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Energy management systems — Evaluating energy performance using energy performance indicators and energy baselines

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National foreword

This British Standard is the UK implementation of ISO 50006:2023. It supersedes BS ISO 50006:2014, which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee SEM/1, Energy Management.

A list of organizations represented on this committee can be obtained on request to its committee manager.

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Energy management systems — Evaluating energy performance using energy performance indicators and energy baselines

Systèmes de management de l'énergie — Évaluation de la performance énergétique à l'aide d'indicateurs de performance énergétique et de situations énergétiques de référence

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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 document 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).

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This document was prepared by Technical Committee ISO/TC 301, *Energy management and energy savings*.

This second edition cancels and replaces the first edition (ISO 50006:2014), which has been technically revised.

The main changes are as follows:

— concepts and technical aspects have been harmonized with the latest edition of ISO 50001:2018;

— definitions in Clause 3 have been updated in accordance with the latest edition of ISO 50001:2018 and considering a new approach for general harmonization under ISO/TC 301;

— upgrades have been made related to the normalization of energy performance indicators (EnPIs) and corresponding energy baselines (EnBs);

— upgrades and new considerations have been made related to the new definition and requirement to demonstrate energy performance improvement.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

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Introduction

0.1 Background

Energy performance evaluation is a tool which applies to all types of organizations and can be used to evaluate the results of its efforts in energy management. Relevant variables affect the energy consumption and energy efficiency of organizations. To effectively evaluate energy performance under equivalent conditions, the effects of relevant variables should be taken into account by using the process of normalization.

Measuring and monitoring of energy performance and demonstration of energy performance improvement can be challenging because of the complexity of determining energy performance indicators (EnPIs) and corresponding energy baselines (EnBs) which are appropriate for an organization to better understand the energy consumed within the facilities, equipment, systems or energy-using processes.

Improving energy performance helps organizations to become more competitive by reducing their energy costs. In addition, improving energy performance can help organizations to reduce their energy-related greenhouse gas emissions. Climate change and the need for decarbonization are major global concerns. Reducing greenhouse gas emissions associated with energy consumption is a significant tool in tackling climate change. Methods for monitoring and measuring energy performance to ensure appropriate results are key aspects of this activity.

In those activities or processes in which no energy performance improvement has been planned, benefits can also be obtained by using EnPIs and EnBs to manage operational control, identify maintenance needs or identify significant deviations in energy performance.

Communicating the energy performance of the organization and its processes to appropriate person(s) in the organization is a key element for success. It is also a key to building ongoing commitment and engagement of top management to allocate resources for energy management including the effective establishment of EnPIs and EnBs.

The technical information in this document enables an organization to meet the requirements of ISO 50001 including using normalization in measuring, monitoring, analysing and evaluating its energy performance and energy performance improvement. In this way, it can demonstrate continual improvement in energy performance using EnPIs and corresponding EnBs.

0.2 Overview of contents

This document provides an organization with practical guidance related to managing energy performance, including its evaluation, control and continual improvement through the establishment, use and maintenance of EnPIs and the corresponding EnBs.

This document gives guidance on the selection of appropriate EnPIs according to the objectives of the organizations which can achieve significant benefits by implementing them.

This document is intended to guide an organization in establishing, using and maintaining EnPIs and EnBs in accordance with the requirements in ISO 50001.

The process described in this document can provide benefits to any organization, including those that do not have an EnMS. Nevertheless, additional benefits can be obtained if this process is embedded within an EnMS in accordance with ISO 50001.

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Energy management systems — Evaluating energy performance using energy performance indicators and energy baselines

1 Scope

This document gives guidance on how to establish, use and maintain energy performance indicators (EnPIs) and energy baselines (EnBs) to evaluate energy performance in any organization including those using ISO 50001. Additional guidance is given on how to measure and monitor energy performance and demonstrate energy performance improvement.

This document is applicable to any organization, regardless of its type, size, complexity, geographical location, organizational culture, the products and services it provides or its level of maturity in the field of energy management.

2 Normative references

There are no normative references in this document.

3 Terms, definitions and abbreviated terms

3.1 Terms and definitions

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

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

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at https://www.electropedia.org/

3.1.1
baseline period
period of time used for comparison with *reporting period* (3.1.16)

Note 1 to entry: The purpose of the comparison can be monitoring of performance, evaluation of performance improvement or determination of energy savings.

3.1.2
boundary
physical, virtual and/or organizational limits as defined by the entity for a stated purpose

Note 1 to entry: The entity may be an *organization* (3.1.14), group of organizations, region(s), subset of an organization or other depending on the application.

Note 2 to entry: Physical can be equipment, systems, a building, a process, a group of processes, a site, or multiple sites, under the control of an organization.

3.1.3
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 equipment or in a process, or recovered.

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