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Energetske presoje - 1. del: Splošne zahteve

Energy audits - Part 1: General requirements

Energieaudits - Teil 1: Allgemeine Anforderungen

Audits énergétiques - Partie 1: Exigences générales

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Energy audits - Part 1: General requirements

Audits énergétiques - Partie 1: Exigences générales

Energieaudits - Teil 1: Allgemeine Anforderungen

This draft European Standard is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee CEN/CLC/JTC 14.

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Recipients of this draft are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.Recipients of this draft are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

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European foreword

This document (prEN 16247-1:2020) has been prepared by Technical Committee CEN/CLC/JWG 14 “Energy audits”, the secretariat of which is held by BSI.

This document is currently submitted to the CEN Enquiry.

This document will supersede EN 16247-1:2012.

This part covers the general requirements common to all energy audits. There are four further parts of EN 16247, which provide additional material to Part 1 for four specific sectors.

The other parts of EN 16247 will be:

— *Energy audits — Part 2: Buildings*;

— *Energy audits — Part 3: Processes*;

— *Energy audits — Part 4: Transport*;

— *Energy audits - Part 5: Competence of energy auditors.*

Introduction

An energy audit is an important step for an organization, whatever its size or type, wanting to improve its energy efficiency, reduce energy consumption and bring related environmental and other benefits.

This document defines the attributes of a good quality energy audit. It states the requirements for energy audits and corresponding obligations within the energy auditing process. It recognizes that there are differences in approach to energy auditing in terms of scope, aims and thoroughness, but seeks to harmonize common aspects of energy auditing in order to bring more clarity and transparency to the market for energy auditing services. The energy audit process is presented as a simple chronological sequence; this does not preclude however repeated iterations of certain steps.

This document applies to commercial, industrial, residential and public-sector organizations. This document does not deal with the energy audit programme/scheme properties (such as programme administration, training of energy auditors, quality control issues, energy auditors' tools, etc.).

1 Scope

This document specifies the requirements, common methodology and deliverables for energy audits. It applies to all forms of establishments and organizations, all forms of energy and uses of energy. This document covers the general requirements common to all energy audits. Specific energy audit requirements complete the general requirements in separate parts dedicated to energy audits for buildings, industrial processes and transport.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 16247-5:2015, *Energy audits - Part 5: Competence of energy auditors*

3 Terms and definitions

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

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at http://www.electropedia.org/
- ISO Online browsing platform: available at http://www.iso.org/obp

3.1
energy audit
systematic inspection and analysis of energy use and energy consumption of a site, building, system or organization with the objective of identifying energy flows and the potential for energy efficiency improvements and reporting them

3.2
energy auditor
individual, group of people or body carrying out an energy audit

Note 1 to entry: A group or body can include subcontractors.

3.3
audited object
building, equipment, system, process, vehicle or service which is the subject of the energy audit

3.4
organization
person or group of people that has its own functions with responsibilities, authorities and relationships to achieve its objectives

Note 1 to entry: The concept of organization includes, but is not limited to, sole-trader, company, corporation, firm, enterprise, authority, partnership, charity or institution, or part or combination thereof, whether incorporated or not, public or private.

[SOURCE: ISO 50001:2018, 3.1.1]

3.5
energy consumption
quantity of energy (3.16) applied

[SOURCE: ISO 50001:2018, 3.5.2]

3.6
energy efficiency
ratio or other quantitative relationship between an output of performance, service, goods, commodities, or energy (3.16), and an input of energy

EXAMPLE Conversion efficiency; energy required/energy consumed

Note 1 to entry: Both input and output should be clearly specified in terms of quantity and quality and be measurable.

[SOURCE: ISO 50001:2018, 3.5.3]

3.7
energy performance
measurable result(s) related to energy efficiency (3.6), energy use (3.10) and energy consumption (3.5)

Note 1 to entry: Energy performance can be measured against the organization's (3.4) objectives, energy targets (3.20) and other energy performance requirements.

Note 2 to entry: Energy performance is one component of the performance of the energy management system (3.18).

[SOURCE: ISO 50001:2018, 3.4.3]

3.8
energy performance indicator
EnPI
measure or unit of energy performance (3.7), as defined by the organization (3.4)

Note 1 to entry: EnPI(s) can be expressed by using a simple metric, ratio, or a model, depending on the nature of the activities being measured.

Note 2 to entry: See ISO 50006 for additional information on EnPI(s).

[SOURCE: ISO 50001:2018, 3.4.4]

3.9
energy efficiency improvement measure
amount of saved energy determined by measuring and/or estimating consumption before and after implementation of one or more energy efficiency improvement measures, whilst ensuring normalisation for factors that affect energy consumption

3.10
energy use
application of energy (3.16)

EXAMPLE Ventilation; lighting; heating; cooling; transportation; data storage; production process

147 Note 1 to entry: Energy use is sometimes referred to as “energy end-use”.

148 [SOURCE: ISO 50001:2018, 3.5.4]

149 **3.11**
150 **sampling method**
151 method of studying from a few representative selected objects, instead of the entire big number
152 of objects.

153 Note 1 to entry The small selection is called sample.

154 Note 2 to entry: The principle of sampling is to analyze the samples selected in order to issue
155 recommendations that will be valid for all audited object

156 **3.12**
157 **significant energy uses**
158 **SEU**
159 energy use (3.10) accounting for substantial energy consumption (3.5) and/or offering
160 considerable potential for energy performance improvement (3.21)

161 Note 1 to entry: Significance criteria are determined by the organization (3.4).

162 Note 2 to entry: SEUs can be facilities, systems, processes, or equipment.

163 [SOURCE: ISO 50001:2018, 3.5.6]

164 **3.13**
165 **Energy balance**
166 accounting of inputs and/or generation of energy supply versus energy outputs based on energy
167 consumption (3.5) by energy use (3.10)

168 Note 1 to entry: Energy storage is considered within energy supply or energy use. If included in the
169 energy audit scope (3.23), an energy balance needs to include energy storage and feedstock variation, as
170 well as wasted energy, or energy content in material flows.

171 Note 2 to entry: An energy balance reconciles all energy, goods and products that enter the system
172 boundary against the energy, goods and products leaving the system boundary.

173 [SOURCE: ISO 50002:2014, 3.6]

174 **3.14**
175 **static factor**
176 identified factor that significantly impacts *energy performance* (3.7) and does not routinely
177 change

178 Note 1 to entry: Significance criteria are determined by the *organization* (3.4).

179 EXAMPLE Facility size; design of installed equipment; number of weekly shifts; range of
180 products

181 [SOURCE: ISO 50015:2014, 3.22, modified — Note 1 to entry and EXAMPLE 1 have been
182 modified and EXAMPLE 2 has been deleted.]

3.15
relevant variable
quantifiable factor that significantly impacts *energy performance* (3.7) and routinely changes

Note 1 to entry: Significance criteria are determined by the *organization* (3.4).

EXAMPLE Weather conditions, operating conditions (indoor temperature, light level), working hours, production output.

[SOURCE: ISO 50015:2014, 3.18, modified — Note 1 to entry has been added and wording of examples has been modified.]

3.16
energy
electricity, fuels, steam, heat, compressed air and other similar media

Note 1 to entry: For the purposes of this document, energy refers to the various types of energy, including renewable, which can be purchased, stored, treated, used in an equipment or in a process, or recovered.

[SOURCE: ISO 50001:2018, 3.5.1]

3.17
process
set of interrelated or interacting activities which transform inputs into outputs

Note 1 to entry: A process related to an *organization's* (3.4) activities can be

— physical (e.g. energy-using processes, such as combustion), or

— business or service (e.g. order fulfilment).

[SOURCE: ISO 50001:2018, 3.3.6]

3.18
energy management system
EnMS
management system (3.19) to establish an energy policy, objectives, *energy targets* (3.20), action plans and *process(es)* (3.17) to achieve the objectives and energy targets

[SOURCE: ISO 50001:2018, 3.2.2]

3.19
management system
set of interrelated or interacting elements of an *organization* (3.4) to establish policies and objectives and *processes* (3.17) to achieve those objectives

Note 1 to entry: A management system can address a single discipline or several disciplines.

Note 2 to entry: The system elements include the organization's structure, roles and responsibilities, planning and operation.

Note 3 to entry: In some management systems, the scope of a management system can include the whole of the organization, specific and identified functions of the organization, specific and identified sections of the organization, or one or more functions across a group of organizations. The EnMS scope includes all energy types within its boundaries.

[SOURCE: ISO 50001:2018, 3.2.1]

3.20
energy target
quantifiable objective of *energy performance improvement* (3.21)

Note 1 to entry: An energy target can be included within an objective.

[SOURCE: ISO 50001:2018, 3.4.15]

EXAMPLE A *process* (3.20); a group of processes; a site; multiple sites under the control of an organization, or an entire *organization* (3.5).

Note 1 to entry: The organization defines the boundary(ies) of its EnMS.

[SOURCE: ISO 50001:2018, 3.1.3]

3.21
energy performance improvement
improvement in measurable results of *energy efficiency* (3.6), or *energy consumption* (3.5) related to *energy use* (3.10), compared to the *energy baseline* (3.22)

[SOURCE: ISO 50001:2018, 3.4.6]

3.22
energy baseline
EnB
quantitative reference(s) providing a basis for comparison of *energy performance* (3.7)

Note 1 to entry: An energy baseline is based on data from a specified period of time and/or conditions, as defined by the *organization* (3.4).

Note 2 to entry: One or more energy baselines are used for determination of *energy performance improvement* (3.21), as a reference before and after, or with and without implementation of energy performance improvement actions.

Note 3 to entry: See ISO 50015 for additional information on measurement and verification of energy performance.

Note 4 to entry: See ISO 50006 for additional information on EnPIs and EnBs.

[SOURCE: ISO 50001:2018, 3.4.7]

3.23
energy audit scope
extent of energy uses (3.10) and related activities to be included in the energy audit (3.1), as defined by the organization (3.4) in consultation with the energy auditor (3.2), which can include several boundaries

EXAMPLE Organization, facility/facilities, equipment, system(s) and process(es)

Note 1 to entry: The energy audit scope can include energy related to transport.