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Energy management systems - Requirements with guidance for use

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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of an identical text or by endorsement, at the latest by January 2010, and conflicting national standards shall be withdrawn at the latest by January 2010.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.

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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.

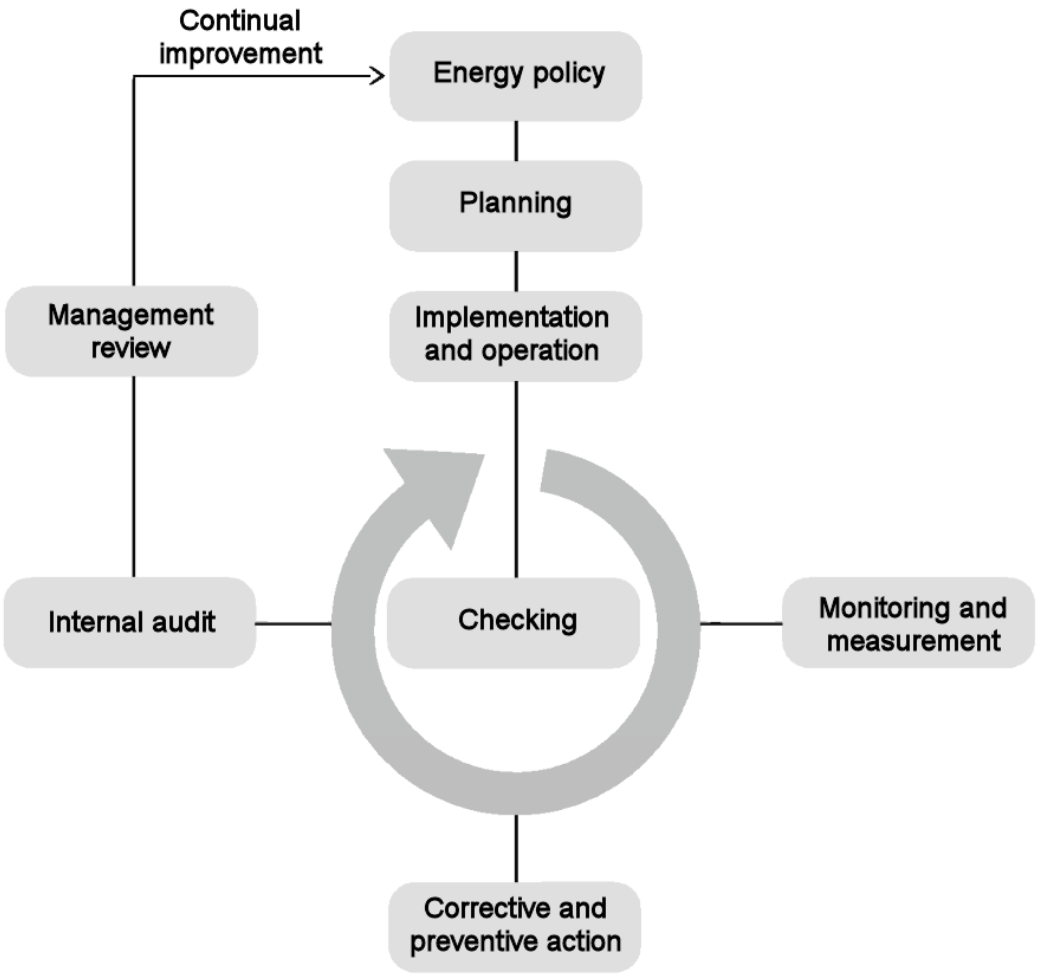

Figure 1 — Energy management system model for this standard

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.

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

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