

Briefing: **The Energy Savings Opportunity Scheme (ESOS)**

**Your guide to understanding
and complying with ESOS**

Your organisation may be affected by ESOS and it is important to understand what this will mean and what action to take. This UK Government scheme aims to raise awareness about energy consumption in large organisations, ultimately saving money and lowering carbon emissions. This document explains:

- **What is ESOS?**
- **Why is it important?**
- **Who qualifies for ESOS?**
- **The routes to compliance**
- **Reporting back**
- **How can the EI help?**

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Executive Summary

This briefing describes the key elements of the scheme and is primarily aimed at ESOS participants.

What is ESOS?

ESOS is the UK Government's approach to implementing Article 8 of the EU Energy Efficiency Directive. It is a mandatory energy assessment and energy savings identification scheme for organisations operating in the UK. Organisations affected by ESOS will need to demonstrate compliance with the scheme every four years. The first compliance phase lasts from 6 December 2011 to 5 December 2015 and the qualification date for eligible organisations is 31 December 2014.

Who must comply?

The scheme will apply to organisations operating in the UK that have:

- 250 or more employees, or
- fewer than 250 employees but an annual turnover and balance sheet exceeding €50m (£38,937,777) and €43m (£33,486,489), respectively.

Under the terms of the scheme, eligible organisations are referred to as "undertakings".

In addition, within a corporate group, it only takes one UK organisation to qualify for ESOS for all the UK organisations of that group to fall within the scheme, regardless of their size.

What is required of participants?

ESOS participants must:

- make an initial estimate of their total energy consumption (covering energy used in buildings, transport and industrial processes),
- identify areas of significant energy consumption (which equate to at least 90% of their total consumption), and carry out a more detailed audit of those areas to establish where energy savings could be made, and
- submit a formal notification to the scheme administrator, the Environment Agency (EA).

Whilst not a requirement of the scheme, the board may wish to implement some of the energy saving measures recommended by a Lead Assessor and potentially significantly reduce energy costs.

Reporting compliance

Prior to submitting their notification to the Environment Agency, participants will be required to have their assessments signed off by a board-level director and a Lead Assessor. Under ESOS, compliance bodies in England, Northern Ireland, Scotland and Wales will have the authority to apply civil penalties to non-compliant participants.

What is ESOS and why is it important?

The Energy Efficiency Directive is the EU's main instrument for promoting energy efficiency to achieve its target of saving 20% of primary energy consumption by 2020.

All 28 EU countries are required to use energy more efficiently at all stages of the energy chain, from the transformation of energy to distribution and final consumption.

Under Article 8 of the EU Energy Efficiency Directive, all member states are required to introduce a programme of regular energy audits for large organisations and their corporate groups.

ESOS is the UK Government's proposed approach for adhering to Article 8. Other member states have developed their own schemes which would impact on organisations operating in their country.

Main requirements

Each qualifying ESOS participant must:

- estimate its total energy consumption from buildings, industrial processes and transport
- conduct energy audits to identify cost-effective energy saving opportunities, and
- submit a formal notification to the EA (the scheme administrator) confirming that it has met the requirements of ESOS in each compliance period.

Timescales

ESOS will run in repeating four-year phases. Within each phase, a qualification date (the date by which enterprises must assess whether they fall within ESOS) and compliance date (the date by which they must fulfil the requirements of ESOS and submit their notification) have been set.

Government estimates that the potential net benefit of implementing energy efficiency measures for UK organisations will be approximately £1.6bn.

The first compliance phase lasts from 6 December 2011 to 5 December 2015 and the qualification date is 31 December 2014.

Who qualifies for ESOS?

Large undertakings

ESOS applies to all large undertakings in the UK.

An organisation is considered a large undertaking if:

- it has 250 or more employees*, or
- its annual turnover and its annual balance sheet exceed €50m (£38,937,777) and €43m (£33,486,489), respectively.

In addition, within a corporate group, it only takes one UK organisation to qualify for ESOS for all the UK organisations of that group to fall within the scheme, regardless of their size.

An undertaking is defined as:

- a corporate body or partnership, or
- an unincorporated association conducting trade or business, with or without a view to profit.

Corporate groups

Within corporate groups, only organisations operating in the UK are eligible for ESOS. If at least one UK undertaking of a corporate group qualifies for the scheme, all other UK organisations in the same group will be included in ESOS as well, regardless of their number of employees, annual turnover and balance sheet.

One undertaking in each group is considered a 'highest UK parent.' This is the highest UK organisation in the group structure, of which the rest of the group are subsidiaries. This parent undertaking, and all its UK subsidiaries, are known as the 'highest UK parent group'.

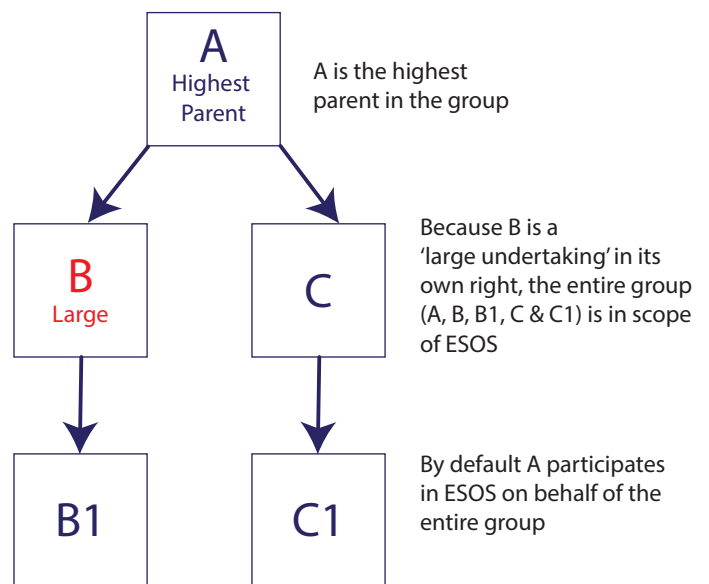
The qualifying UK undertakings of groups which are owned overseas may choose to participate in ESOS either as a single aggregated group, or as individual highest UK parent groups.

Here are a few examples of how this might work:

Company A has two subsidiaries: Company B and Company C. Company B has one subsidiary, B1, and Company C also has one subsidiary, C1. Together these five companies form a corporate group.

If at least one UK company within this group meets ESOS criteria, then all the UK companies of the group must participate in ESOS.

- If all companies are UK undertakings, Company A is considered the highest UK parent and the five companies together can participate in ESOS as a highest UK parent group, since the four subsidiaries (B, B1, C, C1), share a highest UK parent (see Figure 1).



Highest Parent Group

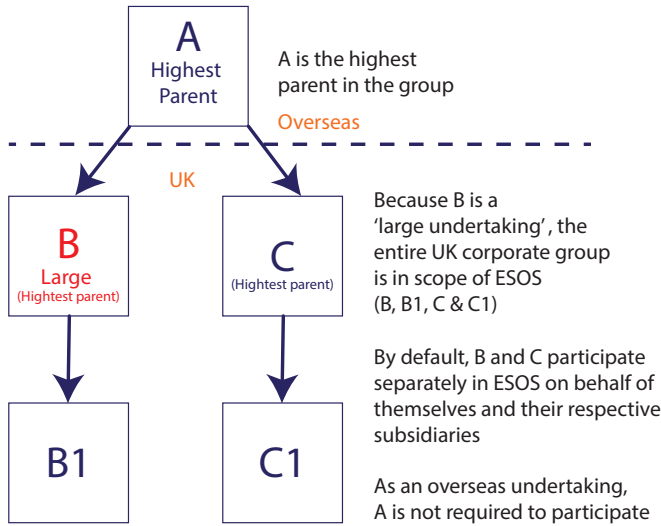
Figure 1

*Definition of employee:

An employee is a person employed under a contract of service. Their contracted hours and status (full-time/part-time) are irrelevant to their classification as an employee.

A person is employed by an organisation if they are an employee, an owner/manager and/or a partner.

- If Company A is operated overseas, but companies B and C are UK undertakings, then the corporate group will participate in ESOS as two highest UK parent groups: B and B1 would form one highest UK parent group, while C and C1 would form another. Companies B and C will be the highest UK parents of each group (see Figure 2).



Corporate Group with overseas parent

Figure 2

In the case of more than one highest UK parent in a corporate group, these groups may aggregate and report compliance together. Alternatively, corporate groups might disaggregate and participate as smaller groups or individual undertakings. *Provided that all the UK organisations in the group participate*, groups may aggregate or disaggregate as they see fit and report as separate participants.

Each participating group must nominate one member to report to the scheme administrator for itself and the rest of the members of that participating group.

Franchisees

For the purposes of ESOS, franchisees are not required to aggregate with the franchisor and/or other franchisees, but they have the option of doing so voluntarily.

Public sector organisations are not required to participate in ESOS.

However, some universities may lie within the scope of ESOS if they are not subject to the Public Contracts Regulations 2006 in England, Wales and Northern Ireland and the Public Contracts Regulations 2012 in Scotland. This is linked to the level of funding received from private sources such as students. When evaluating whether or not a university qualifies for ESOS under the Public Contracts Regulations, student fees are considered to be private funding, regardless whether they come from private sources or public loans.

In addition, if a not-for-profit organisation is engaged in a trade or business activity and meets any of the ESOS qualifying criteria, it lies within the scope of the scheme.

UK establishments of overseas organisations

The UK registered establishments of overseas organisations will qualify for ESOS provided that they have at least 250 UK employees who pay income tax in the UK or, irrespective of their size, if any other UK part of the overseas organisation meets the scheme's qualifying criteria.

An 'establishment' is defined as a branch or a place of a business that has a physical presence in the UK.

Not sure if your organisation qualifies for ESOS?

For further information or guidance, email us at e: efficiency@energyinst.org

What is required of participants?

ESOS participants must:

- make an initial estimate of their total energy consumption
- identify their areas of significant energy consumption (see details below)
- consider and choose the most appropriate routes and carry out all the required actions within the compliance phase
- assign a Lead Assessor to conduct and/or supervise the energy audits and sign-off the ESOS assessment
- ensure that the findings of the ESOS Assessment have been signed off at board level
- submit a formal notification to the EA confirming compliance with ESOS.

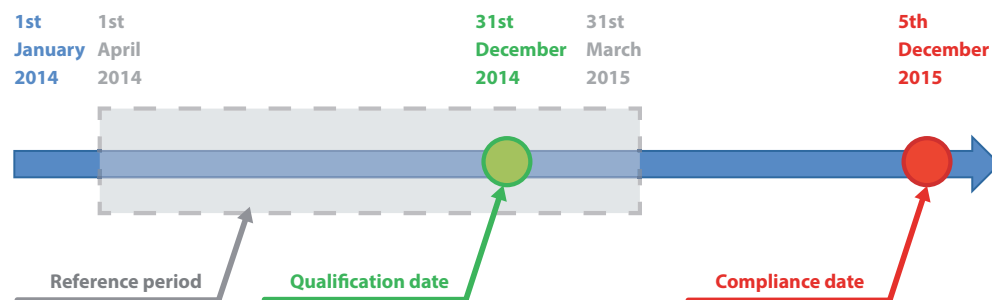
Measuring total energy consumption

This must include the consumption of electricity, combustible fuels, renewable energy, heat and all forms of energy products, and cover energy used in industrial processes, buildings and transport activities. It can be measured either in energy units (i.e. MWh, GJ) or energy expenditure costs.

• Reference period

ESOS participants must estimate their overall energy consumption over a 12-month period, called the reference period. They may choose any reference period that lies within a given compliance phase as long as it overlaps with the qualification date. Therefore, for the first compliance phase, the 12-month reference period must include 31 December 2014.

Example of reference period



• Quality of data collected

All data used (either energy consumption or energy cost data) for measuring total energy consumption must be verifiable. Examples of verifiable energy consumption data include electricity invoices, meter reading records, delivery notes and automatic meter reading (AMR) data.

In addition, some ESOS participants may be eligible for other energy reporting schemes such as Carbon Reduction Commitment (CRC), Climate Change Agreements (CCAs), EU Emissions Trading Scheme (ETS) or others. The data collated through these schemes can also be used to calculate certain elements of the organisation's overall energy consumption for ESOS.

However, the criteria for energy consumption under ESOS are broader than other schemes and therefore participants may not be able to solely rely on data reported under those schemes.

If an ESOS participant is not able to use verifiable energy data, e.g. due to missing records, a 'comply or explain' approach must be implemented. This means that the participant is allowed to provide reasonable estimates of energy consumption as long as the methodology used is specified, and the reasons for not providing verifiable data are clarified.

• Energy supplied to a third party

Within ESOS, any energy that is not consumed directly by a participant but is provided to a third party may be excluded from the participant's overall energy consumption and from any future energy audits. For this to happen, the amount of energy provided to a third party must be measured. *UK Government conversion factors for company reporting* is recommended by DECC. Landlords are not required to measure energy that they provide to their tenants as long as that amount of energy is measured and known by the tenant.

The requirement to carry out an energy audit (or undertake alternative routes to compliance) applies only to the areas of significant energy consumption.

Identifying areas of significant energy consumption

Having estimated the overall energy consumption of their assets and activities during the reference period, ESOS participants must identify areas of significant energy consumption. Those areas must comprise at least 90% of overall consumption.

Therefore, participants may omit up to 10% of their overall energy consumption. That amount of energy consumption is referred to as *de minimis* energy consumption and can include any energy consuming assets and/or activities.

De minimis energy consumption is mainly introduced to ensure that energy audits will be proportionate and cost-effective. In addition, it reduces the overall administrative costs of accounting for areas of minimal energy consumption.

Specific considerations for measuring energy consumption from transport

ESOS participants are required to measure and audit fuel which they are supplied with and use in their own business. This means that if an organisation uses a contractor to undertake transport activities on its behalf, these operations will not be included in the organisation's ESOS assessment. Fuel consumption data should be recorded and collated to measure the amount of energy consumed in transport activities within the UK.

Green Fleet Reviews or other transport energy management schemes are not considered an automatic route to compliance, but any audit work undertaken as part of these schemes during the compliance phase can be used for the purposes of ESOS.

If an organisation is supplied with any fuel for international aviation and/or international shipping, it will be required to include energy consumption for all journeys that start and/or end in the UK as part of its ESOS assessment.

Fuel consumption of company-owned or -leased vehicles lies within the scheme. Fuel consumption within an organisation's grey fleet (vehicles owned by private persons but used for work-related travel) will be included within ESOS only where the organisation makes payment to the vehicle owner for the use of the vehicle on business.

A Lead Assessor must be appointed to review the chosen routes to ESOS compliance, except in the case of participants who cover all areas of significant energy consumption through ISO 50001 certification.

Lead Assessors must meet certain competency requirements, which are set out in the *Publicly Available Specification (PAS) 51215: Energy efficiency assessment - Competency of a lead energy assessor*. To qualify, they must be members of an approved register.

Register operators must apply to the EA to gain certification for their members under *PAS 51215*. In October 2014, the EA approved two of the Energy Institute's registers of Lead Assessors, which are described on page 10 of this document.

It is the ESOS participant, not the Lead Assessor, who is responsible for compliance.

The routes to compliance

To comply with ESOS, participants must undertake one or a series of energy audits covering all areas of significant energy consumption. ESOS audits must be undertaken or overseen, and signed-off by a Lead Assessor.

As an alternative to undertaking ESOS audits, ESOS participants may choose to comply with the scheme through a number of other routes including:

- implementing and operating a certified ISO 50001 energy management system
- obtaining Display Energy Certificates (DECs), or
- carrying out Green Deal assessments.

DECs and Green Deal assessments cover only energy consumed in buildings. The Lead Assessor may also take into account other energy audit work that meets the minimum requirements of an ESOS audit and is conducted within the compliance period, such as ISO 14001, Carbon Trust Standard activity, Logistics Carbon Reduction Scheme, or Green Fleet Reviews. For the purposes of compliance, participants may choose a single route or a combination of the routes listed above, as long as all areas of significant energy consumption are covered.

Energy audits

A successful energy audit should:

- lead to a better understanding of an organisation's energy consumption
- detect any variations in energy consumption and the main drivers of these variations, and
- identify cost-effective energy saving opportunities and promote energy efficiency.

Participants must agree with the Lead Assessor which audit methodology will be implemented. There are several standards that set out good practice for carrying out an energy audit such as *BS EN 16247-1 'Energy Audits'* and the recently published *ISO 50002 'Energy Audits - Requirements with guidance for use'*. Examples of more technical standards include *ISO 11011:2013 'Compressed air - Energy Efficiency-Assessment'* and *ISO/DIS 14414 'Pump System Energy Assessment'*.

ESOS participants have the option of carrying out audits in stages within a compliance phase instead of carrying out a single energy audit covering all areas of significant consumption. For example, they could initially assess the energy performance of their buildings, subsequently they could focus on industrial processes, and finally examine their transport activities.

Any audit work already carried out within the compliance phase will qualify for use in the audit as long as:

- it is reviewed and approved by the Lead Assessor, and
- all energy data used in the audit covers a minimum of 12 consecutive months. That 12-month period must fall within the 24 months prior to conducting the audit. This can go back as far as 1 year before the start of the compliance period, i.e. 12 months before 6 December 2011 for the current phase.

Participants are encouraged to use life-cycle cost analyses (LCCA) instead of simple payback periods (SPP). An LCCA takes into account whether an investment is financially viable over its entire life by calculating all the costs that may be incurred during that period.

The main outcome of an ESOS energy audit should be the identification of cost-effective and practicable energy saving opportunities.

ISO 50001 Certification

Implementing a certified ISO 50001:2011 energy management system will also be considered a route to compliance with ESOS. To be valid, a participant's ISO 50001 energy management system must be certified by a United Kingdom Accreditation Service (UKAS) accredited certification body, by a body accredited by another EU member state's national accreditation body, or by a body which is a member of the International Accreditation Forum.

Note: an ISO 50001 certification will be accepted as a single compliant route as long as it covers all areas of significant energy consumption of an ESOS participant. In the case of partial coverage, additional assessment/audit work through another route to compliance will be required for those areas of significant energy consumption that are not addressed by the certified ISO 50001.

If a certified ISO 50001 energy management system covers all areas of significant energy consumption, there will be no need for the ESOS participant to appoint a Lead Assessor to oversee or approve the compliance route.

Display Energy Certificates and Green Deal assessments

Display Energy Certificates (DECs) and Green Deal assessments can also be used to contribute to ESOS compliance for energy use in buildings. For the purpose of ESOS, DECs and Green Deal assessments will be accepted as compliant energy assessments for the building which they cover, provided they are undertaken within the compliance period, are still valid at the compliance date, and are reviewed and approved by a Lead Assessor.

Each participant is required to maintain an ESOS Evidence Pack detailing certain aspects of their compliance with the scheme, including all contacts and documentation. The full content requirements of this pack can be found in the EA's publication 'Complying with the Energy Savings Opportunity Scheme - Version 1.0'.

Reporting compliance

ESOS participants are required to:

- have their assessments signed off at board level and by a Lead Assessor, and
- submit a formal notification to the EA before or on the compliance date, confirming that they have met with the requirements of the scheme.

Signing off ESOS assessments

The need for a director (or an equivalent senior manager) to sign off the results of the ESOS assessment aims to ensure that board members are aware of the scheme's requirements, as well as the identified energy saving opportunities.

At this stage, participants are encouraged to create a board-friendly report that includes:

- a summary of the assessments carried out
- a list of the energy saving opportunities identified
- the total amount of potential energy savings, and
- the total amount of potential cost savings.

If a participant chooses to appoint an internal Lead Assessor to carry out, oversee or approve the necessary energy audits, two board-level directors must sign off the assessments.

Confirming compliance with the Environment Agency

ESOS participants will be able to submit their formal notifications of compliance through an online system that is now operational. More details can be found on the ESOS website:
www.gov.uk/energy-savings-opportunity-scheme-esos.

As part of their notification, participants are required to provide basic information about the:

Organisation

- Name of the organisation
- Company registration number of the highest UK parent (if applicable)
- Office registered address
- Name and contact details of two points of contact, one of which should be the responsible officer
- Name, full title and contact details of the director(s)/senior manager(s) who signed off the ESOS assessment as well as the date they signed off the assessment
- In the case that a participant is a group of organisations, the name of the highest parent and the number of organisations that form the participating group also need to be included
- In the case of aggregation or disaggregation for the purposes of compliance, participants must provide the names of the organisations that have aggregated or disaggregated

Lead Assessor

- Name of the Lead Assessor
- Approved professional body with which the Lead Assessor is registered

Assessments

- List of the chosen routes to compliance with ESOS
- Confirmation that all areas of significant consumption are covered
- Any cases of being unable to use 12 months of verifiable data to measure total energy consumption or to inform the ESOS energy audit
- Any case where an energy audit does not include analysis based on energy consumption profiles.

Failing to comply with ESOS

ESOS compliance bodies are authorised to apply civil penalties against non-compliant participants. They also have the right to publish information on non-compliance including the name of the organisation, details of non-compliance and the penalty amount.

UK compliance bodies

Environment Agency in England
Natural Resources Wales
Northern Ireland Environment Agency
The Scottish Environment Protection Agency (SEPA)

How can the Energy Institute help your organisation?

Proactive energy management will save your organisation money, reducing waste and energy bills. The EI's range of products can help prepare for ESOS, conduct audits, reduce carbon emissions, improve energy efficiency, develop energy management solutions, and make the most of the scheme.

Understanding ESOS:

- ESOS Briefing – our booklet explaining what ESOS means for your organisation
- ESOS FAQs – our responses to the questions we are asked about ESOS
- ESOS Webinar – a brief, easy to understand introduction to ESOS

ESOS approved registers:

The EI has two registers of ESOS Lead Assessors approved by the Environment Agency: Chartered Energy Manager and Register of Professional Energy Consultants (RPEC). With over 200 qualified Lead Assessors and counting, the EI is the go-to resource for organisations looking to comply with ESOS and save energy. All RPEC consultants are chartered, with a track record of energy audit, assessment and advice, and bound by a Code of Conduct and customer guarantee. The RPEC register is searchable by sector, technology, skill, name and company of consultant.

ESOS Lead Assessor toolkit:

A toolkit for anyone acting as a Lead Assessor for their own organisation or on a consultancy basis. The toolkit includes:

- an initial briefing explaining roles and responsibilities, as well as a template to help to estimate the time, cost and level of support required
- an energy assessment tool to assist auditors with confirming the areas of significant energy consumption and estimating the de minimis energy
- audit templates
- a tool to help carry out Life Cycle Cost Analysis (LCCA), and
- guidance on drawing up terms and conditions.

Energy management training and awareness raising:

ESOS training courses:

- Preparing your organisation for ESOS - A 1-day training course for energy managers or other staff responsible for overseeing ESOS within their organisation.
- ESOS for senior managers - A half-day training course for senior managers signing off ESOS on behalf of their organisation.
- Level 1 Certificate in Energy Management Essentials - A 5-day course with a strong focus on energy auditing perfect for preparing your internal staff to conduct energy audits and act to support the Lead Auditor.

Staff awareness training:

- EnergyAware - an innovative 30-minute online tool designed to raise staff awareness of energy efficiency in the workplace. It will help your staff create a customised, actionable checklist of behaviour changes and smart technology decisions that they can take away and implement.

Energy management staff training and recognition:

- A step-by-step three level approach to energy management training, designed to help energy management professionals develop their knowledge as their career progresses. The EI offers a range of short- and long-term energy management training solutions, either as bespoke in-house training, CPD courses or distance learning options. The EI's experience and professional tuition keep us at the forefront of energy efficiency training.

Chartered status in energy management:

Energy Management professionals can also gain formal recognition with the EI by becoming a Chartered Energy Manager. The Chartered Energy Manager title provides a visible mark of quality and will ensure that staff are recognised as having the highest levels of competence and commitment.

Energy Management resources:

Energy World magazine provides informative and opinion-based pieces from key decision makers in the industry, as well as a monthly round up of developments across the energy spectrum. The Energy Matrix online tool contains over 90,000 records and houses published academic resources, news and articles, EI training and events, periodicals, data sheets, and more.

Visit efficiency.energyinst.org to find out more about all EI services.

About the publisher

The Energy Institute (EI) is the leading chartered professional membership body for the global energy industry, supporting over 20,000 individuals working in or studying energy and 250 energy companies worldwide. The EI provides learning and networking opportunities to support professional development, professional recognition and technical and scientific knowledge resources on energy in all its forms and applications.

The purpose of the EI is to develop and disseminate knowledge, skills and good practice towards a safe, secure and sustainable energy system. A registered charity, it serves society with independence, professionalism and a wealth of expertise in energy matters.

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