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# **BS EN 16001 and ISO 14001 comparison guideline.**

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## Introduction.

This guideline, produced by Eco-Smart Consultancy is produced to identify the similarities between BS EN 16001:2009 and ISO 14001:2004 and suggests possible methods, which may be used to satisfy the standard, thus ensuring development and continuous improvement of an effective Energy Management System (EnMS).

It should be noted that the basic structure of the BS EN 16001 is very similar to ISO 14001:2004 and therefore this document focuses on the differences and synergies between the two standards. (See comments in Red).

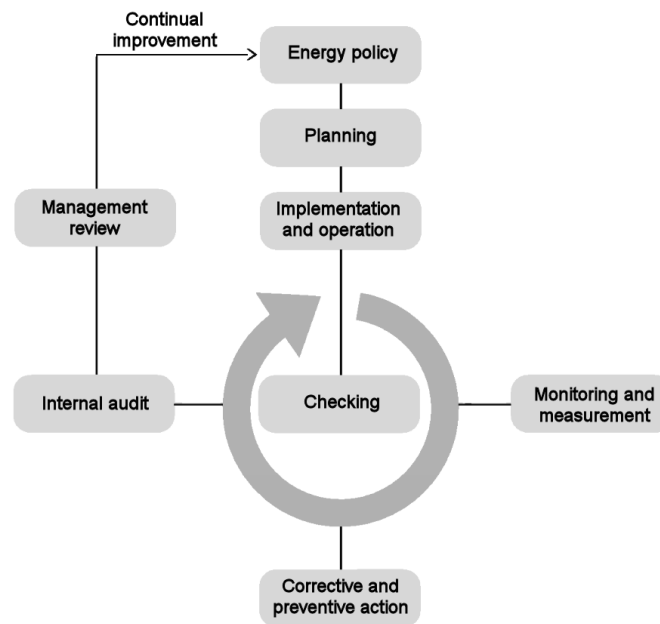
The main difference between the two standards is ISO 14001 helps you systematically identify and manage all your environmental impacts, whereas ISO 16001 is an Energy Management Standard (EnMS), developed to prove an organisations credentials in maintaining and improving energy efficiency and energy waste. Therefore, potentially, leading to reductions in cost and greenhouse gas emissions.

The standard specifies requirements for an energy management system to enable an organisation to develop and implement a policy and objectives which take into account legal requirements and information about significant energy aspects.

ISO 16001 requires the organisation to:

- a) Establish an appropriate energy policy;
- b) Identify the energy aspects arising from the organization's activities;
- c) Identify applicable legal requirements and other requirements to which the organisation subscribes;
- d) Identify priorities and set appropriate energy objectives and targets;
- e) Establish a relevant structure and programme(s) to implement the policy, achieve objectives and meet targets;
- f) Facilitate planning, control, monitoring, preventive / corrective actions, auditing and review activities to ensure both that the policy is complied with and the energy management system remains appropriate.

The organisation should carry out an initial review, to identify areas of energy use and opportunities for improvement. This resulting information provides the basis for setting the energy management work programme, and therefore setting relevant objectives and targets.



Energy Management System model.

## 3.2 Energy Policy.

Similar to ISO 14001, top management must establish an energy policy for the Energy Management System (EnMS), which states the organisations commitment to achieving, improved energy performance, specific statements are required to fulfil the obligations of the standard.

## 3.3 Planning.

### 3.3.1 Identification and review of energy aspects.

The review should include:

1. Past and present data for energy consumption and energy factors based on measurement and other data.

The annual energy consumption (fuel and electricity) from the previous three years (MWh/year) shall be presented along with corresponding energy factors (e.g., production volumes, weather data).

Energy usage data collection may be based on the methods identified in I.S. EN 16001:2009 Annex A.3.1 a).

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Patterns and trends in energy consumption over the previous three years should also be presented and discussed, where identifiable.

It may also be appropriate to include tariff analysis in your review of energy usage, as this can often result in the identification of cost savings.

Possible methods of presenting energy consumption information include the following energy aspects:

- A) Heat loss in building,
- B) Heating and ventilation,
- C) Air conditioners and refrigeration,
- D) Lighting,
- E) Compressed air,
- F) Steam,
- G) Motor driven equipment etc

### **3.3.2 Legal obligations and other requirements.**

Organisation shall establish a register of legal and best practice legislation pertaining to their energy aspects.

**ISO 14001 concentrates on all applicable environmental legislation.**

### **3.3.3 Energy objectives, targets and programme(s).**

Organisation required to, establish a register of energy objectives and targets.

When setting objectives and targets the organisation MUST consider legal and other requirements and significant energy aspects, identified in the Energy Aspects register.

Each objective MUST be assigned to a responsible person and MUST also be time-bound.

**Objectives, targets and programmes are consistent with the energy policy and the significant energy aspects rather than related to all environmental aspects as in ISO 14001.**

## 3.4 Implementation and Operation.

### 3.4.1 Resources, roles, responsibility and authority.

Top management MUST appoint a Management representative who has responsibility for implementation, maintenance and reporting of the EnMS.

The management representative may be designated as energy manager.

Similar to ISO 14001, however focused on energy control.

### 3.4.2 Awareness, training and competence.

Requires the management (Energy Manager) representative to be competent and qualified in energy and energy efficiency improvements and each level of management is appropriately trained in the field of energy management.

Training programmes MUST be documented.

All staff and contractors MUST be aware of their obligations regarding energy management.

### 3.4.3 Communication.

All staff working for or on behalf of organisation MUST understand the company energy policy and their obligations to improving energy performance.

Similar to ISO 14001 however concentrates on energy performance.

### 3.4.4 Energy management system documentation.

The organisation shall establish, implement and maintain information, in paper or electronic form, which describes the core elements of the energy management system and their interaction. This is the EnMS manual.

There are no significant differences between ISO 14001 and ISO 16001.

### 3.4.5 Control of documents.

The organisation MUST control records and data, making sure they are traceable, reviewed and current.

There are no significant differences between ISO 14001 and ISO 16001.

### 3.4.6 Operational control.

Operations associated with significant energy aspects should be conducted in a way that will control and reduce their energy consumption.

The organization MUST identify and plan operations that are associated with the significant energy aspects and ensure consistency with its energy policy, energy objectives and energy targets.

This should include:

- a) preventing situations that could lead to deviation from the energy policy, energy objectives and energy targets,
- b) setting criteria for operation and maintenance of installations, equipment buildings and facilities,
- c) energy considerations in the acquisition and purchase of equipment, raw materials and services; when purchasing energy consuming equipment having a significant impact on the total energy consumption, the organization should inform suppliers that purchasing is partly evaluated on the basis of energy efficiency,
- d) evaluation of energy consumption when considering the design, change or restoration of all assets which have the potential to significantly affect energy consumption, including buildings,
- e) appropriate communication in this regard to personnel, and people acting on behalf of the organization and other relevant parties.

**The standard refers to preventing adverse situations rather than just controlling situations. It is also more specific about setting criteria for operation and maintenance of installations, equipment, buildings and evaluation of energy consumption in design.**

## 3.5 Checking.

### 3.5.1 Monitoring and measurement.

The old adage *'you cannot manage what you do not measure.'*

Energy consumption should be monitored for actual and expected consumption and accessed accordingly.

All significant energy consumption should be monitored and relate to the 'energy aspects register.'

It may be useful to monitor energy through energy performance indicators (EPI's).

Energy factors

Significant energy usage should be metered as appropriate and recorded in a metering plan. Any additional meters will depend on the feasibility and cost.

Although organisations will have some metering in place there should be a plan to improve the provision of meters.

Energy factors/readings can be taken at defined intervals i.e. real-time, daily, weekly, etc; however the organisation **MUST** be able to justify the period of frequency.

Energy factors are usually in the form of weather data (°C) or production data.

**ISO 14001 monitors all environmental aspects, including, water, gas, electricity and all waste streams.**

### 3.5.2 Evaluation of compliance.

Periodically an organisation is required to evaluate it's compliance with legal and other requirements.

**There are no significant differences between ISO 14001 and ISO 16001.**

### 3.5.3 Nonconformity, corrective action and preventive action.

The organisation is required to have necessary procedures in place for the effective control of Nonconformity, corrective action and preventative action.

There are no significant differences between ISO 14001 and ISO 16001; however greater emphasis is placed on how ISO 14001 deals with procedures.

### 3.5.4 Control of records.

The organisation is required to have necessary procedures in place for the effective control of energy management.

There are no significant differences between ISO 14001 and ISO 16001.

### 3.5.5 Internal audit of the energy management system.

Same principles as other ISO standards, an internal audit schedule must be set-up to ensure the EnMS conforms to all parts of the ISO 16001 standard.

BS EN 16001 places a greater emphasis on the requirement for the verification of actions taken and reporting of verified results.

## 3.6 Review of the energy management system by top management.

### 3.6.1 General.

### 3.6.2 Inputs to management review.

Set Agenda for meeting for management review to include topics stated in ISO 16001.

The organisation may also find it beneficial to produce a performance statement, summarising how the organisation has continually improved its energy performance, and/or meet its stated policy and energy targets.

### 3.6.3 Outputs from management review.

Outputs from the management review MUST include any decisions or actions related to:

- a) The improvement in the energy performance since the last review;
- b) Changes to the energy policy;
- c) Changes to objectives, targets or other elements of the energy management system, consistent with the organization's commitment to continual improvement;
- d) Allocation of resources.

For those companies wishing to take the next step for either ISO 14001 or BS EN 16001 Eco-Smart Consultancy can assist you.

Please Contact Us to discuss your exact requirements.

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