95% (each year)
Buildings Meet Guiding Principles	15% (by 2015)
Net-Zero Energy in New Facilities	100% (by 2030)

Figure 1 - DOE Requirement Targets

Office of Management and Budget (OMB)/Council on Environmental Quality (CEQ) Sustainability Scorecard

DOE is regularly evaluated on its progress toward meeting sustainability goals. For the first time, DOE and agencies across the Federal government publicly posted their OMB/CEQ scorecards detailing sustainability and energy performance. DOE's Fiscal Year 2010 scorecard (Figure 2 below) serves as an important benchmark to see where the Department has been successful in achieving its sustainability goals, reducing pollution, cutting costs, and identifying where there is still more work to do.

President Obama made clear that Federal agencies must lead by example in clean energy and directed each agency to set aggressive targets for saving energy and water, limiting pollution, and reducing waste. Based on benchmarks identified in these annual scorecards, DOE will update its SSPP to continue building on accomplishments and to find better ways to meet and exceed its clean energy goals.

Over the last year, DOE achieved a number of important successes in its efforts to promote clean energy, reduce energy waste, and lead by example across the Federal government. These successes include:

- In June 2010, DOE opened the Research Support Facility at the National Renewable Energy Laboratory (NREL) in Golden, Colorado, which will be among the largest net-zero energy buildings in the world. The LEED Platinum building incorporates a broad range of energy efficiency technologies, serving as a real-life model for how commercial building operators nationwide can cost-effectively reduce energy use and save money on monthly energy bills.
- All new buildings or major renovations within the DOE complex are required to achieve LEED Gold or Platinum certifications. Many of the Department's new facilities are being designed to take into account the important lessons learned from the success of the Research Support Facility.
- Over 75% of DOE headquarter vehicles are fuel-efficient, alternative fuel vehicles, including flex fuel, hybrid, or plug-in hybrid electric vehicles. The Department also played an important role in doubling the Federal hybrid fleet with approximately 1,075 hybrids in its vehicle fleet alone.















	<p>Scope 1&2 GHG Emission Reduction Target</p> <p>Submitted comprehensive inventory as 2008 baseline for Scope 1&2 GHG Reduction Target of 28% by 2020¹</p>	 <p>Score: GREEN</p>
	<p>Scope 3 GHG Emission Reduction Target</p> <p>Submitted comprehensive inventory as 2008 baseline for Scope 3 GHG Reduction Target of 13% by 2020¹</p>	 <p>Score: GREEN</p>
	<p>Reduction in Energy Intensity</p> <p>Reduction in energy intensity in goal-subject facilities compared with 2003: 22.7% and on track for 30% by 2015</p>	 <p>Score: GREEN</p>
	<p>Use of Renewable Energy</p> <p>Use of renewable energy as a percent of facility electricity use: Total of 9.2% from renewable electricity sources including at least 2.5% from new sources (thermal, mechanical, or electric).</p>	 <p>Score: GREEN</p>
	<p>Reduction in Potable Water Intensity</p> <p>Reduction in potable water intensity compared with 2007: 12.1% and on track for 26% in 2020</p>	 <p>Score: GREEN</p>
	<p>Reduction in Fleet Petroleum Use</p> <p>Reduction in fleet petroleum use compared to 2005: 5.2% and not on track</p>	 <p>Score: RED</p>
	<p>Green Buildings</p> <p>Sustainable green buildings: 1.20% of buildings sustainable 2.35% GSF of inventory sustainable</p>	 <p>Score: RED</p>

Figure 2 – DOE FY 2010 OMB/CEQ Sustainability Scorecard

In addition to the OMB/CEQ sustainability scorecards, DOE also developed an internal Sustainability Scorecard, which measures progress toward agency sustainability goals based on the line management accountability of meeting the Department’s sustainability goals. These scorecards are provided to each of the Under Secretaries and major landlords such as the Office of Management which oversees DOE Headquarters in Washington, D.C. and Germantown, M.D. The scorecards provide updates on offices, sites, and lab progress on meeting the Department’s reporting requirements and sustainability goals (Figure 3).

DOE Sustainability Scorecard Under Secretary of Energy		FY 2011 Execution			
		Q1	Q2	Q3	Q4
1 Establish Sustainability POC			✓		
2 Submit Complete and Timely Annual Sustainability Planning documents					
2a. Site Sustainability Plans (SSPs) (December 1)		✓			
2b. Annual Budget Planning		✓	✓	TBD	TBD
2c. High Performance Sustainable Buildings (HPSB) Plan				TBD	TBD
2d. Annual Metering Plans (August 15)					TBD
3 Submit Complete and Timely Required Data					
3a. Budget Data		✓	✓	TBD	TBD
3b. EISA 432 and benchmarking data (CTS - November 30)					TBD
3c. Facility and HPSB data (FIMS - September 30)					TBD
3d. Building energy and water data (EMS4 - November 15)					TBD
3e. Fleet data (FAST - November 23)					TBD
3f. Pollution prevention and waste elimination data (PPTRS - December 1)					TBD
3g. Greenhouse gas inventory data (December 2)					TBD
4 Meet Key FY 2011 Milestones*					
4a. Reduce Scope 1 and 2 emissions by 2% (14% total from FY 2008)					TBD
4b. Reduce Scope 3 emissions by 1% (2% total from FY 2008)					TBD
4c. Reduce energy intensity by 18%					TBD
4d. Meter 75% of site buildings for electricity					TBD
4e. Meter 75% of electricity use					TBD
4f. Assess 75% of facilities for energy and water measures					TBD
4g. Maintain 7.5% renewable energy as percent of facility energy use (2.5% from post-1999 sources)					TBD
4h. Reduce water use by 18%					TBD
4i. Reduce petroleum use by 12%					TBD
4j. Reduce fleet by 15%					TBD
4k. 7% of building stock meets Federal Guiding Principles for HPSB					TBD
5 Consider Alternative Investment Opportunities, reinvest sustainability savings		✓	✓	TBD	TBD
6 Undertake Innovative Measures to Meet Sustainability Goals and Transform U.S. Energy Economy		✓	✓	TBD	TBD

* Scored in December/January

Figure 3 - Internal DOE Sustainability Scorecard

In addition, each site is provided an annual scorecard to record actual and project future progress. An example DOE Site Scorecard is provided in Figure 4. All performance analyses are based on data provided by DOE sites. Projections are based on data provided by DOE sites and a few assumptions including energy use and future decommissioning and demolition of assets.


 Site Sustainability Plan - Review Summary National Renewable Energy Laboratory						KEY										
						Policy	Not Applicable	Met/ Exceed	On Track	Does Not Meet	Projected Result					
DOE Goals and Targets	DOE Overall Target	DOE FY 2011 Target	Site Baseline	Site FY 2010 Performance vs. Baseline	Site FY 2011 Target	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	
1. Transforming our Energy Systems																
1.1 Scope 1 & 2 Greenhouse Gas Reduction:																
a	Provide comprehensive inventory of Scope 1&2 GHG data	Yes	Yes		Met	Yes										
b	Scope 1 & 2 GHG: 28% reduction by FY 2020 from a FY 2008 baseline (Includes Scope 2 emission reductions from RECs)	-28%	-14%	10,367	-145.4%	-14%	-270.5%	-380.1%	-452.2%	-576.8%	-701.3%	-825.8%	-950.4%	-1074.0%	-1199.5%	-1324.0%
c	Sulfur hexafluoride (SF ₆) capture program by September 2012	Yes	-		NA	-										
1.2 Renewable Energy:																
a	7.5% of a site's annual energy consumption from renewable sources by FY 2010	7.50%	5.0%	NA	165.0%	5.0%	161.1%	154.0%	114.3%	114.3%	114.3%	114.3%	114.3%	114.3%	114.3%	
	<i>i) Renewable energy from on-site systems</i>				32.2%		37.1%	39.0%	0.0%	28.9%	28.9%	28.9%	28.9%	28.9%	28.9%	
	<i>ii) Purchased renewable energy (from energy provider)</i>				16.4%		15.3%	14.2%	10.5%	10.5%	10.5%	10.5%	10.5%	10.5%	10.5%	
	<i>iii) Renewable energy credits</i>				116.4%		108.6%	100.8%	74.8%	74.8%	74.8%	74.8%	74.8%	74.8%	74.8%	
	<i>iv) Renewable energy credits from sources on tribal Land</i>				NA	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	
1.3 Scope 3 Greenhouse Gas Reduction																
a	Provide comprehensive inventory of Scope 3 GHG data	Yes	Yes		Met	Yes										
b	Scope 3 GHG: 13% reduction by FY 2020 from a FY 2008 baseline	-13%	-7%	7,301	51.4%	-2%										
	<i>i) Business air travel</i>				1,812	626.4%										
	<i>ii) Business ground travel</i>				262	3.3%										
	<i>iii) Employee commuting</i>				4,159	-24.3%										
	<i>iv) Contracted waste disposal</i>				31	0.0%										
	<i>v) Contracted waste water treatment</i>				10	78.0%										
	<i>vi) TBD classes</i>				1,027	28.2%										
c	Teleworking policy/program	Yes	Yes		NA	Yes										
1.4 Regional and Local Planning																
a	Consultation with local and metropolitan planning organizations	Yes	Yes		NA	Yes										
b	Increase effectiveness of local planning efforts	Yes	Yes		NA	Yes										
c	Increase effectiveness of regional measures	Yes	Yes		NA	Yes										
d	Update agency/site policy and guidance (HIS's and FAS)	Yes	Yes		NA	Yes										
e	Integrated methods and practices necessary to achieve goals into master planning documents	Yes	Yes		NA	Yes										
f	Discuss participation in critical local and regional efforts and initiatives	Yes	Yes		NA	Yes										
1.5 Site Innovation & Metrics																
a	Added by site as applicable; SPO will assist with tracking				NA	TBD										
b	Added by site as applicable; SPO will assist with tracking				NA	TBD										
c	Added by site as applicable; SPO will assist with tracking				NA	TBD										

Figure 4 - DOE Example Site Scorecard

DOE Site Sustainability Plans (SSPs)

These plans are comprised of annual data and narratives. The site narratives provide information on:

- Major initiatives or changes to mission/facilities that contribute to goal performance (positively or adversely)
- Expectations of future performance (major initiatives or obstacles)
- Best practices, lessons learned, and success stories
- Renewable energy systems and/or efficiency measures
- Local and regional planning activities
- Policies to reduce waste and pollution
- Measurable actions and site innovations deployed to support sustainability goals

SSPs are utilized to develop internal scorecards, inform DOE's OMB/CEQ scorecard and populate the annual SSPP.

DOE Greenhouse Gas (GHG) Inventory

A Comprehensive Site GHG Inventory and a Comprehensive DOE GHG Inventory are required for annual submission to CEQ. The Department tracks and reports its emissions in several categories:

- Scope 1 emissions including fleet fuel consumption and facility energy consumption (on-site)
- Scope 2 emissions including facility energy consumption (from purchased energy) and renewable energy/purchases.
- Scope 3 emissions including employee commute, business ground/air travel, contracted (off-site) waste water treatment, contracted (off-site) municipal waste disposal, and transmission and distribution (T&D) losses.

This inventory is verified by an internal, independent DOE team to ensure that all data reported are correct and transparent. In addition to the inventory, DOE also annual reports it numerous sustainability data points including energy use, metering, fleet petroleum, alternative fuel vehicles and fuel use, renewable energy use and success stories to Congress and the Federal Energy Management Program (FEMP).

CONCLUSION

Through implementation of Executive Orders, Departmental policy, the SSPP, statutory requirements and regular reporting, analysis and communication, DOE's SPO is working to maintain and expand DOE's leadership in sustainability.

REFERENCES

1. Sustainability Performance Office: <http://www.sustainability.energy.gov>
2. DOE SSPP: http://www1.eere.energy.gov/sustainability/pdfs/dae_sspp.pdf
3. EO 13514: http://www.whitehouse.gov/assets/documents/2009fedleader_eo_rel.pdf
4. Agency SSPPs: <http://www.whitehouse.gov/administration/eop/ceq/sustainability/plans>