

ISO 50001:2011

Energy Management System

Contents

Introduction	1
Motives for introducing an EMS	2
ISO 50001 – What is it and why implement it?	3
The Continuous Improvement Process	4
Comparison of ISO 50001 and similar Standards	5
Conclusion and further Information	6

Introduction

This White Paper contains basic information about the ISO 50001 standard, which certifies the Energy Management System of a company.

The global energy situation drives more and more companies towards a sustainable policy for their production. Also, public awareness is growing when it comes to climate protection and CO2 emissions. Thus, many companies are motivated to implement an Energy Management System (EMS) to use their energy more efficiently. In order to create an official framework for an efficient Energy Management System, the ISO 50001 was introduced.

The ISO 50001 can be implemented by all different kinds of companies – regardless of their size or which industry they are in.

Although the ISO 50001 requires a comprehensive Energy Data Management system, including detailed Energy Data acquisition, implementing this norm brings many advantages: An efficient resource and power management leads to cost cutting and a reduction of resource consumption.

Additionally, this approach helps preserve the environment, which is an interest of all stakeholders of a company.

The first part of this White Paper deals with motives – why a company should introduce an Energy Management System. The second part explains the ISO 50001 standard, including its benefits. In the third chapter the Continuous Improvement Process, which is the basis of the norm, is described. This part consists of the PDCA Model, with reference to the ISO 50001. Finally, a comparison of ISO 50001 and similar standards is made.

Motives for introducing an EMS

An Energy Management System (EMS) is a set of related elements contributing to an energy policy or leading to energy objectives. Processes and procedures which help to achieve these objectives are part of the EMS.

Introducing an EMS involves an extensive Energy Data Management system. This means that a large amount of data needs to be acquired. However, the acquisition of huge quantities of data alone is not enough – only by processing and analyzing the data adequately, can an EMS bring many advantages to your company. The key motives for implementing an EMS are:

- **More efficient production efficiency and cost cutting:**

The prices for energy and natural resources are continually rising. An increase of about 25% since 2005 in energy prices can be observed. Therefore, it is crucial to use the existing scarce resources more efficiently, which in turn also reduces costs. This can be achieved by an EMS.

- **Awareness of environmental problems and Corporate Social Responsibility (CSR):**

Climate change and the lack of resources are a much discussed topic. Not only the above mentioned costs, but also the responsibility for future generations raises concern for companies.

Furthermore, stakeholders such as customers are increasingly demanding companies to become more sustainable.

Therefore, many companies introduce a corporate philosophy, which includes a responsible attitude towards nature and society.

- **Legal requirements and governmental support for energy efficiency**

Norms such as the ISO 50001 provide an international framework for introducing an EMS. In many countries, subsidies (e.g. in the form of tax incentives in Germany) are offered to organizations implementing a certified EMS.

ISO 50001 – What is it and why implement it?

The ISO 50001 is a norm for Energy Management Systems. As already mentioned before, an EMS can be crucial for an efficient production. The ISO 50001 provides a framework for the whole supply chain, creating energy consumption transparency. Basically, implementing the ISO 50001 is voluntary. It is based on the preceding norm EN 16001 for Energy Management, which was replaced by ISO 50001 in 2011.

In contrast to other environmental norms, the ISO 50001 is internationally acknowledged. It assists organizations in making better use of their existing energy consuming machinery. In this way, ISO 50001 helps companies establish systems and processes which are necessary to improve their energy performance. This includes energy efficiency, usage and consumption.

The following benefits arise from implementing ISO 50001:

- **Environmental benefits:**
Basically, the ISO 50001 was introduced to reduce environmental impacts, such as greenhouse gas emissions, global warming etc. Also, the depletion of natural resources should be reduced.
- **Economic benefits:**
By implementing an EMS, a company enhances its energy efficiency. Thus, energy costs are reduced which also improves a company's competitiveness. Furthermore, by reducing energy consumption, a company becomes less dependent on energy price volatilities. In other words, an improved energy performance leads to rapidly achieved benefits by maximizing the use of energy sources, while reducing overall energy costs and energy consumption.

Another advantage of ISO 50001 is, that it is highly compatible with existing management certifications such as EMAS (**E**co-**M**anagement **A**udit **S**cheme developed by the EU), ISO 9001 (on Quality Management) and ISO 14001 (for Environmental Management Systems). Particularly when a company uses an existing ISO 14001 standard, the integration of ISO 50001 is made easily, without lots of extra effort.

The Continuous Improvement Process

ISO 50001 is based on the concept of continuous improvement. The model consists of four major steps: Plan – Do – Check – Act (PDCA process).

In the context of ISO 50001 this means the following:

- **Plan:**

Start with the conduction of an energy review. The energy review is the determination of the company's energy performance. The goal of the review is to identify areas of significant energy consumption. The review gives the baseline for the subsequent improvement process, so it should lead to the identification of opportunities in energy efficiency.

- **Do:**

Based on the energy review, energy performance indicators and objectives have to be defined. In order to achieve these objectives, action plans for improving the energy performance have to be described.

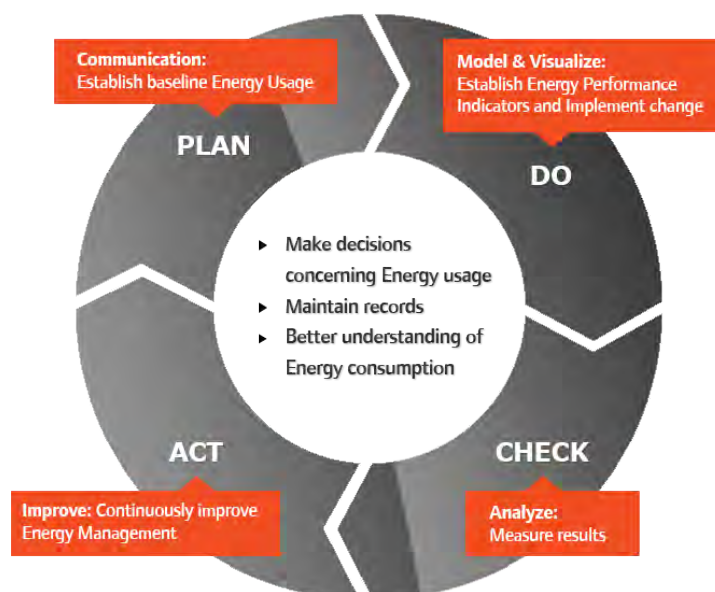
These energy management action plans are implemented in this stage of the process and so changes and improvements are enabled.

- **Check:**

Key processes which are crucial to the energy performance are monitored and measured. The results of these measurements are compared with the objectives set previously.

- **Act:**

Based on the report of the measurements and monitoring, actions are continually taken in order to improve the energy performance and EMS.



Comparison of ISO 50001 and similar Standards

As already mentioned, the ISO 50001 standard is highly compatible with other environmental and quality standards.

First of all, it has many similarities with EN 16001, as ISO 50001 should replace this specific norm. Secondly, ISO 50001 has many parallels to ISO 14001, a standard for environmental performance. Thirdly, ISO 50001 and the European standard EMAS are very much alike.

Thus, if one of these standards is already implemented, it does not take much more effort to introduce also ISO 50001.

ISO 50001 vs. EN 16001

The ISO 50001 standard is introduced to replace the European standard EN 16001. This means, that EN 16001 is expiring by April 24th 2013. Thus, EN 16001 certified companies have to amend their energy management to fit the ISO 50001 standards.

However, the ISO 50001 and the EN 16001 are very similar, and not many changes are to be made. Furthermore, the ISO 50001 is valid worldwide. This is an advantage over the EN 16001, which is acknowledged only in Europe.

ISO 50001 vs. ISO 14001

ISO 14001 is assessing the entire environmental performance and environmental influence of a company. ISO 50001, in contrast, is concentrating on energy performance only.

For both standards energy efficient and ecologic resource and service acquisition is necessary. However, according to ISO 50001, assessment of processes and maintenance in connection with energy intense production steps is required.

In addition, ISO 50001 advises to appoint an operative Energy Manager and an Energy Management Team. ISO 50001 also requires an accurate conduction and documentation of energy planning. Basis of this planning are energy performance indicators.

Whereas in ISO 14001 it is compulsory to publish the company's energy policy, ISO 50001 does not require disclosure of this data.

Last but not least, ISO 14001 refers to product specific characteristics. For ISO 50001, the product or service itself is not important.

ISO 50001 vs. EMAS

As with the EN 16001 standard, the EMAS standard is only accepted in Europe. However, for EMAS certified companies, it is not much effort to implement ISO 50001 as well. In Europe, about 4,500 companies are certified according to EMAS. 1,850 of them are located in Germany, which is the country with the highest number of certifications – followed by Italy and Spain.

Conclusion and further Information

In conclusion it can be stated, that an Energy Management based on the ISO 50001 certification is beneficial for optimizing your resource consumption. It not only leads to a reduction of your overall costs and therefore raises your profit – it also helps protect the environment by decreasing your emissions and use natural resources sustainably. Furthermore, with an Energy Management System according to ISO 50001 you can benefit from governmental support such as tax reliefs or other subsidies. And, finally, your reputation amongst customers and stakeholders will be considerably improved.

For further information you can read our additional publications on www.copadata.com or contact us directly at: sales@copadata.com



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