

Energy management systems in practice

Annex

Advantages of the "High Level Structure" in relation to the implementation and operation of an energy management system according to ISO 50001

The High Level Structure (HLS) is a binding structure for all ISO management systems. Applying this structure to all available management system standards ultimately leads to a harmonization of standards. The objective is to ensure a high degree of compatibility between different management system standards.

With the new version of ISO 50001:2018, published on 23 November 2018, this standard now also follows this structure.

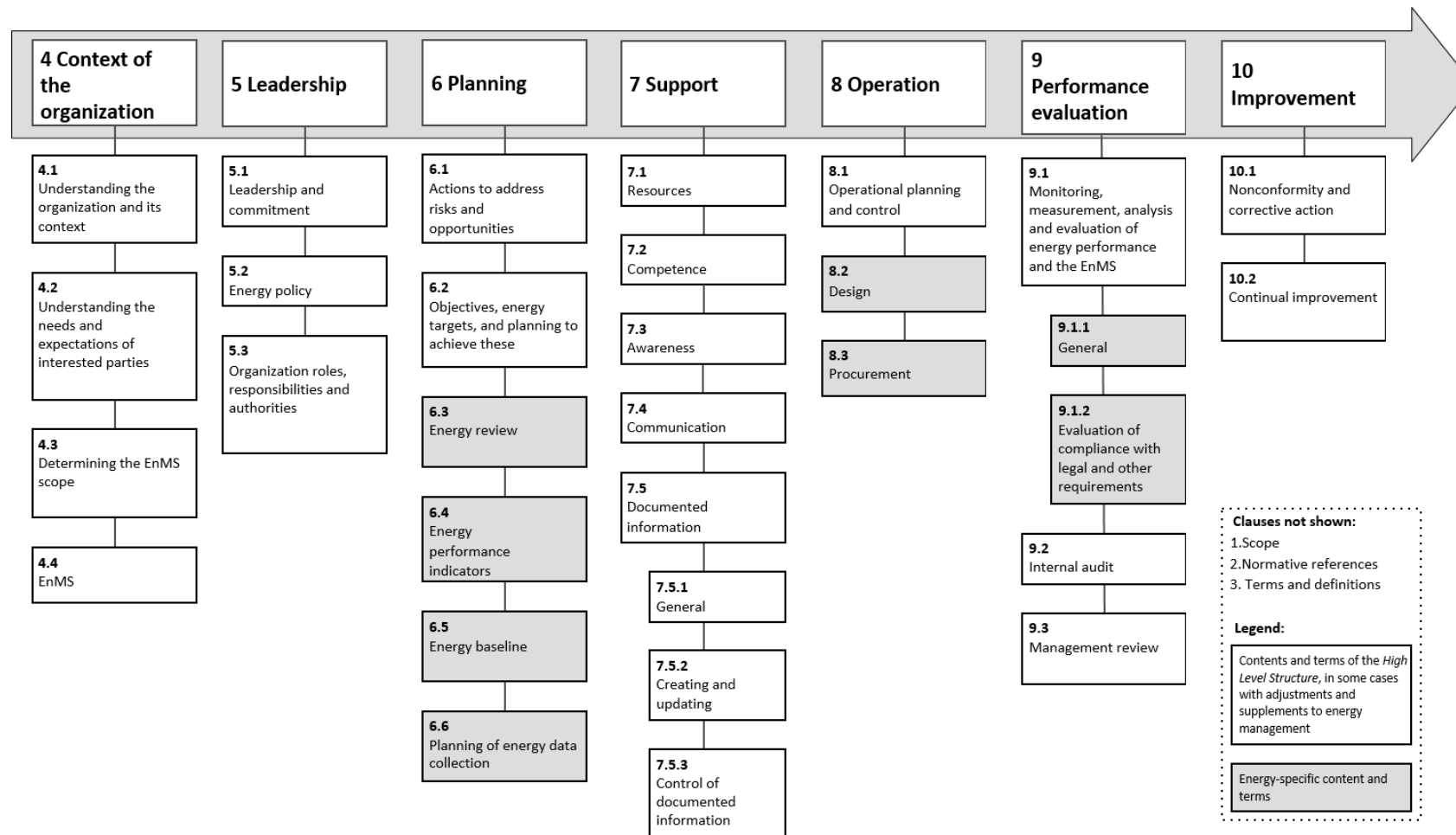
Figure 1 shows the sections prescribed by the HLS in ISO 50001:2018 against a white background and the sections added specifically for energy management against a gray background. Most of the sections are prescribed by the HLS. These sections and the basic requirements contained therein can therefore also be found in other management systems such as ISO 9001 (quality management), ISO 14001 and EMAS (environmental management), and ISO 45001 (occupational safety management). When developing and operating several management systems, a large part of the documentation and processes can therefore be linked together or integrated into a common system. This is often known as an integrated management system. Developing and operating integrated management systems was already possible before the standards were revised to the HLS. However, implementation is now much easier and more efficient due to the uniform structure.

According to information in the 2017 ISO Survey¹, approximately 65,000 organizations in Germany operate a quality management system according to ISO 9001 and approx. 8,300 operate an EnMS according to ISO 50001, along with approx. 10,100 that operate an environmental management system according to ISO 14001. Almost 1,200 organizations are registered under EMAS². It can be assumed that the large number of companies that already operate quality management systems have well-functioning structures that can be expanded to include energy and environmental aspects.

¹ International Organization for Standardization (ISO), 2018. ISO Survey of certifications to management system standards - Full results. Online: <https://isotc.iso.org/livelink/livelink?func=ll&objId=18808772&objAction=browse&viewType=1> retrieved on 12/12/2018.

² Status February 2019, according to UGA: EMAS organizations in Germany, https://www.emas.de/fileadmin/user_upload/03_teilnahme/PDF-Dateien/EMAS-TN-Register.pdf

Figure 1: Overview of the structure of ISO 50001: 2018, showing the standard clauses specified by the HLS



Source: Own illustration based on Eggert et al. (2019): DIN EN ISO 50001:2018 - Vergleich mit DIN EN ISO 50001:2011, Änderungen und Auswirkungen, Beuth Verlag, Berlin

The benefits of an integrated management system include:

a) Less effort to meet uniform requirements

- A quality or environmental policy may already exist and can be extended by energy related strategic statements.
- The understanding of organization's context can be expanded to include internal and external energy-related issues.
- Existing legal registers can be expanded to include energy.
- Structures and procedures for handling documented information have already been established.
- Training plans for relevant employees are already in place. These can then be supplemented by energy-related training actions.

b) Use of existing experience in developing and operating management systems

In existing management systems roles and responsibilities are assigned and management representatives or teams are already in place. In general, these persons already have experience in implementing management system standards. Experience with the certification requirements and the "correct" reading and interpretation of standard texts in particular can offer clear advantages. In order to utilize this experience when developing and operating an EnMS, an interdisciplinary management system team may be established that coordinates and exchanges information with regard to the uniform requirements.

c) Linking quality, environmental and energy aspects

The exchange between the different disciplines (quality, energy, environment, etc.) within an integrated management system also allows companies to incorporate the mutual requirements when drawing up concrete improvement actions. In practice, quality is often assigned a higher priority than environmental issues or energy efficiency. Ideas for energy efficiency actions often fail due to assumed negative effects on quality. However, there are also potential synergies. Energy-related monitoring with energy performance indicators (EnPIs) can also improve the quality-related process control. For example, an increase in an EnPI value may indicate a clogged filter or a worn-out bearing, which in turn could lead to downtime or loss of production quality. The EnPI can then help identify the right time for preventive action.

The close connection of the disciplines allow mutual requirements to be taken into account when planning and implementing actions. This is also the case for energy and environmental management, since energy savings usually have positive environmental effects.

d) Shorter audit times due to combination audits

Integrated management systems may be audited as part of an integrated or combined certification audit. This results in a reduction of audit time by up to 20%, which in turn reduces audit costs compared to individual certification, as the documents and evidence of the various management systems can be at least partly audited together. In addition, certification bodies can reduce the audit time by another 30%, for example if management system experience and

structures are already in place³. Overall, integration can therefore contribute to keeping the additional costs for the certification of an EnMS down.

Combination audits also shorten interview times as well as the number of meetings that must be coordinated, for example with management, as the content and requirements of the individual systems can be discussed in a single appointment.

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³ Cf. IAF Mandatory Document on the Application of ISO/IEC 17021 for Audits of Integrated Management Systems