



# ISO 50001:2018 GAP GUIDE



**43,000**  
CERTIFICATES  
GLOBALLY 

**1000+**  
EMPLOYEES  
WORLDWIDE 

AVERAGE  
CUSTOMER  
PARTNERSHIP 

OPERATING  
COUNTRIES 

# INTRODUCTION

This document provides an overview of the key changes between the 2011 and 2018 version of ISO 50001 – there are several new requirements in addition to changes to key definitions. You will need to prepare for change and adapt your energy management system to meet the new requirements and transitional timelines.

## ISO 50001:2018 TIMESCALES

ISO 50001:2018 was published 22 August 2018 and is the replacement for ISO 50001:2011. For organizations currently using ISO 50001:2011 there is a three-year transition period to switch to ISO 50001:2018.

## STRUCTURE OF ISO 50001:2018

The structure of ISO 50001:2018 follows the high level structure being applied to all new and revised ISO management system standards:

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

## OUR VALUES

We will help you understand the changes, interpret the new concepts and act on the implications.

Keep updated with the changes at [www.nqa.com](http://www.nqa.com)

Please get in touch if you have any questions

## IMPORTANT NOTE:

There is a three-year transition period for organizations currently using ISO 50001:2011 to switch to ISO 50001:2018

## MAJOR DIFFERENCES IN TERMINOLOGY

You will find that some of the familiar terminology of ISO 50001:2011 has either been changed or removed. Here are the highlights, but please also refer to the key concepts above for additional guidance:

**ISO 50001:2011**  
Documents and Records  
Energy Manager  
Preventive Action  
Term not used  
Term not used  
Term not used

**ISO 50001:2018**  
Documented Information  
Energy Management Team  
Term not used  
Leadership  
Opportunity  
Risk

# GAP ANALYSIS AND GUIDANCE

ISO 50001:2018  
CLAUSES

ISO 50001:2011  
CLAUSES

GUIDANCE

## 4 Context of the organization

<p>4.1 Understanding the organization and its context</p>	<p><b>New requirement!</b></p>	<p>This new concept relates to the factors and conditions affecting organizational operation and energy performance improvement e.g. regulation, governance and other conditions.</p> <p>The organization must determine external and internal issues relevant to its activities and that can affect its ability to achieve the intended outcomes of its energy management system (EnMS) and improve its energy performance. There is a requirement for a high level understanding of the influential factors that can affect, negatively or positively, energy performance and the EnMS of the organization.</p>
<p>4.2 Understanding the needs and expectations of interested parties</p>	<p><b>New requirement!</b></p>	<p>Consideration should be given to who the interested parties might be and what their relevant interests might be, e.g. employees, neighbours, customers, shareholders, board members, competitors, regulators, etc.</p> <p>The needs and expectations of interested parties must also include at this point relevant and applicable legal and other non-legislative requirements.</p>
<p>4.3 Determining the scope of the energy management system</p>	<p><b>4.1 General requirements</b></p>	<p>Consideration needs to be given to a number of specified factors when establishing the scope of the EnMS. The organization must have the authority to control its energy use, efficiency and consumption within the defined scope.</p> <p>It is not permissible to exclude an energy type that is used within the defined scope of the system.</p>
<p>4.4 Energy management system</p>	<p><b>4.1 General requirements</b></p>	<p>Consideration needs to be given to the knowledge referenced in clause 4.1 on the context of the organization when establishing, maintaining and continually improving the energy management system.</p>

## 5 Leadership

<p>5.1 Leadership and commitment</p>	<p><b>New requirement!</b></p>	<p>Top management of the organization are now required to demonstrate leadership and commitment to the EnMS in a number of specified ways including a commitment to continual improvement in energy performance.</p>
<p>5.2 Energy policy</p>	<p><b>4.3 Energy Policy</b></p>	<p>The policy must commit to a continual improvement in energy performance, satisfying all applicable legal and other requirements, support the procurement and design of energy efficient products, processes &amp; services and the provision of information and resources necessary to achieve objectives and targets.</p>
<p>5.3 Organizational roles, responsibilities and authorities</p>	<p><b>4.2.2 Management Representative</b></p>	<p>There is no longer a need for a specific management representative, however the roles, responsibilities and authorities previously assigned to them still need to be assigned within the organization to the energy management team.</p>

## 6 Planning

<p><b>6.1</b> Actions to address risks and opportunities</p> <p><b>6.1.1</b> General</p> <p><b>6.2</b> Objectives, energy targets and planning to achieve them</p>	<p><b>New requirement!</b></p>	<p>Consideration needs to be given to its identified internal and external issues (4.1) and the needs and expectations of its interested parties (4.2) during planning.</p> <p>A new concept of “risks and opportunities” is introduced. Planning now requires the identification of the risks (defined as the effect of uncertainty) and opportunities related to energy performance improvement. Considerations of risk and opportunities are part of the high-level strategic decision-making in the organization.</p> <p>By identifying risks and opportunities, an organization is able to anticipate potential scenarios and consequences so that undesired effects can be addressed before they occur.</p>
<p><b>6.2.1</b> Energy objectives</p>	<p><b>4.4.6 Objectives, targets and programme(s)</b></p>	<p>The term ‘target’ has been retained by this standard. When setting objectives consideration now needs to be given to the identified risks and opportunities.</p> <p>The standard requires the consideration of the views of interested parties when establishing objectives and targets if they are deemed to be applicable (4.2).</p> <p>They must include significant energy uses and take into account opportunities to improve energy performance.</p> <p>There are now specific requirements for the objectives to be monitored, communicated and updated as appropriate.</p>
<p><b>6.2</b> Objectives, energy targets and planning to achieve them</p>	<p><b>4.4.6 Objectives, targets and programme(s)</b></p>	<p>The term programme is no longer used and the standard talks about planning how to achieve energy objectives instead. This planning now needs to include details on what resources will be required and how the results will be achieved.</p>
<p><b>6.3</b> Energy Review</p>	<p><b>4.4.3 Energy Review</b></p>	<p>The basic requirement for the energy review has not changed. The review must analyse current and past energy use and consumption, identify the significant energy uses (SEUs) and for each one determine the relevant variables, current performance, those personnel doing work that can affect the SEU , prioritise opportunities for improvement and estimate future use and consumption. The review shall be maintained and updated if major changes occur within the organization.</p>
<p><b>6.4</b> Energy performance indicators</p>	<p><b>4.4.5 Energy Performance indicators</b></p>	<p>Energy performance indicators (EnPIs) must be determined that are appropriate for measuring &amp; monitoring energy performance and are suitable to demonstrate energy performance</p>
<p><b>6.5</b> Energy baseline</p>	<p><b>4.4.4 Energy baseline</b></p>	<p>Using information from the energy review, a baseline must be established against which energy performance improvement can be compared. The baseline should be normalised to take into account relevant variables in energy performance. It must be revised if there have been major changes within the business.</p>
<p><b>6.6</b> Planning for collection of energy data</p>	<p><b>New requirement!</b></p>	<p>Plans must be drawn up detailing how the key characteristics identified are to be measured, monitored and analysed. Measurement must be accurate and repeatable.</p>



## 7 Support

7.1 Resources	4.2.1 Top Management	No significant change – now a separate clause
7.2 Competence	4.5.2 Competence, training & awareness	Persons now need to be competent if they can affect the organization's energy performance or the operation of the EnMS. The need for training has been expanded into a wider need for taking actions to acquire necessary competences, which can also include mentoring, re- assignment or hiring/contracting competent persons.
7.3 Awareness	4.5.2 Competence, training & awareness	This section has been rewritten, however the requirements remain largely the same.
7.4 Communication	4.5.3 Communication	Requirements are now more prescriptive as to what the process for communications (internal and external) shall be. New requirements include the need to ensure that it is planned what, when, how and with who communications are made, and that the communications take into account compliance obligations, are consistent with the EnMS and are dependable. Communication to be based on the requirements identified in the 'needs of interested parties' (4.2).
7.5 Documented Information	4.5.4 Documentation	The communications process must enable persons working under the organization's control to contribute to energy and EnMS performance improvement.
7.5.1 General	4.5.4 Documentation	The terms 'documents' and 'records' have been replaced by the term 'documented information'.
7.5.2 Creating and updating	4.5.4.2 Control of documents	The organization can decide what documented information is required but must be sufficient to allow for an effective EnMS and demonstrate energy performance improvement.
7.5.3 Control of documented information	4.5.4.2 Control of documents	Controls now need to ensure that documented information is adequately protected, retained and ultimately disposed of.

## 8 Operation

8.1 Operational planning and control	4.5.5 Operational Control	Specific reference is now made to the planning and control of processes related to its SEUs Controls for processes should include effective operation and maintenance of facilities, equipment, systems and energy using processes. Implementing the controls in accordance with the set criteria and keeping documented records that they have been carried out as planned. There are requirements for the control of planned changes and the review of unintended changes. It is now specified that outsourced processes are to be controlled or influenced. Any outsourced SEUs or processes must be similarly controlled.
8.2 Design	4.5.5 Design	No significant change. The consideration of energy performance improvement opportunities and operational control is required in the design of new, modified or renovated facilities, equipment, systems and energy-using processes that can have a significant impact on energy performance over the planned or expected operating lifetime.

## 9 Performance Evaluation

<p><b>9.1</b> Monitoring, measurement, analysis and evaluation of energy performance and the EnMS. (title only)</p>	<p><b>4.6</b> Checking</p>	
<p><b>9.1.1</b> General</p>	<p><b>4.6.1</b> Monitoring, measurement and analysis.</p>	<p>Greater detail on requirements for monitoring and measurement activities is specified.</p> <p>There is a specific requirement for the evaluation of the effectiveness of action plans in achieving objectives and energy targets, performance indicators, operation of SEUs and actual versus expected energy performance.</p> <p>Planning to be in place detailing monitoring and measurement methods, when they will be performed and how the results will be analysed and evaluated.</p> <p>Energy performance and effectiveness of the EnMS shall be evaluated and EnPIs compared to baseline values. Significant deviations shall be investigated and the investigation/response documented.</p>
<p><b>9.1.2</b> Evaluation of compliance with legal requirements and other requirements</p>	<p><b>4.6.2</b> Evaluation of compliance with legal requirements and other requirements</p>	<p>No change to requirements</p>
<p><b>9.2</b> Internal Audit (title only)</p>		
<p><b>9.2.1</b> Internal Audit</p>	<p><b>4.6.3</b> Internal audit of the EnMS</p>	<p>Conduct audits at planned intervals to provide information on whether system is improving energy performance, conforms to organization's own requirements, policy and standard requirements. Also to check that it is effectively implemented and maintained.</p>
<p><b>9.2.2</b> Internal audit</p>	<p><b>4.6.3</b> Internal audit of the EnMS</p>	<p>Audit plan to take into account frequency, methods, responsibilities, planning and reporting which takes into account importance of process and results of previous audits.</p> <p>The audit process shall define the scope of each audit, selection of auditors (ensuring objectivity and impartiality), ensure that audit results are reported to relevant management and that appropriate actions are taken regarding necessary corrective actions.</p>
<p><b>9.3</b> Management Review</p>	<p><b>4.7</b> Management Review</p>	<p>Changes in external and internal issues, the needs and expectations of interested parties, and risks and opportunities now need to be considered during the management review process.</p> <p>The consideration of the organization's energy performance now needs to include trends in nonconformities and corrective actions, monitoring and measurement results, conformity with legal and other requirements.</p> <p>Review is required of opportunities to improve energy performance, policy, indicators and baseline, objectives and targets along with actions if they are not achieved, allocation of resources and improvements in competency, awareness and communication</p> <p>The outputs of the management review shall now include opportunities to improve the integration of the energy management system with other business processes and any implications for the organization's strategic direction.</p>

## 10 Improvement

<p><b>10.1</b> Nonconformity and corrective action</p>	<p><b>4.6.4</b> Nonconformities, correction, corrective action and preventive action</p>	<p>The organization needs to determine opportunities for improvement and implement actions needed to achieve the intended outcomes of the energy management system.</p> <p>When a non-conformity is identified the organization must take action to control/correct it and deal with the consequences.</p> <p>Evaluate the need for action to eliminate the causes and ensure that it does not occur elsewhere. This includes determining the causes.</p> <p>Corrective actions must be reviewed, shall be appropriate to the effect of the issue and if required shall result in changes to the EnMS.</p>
<p><b>10.2</b> Continual Improvement</p>	<p><b>New Requirement!</b></p>	<p>The EnMS needs to be continually improved in order to be able demonstrate continual energy performance improvement.</p>

# KEY CONCEPTS

## Context of the Organization

This is a new requirement to identify the internal and external factors and conditions that can positively or negatively affect an organization and its energy performance. Examples of internal issues could include an organization's culture and capabilities and wider business objectives whilst external issues could include the effects of climate change, greenhouse gas emissions, energy supply security or National Energy policies. The organization also needs to identify the interested parties to the EMS and any requirements they have.

**Tip:** The context will influence the type and complexity of management system needed.

## Leadership

There is an explicit requirement for top management to demonstrate leadership and commitment relating to the system. This is an enhanced requirement relating to top management.

**Tip:** Top management will need to take accountability for the effectiveness of the EnMS and provide support and resources as necessary.

## Strategic Energy Management

Top management needs to ensure that the energy policy and associated objectives and targets are consistent with the overall business strategy and that management review outputs include any implications for the strategic direction of the organization.

**Tip:** This will be new territory for ISO 50001 audits and, in conjunction with the above, more audit time may need to be devoted to discussions with the organization's leaders.

## Risk and Opportunities

This is a new concept introduced in the 'planning' section of the standard. It requires the organization to identify the risks and opportunities associated with energy performance and legal and other requirements, along with any other necessary issues or requirements, and take action to address them.

**Tip:** "Risk and opportunities" can be thought of as potential adverse deviations from the expected (threats) or potential beneficial deviations from the expected (opportunities).

## Energy Performance Improvement

This is the expected outcome from implementing the standard. Defined by the standard as "Improvement in measurable results of energy efficiency or energy consumption related to energy use, compared to the energy baseline".

**Tip:** This is the fundamental concept that underpins the whole system. Does not refer to 'absolute' energy usage but a normalised measure taking into account relevant variables

## Energy Performance Indicators (EnPIs)

The standard suggests that we view EnPIs as 'rulers' used to compare energy performance before and after the implementation of improvement action plans.

**Tip:** The key is to ensure that relevant variables affecting the performance are taken into account. This is known as 'normalization'.

## Energy Baseline (EnB)

This is the point in time from which all improvements in energy improvements will be measured. The baseline should encompass a suitable period of time so as to account for operating cycles, regulatory requirements and any other variables that can affect energy consumption.

**Tip:** The baseline should be modified if significant energy uses within the scope of the system change.

## Performance Evaluation

There is a new emphasis on the need for evaluation in addition to the current requirements for monitoring, measurement and analysis.

**Tip:** Evaluation is the interpretation of results and analysis. This is not new to managers but is made explicit in the standard for the first time. Processes may be well defined and effective, but do they yield optimum results? This may be a new challenge for internal auditors.

## AUDITING

The standard is written entirely for the benefit of organizations and not auditors. Certification bodies will need to understand and recognise the extent and type of evidence that would be acceptable to confirm conformity to the 2018 requirements.

Our ISO 50001:2018 auditors will be engaging in dialogue with business leaders, seeking understanding and explanations from them about policy, strategy and energy objectives, and ensuring these are compatible.

The audit experience from the client perspective is likely to be different because of this, but the end result would be more value being able to be added to the organization as a whole from the audit process.

## CONCLUSION

ISO 50001:2018 incorporates more business management terminology and concepts and will ensure that systems will be integrated into the organization's overall business processes rather than being separate entities.

The changes will require effort from organizations to implement, however the overall result will be a more effective management system capable of achieving more consistent results in energy performance improvement.

