



## **Successful Implementation of NETL's Environmental Management System**

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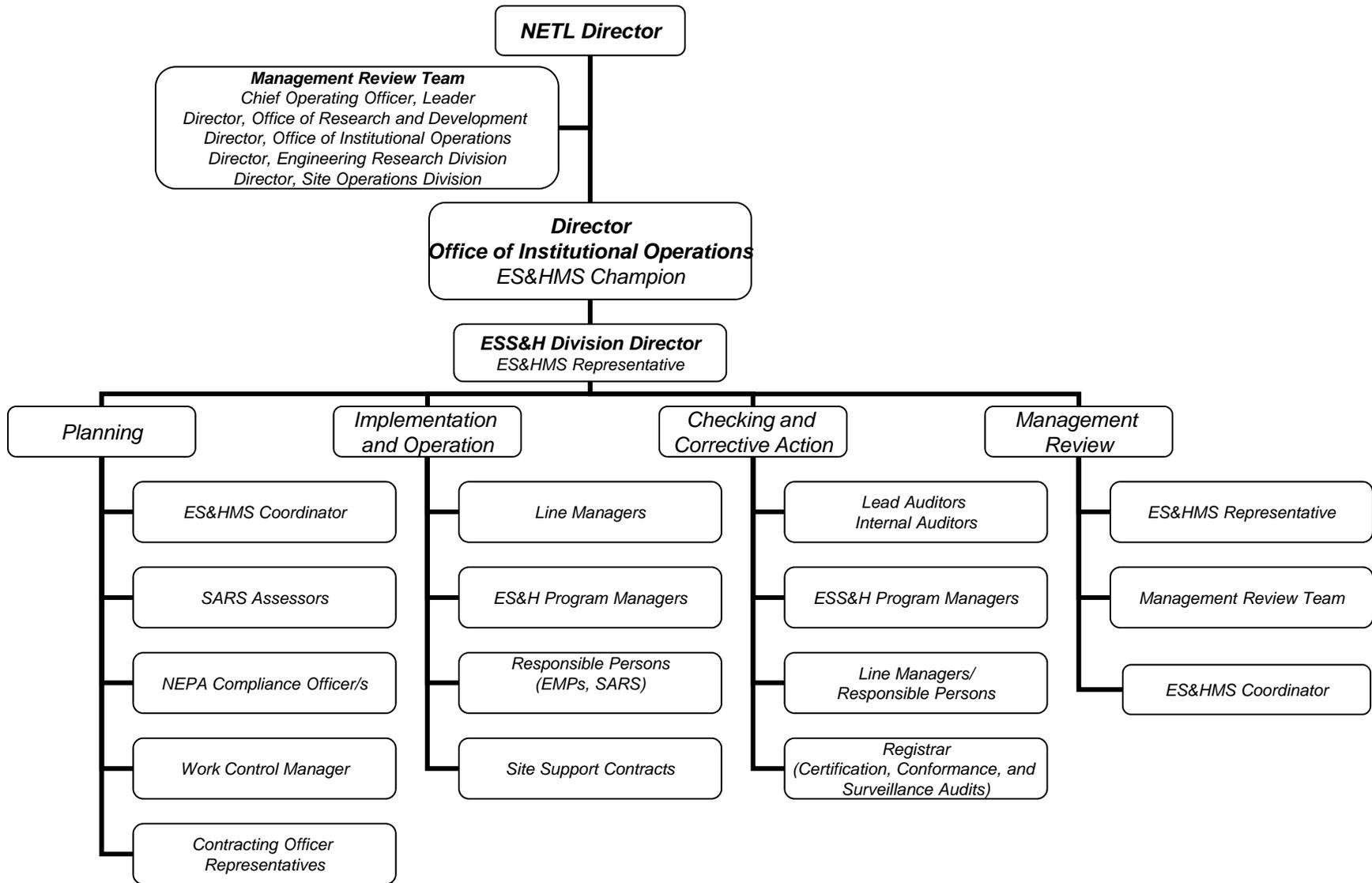
# Background

- NETL has implemented its ES&HMS based on the Integrated Safety Management System, the ISO 14000 series of standards, and the OHSAS 18001 standard.
- ES&HMS addresses 12 significant aspects comprising Health, Safety, and Environmental concerns.
- Nine are related to the Environment and Site Sustainability:
  - Waste Minimization/Pollution Prevention/Recycling;
  - High Performance Sustainable Building Implementation;
  - Hazardous Materials Procurement, Consumption, and Storage;
  - Electronic Stewardship;
  - Energy and Fuel Use;
  - Greenhouse Gas Air Emissions;
  - Green Purchasing;
  - Pest/Landscaping Management;
  - Water Use; and
  - Groundwater Legacy Issues.

## Background (cont.)

- Site Sustainability and Pollution Prevention (SSPP) goals have successfully been managed through our ES&HMS.
- Multiple sites (Pittsburgh, Morgantown, Albany), as well as multiple organizational units: Site Operations Division (construction); Acquisition and Assistance Division; Office of Research & Development; Information Technology Division; and ESS&H Division are all involved in the ES&HMS process.
- Environmental, Safety, and Health Management Plans (EMPs) with specific targets and objectives are used to address the SSPP goals.
- The progress of EMPs are measured on a quarterly basis.
- In FY2011, NETL achieved 85% of its objectives and targets in these areas.

# NETL's ES&H Management System Organization



# FY2011 Objectives and Targets

Waste Generation, Management, and Disposal Practices		
ES&H Management Plan	Objective/s	Target
		FY2011 (Actual)
<b>Nonhazardous Waste Generation</b>	Reduce the amount of routine non-hazardous waste generated (3% per year) using an FY2008 baseline of 222.5 metric tons. (E.O. 13423)	209.2 metric tons (6%)
	Maintain cost effective waste prevention and recycling programs, and minimize generation of waste and pollutants through source reduction. (E.O. 13514)	190.06 metric tons (15%)
<b>Hazardous Waste Generation</b>	Reduce the amount of hazardous waste using an FY2008 baseline of 2.5 metric tons. (E.O. 13423 and E.O. 13514)	2.1 metric tons (16%)
		1.75 metric tons (30%)



# FY2011 Objectives and Targets

Waste Generation, Management, and Disposal Practices		
ES&H Management Plan	Objective/s	Target
		FY2011 (Actual)
<b>Recycling</b>	Using a FY2010 baseline (metric tons), divert 50% of non-hazardous solid waste from disposal by the end of FY2015. (E.O. 13514)	Divert 10% to recycling (63,272 lbs)
		259,161 lbs (41%)
<b>Recycling Construction Waste</b>	Recycle a minimum of 50% of construction/demolition waste diverted from landfill disposal by the end of FY2015. (E.O.13514)	Increase recycling construction waste to 38%.
		83.8%



# FY2011 Objectives and Targets

High Performance Sustainable Building Implementation		
ES&H Management Plan	Objective/s	Target
		FY2011 (Actual)
High Performance Sustainable Buildings	Ensure all new construction, major renovation, or repair and alteration complies with the Guiding Principles. (E.O. 13514)	Track the completion status of upgrades/renovations to High Performance Sustainable Buildings identified in its HPSB FY2010 Survey and Site Sustainability Plan as part of its Site Sustainability Plan.
	Ensure 15% of existing facilities and building leases (above 5,000 gross square feet) meet the Guiding Principles by FY2015. (E.O. 13514)	<ul style="list-style-type: none"> <li>NETL's FY 2011 HPSB building candidates have been reassigned to NETL's FY 2012 GPP plan.</li> <li>Morgantown B-40 (daycare) has been completed and will meet LEED Gold/Platinum Certification.</li> <li>Pittsburgh's B-900 office complex has been designed &amp; constructed to LEED Gold rating with a completion date of December 2011.</li> </ul>
	Make annual progress towards 100% conformance with the Guiding Principles. (E.O. 13514)	



# FY2011 Objectives and Targets

High Performance Sustainable Building Implementation		
ES&H Management Plan	Objective/s	Target
		FY2011 (Actual)
Historical Buildings	Promote long-term viability of agency-owned historic buildings by ensuring that rehabilitation utilizes best practices and technologies in retrofitting. (E.O. 13514)	Consider 10% of the historic buildings for potential renovation or demolition at the Albany site.
		<p>Two Projects were initiated to renovate Building 26 and to renovate significant portions of Building 1, both of which are contributing structures to the Historic District.</p> <p>NETL Senior Management has approved the 5-year building consolidation plan. Once this is approved, the five year plan can be submitted to the SHPO for approval of site construction work.</p>



# FY2011 Objectives and Targets

Hazardous Materials Procurement, Consumption, and Storage		
ES&H Management Plan	Objective/s	Target
		FY2011 (Actual)
Chemical Inventory	Reduce and minimize the quantity of toxic and hazardous chemicals and materials acquired, used, and disposed by FY2015 using the number of containers onsite at NETL at the end of FY2010 as a baseline. (E.O. 13514)	No net gain of chemicals (weight in lbs) +/- 10%.
		10,351 containers (5.8% reduction)
		234,883 pounds (2.2% increase)
Green Chemical Alternatives	Increase the use of acceptable alternative chemicals and processes for janitorial and other institutional uses. Decrease chemical use to assist in achieving GHG reduction targets. (E.O. 13514)	Complete implementation of a webpage with links to instructions to find green alternatives.
		Completed implementation of webpage.

# FY2011 Objectives and Targets

Electronic Stewardship		
ES&H Management Plan	Objective/s	Target
		FY2011 (Actual)
<b>Purchase of Electronic Products</b>	Ensure procurement reference for EPEAT-registered electronic products and the procurement of Energy Star- and FEMP-designated electronic equipment. (E.O. 13514)	95% of all products purchased that have EPEAT standards are EPEAT registered.
		100% of products are EPEAT registered.
		95% of specific electronic products are Energy Star- and FEMP-designated.
		100% of electronic products are Energy Star and FEMP-designated.



# FY2011 Objectives and Targets

Electronic Stewardship		
ES&H Management Plan	Objective/s	Target
		FY2011 (Actual)
Operation and Maintenance of Electronic Products	Enable power management, duplex printing, and other energy-efficient or environmentally preferable features on all eligible DOE electronic products. (E.O. 13514)	Develop a methodology to collect the statistics to measure the number of managed workstations and printers with power management in place by the end of FY2011.
		100% of Printers and 96.8% of PCs employ power management settings.
		Windows XP Power Settings continue to be pushed to all PCs. This helps to ensure that all PCs, of which the number has jumped significantly, maintain the proper settings.



# FY2011 Objectives and Targets

Energy and Fuel Use		
ES&H Management Plan	Objective/s	Target
		FY2011 (Actual)
Energy Use	Reduce energy usage/square foot by 3% annually through the end of FY2015 based on the FY2003 baseline of 219,903 btu/ft <sup>2</sup> . (E.O. 13423, Sec. 2.a). Reduce energy intensity in buildings to achieve GHG reductions. (E.O. 13514)	180,320 BTU/gsf (18%)
		168,490 BTU/gsf (23%)
Advanced Metering and Measurement	<p>Install advanced electrical metering in NETL's energy consuming buildings greater than 1,000 gsf by October 1, 2012. (EPact 2005)</p> <p>Install advanced metering for natural gas and potable water in NETL's energy consuming buildings greater than 1,000 gsf by October 1, 2015. (EPact 2005)</p>	Complete installation of advanced metering for natural gas, electricity, and water in 44 of NETL's energy consuming buildings > 1,000 gsf.
		Advanced electrical metering to be completed in 44 of NETL's PGH and MGN buildings greater than 1,000 gsf. NETL Albany site list still under development.



# FY2011 Objectives and Targets

Energy and Fuel Use		
ES&H Management Plan	Objective/s	Target
		FY2011 (Actual)
Management of Servers and Data Centers	Implement best management practices in energy efficient management of servers and federal data centers. (E.O. 13514)	Continue to investigate best management practices in managing servers and data centers.
		<p>4 of 4 data centers assessed.</p> <p>Continuing to investigate best management practices in managing servers and data centers.</p>



# FY2011 Objectives and Targets

Energy and Fuel Use		
ES&H Management Plan	Objective/s	Target
		FY2011 (Actual)
<b>Petroleum Fuels</b>	Reduce the vehicle fleet's total consumption of petroleum products by 2% annually through the end of FY2020 based on an FY2005 baseline. (E.O. 13423, Sec. 2.g)	20,189 (12%)
		23,009 (0.3%)
<b>Alternative Fuels</b>	Increase the total fuel consumption that is non-petroleum-based by 10% annually through the end of FY2015 based on an FY2005 baseline. (E.O.13423, Sec 2.g)	20,075 (60%)
		19,483 (55.3%)
	Use low-GHG-emitting vehicles. (E.O. 13514)	58 AFVs of 74 vehicles on site
		58 AFVs on site



# FY2011 Objectives and Targets

Energy and Fuel Use		
ES&H Management Plan	Objective/s	Target
		FY2011 (Actual)
Renewable Energy	Increase renewable energy consumption to 5% in FY2011 (EPact 2005). Total energy consumption is estimated to be 7,089 MWh.	5% (345.45 MWh)
		39% (2,764 MWh)
	Ensure that 50% of statutorily required renewables come from "new" - developed after 1999 - sources (EPact 2005). (2.5% of 7,089 MWh)	2.5% (177.23 MWh)
		976.65 MWh (14% of all energy sources)



# FY2011 Objectives and Targets

Energy and Fuel Use		
ES&H Management Plan	Objective/s	Target
Renewable Energy	Implement new renewable energy generation projects for agency use and on agency property. (E.O. 13514)	FY2011 (Actual)
		7.5% of all electricity on site should be renewable electricity generation. (531.68 MWh)
		9.68 MWh on-site renewable generation.



# FY2011 Objectives and Targets

Greenhouse Gas Air Emissions		
ES&H Management Plan	Objective/s	Target
		FY2011 (Actual)
Greenhouse Gases	Reduce Scope 1 and 2 GHG emissions attributed to facility use through life-cycle cost-effective measures by 28% by FY2020, relative to an FY2008 baseline. (54,440,814 lbs CO <sub>2e</sub> )	52,916,471 lbs CO <sub>2e</sub> (2.8% reduction)
		47,317,401 lbs CO <sub>2e</sub> (13.1%)



# FY2011 Objectives and Targets

Green Purchasing		
ES&H Management Plan	Objective/s	Target
		FY2011 (Actual)
<b>Environmentally Preferred Products</b>	<p>Maximize site use of EPPs in operation and maintenance, janitorial, and general office activities.</p> <p>Purchase products that are: recycled, biopreferred, Energy Star, FEMP-designated, EPEAT, Water Sense – or otherwise water efficient. (E.O.13423)</p> <p>Acquire uncoated printing and writing paper containing at least 30% post- consumer fiber. Reduce printing paper use. (E.O. 13514)</p>	70% of janitorial cleaning products purchased shall be environmentally preferred products.
		78%
		80% of maintenance products purchased shall be Energy Star rated, if such products are rated.
		100%
		98% of copier and printer paper shall contain a minimum of 30% recycled content.
		100%



# FY2011 Objectives and Targets

Water Usage		
ES&H Management Plan	Objective/s	Target
		FY2011 (Actual)
Potable Water Consumption	Reduce water consumption intensity, relative to the baseline of 27.3E6 gallons which equates to 26.3 gal/gsf through life-cycle cost-effective measures by 2 percent annually through FY2020 or 26 percent by the end of FY2020 using a baseline of FY2007 water consumption. (E.O. 13514)	24.20 (8%)
		14.82 (44% reduction relative to FY2007)



# FY2011 Objectives and Targets

Groundwater Legacy Issues		
ES&H Management Plan	Objective/s	Target
Remediate Groundwater	Remediate the groundwater at the Albany site to the standards established by the Oregon Department of Environmental Quality.	FY2011 (Actual)
		Complete 80% of the conceptual site model.
		65% completion of the groundwater project in Albany.



# Improvements in FY2012

## Waste Minimization, Pollution Prevention, and Recycling

- ***Nonhazardous Waste Generation*** – Recalculation of the baseline by removing the total construction waste to provide a more accurate depiction of the amount of nonhazardous waste on site.  
On target to make goal of 3%/yr or 9% at the end of FY2012
- ***Hazardous Waste Reduction*** – Target is a percentage of the total hazardous waste on site at the end of the fiscal year (FY2011). Baseline of 3 metric tons. FY2012 reduced to 2.8 metric tons. NETL on target to make.
- ***Recycling*** – Revise the Target to reflect the total nonhazardous waste minus construction waste. FY2010 baseline 287 metric tons. FY2012 target is 20%. NETL on target to make.

# Improvements in FY2012

## High Performance Sustainable Building Implementation

- Site Sustainability Plan was completed in Feb 2012. Morgantown daycare completed and will meet LEEDS Gold/Platinum Certification.
- Pittsburgh B-900 office building designed and constructed to meet HPSB; Completed in February 2012.

# Improvements in FY2012

## Energy and Fuel Use

- ***Advanced Metering and Measurement*** – All smart meters have been installed at Morgantown. Award a contract to install electric meters in Albany’s energy consuming facilities by October 1, 2012.
- ***Management of Servers and Data Centers*** – Permanent meter installed in Pittsburgh B-922 Data Center. Morgantown B-39 work awaiting an outage to perform installation of meter; Albany B-33 work is in the planning stages.
- ***Renewable Energy*** – Increase renewable energy consumption to 5% in FY2012 (EPact 2005). Ensure that 50% of statutorily required renewables come from “new” (developed after 1999) sources (EPact 2005). Both will accomplished through the purchase of renewable energy credits.

# Recommendations for Improvement in FY2013

## Waste Minimization, Pollution Prevention, and Recycling

- ***Recycling Construction Waste*** – The construction waste totals will require careful monitoring. Many solid waste totals are anticipated to increase due to an increase in the number of demolition projects at the various sites in the coming months. Because this objective is driven by executive order, there is no opportunity to modify it, but it would be appropriate to provide details on the changing waste streams.

# Recommendations for Improvement in FY2013

## High Performance Sustainable Building Implementation

- ***High Performance Sustainable Buildings*** – The objectives must remain based on Executive Order 13514, however, any new work should be monitored as part of this aspect.
- ***Historic Buildings*** – The revised targets should be included as part of the ES&H Management System.

# Recommendations for Improvement in FY2013

## Energy and Fuel Use

While many of the objectives and targets are dictated by executive order (13423 or 13514) or DOE requirements, it would not be possible to revise these.

- ***Petroleum Fuels and Alternative Fuels***– Required reductions in petroleum fuel use and increases in alternative fuel use were required by Executive Order 13514, but in 2011, all DOE sites were required by the DOE Fleet Reduction Mandate to reduce their fleet by 35%. In addition, it was also mandated that E85 vehicles be eliminated to accommodate the HQ-mandated new gas-fueled Ford Fusion hybrids. This means that fewer vehicles were available to increase alternative fuel usage and those that were available use increased amounts of petroleum fuel.
- ***Renewable Energy*** – It is difficult to meet the renewable energy targets dictated in Executive Order 13514 of the 7.5% renewable energy requirement, but NETL has committed to purchasing renewable energy credits to do this.

# Recommendations for Improvement in FY2013

## Greenhouse Gas Air Emissions

- *Greenhouse Gases*
- *GHG Emission Reporting*
- *Scope 3 Emissions*

These objectives must remain based on the requirements of E.O. 13514. It was confirmed that the Scope 3 emission calculations are dictated by an EPA guidance document and are based on Federal ground travel and air travel averages and average commuter mileage. To better comply with this target, NETL staff have revised estimates for these numbers based on the number of employees, commuter distances, the number of employees that telecommute, and how often they telecommute.

# List of Significant Aspects for FY2013

- *Waste Minimization, Pollution Prevention, and Recycling*
- *High Performance Sustainable Building Implementation*
- *Hazardous Materials Procurement, Consumption, and Storage*
- *Electronic Stewardship*
- *Energy and Fuel Use*
- *Greenhouse Gas Air Emissions*
- *Green Purchasing*
- *Pest and Other Landscaping Management*
- *Accidents/Incidents*
- *Water Use*
- *Infrastructure Safety*
- *Groundwater Legacy Issues*
- *On-Site Construction Activities*