

MSE 2000: 2005

A Management System for Energy



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FOREWORD

The American National Standards Institute (ANSI) is a private, non-profit organization (501(c)3) that administers and coordinates the U.S. voluntary standardization and conformity assessment system. ANSI is the official U.S. representative to the International Accreditation Forum (IAF), the International Organization for Standardization (ISO) and, via the U.S. National Committee, the International Electrotechnical Commission (IEC). ANSI is also the U.S. member of the Pacific Area Standards Congress (PASC) and the Pan American Standards Commission (COPANT).

ANSI approval of a standard is intended to verify that the principles of openness and due process have been followed in the approval procedure and that a consensus of those directly and materially affected by the standards has been achieved. A Draft National Standard was circulated to the Canvass List, consisting of a balanced group of materially affected reviewers, and to those requesting reviewer statuses during the ANSI *Standards Action* announcement period. Approval as an American National Standard requires acceptance by a minimum of 80% of reviewers casting a vote.

MSE 2000 was revised by the Georgia Tech Energy and Environmental Management Center. No patent rights or requirements for specific equipment or services are included in the standard. The use of the word “energy” refers to all primary and secondary energy resources, including water and alternative energy sources.

This second edition of MSE 2000 (ANSI/MSE 2000: 2005) replaces the first edition (ANSI/MSE 2000: 2000). The revised standard reflects a process approach and both strengthens and broadens several critical areas within the standard.

INTRODUCTION

In most organizations, management of energy is relegated to a secondary function behind raw material and human resources, productivity, quality, safety, and environmental. The significance of energy is too often dismissed because it is viewed as a specialized field outside the core business of most organizations. However, energy is an ongoing cost that can be treated as any other manageable expense. Organizations recognizing the importance of energy to the long-term viability of the organization can use this standard to manage and control energy cost and consumption.

Unfortunately, past experience indicates that resorting to crisis management techniques with energy generates only short-lived improvements. Long-term, lasting improvements in energy management can be achieved only when an organization makes energy a part of their organizational strategy. The nationally adopted management system standard for energy, ANSI/MSE 2000, describes the elements required for a lasting program of continual improvement in organizational energy management. Implementation of a permanent ANSI/MSE 2000 management system is a reasonable and practical approach to improving energy management and lowering costs.

ANSI/MSE 2000, the Management System for Energy, is a documented standard that establishes the order and consistency necessary for organizations to proactively manage their energy resources. Any management system, including those for energy, quality, safety, and environmental conformance, is a structure for opportunity identification and problem-solving that can be implemented by the employees in an organization in many different ways, depending on the organization's activities and needs. In the management system for energy, ANSI/MSE 2000, personnel evaluate the processes and procedures they use to manage energy issues and incorporate strong operational controls and energy roles and responsibilities into existing job descriptions and work instructions. They set objectives and targets for managing their energy resources. They monitor and measure energy performance indicators and evaluate their progress in all phases of energy management. MSE 2000 integrates energy into everyday business operations, and energy management becomes part of the daily responsibility for employees across the entire organization.

ANSI/MSE 2000 is a system that incorporates both the management and the technical aspects of energy management. The effective management of energy requires both to be present and integrated. Figure 1 illustrates how this integration takes place within the MSE.

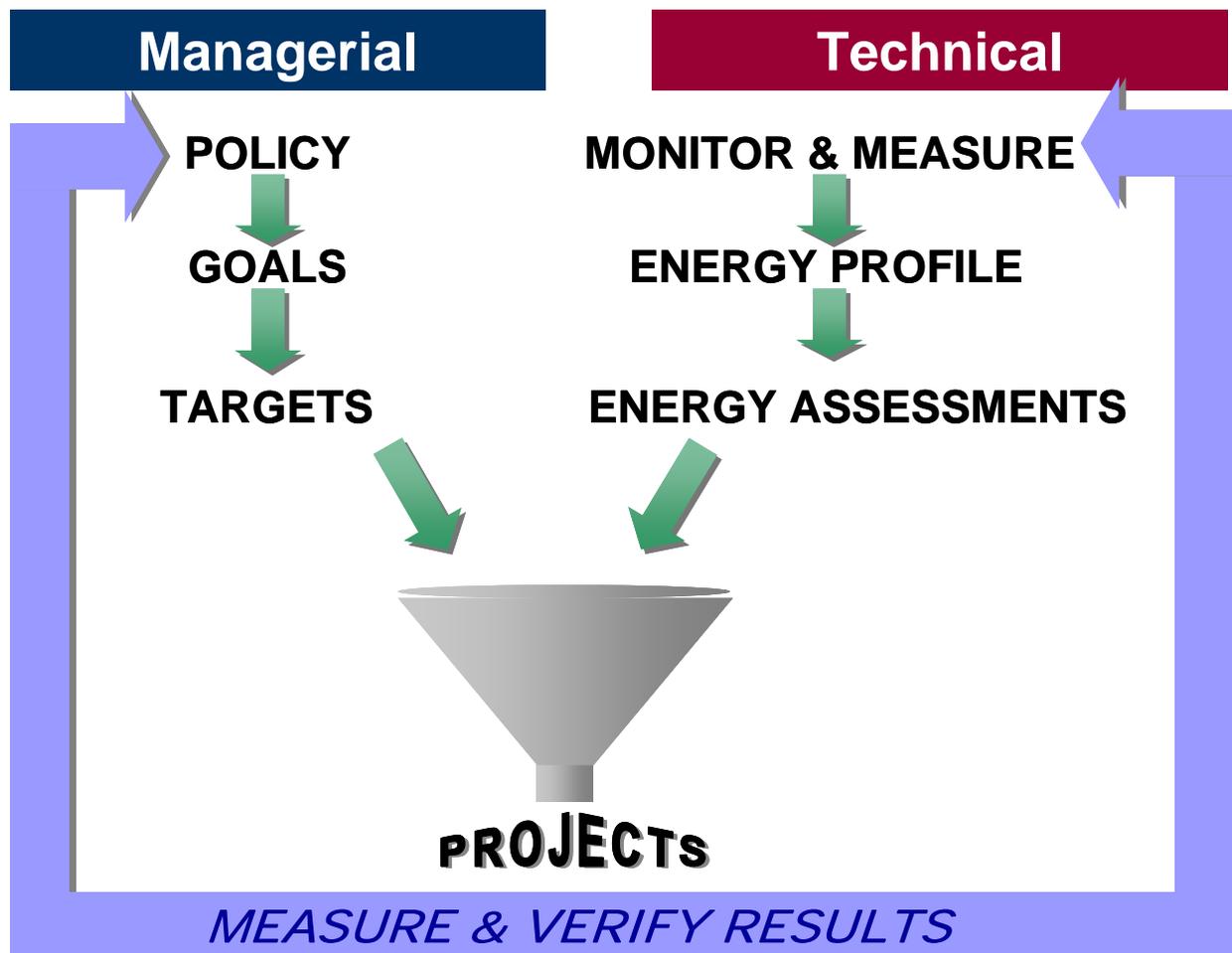


Figure 1: MSE 2000 incorporates both management and technical aspects of the management system for energy.

The general purpose of this Standard is to provide assistance to organizations implementing or improving their management system for energy. Organizations implementing ANSI/MSE 2000 recognize that comprehensive energy management is a requirement to achieve maximum benefit from advanced energy efficiency technology, simple operational and maintenance changes, and process improvements impacting energy. Direct benefits include lower energy costs, reduced environmental impact, more effective energy projects, and more efficient operations. Indirect benefits include higher employee morale, increased safety and health, and recognition as a good corporate citizen. MSE 2000 is consistent with the concept of sustainable development and compatible with diverse organizational types, structures and economic sectors.

The Standard is specifically designed to support overall business strategy by aligning all aspects of the MSE to organizational strategic goals as expressed through the energy policy. Evaluation metrics (and thus data collection) direct attention to key performance indicators, particularly those most valuable to top management. The involvement of and communication with top

management ensures strong employee awareness and support of organizational strategy and goals.

Implementation of this structured, well-defined management system for energy offers an organization numerous benefits including:

1. Reduced costs, improved efficiency, and diminished environmental impact.
2. Effective and continually improved energy performance.
3. Greater organizational involvement and competency concerning energy issues.
4. Better communication about energy management inside and outside the organization.
5. Better relationships with energy-related suppliers.

Effective energy management from implementation of ANSI/MSE 2000 yields both resource and cost savings. Reduction in the use of limited fossil fuel resources provides a benefit to the nation, as well as a significant reduction in cost to the organization. Process and behavioral changes from targeted energy management projects frequently result in reduced needs for other raw materials (such as water or feed product), thus reducing waste and disposal requirements. Immediate reduction in air emissions of nitrous oxides (NO_x), sulfur oxides (SO_x), and carbon dioxide (CO₂) follows any reduction in fossil fuel consumption, and may be the primary reason for implementation of the management system. Additionally, an ANSI/MSE 2000 management system establishes a culture of continual improvement to sustain the gains made, placing the organization in a position to forge even greater savings and energy efficiencies.

Implementation of the management system for energy can be tailored to fit the requirements of the organization, including complexity of the system, degree of documentation, and resources required. If desired, the organization can continue to gradually add more depth to the system to reap additional benefits.

ANSI/MSE 2000: A Management System for Energy

1.0 SCOPE

This document is intended as a voluntary standard for a management system for energy (MSE). It covers the purchase, storage, use and disposal of primary and secondary energy resources. The purpose of MSE 2000 is to control and reduce an organization's energy cost and energy-related environmental impact. This document is intended for any organization that uses energy or water.

This standard is designed to be compatible with both ISO 9001: 2000 and ISO 14001: 2004 systems. Comparable elements include document control, recordkeeping, management commitment, training, internal audits, corrective and preventive action, and management review. Any of these systems or programs meeting the requirements of the current versions of ISO 9001 or ISO 14001 is considered to meet the requirements of this national standard.

Annex A provides examples of an energy profile for several types of organizations. Annex B presents a table of correspondence between ANSI/MSE 2000: 2005 and the previous version of the standard (ANSI/MSE 2000: 2000). Annex C presents a table of correspondence between ANSI/MSE 2000: 2005 and ISO 14001: 2004. Annex D is a Bibliography listing relevant references and informational documents. None of these annexes is part of the normative standard. They are for information and guidance only.

2.0 NORMATIVE REFERENCES

There are no normative references at present.

2.0 DEFINITIONS

The following definitions apply to this set of system requirements.

Commissioning: Process of ensuring that a new building or energy system is designed,

installed, functionally tested, and capable of being operated and maintained according to the owner's operational needs.

Continuous Commissioning: Process where a facility, an energy system, or a piece of equipment is continuously monitored, measured, analyzed and optimized to improve performance and energy efficiency.

Energy: Primary or secondary resources that are purchased, stored, disposed, and used by equipment and processes.

Energy Baseline: Initial overview of the organization's energy system, including facts and calculations related to energy use, organizational output, key performance indicators, and financial information.

NOTE: Used as the starting point for tracking continual improvement.

Energy Profile: Regularly updated overview of the organization's energy status, including utility tracking, significant energy uses, and key performance indicators.

NOTE: See examples in Annex A.

Energy Management Project: Course of action, with a definite beginning and end, used by the organization to achieve energy goals and targets.

Energy System: Any logical equipment grouping which uses and/or produces primary or secondary energy resources.

Goal: Ends toward which effort is directed to achieve the energy policy.

Key Performance Indicator (KPI): Index that relates energy use or cost to organizational output.

NOTE: Examples include *Btu/ft²*; *Btu/piece*; *energy cost/item*; *energy cost/mile*; *Btu/patient*; *energy cost/room*.