

Case Studies: Organizational Change for Sustainability

People can significantly impact the environmental performance of their organization. Many factors influence an organization's use of resources, and changing an organization to improve environmental performance can be daunting.

The FEMP Institutional Change Team provides expertise grounded in social science principles to help organizations make the change to sustainability.

The case studies presented in this series build on this expertise. The studies are:

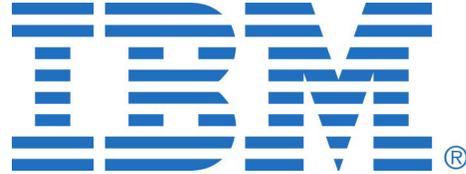
- specific to the unique aspects of federal workplaces
- descriptive of real-world conditions
- examples of strategies for institutionalizing change

We encourage you to contact the team (through Jerry Dion at FEMP) to discuss possible applications of the case study material to your organization's specific needs.

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Summary

Use of monthly reporting, checklists, energy targets, and feedback leads to effective organizational change.



Big Blue goes green with its corporate efficiency program. *Image courtesy IBM.*

Driving Operational Changes Through an Energy Monitoring System

In 2006, IBM launched a corporate efficiency program focused on basic operation improvements in its diverse and far-flung real estate operations. The efficiency program had behavior change as a major focus. Examples of changes include the following:

- IBM implemented a monthly energy reporting system for its various facilities where operations are driven by simple checklists and procedures aimed at common lighting and HVAC systems used across the facility base. Facility managers use the checklists to verify that procedures have been performed.
- Use of a “granular” monitoring system provides operational data and control capabilities for numerous systems and pieces of equipment. Graphical summaries and comparative analyses assist energy managers in detecting anomalies at the level of systems and individual pieces of equipment, which can be repaired at little or no cost.
- The company goal for energy savings was 3.5% of prior year usage from 2006 to 2010. By 2008 the savings level had nearly doubled to 6% over prior year usage. This amounted to \$30 million savings on the energy bill, with less than \$9 million spent on efficiency investment, yielding a payback of 3 – 4 months.
- Traditional practice in manufacturing operations had been to run clean-room vacuum pumps continuously. Scrutiny of the operations revealed that the pumps were running for considerable periods when they were not actually being used. The result was an 86% reduction in running time and energy use for the pumps.

Roles, Rules, and Tools

The IBM program engaged operations personnel and facility staff responsible for energy usage in many different operations. Rules were implemented through simple procedural checklists involving HVAC and lighting maintenance, and linked to

centralized monthly reporting. Tools included checklists, energy monitoring systems, trend analyses, and operational knowledge of facility and manufacturing staff.

Principles applied

IBM's program provides examples of four social science principles: Leadership, Infrastructure, Information & Feedback, and Continuous Improvement.

Leadership

The success of this program was its corporate-wide focus on behaviors contributing to operational energy use. In this sense the Leadership Principle established the breadth and depth of application, and the focus on malleable practices (behavior).

Infrastructure

The specific changes in energy usage resulted from use of the Infrastructure Principle, which addressed the operational and facility elements that maintain current energy usage levels, and the extent to which they could be changed.

Information & Feedback

Data concerning operational energy usage was provided by a variety of means that

incorporate the Information and Feedback Principle, such as trend analyses on equipment, and input from shop floor personnel.

Continuous Improvement

Use of checklists on a regular basis illustrates the Continuous Change Principle.

Lessons Learned

The main lessons from the IBM study are that focusing on behavior and operations in the wide range of existing facilities can identify and implement savings opportunities that are relatively inexpensive, and provide near-term payback. A key lesson is that personnel working in facilities provide excellent actionable information about energy savings opportunities.

Supporting Documentation

Prindle, W. and Finlinson, S. 2011. How organizations can drive behavior-based energy efficiency. *Energy, Sustainability and the Environment*. Elsevier, Inc.

Social Science Principles Applied

- Social Network & Communications
- Multiple Motivations
- Leadership
- Commitment
- Information & Feedback
- Infrastructure
- Social Empowerment
- Continuous Change