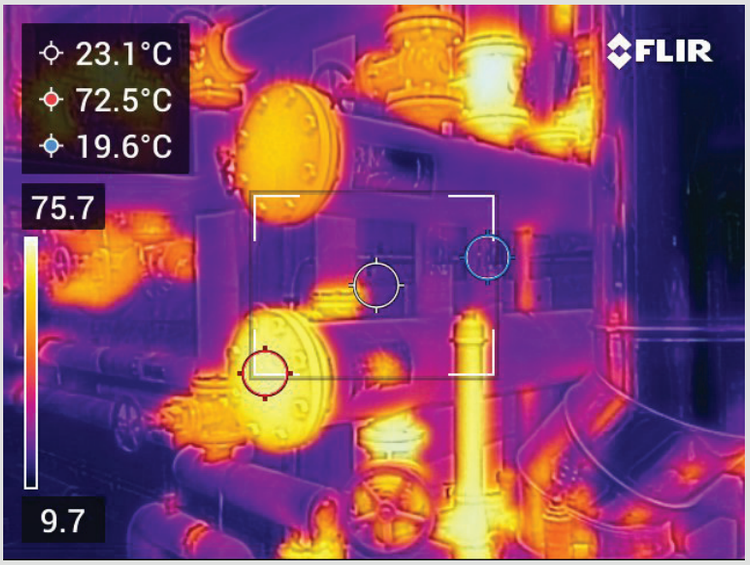


Energy Savings Opportunity Scheme (ESOS)

By Paul Bennett, managing director of BSSEC

The Energy Savings Opportunity Scheme (ESOS) is the UK's energy assessment and energy saving identification scheme that was established by the Energy Savings Opportunity Scheme Regulations in 2014. ESOS was originally designed to meet the requirement of Article 8 (4-6) of the EU Energy Efficiency Directive (EED) but is now seen as a useful mechanism in the UK's journey towards net zero. The scheme is operated and managed by the Environment Agency on behalf of the British Government and is estimated to lead to £1.6bn net benefits to the UK, with the majority of these being directly felt by businesses as a result of energy savings.

Organisations that qualify are required to carry out assessments every four years, in each 'phase' or 'compliance period' of the scheme. The scheme is currently in its third phase which began on 6 December 2019 and will conclude on 5 December 2023. This means that participants of the scheme must be fully compliant by 5 December 2023.



ESOS compliance is mandatory for all large organisations and groups in the UK that meet the definition of a large undertaking before 31 December 2022. A large undertaking is defined as any UK organisation that meets one or both of the following two conditions:

- it employs 250 or more people; and
- it has an annual turnover in excess of £44m and an annual balance sheet total in excess of £38m.

The original policy objectives of ESOS were:

- to provide large enterprises with organisation-specific information about how they could make energy savings;
- to stimulate the take-up of cost-effective energy efficiency measures by businesses.

Strengthening ESOS

To reflect on the scheme's success, an ESOS Post-Implementation Review (PIR) was published in February 2020 by BEIS (Department for Business, Energy & Industrial Strategy). It highlighted several areas where ESOS had been successful, but also how it could be further strengthened.

The review concluded that ESOS had been largely successful in meeting its original policy objectives. Other successes include the fact that annual energy savings from ESOS were roughly in line with the 3.0TWh per year that was originally estimated and that the costs of compliance were also broadly as estimated. Significantly, the evaluation also found that organisations were unlikely to carry out an energy audit unless mandated to do so. In fact, the introduction of ESOS led to many organisations carrying out an energy audit for the first time. These findings reaffirmed the need for ESOS for improving energy efficiency in UK business.

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Significant areas for improvement were also highlighted. For example, while 90 per cent of the organisations in the evaluation reported planning or implementing an energy efficiency measure, only 6 per cent of measures were directly attributed to ESOS. Furthermore, it was highlighted that many organisations viewed ESOS as purely a compliance activity, and as a result tended to select external assessors who provided the lowest quote, instead of the best qualified to audit their operations. This in turn had a knock-on effect on the quality of recommendations made, in terms of both their efficacy and practicality.

Other suggestions have been made to improve ESOS. For example, that synergy with other existing business-targeted energy efficiency policies would be beneficial. Also, the introduction of the UK net zero by 2050 target has changed the context in which ESOS is viewed. ESOS was not established with net zero in mind, but it has been recognised by the Government that ESOS has the potential to play a significant role in encouraging low-carbon energy solutions, and hence has the potential to aid in meeting this target.

Environment Agency Enforcement Statistics & Feedback for ESOS Phase II

In terms of enforcement it is notable that the Environment Agency has so far issued the following notices and penalties for ESOS phase II:

- **2,751 compliance notices;**
- **2,133 enforcement notices;**
- **123 Civil Penalties amounting to £1,927,761;**
- **Average penalty value £15,700.**
  The reported areas in which the Environment Agency have found issues requiring corrective action have included:
- **organisation structure;**
- **total energy consumption and significant areas of energy consumption;**
- **sampling approach and quality of ESOS energy audit; and**
- **energy-saving opportunities.**

The process of identifying suitable changes for Phase III began in July 2021, when the UK Government released a consultation on options to strengthen ESOS. Based on the findings of reviews such as PIR, 34 questions were asked covering the following:

- how the quality of reports could be improved;
- how the quality of audits could be improved;
- how the net zero challenge should be addressed;
- whether public disclosure of ESOS data to increase ESOS recommendations uptake would be a good idea;
- whether the scheme should be extended to medium-sized businesses; and
- other methods to increase uptake of recommendations.

Eighty nine industry experts responded to the proposed questions, and in July 2022, the Government issued their response, which outlines the changes to be made for Phase III. Seven key areas for improvement were identified for ESOS Phase III:

Standardisation of ESOS reports

In order to improve the quality of reports it is now mandatory for reports to capture more information concerning compliance details. The following details are now required to be included in ESOS Lead Assessor reports:

- organisational details including corporate group structure, highest UK parent (and overseas where appropriate), Companies House registration numbers for the entities in the group and Standard Industrial Classification (SIC) codes;
- reason for qualification in ESOS – based on employee numbers, turnover, balance sheet or inclusion in corporate group;
- route(s) to ESOS compliance used;
- ESOS lead assessor details and details of all other personnel involved in conducting site visits and/or completing the report;
- total energy consumption (TEC), significant energy consumption (SEC) and any de minimis exclusions;
- if ISO 50001 certification is used, an explanation of how certification scope matches (or otherwise) the scope required by the significant energy consumption;
- use of 12 months energy data and energy profiling for ESOS compliance;
- number of sites, site sampling method used and rationale for this method;
- brief summary of the main audit findings (eg total savings identified) and actions taken since any previous audit.
- confirmation that the board member signing off the lead assessor report is an Executive Director for the highest UK parent, as registered with Companies House.

De minimis reduction

The term 'de minimis' refers to the percentage of an organisation's energy consumption that does not have to be included within the ESOS report. As part of Phase III, this has been decreased from 10 per cent to 5 per cent. There are two primary reasons for this change. The first is that it should allow for more consistency between organisations of different sizes. This is because an exemption of 5 per cent means it is less likely that a large organisation with a high energy consumption is able to exclude sites or transport larger than other participants' total energy use. The second is that organisations have built up a good energy portfolio over the course of previous ESOS Phases, so considering parts of the significant energy consumption that may not have been looked at in previous Phases will aid organisations in better understanding their energy profiles.

Energy intensity metric

It will become mandatory for reports to include an energy intensity metric, which is a measure of energy consumption per unit and allows for comparison between, for example, buildings of different sizes. Suitable units are kWh/m² for buildings, kWh/unit output for industry, and kWh/miles travelled for transport.

This has been added partly to align ESOS with existing SECR (Streamline Energy & Carbon Reporting) requirements that require use of energy intensity metrics. Most importantly, their inclusion

will allow for comparison between the performance of a given site or transport method in different phases, highlighting the effect of ESOS on energy savings. Additionally, it would allow organisations to easily rank their sites. While this is not particularly useful for organisations with a very diverse profile of sites, it will likely be of considerable benefit to organisations with many similar sites. This is because it will allow them to identify those with the highest energy consumption per unit, and hence target recommendations to yield the greatest energy savings.

Better guidance on next steps

It has become mandatory for ESOS reports to provide improved guidance on next steps. This should make it easier for organisations to implement energy savings recommendations. Examples of effective guidance include:

- signposts to existing Government support, including funding schemes such as the Industrial Energy Transformation Fund (IETF), impartial advice, and the Government-maintained Energy Technology List which gives information on best practice energy efficient technologies;
- some consideration of appropriate financing mechanisms, such as Energy Service Company (ESCo) models for more major investments;
- packaging recommendations together into a suggested programme of works. For example, packaging a range of very low-cost and medium-cost actions together into a programme of work that pays back within three years;
- recommendations that reflect both what is possible under the terms of the lease and what an appropriate intervention point might be. For example, waiting until natural replacement cycles to replace expensive plant room equipment.



Publishing an action plan

Organisations will be required to publish an action plan following the Phase III compliance deadline and to record their progress annually. An action plan is a document that outlines practical steps to meeting energy savings goals. It should also highlight possible barriers to success and suggest how these could be overcome.

Organisations will be required to report progress annually via the energy efficiency section narrative in SECR reports. For organisations that are not in scope of SECR, a reporting function via the ESOS web portal will be made available for their annual progress reporting.

Recommendations template

It is possible that a template will be provided for ESOS recommendations. The Government plans to take forward proposals that meet the criteria of being able to effectively engage senior management teams and being easily adaptable.

Sharing report with subsidiaries

Organisations will be required to share reports with subsidiaries within their corporate group. An ESOS evaluation highlighted that only 50 per cent of ESOS participants take any action to share ESOS results with other organisations in the corporate group, which inhibits undertakings below the parent level from taking up recommended actions.

The planned changes for Phase IV have not as yet been decided.

Compliance stages for ESOS Phase III

QUALIFICATION ASSESSMENT
▼
APPOINT A LEAD ASSESSOR
▼
MEASURE TOTAL ENERGY CONSUMPTION
▼
DE MINIMIS CALCULATION
▼
SAMPLING FOR AUDITS
▼
CARRY OUT ENERGY AUDITS
▼
IDENTIFY SIGNIFICANT ENERGY CONSUMPTION
▼
MEASURE ENERGY INTENSITY
▼
IDENTIFY ENERGY SAVING MEASURES
▼
AGREE ACTION PLAN
▼
PRODUCE REPORTS & RECOMMENDATIONS
▼
DIRECTOR SIGN OFF
▼
SHARE WITH SUBSIDIARIES
▼
NOTIFY ENVIRONMENT AGENCY

However, some of the changes that have been discussed include:

- the introduction of an energy consumption threshold to be in line with the SECR scheme;
- tighter rules (clarity) around the sampling of sites with rules on the minimum numbers of sites to be audited;
- removal of DECs and GDAs as compliance routes;
- focus on energy management and behaviour change in energy audits;
- clarity on the use of half-hourly data in energy audits;
- net zero PAS standard for ESOS audits to be developed and net zero included in energy audits.

EN 16247 or ISO50002 standard adoption for energy auditing.

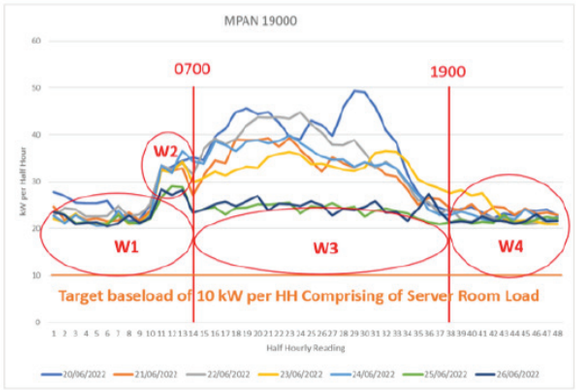
Recommendations templates to be developed.

ESOS public reporting on progress of implementation and results.

All the above demonstrates best practice and ESOS participants are welcome to include these aspects in their reporting as a voluntary addition to the current Phase III requirements.

Fig 1. Example of Half Hour Analysis Showing 4 Areas of Identified Waste W1, W2, W3 and W4.

- **W1 =** Waste of approx 15 kW per HH (30 kW per hour) between 0000 and 0700 – suspected to be small power equipment and computers on overnight – investigation needed.
- **W2 =** Waste of approx 25 kW per HH between 0430 and 0700 – investigation needed.
- **W3 =** Waste of approx 15 kW per HH for Saturday and Sunday – suspected to be lights and computers switched on – investigation needed.
- **W4 =** Waste of approx 15 kW per HH (30 kW per hour) between 0000 and 0700 – suspected to be equipment and computers on overnight – investigation needed.



Useful Links

- Compliance https://www.gov.uk/government/publications/comply-with-the-energy-savings-opportunity-scheme-esos/complying-with-the-energy-savings-opportunity-scheme-esos#what-esos-is-and-who-it-applies-to
- ESOS Lead Assessors https://www.gov.uk/guidance/energy-savings-opportunity-scheme-esos#approved-registers-of-esos-lead-assessors
- Energy Institute ESOS Phase III CPD https://www.energyinst.org/whats-on/search/events-and-training?meta_eventId=2301ESOSCPDTR
- Energy Auditing Training to BS EN 16247 https://academy.theiet.org/energy-audits-course

ENTRY FORM

Please mark your answers below by placing a cross in the box. Don't forget that some questions might have more than one correct answer. You may find it helpful to mark the answers in pencil first before filling in the final answers in ink. Once you have completed the answer sheet, return it to the address below. Photocopies are acceptable.

Questions

1. Which one of the following statements regarding ESOS is true?

- ☐ ESOS was established in 2014 specifically to help the UK meet the 2050 net zero goal
- ☐ ESOS was established in 2014 to close the gaps with SECR and Climate Change Agreements
- ☐ ESOS was established in 2014 as a requirement of EED Article 8
- ☐ ESOS is being closed down following poor results of phases I 7 I

2. UK-based manufacturing company employs 300 people, has an annual turnover of £50m and an annual balance sheet total of £35m. Is this organisation defined as a 'large undertaking', and as such does it qualify for ESOS Phase III?

- ☐ Qualifies for ESOS – both the qualification criteria are met
- ☐ Qualifies for ESOS – only the employee number criterion is met
- ☐ Qualifies for ESOS – only the annual turnover and balance sheet criterion is met
- ☐ Does not qualify for ESOS

3. Which UK Government department operates and manages the ESOS Scheme?

- ☐ BEIS
- ☐ DECC
- ☐ EA
- ☐ ESNZ

4. Owing to a lack of compliance / poor compliance during ESOS Phase II 123 civil penalties were given. What was the value of these penalties?

- ☐ No penalties were given
- ☐ £1.9bn
- ☐ £1.9m
- ☐ £1.9trn

5. In order to comply with ESOS Phase III which of the following must be carried out?

- ☐ The appointment of an ESOS lead assessor
- ☐ The calculation of the organisations Total Energy Consumption (TEC)
- ☐ The identification of the organisations Significant Energy Consumption (SEC)
- ☐ All of the above

6. As part of Phase III, the value of the de minimis exemption has changed. What was the original value and what is the new value?

- ☐ Original – 15 per cent New – 10 per cent
- ☐ Original – 20 per cent New – 10 per cent
- ☐ Original – 15 per cent New – 5 per cent
- ☐ Original – 10 per cent New – 5 per cent

7. When reporting recommendations and next steps which of the following should be included in an ESOS Phase III report?

- ☐ Signposts to government support
- ☐ Considerations of appropriate financing mechanisms
- ☐ Packaging of recommendations e.g. low and medium measures with an overall payback of less than 3 years
- ☐ All of the above

8. The inclusion of an energy intensity metric will allow participants to rank their assets in order of energy efficiency. Which of the following are examples of an energy intensity metric?

- ☐ kWh/m^2 for buildings, kWh/miles travelled for transport, & kWh/unit output for industry
- ☐ Total kWh for buildings, Total kWh travelled for transport & Total kWh output for industry
- ☐ Energy spend for buildings, energy spend for transport & energy spend for industry
- ☐ Number of buildings, number of vehicles & number of factories

9. Choosing a lead assessor can be a difficult task. Which of the following should be considered when appointing a lead assessor?

- ☐ Whether they have energy auditing experience in the right sector
- ☐ Whether they are familiar with technology and processes in the right industry
- ☐ Whether they have experience of auditing against particular standards
- ☐ All of the above

10. Which of the following are expected requirements for ESOS Phase IV?

- ☐ Inclusion of half hour analysis
- ☐ Inclusion of Net Zero
- ☐ Inclusion of energy management and behaviour change focus
- ☐ None as ESOS will be scrapped after Phase III

Please complete your details below in block capitals.

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