



# ISO 50001:2018

ENERGY MANAGEMENT SYSTEM IMPLEMENTATION GUIDE



50,000  
CERTIFICATES  
GLOBALLY



100%  
TRANSPARENT  
— FEES —

1000+  
EMPLOYEES  
WORLDWIDE



AVERAGE  
CUSTOMER  
PARTNERSHIP



OVER 90

OPERATING  
COUNTRIES



# > ISO 50001:2018

**IMPLEMENTATION GUIDE**

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# INTRODUCTION TO THE STANDARD

**BS EN ISO 50001:2018 “Energy management systems – Requirements with guidance for use” sets out an energy management framework for establishing policies, processes, procedures and specific energy-tasks to meet an organization’s energy objectives. It requires an organization to define its desired energy performance, and work towards achieving its stated objective(s).**

As with other ISO management system standards, the energy management system (EnMS) in ISO 50001 is based on the “Plan, Do, Check and Act” framework. It was first published in June 2011 and updated in August 2018.

## Brief history of ISO 50001

The United Nations Industrial Development Organization (UNIDO) recognised that industry around the world needed to mount an effective response to climate change. It also noted a proliferation of national energy management standards including ones developed in China, Denmark, Ireland, Japan, Republic of Korea, Netherlands, Sweden, Thailand, USA and the European Union as a response to market demand for help with energy efficiency. In April 2007, a UNIDO stakeholders meeting decided to ask ISO to develop an international energy management standard. ISO had identified energy management as one of its top five areas for the development of International Standards and, in 2008, created a project committee, ISO/PC 242 “Energy management”, to carry out the work.

ISO/PC 242 was led by ISO members for the United States and Brazil. In addition, its leadership included the ISO members for China and the United Kingdom to ensure that developed and developing economies participated together in the strategic direction and administration of the project committee. It was transformed into a technical committee in June 2011, signifying that it would be developing additional standards.

Experts from the national standards bodies of 44 ISO member countries participated and another 14 countries were observers. Development organizations including UNIDO and the World Energy Council (WEC) were also involved.

In 2012, the Lawrence D. Eicher (LDE) Leadership Award for excellence in creative and innovative standards development went to the ISO/TC 242 technical committee for the work that was carried out to publish the Standard in June 2011. At the time, it was estimated that the Standard could influence up to 60% of the world’s energy use.



# BENEFITS OF IMPLEMENTATION

Whilst having a thought-out system to manage business processes are beneficial, there are specific benefits of implementing an EnMS which is certified to ISO 50001:



## A FRAMEWORK TO MANAGE ENERGY

An effective EnMS that is aligned with an organization's business strategy, will allow visibility of how energy is being used and areas where performance can be improved. It provides the structured policies, processes, procedures and action plans to implement energy saving opportunities. Continual improvement in energy management is therefore achieved.



## COST REDUCTION

Any energy reductions identified through an EnMS will, in turn, offer demonstrable savings on energy bills, which will reduce the overhead of a business and in some cases substantially. There are many examples of an organization undertaking the ISO 50001 process achieving first year energy cost savings which are equal to or greater than the initial costs of implementing the Standard.



## REDUCING ENERGY

Cost reduction as identified in b) above and reducing energy, go hand in hand. By establishing, implementing, maintaining and continually improving an EnMS, an organization will be able to not only deal with the initial energy saving opportunities or "low-hanging fruit" but to identify and manage where, when and how energy is being consumed and identify energy efficiency improvements and reductions.



## CARBON REDUCTION

Many businesses report their output of carbon dioxide (CO2) or "carbon footprint". Whilst CO2 reduction cannot really be cited as a primary reason for achieving the ISO 50001 Standard, any reductions in energy will have a direct correlation with an organization's overall carbon footprint.



## ORGANIZATIONAL ENGAGEMENT

The "top down" approach within ISO 50001 ensures that key senior stakeholders within the organization understand, as appropriate, its EnMS and are therefore motivated to achieve its objectives. ISO 50001 can be also be used to drive engagement on energy management; providing other members of an organization with a structured approach to managing energy use.



## BENCHMARKING

ISO 50001 requires an organization to establish a baseline to act as an indicator of energy performance. By identifying a baseline, energy efficiency can be tracked over time.



## REGULATORY COMPLIANCE

Similar to ISO 14001 and ISO 45001, ISO 50001 requires an organization to identify and have access to applicable "legal and other requirements" in relation to its energy efficiency, energy use, energy consumption and its EnMS.

In the UK, ISO 50001 can be used to comply directly with the Energy Savings Opportunity Scheme (ESOS). The Government established ESOS to implement Article 8 (4 to 6) of the EU Energy Efficiency Directive (2012/27/EU). In general ESOS applies to large UK undertakings and their corporate groups. It mainly affects businesses but can also apply to not-for-profit bodies and any other non public sector undertakings that are large enough to meet the qualification criteria.

Organizations are required under ESOS to review the total energy use and energy efficiency of the organization and identify cost-effective energy savings opportunities by undertaking an energy audit. However, if an organization has an EnMS certified to ISO 50001 then upon registration of the certification with the Environment Agency, direct compliance with ESOS is achieved.



## REPUTATION

Achieving ISO 50001 can offer significant reputational benefits by demonstrating to an organization's stakeholders that it is fully committed to managing its energy consumption and seeking ways to increase its energy efficiency.

When an organization gains certification, it can display the NQA logos on appropriate materials (in accordance with NQA/UKAS guidelines). This can not only publicise an organization's credentials (and perhaps provide a competitive edge) but can provide a short-hand infographic that energy "governance" is being achieved.



## COMMERCIALITY

It is an ever increasing trend, that when seeking to supply goods and services to the business sector (particularly the Public Sector) accredited systems such as ISO 50001 are required, in order to meet pre contract procurement award criteria.

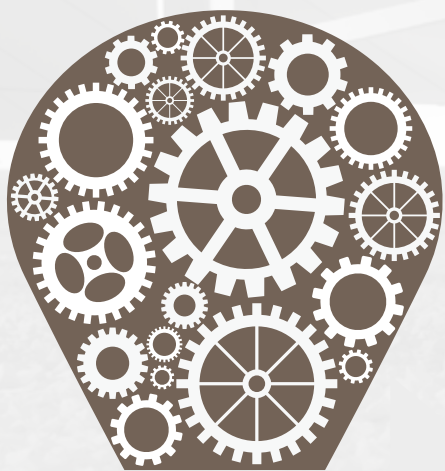
# ANNEX SL

**Annex SL provides the new common architecture for ISO Management System Standards. It replaces ISO's Guide 83, which provided a structure and text for management system standards. Guide 83 started to address the issues that many organizations had when integrating such Standards as ISO 9001, ISO 14001, ISO 27001 and ISO 50001.**

Annex SL takes the principles within Guide 83 and creates a universal high-level structure, identical core text, and common terms and definitions for all management system standards which make the integration of management systems when according to a particular Standard easier.

**Note:** the "SL" in Annex SL doesn't stand for anything – it's just the way that ISO identifies things!

A good use of Annex SL and an example of an integrated management system (IMS) is one that simultaneously handles the requirements of ISO 9001, ISO 14001 and ISO 50001. Typically, the processes required in each Standard for document control, internal audits, dealing with nonconformities, corrective actions, or management review are shared, so that the requirements of each Standard are met without duplicating effort i.e. having three processes - one for ISO 9001, ISO 14001 and ISO 50001.



## High level structure

Annex SL high level structure comprises the following:

1. **Scope**
2. **Normative references**
3. **Terms and definitions**
4. **Context of the organization**
5. **Leadership**
6. **Planning**
7. **Support**
8. **Operation**
9. **Performance evaluation**
10. **Improvement**

Clauses 1 to 3 provide a background to the Standard itself and it is not until clause 4 that the requirements of the Standard are set out.

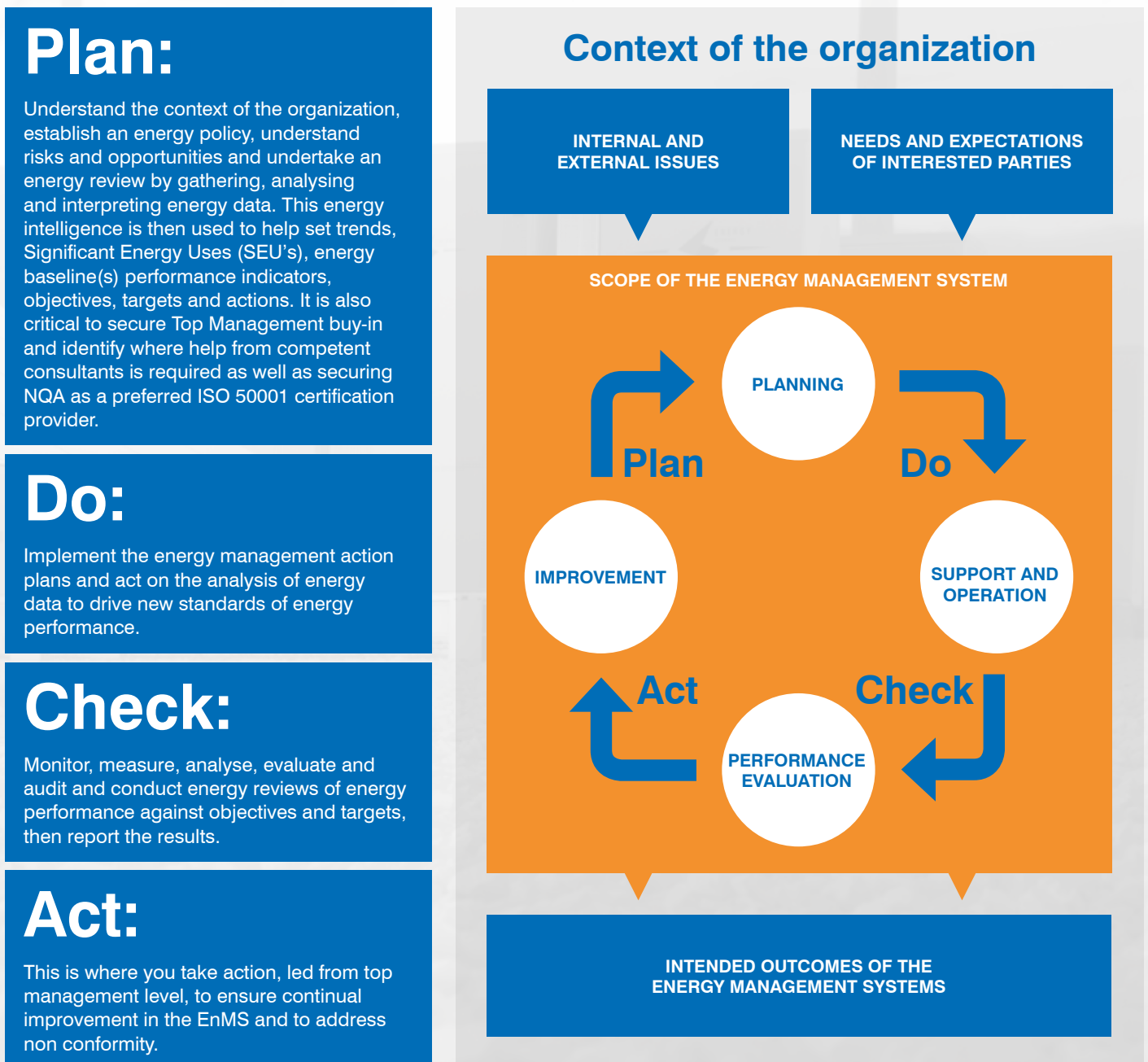
Whilst clauses 4 to 10 are common to all Management System Standards, ISO 50001 specifically relates to energy topics. So, whilst there is commonality, there are processes to be established, implemented and maintained such as an energy policy and undertaking an energy review which are unique to ISO 50001.



# PDCA CYCLE

**Plan-Do-Check-Act (PDCA) is an iterative, four-stage approach for achieving continual improvement. It involves systematically testing possible solutions, assessing the results, and implementing the ones that are shown to work. At the “heart” of this approach is leadership. The importance of leadership at all levels, but particularly by Top Management, cannot be underestimated to operate an EnMS successfully, to achieve performance levels required and generate continual improvement.**

**In the context of an EMS, PDCA is translated into the following:**



# RISK BASED THINKING/AUDITS

The Plan-Do-Check-Act (PDCA) cycle for process improvement, as described above, corresponds to proven risk management approaches. Many organizations have the process of risk management as a fundamental process particularly around information technology, finance and occupational health and safety. The following identifies the key processes in ISO 50001 where risk based thinking is inherent:

## Context:

One of the first steps of implementing an EnMS, as described below, is to gain an understanding of the “context” of the organization or, paraphrasing, the macro issues that affect and are affected by an organization. For instance, this could be security of energy supply. As an organization is subject to a variety of influences, which can change, this can lead to risks in the form of potential threats and opportunities. Determining the risks that derive from this drives an organization to consider such changes or events, analyse their impacts and chances of an event occurring and then encouraging a planning or mitigation strategy.

## Planning – legal and other requirements:

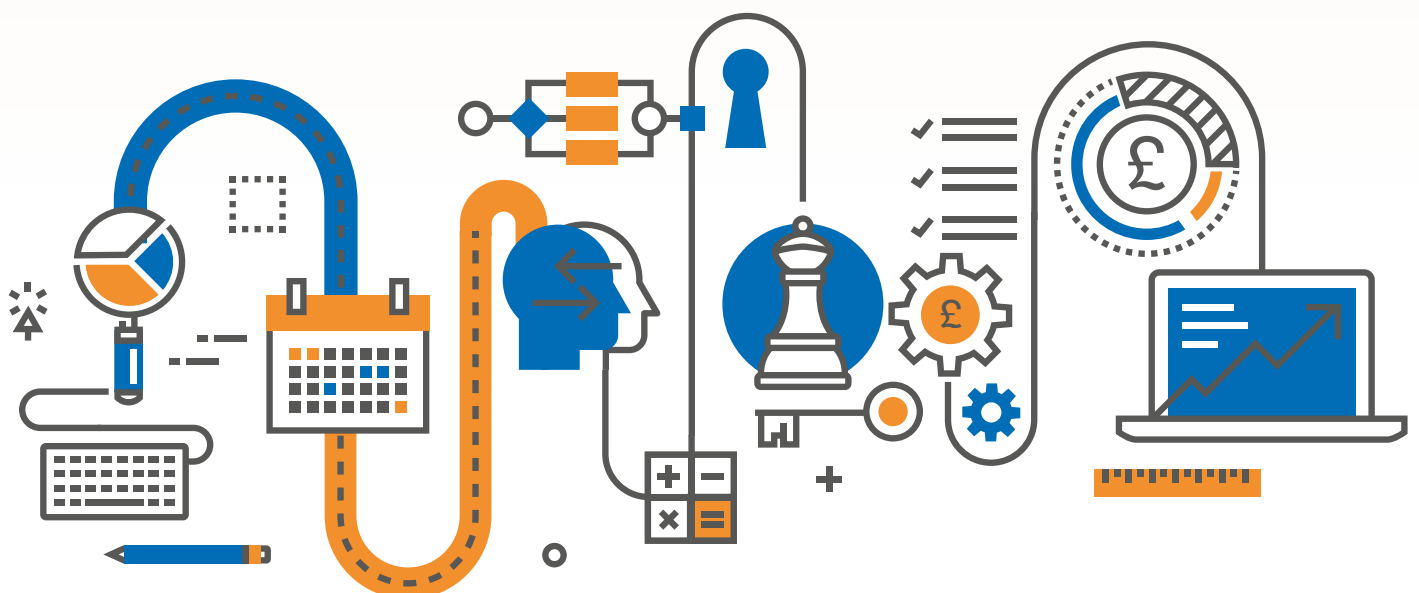
The assessment of whether an organization is complying with their energy legal framework. The concept of maintaining knowledge and understanding of its compliance status has built in risk assessment principles so that an organization can determine its compliance status and, per se, understand where it is not complying and therefore devise strategies to minimise the risk.

## Planning – risk and opportunities:

Those organizations that need further assistance in ensuring that their risk assessment process is comprehensive can look towards ISO 31000 Risk Management - Principles and guidelines. This provides generic guidelines although it is not intended to promote uniformity of risk management across organizations. Of course, the design and implementation of risk management plans and frameworks will need to take into account the varying needs of a specific organization, its particular objectives, context, structure, operations, processes, functions, projects, products, services, or assets and specific practices employed.

## Improvement – continual improvement:

A risk based philosophy means that an organization can be better prepared for the impacts of uncertainty e.g. stable power supply, which in turn means greater resilience. Moreover, risk-based thinking implicitly results in continual improvement, as an organization is always examining potential influences and changes.





# PROCESS BASED THINKING/AUDIT

Some organizations that implement an EnMS will look to integrate it with their Quality (QMS) or Environmental Management System (EMS). If this is the case, they will be familiar with “process based” thinking. However, if not, it might not be clear how the process approach is applicable to the EnMS requirements in ISO 50001.

The ISO 9001 requirements for a QMS are founded on seven quality management principles, and one of these is the “process approach”. It is explained fully in the introduction of ISO 9001, but as a paraphrased summation; a process approach is where more consistent results can be attained when consideration and management of activities are carried out as interrelated processes, which together, make up a system.

The process approach applies to an EnMS because a comprehensive appreciation of an organization’s energy use/consumption/equipment from its processes needs to be known. The following are the main areas in an EnMS where process thinking is attributable:

## Context:

A comprehensive appreciation of an organization’s processes needs to be understood when considering the macro issues which interrelate between the organization and energy consumption.

## Energy review:

In order to determine a comprehensive assessment of the energy the current types and past and current energy use and consumption need to be analysed. This will draw out Significant Energy Uses (SEUs).

## Performance and monitoring:

In order to determine energy performance, analysis of energy data derived from the EnMS needs to be evaluated.

## Support/competence:

In order to manage energy use/consumption, a person needs to be competent. When determining competence needs, competence will need to be obtained or matched to the needs of the particular energy using processes. If competence is not proven or appropriate to a particular process this could result in breaching legal requirements or energy performance being affected.

## Internal audit:

The processes which comprise the EnMS need to be systematically audited over a time and frequency to determine whether they perform effectively.

## Corrective action:

A corrective action is an opportunity to correct a problem identified in an EnMS. A process approach to this will start at root cause and finish at an appropriate and satisfactory sustainable solution.



# SECTION 1: SCOPE

There are no specific requirements for an organization to adhere to within this section. However, it sets out the parameters within which ISO 50001 can be used and provides the overall intended outcome of an EnMS as being:

- To enable an organization to follow a systematic approach in achieving continual improvement of energy performance and the EnMS.

The section also sets out that the Standard:

- Is applicable to any organization, type, size, complexity, geographical location, organizational culture or the products and services it provides.
- Is applicable to activities affecting energy performance that are managed and controlled by the organization.
- Is applicable irrespective of the quantity, use, or types of energy consumed.
- Requires demonstration of continual energy performance improvement, but does not define levels of energy performance improvement to be achieved.
- Can be used independently, or be aligned or integrated with other management systems.

# SECTION 2: NORMATIVE REFERENCES

ISO/IEC Directives, Part two, Section 6.2.2, defines the inclusion of a normative reference as, “This conditional element [of the Standard] shall give a list of the referenced documents... in such a way as to make them indispensable for the application of the document.”

In other words, by citing something as a normative reference, it is considered as indispensable to the application of that particular Standard. However, unlike ISO 9001, there are no normative references in ISO 50001.



# SECTION 3: TERMS AND DEFINITIONS

This section sets out the terms and definitions that are used in the Standard which may need further clarification in order to apply the Standard to a particular organization. They are listed according to the hierarchy of the concepts (reflecting the sequencing of their introduction in the Standard).

Terms are grouped by major clause title (i.e. Context of the Organization, Leadership, Planning, etc.). ISO/TC 207/SC 1/WG 5 agreed to order terms within the groupings such that:

- i. discipline-specified terms are presented consecutively after its generic form, and to the extent possible.
- ii. present terms in the order in which they appear in the text. WG5 inserted an “Alphabetical index of terms”, which may be modified to reflect alphabetical listings in another language.

In addition to the term or definition there are also notes that seek to provide further information and clarity.

If an electronic version of the Standard has been purchased the definitions are hyperlinked to other definitions so that their interrelationship can be seen.

The following sections, 4 to 10, provide the requirements of the Standard. When reading the Standard it is important that as with the previous iteration of ISO 50001, the word “shall” indicates the mandatory requirements that an organization must meet and external auditors, such as NQA, are required to verify conformance and effectiveness against.

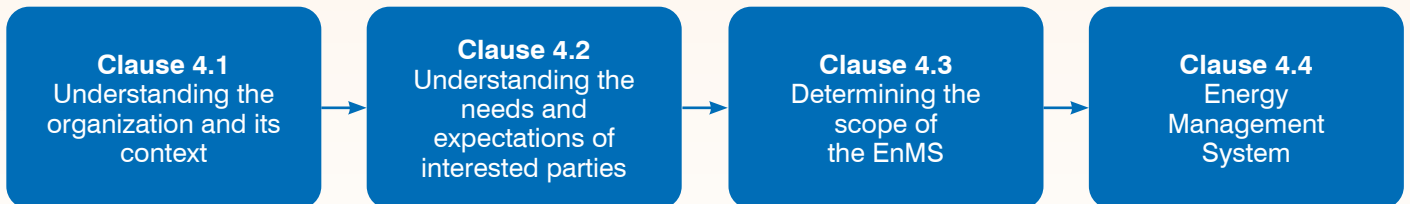
In order to understand how each of the following clauses applies to each other the remaining text applies to the following diagram:



# SECTION 4: CONTEXT OF THE ORGANIZATION

This is a new concept in terms of ISO 50001:2018 which was introduced as part of the reformatting of management ISO's using Annex SL. Of course, ISO 50001 had always asked to undertake a comprehensive review of energy within an organization but context "elevates" this to provide a broad understanding of energy use/consumption/requirements an organization has prior to working out SEU's or detailed energy performance.

The clause is sequential as there is need to understand the organization and context (4.1), prior to identifying interested parties and understanding their needs and expectations (4.2), the output of both 4.1 and 4.2 allows determination of scope (4.3), and then ultimately designing the EnMS (4.4):



Understanding the context of the organization is usually conducted by top management with information about the business and activities gathered at every level of the organization. Discussion points focus on internal and external issues which have an impact on the EnMS system.

## 4.1 Understanding of the organization and context

The intent of "Context" is to provide a high-level, conceptual of the external and internal issues that can affect, either positively or negatively, energy performance and the EnMS of the organization.

To put it another way, it is a comprehensive appreciation of the macro processes (and their interrelation) which can affect or be affected by an organization. From ISO 50001:2018 Annex A, it suggests that the following can be appreciated when understanding "context":

### External issues

- Issues related to interested parties such as existing national or sector objectives, requirements or standards.
- Restrictions or limitations on energy supply, security and reliability.
- Energy costs or the availability of types of energy.
- Effects of weather.
- Effects of climate change;
- Effect on greenhouse gas (GHG) emissions.

### Internal issues

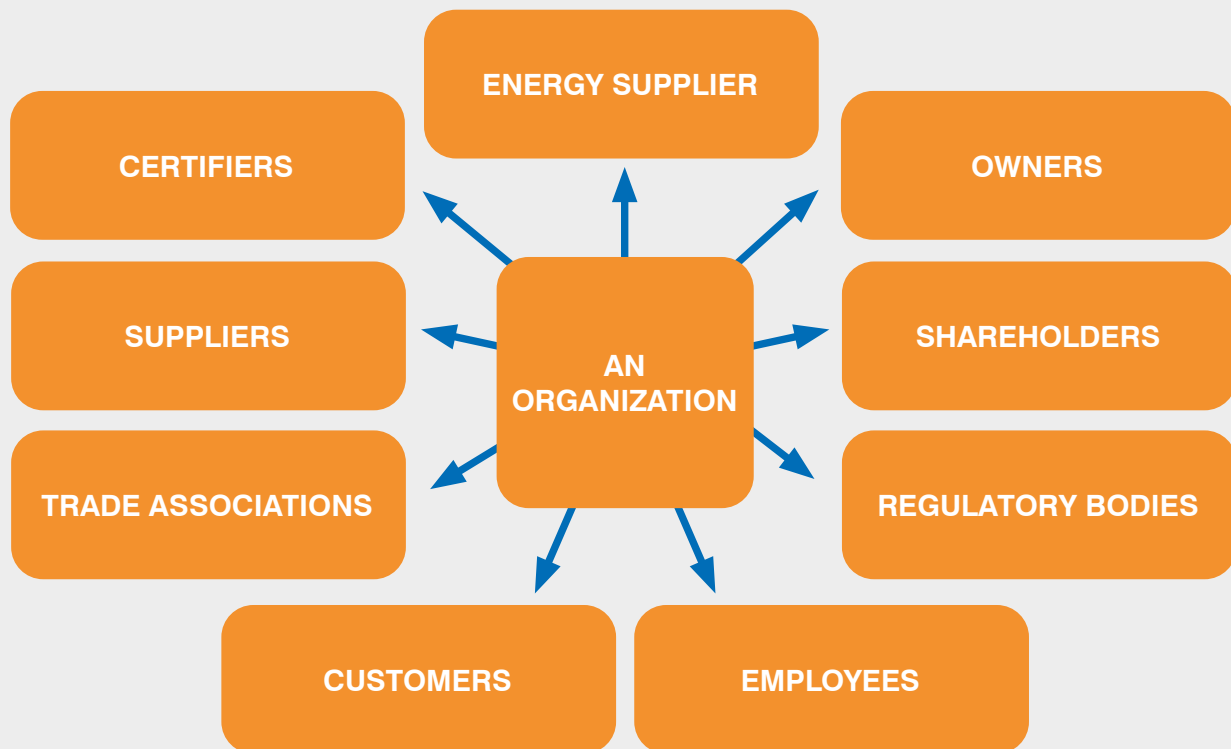
- Core business objectives and strategy;
- Asset management plans;
- Financial resource (labour, financial, etc.) affecting the organization;
- Energy management maturity and culture;
- Sustainability considerations;
- Contingency plans for interruptions in energy supply;
- Maturity of existing technology;
- Operational risks and liability considerations.

There are a number of methodologies that can be used to determine context. A good way of achieving this is to formulate a matrix setting out the requirements of the Standard (and Annex A) and then perform a series of interviews with appropriate employees, so that the knowledge of an organization can be harnessed. Where appropriate, this could be turned into a report or perhaps a matrix. The benefit of this is that it provides a cohesive explanation and a good reference to support present and future business strategy. (It can also be reflected upon when undertaking a Management Review (See Section 9 Performance evaluation below).

## 4.2 Understanding the needs & expectations of interested parties

Whilst the term “interested parties” may not be new within ISO 50001, most organizations will probably understand the term “Stakeholder” better. From an understanding of the context i.e. the conceptual or macro issues in the organization, determination of the stakeholders or interested parties will provide an understanding of energy within the organization.

Determination of interested parties can be formulated by creating a “Map” i.e. those internal and external parties who interact with an organization in relation to energy:



Once this has been created then the interested parties relevant needs and expectations need to be determined. There again, this can be an iterative process, listing the interested parties needs and expectations. What is important though is the drawing out of issues from interested parties that an organization may consider to become legal and other requirements.

This is a departure from the Annex SL format (and ISO 14001) in that “legal requirements and other requirements” are treated by the Standard as a need(s) of interested parties. This essentially requires the compilation of a list of legal and other requirements. The legal and other requirements can be derived from such interested parties as Regulatory Bodies e.g. laws, but also perhaps from Trade associations or others. As detailed in 9.1.2 below, this list can then be evaluated to determine if compliance is being achieved.

## 4.3 Determining the scope of the EnMS

From an understanding of the context, interested parties and the interested parties needs and expectations, the scope of the EnMS can be determined. The “scope” sets out a description of the extent and breadth of the EnMS. Sometimes, at the initial stages of an implementation, it can be problematic to finalise the scope because sometimes there needs to be more knowledge of the organization through implementation of the remainder of the Standard.

However, the scope has to be documented in some form within the EnMS. In some cases this could be in a manual or it could be within the Energy Policy. Either way it needs to

be defined so that the organization shall ensure that it has the authority to control its energy efficiency, energy use and energy consumption within the scope and boundaries and not to exclude an energy type within the scope and boundary of the EnMS.

## 4.4 Energy management system

The final section in clause 4 sets out that as a result of the above, an organization then has to determine, implement, maintain and continually improve the energy performance deriving from the EnMS. The remainder of this document will look at the how this is to take place.

# SECTION 5: LEADERSHIP

The Standard states that top management must demonstrate leadership, commitment with respect to continual improvement of energy performance and take accountability for the “effectiveness of the EnMS.” This sets the tone for Section 5 and the operation of the whole of the EnMS.

Its overall success and energy performance attained will depend upon the extent to which Top Management are committed in most aspects of the establishment, implementation and continual improvement of the EnMS. The following examples are how leadership can be demonstrated within an EnMS:

- Ensuring that the EnMS scope and boundaries are established.
- Ensuring that the energy policy, objectives and energy targets are established and are compatible with the strategic direction of the organization.
- Ensuring the integration of the EnMS requirements into the organization’s business processes.
- Ensuring that action plans are approved and implemented.
- Ensuring that the resources needed for the EnMS are available.
- Communicating the importance of effective energy management and of conforming to the EnMS requirements.
- Ensuring that the EnMS achieves its intended outcome(s).
- Promoting continual improvement of energy performance and the EnMS;
- Ensuring the formation of an energy management team; Whilst in the Standard it defines that one person can be a team, it is best practice to have a cross discipline team comprising the following disciplines; project management, procurement, production/service delivery, research and development, maintenance, facilities, training, communication and marketing, although, of course, its constitution will depend upon the type and size of organization. Note; that in the 2018 version of the Standard “management representative” has been omitted and now the emphasis is very much on the energy team.
- Directing and supporting persons to contribute to the effectiveness of the EnMS and to energy performance improvement;
- Supporting other relevant management roles to demonstrate their leadership as it applies to their areas of responsibility;
- Ensuring that the Energy Performance Indicators (EnPI(s)) appropriately represent(s) energy performance;
- Ensuring that processes are established and implemented to identify and address changes affecting the EnMS and energy performance within the scope and boundary of the EnMS.

Demonstration of top management commitment can occur in many ways in respect of an EnMS. However, Top Management is usually empowered to delegate authority and provide resources within an organization. It is the latter that is of key importance within an EnMS, as authorisation of resources are often required for altering energy consuming equipment into energy efficient equipment.

The Standard is holistic and there are other implied “leadership” requirements within other clauses:

## Planning:

Strategic support around identification of risks and opportunities within the organization.

## Support:

There are many instances where it is Top Management’s role to provide a steer or “sign off” in order to support the aims of the EnMS. This includes provision of resources, gaining competence, ensuring awareness, effective communication, and appropriate documented information.

## Operation:

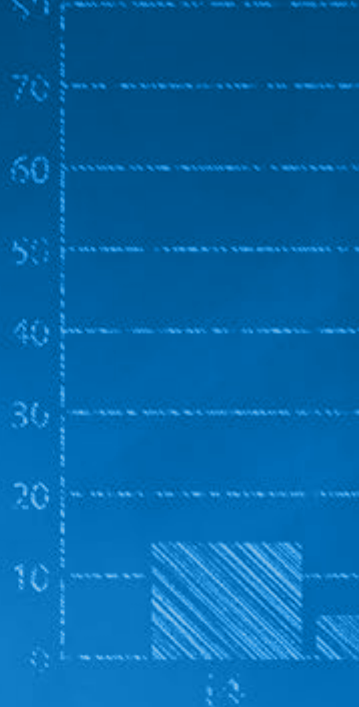
Certain operational control, design and procurement need in many cases top management’s insight and strategy.

## Performance evaluation:

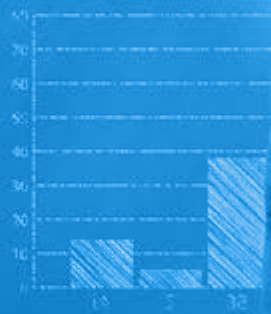
Top management needs to understand overall organizational energy performance as a key overhead and the output of internal audit and be actively involved in the Management Review process.

## Improvement:

Top Management influences the culture of continual improvement and in particular within an EnMS, the approval of monies for the introduction of energy saving measures is vital.



PERCENTAGE IMPACT ON THE SECURITIES DEBENTURE



PROJECTED SALES GROWTH DYNAMICS



PROJECTED SALES GROWTH DYNAMICS



# SECTION 6: PLANNING

The Planning section within the Standard is at the heart of managing energy effectively and can be described by the following diagram:



## 6.1 Actions to address risks and opportunities

Considerations of risk and opportunities are part of high-level strategic decision-making in an organization. By identifying risks and opportunities when planning the EnMS, an organization can anticipate potential scenarios and consequences so that undesired effects can be addressed before they occur. Similarly, favourable considerations or circumstances that can offer potential advantages or beneficial outcomes can be identified and pursued. It is a good idea to

deal with the requirements of this clause along with “energy review” as this may give you the granular information required to make informed decisions.

Within 6.1.2 the Standard sets out an organization must plan to address the risks and opportunities and how to:

- Integrate and implement the actions into its EnMS and energy performance processes.
- Evaluate the effectiveness of these actions.

**This can naturally lead to 6.2 opposite.**



## 6.2 Objectives, energy targets and planning to achieve them

The Standard says that an organization has to “establish objectives at relevant functions and levels.... and establish energy targets”.

The framework that the objectives and targets fit in is provided for in the ISO 50001 in that they shall be documented and:

- Be consistent with the energy policy.
- Be measurable (if practicable).
- Take into account applicable requirements.
- Consider SEUs.
- Take into account opportunities to improve energy performance.
- Be monitored.
- Be communicated.
- Be updated as appropriate.

The Standard sets out explicitly the framework it requires for achieving objectives and targets and a good way of depicting this, meeting the Standard and having an “Action plan” to manage the objectives and targets is to form a table of the Standards’ requirements:

What will be done?	What resources will be required	Who will be responsible?	When will it be completed?	How will the results be evaluated?

The latter column in the table above - “How will the results be evaluated?” is an interesting requirement that is worthy of further consideration. The Standard directs an organization into including indicators for monitoring progress towards achieving its objectives. Unlike other management standards where qualitative measures are more frequent, within an EnMS, they tend to be quantitative measures.

The overall theme of ensuring that the EnMS is integrated within the business is inherent within this part of the Standard. Energy objectives and targets, by their sheer nature, will, of course, be meaningful to the business and therefore be integrated into the organizations’ processes.

## 6.3 Energy review

An energy review is a documented analysis of energy efficiency, energy use, and energy consumption based on data and other information, leading to identification of areas of SEUs and opportunities for energy performance improvement. The methods and criteria by which it is produced should also be documented.

The energy review will help to establish energy performance indicators (EnPI’s), energy baseline(s) (see below) and objectives and targets for improvement.

**The energy review should include:**

- Analysis of energy use and consumption based on measurement and other data i.e. identification of current energy sources type and evaluation of past and present energy use(s) and consumption.
- Identification of the areas of the SEUs, i.e. identification of the facilities, equipment, systems, processes and personnel working for, or on behalf of, the organization that significantly affect energy use and consumption. SEUs can be defined depending on the needs of the organization, such as by facility (e.g. warehouse, factory, office), by process, or system (e.g. lighting, steam, transport, electrolysis, motor-driven) or equipment (e.g. motor, boiler). Once identified, the management and control of SEUs are an integral part of the EnMS. Of course, over time they may change but initially attention needs to focus on the significant.
- Identification of other relevant variables and energy performance of the SEUs. This should include identification of employees and others than undertake work that can influence or affect the SEUs (Which may include contractors, part –time personnel or temporary employees)
- Determination of the current energy performance of facilities, equipment, systems and processes related to identified SEUs.
- Estimation of future energy use(s) and consumption.
- Identification, prioritisation and recording opportunities for improving energy performance.

Where appropriate the energy review can also consider security and availability of supply.

Opportunities can relate to potential sources of energy, use of renewable energy, use of energy efficient equipment e.g. LED’s or other alternative energy sources.

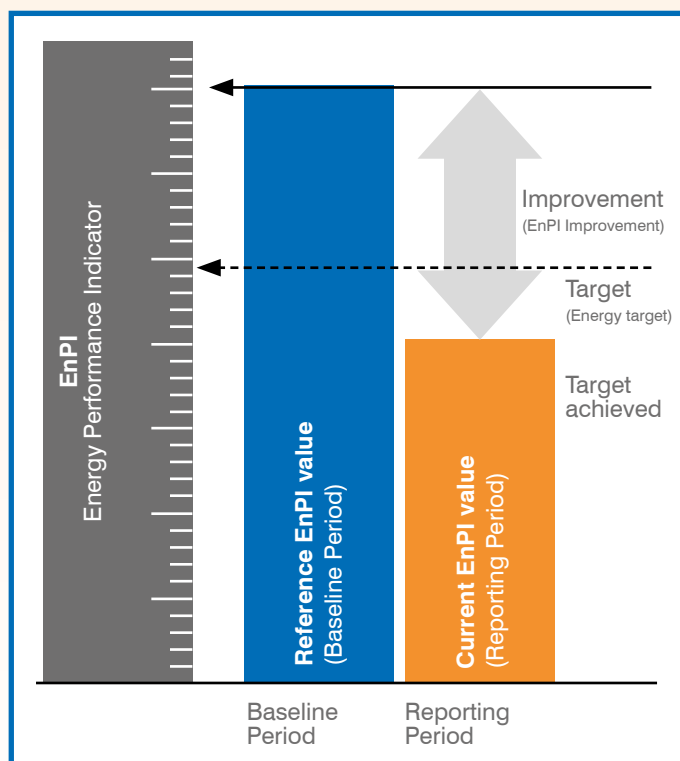
The energy review should be updated at defined intervals e.g. Yearly – perhaps in time for a Management Review, as well as in response to major changes, for instance, in any facilities, equipment, systems, or energy-using processes.

## 6.4 Energy performance indicators

ISO 50001 says that an organization must determine EnPIs that:

- Are appropriate for measuring and monitoring its energy performance.
- Enable the organization to demonstrate that energy performance has improved.

How the EnPIs are determined and updated has to be maintained as documented information. An EnPI is an analysis or “ruler” that is used to compare energy performance before (reference EnPI value) and after (resultant or current EnPI value) the implementation of action plans and other actions as depicted on the diagram below:



The difference between the reference value and the resultant value can be an improvement or a measure of a change in energy performance. When business activities or Energy Baselines change, the organization can update its EnPI(s), where relevant.

### Examples of EnPIs Inputs are:

- Monthly energy consumption data preferably separately by type of energy, e.g., electricity, natural gas etc.
- Any variables that affect the energy consumption e.g., heating degree days, cooling degree days, etc.

### Examples of EnPIs:

- Kilowatt hours (kWh) consumed per site
- kWh per linear metre of product produced
- kWh per number of staff
- kWh per square meter of occupied office space

## 6.5 Energy baseline

An energy baseline (EnB) is defined as a quantitative reference(s) providing a basis for comparison of energy performance. It is based on data from a specified period of time and/or conditions, as defined by the organization. The Standard says that an EnB should be established using the energy review (above). Where there are variables that have been identified, the baseline should be normalised (so that it makes sense!). EnB(s) should also be revised when:

- EnPI(s) no longer reflect the organizations energy performance.
- There have been major changes to the static factors e.g. an energy use that consumes a significant amount of energy is removed or introduced.
- According to a pre-determined method.

## 6.6 Planning for the collection of energy data

Data is critically important within the Standard particularly from a perspective of continual improvement. Planning for which data to collect, how to collect it and how often to collect it helps ensure the availability of the data needed to maintain the energy review and the monitoring, measurement, analysis and evaluation processes.

ISO 50001 sets out that an organization shall define and implement an energy data collection plan appropriate to its size, its complexity, its resources and its measurement and monitoring equipment. The plan has to specify the data necessary to monitor the key characteristics and state how and at what frequency the data shall be collected and retained.

The Standard is prescriptive in describing the data to be collected (or acquired by measurement as applicable) and documentation retained, and includes:

- The relevant variables for SEUs;
- Energy consumption related to SEUs and to the organization;
- Operational criteria related to SEUs;
- Static factors, if applicable;
- Data specified in action plans.

The organization must specify the frequency of reviews at defined intervals and as a result of the reviews update the information as appropriate.

Whilst the Standard doesn't use the word “calibration” as in ISO 9001, it goes without saying that the equipment used for measurement are accurate and repeatable.



# SECTION 7: SUPPORT

This section looks at the resource, communication and documentation of an EnMS. The requirements really underpin an EnMS and ensure that it runs effectively.

## 7.1, 7.2 and 7.3 Resources including competence and awareness

In order to operate an EnMS there are a variety of resources required which can include human resources, specialized skills, technology, data collection infrastructure and financial resources.

As considered in Section 5, “buy-in” from Top Management is essential, as ultimately they have the decision to deploy or invest in the resources for the EnMS. An organization also has to identify the correct resources it requires. As part of identifying resources, an organization needs to look at the information produced within Section 6 to acknowledge the

risks/opportunities and resulting objectives and targets that have been identified and need deployment of resources to mitigate or manage them.

Usually, the greatest challenge is to provide competent and knowledgeable personnel to support the requirements of the EnMS. This is particularly so in relation to energy as it is highly technical and a specialised area that can sometimes only be catered for by having appropriate consultants to assist in-house employee(s). Creating a “training-needs” matrix based upon what competency or awareness is required amongst organizations’ employees will highlight when competency has been achieved or is required. For example, if it has been identified that there is a need to undertake an energy assessment of air conditioning equipment, then there needs to be appropriate competency and resource to carry this out.

## 7.4 Communication

Effective and efficient internal and external communication is important to running an EnMS. The Standard is helpful in providing a framework in order to depict the communication process within an organization. By turning this into a table and with reference to the “interested parties” or “stakeholder” analysis undertaken in 4.2 a communications “plan” can be formed:

What will be communicated?	When will it be communicated?	To whom will it be communicated?	How will it be communicated?

Of course, the columns can be re-arranged if necessary!

One area that is often forgotten is communication with “persons doing work under the organization’s control”. As a “rule of thumb” it is advisable to treat contractors or outsourced operations as if they were “direct” employees and communicate in a manner that is effective and so that the communication is two-way. By adopting this philosophy it ensures that the “persons doing work under the organization’s control” can contribute to continual improvement. In the case of an EnMS, the Standard says that there should be a process in place so that employees and other person(s) under the organizations control can make comments or suggest improvements to the EnMS and to energy performance generally.

The Standard asks the organization to consider retaining these suggestions as documented information. In reality, whilst the Standard says consider it would be best practice to document these as they could be vital in improving energy performance and retaining them as a document may be the first part of a broader improvement process.

## 7.5 Documented Information

The Standard gives clear direction as to what documentation it requires:

Clause	Documentation Requirement
4.3 (Scope)	The scope shall be maintained as documented information and be available to interested parties.
5.2 (Energy Policy)	The energy policy shall be maintained as documented information.
6.2.1 & 6.2.3 (Objectives, energy targets and planning to achieve them)	The organization shall retain documented information on the objectives, energy targets and action plans.
6.3 (Energy Review)	The organization shall maintain as documented information of the methods and criteria used to develop the energy review, and shall retain documented information of its results.
6.4 (Energy Performance Indicator(s) (EnPIs))	The method for determining and updating the EnPI(s) shall be maintained as documented information. The organization shall retain documented information of EnPI value(s).
6.5 (Energy baseline EnB(s))	The organization shall retain information of EnB(s), relevant variable data and modifications to EnB(s) as documented information
6.6 (Planning for collection of energy data)	<p><b>Data to be collected (or acquired by measurement as applicable) and retained documented information shall include:</b></p> <ul style="list-style-type: none"> <li>a) the relevant variables for SEUs;</li> <li>b) energy consumption related to SEUs and to the organization;</li> <li>c) operational criteria related to SEUs;</li> <li>d) static factors, if applicable;</li> <li>e) data specified in action plans.</li> </ul> <p>The organization shall retain documented information on measurement, monitoring and other means of establishing accuracy and repeatability.</p>
7.2 (Competence)	The organization shall retain appropriate documented information as evidence of competence.
7.4.1 (Communication - General)	The organization shall consider retaining documented information of the suggested improvements from any person(s) doing work under the organizations control.
7.5.1 (Documented information – General)	<p><b>The organization’s EnMS shall include:</b></p> <ul style="list-style-type: none"> <li>a) documented information required by this document;</li> <li>b) documented information determined by the organization as being necessary for the effectiveness of the EnMS and to demonstrate energy performance improvement.</li> </ul> <p><b>NOTE: The extent of documented information for an EnMS can differ from one organization to another due to:</b></p> <ul style="list-style-type: none"> <li>• The size of organization and its type of activities, processes, products and services.</li> <li>• The complexity of processes and their interactions.</li> <li>• The competence of persons.</li> </ul>
7.5.3 (Control of documented information)	Documented information of external origin determined by the organization to be necessary for the planning and operation of the EnMS shall be identified, as appropriate, and controlled.
8.1 (Operational planning and control)	The organization shall...keep documented information to the extent necessary to have confidence that the processes have been carried out as planned.
8.2 (Design)	The organization shall retain documented information of the design activities related to energy performance.
9.1.1 (Monitoring, measurement, analysis and evaluation of energy performance and the EnMS)	The organization shall retain documented information on the results of the investigation and response. The organization shall retain appropriate documented information on the results from monitoring and measurement.
9.1.2 (Evaluation of compliance)	The organization shall retain documented information on the results of the evaluation of compliance and any actions taken.
9.2.2 (Internal audit programme)	The organization shall retain documented information as evidence of the implementation of the audit programme(s) and the audit results.
9.3 (Management review)	The organization shall retain documented information as evidence of the results of management reviews.
10.1 (Non-conformity and corrective action)	<p><b>The organization shall retain documented information as evidence of:</b></p> <ul style="list-style-type: none"> <li>• the nature of the nonconformities and any subsequent actions taken;</li> <li>• the results of any corrective action.</li> </ul>

After these mandatory requirements, it is up to the organization to decide whether it requires further documentation. ISO 50001 says that the organization should determine appropriate documentation “as being necessary for the effectiveness of the EnMS and to demonstrate performance improvement”. Therefore, it is up to the organization to decide when and where they need documentation and of course what form that should take, whether it is a procedure, flow chart, data table, graph or some other way of describing and managing the EnMS requirements.

Where documented information is produced it needs to be created, updated and controlled consistently. An organization should look to do this in as simple a way as they can as the greater the degree of complexity - the more it can go wrong! As a minimum, a version number, date and page numbers should be on each document.

Often organizations subscribe to software to manage their energy data. In this case the actual software provides the document control that is required under this clause.

# SECTION 8: OPERATION

In comparison to ISO 14001, the requirements for this section in ISO 50001 are less extensive.

## 8.1 Operational planning and control

Within this clause there is a need to establish and implement operating criteria for controlling processes (including the effective operation and maintenance of facilities, equipment, systems and energy-using processes) related to SEUs, and communicating the criteria to the relevant persons. Outsourced SEUs or processes related to SEUs also need to be controlled. A good example, where heating, ventilation and air conditioning (HVAC) is an SEU, is to have process(es) for maintaining the appropriate apparatus.

## 8.2 Design

Considering energy performance over the operating lifetime does not require a lifecycle analysis or lifecycle management. ISO 50001 applies to the design of facilities, equipment, systems or energy-using processes within the scope and boundaries of the EnMS. An organization must consider opportunities to improve energy performance and implement operational controls within the design of new or renovated SEUs and incorporate the results into specifications, design and procurement activities.

For new facilities, improved technologies and techniques, alternative energy such as renewables or less polluting types of energy options should be considered.

## 8.3 Procurement

The Standard seeks for an organization to establish and implement criteria for evaluating energy performance over the planned or expected operating lifetime, when procuring energy using products, equipment and services which are expected to have a significant impact on the organization's energy performance. It goes onto say that when procuring energy using products, equipment and services that an organization has, or can have, an impact on SEUs, the organization must inform suppliers that energy performance is one of the evaluation criteria for procurement.

In reality, this means that "energy" procurement needs to incorporate organizational procurement policies/procedures and in some cases capital request processes.

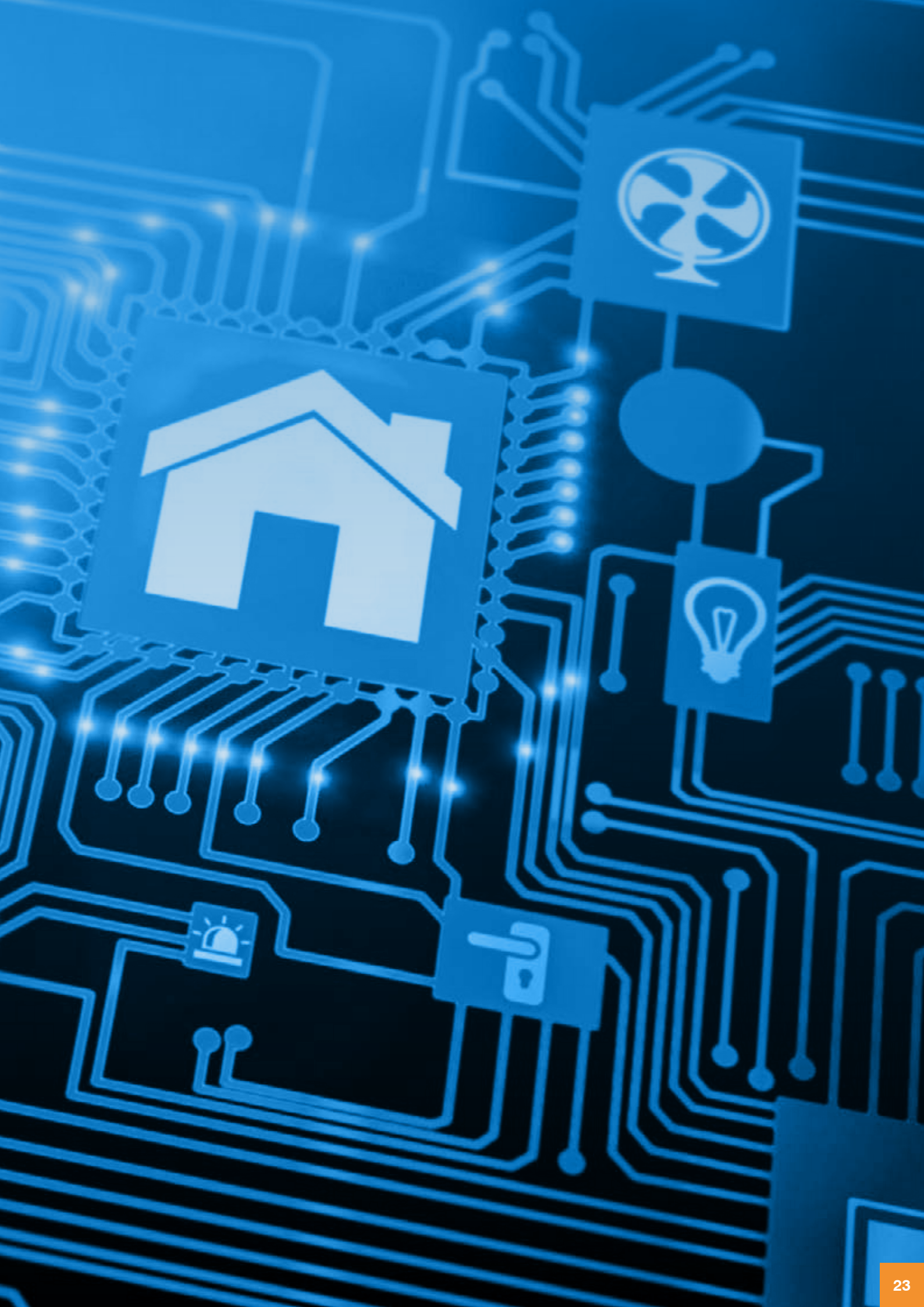
As part of the communication with suppliers ISO 50001 says that an organization shall define and communicate specifications for:

- a) Ensuring the energy performance of procured equipment and services;
- b) The purchase of energy.

This may provide opportunity to influence not only direct suppliers but into a wider sphere into the supply chain. Specifications for purchases of energy can include energy quality, quantity, reliability, availability, cost structure, environmental impact and alternative types of energy. In some case though the organization can use the specification proposed by an energy supplier, if this is appropriate.

It should be noted though that a change to, or increase in, procurement of renewable energy from outside the scope of the EnMS does not affect energy consumption, nor does it improve energy performance. It can and usually will though, have positive environmental impacts.





# SECTION 9: PERFORMANCE EVALUATION

**Performance evaluation involves; implementation of the data collection plan and appropriate documented evaluation of both energy performance improvement and effectiveness of the EnMS.**

## 9.1 Monitoring, measurement, analysis and evaluation of energy performance

The Standard is specific in what it requires as a minimum an organization to monitor and measure:

1. **The effectiveness of the action plans in achieving objectives and energy targets.**
2. **EnPI(s).**
3. **Operation of SEUs.**
4. **Actual versus expected energy consumption**

Energy performance improvement can be demonstrated by improvements in EnPI values over time, relative to the corresponding EnB. There can be situations where energy performance improvement is achieved from an activity that is not related to an SEU or key characteristic. In those instances, an EnPI and EnB can be established to demonstrate energy performance improvement. Where there are significant deviations in energy performance the Standard says that they must be investigated.

When conducting analysis, the limitations of the data (accuracy, precision, measurement or uncertainty) and consistency of energy accounting should be taken into account before reaching final conclusions. This needs to include the frequency of the monitoring and measurement.

its legal requirements pertaining to energy efficiency, use, consumption and the EnMS and any other energy related energy requirements that an organization treats in the same way as legislation.

In practice, the range and scope of energy related legislation that can impact an organization can be limited in number. Essentially a list of appropriate legal and other requirements can be compiled. Then an organization can determine if compliance is being achieved by sampling appropriate evidence. In many organizations this will entail “an audit(s)”, perhaps annually, to determine that the specific legal and other requirements are being met. The result of such an audit will establish the “compliance status”.



### 9.1.2 Evaluation of compliance with legal requirements and other requirements

As is the case with ISO 14001 and ISO 45001 an organization has to evaluate and document the result of compliance with





## 9.2 Internal audit

A fundamental to continual improvement and a dynamic EnMS is an effective internal audit process. The expectation of internal auditing by organizations should be to determine whether the EnMS:

- Improves energy performance.
- Conforms to:
  - The organization's own requirements for its EnMS.
  - The energy policy, objectives and energy targets.
  - The requirements of ISO 50001.

Therefore, an organization needs to check “are we doing - what we say we are doing?” To carry an internal audit out effectively a competent energy auditor should use ISO 19011:2018 Guidelines for auditing management systems as a framework. This sets the Standard for carrying out an audit and should be part of the competency requirements of internal auditors.

An audit should check that an organization is meeting the requirements of ISO 50001. Some organizations mistakenly think that this can be carried out as part of certification activities that companies such as NQA carry out. This is not the case; an organization should determine, through internal audit, that they are meeting the requirements of the Standard (at a suitable frequency). Many organizations undertake this kind of

audit on a yearly basis and do so by turning the Standard into a questionnaire and then systematically going through each part of the EnMS to determine if a particular requirement within the Standard is being met.

The Standard asks an organization to produce documented information as evidence of the implementation of an audit programme and audit results. An audit programme in its simplest form sets out when and what is going to be carried out over a period of time. Organizations may have programmes which cover many years (or perhaps a certification cycle) but as a suggestion a minimum of a programme covering twelve months should be produced.

The Standard also says that auditors should conduct audits to ensure objectivity and the impartiality of the audit process. This is sometimes inherently difficult as internal auditors (by their name) have a close relationship with the organization being audited. However, sensible guidelines so that internal auditors do not audit their own processes should be strived for.

When an audit has been carried out and the results of that audit produced (in a documented form e.g. an audit report) it is important that they are efficiently communicated to appropriate stakeholders including appropriate Management. Some of the best performing organizations ensure that the results (which can include non conformities – see section 10 below) are fed also into “Top Management”. This can be important, especially where an audit has found deficiencies within the EnMS and resources are needed to rectify the situation.

## 9.3 Management Review

The most wide ranging and strategic evaluation of performance is the Management Review process. The Management Review must be carried out by Top Management and should essentially be based upon factual input (generated by the EnMS) in order to make recommendations and improvements going forward (outputs). The Standard is helpful in providing a framework of what a management review should entail and it is suggested that these headings are used in the documented information that is produced by an organization:

**Note: comments on each section have been included to provide guidance when carrying out the Management Review.**

Excerpt from 9.3 of ISO 50001	Comment
<b>a) the status of actions from previous management reviews.</b>	This should be a summary to what extent previous management review actions have been carried out or not carried out and the reasons why. Some organizations produce a comparative table.
<b>b) changes in:</b>	
<b>external and internal and associated risks and opportunities issues that are relevant to the EnMS.</b>	This is a review of the context review detailed in section 4. Changes in relation to external and internal issues should be explained.
<b>c) information on the EnMS performance, including trends in:</b>	
<b>1) nonconformities and corrective actions.</b>	This should be a review of the non conformities and corrective actions that have taken place since the last management review. If there have been particular trends in either corrective actions or non conformities they should be brought out as there may be decisions required to mitigate their occurrence.
<b>2) monitoring and measurement results.</b>	As detailed earlier in this section, a depiction should be created to determine whether the monitoring and measurement that is carried out is providing energy performance improvement and effectiveness of the EnMS.
<b>3) audit results.</b>	The results of audits carried out since the last Management Review should be appraised. To cover this comprehensively it should include both internal and external audits. The depth to which this is carried out will differ from organization to organization and the quantity of audits carried out.
<b>4) results of the evaluation of compliance with legal requirements and other requirements.</b>	To satisfy this part of the Standard, it can be as simple as saying that the organization is "meeting its legal and other requirements". On a practical level, if a particular legal requirement is proving tricky to comply with then this should be highlighted too.
<b>d) opportunities for continual improvement, including those for competence.</b>	Opportunities for continual improvement may have been brought out of other sections of the Management Review although any other opportunities for improved energy performance should be reflected upon.
<b>e) energy policy.</b>	A review of energy policy can be whether it is still fit for purpose or whether it needs to be changed as the organization has changed in some way.
<b>The extent to which objectives and energy targets have been met.</b>	Reviewing whether objectives and energy targets have been achieved needs to be carried out. This can be produced in a variety of different ways but text; data tables/graphs are widely used.
<b>Energy performance and energy performance improvement based on monitoring and measurement results including the EnPI(s).</b>	Once again, reviewing whether the status of performance gives a good indication whether improvement is or is not being achieved. This can be produced in a variety of different ways but text; data tables/graphs are widely used.
<b>Status of the action plans.</b>	The action plans that have been generated to provide a framework to improvement are reviewed to see if a) they are being undertaken but b) also achieving what was anticipated.

## Following the review, the Standard asks for the following “outputs”:

The outputs of the management review shall include:	
<b>decisions related to continual improvement opportunities and any need for changes to the EnMS, including:</b>	This should be a wide ranging appraisal whether the EnMS is suitable, adequate and effective.
<b>a) opportunities to improve energy performance;</b>	Whether from the inputs to the management review there are ways that energy performance can be improved.
<b>b) the energy policy</b>	What the changes, if any, are to the energy policy.
<b>c) the EnPI(s) or EnB(s);</b>	What performance has been achieved in terms of the data collected.
<b>d) objectives, energy targets, action plans or other elements of the EnMS and actions to be taken if they are not achieved;</b>	Where objectives, energy targets, action plans or other parts of the EnMS have not been met, decisions whether they could not be achieved for specific legitimate reasons need to be brought out where appropriate and plans put in place to resolve them.
<b>e) opportunities to improve integration with business processes.</b>	This should be a recommendation as to whether the EnMS is integrated within the organization or whether further integration is required. To be an effective EnMS the closer the integration is to the organization and its processes greater benefit is likely to be achieved.
<b>f) the allocation of resources.</b>	A recommendation as to whether resources are adequate to run the EnMS broadly or resources to carry out individual process should be formulated. Very often “Top Management” need to informed about inadequacy of resources (in whatever form) so that change can be provoked especially if investment (with pay-back) is required to be decided upon particularly on capital spend.
<b>g) the improvement of competence, awareness and communication.</b>	A recommendation should be formulated from the determination of whether competence, awareness or communication needs further work.



# SECTION 10: IMPROVEMENT

This section draws together the fundamentals for achieving continual improvement i.e.:

- Those items within section 9 in relation to the results from analysis and evaluation of environmental performance, evaluation of compliance, internal audits and management review.
- Non conformity and corrective action.

## a) Non conformity and corrective action

The audit process, whilst evaluating the performance of the EnMS, can bring about non conformities and resulting corrective actions. A non conformity in relation to energy use/consumption or related energy infrastructure can occur in an organization at any time. A methodology to capture, manage and resolve needs to be undertaken and the Standard asks for the following:

- **React to the nonconformity and, as applicable:**
  - 1) take action to control and correct it;
  - 2) deal with the consequences;
- **Evaluate the need for action to eliminate the causes of the nonconformity, in order that it does not recur or occur elsewhere, by:**
  - 1) reviewing the nonconformity;
  - 2) determining the causes of the nonconformity;
  - 3) determining if similar nonconformities exist, or could potentially occur;
- **Implement any action needed;**
- **Review the effectiveness of any corrective action taken;**
- **Make changes to the environmental management system, if necessary”.**

The Standard says that this process should be documented. There are various ways to achieve this but usually this comprises a “Corrective Action Request” (CAR) for each corrective action and a “log” which is essential to record and manage the CARs. This is especially useful where numerous corrective actions are raised.

The “log” can be as simple as:

Audit date:	Non conformity description:	Responsibility:	When due:	Action taken:	Date non conformity closed:

More complex systems can “code” different types of non conformity. This can then be used to generate trend data that can be useful in ongoing performance appraisal of the EnMS and the Management Review process.

## b) Continual improvement

The Standard says that: “The organization shall continually improve the suitability, adequacy and effectiveness of the EnMS. The organization shall demonstrate continual energy performance improvement.”

In the context of continual improvement, the expectation is that improvements occur periodically and over time. The rate, extent and timescale of actions that support continual improvement are determined by the organization, in light of its context, economic factors and other circumstances. (Note; some circumstances may be unplanned).

**Energy performance improvement can be demonstrated in several ways, such as:**

- Reduction in normalised energy consumption for the scope and boundaries of the EnMS;
- Progress toward an energy target(s) and management of the SEUs.

It is recognized, however, that improvements are achieved based on the priorities of the organization as stated within the EnMS.

**It is important that an organization selects objectives and EnPI’s carefully so that they can demonstrate energy improvement. The following Standards can assist in this:**

- ISO 50006, Energy management system - Measuring energy performance using energy baselines (EnB) and energy performance indicators (EnPI) - General principles and guidance
- ISO 50015:2014, Energy management systems - Measurement and verification of energy performance of organizations - General principles and guidance

The need to demonstrate energy performance cannot be underestimated within the Standard (it is mentioned over 150 times!) and it is a key factor that an NQA auditor will ask an organization to demonstrate when undertaking an audit against the requirements of ISO 50001.

# GET THE MOST FROM YOUR MANAGEMENT SYSTEMS

## Top tips for the successful implementation of a EnMS



1. To have an effective EnMS ensure that “Top Management” is committed to its establishment, implementation and continual improvement.



7. Use ISO 50001 for compliance directly with ESOS.



2. Use “Context” to understand the macro energy issues.



8. Aside of the potential to save energy, there is commerciality in having ISO 50001. Organizations are often asked at tender stage how they manage energy. If they say they have ISO 50001, procurement personnel are satisfied.



3. Integrate the EnMS into your work processes so that it is not another thing to do – it’s just what you do!



9. Understand that energy management requires an organization to shift from a project-by-project approach to one of continual improvement in energy performance



4. Allocate people and time wisely.



10. Use the ISO 50001 Standard as a means to design an EnMS.



5. Start “small and simple” with data capture and then expand over time.



11. Make energy data visible and easy to access.



6. The energy plan must be part of an organization’s culture and supported from top management to all employees. Educate your organization, promote it, get buy in.



12. Use Management Review to provide strategic direction.

# COSTA CASE STUDY

Keeping Costa alert - Costa is certified to ISO 50001 for its energy management system.



Costa understand that to be an industry leader you have to stay ahead of the game. That's why they approached us to help them meet energy targets and secure ISO 50001 certification. Not only are they one of the first companies in the food industry to achieve such a high standard, energy use was cut by 16% in the process. Reduced costs meant that they were able to expand production without building a new site. That's some smart growth.

While Costa Coffee's motivation was to cut energy use the additional benefits of the process have been to expand production and increase output.

## THE BUSINESS BENEFITS

While there is currently no legislation requiring companies to demonstrate their energy management processes, an increasing number of organizations choose to do so by going through a certification process – but why?

Costa Coffee, the UK's largest coffee chain and a division of Whitbread became NQA's first client in the food industry to achieve certification to ISO 50001, the international standard for energy management systems.

## ENERGY GOALS

While the motivation was to cut energy use the additional benefits of the process have been 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.

Upon analysing their current operations, it became apparent that, due to the limited amount of electricity available to the site, expansion would only be possible if they could create spare capacity.

## ENERGY AUDIT

*"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," remembers 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 engrain 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."*

## PROCESS IMPROVEMENTS

As a result, some processes were changed, such as delaying the switching on of 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 with hindsight, but this could only be done after calculating that no manufacturing time would be lost as a result of switching on later.

## THE RIGHT PARTNER

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. A few members of Whitbread staff were already aware of the certification process but often people can be afraid of the word 'audit', especially if they haven't been through the process before. NQA made the overall process simple and its aim easy to understand for people on site who hadn't any prior experience of auditing."*

Having seen the benefits of ISO 50001 in Costa, Whitbread intend to roll out the standard to the company as a whole.

Ben Brakes, Whitbread's environment manager

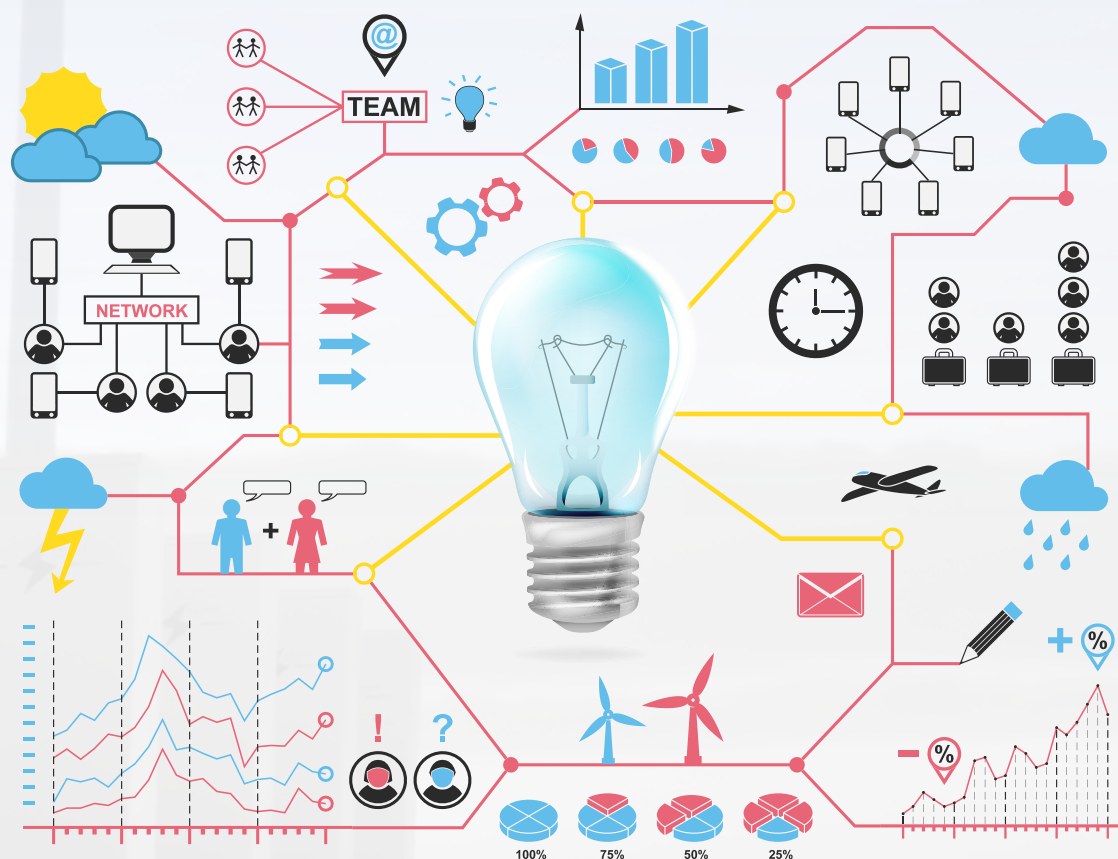
**“ Reducing our energy consumption has enabled us to expand our production capability without having to build a new site. ”**

”

# ENERGY MANAGEMENT TRAINING

Using ISO 50001:2018 as a framework, learn how to implement, audit and improve your energy management system and reduce impacts. Our courses suit the needs of new energy managers implementing ISO 50001 for the first time through to auditors and professionals.

COURSE DETAILS	LEVEL	DURATION	PRICE
<a href="#">NQA ISO 50001 EnMS (Energy) - Transition Training</a>	1	1 Day	£425.00
<a href="#">CQI and IRCA ISO 50001 ENMS (Energy) Internal Auditor Training (A2152)</a>	2	2 Day	£750.00
<a href="#">CQI and IRCA ISO 50001 ENMS (Energy) Lead Auditor Conversion Training (A2172) (In-House)</a>	3	3 Days	£950.00



# NEXT STEPS ONCE IMPLEMENTED

1

## AWARENESS TRAINING

- Your organization should raise awareness about various standards covered under EnMS.
- You should hold separate training meetings for top management, middle management and junior level management, which will help to create a motivating environment, ready for implementation.

2

## POLICY AND OBJECTIVES

- Your organization should develop an Integrated Energy management systems and Health & Safety Policy (if applicable) and relevant objectives to help meet the requirements.
- For integrated systems, by working with top management your company should hold workshops with all levels of management staff to outline the integrated objectives.

3

## INTERNAL GAP ANALYSIS

- Your organization should identify and compare the level of compliance of existing systems against requirements of the standards under your new EnMS.
- Relevant staff should all understand the operations of the organization and develop a process map for the activities within the business.

4

## DOCUMENTATION / PROCESS DESIGN

- The organization should create documentation of the processes as per requirements of relevant standard(s).
- You should write and implement a manual, functional procedures booklet, work instructions, system procedures and provide associated terms.

5

## DOCUMENTATION / PROCESS IMPLEMENTATION

- Processes / Documents developed in step 4 should be implemented across the organization covering all the departments and activities.
- The organization should hold a workshop on the implementation as per applicable for the ISO standard requirements.

6

## INTERNAL AUDIT

- A robust internal audit system for the organization is essential.
- It is important to implement corrective actions for improvements, in each of the audited documents, in order to bridge gaps and ensure effectiveness of EnMS.

7

## ORGANISE A MANAGEMENT 'SYSTEM' REVIEW MEETING

- Top management must review various official business aspects of the organization, which are relevant to the standards being implemented.
- Review the policy, objectives, changes in context, results from previous management meetings, results of system updating activities, monitoring and measuring results, analysis of results of verification activities related to PRPs and hazard control plan, results of internal and external audits, results of process performance of external providers, results of complaints/feedback/legal compliance, results of risk and opportunities, adequacy of resources, and develop an action plan and any need for changes or updates to the EnMS following the meeting - which must be minuted.

8

## THOROUGH GAP ANALYSIS OF IMPLEMENTED SYSTEMS

- A formal pre-certification gap analysis should be conducted to assess effectiveness and compliance of system implementation in the organization.
- This final gap analysis will prepare your organization for the final certification audit.

9

## CORRECTIVE ACTIONS

- Organization should be ready for final certification audit, providing that the gap analysis audit conducted in the last step and all the non-conformities (NC) have been assigned corrective actions.
- Check that all the significant NCs are closed and the organization is ready for the final certification audit.

10

## FINAL CERTIFICATION AUDIT

- Once completed, your organization is hopefully recommended for registration to ISO 50001.
- CONGRATULATIONS!

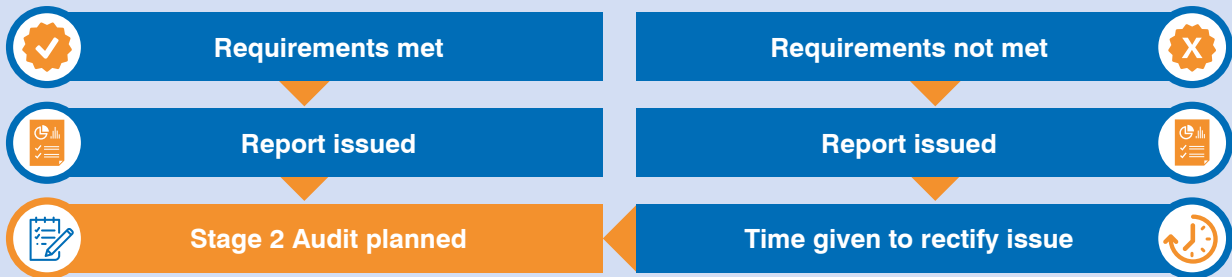




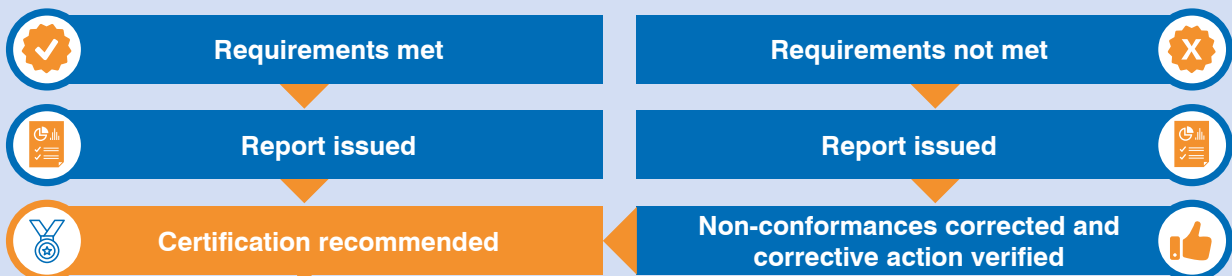
# JOURNEY TO CERTIFICATION



## STAGE 1 AUDIT COMPLETED



## STAGE 2 AUDIT COMPLETED



### CERTIFICATION AWARDED

3 year validity and surveillance audits to maintain certification





Associate Partner Programme

# NQA ASSOCIATE PARTNER PROGRAMME



If you are looking for a consultant to assist you with a new or existing management system, NQA can help!

Our APP has consultants from all over the country enlisted on it. The register is designed to help you find experienced consultants who can help.

“ We have been using JMT Quality Consultants as our ISO external auditor for the past couple of years and I wish that we had done so much earlier! We have found them to be very professional, providing not only a comprehensive audit report but additional ideas for improvement and contacts for our company that we could additionally benefit from. ”

SAFETYBOSS

“ The professionalism and work-ethic Clark from CBO Associates showed during our ISO 9001 process was excellent. Clark is a professional in his delivery, a knowledgeable person that offers a high level of service which makes him an ideal QHSE Consultant. His ideas and delivery are both creative and effective. ”

CLARK-IT,  
ABERDEENSHIRE

“ Since being certified to ISO 9001 and ISO 14001 we have relied on Martin Giddens from Morton Hodson for support with our annual process auditing. Martin understands our business and always advises us of which changes to guidance and regulations apply and what we need to do to implement them. Martin's expertise ensure that staying compliant is simple. ”

LONSDALE DIRECT SOLUTIONS

To find a consultant to support you through your certification journey contact us on:

**0800 052 2424** (option 2) or email [sales@nqa.com](mailto:sales@nqa.com)



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### USEFUL LINKS

**IEMA – Transforming the world sustainability**  
<https://www.iema.net/>

**edie.net**  
<https://www.edie.net/>

**Energy Management Training**  
<https://www.nqa.com/en-gb/training/energy>

**ISO - International Organization for Standardization**  
<https://www.iso.org/home.html>

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