



SLOVENSKI STANDARD

SIST EN 16001:2009

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Sistem upravljanja z energijo - Zahteve z navodili za uporabo

Energy management systems - Requirements with guidance for use

Energiemanagementsysteme - Anforderungen mit Anleitung zur Anwendung

Systèmes de management de l'énergie - Exigences et lignes directrices pour leur utilisation

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ICS:

27.010	Prenos energije in toplote na splošno	Energy and heat transfer engineering in general
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EUROPEAN STANDARD

EN 16001

NORME EUROPÉENNE

EUROPÄISCHE NORM

July 2009

ICS 27.010

English version

Energy management systems - Requirements with guidance for use

Systèmes de management de l'énergie - Exigences et recommandations de mise en oeuvre

Energiemanagementsysteme - Anforderungen mit Anleitung zur Anwendung

This European Standard was approved by CEN on 6 June 2009.

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Foreword

This document (EN 16001:2009) has been prepared by CEN/CLC BT/TF 189 “Energy Management and related services – General requirements and qualification procedures”, the secretariat of which is held by UNI.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by January 2010, and conflicting national standards shall be withdrawn at the latest by January 2010.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.

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Introduction

The overall aim of this European standard is to help organizations establish the systems and processes necessary to improve energy efficiency. This should lead to reductions in cost and greenhouse gas emissions through systematic management of energy. This standard specifies requirements for an energy management system to enable an organization to develop and implement a policy and objectives which take into account legal requirements and information about significant energy aspects. It is intended to apply to all types and sizes of organizations irrespective of any geographical, cultural and social conditions. This standard applies to the activities under the control of an organization.

This standard for energy management systems can be used independently or integrated with any other management system. To facilitate its use, the structure of this standard is similar to the structure of ISO 14001.

The basis of the approach is shown in Figure 1. The success of the system depends on commitment from all levels and functions of the organization, and especially from top management. A system of this kind enables an organization to develop an energy policy, establish objectives and processes to achieve the policy commitments, take action as needed to improve its performance and demonstrate the conformity of the system to the requirements of this European standard.

There is an important distinction between this European standard, which describes the requirements for an organization's energy management system and can be used for certification/registration and/or self-declaration of an organization's energy management system, and a non-certifiable guideline intended to provide generic assistance to an organization for establishing, implementing or improving an energy management system. Energy management encompasses a full range of issues, including those with strategic and competitive implications. Demonstration of successful implementation of this European standard can be used by an organization to assure interested parties that an appropriate energy management system is in place.

NOTE This European standard is based on the methodology known as Plan-Do-Check-Act (PDCA). PDCA can be briefly described as follows:

- Plan: establish the objectives and processes necessary to deliver results in accordance with the organization's energy policy.
- Do: implement the processes.
- Check: monitor and measure processes against energy policy, objectives, targets, legal obligations and other requirements to which the organization subscribes, and report the results.
- Act: take actions to continually improve performance of the energy management system.

This European standard contains only those requirements that can be objectively audited.

This European standard does not establish absolute requirements for energy performance beyond the commitments in the energy policy of the organization and its obligation to comply with relevant legislation. Thus, two organizations carrying out similar operations but having different energy performance can both conform to its requirements.

Adoption of EN 16001:2009 will contribute to the setting up of a continuous improvement process that will lead to more efficient energy use. It will encourage organizations to implement an energy monitoring plan as well as energy analysis.

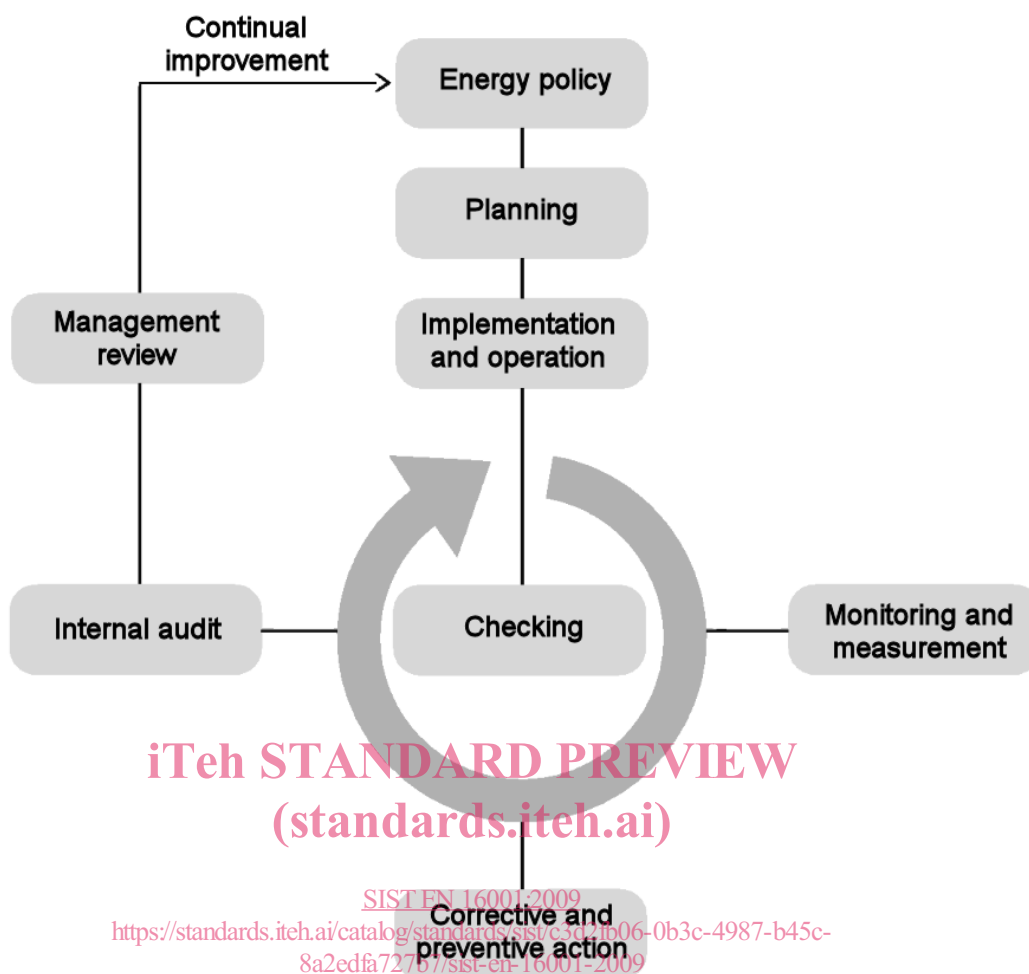


Figure 1 — Energy management system model for this standard

The requirements of this European standard can be aligned or integrated with those of other management systems, such as those for quality, environment, occupational health and safety, financial or risk management. It is therefore possible for an organization to adapt its existing management system(s) in order to establish an energy management system that conforms to the requirements of this European standard.

See website www.cen.eu for cross-references to other management systems standards.

The level of detail and complexity of the energy management system, the extent of documentation and the resources devoted to it depend on a number of factors, such as the size of an organization, the scope of the system, and the nature of its activities and products (including services). This may be the case in particular for small- and medium-sized enterprises.

For ease of use, the clause numbers in the body of this European standard and in Annex A have been related. For example, 3.3.3 and A.3.3 both deal with energy objectives, targets and programme(s), and 3.5.5 and A.5.5 both deal with internal audit of the energy management system.

EN 16001:2009 (E)**1 Scope**

This standard specifies requirements for establishing, implementing, maintaining and improving an energy management system. Such a system takes into account legal obligations with which the organisation must comply and other requirements to which it may subscribe. It enables the organization to take a systematic approach to the continual improvement of its energy efficiency.

This standard lays down requirements for continual improvement in the form of more efficient and more sustainable energy use, irrespective of the type of energy. This standard does not itself state specific performance criteria with respect to energy.

This standard is applicable to any organization that wishes to ensure that it conforms to its stated energy policy and to demonstrate such conformance to others. This can be confirmed by self-evaluation and self-declaration of conformance or by certification of the energy management system by an external organization.

2 Terms and definitions

For the purposes of this European standard, the following terms and definitions apply.

2.1**energy**

electricity, fuel, steam, heat, compressed air and other like media

NOTE Energy is an abstract concept. The international unit for energy is Joule (J).

2.2**energy use**

manner or kind of application of energy

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EXAMPLE Ventilation, heating, processes, production lines

NOTE The quantity of the energy applied is expressed as energy consumption.

2.3**energy consumption**

amount of energy used

NOTE 1 Energy consumption is a widely used term, although technically incorrect because energy is transformed or converted but cannot be consumed.

NOTE 2 The manner or kind of application of energy is expressed as energy use.

2.4**energy aspect**

element of the organization's activities, goods or services that can affect energy use or energy consumption

NOTE An energy aspect is significant if it accounts for a high proportion of total energy consumption and has a potential for one or more of the following:

- More efficient energy use;
- Increased use of embedded renewable energy;
- Increased energy exchange with the rest of society.

2.5**energy factor**

quantifiable and recurrent physical determinant of energy consumption

EXAMPLE Production throughput, temperature, humidity, wind speed, occupation rate.

2.6**energy management system**

set of interrelated or interacting elements of an organization to establish energy policy and objectives and to achieve those objectives

2.7**energy target**

detailed energy performance requirement, quantifiable, applicable to the organisation or parts thereof, that arise from the energy objective and that needs to be set and met in order to achieve those objectives

2.8**energy policy**

statement by the organization of its intentions and principles in relation to its overall energy performance which provides a framework for action

2.9**energy objective**

overall energy goal, consistent with the energy policy that the organization sets itself to achieve

2.10**energy efficiency**

ratio between an output of an organization's activities, goods or services, and an input of energy

2.11**energy performance**

measurable result of the organization's energy management system

NOTE

In the context of the energy management system, results can be measured against the organization's energy policy, objectives, targets and other energy efficiency requirements.

2.12**energy management programme**

action plan specifically aimed at achieving energy objectives and targets

2.13**organization**

company, corporation, firm, enterprise, authority or institution, or part or combination thereof, whether incorporated or not, public or private, that has its own functions and administration that has the authority to control its energy use and consumption

2.14**preventive action**

action to eliminate the cause of a potential nonconformity

2.15**corrective action**

action to eliminate the cause of detected nonconformity

2.16**continual improvement**

activities that result in improved energy performance and which are performed continually by the organization

EN 16001:2009 (E)**2.17****procedure**

specified way to carry out an activity or a process

2.18**top management**

person or group of people who, at the highest level, direct and control the organization

2.19**document**

information and its supporting medium

2.20**record**

document stating results achieved or providing evidence of activities performed

2.21**audit**

systematic, independent and documented process for obtaining evidence and evaluating it objectively to determine the extent to which the energy management system complies with the criteria set by the organization

2.22**auditor**

person with the competence to conduct an audit

2.23**nonconformity**

non-fulfilment of a requirement

2.24**interested party**

person or group concerned with or affected by the energy performance of the organization

2.25**energy performance indicator**

ratio chosen by the organization to monitor energy performance

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3 Energy management system requirements**3.1 General requirements**

The organization shall:

- a) establish, document, implement and maintain an energy management system in accordance with the requirements of this standard;
- b) define and document the scope and the boundaries of its energy management system;
- c) determine and document how it will meet the requirements of this standard in order to achieve continual improvement of its energy efficiency.

3.2 Energy policy

Top management shall establish, implement and maintain an energy policy for the organization. This energy policy shall state the organization's commitment for achieving improved energy performance. Top management shall ensure that the energy policy:

- a) defines the scope and boundaries of the energy management system;
- b) is appropriate to the nature and scale of, and impact on, the organization's energy use;
- c) includes a commitment to continual improvement in energy efficiency;
- d) includes a commitment to ensure the availability of information and of all necessary resources to achieve objectives and targets;
- e) provides the framework for setting and reviewing energy objectives and targets;
- f) includes a commitment to comply with all applicable requirements relating to its energy aspects, whether legally required or agreed to by the organization;
- g) is documented, implemented, maintained and communicated to all persons working for and on behalf of the organization;
- h) is regularly reviewed and updated;
- i) is available to the public.

3.3 Planning

3.3.1 Identification and review of energy aspects

The organisation shall conduct an initial review of its energy aspects. The review of energy aspects shall be updated at predefined intervals. These reviews shall prioritise significant energy aspects for further analysis.

These reviews of energy aspects shall include the following:

- a) past and present energy consumption and energy factors based on measurement and other data;
- b) identification of areas of significant energy consumption, in particular of significant changes in energy use during the last period;
- c) an estimate of the expected energy consumption during the following period;
- d) identification of all persons working for and on behalf of the organization whose actions may lead to significant changes in energy consumption;
- e) identification and prioritisation of opportunities for improving energy efficiency.

The organization shall maintain a register of opportunities for saving energy.

Each review shall be documented.

3.3.2 Legal obligations and other requirements

The organization shall:

- a) identify and have access to the applicable legal requirements and other requirements to which the organization subscribes related to its energy aspects,
- b) determine how these requirements apply to its energy aspects.

The organization shall ensure that these legal obligations and other requirements to which the organization subscribes are taken into account in the energy management system.

EN 16001:2009 (E)**3.3.3 Energy objectives, targets and programme(s)**

The organization shall establish, implement and maintain documented energy objectives and targets, at the relevant functions and levels within the organization.

The objectives and targets shall be consistent with the energy policy, including the commitments to improvements in energy efficiency and to comply with applicable legal obligations and other requirements to which the organization subscribes. The organization shall set specific targets for those controllable parameters that have a significant impact on energy efficiency. The energy objectives and target(s) shall be measurable and documented, and a time frame set for achievement.

When establishing targets, the organization shall consider the significant energy aspects identified in the review as well as its technological options, its financial, operational and business conditions, legal requirements and the views of interested parties.

The organization shall establish and maintain energy management programmes which shall include:

- a) designation of responsibility;
- b) the means and time frame by which individual targets are to be achieved.

The energy objectives, targets and programme(s) shall be documented and be updated at pre-determined intervals.

3.4 Implementation and operation**3.4.1 Resources, roles, responsibility and authority**

Top management shall ensure the availability of resources essential to establish, implement, maintain and improve the energy management system. Resources include human resources, specialized skills, technology and financial resources.

Roles, responsibilities and authorities shall be defined, documented and communicated in order to facilitate effective energy management.

The organization's top management shall designate a management representative who, irrespective of other responsibilities, shall have defined roles, responsibility and authority for:

- a) ensuring that an energy management system is established, implemented and maintained in accordance with this standard;
- b) reporting on the performance of the energy management system to top management for their review, with recommendations for improvement.

NOTE The management representative may be designated as energy manager.

3.4.2 Awareness, training and competence

The person designated in 3.4.1 shall be appropriately competent and qualified in energy and energy efficiency improvements.

The organization shall ensure that its employees and all persons working on its behalf are aware of:

- a) the organization's energy policy and energy management programmes;
- b) the energy management system requirements, including the activities of the organization to control energy use and improve energy performance;