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Energy champions on the front line

James Brittain, energy sustainability consultant and EnCO practitioner

Case studies on the EnCO website [1] show that 'energy conscious organisations' are successfully empowering energy champions to help them overcome the high costs of energy (bills, climate, reputational, etc) by equipping them to better champion energy sustainability as part of what they do every day.

Energy sustainability programmes are now a necessity for nearly all organisations. While investments in energy efficiency and decarbonisation technologies are important, without engaging people in this too, organisations typically miss out on 50% of the opportunity.

It is well recognised many sites still waste a significant amount of the energy they buy. Systems are often kept running for most of the time because they are unmanaged, or to maximise availability for perceived better service or enhanced production. This means they run at times when they contribute no value to the business (or are set at much greater capacity than required). This not only wastes energy but can also waste operational time and resources and can often cause local performance issues.

Heating, ventilation and AC systems (HVAC), just left 'on', typically don't get as much attention and can cause discomfort issues for building users as faults don't easily get picked up. This can be especially true for automated building management systems (BMS). Uncomfortable spaces (offices, workplaces, kitchens) are usually an indication of energy wastage. Process systems running flat out, for 24/7 operations, also can stifle productivity and increase overall costs and environmental impacts.

The opportunity for champions is to target this avoidable energy waste: from switching off, turning down or setting back equipment (when not required) to collaborating on technical improvements and introducing new management policies or procedures. Whatever the operation, there are usually many opportunities to save energy, make quick wins and continually improve overall performance. Many changes are often low or no cost.

EnCO is an industry not-for-profit initiative for behaviour change, run by practitioners with support from the Energy Institute. It aims to galvanise energy conscious organisations and create a community of practice for practitioners. EnCO Practitioners involved have had their eyes opened to the potential and are happy to share what they've learnt along the way. Case studies demonstrate that savings of at least 15-30+%, in reductions against baseline energy use, are being made. Indeed, many of them are achieving greater savings as their energy conscious journeys develop; the best ones achieving 50%+.

It is good practice for energy consciousness to come first in any Net Zero strategy, as it's not only the lowest cost way to reduce carbon emissions at scale but it also right-sizes any subsequent investments in clean and green technologies (energy hierarchy).

'Energy champions' (often volunteers) are empowered locally to engage colleagues and champion energy improvements, as part of an organisational energy sustainability programme. Some organisations may call them 'Energy pioneers', 'Environmental wardens', 'Green teams' or whatever suits the organisational culture and scope remit.

Strong champion teams generally include colleagues drawn from different functions across an organisation e.g. from facilities, operations, procurement, projects and finance teams as well as senior management and energy/ environmental sustainability leads.

This article draws on industry good practices to help champions and teams overcome the problems of high energy costs to achieve better overall service, cut costs and reduce environmental impact at a local level.

Whatever the sector, the same principles apply. Champions need to be able to question and think about the possibilities for themselves. Continuing support to help build and maintain momentum in any programme is paramount to ensure savings and benefits achieved don't fade away over time.

- Learning objectives include:
- Be able to engage colleagues at scale
- Be alert to compelling opportunities
- Build confidence to turn skills into workplace best practices.

Engagement

Engagement for energy consciousness needs to be developed systematically otherwise it can easily not embed properly within teams and so wouldn't last. ISO 50001 is the international energy management system standard to help us do this through its Plan-Do-Check-Act iterative cycle [2].

The 'planning' stage includes some fundamental requirements to prepare for implementation:

1. Understanding context and the needs and expectations of stakeholders
2. Senior leadership commitment in place
3. Roles, responsibilities and authorities agreed



Figure 1. Examples of understanding stakeholder needs, expectations and goals

4. Clear success factors defined which address risks and opportunities
5. Programme objectives, targets and engagement action plans.

An engagement charter highlights key policies, team processes, planned communications, training and support and measurement systems that need to be put in place. Every time there's a change in scope (sites or key stakeholders) engagement needs to go back to do the preparation phase again.

For **Bourne Leisure**, the focus was purposely not on financial savings but on 'doing the right thing' for guests, colleagues, local communities and the environment. Site champions created high levels of engagement across the business collecting personal written pledges which were regularly followed up to stimulate new or continued actions on sites. 6.7% savings were achieved in year 1, rising to 14% by the end of year 3.

Mitchells & Butler (the pub restaurant operator) had previously given little to no consideration to energy-consuming behaviours. A review of workplace culture and attitudes found that >70% of energy use in their commercial kitchens could be saved through improved staff behaviours. Champions used regular themed communications, competitions, signage and appliance stickers to engage teams (making 20% savings). Tips were shared on social media and successes celebrated through comms, rewards and incentives.

Listening to colleagues, understanding viewpoints and embracing their ideas is critical. Robert Gifford's 'Dragons of inaction' is a useful tool to help understand and reconcile attitudes which may go against programme objectives [see figure 2].

For **North Bristol NHS Trust**, champions are known as 'Environmental awareness representatives' (EARs) to listen to colleagues and listen to what is left on during periods of non-occupancy.

The mission of **Aston University's Estates Department**, to deliver and maintain a sustainable campus, centres around enhancing the student experience through high quality accommodation. The university introduced an 'Electricity league table' to increase visibility and promote local accountability for energy use. Awareness was developed through regular 'Carbon weeks' and embedding sustainability into the curricula, courses and daily activities, making 30% reductions in carbon emissions. New university research proposals now justify their electricity consumption over the life of each project.

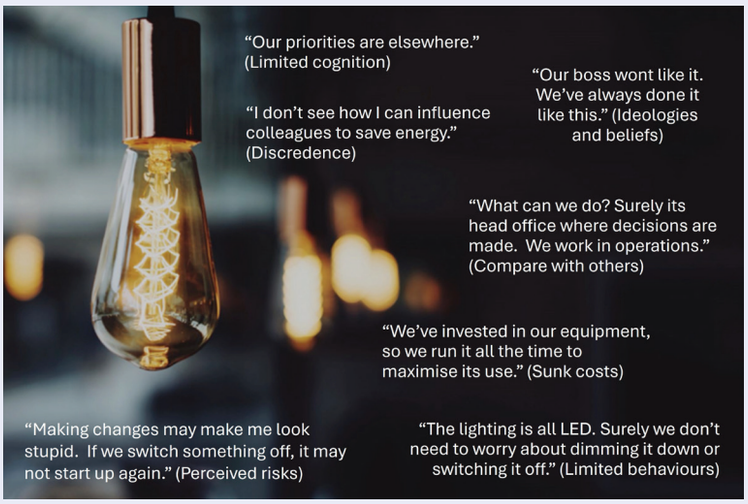


Figure 2. Examples of Robert Gifford's 'Dragons of Inaction' [3]

Case studies show that face-to-face engagement increases chances of success compared to use of only written communications (online, print, video, etc). Champions can engage colleagues directly and draw on their local knowledge to ask about operational practices, understand levels of 'safety margins' being employed, as well as knowing about what resonates best with the people involved.

Some organisations adopt a more indirect approach to engagement. For example, **Naylor** Industries Greenwise initiative focused on helping colleagues reduce energy use at home. The view is that this would cascade into better workplace practices too.

Focusing on co-benefits is a key theme for many campaigns. For facilities, it's often about comfort. For restaurants, keeping kitchens cool. For production sites, saving time and enhancing productivity.

Alertness

ISO 50001 also guides champions on how to focus their efforts:

1. Identify and focus on significant energy uses (SEUs)
2. Determine what impacts on energy performance (people, policies and variables such as weather)
3. Prioritise ideas and actions for making improvements
4. Monitor use of SEUs, actions taken and performance over time, in terms of outputs and costs
5. Demonstrate continual energy performance improvement to ensure momentum.

An SEU is defined as 'energy use accounting for substantial energy consumption and/or offering considerable potential for energy performance improvement', specified by the organisation [4].

SEUs can be facilities (eg sites), processes (eg production, data storage, transportation), systems (eg heating, ventilation, cooling, lighting) or user or process equipment.

Significant energy users (also called SEUs) are either people with hands-on control of SEUs or who have influence or decision-making ability which impacts on SEUs.

A furniture manufacturer asked each department manager to identify their electricity consuming equipment and lighting in their areas and consider when it could be safely switched off (and back on again) to service operations. This information was compiled into a spreadsheet for each department, with champions allocated responsibility and authority to action the agreed switch-off plans, achieving 25.4% reduction in electricity use in just 6 months!



Figure 3. What's the value to the business when it's all 'on' and empty?

Such switch-off (or fire-up) schedules can become key operational decision-making tools if regularly reviewed. The timing of equipment, intermittently used, is often critical to overall performance.

Tata Steel went a step further by installing sub-metering technology to feedback on performance in real-time. Smart boards, located in open areas, show the live status of manufacturing lines and whether they are running or have stopped, highlighting whether energy is being wasted or not.

Such visual charts are useful to understand how processes work. The impact on energy use, and system interdependencies, is determined by decisions made by projects and procurement teams. Collaboration with operational teams during development is fundamental to maximise opportunities.

North Bristol NHS Foundation Trust, as part of their 'Treading lightly' campaign, introduced environmental walkabouts where champions were joined by others to review local operations and identify and pass on improvement opportunities for consideration.

London Stadium also uses best practice reviews to check operational behaviours against a scorecard for 'event' and 'non-event' modes, which reports on observations and poor practices. Staff have access to carbon calculators to help them work out how much energy can be saved.

Once opportunities have been identified, their status needs to be prioritised. A key part of **Rolls Royce's** approach was to have a single central listing of prioritised energy saving opportunities which highlights both the no and low-cost opportunities for immediate delivery and opportunities for funding. The initial charter also provided for a pre-authorised 'opex' fund for low value opportunities that energy champions could use to accelerate implementation (making 8.9% savings).

For **Severn Trent Water** understanding the overall benefits for each investment opportunity helps prioritise resources and whether they should be funded or not.

Movenpick Hotel shows how data insights can also help guide identification of opportunities to continually ramp up improvements (making 25% savings).

A similar review at Cheney School in Oxford showed that 25% of its gas use and 37% of its electricity was being consumed out of school hours which had not been expected. **Magdalen College School** showed that a comprehensive 'out of hours' switch-off in one building almost halved its electricity demand and consumption.

Learning from Experience

The fundamental concept behind ISO 50001 is 'continual improvement'. Developing a culture of energy consciousness relies on commitment across all levels of an organisation. Just like in team sports, the focus needs to be on getting better every day.

Ibstock Brick used a training needs analysis to design training sessions for their teams, SEUs and all energy users. It started with pilot sites developing management policies, for example, for motors and drives, lighting standards, for compressed air and reviewing idling conveyor systems (resulting in a 17% reduction in carbon intensity per tonne of products sold).

Champion confidence can be scored, on a site-by-site basis, in terms of technical systems, operational practices and management policies, depending on their role and capabilities.

Imerys Minerals used pop-up facilitated sessions on sites to raise awareness and help them identify new opportunities. On average 50-150 new ideas were generated from each focus session and passed on for evaluation (representing a potential of 6% reduction in total energy use).

Coaching in this way is a key part of any programme. Without it, champions can feel isolated, not supported and can easily become uninspired. Events help bring champions together into teams so they can learn from each other and sets up support structures.

Pareto 80/20 helps champions get the most out of their efforts; focusing on 20% of the scope yields 80% of the potential results. Quick action processes can help highlight opportunities for quick wins, collaborative projects or for management consideration.

For **an office in London**, all tenants are routinely asked about their occupancy times and comfort needs. The BMS is used as a control tool to ensure energy services are not being supplied to unoccupied floors. Control settings and heating/ cooling system setpoints are gradually changed to improve overall efficiencies without adversely impacting the tenants' comfort levels. Cleaners and security staff also help verify that systems are off out of hours. Together, they have achieved a 29.2% reduction in CO_2 emissions.

Regular discussions with stakeholders (and maintenance providers) allow champions to confirm requirements, try things out and learn from experience. Buildings are thermal flywheels and sometimes don't need to be heated or cooled all the time. Ventilation sometimes can be turned off earlier. Zoning, modular equipment and on-demand control systems are all ways that can help improve overall levels of energy effectiveness.

Robust KPIs and data systems are needed to track benefits. Good measures and checks should be included in maintenance contracts. Recognition and reward systems are covered by CPD Module 4, Series 22 [3], helping teams focus on indicator metrics, estimate savings and use measurement and verification (M&V) techniques to verify energy savings being made.

Gala Bingo (now Buzz Bingo) looked to use KPIs to incentivise site managers through their bonus schemes. Over time it became clear that targets for some clubs were too easy to achieve and so local efforts were relaxed. Telephone calls from the financial director were used in the short term to keep up pressure but momentum was eventually lost when the extra calls ceased.

To have a lasting effect, champions need to be able to balance financial incentives (and praise) with embedded intrinsic motivators such as a sense of excitement and accomplishment.

Everyone's a Winner

The **Heathrow Airport** case study shows the importance of bringing together technical, operational and management practices to achieve significant results. By doing this, the saving targets were delivered in half the time than was thought possible. The best areas were saving 30+%.

As **Vanderlande's** COO said about their ISO 50001 champions programme: "This is a fantastic achievement and demonstrates how a collaborative and focused approach can bring our teams together from different countries and at all levels in our business to gain certification so quickly."

For energy conscious organisations, success often means better reputations, with lower costs and carbon emissions and greater profitability. EnCO or ISO 50001 certification helps demonstrate approaches are cost effective, collaborative and sustainable. £1,000 saved on energy can equate to an additional £20,000 of sales at a 5% profit margin.

Vodafone and Merthyr Tydfil Borough Council have both also used independent M&V within their programmes to add additional confidence in verified savings. The process logs changes and interventions made by teams and takes account of any changes in occupancy, building use and comfort requirements. So far, the best areas have reduced consumption by at least 30%.

Champions, who get the most out of the experience, see it as a continual learning opportunity, developing their skills and embracing new ways of doing things. Being part of collective action often means being able to deliver goals quicker, with pride in making a difference one small action at a time.

Colleagues see benefits from better comfort or productivity gains, and protection against the pain of job losses. Having enough critical mass of support means the culture has become embedded which in turn assures against the chance of losing momentum and failure.

Overall, the EnCO Matrix provides a scoring escalator for practitioners to track progress of energy consciousness across the five behaviour change pillars of Engagement, Alertness, Skills, Recognition and Adaptability (see CPD Module 9, Series 18 [5] on planning for change).

There's no silver bullet. Every organisation is different. Champions often know what works best for their sites and organisations. Investing in this form of human capital means ensuring champions have the support and resources they need, with a clear development plan and regular check-ins and celebrations of success.

Albert Einstein stressed that "Study is not the learning of facts, but the training of the mind to think". Champions need to be able to think about and analyse performance and reason for themselves, rather than always simply following old standards and procedures. The focus should be on continual improvement, making the overall process or service increasingly more sustainable and businesslike: simpler, greener, lower cost, quicker and better for everyone involved.



Figure 4. Range of champion and support roles in a typical (large) programme

References

1. EnCO Case studies at https://energyconsciousorganisations.com/#casestudies
2. Energy management systems – Requirements with guidance for use, BS EN ISO 50001:2018.
3. The Dragons of Inaction, Robert Gifford at https://dragonsofinaction.net/
4. Behaviour Change, Recognition and Reward, by James Brittain, Approved EnCO Practitioner, CPD Module 04, Series 22, Energy in Buildings and Industry journal, October 2024.
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CPD SERIES 23 / Module 05

Behaviour Change

CPD 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

Question 1. By how much can most organisations typically cut their energy use?

- ☐ 0-5%
- ☐ 5-15%
- ☐ 15-30%
- ☐ 30-50%

Question 2. What percentage of total available savings can be delivered through behaviour change?

- ☐ 5%
- ☐ 15%
- ☐ 50%
- ☐ 95%

Question 3. What does EnCO stand for?

- ☐ Energy Conscious Operatives
- ☐ Energy Conscious Organisations
- ☐ Environmental Conscious Organisations
- ☐ Environmental Community Obligations

Question 4. According to the Energy Hierarchy which activities would normally be prioritised first?

- ☐ Energy consciousness
- ☐ Investing in clean technologies
- ☐ Investing in green energy sources
- ☐ Offsetting greenhouse gas emissions

Question 5. Which is a good indicator of good levels of energy effectiveness?

- ☐ Uncomfortable spaces
- ☐ Process systems running flat out
- ☐ High energy costs
- ☐ Energy use on-demand with need

Question 6. Which step follows 'Act' in the iterative cycle as used in ISO 50001?

- ☐ Plan
- ☐ Do
- ☐ Check
- ☐ Continually improve

Question 7. To prepare for engagement, which of these need to be understood first?

- ☐ Needs/expectations of stakeholders
- ☐ Senior leadership commitment
- ☐ Roles, responsibilities and authorities
- ☐ Objectives, targets and action plans

Question 8. What does 'SEU' stand for?

- ☐ Significant energy undertaking
- ☐ Small energy user
- ☐ Significant energy use
- ☐ Scalable energy undertaking

Question 9. What is the fundamental concept that the ISO 50001 framework is based on?

- ☐ Continuous improvement
- ☐ Continual improvement
- ☐ Continual optimisation
- ☐ Continuous commissioning

Question 10. Why does Pareto 80/20 help focus efforts?

- ☐ As it takes 20 days to form a habit
- ☐ 100 days for changes to become embedded
- ☐ 80% of the results come from 20% of effort
- ☐ 80% of the results come from 100% of effort

Please complete your details below in block capitals.

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