ENERGIZING PRODUCTIVITY FOR AGRIBUSINESS

ENERGY MANAGEMENT SYSTEMS

The rising costs of energy, increased concerns around energy security, a better understanding of energy-related environmental and social impacts and rising pressures from external stakeholders have combined to make energy management a critical component of competing and winning in today's economy. The complexity of issues surrounding energy use makes increasing energy performance a challenge. For this reason, a more structured and focused approach to energy management is required. Adopting an energy management system is a proven way to maximizing energy performance in any organization.

Government of Alberta ■

WHAT IS AN ENERGY MANAGEMENT SYSTEM?

An Energy Management System (EnMS) is a framework for the effective and sustainable management of energy in any organization, large or small. Implementation of an EnMS will assist organizations in reducing energy use through international best practices, measurement and reporting disciplines, continuous improvement and promoting energy efficiency throughout the supply chain.

ARE INTERNATIONALLY RECOGNIZED STANDARDS AVAILABLE?

Yes. ISO 50001 is the internationally recognized standard for energy management systems. Like all ISO management system standards, ISO 50001 is designed for implementation by any organization, regardless of size or activities. ISO 50001 is not about fixing pre-defined targets or a means of regulation. It is about providing a structured and disciplined approach to continual improvement of energy performance within an organization. This means that any organization, regardless of its current mastery of energy management, can implement ISO 50001 to establish a baseline and then improve on this at a pace appropriate to its context and capacities. ISO 50001 can be implemented individually or integrated with other management system standards such as ISO 14001 or 9001.

Certification of conformity to ISO 50001 by an independent auditor is not a requirement of the standard itself. To certify or not is a decision to be taken by the ISO 50001 user, unless imposed by regulation. Alternatives to third-party certification include customer verification of the organization's implementation of ISO 50001 in conformity to the standard, or self-declaration of its conformity. Alternatively, organizations may use the ISO 50001 standard simply as a guide for the development of a proprietary EnMS with no specific declaration to conformity to a standard.

WHAT ARE THE BENEFITS?

There are many benefits to adopting an EnMS, including:

- Sustainable reductions in energy use and environmental impacts
- Enhanced cost savings
- Continual improvement of energy use
- Access to external financial incentives
- Improved evaluation and prioritization of energy efficient technologies and products
- More effective operational, maintenance and capital cost decisions
- Documentation of energy performance and associated improvements
- Improved analysis of energy performance
- Increased clarity around future energy related risks

DEVELOPING AN EFFECTIVE ENERGY MANAGEMENT SYSTEM

All management systems, regardless of their focus, are based on the Plan-Do-Check-Act continuous improvement framework; so too, an EnMS incorporates energy management into everyday organizational practices. While developing a certifiable EnMS can get complicated, organizations can follow these simple steps to develop an effective EnMS based on the framework provided by ISO 50001.

PLAN

1. Management Commitment & EnMS Committee:
Secure senior management support by communicating the enhanced economic and other benefits of a structured energy management approach vs. a non-structured approach. Next, organize a balanced EnMS Committee consisting of representatives from operational, facilities and finance departments.

2. Energy Policy:
Develop an energy policy that communicates the organization's commitment to continually improving energy performance over time.

3. Energy Management Plan:
DEVELOP AN ENERGY MANAGEMENT PLAN THAT INCLUDES:

(a) Energy Review and Energy Baseline: Identify the sources of energy use within the organization such as electricity, natural gas and steam. Create a usage baseline by documenting a minimum of three years of historical usage for each source, by month, in a spreadsheet or other software.

(b) Energy Performance Indicators: Develop a metric for each source of energy that is normalized to business activity. (i.e. kWh of electricity per unit of production, GJ of natural gas per unit, etc.) These indicators become a normalized baseline of energy usage that future performance will be measured against.

(c) Energy Reduction Targets: Set realistic but challenging reduction targets relative to performance indicators. Ensure specific reduction numbers and an associated timeline are included. For example, "Reduce electricity consumption by 5% from the 2011 baseline by December 31, 2012." Targets may also include phasing in the use of renewable energy.

(d) Energy Initiatives: Develop specific action items for achieving reduction targets. For each action item, assign a champion and due date. For help identifying specific actions to reduce energy use, see Energy Quick Wins.

(e) Awareness, Training and Communication: Develop a plan for increasing employee awareness about energy consumption. Develop a separate plan for training those directly responsible for driving energy performance. Develop a plan for communicating ongoing energy performance.

DO

1. Implement action items along with the awareness, training and communication plans.

CHECK

1. Documentation and Document Control:

Document energy usage on a monthly basis. Control documents by developing a procedure and assigning responsibility for data input; password protect documents for greater control.

2. Monitoring, Measurement and Analysis:

Regularly monitor, measure and analyze energy performance using the documented energy usage, watch for spikes and anomalies, and adjust plans and procedures as required.

3. Internal Audit and Non-conformance Management:

Conduct regular audits of the system to ensure continued adherence to the plan and targets. Document any non-conformance incidents and determine root causes. Develop solutions that address the root cause of the non-conformance. Adjust plans, actions and procedures as required.

4. Management Review:

Have senior management conduct regular reviews of the overall system. Request ideas for improvement and adjust plans, actions and procedures as required.

ACT

1. Continually improve energy performance by improving awareness, training and communication plans, increasing energy reduction targets and leveraging best practices to identify additional energy reduction opportunities.

BOOST YOUR BUSINESS PRODUCTIVITY!
GO LEAN AND GREEN.

ENERGY MANAGEMENT SYSTEMS: Companion tools are available online. Download the Energy Management Systems Manual Template at http://agriculture.alberta.ca/productivity.

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