

SVENSK STANDARD

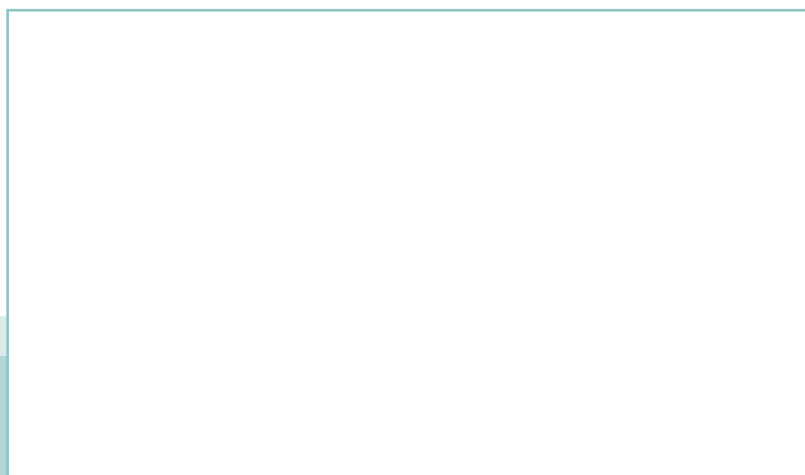
SS-ISO 50004:2017



Fastställt/Approved: 2017-06-08
Publicerad/Published: 2017-06-12
Utgåva/Edition: 1
Språk/Language: engelska/English
ICS: 03.100.70; 27.015

**Energiledningssystem – Vägledning för genomförande,
underhåll och ständig förbättring av ett energiledningssystem
(ISO 50004:2014, IDT)**

**Energy management systems – Guidance for the
implementation, maintenance and improvement of an energy
management system (ISO 50004:2014, IDT)**



Standarder får världen att fungera

SIS (Swedish Standards Institute) är en fristående ideell förening med medlemmar från både privat och offentlig sektor. Vi är en del av det europeiska och globala nätverk som utarbetar internationella standarder. Standarder är dokumenterad kunskap utvecklad av framstående aktörer inom industri, näringsliv och samhälle och befrämjar handel över gränser, bidrar till att processer och produkter blir säkrare samt effektiviserar din verksamhet.

Delta och påverka

Som medlem i SIS har du möjlighet att påverka framtida standarder inom ditt område på nationell, europeisk och global nivå. Du får samtidigt tillgång till tidig information om utvecklingen inom din bransch.

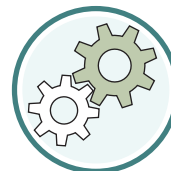
Ta del av det färdiga arbetet

Vi erbjuder våra kunder allt som rör standarder och deras tillämpning. Hos oss kan du köpa alla publikationer du behöver – allt från enskilda standarder, tekniska rapporter och standardpaket till handböcker och onlinetjänster. Genom vår webbtjänst e-nav får du tillgång till ett lättnavigerat bibliotek där alla standarder som är aktuella för ditt företag finns tillgängliga. Standarder och handböcker är källor till kunskap. Vi säljer dem.

Utveckla din kompetens och lyckas bättre i ditt arbete

Hos SIS kan du gå öppna eller företagsinterna utbildningar kring innehåll och tillämpning av standarder. Genom vår närhet till den internationella utvecklingen och ISO får du rätt kunskap i rätt tid, direkt från källan. Med vår kunskap om standarders möjligheter hjälper vi våra kunder att skapa verklig nytta och lönsamhet i sina verksamheter.

Vill du veta mer om SIS eller hur standarder kan effektivisera din verksamhet är du välkommen in på www.sis.se eller ta kontakt med oss på tel 08-555 523 00.



Standards make the world go round

SIS (Swedish Standards Institute) is an independent non-profit organisation with members from both the private and public sectors. We are part of the European and global network that draws up international standards. Standards consist of documented knowledge developed by prominent actors within the industry, business world and society. They promote cross-border trade, they help to make processes and products safer and they streamline your organisation.

Take part and have influence

As a member of SIS you will have the possibility to participate in standardization activities on national, European and global level. The membership in SIS will give you the opportunity to influence future standards and gain access to early stage information about developments within your field.

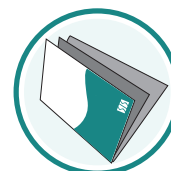
Get to know the finished work

We offer our customers everything in connection with standards and their application. You can purchase all the publications you need from us - everything from individual standards, technical reports and standard packages through to manuals and online services. Our web service e-nav gives you access to an easy-to-navigate library where all standards that are relevant to your company are available. Standards and manuals are sources of knowledge. We sell them.

Increase understanding and improve perception

With SIS you can undergo either shared or in-house training in the content and application of standards. Thanks to our proximity to international development and ISO you receive the right knowledge at the right time, direct from the source. With our knowledge about the potential of standards, we assist our customers in creating tangible benefit and profitability in their organisations.

If you want to know more about SIS, or how standards can streamline your organisation, please visit www.sis.se or contact us on phone +46 (0)8-555 523 00



Den internationella standarden ISO 50004:2014 gäller som svensk standard. Detta dokument innehåller den officiella engelska versionen av ISO 50004:2014.

The International Standard ISO 50004:2014 has the status of a Swedish Standard. This document contains the official version of ISO 50004:2014.

© Copyright/Upphovsrätten till denna produkt tillhör SIS, Swedish Standards Institute, Stockholm, Sverige. Användningen av denna produkt regleras av slutanvändarlicensen som återfinns i denna produkt, se standardens sista sidor.

© Copyright SIS, Swedish Standards Institute, Stockholm, Sweden. All rights reserved. The use of this product is governed by the end-user licence for this product. You will find the licence in the end of this document.

Upplysningar om sakinnehållet i standarden lämnas av SIS, Swedish Standards Institute, telefon 08-555 520 00. Standarder kan beställas hos SIS Förlag AB som även lämnar allmänna upplysningar om svensk och utländsk standard.

Information about the content of the standard is available from the Swedish Standards Institute (SIS), telephone +46 8 555 520 00. Standards may be ordered from SIS Förlag AB, who can also provide general information about Swedish and foreign standards.

Denna standard är framtagen av kommittén för Effektiv energianvändning, SIS/TK 558.

Har du synpunkter på innehållet i den här standarden, vill du delta i ett kommande revideringsarbete eller vara med och ta fram andra standarder inom området? Gå in på www.sis.se - där hittar du mer information.

Contents

	Page
Foreword	iv
Introduction	v
1 Scope	1
2 Normative references	1
3 Terms, definitions and abbreviated terms	1
3.1 Terms and definitions.....	1
3.2 Abbreviated terms.....	2
4 Energy management system requirements	2
4.1 General requirements.....	2
4.2 Management responsibility.....	2
4.3 Energy policy.....	4
4.4 Energy planning.....	5
4.5 Implementation and operation.....	14
4.6 Checking.....	22
4.7 Management review.....	26
Annex A (informative) Examples of energy policy	28
Annex B (informative) Example of energy review	30
Annex C (informative) Example of an action plan	36
Annex D (informative) Developing measurement plans	37
Annex E (informative) Relationship between key concepts	39
Bibliography	42

SS-ISO 50004:2017 (E)**Foreword**

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: Foreword - Supplementary information

The committee responsible for this document is Technical Committee ISO/TC 242, *Energy management*.

Introduction

This International Standard provides guidance when implementing the requirements of an energy management system (EnMS) based on ISO 50001 and guides the organization to take a systematic approach in order to achieve continual improvement in energy management and energy performance. This International Standard is not prescriptive and each organization determines how to best approach meeting the requirements of ISO 50001.

This International Standard provides guidance to users with varying levels of energy management and EnMS experience, including those:

- with little or no experience of energy management or management system standards;
- undertaking energy efficiency projects but with little or no EnMS experience;
- having an EnMS in place, not necessarily based on ISO 50001;
- having experience with ISO 50001 and looking for additional ideas or suggestions for improvement.

Energy management will be sustainable and most effective when it is integrated with an organization's overall business processes (e.g. operations, finance, quality, maintenance, human resources, procurement, health and safety and environmental).

ISO 50001 can be integrated with other management system standards, such as ISO 9001, ISO 14001, and OHSAS 18001. Integration can have a positive effect on business culture, business practice, embedding energy management into daily practice, operational efficiency and the operating cost of the management system.

The examples and approaches presented in this International Standard are for illustrative purposes. They are neither intended to represent the only possibilities, nor are they necessarily suitable for every organization. In implementing, maintaining or improving an EnMS, it is important that organizations select approaches appropriate to their own circumstances.

This International Standard includes practical help boxes designed to provide the user with ideas, examples and strategies for implementing an EnMS.

Ongoing commitment and engagement by top management is essential to the effective implementation, maintenance and improvement of the EnMS, in order to achieve the benefits in energy performance improvement. Top management demonstrates its commitment through leadership actions and active involvement in the EnMS, ensuring ongoing allocation of resources, including people to implement and sustain the EnMS over time.

Energy management systems — Guidance for the implementation, maintenance and improvement of an energy management system

1 Scope

This International Standard provides practical guidance and examples for establishing, implementing, maintaining and improving an energy management system (EnMS) in accordance with the systematic approach of ISO 50001. The guidance in this International Standard is applicable to any organization, regardless of its size, type, location or level of maturity.

This International Standard does not provide guidance on how to develop an integrated management system.

While the guidance in this International Standard is consistent with the ISO 50001 energy management system model, it is not intended to provide interpretations of the requirements of ISO 50001.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 50001:2011, *Energy management systems — Requirements with guidance for use*

3 Terms, definitions and abbreviated terms

3.1 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 50001 and the following apply.

3.1.1

commissioning

process by which equipment, a system, a facility or a plant that is installed, is completed or near completion is tested to verify if it functions according to its design specification and intended application

3.1.2

energy balance

accounting of inputs and/or generation of energy supply versus energy outputs based on energy consumption by energy use

Note 1 to entry: Where present, energy storage can be considered within energy supply or energy use.

[SOURCE: ISO 50002:2014, 3.6, modified — Deleted original Notes 1 and 2 to entry; added new Note 1 to entry]

SS-ISO 50004:2017 (E)**3.2 Abbreviated terms**

EnMS	energy management system
EnPI	energy performance indicator
PDCA	Plan–Do–Check–Act
SEU	significant energy use
HDD	heating degree days

4 Energy management system requirements**4.1 General requirements**

It is good practice to keep the EnMS as simple and easy to understand as possible while still meeting the ISO 50001 requirements. For example, organizational objectives for energy management and energy performance should be reasonable and achievable and aligned with current organizational or business priorities. Documentation should be straight forward and responsive to organizational needs, as well as easy to update and maintain. As the system develops based on continual improvement, simplicity should be maintained.

Defining the scope and boundaries of the EnMS allows the organization to focus their efforts and resources in energy management and energy performance improvement. When defining the scope and boundaries, an organization should not divide or exclude energy using equipment or systems unless it is separately metered or a dependable calculation can be made. Over time, the scope and boundaries may change due to energy performance improvement, organizational change or other circumstances, and the EnMS is reviewed and updated as needed to reflect the change.

Documenting the scope and boundaries of the EnMS can be in any format. For example, it may be a simple list, or a map or line drawing indicating what is included within the EnMS.

Practical Help Box 1 – Items to consider in defining scope and boundaries

Scope:

- What facilities are included?
- What operations and activities are included?
- Is energy for transport included?
- Are other media, for example, water and gas flows such as nitrogen included?
- Who is top management within the defined scope and boundaries?

Boundaries:

- What parts of the site are included?
- Are all buildings and processes included?
- Are other sites included?
- What parts of the site or locations are not included?

4.2 Management responsibility**4.2.1 Top management**

Ongoing top management commitment is a critical factor in the continued success of the EnMS and the improvement of energy performance. Top management demonstrates its commitment through its leadership actions and active involvement in the EnMS. Top management needs to retain its EnMS responsibilities and should make its actions visible to employees across the organization.

Top management should understand that a fundamental requirement for demonstration of its commitment is ongoing allocation of resources – which includes people to implement, sustain and improve the EnMS and energy performance over time. One resource area that is often overlooked and needs to be specifically addressed is the means of gathering and reporting data to support the ongoing maintenance and improvement of the EnMS.

Early in the EnMS implementation process, top management should initiate ongoing communications across the organization about the importance of energy performance and energy management. A communication approach that has proven itself within the organization and the organizational culture is more likely to be effective. Initial communication can be accomplished by top management's announcement of the appointment of the management representative, the establishment of the energy team and by presenting the energy policy and the decision to implement an EnMS directly to the employees.

Energy management and energy performance improvement should align with the organization's business strategy and long-term planning and resource allocation processes.

4.2.2 Management representative

Regardless of whether the management representative has a technical background, certain capabilities are key to the success of the role. The following capabilities should be considered in the choice of management representative:

- leading and motivating personnel;
- managing or effecting change;
- communicating effectively across all levels of the organization;
- problem solving and conflict resolution skills;
- understanding energy use and consumption concepts;
- basic analytical skills to understand energy performance.

Often the management representative is the individual responsible for the operation of a process or facility.

Whether the management representative is internal or external to the organization, top management needs to ensure that the representative has the appropriate authority to fulfil their duties. Additional communications by top management with employees may be needed in order to clearly establish the authority of an external management representative.

Practical Help Box 2 - Communication of energy management responsibilities and authorities

Energy management responsibilities and authorities can be defined and communicated in a variety of ways. For example, they can be:

- included in EnMS procedures or instructions;
- incorporated into job descriptions;
- identified in a responsibility matrix;
- set forth in an energy or EnMS manual;
- included in operational and technical training, including workbooks;
- part of employee performance reviews;
- reinforced during awareness training or shift meeting presentations.

Ways that the management representative can ensure that both the operation and control of the EnMS are effective could include:

- a) scheduling regular team meetings;
- b) reviewing internal audit and corrective action results;