ISO and energy

Great things happen when the world agrees.
We are ISO, the International Organization for Standardization

We are an independent, non-governmental organization.

We are a global network of national standards bodies with one member per country.

Our job is to make International Standards.

We are coordinated by a Central Secretariat in Geneva, Switzerland.

We are not for profit: selling our standards allows us to finance their development in a neutral environment, to maintain them and to make new ones.

ISO provides a platform for developing practical tools through common understanding and cooperation with all stakeholders.

163* members

21 350* International Standards

100 new standards each month

238* technical committees

Notice that our acronym doesn’t match our name? It’s not meant to. “ISO” is derived from the Greek word isos (equal), so that it’s the same in all languages.

* September 2016
Why do we need ISO standards for energy?

The earth is warming at unprecedented rates, largely due to man-made greenhouse gases that are causing havoc to our climate. Increasing energy efficiency and the use of renewables is key to meeting the world’s energy demands while contributing to global targets to reduce carbon emissions.

ISO works through its network of national members to bring together the foremost international expertise on energy issues.


ISO standards help organizations reduce their energy consumption and adopt renewable energy technologies. They also ensure interoperability, which encourages the transition to renewable energy sources, opening up markets for innovations that address the global energy challenge.

ISO standards help us move towards “affordable and clean energy for all”, one of the UN Sustainable Development Goals, the United Nations’ new roadmap to improve people’s lives by 2030.

World energy production is at its highest ever and is expected to increase by up to 30% by 2030.*

* European Commission 2015
Who benefits from ISO standards for energy?

**Industry**

ISO standards can help organizations, large or small, to save energy and costs, while actively committing to sustainability. This gives them a competitive advantage through products and processes that are more energy-efficient and environmentally friendly.

**Regulators**

Regulators can rely on ISO standards for internationally harmonized solutions that are continually reviewed and improved. These provide a solid technical base that governments can use to achieve their national and international energy objectives and commitments.

**Consumers**

ISO standards help make government schemes more effective and improve the efficiency of electrical appliances and other energy sources. They also help consumers reduce their energy consumption and costs while contributing to global energy efficiency goals.
What energy sectors does ISO cover?

- Construction
- Renewable energy
- IT and household appliances
- Transport
- Industrial products and processes
- Power generation
- Wind power
- Hydrogen
What standards does ISO have for energy?

Out of a total of over 21,300 International Standards, ISO has more than 200 related to energy efficiency and renewables, with many more in development.

Below is a selection of ISO technical committees that develop standards for energy:

Carbon capture and storage

• **ISO/TC 265, Carbon dioxide capture, transportation, and geological storage**

ISO is working on standards that facilitate the use of this innovative technology, which consists of extracting carbon dioxide (CO₂) emissions from large stationary sources and injecting them into a geologic storage formation for safe and secure disposal.

Energy management

• **ISO/TC 301, Energy management and energy savings**

In addition to ISO 50001 on energy management systems (see box overleaf), our most widely used energy-related standard, ISO has developed standards on energy performance indicators, the measurement, analysis and verification of energy performance, as well as methodologies for the calculation of energy savings in projects, organizations and regions.

Who develops ISO standards?

ISO standards are developed by groups of experts within technical committees (TCs). TCs are made up of representatives from industry, non-governmental organizations, governments and other stakeholders who are put forward by ISO’s members. Each TC deals with a different subject; in the energy sector, for example, there are committees focusing on measuring CO₂ emissions, energy management and building design, as detailed in the following pages.
Buildings

- **ISO/TC 163**, *Thermal performance and energy use in the built environment*
- **ISO/TC 205**, *Building environment design*

Energy consumption in buildings accounts for nearly 40%\(^1\) of total primary energy use in the United States and the European Union and is rising worldwide due to population growth, increased demand for functionality and more sedentary lifestyles.

There are a number of standards that help make buildings more energy-efficient, covering everything from the design of the whole building to its individual parts. These include ISO 13153 (energy-saving design of households and small buildings), ISO 52000\(^2\) (energy performance of buildings), ISO 23045 (energy efficiency assessment of new buildings at the design stage), ISO 13790 (calculation of energy use for heating and cooling), ISO 16343 (expressing energy performance in energy performance certificates for buildings), and ISO 18292 (energy performance of window systems).

---


2) In development

---

**ISO 50001 for energy management**

ISO 50001, *Energy management systems – Requirements for use*, is one of ISO’s most widely used standards, with nearly 12 000 certifications to the standard issued in 2015 alone, not to mention the organizations using it without seeking certification. It provides organizations with a recognized framework for developing an effective energy management system. Like other ISO management system standards, ISO 50001 follows the Plan-Do-Check-Act process for continual improvement.

Many companies, big and small, have reported benefits from using ISO 50001; examples can be found in the dedicated ISO 50001 brochure.

Like all ISO standards, ISO 50001 is reviewed every five years and the new version is expected to be published early 2019.
Environmental management

- **ISO/TC 207, Environmental management**

Alongside ISO 14001 for environmental management, ISO 14064 on the quantification and reporting of greenhouse gases and ISO 14025 on environmental labels and declarations are just some of the many standards that help organizations reduce their environmental impact through smarter energy usage.
Information technology

- **ISO/IEC JTC 1/SC 39, Sustainability for and by information technology**

Standards that address the performance of information and communication technology (ICT) and household appliances are key players in reducing energy consumption. The new ISO/IEC 30134 series of standards aims to make ICT products more energy-efficient.
**Transport**

- **ISO/PC 252, Natural gas fuelling stations for vehicles**
- **ISO/TC 22/SC 37, Electrically propelled vehicles**
- **ISO/TC 197, Hydrogen technologies**

New technology is making inroads in reducing the energy consumption and polluting emissions of vehicles, but there is still a long way to go. ISO standards help pave the way for these technologies by providing useful tools to support their development. These include standards such as ISO 8714 for measuring the reference energy consumption of electric passenger cars, ISO 23274 for measuring exhaust emissions and fuel consumption in hybrid vehicles, and ISO/TS 19880, which recommends the minimum safety characteristics for hydrogen fuelling stations.
Industrial products and processes

- **ISO/TC 117, Fans**
- **ISO/TC 115, Pumps**
- **ISO/TC 184, Automation systems and integration**

ISO has standards to increase the performance and effectiveness of machines and equipment, including refrigeration and air-conditioning systems, automation systems, industrial fans, air and gas cleaning equipment and more.

Renewables

- **ISO/TC 180, Solar energy**
- **ISO/TC 238, Solid biofuels**

ISO has published 45 standards for solar energy systems and biofuels, namely standards for performance ratings and test methods, solar heating, solar panels and solid biofuels. Future technical work will cover solar thermal collectors and instruments for measuring solar radiation.
Energy management and energy savings

ISO/TC 301

Gas turbines

ISO/TC 192

Hydrogen technologies

ISO/TC 197

Thermal performance and energy use in the built environment

ISO/TC 163

Building environment design

ISO/TC 205

Solar energy

ISO/TC 180

Sustainability for and by information technology

ISO/IEC JTC 1/SC 39
More information?

- ISO Website
  www.iso.org
- ISO Website section on energy
  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
- Join us on GooglePlus
  www.iso.org/gplus
The symbol on the cover comes from the International Standard ISO 7000, *Graphical symbols for use on equipment – Registered symbols*. It is used to identify the control or the indicator for electric energy, or to identify equipment that is operated by electric energy.

Available on our Online Browsing Platform at: gotoi.so/isosymbols.