Implementing Executive Order 13514
Federal Leadership in Environmental, Energy, and Economic Performance
At the Department of Energy

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I. E.O. 13514:
   - Goals
   - Requirements
   - Deadlines

II. DOE's Implementation Strategy
   - Governance Model
   - Strategic Sustainability Performance Plan

III. Meeting E.O. Goals
   - Current DOE Status
   - Key issues for Project Managers

Overview

"To establish an integrated strategy towards sustainability in the Federal Government and make reduction of greenhouse gas (GHG) emissions a priority for agencies."

Executive Order 13514
October 5, 2009

1. GHG emission reduction is now an overarching, integrating performance metric for all Federal agencies
2. Agencies must use a deliberative planning process, including a Strategic Sustainability Performance (SSP) Plan (due June 2, 2010)
3. E.O. goals are to be linked to budget allocations and scored by OMB
4. E.O. 13423, *Strengthening Federal Environmental, Energy, and Transportation Management* (January 29, 2007) remains in effect

E.O. 13514: Four Key Aspects

The Federal Government shall lead by example in creating a clean energy economy. Federal agencies shall:

- Increase energy efficiency;
- Measure, report and reduce their GHG emissions;
- *Conserve and protect water resources;*
- *Eliminate waste, recycle, and prevent pollution;*
- *Leverage agency acquisition to foster markets for sustainable technologies and environmentally preferable materials, products and services;*
- *Design, construct, maintain, and operate high performance sustainable buildings in sustainable locations;*
- Strengthen the vitality and livability of communities in which Federal facilities are located; and
- Inform Federal employees about and involve them in achieving these goals.

E.O. 13514 Policy

- Reduce GHG Emissions
- Improve Water Use Efficiency and Management
- Promote Pollution Prevention-Eliminate Waste
- Advance Regional and Local Integrated Planning
- Implement High Performance Sustainable Building Design, Construction, Operation and Management, Maintenance, and Deconstruction
- Advance Sustainable Acquisition
- Promote Electronics Stewardship
- Sustain Environmental Management Systems

E.O. 13514 Goals

- Ensure all new Federal buildings entering the planning process beginning in 2020 are designed to achieve zero-net-energy by 2030
- Ensure all new construction or alteration of Federal buildings complies with the Guiding Principles
- Ensure 15% of the agency's existing buildings and leases above 5,000 gross square feet meet the Guiding Principles by FY2015 – *and agency makes annual progress toward 100% conformance with Guiding Principles*

HPSB Guiding Principles

- Pursue cost-effective, innovative strategies to minimize energy, water, and material consumption
- Manage existing building systems to reduce consumption and identify alternatives to renovation to reduce deferred maintenance costs of existing assets
- Identify opportunities to consolidate/dispose of existing assets, optimize performance of the real property portfolio, and reduce associated environmental impacts
- Ensure rehabilitation of Federally owned historic buildings uses best practices to promote long-term building viability

HPSB Guiding Principles

- **SCOPE 1: Direct GHG emissions owned or controlled by Federal agency**
  - Stationary External Combustion
  - Stationary Internal Combustion
  - Fleet Vehicles
  - Fugitive Emissions

- **SCOPE 2: Direct GHG emissions from purchased utilities**
  - Electricity
  - Heat
  - Steam

- **SCOPE 3: Indirect GHG emissions**
  - Employee commuting
  - Business travel
  - Waste
  - Production & transport of purchased material
  - Other

GHG Emissions

Agency Responsibilities		
Section	**Description**	**Timeframe**
7(a)	Designate Agency Senior Sustainability Officer	COMPLETE
2(a)	Establish and report a target for agency-wide reductions of scope 1 and 2 GHG emissions	COMPLETE
2(b)	Establish and report a target for agency-wide reductions of scope 3 GHG emissions	June 2, 2010
7(b)(ii)	Prepare and submit Agency Strategic Sustainability Performance Plan	June 2, 2010
2(c)	Establish and report comprehensive agency GHG emissions inventory	Jan 5, 2011
7(b)(ii)	Prepare and submit annual update of Agency Strategic Sustainability Performance Plan	Annually, starting 12 months after initial Plan submission

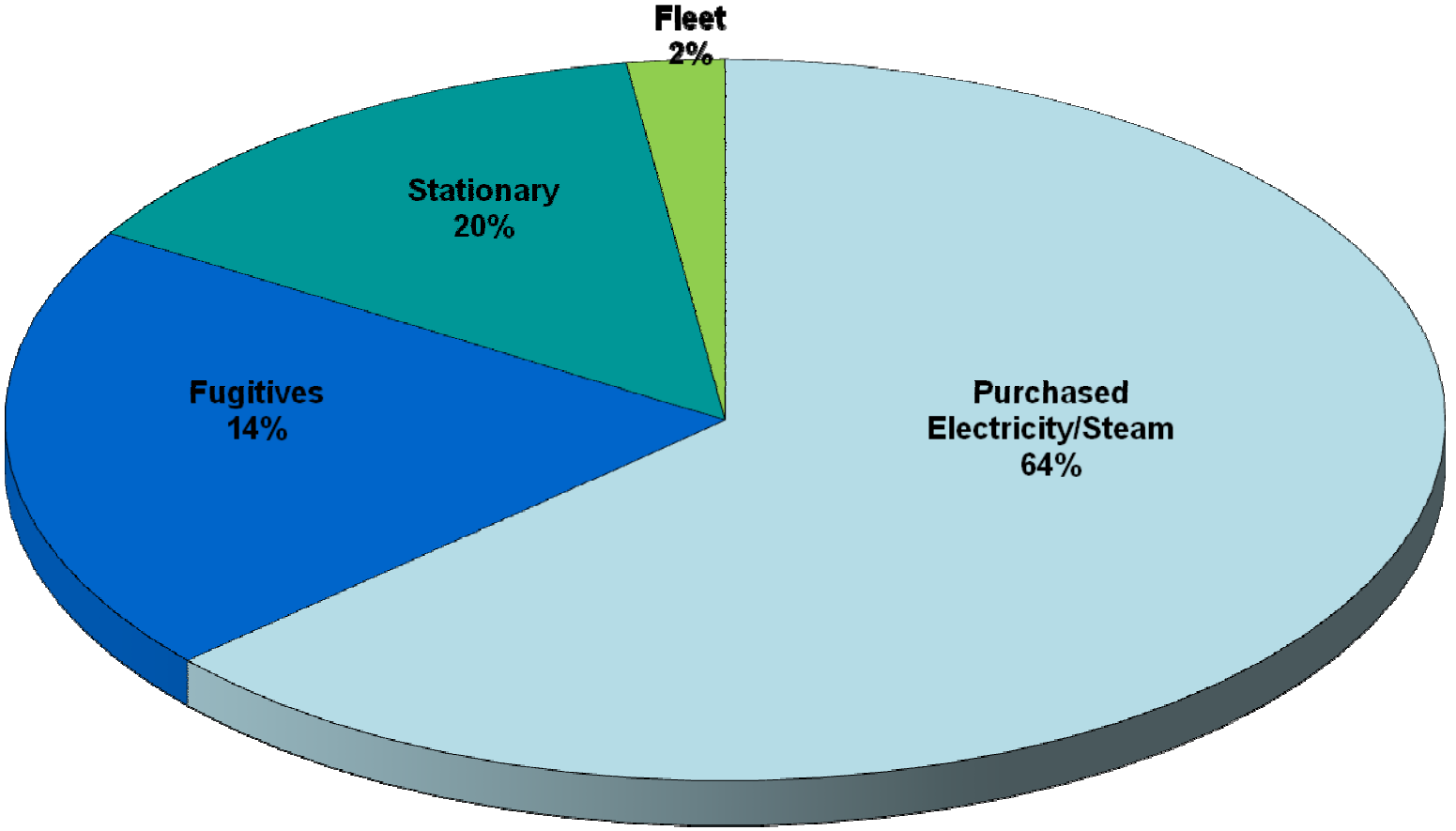
Agency Deadlines

EO 13514 requires the Senior Sustainability Officer to:

- Prepare the DOE-wide GHG inventory.
- Develop DOE targets for GHG emissions reductions.
- Prepare and implement the SSP Plan in coordination with appropriate offices and organizations General Counsel
- Submit the SSP Plan to CEQ and OMB for their approval.
- Monitor DOE's performance and progress in implementing the Plan and report to CEQ and OMB.
- Report annually to the Secretary on the adequacy and effectiveness of DOE's SPP Plan to implement the E.O.

Deputy Secretary: DOE's Senior Sustainability Officer

- 4.1 $MMTCO_2e$ Source Breakdown

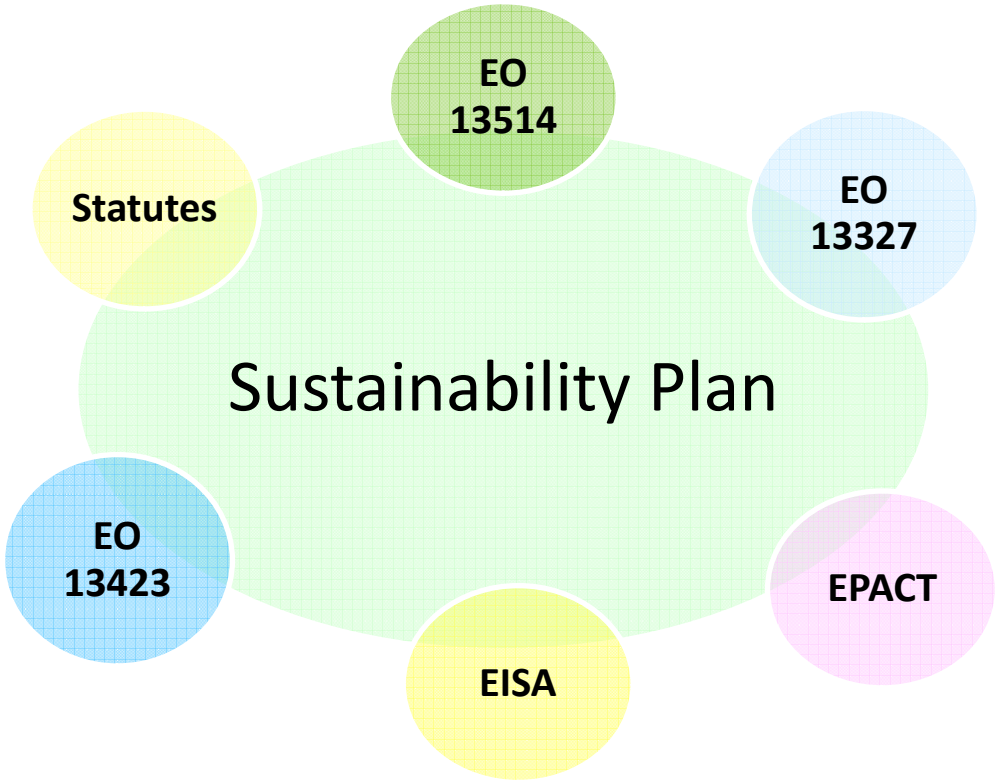


DOE Scope 1 and 2 Emissions

- The agency sustainability plan is a single document that lays out the agency strategy for achieving goals and targets required by E.O.s and statutory requirements.
- Explains how the agency will progress from “today” toward achieving each goal, and what it will take to get there.
- Provides necessary information to CEQ and OMB on performance, cost, schedule and process.
- Identifies methods for obtaining reliable performance data needed to measure progress, evaluate results, and improve performance.
- Provides a process for re-evaluating and revising ongoing activities and efforts as needed to ensure continuous improvement.

Strategic Sustainability Performance Plan

The sustainability plan integrates previous E.O.s, statutes, and requirements into a single framework:



Streamline and consolidate reporting requirements to reduce redundancy and duplication.

The template has 2 primary sections:

Update as Required

Section 1: Agency Policy and Strategy

I. Agency Policy Statement
II. Sustainability and the Agency Mission
III. Greenhouse Gas Reduction Goals
IV. Plan Implementation
V. Evaluating Return on Investment
VI. Transparency

Plan Foundation

Update Annually

Section 2: Performance Review & Annual Update

I. Summary of Accomplishments
II. Goal Performance Review

Section 3: Agency Self-Evaluation

Body of Plan

SSPP Template

- OMB will review and approve each agency's SSP Plan and each annual update.
- Where feasible, this review will be concurrent with OMB's review and evaluation of the agency's budget request.
- OMB will issue instructions to the heads of agencies concerning budget and appropriations matters relating to implementation of E.O. 13514.

Linking the SSP Plan and the Budget

	Unit	FY 10	FY 11	FY 12	FY 13	… .	FY 20
Energy Reduction Targets	%	15%	18%	21%	24%	… .	hold
Planned Energy Reduction	%						
Scope 1 & 2 GHG Reduction Targets	%	?	?	?	?	… .	?
Investment – Annual/Recurring (Appropriated)	$ M				X	X	X
Investment - One Time (Appropriated)	$ M				X	X	X
Investment – Alternative (Non-Appropriated)	$ M				X	X	X

Sample SSPP Planning Table

- The first year submission should be challenging. We recognize that the sustainable plan development will be a process of continual improvement each year.
- Use the template provided to ensure that your agency addresses each area that CEQ and OMB expect to see.
- Stay concise and clear. *[More words do not necessarily equal a better plan.]*
- If you cannot provide specific information in the first year's submission, explain what steps your agency will take to provide necessary information in the next submission.

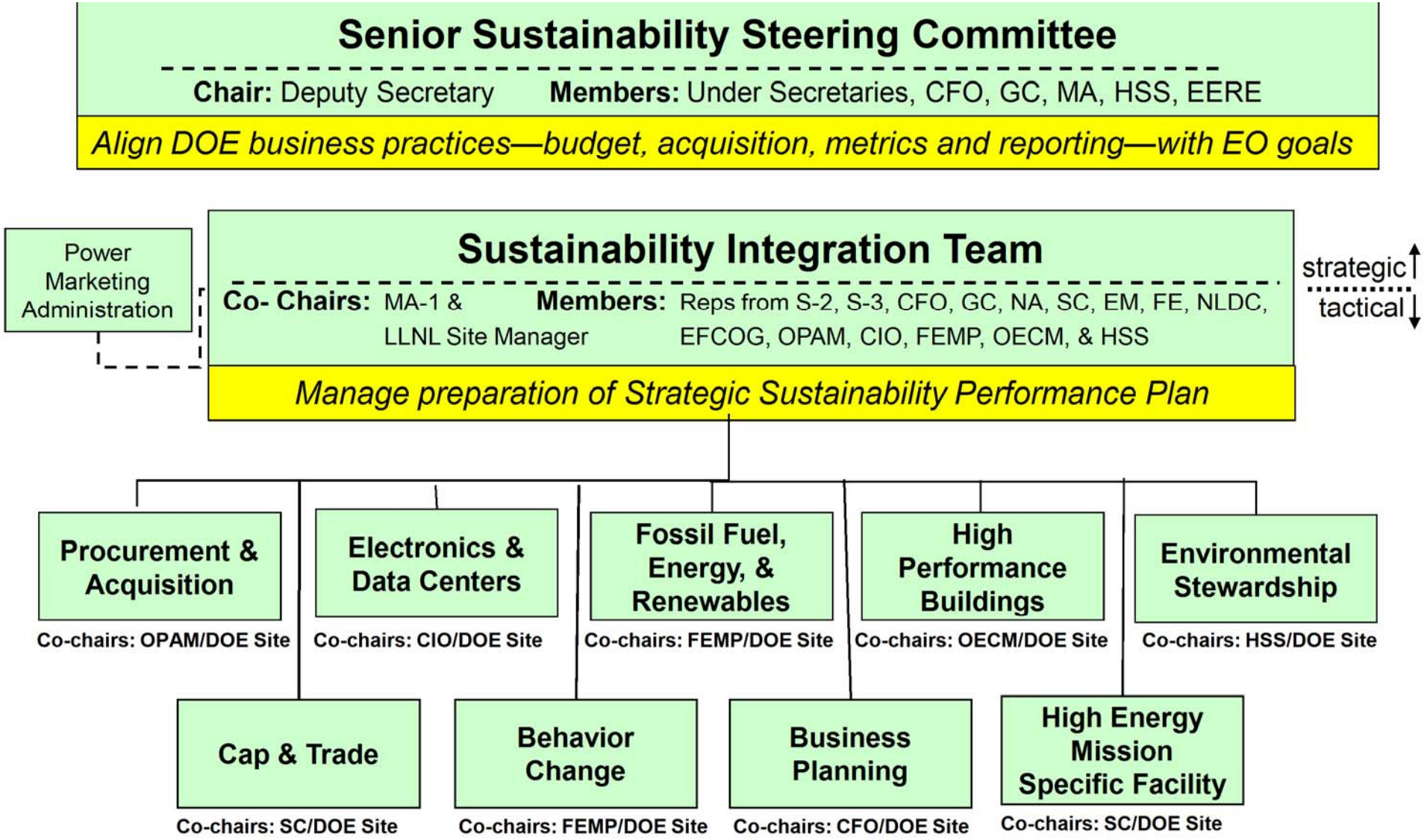
Things to Keep in Mind- CEQ Advice to Agencies

Part II.

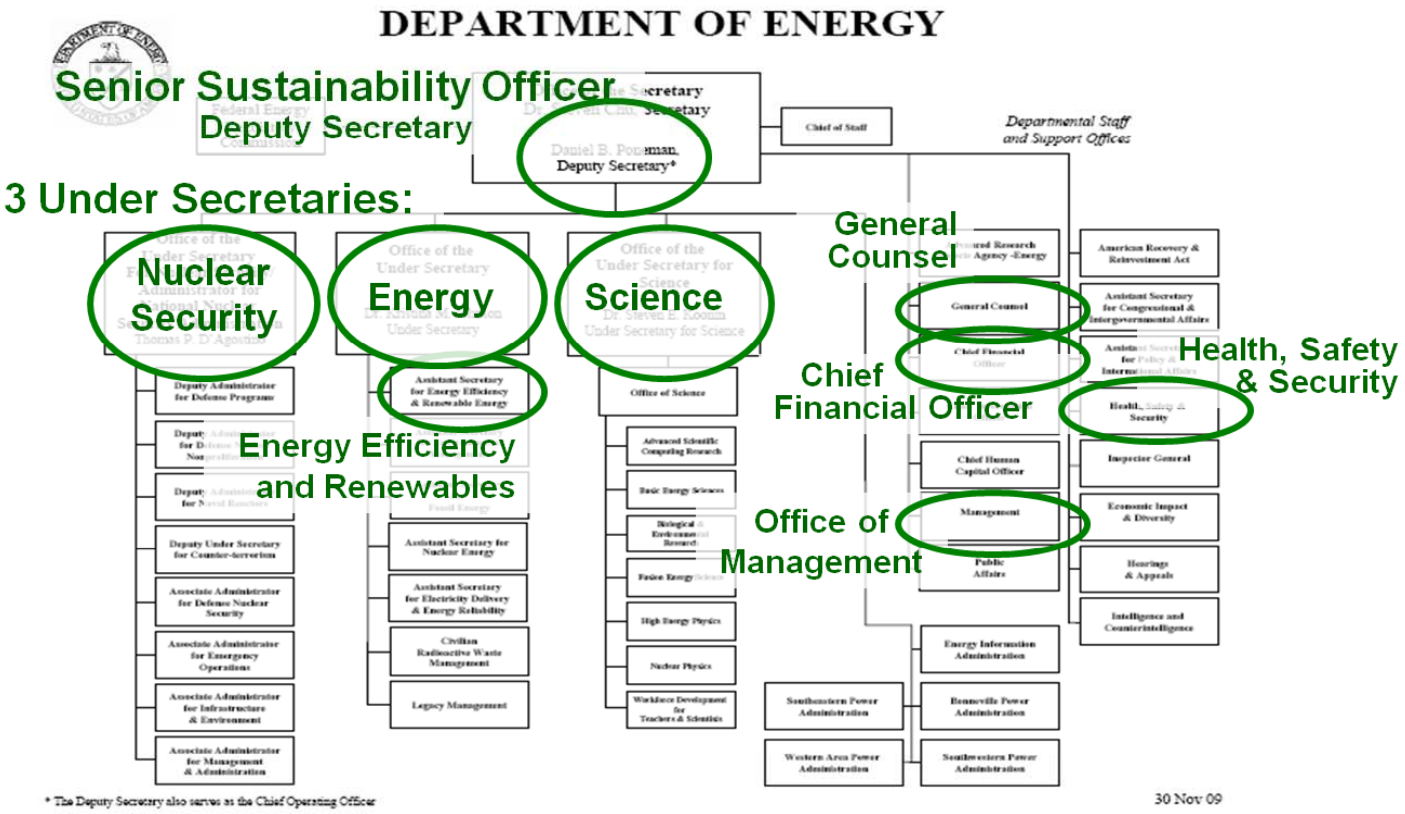
DOE's Implementation Strategy

- Secretary Chu has named Deputy Secretary Daniel Poneman as the Department's Senior Sustainability Officer (SSO)
  - Staffing support to come from Ingrid Kolb, Director, Office of Management (MA-1)
- Focus is now on developing DOE's *Strategic Sustainability Performance Plan*
  - Senior Sustainability Steering Committee
  - Sustainability Integration Team
  - Work Groups

Senior Sustainability Officer



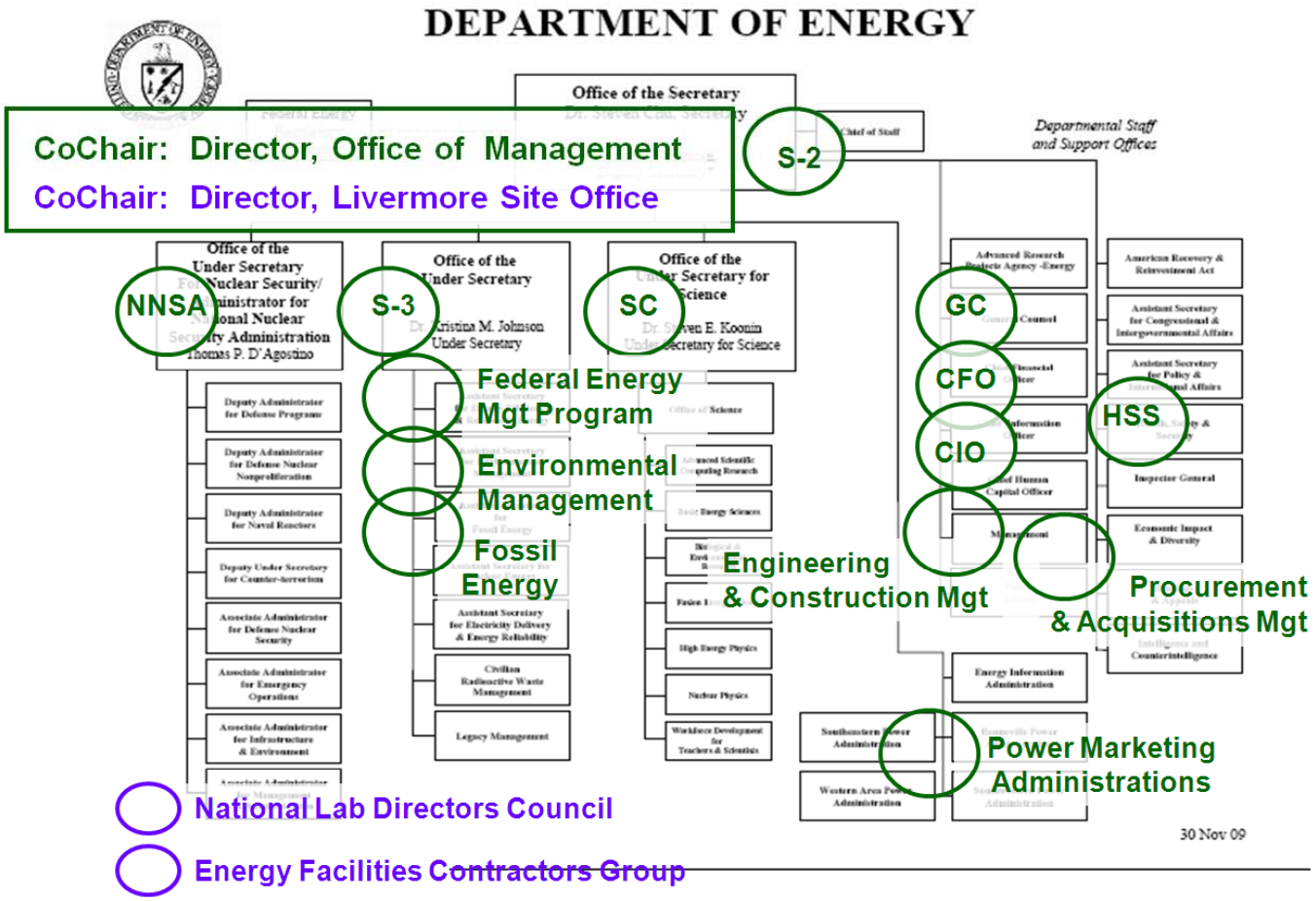
E.O. 13514 Governance Model



DOE's Senior Sustainability Steering Committee

Align DOE business practices – budget, acquisition, metrics and reporting – with EO goals

E.O. 13514 Governance Model



DOE's Sustainability Integration Team

Manage preparation of Strategic Sustainability Performance Plan

E.O. 13514 Governance Model

DOE's Senior Sustainability Steering Committee has adopted the following four principles:

- ✓ Drive personal and organizational **behavior change** across the complex as a fundamental strategy to reduce energy use at minimal cost.
- ✓ Employ a corporate-wide **portfolio approach** to share energy and greenhouse gas reduction responsibilities.
- ✓ Safeguard mission, yet revisit and challenge previously excluded facilities and processes. **Everything is on the table.**
- ✓ Showcase R&D **demonstration projects** at DOE Sites (Highlight technological leadership while meeting goals of E.O.).

SSPP Principles

- Nine working groups established:
  - Procurement & Acquisition
  - Electronics & Data Centers
  - Fossil Fuel, Energy, & Renewables
  - High Performance Buildings
  - Environmental Stewardship
  - Behavior Change
  - Business Planning
  - Cap & Trade
  - High-Energy Mission-Specific Facilities
- Each group has HQ and field co-chairs
- Each group comprises HQ and field staff
- Contractor support is in place

Working Groups

The E.O. specifically directs agencies to sustain environmental management, including:

- continuing the implementation of formal environmental management systems at all appropriate organizational levels, and
- ensuring these systems are appropriately implemented and maintained to achieve the performance necessary to meet the goals of the E.O.

To meet this goal, all DOE EMSs should include objectives and measurable targets that support achievement of the Department's goals, as appropriate to their sites.

- Field Data Call
  - Issued March 1
  - 2-week turnaround
  - Limited to necessary near-term data gaps
- Draft SSP Plan language (Mid-April)
- Submit Scope 3 emissions baseline for FY2008, and DOE reduction goal (June 2)
- Submit SSP Plan (June 2)

Next Steps

- GHG Reporting Procedures
  - FEMP provides GHG inventory recommendation to CEQ by April 5
  - CEQ issues GHG procedures to Agencies
  - Consistent with international GHG reporting protocol
  - Draft developed by LMI; “roadtest” by federal facilities completed
- DOE GHG Inventory Report
  - due Jan 5, 2011
  - covers FY 2010
  - “Bottoms up” roll-up from site-based inventories
- Next generation energy, environment, & executable plan reporting
  - 1st Q FY2011, to cover FY2010

Coming Soon

Part III.

E.O. 13514 goals: Where does DOE stand?

What does this mean for Project Managers?

- DOE calculated a FY2008 baseline of 4.1 million metric tons of carbon dioxide equivalent (MMTCO2e)
- DOE established a 2020 Reduction Target of **28%**

Reductions to be achieved on absolute basis, regardless of budget or mission change

DOE Scope 1 and 2 GHGs

- DOE's *current* performance, based on E.O. 13423 goals, exceeds most goal areas; however, DOE falls short on
  - water conservation
  - high performance sustainable buildings
- 500 projects proposed in the Executable Plans allow estimated projections of future performance through FY 2015
  - Executable Plans propose projects which would meet requirements in water, energy efficiency, but at a cost of $1.1 billion
- 2009 Plans reflect goal orientation to pre-E.O. 13514 goals, due to timing of the Executable Plan process
  - Data is not optimized for GHG analysis
  - Behavioral change is not included in projected performance data

DOE Projections from Executable Plans

- Environmental Management System Implementation
  - All EMSs have been declared 'fully implemented'
  - >80% of EMSs score 'green' on site EMS scorecard
- Green purchasing
  - Agency has affirmative procurement program for all green products and services, demonstrates & monitors compliance, develops corrective actions if applicable, and conducts training
- Sustainable design/green buildings
  - <1.75 percent of building inventory 'sustainable'
- Electronic stewardship
  - Acquires ≥ 95% EPEAT-registered electronics
  - Enables power mgmt features on 100% of eligible PCs, laptops, & monitors
  - Strives to extend life to ≥4 years & uses sound disposition practices

– January 2010 OMB Scorecard

Environmental Sustainability Goals

- E.O. 13514 extends the E.O. 13423 goal of reducing potable water consumption intensity by 2 percent annually, by requiring a 26 percent reduction by the end of FY 2020, relative to baseline of FY 2007. This is to be accomplished, at least in part, by using water efficient and low-flow fixtures, and efficient cooling towers.

Water: Reduce Potable Water Consumption

- E.O. 13514 establishes a new goal of reducing industrial, landscaping, and agricultural water consumption intensity by 2 percent annually or 20 percent by end of FY 2020, relative to baseline of FY 2010 for each use.
- E.O. 13514 requires DOE to identify, promote and implement water reuse strategies to reduce potable water consumption (consistent with State law).

Water: Reduce and Reuse

- E.O. 13514 requires DOE to implement and achieve objectives identified in the EPA's *Stormwater Guidance for Federal Facilities.*
  - EPA issued this guidance in December 2009
  - Applies to Federal projects with a footprint >5,000 ft^2:

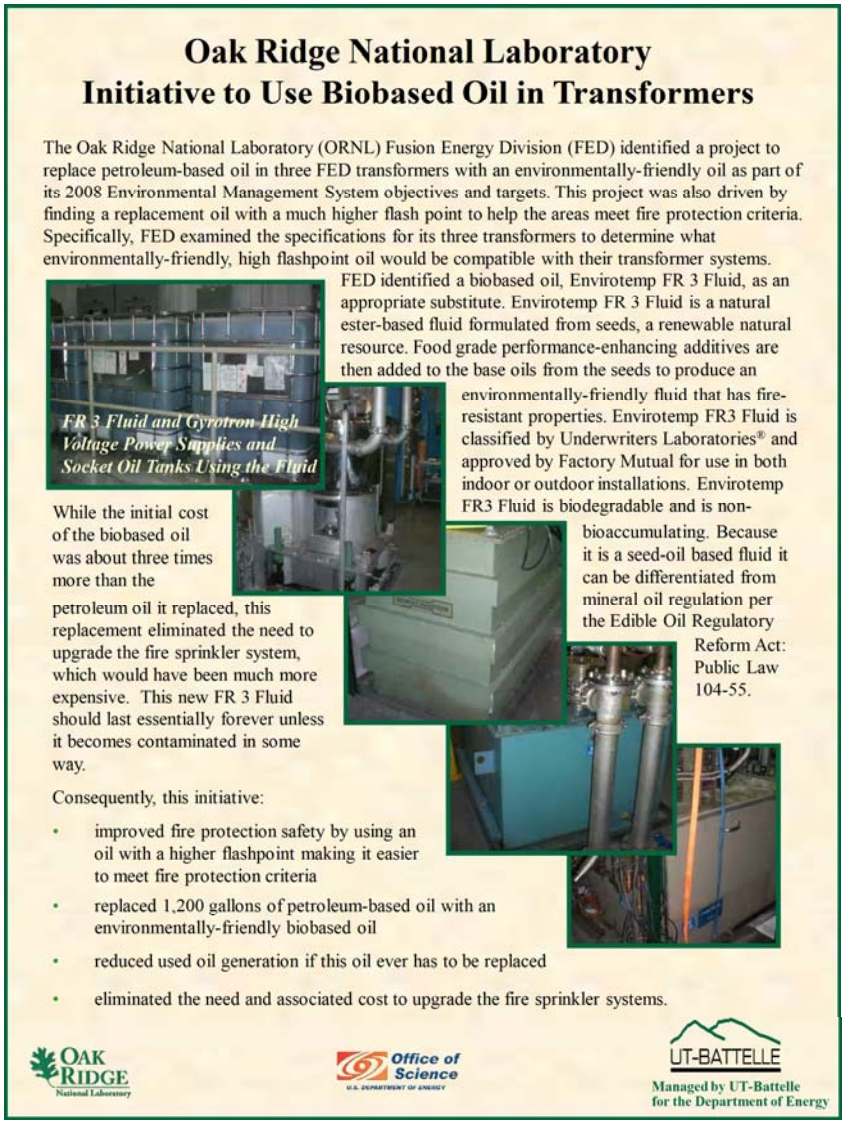
    Use site planning, design, construction, and maintenance strategies to maintain or restore, to the maximum extent technically feasible, the predevelopment hydrology of the property with regard to the temperature, rate, volume, and duration of flow.

- Minimize the generation of waste and pollutants through source reduction.
- Divert from disposal at least 50 percent of non-hazardous solid waste, excluding construction and demolition debris, by FY 2015.
- *Divert from disposal at least 50 percent of construction and demolition debris by FY 2015.*
- Increase the quantity of compostable and organic material diverted from waste stream.

Waste: Prevent Pollution and Eliminate Waste

Replaced petroleum-based oil in 3 FED transformers with biobased oil

- Improved fire protection safety
- Reduced used oil generation
- Eliminated need to upgrade fire sprinklers



Oak Ridge National Laboratory
Initiative to Use Biobased Oil in Transformers

The Oak Ridge National Laboratory (ORNL) Fusion Energy Division (FED) identified a project to replace petroleum-based oil in three FED transformers with an environmentally-friendly oil as part of its 2008 Environmental Management System objectives and targets. This project was also driven by finding a replacement oil with a much higher flash point to help the areas meet fire protection criteria. Specifically, FED examined the specifications for its three transformers to determine what environmentally-friendly, high flashpoint oil would be compatible with their transformer systems.

FED identified a biobased oil, Envirotemp FR 3 Fluid, as an appropriate substitute. Envirotemp FR 3 Fluid is a natural ester-based fluid formulated from seeds, a renewable natural resource. Food grade performance-enhancing additives are then added to the base oils from the seeds to produce an environmentally-friendly fluid that has fire-resistant properties. Envirotemp FR3 Fluid is classified by Underwriters Laboratories® and approved by Factory Mutual for use in both indoor or outdoor installations. Envirotemp FR3 Fluid is biodegradable and is non-bioaccumulating. Because it is a seed-oil based fluid it can be differentiated from mineral oil regulation per the Edible Oil Regulatory Reform Act: Public Law 104-55.

FR 3 Fluid and Gyrotron High Voltage Power Supplies and Socket Oil Tanks Using the Fluid

While the initial cost of the biobased oil was about three times more than the petroleum oil it replaced, this replacement eliminated the need to upgrade the fire sprinkler system, which would have been much more expensive. This new FR 3 Fluid should last essentially forever unless it becomes contaminated in some way.

Consequently, this initiative:

- improved fire protection safety by using an oil with a higher flashpoint making it easier to meet fire protection criteria
- replaced 1,200 gallons of petroleum-based oil with an environmentally-friendly biobased oil
- reduced used oil generation if this oil ever has to be replaced
- eliminated the need and associated cost to upgrade the fire sprinkler systems.

OAK RIDGE National Laboratory | Office of Science U.S. Department of Energy | UT-BATTELLE Managed by UT-Battelle for the Department of Energy

Oak Ridge National Laboratory

- Design all new Federal buildings which begin the planning process by 2020 to achieve zero-net energy by 2030.
- E.O. 13514 extends E.O. 13423 goal of ensuring 15 percent of the agency's existing facilities and leases meet the *Guiding Principles* by FY 2015 and requires agencies to continue to make annual progress towards 100 percent agency conformance.
- Minimize consumption of energy, water and materials by pursuing cost-effective, innovative strategies such as highly reflective and vegetated roofs.

- Reduce deferred maintenance costs of existing assets by better managing existing building systems that impact consumption of energy, water, and materials and by identifying alternatives to renovation.
- *Identify opportunities to consolidate and dispose of existing assets, optimize performance of agency real property portfolio, and reduce associated environmental impacts.*
- Promote long-term viability of Federally-owned historic buildings by ensuring that rehabilitation utilizes best practices and technologies in retrofitting.

Warehouse at Uranium foundry transformed into Ohio's first LEED Platinum building

- Restore 77% of land with native/adaptive plantings
- Constructed wetland treats 100% wastewater
- Reduce water use 41%
- Increase energy efficiency 48%
- Geothermal heating and cooling
- 100% green power purchasing
- Use of 91% existing building
- 75% construction waste diverted
- 23% material recycled
- 51% of wood made of recycled content
- 43% material manufactured within 500 miles of site

More information available at: http://www.usgbc-cincinnati.org/?mid=70&mid2=164&mid3=18

Fernald Preserve Visitors Center

2010 Department of Energy Project Management Workshop
March 9 - 10, 2010, Alexandria, VA
U.S. DEPARTMENT OF ENERGY
"Meeting The Challenge"

Ensure that 95 percent of all new contract actions (including task and delivery orders) for products and services are:

- energy efficient,
- water-efficient,
- biobased,
- environmentally preferable,
- non-ozone depleting,
- contain recycled content, or are
- non-toxic or less-toxic than traditional alternatives,

where such products and services meet DOE performance requirements.

Procurement: Sustainable Acquisition

- Integrate sustainability into construction and D&D projects
  - Building energy use is critical component of agency GHG profile
  - Emphasize achieving sustainable building principles in building renovation projects (not just new construction)
  - Specify green and sustainable materials in contracts
  - Integrate sustainable roofing strategies
  - New 50% diversion goal for construction and demolition debris
- Increased focus on water
  - Stormwater management
  - Reduce potable and non-potable water use intensity

Key Goals for Project Managers

DOE's guide on *Integrating Sustainable Practices into Environmental Management Systems*: http://www.hss.energy.gov/nuclearsafety/env/guidance/ems/technical_assistance_tool.pdf

Crosswalks between EO 13514 and EO 14323: http://www.fedcenter.gov/programs/eo13514/#regs

For More Information