

Executable Plan

For the Office of Science's

Ames Laboratory

To address the goals and requirements of Executive Order 13423, the TEAM Initiative and DOE Order O430.2B

Approved by: _____ Date: _____
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I. Executive Summary

In August, 2007, Secretary of Energy Samuel W. Bodman launched the Transformational Energy Action Management (TEAM) Initiative which is a plan for the Department of Energy (DOE) to meet and exceed the goals outlined in Executive Order 13423 (E.O. 13423). The goal is to transform the way DOE manages its energy use. In February, 2008, DOE Order O430.2B was issued clearly outlining the requirements and responsibilities for managing DOE facilities and fleets. It also directs each site to develop and commit to an Executable Plan that communicates its commitment toward meeting all of the DOE goals outlined in the Order.

This plan articulates the Ames Laboratory's commitment to meet the DOE goals through the projects, tasks, and activities described in it. The age of the facilities makes it very challenging to achieve energy efficiency and sustainability in the existing facilities. Four Energy Conserving Measures (ECMs), a water conservation project, and a line item project to replace the Metals Development Building under the Office of Science SLI Infrastructure Modernization Initiative provide the core strategy to achieve the goals. Energy conservation is also incorporated into specifications for other infrastructure projects as well as infrastructure operations and maintenance activities.

The ECMs are estimated to achieve an 18% savings through improved energy efficiency while the water conservation project is projected to save 10% compared to baseline data.

The Metals Development Replacement Building project will also have major impact on meeting the goals. Under the SLI Modernization Initiative of the Office of Science, a line item project with funding slated to begin in FY2012 will replace the Metals Development Building. The project will provide modern research space that meets the mission needs of the Laboratory and replace a building that is dysfunctional for supporting modern research activities. The new building will be designed and constructed to achieve LEED Gold Certification and will represent over 20% of the total gross building area of the site. References indicate that LEED Gold Certification typically results in energy savings of 50-60% which will result in a 12% reduction in the overall base energy usage and a 28% reduction in water consumption for the site. The building is slated for completion in FY2016.

Renewable energy goals will be achieved primarily through the purchase of Renewable Energy Credits from the local electric provider. A waiver for the on-site generation of renewable energy will be requested based on the results of the review done by the ESCO which indicated that they were not able to identify any viable on-site generation retrofit projects. The design process for the Replacement of the Metals Development Building will investigate on-site renewable energy projects that might be viable as part of the new construction.

The Ames Laboratory is exempt from Transportation/Fleet Management requirements because of the size of our fleet (four GSA vehicles). However the Laboratory will pursue the goals as much as possible within what can be done with such a limited fleet. Gasoline powered vehicles currently use an ethanol blend, with one Flex-Fuel vehicle utilizing E-85 fuel. Approximately 25% of FY2010 gasoline consumption will be E-85 fuel. As vehicles are replaced, the Laboratory will pursue acquisition of flex fuel, compressed natural gas, biodiesel, or hybrid electric vehicles. Commercial E85 fuel is available locally so no on-site facilities are needed.

The executable plan outlines the Laboratory's commitment to High Performance and Sustainable Buildings. It describes the steps that will be taken to evaluate and achieve compliance with the guiding

principles in 15% of the existing enduring buildings at the site. Ames will also develop a plan to implement the guiding principles in all of the major buildings where it is economically justified. The Laboratory recognizes the requirement for new construction to achieve certification to the LEED Gold Standard and will make that a central requirement in the design and construction of the Replacement of the Metals Development Building.

Site Overview

The Ames Laboratory is a government-owned, contractor-operated facility located on the campus of, and operated by, Iowa State University (ISU) in Ames, Iowa. The Laboratory is situated on approximately 10 acres of state-owned land on the ISU campus under a long-term, no-cost lease. The real property assets include 12 buildings that total 327,664 gross square feet. The three laboratory buildings represent over 70% of the area and have an average age of 54 years; one 14 year old office building represents less than 15% of the area, and the other eight buildings are smaller shop and storage buildings that provide support functions. The Laboratory purchases electricity from the City of Ames Municipal Power Plant at relatively low rates that have been very stable. Being located on the University campus allows the Laboratory to take full advantage of the infrastructure services provided by ISU. Steam and chilled water are purchased from the university and are delivered through the university's distribution system. The university provides and maintains the generation and distribution system and the Laboratory pays for the metered consumption. Natural gas is utilized for heating and hot water in some of the smaller support buildings. Ames Laboratory does not have a dedicated Energy Management or Environmental Management group. Responsibilities for these areas are matrixed in departments with compatible responsibilities, primarily the Facilities Services Group and the Environment, Safety, Health and Assurance Group. An Environmental Management System Steering Group with representatives from various departments also provides input on environmental issues.

II. DOE Order 430.2B Goal Summary Table

| Goal Elements | Plan Meets Goal | Plan Exceeds Goal | Plan Falls Short of Goal | Comments |
|--|-------------------------------------|-------------------------------------|--------------------------|--|
| 30% energy intensity reduction by FY 2015 from a FY 2003 baseline | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 16% water intensity reduction by FY 2015 from a FY 2007 baseline | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 7.5% of a site's annual electricity consumption from on-site renewable sources by FY 2010 | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| Every site to have at least one on-site renewable energy generating system | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 10% annual increase in fleet alternative fuel consumption relative to a FY 2005 baseline | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Does not apply to Ames Laboratory due to the small fleet size. |
| 2% annual reduction in fleet petroleum consumption relative to a FY 2005 baseline | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Does not apply to Ames Laboratory due to the small fleet size. |
| 75% of light duty vehicle purchases must consist of alternative fuel vehicles | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Does not apply to Ames Laboratory due to the small fleet size. |
| All new construction and major renovations greater than \$5 million to be LEED® Gold certified | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 15% of existing buildings to be compliant with the five guiding principles of (HPSB) design | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| Advanced metering to the maximum extent practicable | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |

III. Energy Intensity

Current Status

The Bench Mark energy usage established for FY2003 at the Ames Laboratory is 246,000 Btu/sq. ft. In FY2008, the Ames Laboratory consumed 230,791 Btu/sq. ft. In FY2009 the Ames Laboratory consumed 213,768 Btu/sq. ft., a DECREASE of 13.1% compared to FY2003 consumption and a DECREASE of 7.4% compared to FY2008 consumption.

Numerous factors influence the level of energy use at the Laboratory, many of these, such as weather and utility outages, are variable and beyond the control of the Laboratory. As a significant portion of the energy use at the Ames Laboratory is for environmental control, annual variations in weather can significantly impact energy usage.

Energy Saving Performance Contract

No ESPC is currently being developed at the site.

An ESPC was in the process of being developed for the Ames Laboratory and had reached the final review of the Detailed Engineering Study when legacy Beryllium contamination was found unexpectedly. After intense testing and characterizations of the type and extent of the contamination it was determined that the major ECM which made the ESPC cost effective could not move forward due to health and safety concerns.

Replace Metals Development Building

The Metals Development Replacement Building project will also have major impact on energy efficiency. Under the SLI Modernization Initiative of the Office of Science, a line item project will replace the Metals Development Building with funding slated to begin in FY2012. The project will provide modern research space that meets the mission needs of the Laboratory and replace a building that is dysfunctional for supporting modern research activities. The new building will be designed and constructed to achieve LEED Gold Certification. References indicate that LEED Gold Certification typically results in energy savings of 50-60%. Applying a 50% reduction from the current energy consumption of the Metals Development Building will result in a 12% reduction in the overall base energy usage for the site. The building is slated for completion in FY2016.

Operations and Maintenance

Department of Energy (DOE) FEMP Energy Efficiency Expert Evaluation (E4) conducted a review of the Ames Laboratory by Pacific Northwest National Laboratory (PNNL) personnel, in July, 2007. The subsequent report listed a total of 17 high priority possible conservation measures in four buildings. To date 12 of the measures have been implemented, one found impractical and the remaining four will be implemented as resources are available.

The Ames Laboratory utilizes night/weekend setbacks in all buildings to the maximum extent possible. Where it is not feasible to set back an entire building, smaller areas within the buildings are setback. Further, where appropriate the Ames Laboratory has installed time clocks and occupancy sensors in lighting circuits to ensure lighting is setback during low use times. All building operations personnel are fully trained in the use and implementation of setbacks and building occupants have been made aware of the use and benefits of building setbacks through articles in employee newsletters. All HVAC system maintenance is performed by trained personnel and tracked through a computerized maintenance program.

Retrofit Construction

Spedding Hall HVAC Upgrade

Ames Laboratory is currently in the process of retrofitting the entire HVAC system of a building nearly 60 years old. The project, funded through GPP funds is expected to continue, in phases, through FY2012. The retrofit will convert the system from a zoned constant volume reheat system to a variable volume system with climate control in each lab or office space. In addition to the improved control, the project will eliminate the energy waste from unnecessary use of reheat and will save fan energy. Implementation of this ECM is estimated to result in a 2% reduction in the overall base energy usage for the site.

Exhaust Stack Improvements (Laboratory Fume Hoods)

The Spedding Hall laboratory hood exhaust system has approximately 155 lab hoods each with a separate vertical exhaust stack. The existing brick stacks are approximately 60 years old and suffer from extensive air leaks which cause thousands of CFM of conditioned air to be exhausted unnecessarily. Ames Laboratory proposes to repair the existing laboratory fume hood exhaust stack system to reduce energy usage and improve the exhaust systems' effectiveness. Implementation of this ECM is estimated to produce a 13% reduction in the overall base energy usage for the site.

Window Replacement (Spedding Hall)

Spedding Hall has 136 windows on the ground, first, second, third and penthouse floors. They are metal frame, single pane, and fixed type. Such window systems are energy inefficient, with low thermal resistance and poor shading characteristics, meaning that they do not effectively inhibit the transfer of heat and direct sunlight. This ECM considers replacing the existing windows with new double pane "low emissivity" windows, which have almost double the thermal resistance and shading performance, as well as a greatly reduced air infiltration rate around the frame. The new windows will save energy and money expended to heat and to cool the Hall. Implementation of this ECM is estimated to result in a 1% reduction in the overall base energy usage for the site.

Upgrade Lighting

Spedding Hall and Wilhelm Hall have approximately 2,600 lighting fixtures that contain older lighting technology fluorescent or incandescent light sources. These fixtures use magnetic ballasts and T12 fluorescent lamps or screw in type incandescent lamps. While functional, such lamps are less efficient than current technology lighting systems and consume more electricity than current technology fixtures. In addition, the less efficient fixtures generate a larger cooling load during summer months. Ames Laboratory proposes retrofitting the existing lighting fixtures with current technology lighting sources. The lighting retrofits will focus on upgrading to electronic ballasts and 28-watt, T-8 fluorescent lamps. Implementation of this ECM is estimated to result in a 1% reduction in the overall base energy usage for the site.

Retro Commissioning of Existing Buildings

Ames Laboratory completed retro-commissioning of TASF during FY 2009.

In response to findings of the E4 Team review of the Laboratory, a re-commissioning of the HVAC system serving the Wilhelm Hall is planned. Installed in 1990, the system has undergone several minor modifications and a multitude of minor control adjustments. The cumulative effect of the modifications

has produced a system that is in need of re-commissioning to return it to its original operational efficiency. This project will be funded through overhead funds and will be completed in FY2010.

Other building retro-commissioning projects include Metals Development in 2011 and Spedding Hall in 2012. Once all building re-commissioning projects are complete, it is estimated to result in a 1% reduction in the overall base energy usage for the site.

All low/no-cost energy saving opportunities identified during the course of the re-commissioning are implemented as soon as resources are available.

Metering

The Ames Laboratory currently has a metering plan in place to complete the required meters by the 2012 target. The plan calls for the installation of advanced electrical metering in the four buildings that meet the criteria for advanced meters. This includes the three research buildings and the administrative services building. The smaller support and service buildings do not meet the criteria. The installation of the advanced electrical metering began in FY2009 and will be completed in FY2010 under GPP funding.

Metering exists for natural gas and steam in all buildings while chilled water is metered at the site level. Once protocols are established for the advanced metering required for these other utilities, a plan will be written for procurement and installation of the new metering by FY2012.

Energy Efficiency Metrics Table

| | | |
|-----------------------------------|---------|---------|
| | 2003 | 2009 |
| Gross Square Feet | 324,501 | 327,664 |
| Total Buildings Energy Use (MBtu) | 79,827 | 70,050 |

| ESPC Project or separate Energy Conservation Measure * | Actual or Estimated Energy Saved MBtu/yr | Percent of Base Energy Use/Square Foot | Actual or Estimated Implementation Cost | Expected Year of Implementation | Funding Source (ESPC, UESC, Overhead, GPP, Other) | For ESPCs, indicate expected date of Delivery Order Award |
|--|--|--|---|---------------------------------|---|---|
| Stack Lining | 10,680 | 13.4% | \$750K | 2014 | Overhead | |
| Window Replacement | 1,124 | 1.4% | \$550K | 2013 | GPP | |
| Upgrade Lighting | 667 | 1% | \$360K | 2013 | GPP | |
| | | | | | | |
| | | | | | | |
| Replace Metals Development Building | 9,859 | 12% | \$47M | 2016 | Line Item, SLI | |
| Spedding Hall HVAC Upgrade | 1,718 | 2.2% | \$2.04M | 2012 | GPP | |
| Retro commissioning | 1,300 | 1.6% | \$60k | 2012 | Overhead | |

Distributed Generation Systems

Ames does not currently have any distributed generations systems. As the design of the Metals Development Replacement building progresses, the inclusion of distributed generation systems will be investigated. Value engineering will be used to determine any distributed generation systems that are economically viable to be included in the construction project.

Milestones

Current Ames Laboratory milestones include:

- FY2010 – Retro commission Wilhelm Hall HVAC
Installation of advanced electrical meters
- FY2011 – Re-commission Metals Development HVAC
- FY2012 – Complete Spedding Hall HVAC retrofit and re-commissioning
Installation of all required meters
- FY2016 – Complete Replacement of Metals Development Building

IV. Water Intensity

Current Status

The Ames Laboratory has meter data for all domestic water usage for the base year of FY2007. Total consumption in the base year is 4,792 kgal or 14.6 gal./sq.ft. Water consumption for FY2009 was 4,647 kgal or 14.2 gal./sq.ft., a reduction of 2.7% from the base year. There is no water used for irrigation or landscaping at the site. Ames Laboratory made dramatic reductions (over 50%) in water usage 30 years ago as re-circulating equipment cooling systems were installed that eliminated the use of tap water for cooling equipment.

Water Conservation Measures

Replace Fixtures and Valves

The Ames Laboratory has, over time, acquired a wide range of fixtures and valves from various manufacturers with varying flows. Ames Laboratory proposes to replace older fixtures and valves with newer water efficient products.

| Fixture | Upgrade Quantity |
|------------------------------|-------------------------|
| New Toilets | 54 |
| Urinal Flush Valve Retrofits | 16 |

Once implemented it is estimated that these measures will save nearly 10% over the Laboratory's base consumption.

Replace Metals Development Building

The Metals Development Replacement Building project will also have major impact on energy efficiency. Under the SLI Modernization Initiative of the Office of Science, a line item project with funding slated to begin in FY2012 will replace the Metals Development Building. The project will provide modern research space that meets the mission needs of the Laboratory and replace a building that is dysfunctional for supporting modern research activities. The new building will be designed and constructed to achieve LEED Gold Certification. References indicate that LEED Gold Certification typically results in energy savings of 50-60%. Applying a 50% reduction from the current water consumption of the Metals Development Building will result in a savings of 1,333 kgal annually which represents a 28% reduction in the overall base water usage for the site. The building is slated for completion in FY2016.

Meters

Ames Laboratory currently has a full array of water meters. Essentially all of the buildings are metered separately. The current meters are read manually. As protocols are developed for the advanced metering called for in DOE Order O430.2b, Ames Laboratory will evaluate the need to replace meters and revise the site metering plan accordingly.

Water Conservation Metrics Table

| ESPC Project or separate Energy Conservation Measure * | Actual or Estimated Water Saved kgal/yr | Savings Percent of Base | Expected Year of Implementation | Actual or Estimated Implementation Cost | Funding Source (ESPC, UESC, Overhead, GPP, Other) |
|--|---|-------------------------|---------------------------------|---|---|
| Fixture Upgrade | 495 | 10% | 2013 | \$140k | GPP |
| Replace Metals Development Building | 1,333 | 28% | 2016 | \$47M | Line Item, SLI |

V. Renewable Energy

Current Status

1. Self-generated renewable energy: The Ames Laboratory did not utilize energy from self-generated sources.

2. Purchased renewable energy: The Ames Laboratory buys electricity from the City of Ames which generates 10% - 12% of its electricity by burning refuse from the City Resource Recovery Plant, a renewable resource. At the Ames Laboratory, this would amount to a minimum of 729.1 MWH at a cost of \$50,730 during FY2009. Current guidelines do not allow Ames Laboratory to apply this energy to use reduction goals or renewable energy goals since the City of Ames has been generating 10% - 12% of its electricity from renewable sources since 1975 and includes the energy as part of their standard "mix". To comply with renewable energy goals, the Ames Laboratory purchased 300 Renewable Energy Certificates (RECs) in FY2009 at a cost of \$1,050 to comply with the requirement of 3% of the electricity purchased be renewable.

RECs

To comply with renewable energy goals, the Ames Laboratory purchased 300 Renewable Energy Certificates (RECs) in FY2009 at a cost of \$1,050 to comply with the requirement of 3% of the electricity purchased be renewable. Due to the limitations of the Laboratory site, RECs and purchased commercial renewable energy will continue to be the only avenue for Ames Laboratory to comply with renewable energy goals.

Plans

Although physical limitations of the Ames Laboratory site make the installation of a life-cycle-cost effective renewable energy project impossible, the Ames Laboratory will pursue the development of a small-scale, technology demonstration on-site renewable energy project. When completed the project would not be capable of producing a significant percentage of the site's power consumption, but would provide a demonstration in the application of current technologies.

Waiver

The Ames Laboratory will seek a waiver for any requirements to generate on-site renewable energy to meet the overall renewable energy target.

While Ames Laboratory supports utilizing renewable energy, the location and size of the site makes installation of on-site generation of significant quantities very difficult. On-site renewable energy

opportunities were evaluated by an ESCO, Constellation Energy, during the course of preparing an Initial Proposal for an ESPC. Constellation Energy reviewed several alternatives including wind and photo-voltaic and was unable to propose a cost effective project at the Laboratory.

Following is the ESCO’s summary of the PV ECM:

Solar PV Roof Mounted System (Metals Development Building)

Assumptions: This ECM involves installing a solar photovoltaic (PV) array on the roof of the Metals Development building and installing an inverter to provide electrical power to the building. The Metals Development building has a relatively large flat area available on the roof and would be a suitable location for a PV array. This approach would provide a relatively low maintenance system that could supplement the building’s electrical demand with peak output during summer periods when demand charges and energy costs tend to peak. This would be a very long payback item at current energy prices.

| ECM Implementation Cost | Annual Cost Savings (FY2008 Projected \$) |
|--------------------------------|--|
| \$786,996 | \$8,842 |

Renewable Energy Metrics Table

| Renewable Energy/Thermal Energy Technology including RECs | System Size (capacity) | Total MWh/yr | Renewable Energy Initial Project Capital Cost | Funding Source (ESPC, UESC, PPA, Other) | Expected Year of Implementation |
|--|-------------------------------|---------------------|--|--|--|
| RECs | | 300 | | Overhead | FY2009 |
| RECs | | 470 | | Overhead | FY2010 – FY2012 |
| RECs | | 700 | | Overhead | FY2013 and Beyond |

VI. Transportation and Fleet Management

The Ames Laboratory is exempt from Transportation/Fleet Management requirements because of the size of our fleet (four GSA vehicles). However the Laboratory will pursue the goals to the extent possible with such a limited fleet. The most recent acquisition was an E-85 flex fuel vehicle. Gasoline powered vehicles currently use either a 10% or an 85% ethanol blend. Approximately 25% of FY2010 gasoline consumption will be E-85 fuel. As vehicles are replaced, the Laboratory will pursue acquisition of additional flex fuel vehicles as well as compressed natural gas, biodiesel, or hybrid electric vehicles. E85 fuel is available for purchase from commercial suppliers locally so no on-site fuel facilities are required.

VII. High Performance and Sustainable Buildings

New Buildings

The Laboratory recognizes the requirement for new construction to achieve certification to the LEED Gold Standard and will make that a central requirement in the design and construction of the Replacement of the Metals Development Building.

Existing Buildings

By 2015, 15% of the Ames Laboratory building inventory will meet the guiding principles as required by E. O. 13423. The following elements will contribute to the process:

- Develop plan to assess current building inventory.
- Perform any staff training needed to perform evaluations.
- Establish the list of existing enduring buildings that require evaluation.
- Perform initial screening using the DOE assessment tool to establish how the site compares to the 15% goal.
- Use the results of the initial screening to perform a gap analysis. Use the gap analysis to establish the most cost-effective way to reach the 15% goal by FY2015.
- Budget and implement the tasks required to meet the 15% goal.
- Develop a plan for exceeding the goal and implementing the guiding principles in all buildings where it is economically justified.

The status and progress toward these goals will be tracked. Data on sustainability status of each building asset has been entered in FIMS. This data will be updated as evaluations are completed and the status changes. Self-assessment activities will ensure that progress is made in this area. It is expected that measures regarding sustainability will continue in future years.

VIII. Metering

The Ames Laboratory currently has a metering plan in place to complete the required meters by the 2012 target. The plan calls for the installation of advanced electrical metering in the four buildings that meet the criteria for advanced meters. This includes the three research buildings and the administrative services building. The smaller support and service buildings do not meet the criteria. The installation of the advanced electrical metering began in FY2009 and will be completed in FY2010. It will be funded through GPP.

Metering exists for natural gas and steam in all buildings while chilled water is metered at the site level. Once protocols are established for the advanced metering required for these other utilities, a plan will be written for procurement and installation of the new metering by FY2012.

IX. Energy Management

Energy Management Infrastructure

Ames Laboratory does not have a dedicated Energy Management Group. Most of the energy management functions are the responsibility of the Facilities Services Group, which is charged with maintaining the entire facility. The Facilities Services Group is responsible for the development, implementation, and coordination of the Energy Management Plan, and for leading the effort to meet DOE's energy reduction goals.

Responsibility for energy conservation is shared with the Environmental Management System (EMS). The EMS Steering Group has representation from Science and Technology, Facility Services, Engineering Services, Purchasing and Transportation and ESH&A.. The Steering Group is responsible for: **1) Forming a registry (list) of Environmental Aspects for the Laboratory. 2) Ranking the impact of each aspect. 3) Recommending objectives and targets to upper management.**

Management Tools

1. Awards (Employee Incentive Programs): The Ames Laboratory does not currently utilize an Employee Incentive Program as a tool to encourage energy conservation.

2. Performance Evaluation:

a. Personnel are evaluated based on their performance with respect to their position description. The position description of the Plant Engineer indicates 5% of this individual's time is budgeted to energy conservation activities but does not specifically include Executive Order 13423. The position description of the Manager, Facilities Services Group, also explicitly includes responsibilities for energy conservation and utility costs within overall management responsibilities. Energy Management activities are evaluated as a part of the overall responsibilities of this position. The ability of the Laboratory to meet provisions of Executive Order 13423 depends on factors (e.g. budgets and weather conditions) which are outside the control of these positions.

b. The overall Laboratory performance related to energy management and conservation, DOE O430.2B, Executive Order 13423, and the TEAM initiative is evaluated through the annual Performance Evaluation Measurement Plan (PEMP). In the FY 2009 PEMP, 8 specific targets were evaluated and reported on. In addition, a more general evaluation of performance was included as part of the self assessment narrative.

3. Training and Education: The Education and training of those responsible for energy management activities at the Ames Laboratory is commensurate with the assigned responsibilities.

4. Employee Suggestion Program: The Ames Laboratory utilizes an employee suggestion program, the Employee Safety and Security Concerns Program. Through this program employees may bring concerns related to environment, safety, health, security, and energy conservation to the attention of the Environment, Safety, Health and Assurance (ESH&A) Group and be assured that the concern will be reviewed, corrective actions developed, and tracked to completion. When a concern has been addressed, the final disposition is communicated to the originator.

IMPLEMENTATION HIGHLIGHTS OF FY 2009

1. Life-Cycle Cost Analysis. Life Cycle Cost Analysis will be utilized to evaluate any IHEM projects and to evaluate, as appropriate, higher first cost options on capital improvement projects.

2. Facility Energy Audits. In 2008, 86% of the facility was reviewed as part of the Initial Proposal for an ESPC. The Ames Laboratory performed in-house water and energy audits of the remaining 14% of space during FY 2009. Ames Laboratory has reviewed 100% of FIMs reported space in the last 2 fiscal years.

3. Retrofits and Capital Improvement Projects. The Ames Laboratory continues to work on a Capital Improvement Project (GPP) to improve the energy efficiency of the HVAC system in Spedding Hall. In addition, the Laboratory began a project to install advanced electric meters in the main research and administrative buildings. During FY2009 meters were installed in Wilhelm Hall to monitor the overall building load and to monitor the electrical on the large computer room in Wilhelm Hall.

4. Financing Mechanisms. In August, 2009 The Ames Laboratory was forced to terminate the process of entering into an Energy-Savings Performance Contract prior to signing a delivery order. In April, 2009 during routine testing, Beryllium contamination was unexpectedly found. After thorough testing and characterization of the contamination it was found that the largest ECM of the ESPC proposal could not be accomplished without significant cleanup and decontamination. The delay involved to accomplish the decontamination and the inability to work the ECM rendered the ESPC economically infeasible.

5. Energy Star and Other Energy-Efficient Products. The Purchasing Dept. at the Ames Laboratory has incorporated energy efficient criteria into standard purchasing specifications.

6. Sustainable Building Design. There are no new buildings currently being designed at the Ames Laboratory. Planning is being done for a replacement building at the Ames Laboratory but it is currently at the pre-CD-0 stage. Sustainable design concepts are being included in the planning and, if funding is secured for a new facility, it will be designed to achieve LEED Gold Certification.

7. Energy Efficiency/Sustainable Design in Lease Provisions. The Ames Laboratory does not lease any facilities. Ames Laboratory and Iowa State University have a space rental agreement that allows space to be used on a room-by-room basis which precludes energy efficiency standards. However, the University has a robust energy conservation program for their facilities and is in the process of filling a new position of Director of Sustainability Programs. This position is being created as part of the university's "Live Green!" energy efficiency and conservation initiative.

8. Distributed Generation. The Ames Laboratory is not currently planning off-grid generation projects.