

ANSI/MSE 2000: A Single Standard for Diverse Business Sectors

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ABSTRACT

The Energy and Environmental Management Center (EEMC), part of the Georgia Tech Economic Development Institute, has developed a comprehensive energy management standard, officially adopted by ANSI, to identify and achieve energy management goals. Known as ANSI/MSE 2000, it emphasizes training, development of standard operating procedures, energy monitoring and team-based problem solving. Key elements of implementing ANSI/MSE 2000 at three different locations: Genuine Parts Company, a U.S. Post Office Processing and Distribution Center, and Collins & Aikman, a carpet manufacturer were studied by the authors, and the results, obstacles, and benefits of the management system were determined. Implementation outcomes to be presented include:

- Establishing an organizational structure that supports long-term energy improvement,
- Overcoming obstacles to successful energy management planning,
- Moving to a unified approach in energy management,
- Creating and empowering an effective energy management team,
- Prioritizing and coordinating multiple energy management projects, and
- Sustaining energy management by monitoring cost, performance and environmental factors.

INTRODUCTION

Facility energy management in most organizations lacks clearly defined goals and objectives, assigned responsibilities, measurement of progress and corrective procedures when objectives are not met. Only when affected by catastrophic external forces like an oil embargo, electrical blackout or energy price spike does the organization even consider

any energy management effort. At these times, energy managers often resort to crisis management techniques to survive. After the urgent crisis passes, the organization returns to its relaxed pre-crisis condition with no lasting improvement in energy management practice.

To advance beyond repeatedly resorting to crisis management during an energy emergency, a structured management system with the objective of proactively controlling an organization's energy resources has been drafted and adopted. The Management System for Energy 2000 (MSE 2000) contains the elements needed to institute a stable management structure that will achieve sustainable improvements in energy efficiency. Because neither technology nor management alone can be effective in promoting and maintaining energy efficiency, MSE 2000 combines management structure with the effective selection of technology to achieve an optimal result.

MSE 2000 as a system is similar to other internationally accepted management systems that describe the structure necessary to avoid organizational chaos without being bureaucratic and sacrificing innovation. The MSE 2000 management system is defined in a standard document that identifies the required elements. The American National Standards Institute (ANSI) adopted MSE 2000 as a national standard in April 2000. Using the MSE 2000 standard as a benchmark, an organization can institute a management system for energy within its facility, be audited by a third-party registrar for compliance to the standard, and receive a certificate of registration for their management system from the auditor.

Achieving registration of a management system at a facility requires staff training, completion of assigned tasks and on-site coaching and assistance by experts specializing in management system implementation. Implementing a MSE 2000 system from scratch can take anywhere from nine months to two years depending on the resource commitment of

the organization. If the organization has an existing quality or environmental management system, the implementation time could be six months or less.

Whatever the beginning point, implementing a comprehensive management system for energy in an organization is a complex process. However, the benefits attained from implementation far out-weigh the risks and resources committed.

HOW MSE 2000 ADDRESSES ENERGY ISSUES

A successful, integrated system for energy management can be achieved by implementing the twelve elements contained in the MSE 2000 standard. Implementing these elements addresses the following organizational problems related to energy:

- **Management Commitment.** Without management support, funding for energy projects and allocation of necessary personnel can be diverted to other projects resulting in the loss of potential savings. MSE2000 requires that upper management commit to an energy policy, review its goals, and provide adequate resources.
 - **Resources.** Lack of resources, whether a lack of skilled people, a shortage of money, or lack of time, is the most common problem organizations face. Because MSE2000 requires the commitment of upper management, energy issues receive attention when business strategies and budgets are decided upon and are no longer ignored when critical resource allocation issues are discussed.
 - **Energy Market.** The continually changing status of energy deregulation has left many corporate decision makers confused. MSE2000 incorporates both external data and internal sources of information into energy purchasing decisions. Since a wide variety of factors are considered when these decisions are made, a structure is put into place to help avoid poor purchasing decisions.
 - **Energy Data.** The collection and analysis of data is crucial to the success of an energy
- plan because it facilitates comparisons, supports planning and provides a quantitative basis for sound decision making. MSE2000 requires that organizations monitor and measure energy parameters and usage pattern on a regular basis.
- **Approach.** Organizations frequently approach energy issues with a crisis mentality. MSE2000 helps alleviate crisis management because an integrated energy management approach for a number of reasons. The system incorporates solutions into operational procedures so that the same problems are not addressed over and over. It also requires that corrective or preventive actions be taken so that problems are fixed early or avoided entirely.
 - **Priorities.** To move from a reactive to a proactive approach regarding energy issues, organizations must directly tie energy projects to goals set by upper management. These goals help prioritize projects and sustain commitment to achieving results. The structured approach provided by MSE2000 offers continuity to an organization's energy program.
 - **Communication.** The responsibility for energy issues may be spread across many functions within an organization. The effectiveness of energy-related decisions is limited because no one has a complete picture. By requiring an interdisciplinary team with established procedures and an energy coordinator, MSE2000 formalizes communication, which minimizes confusion and inadequate information for decision-making.
 - **Focus.** Frequently, an energy program fails when its champion leaves or moves to a different position within the organization. By requiring a team with an energy coordinator, MSE2000 attains multiple objectives. The system becomes institutionalized so the program can continue if one person leaves, thereby ensuring continuity. It helps provide relevant training for new and existing team members and it helps energy issues receive a broadened vision by offering the perspectives of many participants.

- **Follow-Through.** At times, the immediate solution to an energy problem does not consider its root cause. MSE2000 assures follow-through so that the effectiveness of the solution for a given problem can be evaluated. When validated, the solution is incorporated into the procedures so that it becomes a permanent part of the operation. This method also helps eliminate the recurrence of energy problems.
- **Addressing Problems.** As previously mentioned, many organizations face recurring energy problems that sap resources and frustrate management. MSE2000 provides a standardized, integrated approach to handling these difficulties by enabling organizations to find the right solution for each problem and take actions with long-term effects in order to minimize their recurrence.

CASE STUDIES

At the present time, four organizations have embarked on programs to implement MSE 2000. Following is a discussion of the MSE 2000 implementation process at three facilities from different economic sectors: industry, government and commercial.

Industrial Facility - Collins & Aikman Organization

Collins & Aikman manufactures carpet that is almost exclusively used in commercial applications. It has sales of approximately \$200 million per year and 800 employees. The customers of their products are primarily hospitals, government buildings, schools, offices and airports. They currently have five facilities within a two-mile radius of each other located in northern Georgia. Each of the facilities has different processes, equipment and functions. Two of the five facilities operate three shifts daily from five to seven days per week depending on the time of year. Their busiest season is summer because many schools replace carpet at that time. The other three facilities generally operate two shifts daily.

The manufacturing process utilizes four of the five facilities to make a completed product. It begins at the Yarn & Dye plant. This is where the yarn is dyed and twisted to create the desired color combinations and the yarn is

prepared for tufting. It is then shipped to the nearby Tufting plant where it is made into carpet without backing. The product is then shipped to the Finishing plant where a vinyl or recycled backing is added. At this facility the carpet can also be made into 18" tiles. The final facility used in the manufacturing process is the Distribution Service Center. The finished product is shipped to the customer from this location. The fifth of the company facilities is a stand-alone operation that recycles existing carpet into carpet backing.

Reasons for Implementing MSE2000

In 1993, Collins & Aikman started an Environmental Resource Conservation Team. Upper management initiated the team to promote the company's environmental orientation as well as reduce production costs. The team started to track usage of electricity, natural gas, and water through utility bills. They discovered trends by analyzing these data and using this information as a benchmark to identify reductions in energy usage per square yard of carpet produced. Since the team's inception, energy usage has been reduced by approximately 33% or about 5-6% per year.

Prior to the implementation of MSE2000, the Environmental Resource Conservation Team would meet at the end of each year to evaluate projects that could be realistically implemented in the following year. However, there was no explicit energy goal or policy and no consistent approach to energy management. Collins & Aikman chose to implement MSE2000 in order to take the next step in achieving a more sophisticated and integrated energy management plan for its organization. It assures a consistent approach to energy management problem solving as well as continuity in planning as members of the energy team change.

Goals

Selecting an energy coordinator and developing an energy manual were two major steps taken by Collins & Aikman in implementing MSE 2000. Their energy team was already comprised of 10 individuals from Engineering, Maintenance, Technical Services and Management personnel. All corporate functions were represented. MSE2000 requires the appointment of an energy coordinator to lead the team and help focus its efforts. In the case of Collins & Aikman, the energy coordinator is the

company's engineer responsible for environmental compliance. As part of this role, he also participates in equipment evaluation and capital purchases.

The energy coordinator also played a key role in drafting their energy manual. He presented it to the team where it was reviewed and modified by consensus. The team wanted their energy manual to be comprehensive, but not so strict that employees would have trouble complying with its requirements. The energy coordinator incorporated the decisions of the group into the manual and it was completed in a timely manner with minimal revisions.

Governmental Facility - U.S. Postal Service Organization

A pilot implementation of the MSE 2000 management system was initiated at the U.S. Postal Service Atlanta Processing and Distribution Center (P&DC) in early 2001. This facility is one of about fifty large centers where mail from the region is sorted for distribution. This facility is responsible for all distribution operations in the city of Atlanta and outlying areas south of the city. The Atlanta P&DC contains 450,000 square feet with annual electricity costs of over \$900,000. The facility operates 24 hours a day, 7 days per week and is fully air-conditioned. The status of MSE 2000 implementation at the facility was provided by the Center's Energy Coordinator.

The Atlanta District of the Postal Service consists of approximately 350 local postal facilities in Metro Atlanta and north Georgia. In addition to the building facilities, the Atlanta District has over 13,000 employees and maintains a fleet of 4,500 delivery vehicles. With this many buildings and vehicles, energy is a constant concern for the Postal Service.

Reasons for Implementing MSE2000

The Postal Service, like all departments of the federal government, is under legislative mandate to improve energy efficiency. Savings requirements were initially established by the 1992 Energy Policy Act (Epack) and revised upward by Executive Order later in the same decade. Given their current strict savings mandate, a 30 percent reduction in 1985 usage levels by 2005, management decided some form of structured energy management plan was necessary.

In addition to the regulatory mandates driving Postal Service energy efficiency, energy management is an important business strategy to reduce total operating expenses (TOE). The Postal Service cannot afford to waste energy in these times of limited funds. The inefficient use of energy adds to operating cost and affects the ability of the Postal Service to be competitive. The Postal Service spends about \$350 million annual for facility energy (not including vehicles). Experts agree that an aggressive program to use energy more efficiently can significantly reduce operating costs without any adverse impact on the postal mission. A 20 percent reduction in energy use is not unreasonable and would result in a \$70 million cost avoidance.

Before starting MSE 2000, energy management at the facility was haphazard at best. Most postal facilities do not have a designated energy coordinator. Locations with a designated coordinator, it is an adhoc position that functions unofficially whenever they get a chance. Energy for the most part was not really a priority. There was no budget for facility energy management or dedicated money to do any energy management projects.

Goals

Headquarters drafted an energy policy for the entire organization. This policy is contained in an energy manual that you're supposed to read in your discretionary time. The energy emphasis was just a headquarters thing. There was no mandate or inspection to ensure you were following the recommendations contained in the manual. At one point many years ago headquarters came out with a mandate about temperature control, but that was the only energy initiative that they really pushed.

The initial goal of implementation is identification of an energy management team and energy coordinator to direct it. The energy team at the Atlanta P&DC consists of the Atlanta District environmental engineer, P&DC plant manager, and manager of maintenance operations support for the building. In addition to these members who are directly responsible for energy management within the facility, the maintenance manager, supervisor of maintenance operations, one senior mail handler, and a maintenance-engineering specialist also participate on the facility's energy team. The

team was selected to represent management, building maintenance, automated mail processing, production employees and District level support staff. The manager of maintenance operations support, a position responsible for building and processing equipment, serves as energy coordinator.

The District environmental engineer, who serves on the energy team, drafted an energy policy statement for the local facility. After a policy draft was completed, the rest of the team reviewed it to make additions or deletions. Finally, the policy was forwarded to the plant manager for approval.

After completing the energy policy and energy manual, the team turned their attention to other goals of the management system. Goals were derived from the combination of a third-party energy assessment and capital projects recommended by the Energy Service Company. After these activities identified numerous energy saving recommendations in the facility, the team is responsible for prioritizing opportunities and evaluating implementation approaches.

Commercial Facility - Genuine Parts Company Organization

Genuine Parts Company (GPC) is an international firm with over \$8 billion in sales and 1800 facilities across the United States, Canada, and Mexico. It is comprised of four main businesses: the Automotive Parts Group, the Industrial Parts Group, the Office Products Group, and the Electrical/Electronic Materials Group.

The Automotive Parts Group is the company's largest division offering NAPA brand automotive parts, accessories, and service items to both professional and do-it-yourself customers. With over 1000 retail locations and supporting distribution centers, this division contributed approximately \$4.2 billion or 50% of the company's net sales in 2000. The Industrial Parts Group distributes industrial replacement parts and supplies including hoses, belts, and material handling equipment to enable customers to maximize inventory management. This business division serves more than 165,000 customers and contributed \$2.3 billion in net sales in 2000. The third division, the Office Products Group, distributes over 30,000 business products from 44 distribution centers to over

6,000 independent and national business products resellers. It contributes 16% to GPC's net sales annually. The smallest division of GPC is the Electrical/Electronic Materials Group which manufactures and supplies a full range of critical products for electronic and electrical apparatus including insulation and conductive materials as well as test equipment, assembly tools and customized parts.

Reasons for Implementing MSE 2000

GPC spent approximately \$25 million for the year ending December 2000 for utility services including electricity, natural gas, water, sewer, and trash disposal. This is one of the company's most significant general administrative expenses. GPC experienced an 18% increase in this expense from the previous year for the entire company with some facilities individually incurring a 20-40% increase.

Goals

Upper management mandated that this expense be reduced, or at the least, its rate of increase minimized. Middle management was charged with this task. They determined that the expertise needed to achieve this objective was not available in-house. Energy procurement and management was well beyond its area of core competence. After much research and discussion, management decided that outside experts were needed to address the complexity and diversity of energy-related issues. This was the impetus for GPC's search for a vendor who could provide the services necessary to identify and capture potential energy savings.

They prepared a Request for Proposal (RFP) to list the services they wanted from a vendor. GPC would begin by collecting and maintaining utility billing information for all facilities in a central Internet-based system. This system would be used as the data repository to support analysis so that billing errors, inconsistencies and penalties could be avoided. As a first step, GPC wanted a vendor to set up the accounts in this system, verify and review the incoming bills and perform data entry. The vendor would be responsible for analyzing the company-wide data and ultimately reporting to GPC management the results of these analyses to identify and implement cost saving opportunities. In addition, GPC wanted a vendor to perform a rate review for all facilities and determine the optimal rate(s) for each location.

Although GPC did not request demand-side services as part of its RFP, it realized that the analysis and reports provided by the vendor could possibly identify demand-side management (DSM) opportunities at particular locations. However, action would not be taken on any DSM projects until after the initial goals are achieved and the demand-side projects are prioritized.

GPC also requested that an outside vendor provide bill payment services. The company is currently able to process invoices very inexpensively due to economies of scale. However, the ability to shift bill payment responsibilities to an outside entity and merge this data with usage and cost information in a single repository will increase data collection, processing and reporting efficiencies.

RESULTS

The examples below highlight how each of the case studies handled challenging issues, each in a way that best suits the needs of the organizations' structure and culture to provide continued results.

Establishing an organizational structure that supports long-term energy improvement

- **Collins & Aikman** already had an informal energy team, however, they did not have an energy coordinator or an energy manual. As these two critical aspects were added to their energy plan they began to embed a system to address energy issues that transcends structural and personnel changes within the organization. As an established ANSI standard, MSE2000 establishes the framework for instituting these two key components so that a formalized energy management system can successfully function.
- **United States Postal Service** already had an energy manual that was developed and distributed by the USPS Headquarters. The manual recommended energy savings measures, but there was no leader to initiate implementation. Energy was not a priority within the organization and without an

energy coordinator; energy management was pursued haphazardly. MSE2000 helped this USPS facility develop and adopt an energy manual to specifically meet the challenges faced at their facility. By establishing an energy coordinator with identifiable responsibilities, who reports to an energy team made up of facility personnel, there is an ongoing dynamic that has been created to maintain momentum. Since the energy team members come from various departments, all functions within the facility are represented in the decision making process.

- **Genuine Parts** had no organizational framework to deal with energy-related issues. Middle managers were charged with developing a strategy to reduce energy expenditures. They had virtually no information or in-house expertise on this subject. With the assistance of Georgia Tech, they identified their objectives and their short and long-term goals. This was documented in their Request for Proposal that was used as the basis for selecting an outside vendor who could supply them with this expertise. By selecting a vendor that understands their organization and their energy requirements, they hope to develop a long-term relationship in order to implement a versatile energy strategy that can accommodate new goals as necessary.

Overcoming obstacles to successful energy management planning

- **Collins & Aikman** originally planned on implementing MSE2000 at all five facilities simultaneously. Varying work assignments at the plants bogged down the process and minimal headway was being made. To overcome this problem, the Energy Team decided to begin at the Yarn and Dye plant. By focusing on the operations at one facility, the Team

was able to more quickly identify and document the necessary procedures and instructions. This framework was then used as the approach for the other plants. An additional obstacle, as presented by the Energy Coordinator, was that the personnel at the plants did not understand what MSE2000 is and why it was being implemented. The Energy Team made a concerted effort to inform the workers of the benefits of MSE2000 to obtain their support and cooperation.

- **USPS** found it difficult to find meeting times that would accommodate the schedules of all the energy team members. However, the energy coordinator persevered and the team is beginning to slowly make progress.
- **Genuine Parts** found the complex issues surrounding energy purchasing and energy management daunting. They quickly realized that they did not have the in-house expertise needed to address their problems. Even after talking with vendors and service providers, they realized that they needed an impartial expert to guide them through the process of understanding their options and selecting a partner. An Internet search identified an independent consultant that offers this capability, and a contact for assistance has been executed.

Moving to a unified approach in energy management

- **Collins & Aikman** identified three main areas that helped them unify their approach to energy management. The first was educating team members on the elements of MSE2000 and how to apply them. The second was the appointment of an energy coordinator to keep the team focused and to facilitate communication. The third was the

development of a comprehensive energy manual.

- **USPS:** Since energy issues were handled in an ad hoc manner prior to the implementation of MSE2000, there was no single, unified approach to solving energy problems and increasing energy savings. Currently, the organization has a clear energy goal agreed upon by the team members and a well-defined method for problem resolution and project prioritization.
- **Genuine Parts** is currently in the process of building a partnership with its selected vendor. This partner will help them identify priorities, set a project schedule and create a long-term strategy. GPC is acquiring the expertise they need by building a synergistic relationship with an outside consultant to help them accomplish their energy goals.

Creating and empowering an effective energy management team

- **Collins & Aikman** already had an established Energy Team but they did not have an Energy Coordinator. Their current team is made up of 10 members, representing all functional areas within the organization. Although the Energy Coordinator leads the team, they generally make decisions, prioritize projects, and resolve conflicts by consensus. Final authority for expenditures lies with the Director of Manufacturing who is also a member of the Energy Team.
- **USPS** created an interdisciplinary team consisting of management, maintenance, operations, environmental and safety personnel. The team identifies and prioritizes energy projects for consideration by plant management. The energy coordinator presents these recommendations to management

and funding levels are decided upon.

- **Genuine Parts** formed an ad hoc team of managers to initially assess their energy management options. The Manager of Corporate Logistics & Process spearheaded this effort. The Vice Presidents of Operations for each of the company's subsidiaries have also been involved. In some cases, these V.P.s have sent the individuals responsible for energy within their divisions to represent them at these meetings. Other team members include personnel from Accounts Payable. Their input was important in helping to determine the cost-effectiveness of outsourcing bill payment along with the other energy management services provided by the vendors. In addition, the Vice President of Logistics and staff members from their outside consultant were in attendance. Meetings to this point have focused on three areas: the fundamentals of energy purchasing strategies, the key points of world-class energy management, and vendor presentations.

Prioritizing and coordinating multiple energy management projects

- **Collins & Aikman** began energy management in earnest with the formation of their environmental resource conservation team in 1993. This was followed by MSE 2000 implementation planning in late 2000. With a target energy cost savings of 5 percent, the energy team annually reviews this goal with respect to a list of projects that may contribute toward it. Depending on the quality of projects, the savings target is maintained or reduced appropriately. Project priority decisions are done by team consensus with the ultimate authority resting with the Director or Manufacturing.

- **USPS:** As a long-term plan to quantify energy reductions and associated dollar savings (i.e. engineering estimates, metering, etc.), the facility will require their ESCO, Shared Energy Savings, to install metering on all retrofits. As a matter of standard protocol, the facility will require metering and an independent consultant going around with the ESCO to verify that their estimated savings are actually being achieved.

Currently, the energy and cost savings from MSE 2000 have been minimal because the system is still in the startup phase. However, the establishment of an energy management structure and comprehensive plan put the facility in a position to achieve significant savings in the future. An independent energy assessment revealed low-cost/no-cost savings opportunities of almost \$74,000 (~8% savings). When capital improvements are included, the savings potential exceeds 15 percent. The Postal Service plans to handle low-cost/no-cost measures with internal resources while capital projects will be installed by the ESCO.

- **Genuine Parts:** Because Genuine Parts is outsourcing energy management functions; the company has less concern about managing multiple projects. GPC is depending on their outsourcer to synthesize the energy data and make suggestions on project opportunities. Initially, they will focus on the regional distribution centers for projects. Energy projects must achieve an 18-month or less payback to be considered. Because GPC's energy management objective is cost savings, projects that meet the 18-month hurdle rate and generate the largest savings will be chosen.

Because GPC is a large and diverse organization, the corporate energy team will be responsible for

prioritizing projects recommended by the outsource firm. After identifying viable projects, the headquarters team will turn them over to the local facility for completion.

Sustaining energy management by monitoring cost, performance and environmental factors

- **Collins & Aikman** started monitoring energy usage in 1993 as an adjunct to the environmental resource conservation team. The team tracked electricity, natural gas and water consumption for the plants and calculated an energy use index from the energy and production data. Since 1993 the company has reduced energy consumption per yard of carpet by about 33 percent.

MSE 2000 implementation did not require any additional metering, but a gas meter was added to the thermal oxidizer because it was determined that operating temperature adjustments could optimize that device. The intent of the extra meter is to quantify energy usage and savings for this piece of equipment following adjustment.

No specialty software has been purchased for monitoring energy. Monthly energy consumption and production data are entered, and a revised energy chart is produced. At the present time, energy consumption at all five plants is combined and divided by production output to yield the energy used per unit of carpet. In the future, energy usage and production will be separated for each plant so that energy usage at each stage of production can be determined. This will allow the Btus per square yard for yarn spinning and dyeing, carpet tufting, and finishing to be found. Determining energy consumption for a part of the manufacturing process will make inefficiencies

more apparent and result in greater energy saving opportunity.

- **USPS:** One result of the MSE 2000 implementation has been setting up a spreadsheet program that is used to track energy usage and calculate a facility energy index. A utility program has been acquired and is used to prepare monthly energy reports. The facility has arranged with the local utility (Georgia Power) to access their electrical account data. The energy coordinator will input billing data into the program, and the software will prepare energy reports.
- **Genuine Parts:** For retail facilities and distribution centers, energy is a significant component of the profit and loss statement. Prior to implementing structured energy management, GPC employed just two benchmark energy indicators for a facility both based on cost, current total energy cost (electricity, gas, and water) compared to a year ago and current energy cost compared to a month ago. While these indicators can reveal significant variations in energy cost, they do not reveal 1 or 2 percent variations very easily. Comprehensive energy management planning was initiated based on a double-digit rise in energy cost experienced during 2001.

GPC first became aware of their energy-tracking limitations when they approached a consultant for assistance in dealing with their large energy cost increases. Because their energy data was limited to cost alone, it was not possible to determine if the price rise was due to rate increases, greater usage, or a combination. The consultant convinced them of the importance of usage data, kWh, kW, therms, and energy indexes, \$/sf-yr, Btu/sf-yr, in addition to cost.

GPC decided that using internal resources to monitor energy resources would be expensive and beyond the scope of their expertise, but they realized the value of this activity and settled on outsourcing purchasing and monitoring functions. The consultant assisted with GPC in developing a request for proposal (RFP) and evaluating submissions from vendors. An outsource provider has been selected and negotiations on the service to be provided are underway.

CONCLUSIONS

The institution of MSE 2000 systems at three different types of organizations has demonstrated its flexibility in addressing the aspects of energy critical to each. MSE 2000 is showing its ability to effectively manage energy resources and improve energy efficiency of at all three locations. Factors important to the success of an MSE 2000 implementation include a commitment by top management to improved energy management, a management team representing all the facility areas with responsible for energy, and a comprehensive plan of implementation detailing specific activities, completion times and persons responsible.

When fully implemented and operating, ANSI/MSE 2000 contains all the elements necessary to establish a stable, yet flexible, management system capable of addressing any energy issue an organization faces.