# PECB

Whitepaper

# ISO 50001 TRANSITION

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# Introduction

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The implementation of a sustainable and effective energy management system (EnMS) help organizations achieve better energy use, effective resource allocation and conservation, reduction of greenhouse gas emissions, financial cost reduction, continual improvement as a result of deployment of energy policies, and overall protection of the environment. It sets organizations on the path to achieving global sustainable development goals.

Energy management means focusing on establishing balances in energy sourcing and use, with the aim of continually making and maintaining improvements.
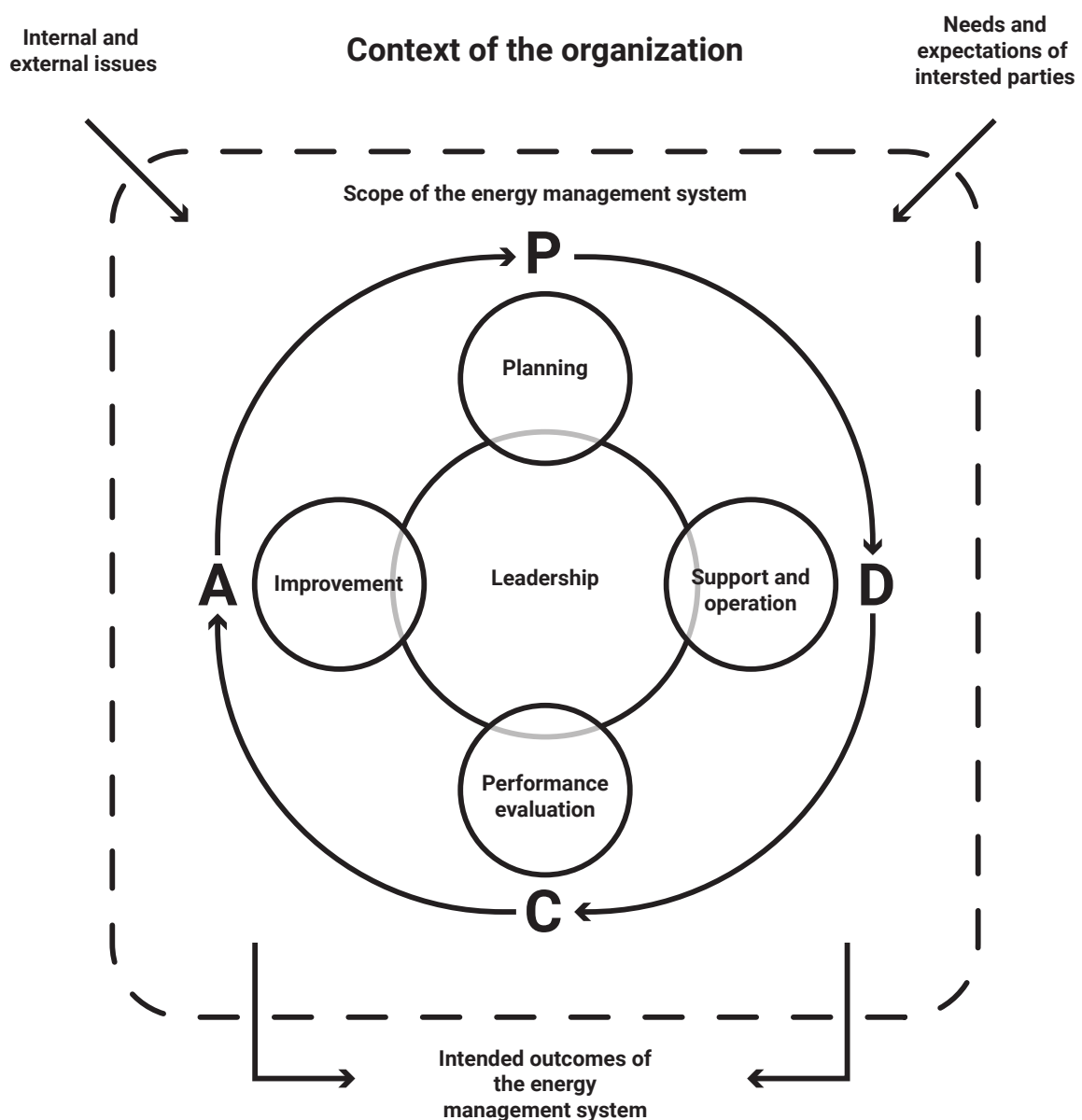
The current edition of the standard, published in 2018, provides requirements with guidance on establishing energy policy, objectives and processes that would improve the organization's energy management. Furthermore,   ISO 50001:2018 can also guide organizations in their processes of improving their use of energy, implementing efficient energy technologies, and promoting energy efficiency within the organization.

# Key differences between BS ISO 50001:2011 and ISO 50001:2018

All ISO management system standards structure has been considered to ensure that they fulfil the annex SL framework for the purpose of integration of multiple management systems. This framework entails establishing high level of compatibility among all management system standards. Therefore, it uses the core text, terms, and definitions that are present in every standard related to management systems. The figure below shows the PDCA cycle (Plan-Do-Check-Act), which is a four-step management approach used by organizations to control and continually improve the energy management processes.

**Internal and external issues**

**Context of the organization**

**Needs and expectations of intersted parties**

**Scope of the energy management system**

**P**

**Planning**

**A**

**Improvement**

**Leadership**

**Support and operation**

**D**

**Performance evaluation**

**C**

**Intended outcomes of the energy management system**

*(Source: ISO 50001, Figure 1)*

The incorporation of the HLS in ISO 50001:2018 has brought changes in many clauses of the old version of the standard, i.e., BS ISO 50001:2011. As a result, the headings of all the clauses included in the standard (from 4 to 10) are new.

## Context of the organization

The new edition of the standard focuses on understanding the needs and expectations of the internal and external interested parties, them being key contributors to the energy performance. It also emphasizes the fact that all energy sources should be included within the scope and boundaries of the EnMS. Hence, organizations should continually improve the energy management system.

## Leadership

The updated standard prioritizes the importance of leadership and management commitment. The term management representative has been replaced with the term energy management team.

## Planning

The updated standard introduces new clauses regarding planning for the EnMS as well as the actions needed for addressing risks and opportunities. It also presents more specific and clearer requirements regarding the energy performance indicators. Additionally, it presents a new requirement for the normalization of energy performance indicators EnPI(s) and associated energy baselines EnB(s). Furthermore, another new requirement has been introduced in the updated version of the standard, and it is related to the collection of energy data.

## Support

The latest version of the standard includes the resource requirements needed for the establishment, implementation, maintenance, and continual improvement of the energy management system and energy performance. The term document and record has been replaced with the term *documented information*.

## Operation

The updated version of the standard requires that changes within an organization be controlled. It also requires a preliminary preparation for the potential consequences that might arise from such changes.

## Performance evaluation

The new edition of the standard includes new requirements concerning the methods for measuring, monitoring, analyzing, and evaluating the performance of the EnMS. In addition, the already-existing requirement concerning management review inputs and outputs has been restructured.

## Improvement

The new version of the standard includes more detailed steps for nonconformity follow-up. The clause related to continual improvement, and that specifically requires continual improvement in the fields of energy performance and energy management system, is new to the standard.

# Initiation of an efficient energy management strategy

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An energy management strategy can only be successful if all the people within the organization, including the employees and the management team, are willing and committed to the implementation of such an energy management strategy.

The following factors are the main contributors to an efficient energy strategy:

**People** — having motivated and trained employees who are well-prepared, will help organizations execute the energy management system in an effective and efficient way. An organization would need good and skilled operators and engineers in order to correctly interpret the energy data.

**Process** — Having clear energy objectives makes it easier for the organization and its employees to manage the EnMS, and help the business toward smooth functioning.

**Technology** — Having energy saving platforms and technologies would help organizations identify wasted energy and opportunities for improvement.

## Managing the organization's energy consumption

1. Measure the energy consumption and collect data

Organizations should be able to measure the energy consumption and collect the data in relation to its energy uses and the needs for improvement of its EnMS. In this way, it would be easier to track the increase in cost of the energy used within the organization (i.e. Energy Performance Indicators) and the environmental impact of its energy consumption.

2. Identify opportunities for saving energy

Organizations should be able to identify the cause of a potential redundant amount of energy spent within the organization. A regular check of equipment should be conducted to determine if the equipment are unnecessarily operating 24/7. A detailed collection of energy data and information would be a very helpful way to identify the potential opportunities of saving energy within an organization.

3. Target energy saving opportunities

After identifying the opportunities for saving energy, target those opportunities and take actions to implement them.

4. Track the development of the energy saving processes

Track the success rate of the actions that you have undertaken with regards to energy saving. Ensure that the people within the organization have understood the concept of energy saving, and are committed to achieve the organization's objectives regarding energy efficiency. See if the investments in energy equipment and technologies have produced positive results.

## When can the energy management team be considered successful?

The energy management team of an organization can be considered successful when they:

> Gain control over the energy use and ensure that the energy is being used efficiently
> Gain positive results when measuring and comparing the energy usage and performance of the period they are responsible for with that of the previous years
> Report the positive energy performance to the top management
> Continually improve energy performance of the organization

The top management, on the other hand, should involve their staff and take their ideas into consideration. They should be able to appreciate the people that have contributed in the creation of a successful energy management system. One way of doing it is by publishing and praising the successful participation of the staff in the aforementioned process. This would ensure on-going enthusiasm and support regarding the energy management system.

## How can ISO 50001:2018 help?

ISO 50001:2018 will help you:

> Explain the usage of Annex SL— Appendix 2
> Communicate all the new standard requirements, such as: Context, Leadership, Planning, Support, Operation, Performance evaluation, and Improvement
> Identify the terms and definitions of the new edition of the standard
> Communicate the new energy requirements that differ from the previous version of the standard

## The importance of being certified against ISO 50001

By getting certified against ISO 50001, organizations can gain several benefits, including:
> Reduced greenhouse gas emissions
> Reduced carbon footprint
> Globally recognized international standardization
> Increased energy awareness throughout the organization
> Reduced energy usage by means of implementing new energy-efficient technologies
> Improved image of the organization
> Improve efficiency of the organization in terms of energy

ISO 50001 helps the performance of your organization toward:
Cost saving, by means of:
> Identifying the amount and type of energy being used
> Implementing the necessary controls
> Identifying and restraining wasted energy

Legal compliance, by means of:
> Identifying and accessing legal (statutory and regulatory) requirements
> Informing all staff members about the legal (statutory and regulatory) requirements
> Preventing fines
> Being prepared for any legal or regulatory change

Continual improvement, by means of:
> Keeping track of the energy market
> Continually using natural resources
> Keeping track of all possible energy saving alternatives

Corporate social responsibility improvement, by means of:
> Optimizing the use of energy consuming resources
> Supporting the best organizational behaviors and practices and strengthening them

# The link between ISO 50001 and ISO 14001

Energy and the environment are interconnected, due to the fact that the usage of the first can have a huge impact on the latter. Therefore, the usage of energy products impacts the environment.

An organization's concerns nowadays go beyond simply decreasing energy usage and costs, or reducing its impact on the environment; they also include concerns on business continuity, achievement of intended objectives, and delivering stakeholder value.

Organizations that implement ISO 50001 and ISO 14001 benefit by reducing their costs. Additionally, ISO 50001 helps organizations measure their progress in improving energy usage and reducing emissions. This would contribute in meeting the environmental requirements as well as enhancing environmental performance.

Furthermore, both ISO 50001 and 14001 focus on the Plan-Do-Check-Act approach, and encourage the top management's participation. The standards also encourage the staff and all the people within the organization to monitor, measure, and analyze all potential issues, in order to prevent any future energy or environmental problem. This is why the standard puts a great emphasis on the trainings offered by the organization to the employees; these trainings increase the employees' awareness of their responsibilities, and give them a clear understanding of the importance of energy, and its impact on the environment.

# Training and Certification of Professionals

PECB has created a training roadmap and a personnel certification scheme that are highly recommended for the implementers and auditors of an organization that wishes to get certified against ISO 50001. Certification is vital for organizations, due to the fact that it provides evidence that they have developed standardized processes based on best practices.

The certification of individuals, on the other hand, serves as documented evidence of the professional competence of those individuals who have attended one of the related courses and exams. Furthermore, the certificate serves as a proof that a certified professional holds defined competences based on best practices. It also allows organizations to make intelligent choices regarding the selection of employees and services.

Finally, certification provides incentives to professionals to constantly improve their skills and knowledge, and serves as a tool for employers to ensure that their employees' training and raise of awareness have been effective.

PECB training courses are offered globally through a network of authorized resellers. They are available in several languages, and include introduction, foundation, lead implementer, and lead auditor training courses. The table below gives a short description regarding PECB's official training courses for energy management system based on ISO 50001.

| Training course title | Short description of the training | Who should attend |
|---|---|---|
| **ISO 50001 Introduction** | › One-day training course<br>› Introduction to the fundamental concepts of an energy management system (EnMS) based on ISO 50001<br>› Not intended for certification processes | › Individuals interested in energy management<br>› Individuals seeking to gain knowledge about the main energy management system (EnMS) processes |
| **ISO 50001 Foundation** | › Two-day training course<br>› Become acquainted with the fundamental methodologies, requirements, framework, and management approach<br>› One-hour exam | › Individuals involved in energy management<br>› Individuals seeking to gain knowledge about the main processes of the energy management system (EnMS)<br>› Individuals interested in pursuing a career in energy management |
| **ISO 50001 Lead Implementer** | › Five-day training course<br>› Master the implementation and management of an energy management system (EnMS)<br>› Three-hour exam | › Individuals involved in energy management<br>› Individuals seeking to gain knowledge about the main processes of the energy management system (EnMS)<br>› Individuals interested in pursuing a career in the field of energy<br>› Advisors involved in energy management |
| **ISO 50001 Lead Auditor** | › Five-day training course<br>› Master the audit principles and techniques, and become competent to manage an EnMS audit program<br>› Three-hour exam | › Auditors seeking to perform and lead energy management system (EnMS) certification audits<br>› Managers or consultants seeking to master an EnMS audit process<br>› Individuals responsible for maintaining conformance with EnMS requirements<br>› Technical experts seeking to prepare for an EnMS audit<br>› Expert advisors in energy management<br>› Internal auditors |