



ISO 50001



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Energy management
systems



Energy is critical to organizations, but often represents a significant cost – both to them and the environment.

World energy consumption continues to rise: it has more than doubled in the last 40 years and is projected to increase a further 30% by 2040¹⁾. What's more, energy is the major contributor to climate change, making up nearly 60% of the world's greenhouse gas emissions.

Taking action to better manage our energy consumption not only helps the planet, it saves money for organizations and society as a whole. A study commissioned by the ClimateWorks Foundation, a non-governmental organization that leverages the power of collective philanthropy in the fight against climate change, showed that if more were done to improve energy efficiency and reduce carbon growth in the industrial and buildings sectors alone, we could make over USD 3.2 trillion in public health-related savings²⁾.

ISO 50001:2018, *Energy management systems – Requirements with guidance for use*, is a strategic tool that helps organizations put in place an energy management system and use their energy more efficiently and effectively.

1) International Energy Agency (IEA), *World Energy Outlook 2017*: www.iea.org/weo2017

2) ClimateWorks Foundation: www.climateworks.org/portfolios/energy-efficiency

What is an **energy** management system?

An energy management system helps organizations better manage their energy use, thus improving productivity. It involves developing and implementing an energy policy, setting achievable targets for energy use, and designing action plans to reach them and measure progress. This might include implementing new energy-efficient technologies, reducing energy waste or improving current processes to cut energy costs.

ISO 50001 gives organizations a recognized framework for developing an effective energy management system. Like other ISO management system standards, it follows the “Plan-Do-Check-Act” process for continual improvement.

ISO 50001 provides a set of requirements that enable organizations to:

- Develop a policy for more efficient use of energy
- Fix targets and objectives to meet that policy
- Gather data to better understand and make decisions concerning energy use
- Measure the results obtained
- Review the effectiveness of the policy
- Continually improve energy management



What **benefits** will ISO 50001 bring to my business?

ISO 50001 is designed to help your organization improve its energy performance through making better use of its energy-intensive assets. Improved energy performance can provide rapid benefits for an organization by maximizing its use of energy sources and energy-related assets, reducing both cost and consumption.

ISO 50001 is used by large and small organizations all over the world. Its benefits can take many forms. For some, it is about reducing the environmental impact and enhancing reputation; for others, the aim is to drive down costs and improve competitiveness.

ISO 50001 in action

Following are a couple of success stories of organizations using ISO 50001:

Hilton

One of the world's largest hotel chains, Hilton was the first global hospitality company to achieve portfolio-wide certification to ISO 50001 following a comprehensive upgrade to its corporate responsibility performance measurement platform. The savings have been significant, reducing Hilton's energy intensity by 20.6% and its carbon intensity by 30.0% from a 2008 baseline.

"ISO 50001 has really helped us to ensure we are following a consistent approach to energy management across all our properties. Since implementing the standard, energy management has remained a key focus for our leadership and we continue to seek opportunities to drive our performance to the next level."

Maxime Verstraete, Vice President of Corporate Responsibility & ADA Compliance at Hilton



Photo: Hilton

An Garda Síochána

An Garda Síochána (AGS) is the national police force of Ireland with over 16 000 employees. When the Irish government announced its ambitious target of improving energy efficiency by 33% for the public sector by 2020, AGS implemented a robust energy management system and received ISO 50001 certification.

Since starting the project in 2009, AGS has saved USD 11 307 142 through reduced energy use and energy efficiency is now considered in everyday policing operations.

More examples of ISO 50001 in action can be found at the **Clean Energy Ministerial**, a high-level international forum promoting policies that advance the world's transition to clean energy.



"An Garda Síochána are the first national police force in the world to achieve ISO 50001 certification, achieving energy savings of 21.9% and energy cost savings of 9.3% since 2009."

Mike Dodd, Management Representative, ISO 50001 Energy Team, An Garda Síochána



Who is ISO 50001 for?

Like all ISO management system standards, ISO 50001 has been designed for implementation by any organization in the public or private sector, whatever its size, activity or geographical location.

ISO 50001 does not fix targets for improving energy performance, which is left up to the user organization or regulatory authorities. This means that any organization, regardless of its current level of energy performance, can implement ISO 50001 to establish a baseline and improve on it at its own rate.

What about certification?

Like all ISO management system standards, ISO 50001 can be implemented solely for the internal and external benefits it provides to the organization itself, its stakeholders and its customers. Certification to the standard by an independent auditor is not a requirement of ISO 50001. To certify or not is a decision to be taken by the organization, unless imposed by regulation.

Why was ISO 50001 revised?

Like all ISO standards, ISO 50001 is reviewed every five years to ensure it is up to date with market requirements. One of the main reasons for updating ISO 50001 was to align it with ISO's requirements for management system standards, including its High-Level Structure (HLS), a framework designed to facilitate the integration of new management topics into an organization's established management systems. Other key changes compared to the previous edition include stronger emphasis on the role of senior management, updates to terms and definitions as well as the normalization and clarification of energy performance indicator (EnPI) and energy baseline (EnB) text to provide a better understanding of these concepts.





The **ISO 50001** family

Since ISO 50001 was first published in 2011, a number of other related standards have been developed by ISO technical committee ISO/TC 301, *Energy management and energy savings*, to complete the energy management and energy savings family.

These include:

- ISO 50002, *Energy audits – Requirements with guidance for use*
- ISO 50003, *Energy management systems – Requirements for bodies providing audit and certification of energy management systems*
- ISO 50004, *Energy management systems – Guidance for the implementation, maintenance and improvement of an energy management system*
- ISO 50006, *Energy management systems – Measuring energy performance using energy baselines (EnB) and energy performance indicators (EnPI) – General principles and guidance*
- ISO 50007, *Energy services – Guidelines for the assessment and improvement of the energy service to users*



- ISO 50015, *Energy management systems – Measurement and verification of energy performance of organizations – General principles and guidance*
- ISO 50047, *Energy savings – Determination of energy savings in organizations*
- ISO 17741, *General technical rules for measurement, calculation and verification of energy savings of projects*
- ISO 17742, *Energy efficiency and savings calculation for countries, regions and cities*
- ISO 17743, *Energy savings – Definition of a methodological framework applicable to calculation and reporting on energy savings*

- ISO/IEC 13273-1, *Energy efficiency and renewable energy sources – Common international terminology – Part 1: Energy efficiency*
- ISO/IEC 13273-2, *Energy efficiency and renewable energy sources – Common international terminology – Part 2: Renewable energy sources*



Looking to the future

A number of other standards and related documents in the ISO 50000 family are currently in development:

- ISO 50008, *Building energy data management for energy performance – Guidance for a systemic data exchange approach*
- ISO 50009, *Guidance for multiple organizations implementing a common (ISO 50001) EnMS*
- ISO 50021, *Energy management and energy savings – General guidelines for selecting energy savings evaluators*
- ISO 50044, *Energy Savings Evaluation – Economics and financial evaluation of energy saving projects*
- ISO 50045, *Technical guidelines for evaluation of energy savings of thermal power plants*
- ISO 50046, *General quantification methods for predicted energy savings (PrES)*
- ISO 50049, *Calculation methods for energy efficiency and energy consumption variations at country, region and city levels: relation to energy savings and other factors*

More information

ISO Website: www.iso.org

ISO Website section on ISO 50001: www.iso.org/iso/home/standards/management-standards/iso50001

ISO Website section on energy efficiency:
www.iso.org/iso/energy

ISOfocus magazine: www.iso.org/isofocus

ISO videos: www.iso.org/youtube

Follow us on Twitter: www.iso.org/twitter

Join us on Facebook: www.iso.org/facebook

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Clean Energy Ministerial ISO 50001 campaign:
www.driveto50001.org



About **ISO**

ISO (International Organization for Standardization) is an independent, non-governmental international organization with a membership of 161* national standards bodies. Through its members, it brings together experts to share knowledge and develop voluntary, consensus-based, market-relevant International Standards that support innovation and provide solutions to global challenges.

ISO has published more than 22 000* International Standards and related documents covering almost every industry, from technology to food safety, to agriculture and healthcare.

For more information, please visit www.iso.org.

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ISO Central Secretariat
Ch. de Blandonnet 8
Case Postale 401
CH – 1214 Vernier, Geneva
Switzerland

iso.org

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