



# **A Guide to Integrating Sustainable Practices into Environmental Management Systems**

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## Guide Background



- EO 13423 declared that each Agency implement environmental management systems (EMS) :
  - at all appropriate organization levels
  - to ensure use of EMS as primary management approach for addressing environmental aspects of agency operations and actions,
  - including transportation and energy-related activities
  
- Two new DOE Orders describe how Department is implementing the EO:
  - DOE O 450.1A, *Environmental Protection Program*, and
  - DOE O 430.2B, *Departmental Energy, Renewable Energy and Transportation Management*



## Guide Purpose



- Guide provides discretionary methods for implementing the requirement from O 450.1A that site EMSs:
  - address **sustainable practices** for enhancing environmental, energy, and transportation performance
  - include environmental, energy, and transportation objectives and measurable targets that:
    - contribute to achieving the DOE Sustainable Environmental Stewardship goals in O 450.1A and the energy and transportation goals in O 430.2B

Note: Guides do not establish or invoke new requirements nor are they substitutes for requirements.



## Areas of Sustainable Practices



- DOE Orders require implementation of sustainable practices for :
  - Electronics Stewardship – procure environmentally preferable electronics; implement policies to extend useful lives and recycle/reuse
  - Energy Efficiency – use measures, practices, or programs that reduce energy used by specific devices and systems
  - Environmental Compliance Management Improvement – commit to achieving and maintaining compliance with applicable environmental protection requirements
  - Environmentally Preferable Purchasing (Green Acquisition) – acquire products or services that have reduced effect on human health and environment when compared to competing products
  - High Performance and Sustainable Building – integrate design principles, energy performance, water efficiency, indoor environmental quality, recycling, and EPP materials in construction, operations, maintenance



## Sustainable Practices (continued)



- Pollution Prevention – reduce or eliminate creation of pollutants at source
- Recycling – collect, separate, process to recover products or materials from solid waste stream
- Renewable Energy – use energy produced by solar, wind, biomass, landfill gas, ocean, hydrokinetic, geothermal, municipal solid waste, or new hydroelectric
- Toxic or Hazardous Chemicals and Materials Use Reduction – eliminate or reduce use, purchase, and release of toxic and hazardous chemicals and materials
- Vehicle Fleet Management – reduce use of petroleum products by increasing fuel fleet economy and using alternative fuel and hybrid technology vehicles
- Water Conservation – use cost-effective and environmentally sound processes or technologies to reduce water use



## Guide Approach



- Integrate sustainable practices into site EMS by integrating “owners” of site operations/activities into site EMS Team
- Primary users – owners of the site operations who:
  - in the conduct of their responsibilities, may have environmental aspects which could be addressed by adoption of sustainable practices
- Additional users – site EMS coordinators who are
  - developing or enhancing their EMSs
  - need a tool to reach out to owners of operations at their sites



## Guide Objective



- Describe environmental aspects that relate to sustainable practices and DOE goals for each site operation
- Describe how owners of site operations and EMS coordinators can jointly:
  - identify significant environmental aspects
  - identify sustainable practices that address them
  - integrate resulting objectives and measurable targets in the EMS that achieve the DOE goals in O 450.1A and 430.2B



## Site Operations/Activities Addressed in Guide



- Design and Construction – designing, constructing, and renovating site laboratories, office buildings, support facilities, and other infrastructure
- Fleet Management – acquiring, operating, and maintaining vehicles in the federal fleet
- Information Technology – acquiring, procuring, operating, maintaining, reusing, and recycling electronic equipment
- Maintenance – keeping fixed assets in an acceptable condition
- Process Operations – designing, implementing, and undertaking research projects and facility processes including remedial actions and spill cleanups



## Site Operations/ Activities Addressed in Guide (cont'd)



- Procurement and Purchasing – drafting solicitations and contracts for products, systems, and services
- Security – protecting DOE sites from theft, sabotage, and other hostile acts that could adversely impact national security, worker and public safety, and property
- Utility Management – managing utilities such as electricity, water, and natural gas
- Waste Management – managing, disposing, or recycling site waste



## Environmental Aspects- Example



- As part of the EMS process, site EMS team should identify site activities, products or services that can interact with the environment, e.g., environmental aspects
- Example environmental aspects of “Design and Construction” activities:
  - **Air quality:** short- and long-term emissions will result from construction equipment used, and type of energy source(s) and energy equipment selected
  - **Energy type and intensity:** design choices made and source(s) of energy and equipment selected to power facility will effect amount of energy used
  - **Indoor-air quality:** selection of interior furnishings, such as wall covers and carpets, will impact indoor-air quality



## Environmental Aspects- Example (con't)



- **Natural resource use:** use of products with recycled content will result in savings of the energy and natural resources required to develop products with virgin content.
- **Waste generation:** construction, renovation, and demolition activities will generate waste that must be reused, recycled or treated, stored or disposed
- **Water use:** types of water systems or technologies selected and construction practices used will affect water quality, the amount of water used, and opportunities for water re-use



## Environmental Aspects- Example (con'd)



- Guide will discuss identifying “significant” aspects by looking at “legal requirements and other requirements the organization subscribes to”, i.e., DOE Orders

Note: Focus is on sustainable practices that “enhance” environmental, energy, and transportation performance. Regulatory compliance still required.



## Sustainable Practices - Example



- O 450.1A Goal to “Reduce degradation and depletion of environmental resources through post-consumer material recycling”.
- *Reuse demolition rubble (concrete, brick, and other masonry) on-site by crushing the material to stone for grading, laying utilities, and building roads, driveways, and parking areas. [Source: O 450.1A, Attachment 2]*
- *Pulverize and reuse gravel asphalt and sub-base. [Source: O 450.1A, Attachment 2]*
- *Use the General Services Administration Construction Waste Management Database to identify recyclers of 15 commonly-recycled construction and demolition debris such as concrete, asphalt, masonry, metal, plastic, and wood. [Source: O 450.1A, Attachment 2]*



# Facility Operation / DOE Goals / Sustainable Practice Matrix [Example]



<b>ENVIRONMENTALLY PREFERABLE PURCHASING (GREEN ACQUISITION):</b> Maximize the acquisition and use of environmentally preferable products in the conduct of operations (450.1A goal)	Design and Construction	Facility/Utility Mgmt	Procurement
<b>SUSTAINABLE PRACTICES TO ACHIEVE THE GOAL:</b> <ul style="list-style-type: none"> <li>- acquire biobased products</li> <li>- acquire water efficient and recycled content products</li> </ul>			
<ul style="list-style-type: none"> <li>- integrate environmentally preferable purchasing into new construction and major renovation projects</li> <li>- use American Petroleum Institute-rated re-refined oil, retread truck tires, antifreeze/engine coolant recyclers</li> </ul>			

= direct relationship;

= supporting relationship



Questions, Please.



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