

ISO 50001



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Case study: Costa Coffee

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WHAT IS ISO 50001?

ISO 50001 is one of many voluntary International Standards developed by the International Organisation for Standardisation (ISO) – an international standard-setting body composed of representatives from various national standard organisations around the world. The UK representative is the British Standards Institution (BSI).

First published in 2011, the ISO 50001 Standard is, in effect, an energy management system; a set of inter-related or interactive elements to establish an energy policy and energy objectives and processes and procedures to achieve those objectives.

ISO 50001 is not a piece of software or an outline; it is a formal, documented management system which can be used by an organisation to establish and maintain a continuous level of energy performance improvements. The Standard is not used to manage an organisation's carbon footprint; it is squarely-focused on managing and improving the energy performance of a business by documenting, measuring and reporting on its energy use and consumption.

As a relatively new standard, ISO 50001 has been developed based on common elements shared by other major management system standards to ensure high compatibility with them - most notably the ISO 9001 quality management and ISO 14001 environmental management standards.

ISO 50001 is based on the same management system model of 'continual improvement' used for ISO 9001 and 14001 to ensure it is delivering positive change for an organisation. ISO 50001 is a data-driven standard and – unlike ISO 9001 and 14001 – uses a baseline from which an organisation must demonstrate that improvement.

Is ISO 50001 suitable and appropriate for all organisations?

ISO 50001 is available to any business regardless of size, sector or geographical location. However, the suitability of the Standard and potential benefits it can deliver will largely depend on the energy requirements of the business itself.

The Standard is most appropriate for energy-intensive companies where energy costs are a significant overhead and therefore any energy reductions that are identified will have a significant impact on those costs. This is not to say that ISO 50001 is inappropriate for all other organisations, but it may be that the cost and resource required to achieve the ISO 50001 Standard outweigh the potential financial benefits for smaller, less energy-intensive businesses – in which case, the broader ISO 14001 environmental management standard may be a more appropriate standard to achieve.

It should also be considered here, that ISO 50001 does not add to the ‘burden’ of energy reporting, but instead provides an opportunity for businesses to use energy data effectively to reduce consumption and associated costs.

What energy usage does ISO 50001 cover?

ISO 50001 can – but does not have to – cover all energy used by an organisation for all of its buildings, processes and transport. This includes gas, electric, oil and all on-site generation systems where there is a fuel used. The Standard does not take into account energy procurement.

ISO 50001 requires all ‘significant’ energy uses to be included in the energy management system – this is “energy use accounting for substantial energy consumption and/or offering considerable potential for energy performance improvement”, according to the Standard.

However, given that it is a voluntary standard, there is some flexibility here: an organisation can decide to exclude some energy outputs within its energy management system as long as there is a viable reason for doing so and it is fully documented in the scope.

The emphasis, then, is less on the amount of energy that is used, and more on the opportunity for potential performance improvements. What is included or excluded from the scope of an organisation’s ISO 50001 accreditation will largely depend on the objectives of that organisation. For example, a business with a large number of buildings could choose to include its most energy-intensive buildings and processes, and exclude others; or a firm could choose to exclude company cars while instead concentrating on electricity, natural gas and oil consumption.

Of course, to realise the maximum benefits of ISO 50001, it is recommended that an organisation includes all energy use within the Standard.

What are the potential business benefits of ISO 50001?

The first hurdle that many energy or sustainability managers have to overcome is convincing others within the organisation that ISO 50001 is the right energy management route to take – especially considering the costs of achieving it. Here, there are a number of business benefits of gaining ISO 50001 accreditation that can be cited to demonstrate how the Standard can be used as a highly-effective energy management tool: -

Energy reductions

The primary and fundamental benefit of gaining the ISO 50001 Standard is a reduction in energy use. By establishing, implementing, maintaining and continually improving an energy management system, an organisation will be more easily able to move beyond the ‘low-hanging fruit’ of energy efficiencies and reductions to analyse exactly where, when and how energy is being consumed across the business and identify further efficiency improvements and reductions. ▶

TOP TIP:

BUY A COPY OF THE STANDARD.

This sounds like a very obvious first tip, but many organisations fail to realise that a PDF copy of the Standard can be purchased directly from ISO for around £95, before going through the process themselves. This will help to build understanding of the process and identify exactly what will be required to achieve ISO 50001.



Whilst carbon reduction is not a primary reason for achieving the ISO 50001 Standard, any reductions in energy will also have a direct correlation with an organisation's overall carbon footprint, which itself is a significant benefit.

Cost reductions

Any energy reductions identified through ISO 50001 will, in turn, offer demonstrable savings on energy bills, which essentially come straight off the bottom line for the business. In the vast majority of cases, an organisation going through the ISO 50001 process will come out of the end of the first year with energy cost savings which are equal to or greater than the initial costs of implementing the Standard.

Employee engagement

As a formal, documented management system, ISO 50001 can be used to drive engagement on energy management; providing staff members throughout an organisation with a more holistic and structured approach to managing energy use. The Standard can also help to co-ordinate specific energy management team activities and identify training needs of staff members related to particular energy management processes.

Benchmarking and reporting

As ISO 50001 requires an organisation to establish an energy baseline for the measurement of energy performance, the Standard is an effective tool for a company and its stakeholders to monitor and measure energy progress. By identifying the baseline at the beginning of the ISO 50001 process, energy managers can effectively track improvement over time and compile detailed datasets that can be included within broader sustainability reports for the organisation.

Regulatory compliance (and ESOS)

As ISO 50001 requires an organisation to identify and have access to applicable legal and other requirements in relation to its energy use, consumption and efficiencies, it can be used to ensure an organisation is compliant with energy-related regulations, and that key staff members have the necessary knowledge to comply with those regulations.

One recent example of ISO 50001 being used for regulatory compliance is the Government's Energy Savings Opportunity Scheme (ESOS). When the Government announced in 2014 that ISO 50001 would be one of the alternative compliance routes available for ESOS, ISO 50001 certification bodies saw a significant increase in applications from large businesses.

With no legal obligation to implement any of the energy performance improvement measures identified within an ESOS audit, the principle of 'continual improvement' contained within ISO 50001 makes it an effective standard in encouraging businesses to go beyond ESOS compliance with their energy management processes.

Company reputation

ISO 50001 can offer significant reputational benefits by demonstrating to an organisation's stakeholders and customers that it is fully committed to limiting its environmental impact and improving efficiency beyond regulatory compliance. If an organisation gains accredited certification, it can display the official ISO 50001 and United Kingdom Accreditation Service (UKAS) logos on any relevant materials, which provide an authoritative stamp of approval for the organisation's energy management practices.

Potential reputational benefits are maximised when ISO 50001 is used alongside the broader ISO 14001 environmental management system; which can itself be used to improve the confidence of stakeholders and suppliers through strategic communication. The certification to both of these standards can help an organisation stand out from the competition as a leader on energy and environmental performance, which is particularly effectual when tendering for public sector contracts where documented management systems are expected and accreditation to ISO 50001 is praised. ▶

TOP TIP:

KNOW WHAT YOU WANT TO ACHIEVE.

Why do you want ISO 50001? Is the main driver sustainability, or profitability, or reputational gains? It's important to be aware of this before starting out.

What are the key requirements and costs for an organisation to achieve ISO 50001?

Before beginning the ISO 50001 process, there are a number of pre-requisites that an organisation should follow in order to successfully qualify for and gain certification: -

Prior energy savings

Unlike some other management standards which are based on the 'continual improvement' model, ISO 50001 primarily requires that the organisation must already be able to demonstrate that energy savings have been made, prior to gaining any certification. It is therefore important for the organisation to have some existing energy management processes and procedures in place and mapped out before applying for the ISO 50001 certification.

Staff

ISO 50001 requires an organisation to appoint a management representative(s) to promote awareness and oversee the implementation of the energy management system. This management representative should be capable of exerting influence throughout the organisation to implement and improve the energy management system.

This does not necessarily have to be a full-time post, but the Standard specifically requests that "top management shall appoint a management representative with the appropriate skills and competencies". An organisation must therefore be able to demonstrate that the person(s) managing ISO 50001 are appropriately trained and skilled to do so.

Cost

Before going through the ISO 50001 process, a business should consider the cost of employing an energy management representative(s) to oversee the energy management system; the cost of purchasing any equipment to deliver the standard (sub meters

to track specific energy usage, for example); the cost of any new technologies or systems that the organisation may want to purchase to drive improvements (LED lights or on-site renewable energy systems, for example); and the cost of certification.

On the latter, gaining accredited certification will likely cost more than unaccredited certification or self-declaration, but rates charged by external certification bodies will vary depending on the size and energy usage of the organisation, and the number of days required on-site to go through each stage of the certification. For a smaller or less energy-intensive business, certification rates will be significantly lower as certification bodies - which usually charge a daily rate - will require less time on site to carry out necessary audits. (See 'certification' section below for more information on certification options).

The costs of ISO 50001 will likely be higher in the first year of the process, as an organisation will have a two-stage audit process to go through. But in this regard, ISO 50001 should be seen from a long-term perspective as at least a cost-neutral process, with significant financial savings to be made in all cases as part of the 'continual improvement' aspect of the Standard.

Time

Time-investment is a key requirement for any company to achieve the ISO 50001 Standard. In the majority of cases for medium and large businesses, internal management of the ISO 50001 process will equate to approximately one full-time job in terms of the input that is required. Whether an organisation specifically hires a person to manage the process or builds it into the workflow of an existing team is the choice of that organisation (but the latter option can of course keep costs down).

Time will be spent gathering all of the information and data relating to the organisation's energy usage; purchasing and installing equipment, conducting audits, and liaising with certification bodies. The first year of the ISO 50001 will usually take more time and input than subsequent years due to the extent of the initial scoping, assessing and auditing processes that will be required. ▶

TOP TIP:

ENGAGE WITH THE WHOLE BUSINESS.

The energy management plan must be part of the business's culture and supported from the top of the organisation right down to operations staff.

Typically, the ISO 50001 process will take between nine and 12 months, from the very start of the process through to certification being granted. Again, this timescale will vary depending on the size and energy usage of the business, with smaller or less energy-intensive firms requiring less measurement, management and auditing time which could allow for certification to be gained within six months.

Energy policy

An energy policy is not a pre-requisite for ISO 50001, but is required of an organisation relatively early on in the process in order for the Standard to be achieved. In the 'plan' phase of the Standard, the organisation must formulate an energy policy in the form of a written statement which contains the full intent and direction of energy management for the business. This policy must then be communicated with relevant employees to ensure they are aware and capable of carrying out their energy management responsibilities as part of the 'do' phase of the Standard. (See 'energy management process' section below for more information on the different phases of ISO 50001)

Some organisations will have an existing environment policy which integrates energy – this can be replicated for the energy policy within the ISO 50001 Standard.

Technology/data

Again, it is not a pre-requisite for an organisation to have specific technology or data management processes in place to achieve ISO 50001, but the Standard will require an organisation to effectively collect all of the data it needs to demonstrate to assessors that it understands how to control its significant energy uses and therefore what realistic targets can be set for the upcoming period.

It is up to the organisation which data collection methods and technologies are put in place. Of course, the amount of data collected will depend on the size and energy use of the organisation.

How does the ISO 50001 energy management process work?

Based on the concept of continual improvement, ISO 50001 follows a Plan-Do-Check-Act (PDCA) process in order for an organisation to deliver a successful energy management system. By following this four-stage cycle, an organisation can effectively manage and continually improve its energy management processes: -

1) Plan – The organisation puts an energy manager – or energy management representative – in place to oversee the ISO 50001 process. An initial energy baseline is determined along with energy performance indicators (EnPIs) and the energy consumption of different areas of the organisation is mapped out – providing the basis for future improvements.

At this stage, the organisation will also begin to develop, document and maintain an energy review, which identifies and records how it intends to improve its energy performance. An energy policy is then drawn up, outlining the strategic and operative energy management objectives of the organisation

This policy should then be shared within the organisation.

There is also a requirement at this stage for the organisation to prove it is regularly identifying, accessing and reviewing all applicable legislation and external requirements related to energy use, consumption and efficiency.

2) Do – The stated energy management objectives are put in place, and action begins to take place within a structured management framework. At this stage, the organisation will create and implement specific action plans, under which improved energy performance will begin to be achieved.

The organisation will also plan specific operational and maintenance activities involving significant energy use, and communicate effectively with employees to ensure they fully understand how to reduce energy use and meet the requirements of the energy policy. ▶

TOP TIP:

ALLOCATE PEOPLE AND TIME ACCORDINGLY.

The ISO 50001 process requires significant time and effort. Map out and share roles and responsibilities, and ensure an implementation team is in place to deliver the best results.

TOP TIP:

MAKE ENERGY DATA VISIBLE AND EASY TO ACCESS.

Data is a crucial part of an energy management system, so ensuring it is easy to navigate complex data streams will help speed up processes and ensure everyone understands what is being achieved.

3) Check - The actions carried out in the 'Do' phase are regularly checked to ensure that the energy management system is effective and continually relevant to the business. Regular internal audits will help the organisation understand and verify if the energy management system is functioning properly and delivering the planned results.

Core processes that are significant to the energy-related performance of the organisation are monitored and measured, and the results are documented; compared with any previously-established objectives to ensure continual improvement is beginning to take place, and then reported to top management.

It is also important at this stage for the organisation to ensure it has specific procedures in place to identify, investigate, evaluate, record and review potential corrective and preventative actions, should any non-conformity with the Standard arise.

4) Act - The internal auditing carried out by the organisation is broken down into reports and a written evaluation, called the management review. This management review will identify successes, opportunities for future improvement and any changes that may be needed to optimise the energy management system and ensure the organisation can deliver continual improvement.

'Continual improvement'

The ISO 50001 Standard requires an organisation to deliver 'continual improvement' through its energy management system - in the form of energy reductions - in order for certification and re-certification to be granted.

Considering this is a voluntary and not a mandatory standard, there is no fixed level of improvement required; it is for the organisation to first decide what energy reductions are achievable, and then for assessors to ensure those reductions are challenging enough and then met.

The 'continual improvement' aspect of the Standard is not necessarily just about the organisation realising absolute decreases in energy use every year - there can be legitimate or unavoidable reasons for an organisation's total energy use increasing within a year, such as growing operations. Instead, ISO 50001 assessors will be looking for

improvements in energy performance, against the key performance indicators set out within the organisation's energy management standard. For example; has the organisation developed more energy-efficient production processes, invested in energy-saving technologies, or taken an innovative approach to energy management such as demand response?

The level of continual improvement demonstrated by a company will likely vary each year. Usually, energy savings and performance improvements are relatively more pronounced in the first years of an organisation achieving the ISO 50001, and the level of 'continual improvement' that assessors look for each year will be adjusted accordingly.

How does an organisation gain ISO 50001 certification?

Gaining official certification to demonstrate conformity with ISO 50001 adds credibility to achieving the Standard, as it shows external parties that the energy management system has been implemented and that an organisation's products or services fully meet the expectations of customers. However, as with other ISO management system standards, external certification to ISO 50001 is not obligatory.

A company that has achieved ISO 50001 has three options to demonstrate conformity: -

1) Self-declaration - No external certification is granted, but the organisation conducts a self-evaluation of its performance to the Standard. This involves having to carry out regular, rigorous internal audits to ensure effective implementation of the energy management system. The internal audit evaluates the processes, procedures and implementation of the Standard and can be conducted by either internal or external persons, as long as they are competent, impartial and objective in the auditing process.

Using this approach, an organisation can still realise the energy reduction benefits identified by the Standard at minimum costs, but has no official stamp of approval for achieving it. ▶

TOP TIP:

GET EXTERNAL FEED-BACK ON YOUR ENERGY PERFORMANCE.

It is easy to forget during the ISO 50001 process that external stakeholders - customers and suppliers - can provide valuable insight on your performance.

2) Second-party verification – An organisation is given an unofficial seal of approval by one of its major stakeholders (usually a customer), which confirms the company's conformity to the ISO 50001 Standard.

3) External certification (accredited/unaccredited) – This is the most common route taken, which sees an organisation select a certification body to carry out an external assessment of its energy management system, in order to be granted ISO 50001 certification.

There are two types of external certification that can be gained: accredited certification, granted by an organisation that is officially audited and approved by a national accreditation body (UKAS in the UK); or unaccredited certification, which is granted by an organisation that has not been approved by the national certification body.

Accredited certification is more expensive for an organisation to gain, but can add significant value to its demonstration of conformity and bring additional benefits. For example, a large enterprise in the UK that wants to use its ISO 50001 certificate to comply with ESOS will require an external Standard certificate that is UKAS-accredited.

How does the accredited ISO 50001 certification process work?

To gain ISO 50001 accredited certification, an organisation must undergo a full auditing process of its energy management system. The specifics of this process can vary based on the certification body, but will usually follow a two-stage process: -

Stage one (assessment) – A qualified assessor will carry out a 'stage-one visit' at the organisation; taking a tour of the site(s) and reading through the document that the organisation has put together and comparing it with the mandatory requirements of the Standard. If the mandatory requirements of the Standard are being met, then the management system will proceed to 'stage two' of the certification process.

Stage two (certification) – Between three and six months after 'stage one', an auditor will carry out another site visit for 'stage two', this time to determine the effectiveness of the energy management system for the organisation; to ensure that it is implemented and operational, and that improvements can be achieved. Once any corrective actions have been taken to address specific findings from either 'stage one' or 'stage two', certification may be recommended by the certification body. The files are then reviewed by an independent panel and a final certification decision is made.

It usually takes between two and three weeks from the closing meeting between the certification body and the organisation before the official ISO 50001 certificate is delivered. That certificate is then valid for three years from the date of issue, with the organisation then having to be re-certified every third year.

Re-certification/Non-conformity

Re-certification includes a re-assessment of the organisation's documented energy management system and its continual improvements. In between re-certification years, the certification body will make two annual 'surveillance visits' to the organisation, to ensure the energy management system remains effective. An organisation will incur annual costs at every stage of this process; paying for the time on-site from the certification body.

As with any management system, ISO 50001 has in place a system of non-conformity. If an organisation is unable to demonstrate continual improvement of its energy performance, then it must demonstrate that it is fully aware of that failure and has the procedures in place to take the relevant corrective and preventative actions.

An organisation would only lose ISO 50001 certification if it did not respond to a particular area of non-conformity and did not put a solution in place to drive improvements. ■

TOP TIP:

SPEAK TO A CERTIFICATION BODY WELL IN ADVANCE.

The certification market has struggled to keep pace with business demand for ISO 50001, especially in the wake of ESOS. Often, certification bodies are booked out months in advance, so you can never be too early in making contact.

TOP TIP:

SHOUT ABOUT IT.

Gaining ISO 50001 is a notable achievement for any company - it proves that you are committed to energy reductions and ready for the future. Make use of the official logos on your sustainability/marketing material where possible and relevant to share your success.

NQA CASE STUDY: COSTA COFFEE

CASE STUDY



Costa Coffee, the UK's largest coffee chain and a division of Whitbread recently became NQA's first client in the food industry to achieve certification to ISO 50001, the international standard for energy management systems. While the motivation was to cut energy use the additional benefits of the process include expanded production and increased output.

Ben Brakes, Whitbread's environment manager, wanted to focus on one of their most energy intensive sites: their coffee bean roastery based in Lambeth, south London, where energy reduction was crucial. Analysing the current operations showed that due to limited electricity availability, expansion would only be possible if spare capacity could be created.

"We looked at every piece of equipment, how it was used and when it was used in the manufacturing process. We analysed everything, from the coffee bean roasters and packaging equipment down to the kettle in the staff room," says Brakes. "It helped us to identify where

we needed to better control our equipment and allowed us to see when our peak energy uses were.

"Examining how the site was being used gave us the chance to ingrain energy saving in all of our working practices, including common, often overlooked behaviours (electric wall heaters are no longer left on if the windows are open, for example). We then focused on how equipment was used in the roasting process." As a result, some processes were changed, such as delaying switching on packaging equipment until coffee beans are roasted, instead of having it on from the start of the 12-hour operating period. Measures like this may seem simple, but this could only be done after calculating that no manufacturing time would be lost as a result of switching on later.

Such measures, coupled with more efficient equipment and behaviour change programmes, enabled the site to cut its energy use by 16%. The savings have meant the firm has met its key target to generate enough spare capacity to install a second roaster.

"Reducing our energy consumption has enabled us to expand our production capability without having to build a new site," says Brakes.

"Going for certification undoubtedly gave us a platform to go to staff and say: 'We are one of the first companies to go for this standard, we're really proud of it and you should be too.' It gives us something over and above the usual 'switch it off' campaigns and allowed us to really engage people with simple housekeeping issues that can make a lot of difference."

When it came to choosing which certification body to work with, Brakes explains, "From the start, we were very clear about what we wanted to achieve and NQA worked to support our aims and values. After long discussions we were confident that we could work together to achieve our objectives."

"NQA made the overall process simple and its aim easy to understand for people on site who hadn't any prior experience of auditing." ■

