



# NEMS ENVIRONMENTAL MANAGEMENT PROGRAM

<b>PROGRAM NAME:</b>	Energy Conservation		
<b>SIGNIFICANT ENVIRONMENTAL ASPECT(S):</b> Energy Consumption	<b>DOCUMENT NUMBER:</b>	TBD	
	<b>DATE REVISED:</b>	09/20/07	
	<b>REVISION NUMBER:</b>	1	
	<b>SUNSET DATE:</b>	11/16/07	
	<b>PROGRAM LEAD:</b>	Mr. Greg Leifer	

## SECTION 1 – PROGRAM DESCRIPTION

At the Bethesda Campus, the Office of Research Facilities Development and Operations (ORF) conducts the primary activities for energy policy management and development activities. The Division of Property Management is responsible for the design, construction, renovation, repair and operation of the physical facilities on the Bethesda Campus. The Division’s Utilities Operations is responsible for energy audits, feasibility studies, and implementation of conservation measures on NIH facilities utilizing Utility Energy Services Contracts (UESCs) and Energy Savings Performance Contracts (ESPCs). The Division of Environmental Protection (DEP) takes the lead in overall environmental stewardship at the NIH. Representatives from each of these divisions have formed a team to address long-standing, critical energy management issues on the campus.

The energy team has developed its objectives and targets for the 5-year timeframe based on the requirements of Executive Order 13423 and the Energy Policy Act of 1992. The campus is undergoing considerable facility construction and renovations, and as a consequence maintaining an effective energy management program is particularly challenging. The long term purpose of the energy management program is to optimize energy consumption on campus through a combination of energy use policies, best available technologies, operations and maintenance, and campus-wide energy conservation awareness and participation.

The energy team has reviewed activities to determine those activities that significantly impact the consumption of energy on site. These areas include facility operations, maintenance, utilities, and power plant operations. The Sustainability team is currently examining the processes for design, construction, and renovation to identify how energy efficiency can be integrated into these features. The objectives and targets established by the energy team focus on the efficient generation and delivery of energy and energy-consuming facility systems. In the near future, the team will work to identify policies, procedures, education, training, auditing, and feedback activities that will result in further efficiency gains from end users and technologies.

## SECTION 2 – GOALS AND OBJECTIVES

<b>FIVE-YEAR GOAL:</b> Reduce energy intensity every year by 2% up to a cumulative 20% reduction by end of FY2015	<b>Performance Indicator(s):</b> Energy consumption (BTU/GSF); Percentage reduction of energy use from 1990 baseline	<b>Resource requirements:</b> No additional resources required
<i>Justification:</i> This goal is based on the requirement of Executive Order 13423. Although the NIH campus continues to grow and address energy efficiency issues, there remains significant		

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# NIH Environmental Management System

Take Action to Protect the Future

Document Number: TBD

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opportunity to improve overall energy efficiency.			
<b>A. Objective:</b> Cascade energy goals to the Executive Officers of each IC	<b>Performance Indicator(s):</b> goals cascaded	<b>Responsibility:</b>	<b>Timeframe:</b>
<b>B. Objective:</b> Audit 10% of auditable square footage on the Bethesda Campus.	<b>Performance Indicator(s):</b> audit completed	<b>Responsibility:</b>	<b>Timeframe:</b>
<b>C. Objective:</b> Purchase electronic products (e.g., computers, copiers, electronic equipment) that are EPA Energy Star® compliant.	<b>Performance Indicator(s):</b> purchase completed	<b>Responsibility:</b>	<b>Timeframe:</b>
<b>D. Objective:</b> Implement night setback in administrative buildings (heating) where it will not impede research.	<b>Performance Indicator(s):</b> setback implemented	<b>Responsibility:</b>	<b>Timeframe:</b>
<b>E. Objective:</b> Implement night setback in laboratory and animal buildings (heating) where it will not impede research.	<b>Performance Indicator(s):</b> setback implemented	<b>Responsibility:</b>	<b>Timeframe:</b>
<b>F. Objective:</b> Standardize daytime temperatures.	<b>Performance Indicator(s):</b> temperatures standardized	<b>Responsibility:</b>	<b>Timeframe:</b>
<b>G. Objective:</b> Review potential for the back-up power project for Building 12 to use fuel cells to provide energy for this facility.	<b>Performance Indicator(s):</b> review completed	<b>Responsibility:</b>	<b>Timeframe:</b>
<b>H. Objective:</b> Continue to participate in PEPCO's VLRP	<b>Performance Indicator(s):</b> Participation completed	<b>Responsibility:</b>	<b>Timeframe:</b>
<b>FIVE-YEAR GOAL:</b> Increase purchase of renewable energy to 7.5% by 2013  <i>Justification:</i> This goal is based on the requirement of Executive Order 13423.	<b>Performance Indicator(s):</b> Percentage of electricity consumption derived from renewable resources		<b>Resource requirements:</b>
<b>A. Objective:</b> Purchase at least 3% of all electricity consumption from derived renewable sources.	<b>Performance Indicator(s):</b> Percentage of electricity consumption derived from renewable resources	<b>Responsibility:</b>	<b>Timeframe:</b>
<b>FIVE-YEAR GOAL:</b> Reduce source energy  <i>Justification:</i> Source energy reduction is a result of NIH's ongoing programs to improve energy efficiency. This goal is also based on	<b>Performance Indicator(s):</b> Plan complete		<b>Resource requirements:</b> No additional resources required

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the requirement of Executive Order 13423.			
<b>A. Objective:</b> Commission a steam-driven electrical generating turbine in the Clinical Research Center facility to convert steam pressure reduction energy to electricity that would otherwise be wasted.	<b>Performance Indicator(s):</b> turbine commissioned	<b>Responsibility:</b>	<b>Timeframe:</b>

**SECTION 3 – PROGRAM DESCRIPTION, SIGNIFICANCE, IMPACTS AND REQUIREMENTS**

<b>REASON(S) FOR SIGNIFICANCE:</b>	<ul style="list-style-type: none"> <li>a. This aspect represents a significant cost to NIH</li> <li>b. This aspect has the potential to significantly impact the environment through air emissions and natural resource consumption</li> <li>c. This aspect is important to NIH’s relationship to the local community and the public at large</li> <li>d. This aspect is governed by Executive Order 13423, Strengthening Federal Environmental, Energy, and Transportation Management</li> </ul>
<b>POTENTIAL ENVIRONMENTAL/ ORGANIZATIONAL IMPACTS:</b>	<ul style="list-style-type: none"> <li>a. Financial costs</li> <li>b. Greenhouse gas contribution</li> <li>c. Public image/community relations</li> <li>d. Air pollution (smog, acid rain, dust, visual impairment)</li> </ul>
<b>LEGAL AND OTHER REQUIREMENTS:</b>	<ul style="list-style-type: none"> <li>a. Executive Order 13423, Strengthening Federal Environmental, Energy, and Transportation Management</li> <li>b. Energy Policy Act (EPACT)</li> </ul>

**SECTION 4 – OPERATIONAL CONTROLS**

ACTIVITY(IES) THAT GIVES RISE TO ASPECT	CONTROL(S)	RESPONSIBLE PERSON	MONITORING	RECORDS	ACTION TAKEN IF CONTROL FAILS
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Operations & maintenance of HVAC systems	<ul style="list-style-type: none"> <li>Energy Management and Control Systems (EMCS)</li> </ul>	Facility Operations Branch	<ul style="list-style-type: none"> <li>Routine maintenance check of steam traps cleanliness</li> </ul>	<ul style="list-style-type: none"> <li>Traps cleaning log</li> </ul>	<ul style="list-style-type: none"> <li>(Re)training</li> <li>Notice to supervisor and person(s) responsible for lack of appropriate monitoring</li> <li>Repair/replacement of steam traps</li> </ul>
Operations of Central Utility Plant/Building Maintenance	<ul style="list-style-type: none"> <li>Advanced metering system (currently being installed and tested)</li> <li>Energy conservation equipment<sup>a</sup></li> </ul>	Utilities Operations Branch	<ul style="list-style-type: none"> <li>Continuous monitoring of metering</li> <li>Routine testing of boiler and chiller efficiencies and performance</li> </ul>	<ul style="list-style-type: none"> <li>Mechanical equipment performance logs</li> <li>Annual energy audits</li> </ul>	TBD
Operation of the co-generation unit	<ul style="list-style-type: none"> <li>Efficiency goal in contract</li> </ul>	PEPCO	TBD	TBD	TBD
Steam turbine generator	<ul style="list-style-type: none"> <li>Automated control system (to be implemented)</li> </ul>	Utilities Operations Branch	TBD	TBD	TBD
Operation of laboratory equipment (including fume hoods, cyclotron, and sterilization equipment)	<ul style="list-style-type: none"> <li>TBD</li> </ul>	TBD	TBD	TBD	TBD

<sup>a</sup> A list of energy conservation equipment and information on the energy audits conducted annually is provided in Terry Leland's email (dated May 31, 2006), which is provided in Attachment 1 (starting on page 10 of this document)



Use of office equipment (including high definition computer use, copiers, etc.)	<ul style="list-style-type: none"> <li>Policy on purchase of Energy Star equipment</li> <li>Energy conservation equipment</li> </ul>	TBD	TBD	<ul style="list-style-type: none"> <li>Annual energy audits</li> </ul>	TBD
Use of food service equipment (including dish washing, refrigeration, etc.)	<ul style="list-style-type: none"> <li>TBD</li> </ul>	TBD	TBD	TBD	TBD

### SECTION 5 – RELEVANT DOCUMENT(S)

DOCUMENT NAME	LOCATION	RESPONSIBLE PERSON
None	N/A	N/A

### SECTION 6 – COMPETENCY OF RESPONSIBLE PERSONS

NAME/TITLE	BASIS FOR COMPETENCE
Energy Engineer	15 years experience working in energy field, including utility operations

### SECTION 7 – AUTHORIZATION

<b>NAME:</b>	
<b>SIGNATURE:</b>	
<b>DATE:</b>	

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