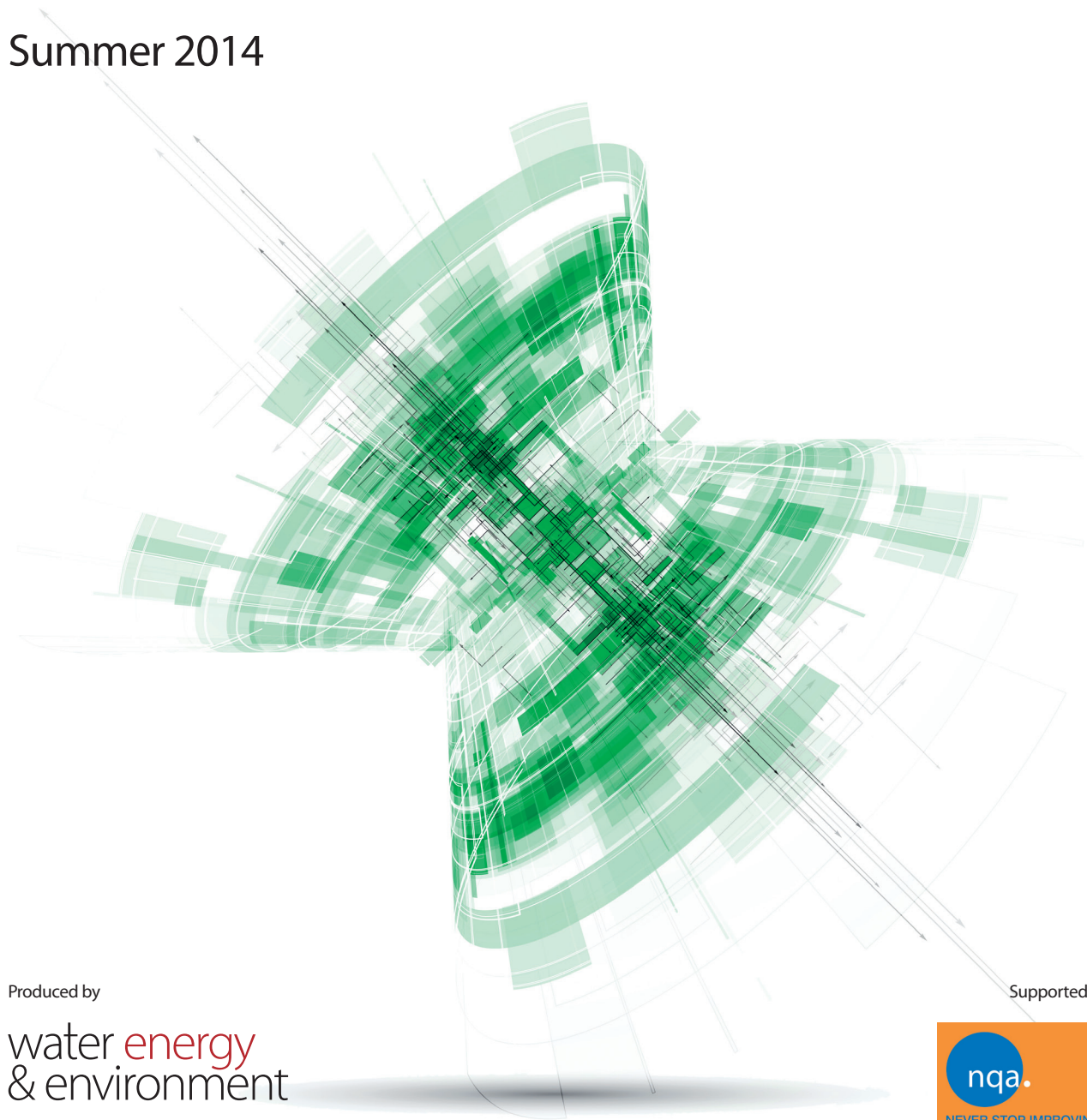


Achieving Energy Efficiency & Maximising Performance

**Your opinion on routes to reducing energy use and
compliance with ESOS**

Summer 2014



Produced by

water **energy**
& environment

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Energy efficiency – Your opinion

By **Tim McManan-Smith**

Water, Energy & Environment has undertaken a timely research paper in association with NQA that examines current attitudes to energy efficiency with particular emphasis on the piece of Government legislation ESOS – Energy Saving Opportunities Scheme. This is the UK's implementation of article 8 of the EU Energy Efficiency Directive and requires all companies that are not SMEs* to undertake a mandatory audit by December 2015 and every four years thereafter.

The desire to save energy within an organisation is high and the array of opportunities whether it is behavioural change, technology solutions or the implementation of management systems such as ISO 50001. Energy is fairly well integrated within most organisations planning and is seen as an operational resource that can be improved upon rather than just a necessary cost that you cannot do much about.

As ESOS comes into force, many organisations have not yet decided how best to tackle the issue. Exemption is provided by a number of routes such as ISO 50001 but time is of the essence. Qualification ends in December this year with full compliance required by December 2015.

Finance is still the number one barrier to energy efficiency but since our last survey this has reduced. There are many options around that enable investment in technology that can be paid for by the savings and this may be starting to have an effect or it may just be the recovery from the recession. Board level engagement as a barrier has dropped by a third which is encouraging in that it sets the tone for a whole organisation that saving energy is a worthwhile objective. This is corroborated by the survey wherein 68% of energy consumers do not see energy just as a burden but as an operational resource that can be migrated against.

I would like to take this opportunity to thank our loyal readers of Water, Energy & Environment along with our partners who have helped make this research possible: ESTA, MEUC, Vilnis Vesma, Kit Oung and NQA for supporting this paper.

If you require extra copies of the survey digitally then go to theenergyst.com



* Organisations employing more than 250 people, having an annual turnover exceeding £42.5 million and/or annual balance sheet exceeding £36.5 million



ESOS compliance vs. ISO 50001 certification

By Martin Hockaday, NQA

Does your organisation know how much energy it uses to heat and cool its buildings? Does it know the amount of gas consumed by its manufacturing processes or how much fuel is used for its transport fleet? If it doesn't know now, it will need to know come 5th December 2015, because that is the date by which the government says all large enterprises that employ 250 or more staff, or have an annual turnover in excess of £42million, must have completed a comprehensive energy audit.

What's more it is an audit that the government says will need to be repeated at least once every four years from the date of the first appraisal.

Impact on business

The audit is being introduced under the Energy Savings Opportunity Scheme (ESOS). This piece of legislation has been introduced by the UK government to meet the requirements of the European Union; more specifically Article 8 of the European Union Energy Efficiency Directive. This is an EU initiative to accelerate the drive towards greater energy efficiency and reduced carbon emissions from businesses. The Department of Energy and Climate Change (DECC) is set to issue a summary guide to ESOS in late June 2014.

Energy management in the private sector is a major factor in helping the government to achieve its carbon emissions reduction targets of 34% by 2020 and 80% by 2050, compared to 1990 levels. ESOS is the latest in a range of initiatives designed to reduce energy usage. The conservative estimate is that audits will lead to an average 0.7% energy saving per enterprise and ESOS is expected to provide a net positive benefit to the UK of between £0.8bn and £3.0bn.

For the 7,300 organisations that the UK government estimates will now have

to carry out mandatory energy audits, ESOS could be an expensive and time consuming initiative.

Routes to compliance

The good news for businesses is that the government has proposed a number of routes to ESOS compliance. One such route is for a business to appoint an approved energy auditor to record energy consumption and to assess and report on the cost effectiveness of recommend energy saving opportunities. An alternative is that an energy audit can be done by anybody, providing it has been reviewed and signed-off by an approved lead auditor.

Surprisingly, ESOS has no requirement for businesses to act on the energy saving recommendations resulting from the audit. Not acting on the recommendations would make it an expensive and, ultimately, fruitless exercise for businesses.

The best alternative to engaging third parties to undertake expensive energy audits every four years is to put in place an energy management system that is certified to the international standard ISO 50001. Subject to Parliamentary approval, ISO 50001 will meet the assessment criteria of ESOS, provided the ISO 50001 audit includes everything covered by ESOS (e.g. buildings, industrial processes and transport). For many, ISO 50001 certification could be an attractive alternative to regular ESOS audits.

Adopting the international standard offers businesses more benefits than just an alternative route to compliance. In a fiercely competitive business environment ISO 50001 provides a way to define energy policy and a route to reducing those costs. And, because businesses will need to actively develop their energy management systems in order to maintain ISO 50001 certification, they will have to act on the findings of

certification audits. As a result businesses certified under the international standard will be actively improving their energy management.

Return on Investment

ISO 50001 has the advantage of enabling a business to gain a competitive commercial edge by putting in place a process of continual improvement for its energy management. It also demonstrates to customers and other stakeholders that the business is serious about energy efficiency, operating costs and corporate responsibility. What's more, ISO 50001 certification has been proven to deliver return on investment - something that ESOS audits alone cannot deliver.

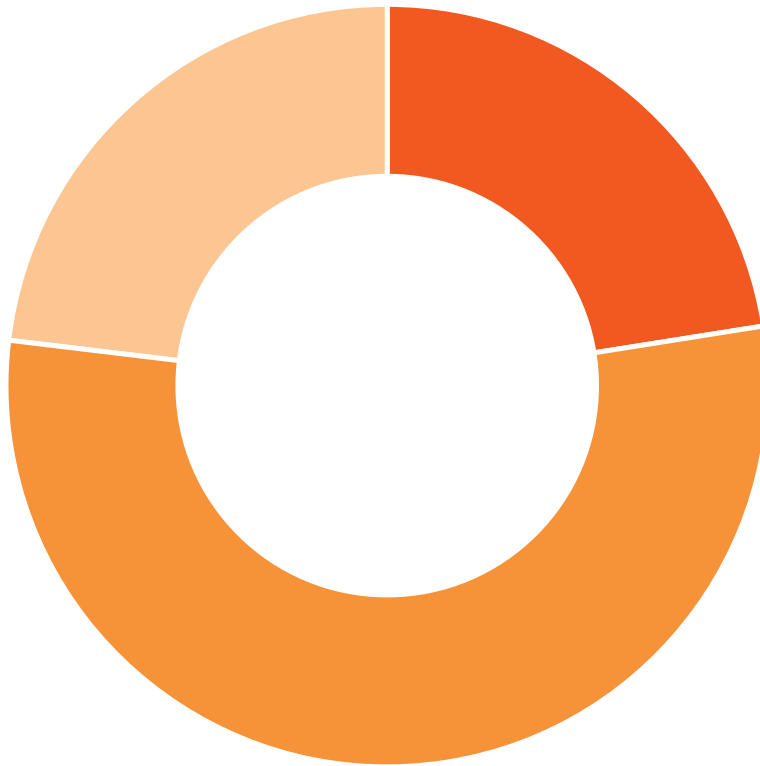
NQA is the first certification body to be approved to assess ISO 50001 by the United Kingdom Accreditation Service (UKAS). NQA's assessors work with organisations to help identify additional opportunities to continually improve their energy management system.

Train operator Northern Rail is an NQA client that has embraced ISO 50001 as a tool to help it make significant energy savings. Certification to the standard necessitates measurement, documentation and reporting, equipment design and procurement processes.

So far, excluding everything directly related to the trains, the move has enabled the company to shave 9% off its energy consumption per passenger mile. In addition, on the train side the company has saved 0.5%. Northern Rail will use this demonstration of its commitment to reducing operational costs to help its case in the next round of franchise bidding.

ISO 50001 deserves the attention of any organisation – particularly those affected by ESOS – not just as a means of compliance, but as a framework for improving their business performance. ■

What best describes your job title?



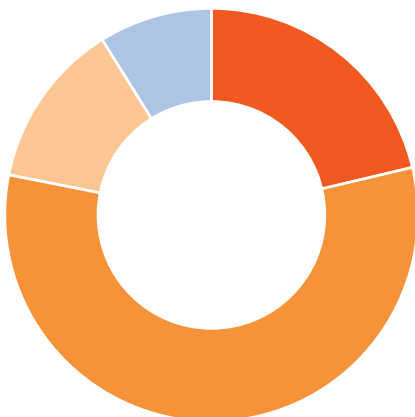
- Director 22.5%
- Manager 54.4%
- Consultant.....23.1%

Depending of whether the respondent was a consultant, manager or director of an energy consuming organisation. Consultants were asked to answer on behalf of their client/s.

The results are shown throughout, with two graphs and a short explanation of any differences that are apparent.

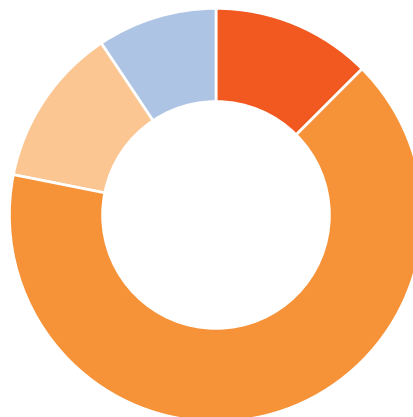
How important is increasing energy efficiency to your business?

Energy Consumers



- Business critical 21.3%
- Important..... 56.8%
- Somewhat important..... 13.0%
- Low importance..... 8.9%

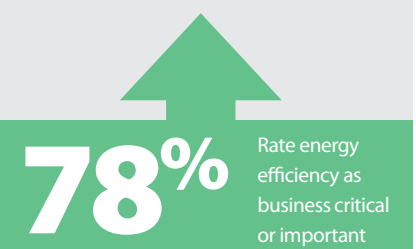
Consultants



- Business critical 12.5%
- Important..... 65.6%
- Somewhat important..... 12.5%
- Low importance..... 9.4%

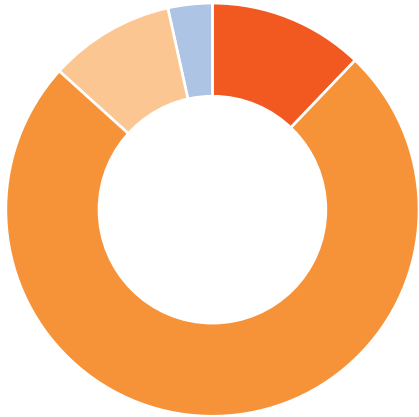
Over 21% of respondents consider the improvement of energy efficiency within their organisation to be business critical, with 57% believing that it is important. This 78% suggests that UK businesses are taking the prospect of energy efficiency seriously showing a clear appetite for reducing energy consumption.

Consultants agree that 78% are serious about energy efficiency and that it is important too.



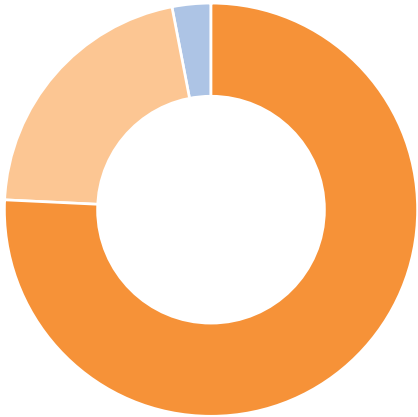
How energy efficient is your organisation?

Energy Consumers



- Very 12.1%
- Becoming more efficient..... 74.6%
- Struggling to find savings 9.8%
- Not at all 3.5%

Consultants



- Very 0.0%
- Becoming more efficient..... 75.8%
- Struggling to find savings 21.2%
- Not at all 3.0%

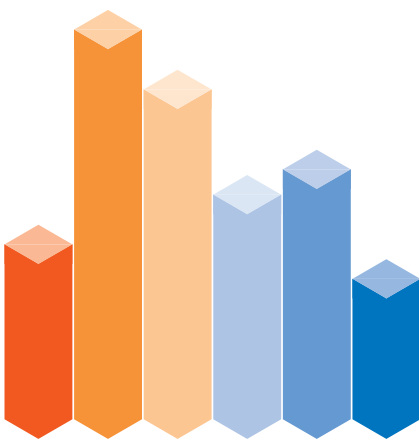
While 12% of those surveyed are accomplished at energy management by already being very efficient. The majority (75%) have started their journey and are becoming more energy efficient. There is an understanding coupled with more than just willingness but evidence, of savings being made.

10% of respondents struggled to locate savings but were trying to address the issues. Only 3% considered their organisation not at all efficient.

76% of organisations that consultants work for are becoming more efficient. None are totally proficient but then if they were one would assume they wouldn't be using an external consultant.

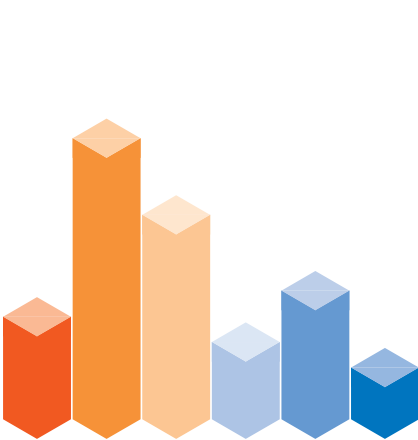
What are your barriers to increasing energy efficiency?

Energy Consumers



- Board level engagement 20.7%
- Finance 46.2%
- Choosing suitable technology.. 39.1%
- Verification of claimed savings... 26.6%
- Lack of training & awareness... 29.6%
- No barriers..... 16.6%

Consultants



- Board level engagement 12.1%
- Finance 33.3%
- Choosing suitable technology.. 24.2%
- Verification of claimed savings.. 9.1%
- Lack of training & awareness... 15.2%
- No barriers..... 6.1%

The number one barrier to implementing energy efficient projects within an organisation was unsurprisingly finance. There is clearly work to be done on informing people about the various energy saving technologies available, with 39% citing this as a problem. 27% were worried that they would not be able to verify the claimed savings. Encouragingly board level engagement was only a problem for 21% moving down from 32% last year. Happily for 17% of organisations there are no barriers to increasing energy efficiency.

Aside from agreeing that finance is the biggest problem consultants perceived only 6% as having no barriers at all. Only 12% have a lack of board level engagement, lower than for energy consumers, this is possibly due to the type of company that engages a consultant.

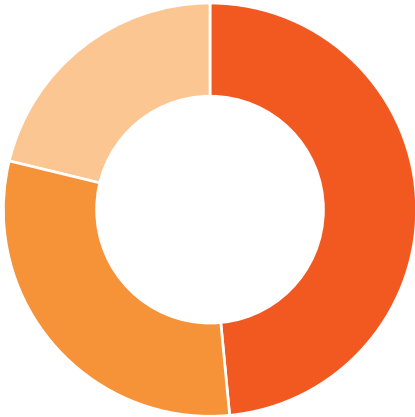
Are league tables / benchmarking a good motivator for an organisation (especially its board)

Energy Consumers



- Yes, and it should be made public 43.0%
- Yes, but it should be generic and not made public 29.7%
- No 27.3%

Consultants



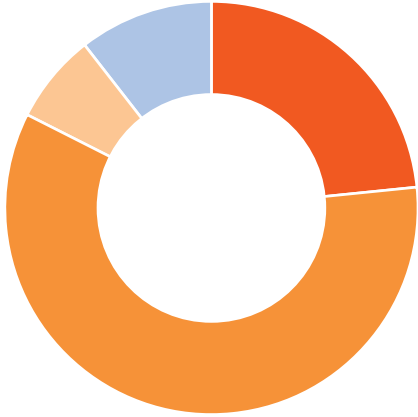
- Yes, and it should be made public 48.5%
- Yes, but it should be generic and not made public 30.3%
- No 21.2%

43% of organisations think that league tables are a good idea and that they should be made public. The popularity of the motivation and focus provided by this method suggests that the Government was wrong to abandon them from the CRC Energy Efficiency Scheme. 30% believe that there is a benefit to be gained from benchmarking and comparing yourself to other similar organisations but that it shouldn't have the embarrassment factor of publicity and should just be a tool for energy management. Interestingly 27% believe that they are not useful, this could be connected to the CRC experience that was time consuming and never had a proper and fair league table released before it was abandoned.

Almost half of consultants believe that league tables are useful and should be published.

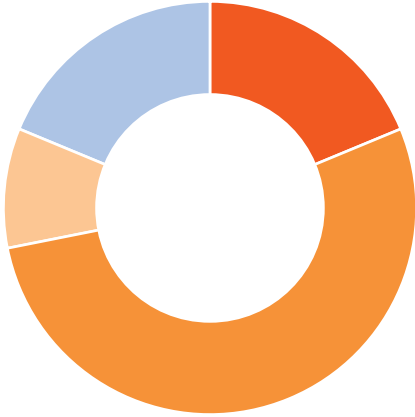
How effective is your current energy policy?

Energy Consumers



- Communicated and effective... 23.4%
- Could do better..... 59.1%
- Policy created but not adhered to 7.0%
- What policy?..... 10.5%

Consultants



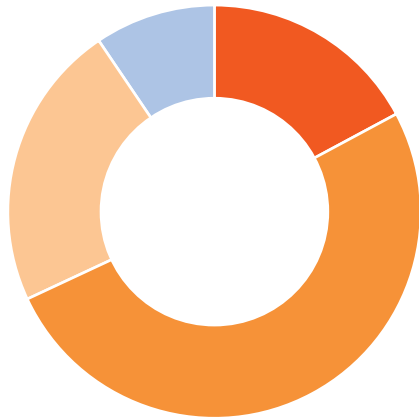
- Communicated and effective... 18.8%
- Could do better..... 53.1%
- Policy created but not adhered to 9.4%
- What policy?..... 18.8%

Most respondents think that they could do better in communicating their energy policy, however, there is a policy in place and it's being adhered to in a fashion. 10% have no energy policy at all which seems to be quite high when one considers the need for data to comply with schemes such as the CRC and so forth. A fairly high 23% are on top of their energy management strategy completely.

Interestingly more organisations employing a consultant (19%) have no energy policy at all. On the flip side 19% do have an effective energy policy that is well communicated.

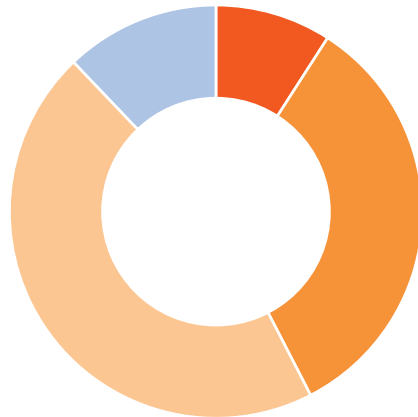
How well is energy management integrated within the business?

Energy Consumers



- Considered as business critical . 17.2%
- Considered an operational resource 50.9%
- Considered a necessary cost..... 22.5%
- Not considered in planning..... 9.5%

Consultants



- Considered as business critical.. 9.1%
- Considered an operational resource 33.3%
- Considered a necessary cost..... 45.5%
- Not considered in planning..... 12.1%

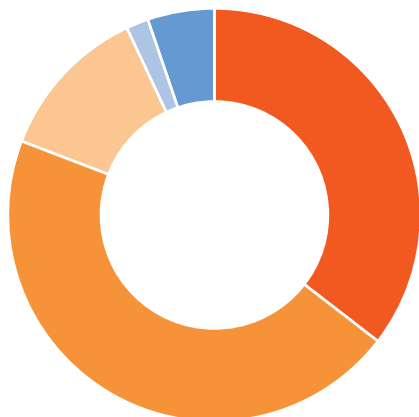
Energy management is well integrated within many organisations. 17% see the integration of energy management as business critical, the majority (51%) also see it as more than a burden, with them viewing it as an operational resource.

Energy management is well integrated within most of the companies that consultants deal with, however, 46% see energy as a necessary cost which is double that of organisations not utilising external help.

78% Energy consumers that view energy as more than just a burden

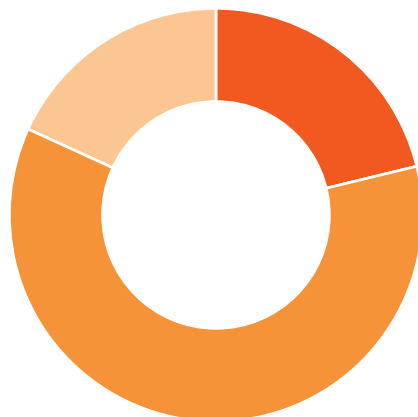
What level of human resource is dedicated to energy efficiency?

Energy Consumers



- Dedicated team or person 35.5%
- Energy management is absorbed into another role 45.3%
- We have no in-house energy management responsibility 12.2%
- We use an external consultant ... 1.7%
- I am a consultant 5.2%

Consultants



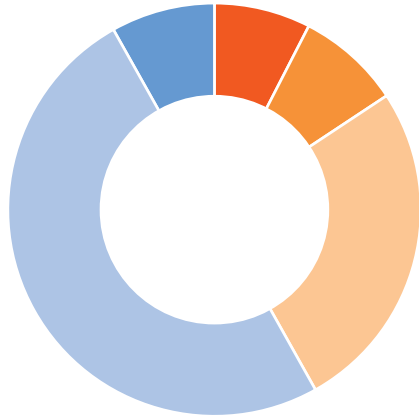
- Dedicated team or responsible person 21.2%
- Energy management is absorbed into another role 60.6%
- They have no in-house energy management responsibility 18.2%

Although energy is acknowledged by the majority of businesses as important and worth time and investment, it is still not seen as sufficient cause in its own right for full time staffing. 45% have energy management absorbed into another role and 12% have no in-house energy management capability.

Predictably for those using a consultant the dedicated in-house team is less (21%) than for organisations not using a consultant. 18% have no in-house capability with the majority having it absorbed into another role (61%).

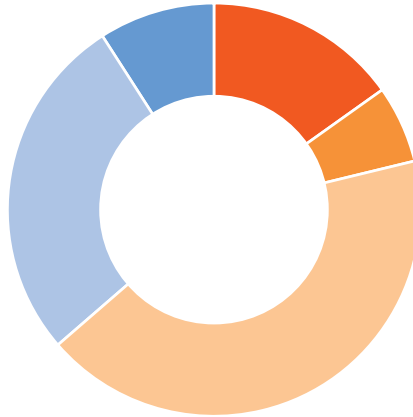
Where are you on your energy management journey?

Energy Consumers



- Not started and not likely soon.....7.6%
- Not started but plenty of ideas8.1%
- Started but only implemented the easiest technology solutions.26.2%
- Made good progress but still many things that I want to do50.0%
- Sophisticated approach and use an Energy Management System..8.1%

Consultants



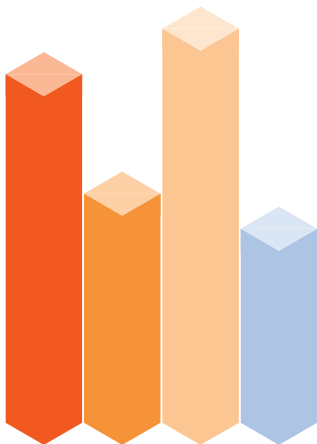
- Not started and not likely soon..15.2%
- Not started but plenty of ideas6.1%
- Started but only implemented the easiest technology solutions.42.4%
- Made good progress but still many things that I want to do27.3%
- Sophisticated approach and use an Energy Management System..9.1%

Regarding how far companies have progressed with energy management, half have made good progress, which is heartening, but many still have things that they want to do. Over a quarter have only just started with the easiest things but they are at least on their way. On the extremes 8% have a sophisticated approach and are well on their way to achieving big reductions, contrasting to 16% that have not started; split evenly between those having ideas and those not having got off the ground.

15% of organisations that use a consultant are not started on their energy management journey and are not likely to soon which could pose the question, why are they employing a consultant?

How are you planning to improve your energy efficiency?

Energy Consumers



- Hardware.....61.1%
- Software.....40.1%
- Training & awareness69.1%
- Management systems (e.g ISO 50001)34.0%

Consultants



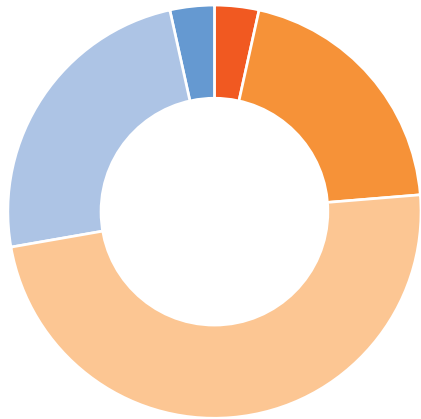
- Hardware.....32.3%
- Software.....0.0%
- Training & awareness41.9%
- Management systems (e.g ISO 50001)25.8%

Intriguingly the favourite method of improving energy efficiency is through training and awareness campaigns (69%) this beats hardware (61%), such as LED lamps, and software (40%). It seems that many are putting their trust in people being responsible with energy use across their organisation rather than just relying on technology. Over a third believe that management systems will yield energy efficiency improvements.

Consultants' plans for reducing energy for their clients do not involve software at all which is surprising given that all monitoring systems utilise some sort of software. Training and awareness is the a bigger focus (42%) followed by hardware at 32%.

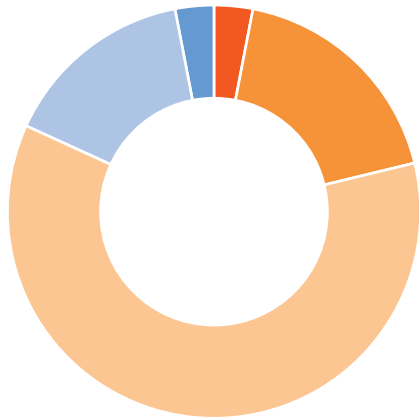
Is technology or people the best way to reduce energy consumption? (1 being all people and behaviour and 5 being solely technology)

Energy Consumers



1.....	3.5%
2.....	20.2%
3.....	48.6%
4.....	24.3%
5.....	3.5%

Consultants



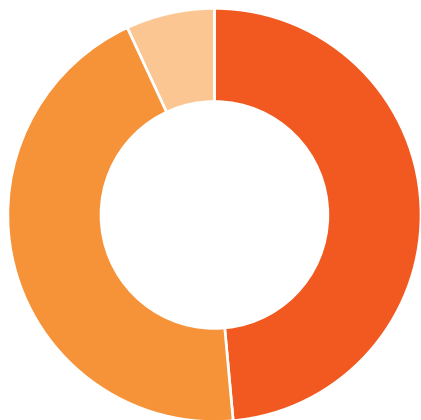
1.....	3.0%
2.....	18.2%
3.....	60.6%
4.....	15.2%
5.....	3.0%

In the debate over whether people or technology are better at reducing energy consumption the results are fairly evenly split with a slight favouring of technology which agrees well with the combination of software and hardware from the last question.

Consultants agree with that a the best approach is an even split between technology and people.

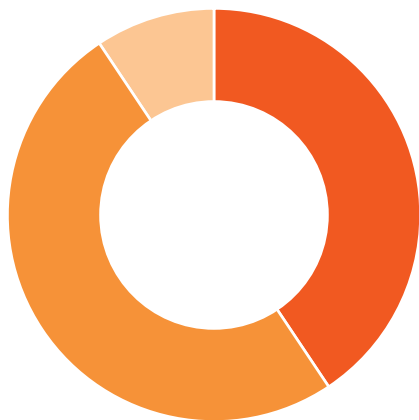
How well is compliance to energy legislation managed?

Energy Consumers



■ We can prove compliance.....	48.6%
■ We think we comply	44.5%
■ We don't know about legislation..	6.9%

Consultants



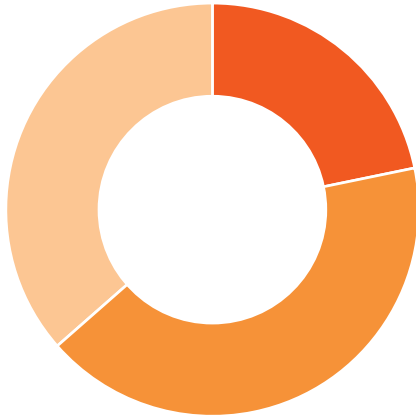
■ We can prove compliance.....	40.6%
■ We think we comply	50.0%
■ We don't know about legislation..	9.4%

Almost half of the respondents can prove that they comply with all types of energy legislation. Just under half (45%) think that they comply but are less sure with 7% not knowing at all about legislative compliance.

Slightly more 9% do not know about compliance issues which may well be the reason that they employ a consultant.

Regarding compliance, does your organisation:

Energy Consumers



- Do the minimum to comply 21.8%
- Go further than the minimum but not the whole hog..... 41.8%
- Strive for environmental excellence 36.5%

Consultants



- Do the minimum to comply 51.5%
- Go further than the minimum but not the whole hog..... 33.3%
- Strive for environmental excellence 15.2%

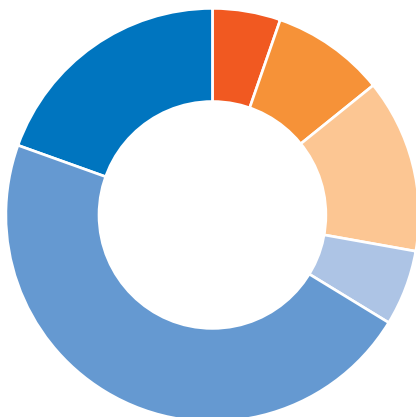
The majority of organisations go beyond the absolute minimum to comply with legislation with 42% doing more but not everything while 36% strive for environmental excellence in all areas.

Over half of organisations that use consultants only do the minimum to comply and only 15% are striving to be the very best at energy management.



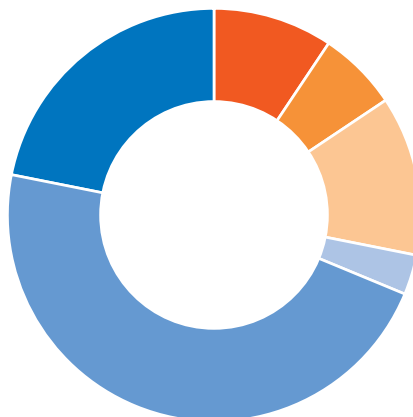
What are your plans for compliance to ESOS (The Energy Savings Opportunities Scheme)?

Energy Consumers



- Via external energy audit..... 5.3%
- Via internal energy audit by trained staff..... 8.9%
- Certification to ISO 50001..... 13.6%
- Other methods e.g Green Deal.. 5.9%
- Don't know as yet 46.7%
- It isn't applicable to us..... 19.5%

Consultants



- Via external energy audit..... 9.4%
- Via internal energy audit by trained staff..... 6.3%
- Certification to ISO 50001..... 12.5%
- Other methods e.g Green Deal.. 3.1%
- Don't know as yet 46.9%
- It isn't applicable to them 21.9%

Leaving aside the 20% that are not covered by the ESOS legislation, 58% (47% of respondents) are not yet sure what to do about the mandatory auditing scheme that has now become UK law. 7% of those covered are planning to have an external audit and 11% audit by trained internal staff. 17% are seeking compliance by obtaining ISO 50001 certification. 7% are planning other methods of compliance such as green deals assessments or DEC's.

Similarly to organisations that are doing energy management themselves the majority are waiting to see what to do to comply with the new ESOS requirements.



Using ISO 50001 Energy Management System as a means to ESOS compliance

By Kit Oung*

By the end of June 2014, the Department of Energy and Climate Change will launch the UK's Energy Savings Opportunity Scheme (ESOS) – a transposition of EU's Energy Efficiency Directive's (EED) Article 8. ESOS requires large organisations to carry out an energy assessment by 5th December 2015 and every four years thereafter.

The energy assessment has to cover 90% of the total energy consumed (either by energy consumption or energy cost basis) and includes energy use by buildings, manufacturing processes and transport within each organisation. Apart from carrying out an energy assessment, ESOS also specifies several alternative routes

for compliance, one of which is a certified ISO 50001-based energy management system.

This article highlights the efficacy of using a certified ISO 50001-based energy management system. Then it suggests how organisations can use ISO 50001 to meet the requirements of ESOS.

ISO 50001 Energy Management System

A survey by Economist Intelligence Unit¹ reports that more than 60% of organisations use a management system to manage energy. ISO 50001 was developed by an international collaboration of experts. The standard sets a minimum specification for a

management system specifically for managing energy use, energy consumption, and energy efficiency. Its success lies in two in-built features of a management system:

1. The use of a simple and proven management structure.
2. Gaining commitment of senior management.

Structured management based on operational data was first established by Frederick Winslow Taylor in 1911. This was later formalised by W. Edwards Deming to consist of planning, doing, checking and (taking corrective) actions. Its use of simple language lends a hand to make it easy to remember and apply.



The idea of a management system necessitates the buy-in and active participation of senior management. When using ISO 50001, senior management is required to actively participate in setting the energy policy, putting the relevant resources in place and to make sure improvements happen as planned. What sets ISO 50001 apart from the rest is it also requires the organisation to demonstrate continual improvements in energy performance.

Costa Coffee² in Lambeth, London implemented an ISO 50001-based energy management system. This helped it save 16% of its energy consumption (32% reduction per tonne of coffee roasted) and allow them to increase production without the need to invest in new energy supply and utility systems.

Data from Ireland, Netherland, Denmark and United States³ indicate that those new to ISO 50001 are expected to, on average, achieve 10% – 20% savings and achieving the savings 50% to 67% faster than business as usual. Organisations with a mature energy management practices can continue to achieve savings even after 15 years!⁴

Since ISO 50001 was launched in 2011, more than 7,100 organisations globally have adopted the ISO 50001 as their management system of choice. In the UK, 350 organisations have sought third party assurance that their management system conforms to ISO 50001. Comparing the number of organisations certified to ISO9001, ISO14001 and ISO 50001 in the first three years, ISO 50001 certification has surpassed those of ISO 14001 and is exhibiting a similar growth rates to ISO 9001.

How to use ISO 50001 to comply with ESOS

There are two reasons organisations certified to ISO 50001 are exempted from carrying out an energy assessment. Firstly, ISO 50001 contains an energy assessment called an “energy review”.⁵ Secondly, organisations using ISO 50001 requires top management to be actively engaged in managing, reviewing and implementing opportunities for improving energy performance.

However, when using ISO 50001 as an

exemption, the organisation should be mindful of the following points:

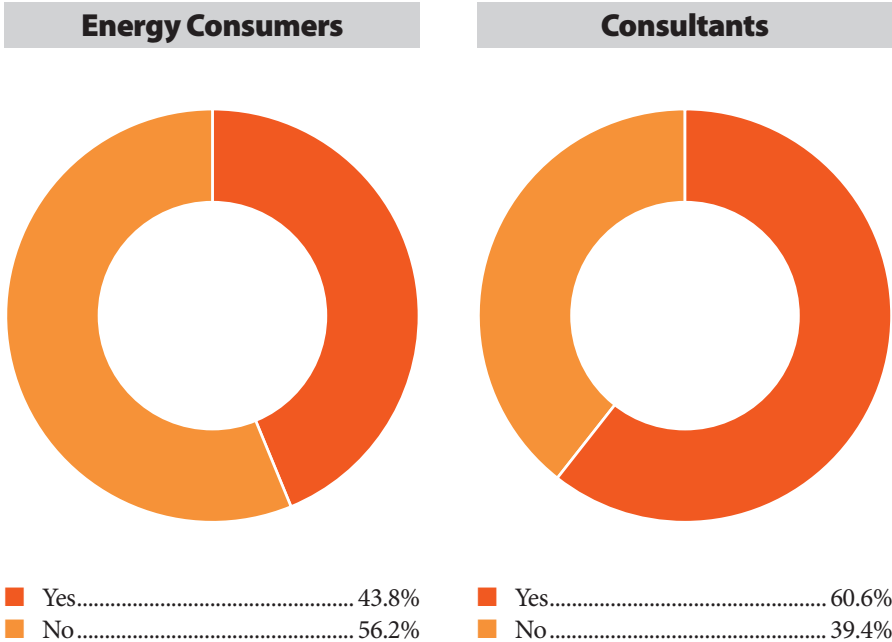
1. The first task for the organisation would be to identify if ESOS applies to them. Specifically, organisations employing more than 250 people, have an annual turnover exceeding £42.5 million and/or annual balance sheet exceeding £36.5 million is required to comply with ESOS. This is to be qualified, similar to CRC, as the highest parent organisation within the United Kingdom.
2. When defining the scope and boundary for ISO 50001-based energy management system, it should encompass all activities that use energy including buildings, processes and transport. Choosing buildings and processes is relatively straight forward. When it comes to transport, if the organisation pays for the fuel or for the mileage, it is to be included.
3. When carrying out an ISO 50001 energy review, it should include 90% of the energy consumed (or pays) identified in the above scope and boundary.
 - For organisations operating from one location, this would be 90% of the energy consumption in that location.
 - For organisation operating from multiple sites or buildings, the energy review could be done by site/buildings, by energy users across the organisation or other combination.
 - If less than 90% of the energy consumption is included in the energy management system,
4. and is also not covered by other exemptions, an energy assessment is required to cover the balance of energy consumption making up the 90%.
5. Even though organisations using a certified ISO 50001-based energy management system are exempt from an energy assessment, the organisation will still need to complete and submit an ESOS evidence pack. The ESOS evidence pack will need to be signed off by a board-level director. In the absence of a board, two senior managers within the organisation can sign off the evidence pack.

In summary, an ISO 50001-based energy management system is a proven way to manage and drive improvements. Organisations, small, medium and large can benefit from applying ISO 50001. Its use is expected to grow on a global basis. In the UK, large organisations can also use ISO 50001 as a way to conform to ESOS regulation – a big plus indeed! ■

** Kit Oung, is an energy consultant and British Standards Institute expert. He provides inputs and comments to the various international and European standards, including ISO 50001 and ISO 14001.*

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1. *Intelligent Manufacturing. An Economist Intelligence Unit Report.*
 2. *Energy Booooooost for Costa Coffee. ISO Focus. Issue 101. Page 46-47*
 3. *Why ISO 50001 and Energy Management for Industry of Developing Countries and Emerging Economies. A presentation by UNIDO.*
 4. *The Next Manufacturing Revolution: Non-Labour Resource Productivity and its Potential for UK Manufacturing.*
 5. *This is a concept that is heavily contested by energy management experts across Europe. The Energy Efficiency Directive (EED) specifies ISO 50001 as equivalent to an energy audit carried out according to EED's Annex VI. On the other hand, organisations can have their ISO 50001 certified without meeting any of the requirements listed in EED Annex VI. In addition, ISO 50001, ISO50002, ISO 50003 and ISO50004 says that there are many ways to prepare an energy review and lists energy audits as one of the available method. The issue remains unresolved but is a requirement of EED.*

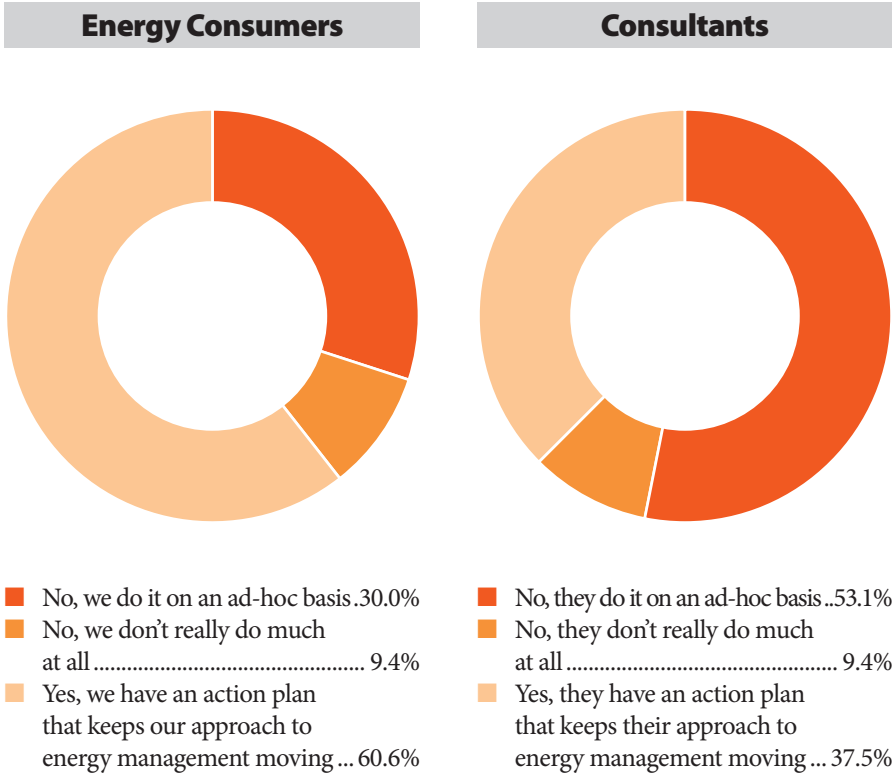
Did you know that ISO 50001 certification can provide exemption from ESOS assessment?



44% of respondents were aware that ISO 50001 does provide exemption from ESOS assessments. If the scope of the certification covers everything that is covered by ESOS this enables an organisation to forego the 4 yearly mandatory audits.

More consultants (61%) were aware that ISO 50001 can provide exemption from mandatory audits as might well be expected.

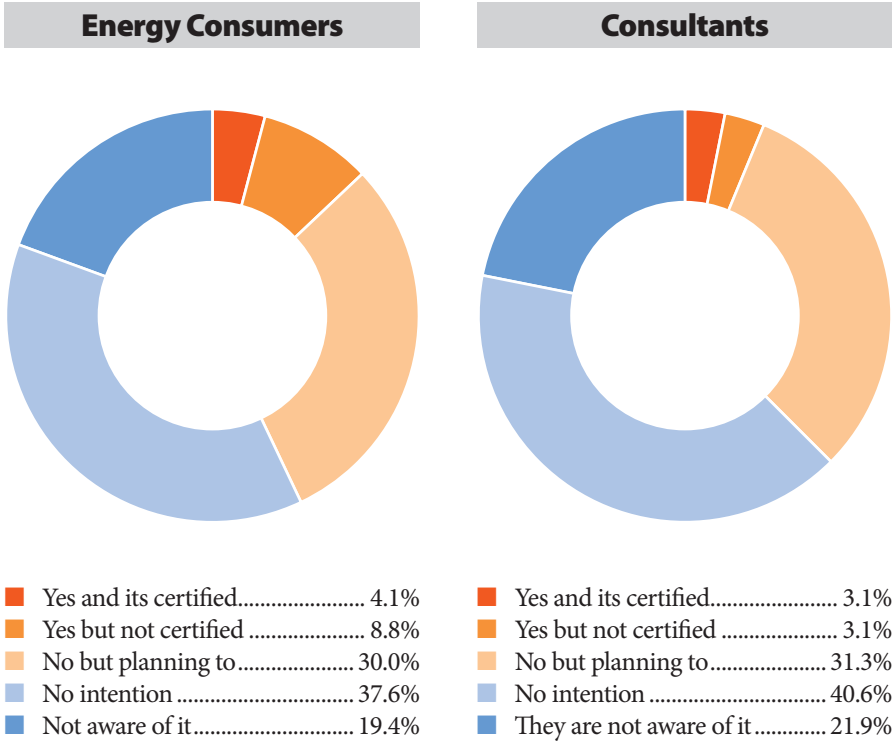
Do you have a continual improvement approach to energy management?



Hearteningly 61% have an energy reduction programme that keeps moving forward looking towards continual improvement. 30% approach energy management on a more ad-hoc basis with only 9% admitting to a general lack of action on energy efficiency.

More clients of consultants (53%) approach energy management on an ad hoc basis while 38% have a continual improvement approach.

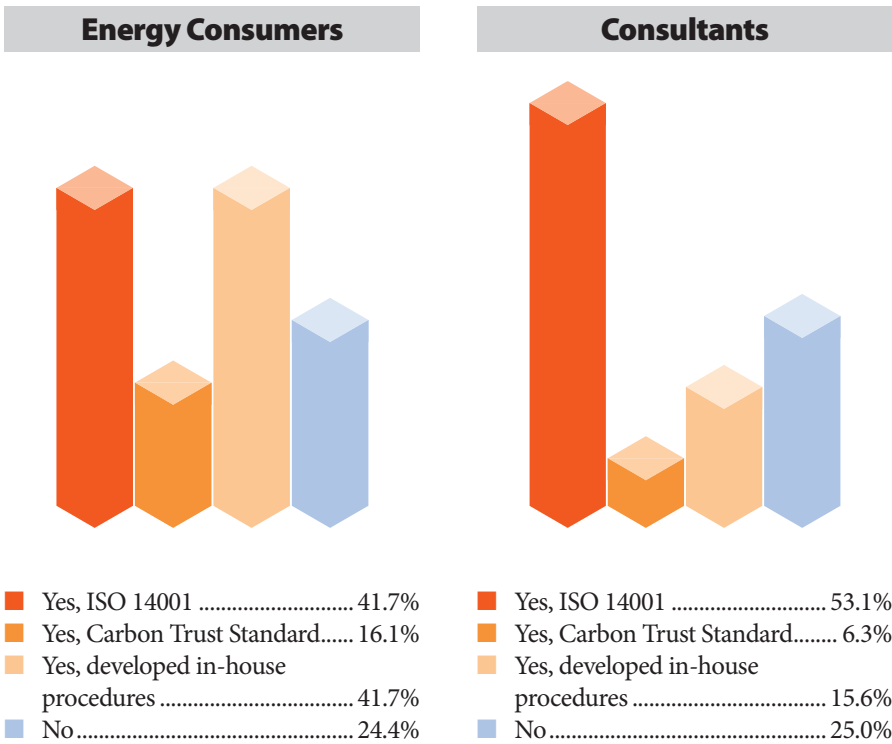
Do you use ISO 50001 to manage energy consumption?



While a fair proportion see ISO 50001 as a method of ESOS compliance and the majority of organisations work towards a continual improvement programme; only 4% actually have the standard certified. Another 9% work to the standard but haven't had it certified. Just under a third don't have it but are planning to in the future. 38% are not planning anything to do with ISO 50001 and 19% were unaware of the standard.

Broadly consultants customers think along the same lines as those without a consultant perhaps reflecting the novelty of the standard.

Do you use any other schemes or management systems?

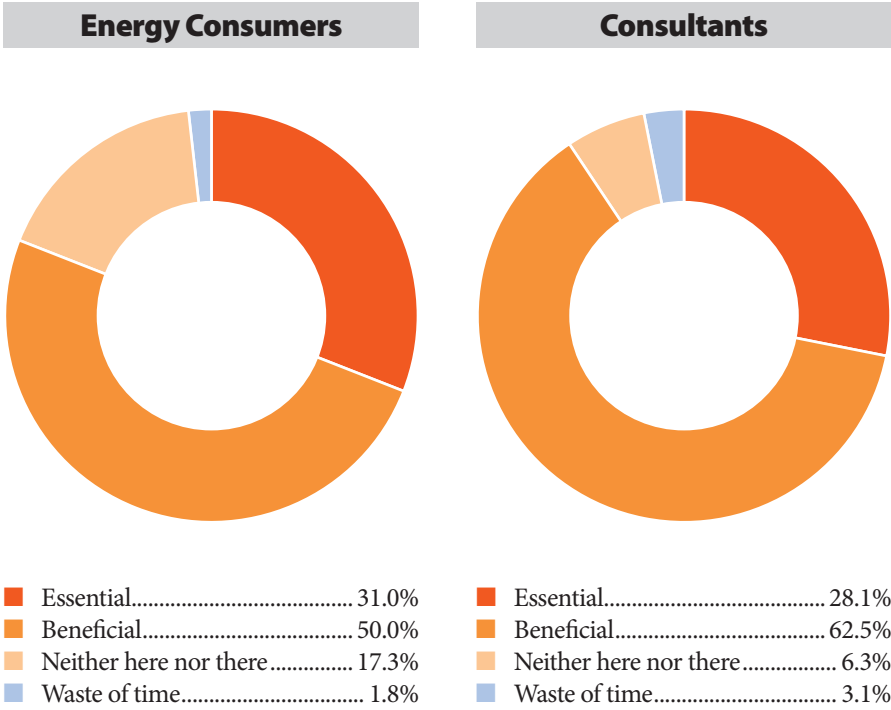


When questioned about other management systems 42% were found to have ISO 14001, the international environmental management standard. 42% have developed in house procedure and systems while 16% have the Carbon Trust Standard.

Over half of their clients have ISO 14001, less have the Carbon Trust Standard or in-house procedures.

44% The total using the ISO 14001 environmental standard

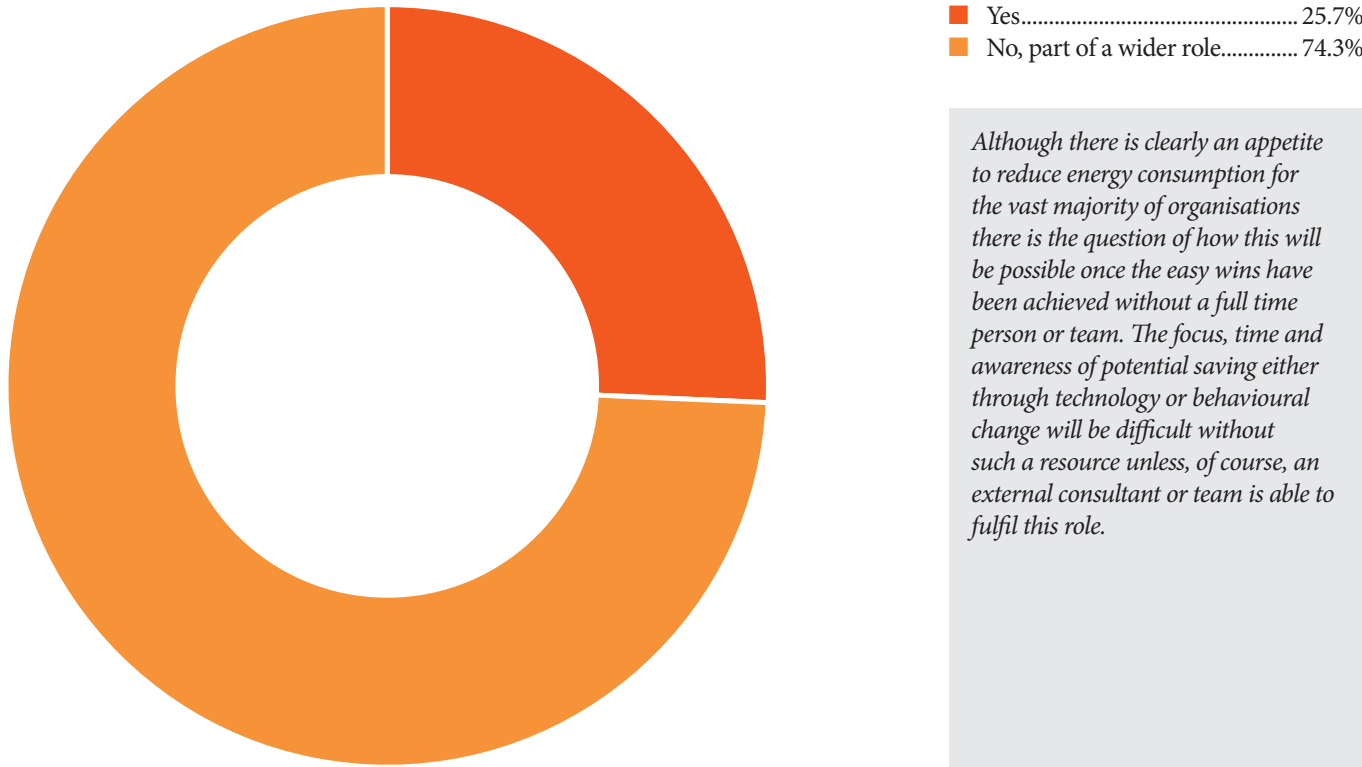
Is an Energy Management System necessary to effectively reduce energy consumption?



Asked whether an energy management system is necessary to effectively reduce energy consumption 81% thought that it was beneficial or essential.

Consultants believe that in 91% of cases energy management systems are essential or beneficial to achieving energy reductions.

Is energy your sole responsibility within your organisation or part of a wider role?



Although there is clearly an appetite to reduce energy consumption for the vast majority of organisations there is the question of how this will be possible once the easy wins have been achieved without a full time person or team. The focus, time and awareness of potential saving either through technology or behavioural change will be difficult without such a resource unless, of course, an external consultant or team is able to fulfil this role.

How many employees are within your organisation?

Energy Consumers



0-50	23.7%
51-99	9.6%
100-250	14.7%
251-499	7.9%
500-999	4.0%
1000+	40.1%

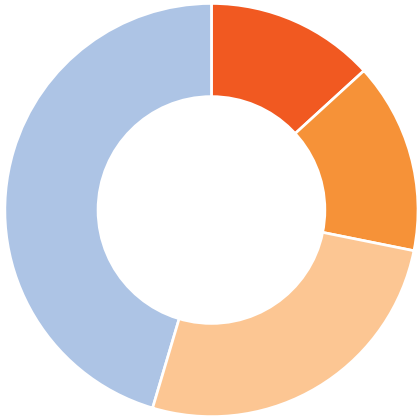
Consultants



0-50	17.6%
51-99	14.7%
100-250	20.6%
251-499	11.8%
500-999	5.9%
1000+	29.4%

What is your organisation's annual turnover?

Energy Consumers



<£1m	13.2%
£1m - £5m	14.9%
£5m - £50m	26.4%
£50m+	45.4%

Consultants



<£1m	18.2%
£1m - £5m	18.2%
£5m - £50m	27.3%
£50m+	36.4%

What is your annual energy spend? (£)

Energy Consumers



Electricity5,741,661.69
 Gas.....2,056,555.07

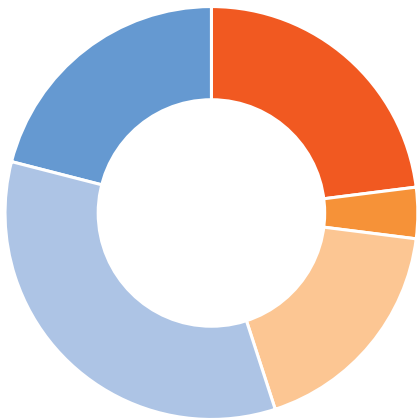
Consultants



Electricity4,558,096.12
 Gas.....1,782,937.63

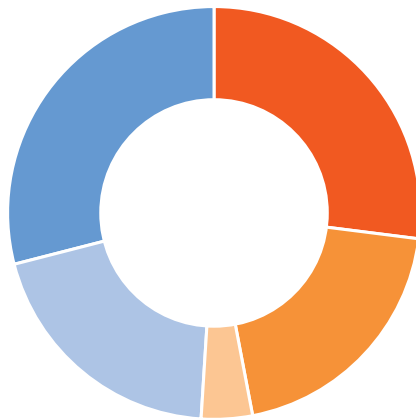
What is your annual energy consumption?

Electricity (kWh)



0-500,000..... 23%
 500,000-1,000,0004%
 1,000,000-10,000,000 18%
 10,000,000-100,000,000..... 34%
 100,000,000+ 21%

Gas (Therms)



0-100,000..... 27%
 100,000-500,000..... 20%
 500,000-1,000,0004%
 1,000,000-5,000,000 20%
 5,000,000+..... 29%

Mandatory energy audits – no plaudits

Vilnis Vesma has been monitoring developments

The Energy Savings Opportunity Scheme (ESOS), which comes into force at the end of 2015, affects all non-domestic energy users who are not public-sector bodies or SMEs. It requires them to have comprehensive energy audits carried out by 5 December 2015 and every four years thereafter. DECC is planning to issue a summary guide to the scheme in June 2014. A draft of this guidance is in circulation and this article attempts to highlight the salient points.

Choice of energy auditor

A good place to start would be to consider who can undertake the audits. Last year we thought that they would all have to be done by approved energy auditors, but that would have condemned many – perhaps most – customers to buying expertise from outside. With a huge peak in demand likely on the eve of the first-phase deadline, that would not have been feasible. So what will now happen is that any energy audit (done by anybody, using any methodology they choose) can be submitted as long as it has been at least reviewed and signed off by an approved “lead auditor”. And one will be able to submit existing audit reports done at any time since December 2011.

The next question is, who will be approved to act as lead auditors? The answer is that nobody knows. It could be months before the full list is available, and the criteria have not even been formally published yet.

The mechanism for approving lead auditors will be based on registers maintained by professional bodies like (presumably) CIBSE and trade associations such as ESTA. DECC have appointed the Environment Agency (EA) to be scheme administrators for ESOS, and EA are looking for a sub-contractor to evaluate registers for suitability. The criteria they use will be based on a publicly-available specification, “PAS 51215: Energy efficiency assessment – competency of a lead energy assessor”, which British Standards Institution have been commissioned to write.

At the time of writing, PAS 51215 has not

been finalised or published. Worryingly, the draft circulated last year for public comment included some peripheral stipulations for competency like the ability to “manage and improve working relationships”. If that survives into the final version it could make life difficult for the bodies who do not test all their registrants against that requirement. Anyway, the bottom line is that *nobody can offer ESOS auditing services at present* because nobody can guarantee that they are, or will be, on an approved register.

Nature of the energy audit

The terms of ESOS derive ultimately from a European Energy Efficiency Directive which calls for energy audits which “shall allow detailed and validated calculations for the proposed measures so as to provide clear information on potential savings”, and DECC is adding a requirement to “assess and report on the cost-effectiveness of each energy saving opportunity identified”. The bar, then, has been set quite high: an ESOS assessment sounds quite close to an investment-grade audit, since both savings and implementation costs will need to be known accurately. Or maybe not... There are get-outs, which I will now explain.

Exemptions

DECC’s Summary Guide has a section covering routes to compliance, and this enumerates various alternatives to full-blown energy audits. One is to have an energy management system (EnMS) that is certified to comply with ISO 50001. The certification must have been carried out by a body which is accredited for the purpose (by UKAS for example). The ISO 50001 route is not a panacea, though, because the boundary and scope of certification can be as limited and narrow as the organisation chooses. For example it might only cover the use of heating fuel in a particular building. ESOS, however, calls for everything to be audited – buildings, industrial processes and transport – with the exception of up to 10% comprising the least significant uses. Therefore, under the rules of the scheme, everything not covered by one’s ISO 50001 certification would need to be audited or subject to an

alternative compliance route.

One very attractive route on offer for people operating buildings is to opt to have Display Energy Certificates done voluntarily (they are only compulsory in the public sector). The advisory report accompanying a DEC is not even based on a walk-through survey: “drive-by survey” would be a better term. They are generally worthless but very cheap. It is extraordinary that DECC has allowed them as a route to compliance but they have, so until the UK is clobbered by the European Commission this will provide a cheap get-out for at least part of many organisations’ energy uses. There is also a non-domestic version of the “Green Deal” applicable to commercial buildings and this affords another super-el-cheapo partial route to compliance.

If an organisation operates industrial processes or has significant transport operations for which it buys the fuel, its compliance costs will be unabated and it will pay them to take ESOS seriously and try to wring some value out of it. But for the rest, the alternative routes to compliance seriously undermine the whole purpose of the project.

Oh dear

Regular readers will know that I hold the government in very low esteem when it comes to their interventions in energy efficiency. The shamefully poor standard of DECC’s draft Summary Guide just confirms my view. To pick on two of its significant faults (both of which I expect to survive into the finished version): it places huge emphasis on the collection of energy-consumption data and betrays a total ignorance of the need for explanatory (“driving-factor”) data; and it suggests that specific energy ratios (kWh per tonne) are meaningful indicators of energy efficiency, something which their predecessors in the Ministry of Fuel and Power knew was untrue and were addressing in advisory literature 70 years ago. It also includes an unbelievably trivial and superficial guide to energy-saving opportunities which, frankly, will make this country a laughing stock. ■

