



Management Service

**Choose certainty.
Add value.**

Product information on energy management

An energy management system (EnMS), based on EN 16001 or ISO 50001, enables companies to continuously and systematically improve their energy performance – in accordance with the valid legal and regulative requirements. Certification provides support in the implementation of all necessary steps with regard to the energy policy and is often a precondition

for funding. An energy management system can be perfectly integrated into existing certification such as ISO 9001 or ISO 14001 and validations in accordance with EMAS. The documented proof of a functioning energy management system from TÜV SÜD is an excellent supplement in the sustainability strategy. Our auditors support you every step of the way to certification.

Benefit from efficiency

System based energy saving –
a success factor for your company

TÜV SÜD Management Service GmbH

TÜV®



Energy management system aims

- Transparency of all energy flows within the company
- Potential savings revealed
- Systematic improvement in use of energy, energy consumption and energy efficiency
- Process optimization
- Contribution to reduction of CO₂ emissions
- Implementation of and compliance with the energy policy
- Communication of conformity to interested parties,
- Possibility of certification by an accredited body such as TÜV SÜD Management Service GmbH

Does energy management make sense for my company?

Basically every company can benefit from an energy management system. Regardless of the sector, size, location, cultural and social factors, because every company produces greenhouse gases such as CO₂ in some way or another.

When companies introduce energy management they are consciously addressing the issues of energy saving and all the benefits entailed in efficiency improvement. Successful implementation depends on commitment from all levels and functions of the organization, and especially from top management.

Who should deal with this standard?

- Energy and facility managers
- Environmental protection and environmental management representatives
- Energy consultants
- Architects
- Executives for work planning
- Executives for the purchase of machines and plants
- Strategic departments and their executives
- Financial executives
- CEOs and MDs



Duties of the energy management manager

In general the managers are engineers or technicians with an additional qualification, who provide consultation on energy saving measures within the company. They work closely with the facility management, work management, purchasing and quality and environmental management sectors and actively support the implementation of the energy management system in compliance with EN 16001/ISO 50001 in all matters.

Which benefits are provided from introduction of the system?

Energy management is a top level issue and as such receives very high priority.

Detailed energy analyses create transparency on the use of energy and all energy flows in the company.

The structured approach of the standard leads to tangible cost saving for the company.

Additionally, implementation can lead to a substantial increase in productivity, as available modern technical possibilities can be better employed and employee behavior can be positively influenced.

Clearly defined company guidelines and energy objectives create acceptance by employee, customer and interested parties.

This management system is the basis for adherence to all relevant legal and official regulations.

If management systems such as ISO 9001, ISO 14001 or EMAS are available in your company, integration can be carried out easily.

The systematic approach of the standard enables you to identify optimization potential within your company.

The opportunity to explore new paths for energy saving and to support innovations with a targeted approach.

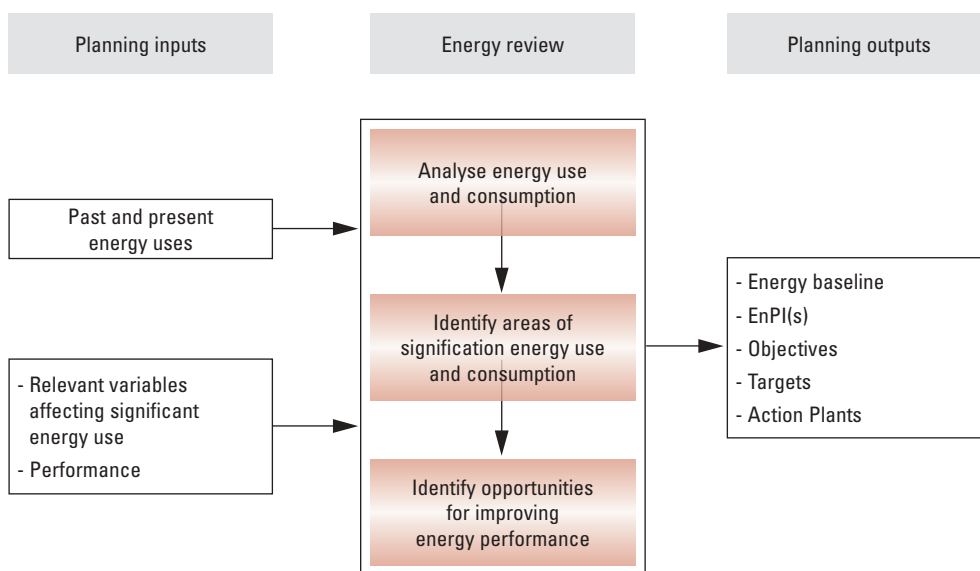
It is irrelevant how big your company is or where your expertise lie. Every company can benefit from these approaches.



Energy planning process concept diagram

The chart provides a conceptual diagram intended to improve understanding of the energy planning process. It does not intend to represent the details of a specific organization.

This diagram shows the basic concepts of energy planning



This clause focuses on the energy performance of the organization and tools to maintain and continually improve energy performance.

Benchmarking is the process of collecting, analysing and relating energy performance data of comparable activities with the purpose of evaluating and comparing performance between or within entities. Different types of benchmarking exist, ranging from internal benchmarking, for the purpose of highlighting good practices within the organization, to external benchmarking, in order to establish the “best in industry/sector” performance of an installation/facility or a specific product/service in the same field or sector. The benchmark process can be applied to any or all of these elements. Provided relevant and accurate data are available, benchmarking is a valuable input to an objective energy review, and consequent setting of energy objectives and energy targets.



Audit procedure

1. Pre-audit (Optional): The auditors perform a preliminary evaluation, which includes a site inspection. They establish which standard requirements are already in place in the company.

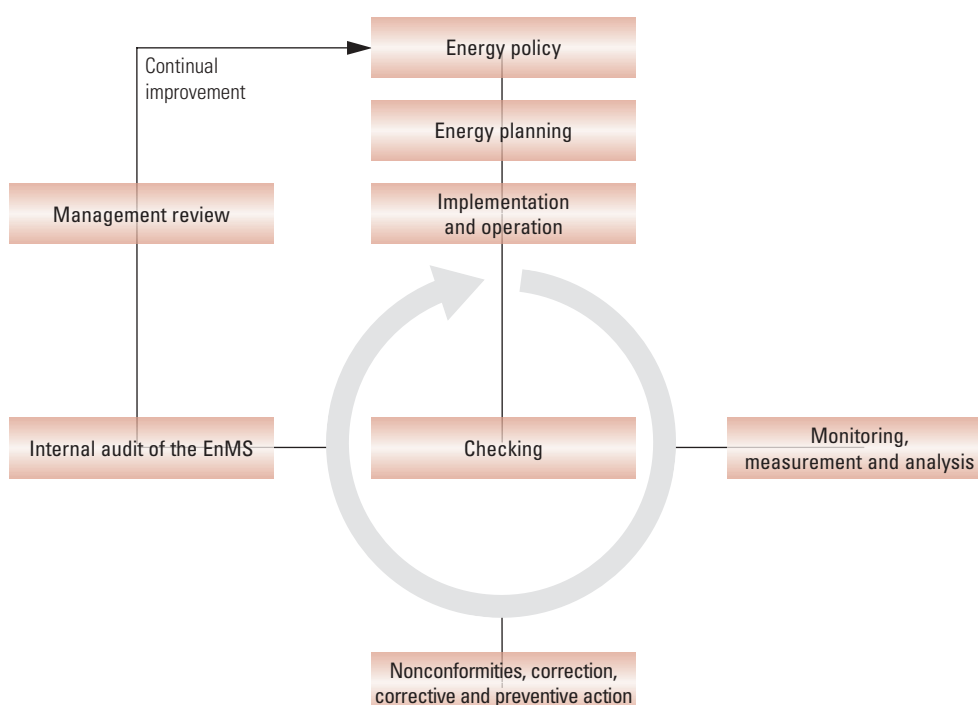
2. Audit level 1 and subsequent documentation review: The audit team collects information on basic EnMS processes, the scope and the site specific conditions. The certification audit is prepared. The audit team also examines, to what extent the documentation on their energy management system already complies with the requirements..

3. Certification audit: Performance of the audit using company processes, data and parameters. Assessment of the practical implementation of the energy management system (EnMS) in the company. The last day of the audit is the target date for the surveillance and re-certification of the certificate, which is issued at a later date.

4. Awarding of certificate: If all criteria are fulfilled, the company is awarded with the certificate. It confirms that the energy management system conforms with the standard and is fully functioning.

5. Surveillance audits: Our annual surveillance audit provides ongoing support in the continuous optimization of your processes.

6. Re-certification: The certificate is valid for three years. After this period re-certification takes place. The systematic effectiveness of your EnMS continuous improvement process (Plan-Do-Check-Act) is reconstructed.





Basic requirements

Determining and testing the energy performance (Energy review)

It is the aim and purpose of the energy review to record and assess all energy flows, to identify the sectors with significant energy use and to reveal possibilities for the improvement of the energy performance (Energy use, energy consumption, energy efficiency).

The methods and criteria in the energy review have to be defined and documented.

The review has to contain the following:

1. Previous, current and future energy use or energy use and consumption (measurements, other data),
2. Determining sites/locations, facilities, systems and processes, which have a significant influence on the energy use and consumption,
3. Determining all relevant variables, which influence the basic energy use or consumption,
4. Determining the current energy performance (energy use, energy consumption, energy efficiency) of the sites/locations, facilities, systems and processes, which were identified as significant for the energy use,
5. Identification of all people, whose activities could lead to significant changes in energy use and consumption,
6. Identification and prioritization of possibilities for improving the energy performance.

Objectives, targets and program(s)

Strategic and operative energy objectives for all relevant functions, levels, processes and sites/locations within the organization shall be established, documented, introduced, effectuated and maintained.

Determining and planning procedures, which are linked to energy use and consumption

- Definition of criteria for operation and maintenance of plants, facilities and buildings.
- Definition of tolerance reports, which when exceeded require correction measures, to avoid a significant deviation from the effective energy performance.
- In the design process for new, amended or renovated sites/locations, facilities, systems and processes the possibilities for improvement of energy performance must be considered.
- Energy conscious purchasing ensures that the energy consumption and energy efficiency are considered in the purchasing decision for machines, facilities, raw materials and services.

Surveillance and measurement

The organization must

- Ensure that the basic features, which determine the energy performance, are monitored, measured and analyzed at set intervals (e.g. energy consumption, parameters for energy use, energy performance indicators).
- Set up and effectuate a suitable plan for energy measurements and the monitoring and measurement facilities.



Comparison: EN 16001 – ISO 50001 – ISO 14001

	EN 16001:2009		ISO 50001:2011		ISO 14001:2004
3.1	General requirements	4.1	General requirements	4.1	General requirements
3.2	Energy policy	4.3	Energy policy	4.2	Energy policy
3.3	Planning	4.4	Energy planning	4.3	Planning
		4.4.1	General		
3.3.1	Identification and review of the energy aspects	4.4.3	Energy review	4.3.1	Environmental aspects
		4.4.4	Energy baseline		
		4.4.5	Energy performance indicators		
3.3.2	Legal obligations and other requirements	4.4.2	Legal and other requirements	4.3.2	Legal and other requirements
3.3.3	Energy objectives, targets and programme(s)	4.4.6	Energy objectives, energy targets and energy management action plans	4.3.3	Objectives, targets and programme(s)
3.4	Implementation and operation	4.5	Implementation and operation	4.4	Implementation and operation
		4.5.1	General		
3.4.1	Resources, roles, responsibility and authority	4.2	Management responsibility	4.4.1	Resources, roles, responsibility and authority
		4.2.1	Top management		
		4.2.2	Management representative		
3.4.2	Awareness, training and competence	4.5.2	Competence, training and awareness	4.4.2	Competence, training and awareness
3.4.3	Communication	4.5.3	Communication	4.4.3	Communication
3.4.4	Energy management system documentation	4.5.4	Documentation	4.4.4	Documentation
		4.5.4.1	Documentation requirements		
3.4.5	Control of documents	4.5.4.2	Control of documents	4.4.5	Control of documents
3.4.6	Operational control	4.5.5	Operational control	4.4.6	Operational control
		4.5.6	Design		
		4.5.7	Procurement of energy service, products, equipments and energy		
				4.4.7	Emergency preparedness and response
3.5	Checking	4.6	Checking	4.5	Checking
3.5.1	Monitoring and measurement	4.6.1	Monitoring, measurement and analysis	4.5.1	Monitoring and measurement
3.5.2	Evaluation of compliance	4.6.2	Evaluation of compliance with legal requirements and other requirements	4.5.2	Evaluation of compliance
3.5.3	Nonconformity, corrective action and preventive action	4.6.4	Nonconformities, correction, corrective action and preventive action	4.5.3	Nonconformity, corrective action and preventive action
3.5.4	Control of records	4.6.5	Control of records	4.5.4	Control of records
3.5.5	Internal audit of the energy management system	4.6.3	Internal audit of the EnMS	4.5.5	Internal audit
3.6	Review of the energy management system by top management	4.7	Management review	4.6	Management review
3.6.1	General	4.7.1	General		
3.6.2	Inputs to management review	4.7.2	Inputs to management review		
3.6.3	Outputs from management review	4.7.3	Outputs from management review		



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Summary

The introduction of an energy management system – EN 16001 or ISO 50001 – is a consistent step to increased sustainability. This irreversible path can lead to significant savings and more efficient implementation of available energy resources through the systematic approach of this standard. The procedures covered here are not exclusively for large industrial companies, but basically affect very producing and service-providing company.

Notes

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