# THE EMA MAGAZINE

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## TACKLING HEAT DECARBONISATION CHALLENGES HEAD-ON

## DRIVING SUSTAINABILITY FROM WITHIN: THE ENVIRONMENTAL SUSTAINABILITY TEAM AT NHS LANARKSHIRE

## LEARNING AND UPSKILLING IN ENERGY MANAGEMENT


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ENERGY EFFICIENCY IN HEAT PUMPS


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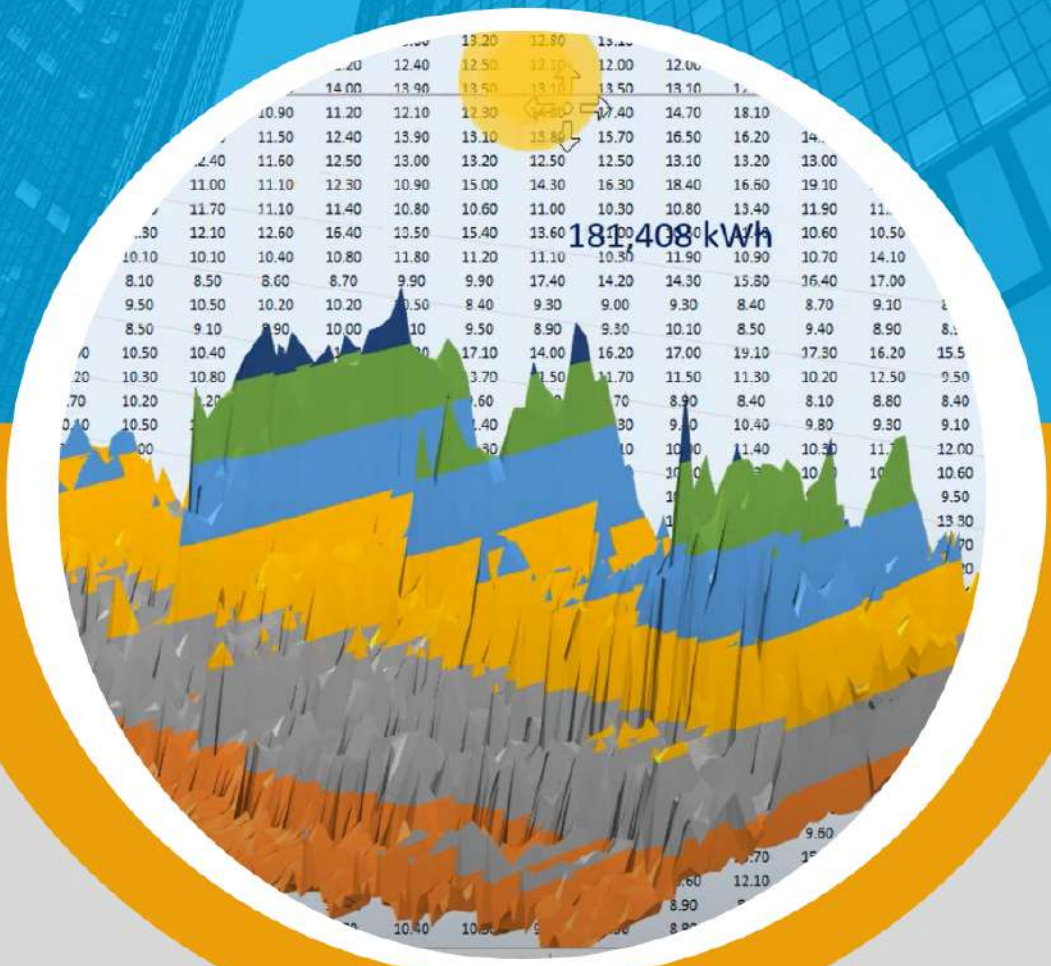


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# contents




## FEATURES





## CAREER & TRAINING






## INDUSTRY FOCUS



By The Energy Managers Association

# Dear Reader,

The most common question we are asked about the EMA is: "What is the benefit of being a member?" Rather than give a clinical, corporate response we reflect on our time with the EMA over the past 12 years, and how we've seen our members benefit directly from it.

It's fair to say from the outset that the more one gives, the more one gets out of the EMA. However, it's not always easy to give time or contribute to the profession with no expectation of something in return. Even so, many recognise the significance of engagement, recalling key moments in their careers and the benefits that followed.

From the first workshop or members' meeting, your world of energy management can begin to expand. You meet like-minded professionals and are no longer limited to workplace contacts alone — which can sometimes offer a narrow or uninspiring view of the profession. By attending our workshops, courses and meetings, you will begin to hear about new industries, technologies and practices. Perhaps, for the first time in your career, you'll find yourself interacting with people who are truly focused on energy management — and it may well feel like home. You will begin to build a network of professional peers and soon realise the value of that network — which, in many cases, could be the single most important factor in your professional development. This network will offer knowledge, experience, advice and support.

As a member of the EMA, you'll gain visibility, have opportunities to promote your work and practices and develop a wide range of skills — not limited to energy management alone.

We could list several more direct benefits, but the key point we'd like to make is this: you're likely to receive at least tenfold the value of what you put in — and perhaps even more. We don't design it that way deliberately, but much like how exercise leads to better health, active engagement with your professional body inevitably brings professional rewards.

Are you not part of the EMA membership yet? What are you waiting for? Join us at https://www.theema.org.uk/ema-membership/.

Warm wishes,

The EMA Team

THE EMA MAGAZINE

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**ABOUT EMA**
The Energy Managers Association (EMA) was set up in February 2012 and represents Energy Managers across all industries. Our priority is to improve the position of energy management experts and their profession and act as their united voice. We aim to develop the skills, knowledge and experience of professionals through our training, high-quality peer to peer guidance and best practice exchange.

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# COMPANY MEMBERSHIP

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## FOR ORGANISATIONS AND THEIR EMPLOYEES IN THE FIELD OF ENERGY AND CARBON MANAGEMENT

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**BOOK A SURGERY**

By Andrew Creamer, Brian Troddyn, Jeremy Gould, Lowell Lewis and Richard Capper

# Tackling Heat Decarbonisation Challenges Head-On

**Decarbonising heat continues to pose a significant hurdle for many organisations. Five energy management professionals explore these challenges through the lens of individuals involved in organisations' heat decarbonisation efforts.**

**Andrew Creamer**
Group Energy Optimisation Manager
Greencore Group plc

**Brian Troddyn**
Sustainability Manager
The Salvation Army

**Jeremy Gould**
National Sustainability Manager
GLL

Offering personal views and his experiences in the public sector

**Lowell Lewis**
Member of the Steering Group
EMA

**Richard Capper**
Group Operational Energy Manager
Ibstock

### *What are the barriers to heat decarbonisation in your organisation?*

**Andrew Creamer**

One of our biggest barriers is decarbonisation of heat for cooking. We use quite a lot of steam and finding a suitable solution to provide steam, even though there are some good heat pumps which can do that, is still a challenge. One of the solutions we are exploring is importing tankered hydrogen as a liquid from an ammonia production plant.

**Brian Troddyn**

There's a number of barriers that we are facing at the moment. A big barrier is the Spark Gap. The gap in cost between gas and electricity in the UK is quite wide, so trying to get electric based heating system to match up the running costs of a gas one can be quite tricky. It is doable, but it's challenging, and I think that needs to change.

Another barrier is the variety and size of our buildings' portfolio. We operate about 3,000 buildings across the UK that range from the 1860s to right up to modern times. They all have their own individual challenges in terms of us trying to retrofit in existing buildings, which is a big challenge. Part of the problem is

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**Lowell Lewis**

Public sector organisations generally have a wide ranging portfolios of buildings, which can include everything from listed buildings to brand new modern office blocks and school infrastructure. The biggest barriers for public sector organisations, has been the capital cost of decarbonising buildings. The public funding that has come through various schemes has alleviated this barrier to some extent. However, there's still the cost impact, which means that even when organisations are given a free heat pump, they have to find the budget to pay for the electricity to go into it. Generally, combining with other measures, like solar and LED lighting,

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**Richard Capper**

Technology and alternative fuels are the biggest barriers for us. Our kilns and dryers use a large amount of energy with around 86% of our consumption being on natural gas, which we use for the firing of our bricks. We are looking at alternative fuels and there are some trials taking place at the moment with Glass Futures trialling a hydrogen kiln. However, in terms of grid connectivity, we would be probably looking at another ten years, at least, before we can get hydrogen into our sites. We are exploring the potential of off-grid solutions and other fuels, but these come at a large cost and a long timeframe as well. Finding funding options for any of these

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also the lack of understanding of the challenges of decarbonising buildings amongst non-energy management personnel. Organisations with big estates especially do not realise the challenges and size of the associated investment needed to achieve already set targets.

As a final point, I would mention the shortage of the skills' base, which is slowly getting better, but it still has some way to go to get bigger and improve the market needs. Especially around commercial heating installations around low carbon for buildings.

*(cont'd)*

can help to alleviate those budget pressures, but it makes a business case just that much more difficult.

Another barrier that I've seen is linked to behaviour change. People are used to seeing, touching and feeling something, so one of the things I have noticed is that people think their heating isn't performing because the radiator is not as hot as it used to be. So, it's about informing and educating stakeholders about the changes to the buildings, their room and its temperature, which is still the same even though the radiator is not hot.

*(cont'd)*

solutions is also a barrier, which plays a crucial part in our heat decarbonisation plans.

Another barrier is that certain alternative fuels are not recognised under certain schemes. For example, we could consider a biogas solution; however, we fall within UK ETS, which considers biogas as a fossil gas, so to get that reduction in carbon from that point of view becomes even more difficult.

## *What pitfalls have you encountered in heat decarbonisation in your organisation?*

**Richard Capper**

The lack of available solutions at the moment. We have a 2030 carbon reduction target to achieve 40% carbon reduction and our net zero target by 2040, which means that we need to move quicker than the grid is moving. We are focusing on energy efficiency of the way we run our kilns and dryers; however, that will get us only so far, and it certainly won't get us to our targets that we've committed to.

Other pitfalls are around the organisation's cultural change, changing how the business operated historically and associated expectations from people who have been with the business for a long time, and are used to operating in a certain manner. We need to inform, re-educate and convince our stakeholders about certain changes. For example, that our top temperatures don't need to be as high, that we don't need to have gas leak surveys on an annual basis because we do so much servicing

*(cont'd)*

of our burning burnes within the kilns that gas leaks become apparent and more frequent, or that we also need to do thermographic surveys of our kilns and dryers to be able to reduce heat losses through the insulation.

**Brian Troddyn**

The one I would mention from my own experience is: "don't over-engineer solutions". I inherited a plant room in a previous role that had three different heating systems running. It was not a very big site, so it seemed like the design engineer had a great time designing it, but didn't think about the maintenance or issues that would come down the road.

**Lowell Lewis**

One that comes to mind is that the equipment might be there, but it doesn't come with the information that the distribution network operators want to allow you to connect it quickly.

Another pitfall, from a public sector point of view, is linked to the impact of cold weather on some of the decarbonised systems. When there is a cold snap or a power outage, local authorities are expected to support the wider society with a warm space to go. However, if the decarbonised heating system is also struggling in -10°C weather, it doesn't enable the councils to continue in the same way it used to with a gas boiler system in place.

### *What solutions are you considering for heat decarbonisation in your organisation?*

**Lowell Lewis**

I have been trying a whole range of products across various projects to try and see what works, and what works best. I suppose the majority forms air source heat pumps, but also infrared heating, electric boilers and smart electric panels. However, the main one is district heating. There is quite a range of heat technologies out there and each of them have their own challenge.

**Andrew Creamer**

We're looking at combined heat pumps with our engines to generate electricity. Our solar capacity is only about 35% of our consumption on sites, so whilst solar is a good solution, solar and battery combination is a better one, and solar and some form of generative engine, whether it be CHP or ORC, would be that much more use.

**Brian Troddyn**

Each building is different and comes with its own challenges, so it is important to take a whole system approach. It is crucial to have a good control strategy.

We are looking at how we are controlling the heat, delivering the heat and the efficiency of the system throughout, not just the actual heat plant, but the actual heat delivery system across the building.

We also consider the building's fabric, so it is really looking at the whole building, its levels of performance, age and how it operates. That's what we're trying to do with our programmes and we're starting to come up with a package of measures that will really allow us to get away from gas in the most efficient way, lowest carbon way and cost effective way. It means doing more than just changing out the heat. It's a whole package of measures.

**Jeremy Gould**

For us, it's mainly innovation on smaller buildings with solar thermal for heat, which does not do a whole building, but it's part of a solution. Especially leisure centres with large swimming pools, where there's a big heat sink, need to be looked at with a whole systems approach of how we can implement a heat pump with some other backup, without overcomplicating the system with too many heat sources. So, we have looked at preheating using the solar thermal and then the heat pump sort of takes up.

The other solutions we're exploring is waste heat recovery from data centres and small scale data centres, which need their computing power to go somewhere and at the same time need a lot of cooling. A swimming pool can provide a good baseload, we can take the heat and help them with their cooling.

### *How are policy measures overcoming barriers to heat decarbonisation?*

**Jeremy Gould**

The Public Sector Decarbonisation Scheme (PSDS) has helped to alleviate the cost barrier of decarbonising the public buildings we operate. As a large leisure operator we work with local authorities and other partners. We're a social enterprise rather than a public sector body, so we are not eligible ourselves, but we work with partners to draw down funding from the scheme.

One policy that would be helpful is a clearer policy on hydrogen. I don't think there's enough certainty around the future of hydrogen, which complicates short and long-term strategies. Whilst it might never be the only solution, it might help to have some direction of travel on it.

**Richard Capper**

I am not aware of any policy measures that would be helpful to us in overcoming the key barriers for heat decarbonisation at the moment.

As I mentioned, funding is a big barrier for us and getting the funding isn't as easy as many people would say. For example, the Industrial Energy Transformation Fund (IETF) funding we applied for last year to help fund some alternative fuels had over 130,000 applicants, so trying to get hold of some funding to do these projects isn't easy.

**Brian Troddyn**

We have a domestic estate and a housing association subsidiary, which I am not involved in directly, but I am aware that they are accessing the latest wave of the social housing funding for their Energy Performance Certificate (EPC) works.

We are looking to do some EPC works on our domestic estate. I know there's the ban coming in 2025 for new fossil fuels and new builds, and then for existing builds in 2035. A ban can sometimes be a bad word, but if it's going to help the market start increasing the installations of low carbon heating systems, then it's a good thing because we need the market to really push ahead. If you look at the number of installations across Europe, we're behind in the UK.

In terms of EPCs, there are changes coming down the line regarding the Minimum Energy Efficiency Standards (MEES) regulations, so from our buildings' point of view as assets owner, we are going to start looking at our EPC levels and try to improve them. The EPCs will also be undegoing some changes with the introduction of the Home Energy Model (HEM), which will favour more environmental impacts and the ratings, so we will take a strategic view when we look at EPCs and get them ready for low carbon down the road.

**Lowell Lewis**

There is a great need for consistent policies, which will give people the confidence that they can work towards a certain date, which is not going to suddenly change two years later or when you're halfway towards a programme of works. Other than a national policy, there's also the internal policy that is key. It's about having your own policy measures, processes and strategy in place.

For me, the biggest part has been bringing on a whole life span assessment process and policy. It is not about just making the decisions that are going to give us the best capital decisions today in terms of minimal spend right now, but these buildings will be around for the next 25+ years, so why not consider the 25 years, and all of a sudden that starts to unlock some alternative discussions around heat.

The same is with policy, I prefer to take the whole building approach, which is not just looking at heat. The heat might be the primary driver, but what else can be done, what else can be done around service delivery, can other pots of money be used to support the heat decarbonisation? It could be a deployment of renewable technology or changing how to use service. For example, many organisations are now using more remote working, so can the office space be compressed to use less heat? The shifts and patterns of work can be changed to make sure that when the building is kept warm there are people using it. It's going to be those internal policy decisions, which are in our control, that will help us weather the variance that comes from national policies.

## *What are the plans for this year?*

**Jeremy Gould**

For us, energy efficiency as a whole is key, we are not putting in solutions for today's energy use only, and there are many considerations.

We have a number of heat pumps in place and we will continue on the decarbonisation rollout whilst looking at the efficiency of heat pumps, and where they work best. I think heat pumps get a bad name when used in old buildings without decent insulation and no other measures. Each building is different

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**Brian Troddyn**

We will be embarking on some fairly large programmes of works over the next few years, so this year we are looking to do some pathfinder projects.

We will run trial projects on some buildings which are typical for our portfolio to find common threads and a way to draft up standard specifications that we can roll out across whole parts of our portfolio. We will be taking into account the whole systems, which I think is

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**Richard Capper**

We will continue exploring our options for alternative fuels and looking at ways of funding them. We will also be having a closer look at air source heat pumps as a way of recovering some of the waste heat from our pre-burners and we will continue our drive with energy efficiencies.

There's still a lot we can do to eliminate our consumption before we look at alternative fuels.

***(cont'd)***

and may need different approaches, whether it be insulation measures, solar, triple glazing or building fabric depends on a variety of factors. It's about reducing the heat load as much as possible, so the loading on the heat pumps is reduced and it performs better.

We are also keen to explore the possibilities of heat pumps with sewage water or wastewater. It will not be easy, but sewage water has an element of heat in it, we have the same from the backwash water from our swimming pool, so trying to divert it as a preheater to reduce the overall load is something that we would like to explore.

***(cont'd)***

important from an efficiency point of view, a cost efficiency point of view and down the road a maintenance point of view as well. Maintenance also plays a key role that we need to think about. Lot of these technologies are new to the organisation and the wider property and maintenance teams, so it's important to consider not only how it will be used by the building's users but how it will be maintained as well.

**Andrew Creamer**

We have a looming target to reduce 46% of our consumption by 2030, so the next couple of years we will be really looking to start a variety of projects that will help us deliver on this target.

We use a lot of natural gas, electricity and diesel so will be looking at heat pumps, solar, ORC engines, AD biogas for CHP, amongst some of our considerations.

**Authors' profiles:**

**Andrew Creamer, Group Energy Optimisation Manager, Greencore Group plc**

Andrew has worked in energy management for the past 10 years. In his current role, Andy is responsible for all facets of energy management and decarbonisation in a large food business. The portfolio consists of 16 operational production sites and 16 transport and logistics sites. Current initiatives include a wide ranging number of projects, for example heat pumps for heat and steam, solar PV, voltage optimisation and sub-metering.

**Brian Troddyn, Sustainability Manager, The Salvation Army**

Brian has worked in energy and sustainability roles since 2013 and currently leads on the Salvation Army's Net Zero and Environmental Sustainability Programmes. He holds an honours degree in Environmental Science and post grad in Energy Management. Throughout his career Brian has developed strategies for energy and carbon reduction for several organisations both in the public and third sector. Delivering projects covering renewable energy generation and heating, energy efficiency, sustainable transport, resource consumption and behaviour change.

**Jeremy Gould, National Sustainability Manager, GLL**

Jeremy has 25 years of experience in the Leisure Industry, with the last 15 years focusing on energy management and sustainability in his roles. In his current role, he is responsible for driving GLL's energy, carbon and sustainability strategies through the delivery of energy reduction and renewable energy projects. Jeremy is also leading on environmental reporting and compliance obligations, working with partners to achieve joint decarbonisation goals through PSDS funding, and analysis of real time and historical energy data.

**Lowell Lewis, Member of the EMA Steering Group, offering experiences from his roles in the public sector**

Lowell has worked in energy and sustainability roles since 2015, delivering improvements to the sustainability performance of a variety of public sector and private sector organisations through improved facility management. His current remit includes utility management, EV infrastructure development, renewable energy deployment, energy efficiency retrofit and energy innovation projects. He also offers support with winter affordable warmth and policy around heat networks.

**Richard Capper, Group Operational Energy Manager, Ibstock**

Richard joined Ibstock in March 2023 following a 25-year tenure at Marshalls, where he held various roles with energy management responsibilities. In his current role, Richard's focus is on the delivery of Ibstock's energy reduction and support of the 2030 carbon reduction target to achieve 40% carbon reduction and 2040 net zero target.

By Kiro Tamer, Director at Keenos Energy and Environmental Services Limited (KEES)

# Energy Efficiency in Air Source Heat Pumps

**INTRODUCTION**

Non-residential buildings remain a significant challenge in the UK's journey to net zero, currently ranking as the ninth highest-emitting sector. In 2023 alone, they were responsible for approximately 5% of the UK's total emissions, equating to 20.8 $MtCO_2e$.

The good news? Air source heat pumps (ASHPs) are a viable solution for the vast majority of these buildings. They can be installed at the individual building level or scaled up to serve entire heat networks—though the right mix will depend on local conditions and infrastructure readiness.

The public sector is leading the way, decarbonising heating earlier than the commercial sector. With long-term commitment and funding, it plays a critical role in building supply chain confidence and anchoring investment in heat networks.

However, a key barrier remains - the high cost of electricity relative to gas. To enable broader uptake, the Government must urgently review the distribution of policy costs, and reduce the burden on electricity and consider targeted support to accelerate commercial sector adoption.

In the meantime, energy efficiency measures are an effective and cost-saving solution that should be deployed immediately. These measures not only improve the performance of buildings but also complement the deployment of heat pumps by reducing overall energy demand, ultimately leading to lower emissions and operational costs.


The ASHPs' performance can be improved, not by changing the unit itself, but by optimising the system context around it. For example, reducing the flow temperatures in existing heating systems can significantly boost ASHP Coefficient of Performance (COP). Most ASHPs operate best at lower temperatures in comparison to a gas boiler (35-45°C vs 60-75°C), therefore if a building can be made or updated to be as energy efficient as possible, consequently an air source heat pump will operate efficiently.

Performance can be further improved with thermal storage integration. Pairing ASHPs with well-timed thermal storage (like smart cylinders or phase change materials) can optimise when heat is generated, taking advantage of off-peak electricity or solar surplus, which is great for grid balancing and cost savings.

**OTHER ENERGY EFFICIENCY OPPORTUNITIES**

***The no-cost energy efficiency opportunity***

Far too often, building systems, whether heating, cooling or lighting are running outside of occupancy hours or at unnecessarily high levels. Reviewing and adjusting time schedules, setpoints and sensor calibrations can result in substantial

Source: https://www.theccc.org.uk/publication/the-seventh-carbon-budget/

savings without spending a penny. For example, reducing heating setpoints by just 1°C can cut energy use by up to 8%. Similarly, tightening up HVAC operating hours to match actual occupancy can save thousands annually in large buildings.

Another no-cost win is engaging building users. Encouraging small behavioural changes like switching off equipment, closing windows when heating is on or reporting faults can significantly reduce waste and improve system performance. In essence, energy efficiency often starts not with new tech, but with better use of what's already in place.

### *The low-cost energy efficiency opportunity*

Improving system insulation is a low-cost yet highly effective energy efficiency opportunity for ASHPs.

Most ASHPs operate at lower temperatures than traditional boilers, making them more sensitive to heat loss in pipework, cylinders, and distribution systems. Simply insulating exposed pipes, valves and hot water storage tanks can significantly reduce thermal losses, and improve system performance. This small investment helps maintain desired temperatures with less effort from the heat pump, boosting its COP and reducing electricity consumption.

Another low-cost measure is optimising zoning and control systems. Installing or upgrading smart thermostats and thermostatic radiator valves (TRVs) allows more precise heating control, ensuring the ASHP only heats occupied or necessary areas. Together, these minor upgrades can deliver notable efficiency gains, prolong equipment life and reduce energy bills without major capital expenditure.

> ***"Energy efficiency measures not only improve the performance of buildings but also complement the deployment of heat pumps by reducing overall energy demand."***

### *The most common energy efficiency opportunity*

The most common energy efficiency opportunity with air source heat pumps is improving the buildings' thermal performance to match low-temperature heating.

ASHPs are most efficient in well-insulated, airtight buildings. Yet, many are installed in properties with poor insulation, draughts or oversized radiators designed for high-temperature systems. The opportunity lies in retrofitting the building envelope—adding insulation, sealing gaps, upgrading windows and improving zoning to reduce heat loss, and allowing the ASHP to operate at lower flow temperatures.

This alignment between building fabric and heat pump performance is often overlooked but is crucial in achieving real efficiency. Without it, the system may work harder than needed, cost more and deliver less comfort.

### *The most overlooked energy efficiency opportunity*

The most overlooked energy efficiency opportunity is early-stage, integrated design coordination between the ASHP system and the building fabric.

Too often, air source heat pumps

are specified after key building design decisions, such as insulation levels, glazing, zoning and heating distribution have already been made. This leads to systems that are mismatched to the thermal performance and layout of the building, resulting in inefficiencies, discomfort and higher running costs.

By integrating ASHP planning at the concept design stage (e.g., RIBA Stage 2), developers can size systems correctly, optimise emitter selection (like underfloor heating or low-temperature radiators), and ensure the building envelope supports efficient low-temperature operation. This holistic approach can significantly improve COP, reduce oversizing and extend equipment lifespan. In essence, efficiency isn't just about the pump, it's about how the building and system work together from day one.

Another aspect which can be overlooked, is the sizing of the heat pump. Naturally, an ASHP has to be sized to accommodate the coldest days, but this can result into oversizing them and resulting in higher electrical demand.

A hybrid system, either with an electric or gas boiler, may be a good solution to provide the additional heat on the coldest days of the year.

***Top Tips***

Treat the air source heat pump as part of a whole building strategy, not a bolt-on solution. That means designing or retrofitting the building to operate comfortably at low flow temperatures (ideally 35–45°C), which is where ASHPs are most efficient. Focus on insulation, airtightness, proper zoning and systems compatibility, and integration early in the design process. This approach prevents oversizing, reduces running costs and maximises comfort.

And on a final point, ensuring that your electricity supply is 100% renewable will make ASHPs a truly renewable heating solution.

**Author's profile:**
Kiro is a former Head of Environmental Sustainability at Keltbray and Director of KEES Services. He has over 10 years of experience in energy and carbon management. Kiro is a qualified ESOS Lead Assessor, Chartered Environmentalist and ISO 50001 Energy Management Lead Auditor.

By Craig Brown, Head of Sustainability & Environmental Performance at NHS Lanarkshire

# Driving Sustainability from within: The Environmental Sustainability Team at NHS Lanarkshire

**What does energy management mean at NHS Lanarkshire?**
NHS Lanarkshire is the 3rd largest NHS board in Scotland by population, serving ~ 665,000 people and covers two local authority areas, North and South Lanarkshire Councils. The board covers an area of more than 4,732km$^2$, employs around 14,000 staff and manages land and buildings covering an area of 1.2km$^2$.

NHS Lanarkshire spends approx. £20million/year on utilities (gas, electricity, water, fuel oil). The majority of this is linked to gas and electricity consumption. Energy management will therefore continue to form the largest part of NHS Lanarkshire's net zero route map towards our target in 2040, as building energy use is the board's single largest carbon emission source (~58% of reportable emissions).

We want to lead by example, as an anchor organisation, and led on the formation of a cross public sector sustainability working group to encourage collaborative working with North Lanarkshire Council, South Lanarkshire Council, Police Scotland and Scottish Fire and Rescue Service. This group has been great for sharing ideas, and we will continue to try and find projects which bring maximum benefit to as many local public sector organisations as we can.

**Can you explain the return-on-investment that the team brings to the organisation?**
NHS Lanarkshire has a small Environmental Sustainability Team and doesn't have a single person focussing 100% of their time on energy management. Recently, the team has expanded from two posts to three full time posts. The intern programme was started in 2023 by the current Head of Sustainability, and we have continued to build on this each year.

The future aspiration is to take on further resource to look at energy specifically with the goal of creating an Energy Management System based on ISO50001 principles. We also aim to support the development of an Environmental Management System based on ISO14001 principles, and have more of a focus on all aspects of transport

NHS Lanarkshire Environmental Sustainability Team: (left to right) Kayla, Caitlin, Kirsty, Craig

and travel. The expansion of the team will allow us to focus on:

- Energy & Sustainability Audits
- New Energy Management System
- Key Stakeholder Monthly Reports
- Full desktop analysis of AMR data

We hope this will deliver reductions in the region of 1% per year to

begin with. Savings will also be achieved through energy efficiency projects delivered in the last financial year. Building on the great success of these, the intention is to delve into the utilities data working closely with the Property and Maintenance Teams to increase the efficiency of operations of the buildings; i.e., tweaking heating and cooling strategies, adding additional lighting controls and eliminating unnecessary kit, etc.

Since 2015/16, NHS Lanarkshire have reduced emissions linked directly to the consumption of natural gas and electricity by ~ 23% (comparison, FY 2024/25 – unpublished figures). This has reduced consumption of electricity by 9% (~2,900 MWh) and gas consumption by just under 6% (5,100 MWh).

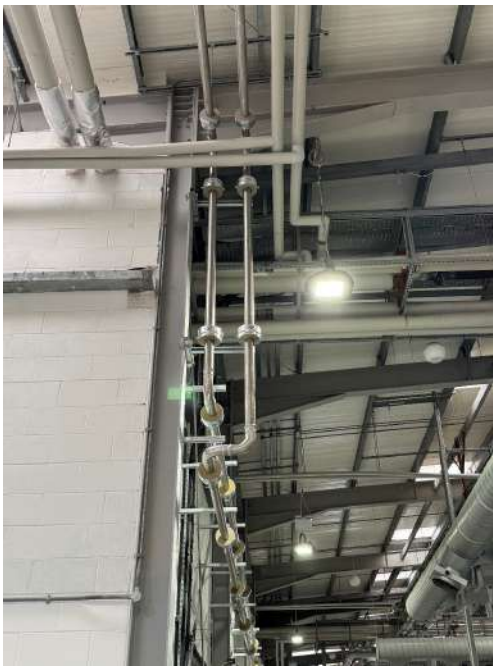
**How are responsibilities shared in the team?**

The small Environmental Sustainability Team covers a wide remit. We like to believe we punch well above our weight and have ambitious plans, which are being supported by the organisation.

At present, we have three members of staff who make up the core Environmental Sustainability Team. Craig Brown (Head of Sustainability & Environmental Performance), Kirsty (Energy & Sustainability Manager) and Emily (Energy & Sustainability Officer). The team is supported by a number of internship placements throughout the year. We are entering the third year supporting an Environmental Sustainability Internship Programme in conjunction with Glasgow Caledonian University (GCU) to provide industrial placements for some of their students from the BSc Environmental Management course. Kayla who joined the team in October is currently focussed on an analysis of our business mileage. She is also working on our Climate Change Risk Assessment (CCRA), which is due for submission to Scottish Government this year. Caitlin recently joined us temporarily as part of the NHS Scotland Graduate Management Trainee programme. She is working to develop a high level Net Zero Route Map. This will help visualise all of the key targets and really begin to focus on the compounding impact of lack of funding and action because of this. In the last year, we have also worked with students from GCU's Masters in Urban Climate and Sustainability (MUrCS) programme. Sofia produced NHS Lanarkshire's Greenspace & Biodiversity Vision, which was a great piece of work to progress this key deliverable area. Last year was the first year we worked with students from this programme and we hope to continue this in 2025/26.

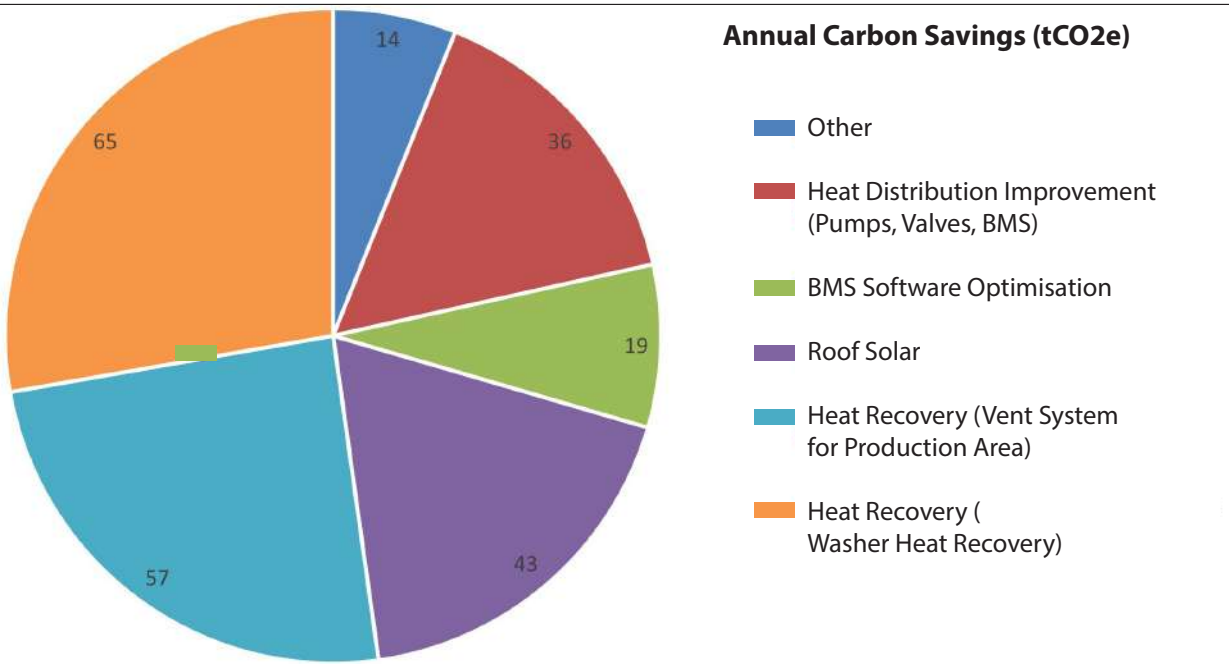
Apart from the internships, we are very lucky to be supported by a wide network of excellent colleagues, who are supporting different elements of environmental sustainability. Heading up our key workstreams are:

1. Energy & Capital Assets



2. Waste
3. Procurement
4. Clinical
5. Greenspace & Biodiversity
6. Active Travel & Transport

We have an excellent and close working relationship with our Property and Maintenance




colleagues, who support on a wide range of projects. The Environmental Sustainability and Net Zero agenda could not be progressed without the buy-in from all of our fantastic colleagues, so really this is a thank you to them.

**How is information regarding energy management and the work that the team undertakes communicated to various stakeholders in the organisation?**

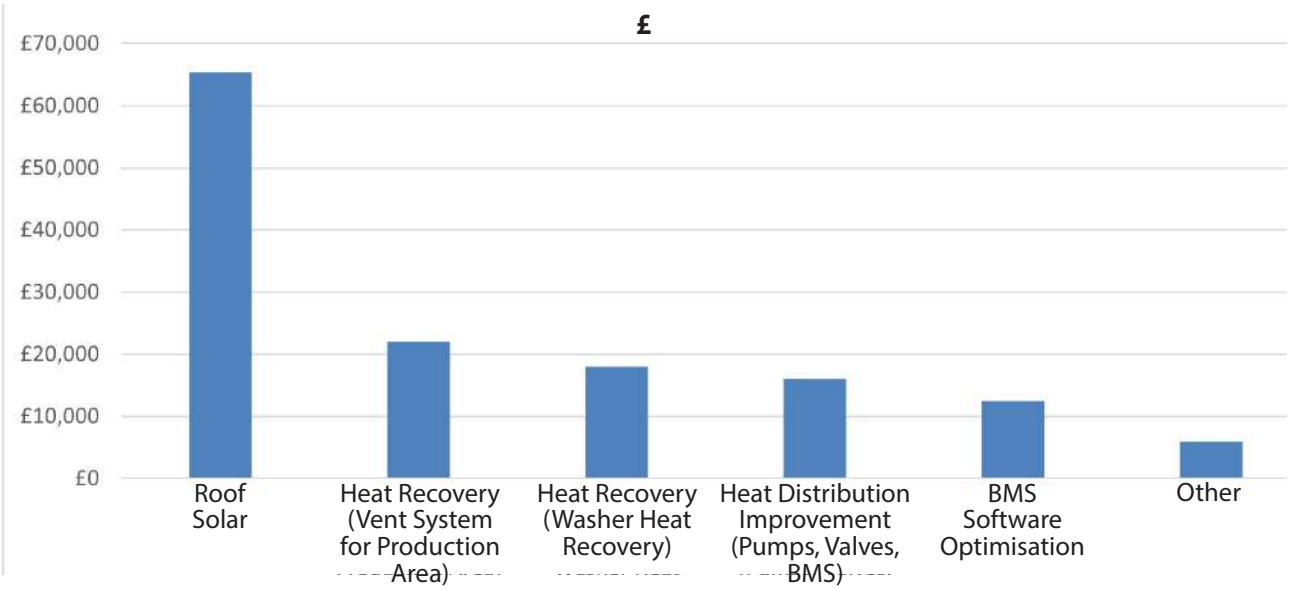
The NHS Lanarkshire Communications Team are always supportive of ideas we have. They have delivered screensaver campaigns, articles, social media posts and have dabbled in newsletters. With a renewed focused on communications, we are developing ideas for further campaigns throughout 2025/26. We have an ambition to do even more communications to keep all of the NHS staff involved. There are so many amazing things happening in NHS Lanarkshire, Environmental Sustainability and Energy Management forms a small part of that.

**Can you describe a recent project that highlights the team's work?**

The main project delivered over the past 12 months, was a ~ £2million investment in energy efficiency supported through the Scottish Governments Greening Public Sector Estate Decarbonisation Scheme (GPSEDS). This delivered decarbonisation projects across two of our sites, Kirklands HQ and West of Scotland Laundry (WoSL). Additionally, we upgraded the Building Management Systems across further 25 sites.

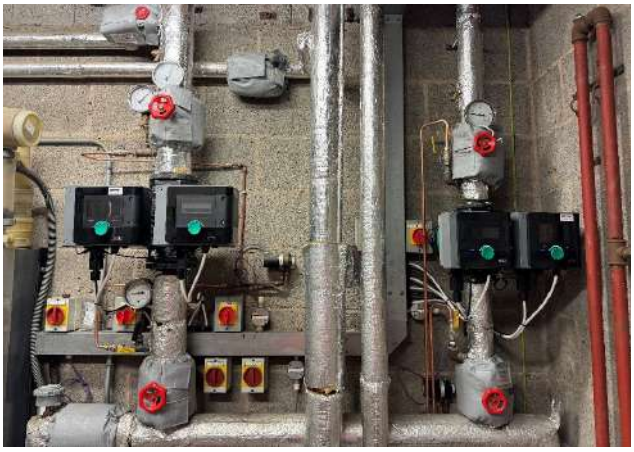
These projects targeted:

- Roof / Loft Insulation
- Draught Proofing
- Insulation (Pipework)
- Heat Distribution Improvement



(Pumps, Valves, BMS)
- BMS Software Optimisation
- Roof Solar
- Heat Recovery (Vent System for Production Area & Washer Heat Recovery)
- BMS upgrades

Collectively these projects should save a minimum of 200 tCO2e per year.



A massive thank you has to go to the Property and Support Services Division (PSSD). Senior leads, maintenance staff and project management support – they have been so helpful! I look forward to delivering many more initiatives working in conjunction with them. The continued support of our work stream leads is a huge help, and we wouldn't have made the progress we have without all of their buy-in.

We are very pleased with the expected savings from the projects delivered in the last financial year, and hope to use this as a kickstart for an Environmental Sustainability Programme of works as we strive for net zero by 2040.

**Does your organisation offer any training to the team and wider staff?**

The team are constantly striving to expand their knowledge around environmental sustainability of which building energy use is a big part of. As of this year, all of the current Environmental Sustainability Team went through IEMA accredited 'Internal Environmental Management System Auditor Course'. The Head of Sustainability and Environmental Performance has also been a long standing member of the EMA and is a chartered energy manager through the Energy Institute. The intention moving forward is to harness some of this knowledge by working with Sustainability or Energy Champions at a more local level with the organisation. We have run staff webinars in the past with the Energy Saving Trust. These were aimed at showing staff how they could reduce energy and emissions at home, with the hope that this would have some carry over into the workplace.

**Are the team's achievements acknowledged by the organisation?**

Yes, the Environmental Sustainability agenda is very well supported within the NHS Lanarkshire.

Martin Hill, Chair of the Board at NHS Lanarkshire is the organisation's sustainability champion. Martin has really bought into this agenda at both a professional and personal level, which we are very grateful for. We also have Jacqui McGeough – Deputy Director of Planning, Property & Performance as our executive lead for Environmental Sustainability. Jacqui is very keen on further developing the Environmental Sustainability Team, and she has been excellent advocate of what we have managed to achieve so far.

**What are the plans for the future?**

We have a pipeline of projects, which have been developed and are waiting for the outcome of funding bids. These will take around 10 of our buildings much closer to net zero, but will take a number of years to fully deliver. Projects cover upgrades such as:
- Solar PV (roof mounted and solar car ports)
- Insulation
- LED
- Air/Ground Source Heat Pumps
- Further BMS upgrades
- Draft proofing
- Glazing

Some of our energy reductions will be covered by business as usual, maintenance and replacement work. We also have a series of projects which focus on adding further value, which is not energy specific. For example, greenspace & biodiversity, active travel and transport and waste reduction.

We are working to improve data quality for reporting purposes and plan to launch a campaign around energy efficiency, targeted towards our 14,000 staff and raising awareness on how their actions can impact positively.

By The Energy Managers Association

# Essentials of Effective Energy Management

**Energy management is built of activities involving planning, measuring, directing and controlling the supply, consumption and effective use of energy to maximise productivity and comfort, and minimise energy costs and any pollution that may result. It can mean different things to different organisations.**

A deep understanding of energy use patterns within organisations enables them to identify areas of inefficiency and implement targeted solutions. By mastering technical and operational areas of energy management and techniques such as energy auditing, data analysis, performance benchmarking, energy procurement and on-site renewable generation organisations can:

- optimise energy usage and reduce carbon emissions across various operations and systems,
- prepare and integrate energy efficiency and carbon management strategies into overall sustainability framework,
- comply with relevant regulatory demands and mitigate any associated risks,
- influence stakeholders' behaviour in support of energy and carbon reduction,
- reduce waste,
- implement water management practices,
- recognise that IT, transport and small electricals' energy efficiency could also contribute to energy and carbon reduction,
- continuously review uses and practices to finesse opportunities for reduction.

Depending on an organisation's size, energy use, existing/planned energy efficiency/decarbonisation projects and the maturity of energy and carbon management practices, all energy management activities should, ideally, be overseen by energy managers who are supported by a team comprising of energy analysts/officers/assistants, facilities/building managers, maintenance engineers, sustainability or environment managers, procurement managers, operational managers, project managers and others who are involved with planning, measuring, directing and controlling the supply, consumption and effective use of energy. However, reality could not be different. Many organisations, even if of a significant size, have their energy management overseen by a 'team' of one, and in many cases even this sole responsibility is diluted by other tasks.

Efficient energy management can deliver cost savings, which could be re-invested in further team development, however the reality remains very different and resources are increasingly stretched. Here at the EMA, we cannot magically stretch the size of your energy management team, but we can help you in many other ways:

- we can help you gain new knowledge and upskill to confidently and competently fulfil your energy management role,
- we can help you gain more understanding on a variety of topics, which enable you to confidently engage with technology or services providers,
- we can help you identify and fill in real energy management gaps to gain a professional status of a Recognised or Registered Energy Management Practitioner,
- we can also help you find your new team member if you are to start recruiting and expanding your team.

**GAINING NEW KNOWLEDGE AND UPSKILLING**

Our range of energy and carbon management courses is practical and ideal if you are looking to develop not only your knowledge, but most importantly a practical hands-on approach to identifying opportunities, and

developing and embedding energy management practices and projects across your organisation's portfolio. The courses are delivered by experienced energy managers (some of whom may have experience of working in your sector) and the training content is based on practical energy management examples, case studies and projects rather than theoretical syllabus only.

Read on about each of our courses and for the most accurate delivery dates, check our website.

**Fundamentals of Energy Management course**

This introductory course has been designed to provide a comprehensive and practical overview of the key energy management tasks with an emphasis on the energy management knowledge and skills that are required by an energy management professional. To understand energy management, it is important to recognise that it can differ across organisations. As the course unfolds, the overview of regular energy management practices applied to manage and save energy, as well as to decrease energy related costs and emissions, will be presented and discussed.

The goal of the course is to leave a lasting impression about what energy management practices can be applied within organisations, what can be done to increase energy efficiency, and what skills and knowledge are required to deliver these.

**Energy Management in Building Services course**

Energy in buildings is consumed in a large variety of ways and by many different processes and types of equipment. This course is designed to provide a basic introduction to many of the most common energy-consuming systems found in existing buildings (heating and cooling systems, hot water systems, air handling and conditioning systems, lighting and their associated control systems, as well as renewable and low carbon generation systems producing heat and power) and their operations. Some of the basic legislation that may apply in buildings such as Minimum Energy Efficiency Standard (MEES) will also be covered during the course.

The course begins with describing the types of energy used in buildings and the basics of how they may be conditioned, including explaining power factor, how power factor correction works, 3-phase load balancing and voltage optimisation. It then continues with how electricity and gas are consumed in various types of equipment, discussing the main areas of energy consumption and the possible opportunities to change and reduce how energy may be consumed.

**Energy Monitoring, Targeting and Validation course**

This course introduces principles of monitoring, targeting and validating energy consumption. It is aimed at those needing an understanding of methods of gathering, using and interpreting data, as well as a range of available measurement technologies.

The course is designed to give guidance on creating value and setting energy baselines and benchmarking, validating energy savings and ultimately using M&T to sustain energy savings.

**Essential HVAC Control and Optimisation course**

Heating, ventilation and air conditioning (HVAC) systems are an essential part of most modern buildings and can consume a large part of any energy used. This course informs learners about the most widely used form of HVAC, their basic control and potential methods for optimising their operation for the least energy use while maintaining the comfort within buildings.

The course also covers:

- basic operation and control of systems such as boilers, air handlers, fan coil units, chillers, pumping systems and air conditioning and relate them to energy consumption,
- potential control methodologies that can be used for optimisation, such as speed, flow and differential temperature,
- how many of these systems can be controlled via a BMS,
- implementation and correct use of variable speed drives across the range of HVAC systems,
- the renewable versions of some of the HVAC equipment, such as biomass boilers and heat pumps.

**Lighting - Basic Understanding course**

This course provides an understanding of the lighting systems commonly found in the UK, their general uses and guidance on how organisations can become generally more energy-efficient with respect to lighting.

The course is also aimed at helping people to engage at a higher level with lighting suppliers and understand information that might be presented to them, which at times may be quite complicated and misleading.

**On-site Electricity Generation course**

On-site generation of electricity can be a good way of reducing grid consumption but the varying technologies, their suitability for implementation, income streams, ongoing costs and grid connection requirements can be complex and are different for every site.

This course aims to inform learners about the main types of on-site generation and provide information on how to effectively deploy it and gain commercial benefit. It describes how the most common forms of on-site generation such as solar, wind and CHP can be specified, installed and operated, how to effectively size the generation, how they would connect within an existing site and the financial incentives and mechanisms available to each technology. The course also includes the process for applying for and obtaining permission from the local Distribution Network Operator (DNO) to connect any type of generation and to understand how to find out whether export provision may be available.

**Energy Auditing Techniques course**

Energy auditing is a relatively specialist skill but one that can identify and produce major savings in energy use and cost. While energy audits will always be specific to each building, this course provides the basic techniques and the key elements to look out for during an audit. The course describes the basic techniques of energy auditing, from initial data analysis through to the on-site process or equipment identification and operational review. It explains the main types of opportunities that are likely to be identified, the types of equipment that can be replaced or upgraded, and will discuss the control of energy consuming process and equipment where much of the savings can be made.

The course also covers the basic outcomes of an audit in relation to reporting and calculation of savings, and return on investments.

**Energy Procurement course**

This course guides learners through the essential procurement processes for electricity and gas in the UK. It describes how the electricity and gas industries are structured, and how this impacts the prices customers pay. It explains the main drivers of energy pricing in the UK and how electricity and gas tariffs are structured.

It also explains the types of energy contracts that are available and the simple procurement processes that can be used by energy buyers. The course also includes information about how third-party intermediaries (TPIs) work and how to get the best out of them.

**Net Zero Fundamentals and Strategies course**


Many organisations have adopted Net Zero as a target to achieve carbon neutrality. But what does Net Zero mean exactly and how can it be achieved? This course explains what Net Zero can mean, how different interpretations can be applied and the possible routes to achieving it.

It will also explain the basics of what would be included in an organisation's carbon footprint, and how it can be measured using standard emission factors.

**Reaching Net Zero course**

With climate action gaining momentum and Net Zero targets being set by many, reducing emissions to achieve Net Zero will require wide-ranging changes to the way organisations use energy and

invest into decarbonisation technologies and processes.

This course offers a step-by-step guide on how to prepare for and reach your Net Zero targets. It outlines a typical road map to achieving the desired targets and practical measures to achieve them. It highlights where the carbon impact can come from, how to create a strategy for reduction of emissions, identification of the practical measures needed as well as auditing and verifying progress.

**Understanding and Delivering Behavioural Change Programme course**


This course not only provides participants with the knowledge of how to prepare and deliver a behavioural change programme, but more importantly with an insight into the psychology of people, and the way they behave which is essential in ensuring that any behavioural change programme is correctly structured and targeted to achieve a successful outcome.

**Water Management course**

This course presents information about how the water industry is structured, how it works, how it prices its product and what businesses may be able to do to reduce cost. It also informs participants about the opening of the competitive retail market in England from 2017 and any developments since the opening.

The course describes how water is metered and monitored and how to analyse consumption. It gives participants advice on carrying out a basic water audit, identifying likely areas of consumption and techniques that may allow reductions in water consumption. It also explains the link between water and energy use and identifies some techniques for raising staff awareness to help behaviour change towards water consumption.

**Waste Management course**


This course offers a comprehensive overview of waste management. It focuses on waste legislation in the UK, waste disposal and recycling options. The course provides participants with all the essential knowledge of mapping waste streams, undertaking waste auditing, identifying improvement opportunities and setting SMART waste targets and KPIs, as well as measuring, monitoring and reporting techniques relevant to waste data.

The course programme draws on established practices of organisational waste management and helps participants to develop more waste efficient practices.

**SECR Compliance course**

Streamlined Energy & Carbon Reporting (SECR) extends reporting requirements to all large UK companies. This course aims to inform participants about the background and requirements of SECR regulation, and give guidance on how to complete the process effectively within organisations.

The course examines the basis of the regulation, which companies need to comply and the legal requirements. Material covered after the introduction helps participants to understand the processes needed to collect and report appropriate data, methodology, and the measures needed to be undertaken. Finally, the course guides participants on how to present the information to company decision-makers, auditors and the Companies House.

**ATTENDING COURSES**

You don't have to be a member of the EMA to attend our courses and topics can be selected per your need, interest, requirement and availability. Our courses are delivered online and if you decide to go for multiple courses, training dates can be spread across multiple months, allowing you to train in manageable chunks or with preference for one topic over another. This also means that you can expand on your knowledge and apply it to real-time scenarios in-between each training session, allowing for a greater understanding overall.

**For up to date training course schedule visit: https://www.theema.org.uk/ema-energy-management-in-practice-training-programme-lec-stage-3/.**

**IDENTIFYING AND FILLING IN REAL ENERGY MANAGEMENT GAPS AND/OR GAINING A PROFESSIONAL STATUS**

Many energy management practitioners possess the skills to analyse their organisation's energy use, consumption patterns, trend data and operational requirements. However, few are formally recognised or professionally registered as Energy Managers.


The EMA offers a Knowledge and Skills Gap Analysis Interview designed to assess your knowledge, skills and experience at any stage of your career and development. Conducted as a professional conversation, the interview focuses on practical experience and achievements to date.

Professionals who demonstrate a well-rounded and satisfactory understanding of energy management will be awarded one of the EMA professional statuses: Recognised Energy Manager, Registered Energy and Carbon Manager or Registered Energy and Carbon Director. All participants receive verbal and written feedback outlining their strengths and providing tailored recommendations for career development. Where appropriate, guidance will be offered on areas to focus on to enhance skills and progress towards professional registration.

**To book your Knowledge and Skills Gap Analysis Interview, visit https://www.theema.org.uk/product/knowledge-and-skills-gap-analysis-interview/.**

# ENERGY AND CARBON MANAGEMENT COURSES


VIRTUAL TRAINING

CLASSROOM TRAINING

IN-HOUSE TRAINING

TAILORED TRAINING

LEARN AND UPSKILL

## JUNE

| | |
|---|---|
| 27TH | On-site Electricity Generation course |

## JULY

| | |
|---|---|
| 2ND | Energy Procurement course |
| 4TH | Energy Champion course |
| 11TH | Energy Management in Building Services course |
| 17TH | Essential HVAC Control and Optimisation course |

## SEPTEMBER

| | |
|---|---|
| 5TH | Energy Monitoring, Targeting and Validation course |
| 12TH | Energy Auditing Techniques course |
| 17TH | Business Case Development in Energy Management course |
| 18TH | SECR Compliance course |
| 19TH | Net Zero Fundamentals and Strategies course |
| 24TH | Energy Project Implementation and Management course |
| 26TH | Lighting – Basic Understanding course |

## OCTOBER

| | |
|---|---|
| 3RD | Become an ESOS Lead Assessor course |
| 10TH | Reaching Net Zero course |
| 17TH | Water Management course |

**For an up-to-date list of all EMA courses visit our website at www.theema.org.uk**

By Daisy Malt and Steven Judd

# Learning and Upskilling in Energy Management

**In an era marked by information overload, technology advancements, shifting regulatory landscapes and an increasing demand for sustainability, the field of energy management is evolving faster than ever. To keep pace with these changes, professionals in the industry must prioritise continuous learning and upskilling—ensuring they have the knowledge and tools to navigate ongoing and emerging challenges and drive energy and carbon reductions in their or clients' organisations.**

**In this feature, we asked two energy management professionals to explore why ongoing education and skill development are crucial for both individual successes and organisational growth.**

## Daisy Malt, Sustainability Manager, University of Essex

**Can you explain why in your role of a Sustainability Manager, you found it essential to upskill in the field of energy management?**

My role is typically much more focused on the 'non-technical' aspects of sustainability and environmental management, such as engagement, policy, strategy and reporting. While I don't directly work on the energy and carbon reduction projects that are delivered by our team, my position means that I need to be able to understand some of the processes, principles and terminology that are essential aspects of energy management. To be able to communicate with the wider university community about the projects we are working on, I was keen to strengthen my knowledge so that I can bridge the gaps between some of the technical language and concepts of energy management, and others' everyday understanding of them. It is also really helpful to understand what I am talking about when preparing reports for senior management and liaising with other members of the team. I was keen to expand my skills recently as part of my ongoing development, recognising the increasing focus on energy efficiency both to our organisation, and more widely.

**Has the approach to energy management shifted in recent years in your organisation, and how can professionals like yourself ensure they are equipped to handle these changes?**

Over the last few years, as the cost of energy has risen and the focus on carbon reduction has grown, energy management has become increasingly important for the university. We have set a target to reach net zero carbon emissions by 2035 and this means a concerted effort is required to ensure we are on the right trajectory, and can identify the projects that will allow us to make bigger gains on that journey. The cost imperative has obviously grown with unit prices for gas and electricity rising. The higher education sector is already going through a challenging period and spending more on utilities adds to that. At present, energy efficiency is very much about cost efficiency; wherever possible we need to make gains, while the resources to do so are stretched. It's important to be quite agile and creative in how this is addressed. Much of the low-hanging fruit and quick wins have been tackled, and the biggest projects can be out of reach due to affordability. Instead we have to keep nibbling away where we can – whether that's further BMS adjustments, embedding upgrades as part of ongoing maintenance plans or seeking external funding.

**How do you balance the need for technical skills with the demand for soft skills, like leadership and communication?**

Leadership and communication

skills are essential parts of my job, and as mentioned above, I am coming to energy management from that angle – the training provided by the EMA has given me better knowledge of the technical aspects that I need to communicate to others about. It means that when I'm speaking with the experts in our team, or others in the Estates Maintenance teams, I can understand and process that information so that I know why a certain project is being done, what the benefits and longer-term implications are, and be sure that I can clearly communicate that to others. That can include other members of my team, who work on sustainability engagement, through comms such as blogs and news stories, reports to senior management or at internal committees. These messages need to be tailored to the audience, who will have varying experience of the technologies and infrastructure being discussed.

**How do you think the concept of 'continuous learning' can be integrated into the daily routine of an energy professional who may already be balancing a busy workload?**

Continuous learning is fairly essential in the ever-changing sustainability and energy efficiency landscape, and it's important to take the time to expand knowledge. This can be anything from learning from colleagues and peers, to keeping up to date with best practice through your networks; for example LinkedIn or professional bodies. Even reading a weekly industry email newsletter helps to keep you in touch with what's going on. Taking advantage of training opportunities, even if it's just half a day once per year, makes all the difference. It can be so easy to get caught up in the pressures and busy-ness of your day to day work, but taking the time to absorb changes helps in the longer-term. We are encouraged to take up suitable training opportunities as part of our professional development at the University, and within our team we typically embed this into our objectives as part of the PDR process. This allows us to identify areas we would like to improve our skills on, and formally records that intention. This means we can highlight an area of focus and have ownership of our development.

**What are some of the challenges energy professionals face when it comes to upskilling, and how can organisations support their employees in overcoming these barriers?**

Constraints on time and funding can be challenges for upskilling; in higher education money is tight, so being able to pay for more in-depth courses needs clear justification. Organisations must be conscious of the longer-term benefits of upskilling their teams, and the return on investment that it will bring. Where teams are small, or even reducing in size, that puts increased pressure on those doing the work, so having the capacity to further build on knowledge can be difficult. It's really important to recognise the balance of delivering the work that's needed with the imperative to keep up to date with developments, which are happening all the time.

**Looking ahead, what advice would you give to young professionals entering the energy management field to ensure they continue to grow and stay relevant in the industry?**

While there are lots of challenges, it is definitely an opportunity too. It is a great time for anyone coming into the industry; driving efficiency and measuring impact is crucial for cost savings and as part of wider carbon reduction. These types of roles are in demand, so building competence and expertise are really important. You should always be a sponge at work, to absorb as much as you can, but particularly so when you're starting out so that you have a good breadth of skills. As you develop your expertise you can then identify where your strengths lie and begin to carve out your niche. Building on this by learning from others, seeing how the industry is developing and what the priorities are, advocating for yourself for opportunities for training all help you stay relevant. The technologies and solutions available are always evolving, but the challenges themselves often

remain fairly static, so keeping up to date allows you to be one step ahead.

**Author's profile:**
Daisy holds an MSc in Environmental Sustainability from the University of Edinburgh, and has worked in Sustainability for almost a decade. Her work focuses on engagement to embed sustainable practice, both at the individual and organisational level, and exploring resource efficiencies.

## Steven Judd, Environment and Sustainability Manager, Landmarc Support Services

**Can you explain why in your role of an Environment and Sustainability Manager, you found it essential to upskill in the field of energy management?**
In my role as an Environment and Sustainability Manager for Landmarc within the defence sector, upskilling in energy management became absolutely essential.
The Defence Training Estate operates across some of the most geographically remote and complex environments in the UK from high-security ground and air operational bases across hundreds of thousands of hectares of land and seascapes, delivering around 8.2 million Personnel Training Days to UK and Foreign Forces in a typical year.
We have been delivering this service to the Defence Infrastructure Organisation (DIO) on behalf of the Ministry of Defence (MOD) for over 20 years. The new Training Estate Support Contract, won by Landmarc in 2023 and initiated in April 2024, marked a shift in the significance of energy, water and carbon management and conservation in over 9,000 operational buildings. These range from Napoleonic forts to state of the art Net Zero Carbon buildings, commercial kitchens, dormitories with associated ablution blocks through to air traffic control and hangars where tanks and other combat vehicles are maintained.
To put the size and scope of the contract into context, we provided the UK armed forces with over 2.5 million accommodation nights and 8.2 million meals in 2024 – that equates to a productivity similar to a UK Top 10 hotel chain. These sites function 24/7, and without a detailed understanding of how energy is consumed, sourced and controlled, it's incredibly difficult to deliver energy resilience, meaningful asset management, carbon reductions and long-term cost efficiencies.

My energy management upskilling has enabled me and the wider Landmarc sustainability team to engage much more effectively with building performance data, energy metering systems and cross-disciplinary stakeholders. It's allowed me to go beyond compliance and start influencing infrastructure strategy. From optimising BMS and deploying real-time sub-metering to specifying low-carbon technologies, such as air source heat pumps, solar PV and battery storage, energy management now sits at the core of our sustainability and resilience planning.

In the defence context, energy resilience is critical. We're not just managing kilowatt-hours — we're enabling operational continuity. Reducing dependency on fossil fuels, improving system redundancy and increasing local generation capacity directly supports mission assurance, capability and by extension guaranteeing national security.

Being part of the EMA community has also been hugely beneficial — not just for CPD, but for staying on top of innovation, policy change and practical delivery models that work in real-world, high-stakes environments like defence. Energy management, in this context, is not just a technical function — it's a strategic imperative.

**Has the approach to energy management shifted in recent years in your organisation, and how can professionals like yourself ensure they are equipped to handle these changes?**
Yes, the approach to energy management in our company has shifted significantly in recent years; it's reflective of a wider trend across the Defence sector. Traditionally, energy management was seen as a back-of-house technical function, focused primarily on compliance, reporting and cost control. However, in today's environment with net zero targets, volatile energy markets and growing operational risks tied to energy resilience, it's become a central strategic pillar.

In our case with Landmarc operating within the defence and facilities management space, we've moved from reactive monitoring to proactive, integrated energy management. We're embedding energy and carbon considerations into asset lifecycle planning, capital projects require DREAM - the military version of BREEAM. It's not just about reducing kilowatt-hours anymore, it's about decarbonising heating, integrating renewables, ensuring continuity of operations and building energy resilience into

core services. That shift has required closer collaboration across estates, sustainability, engineering, finance and senior leadership.

For professionals in the field, the key to staying equipped is continuous learning. This includes technical upskilling such as in data analytics, building controls and low-carbon technologies, but also developing a strategic mind-set. Energy managers need to speak the language of carbon, risk and value. We're no longer just managing energy, we're shaping the future of how our organisations operate, how our country is adapting to a net zero carbon future, and the evolving and mitigating climate impacts.

**How do you balance the need for technical skills with the demand for soft skills, like leadership and communication?**

Striking the right balance between technical expertise and softer skills is crucial to success. On the technical side, we are responsible for driving energy efficiency, reducing carbon emissions and integrating new technologies. This requires a deep understanding of energy systems, data analysis, building management systems and the ever-evolving regulatory landscape. We need to stay ahead of new technologies, such as AI, IoT and renewable energy systems while ensuring the operations of high-security, mission-critical environments are efficient and resilient.

The technical side isn't enough. We are humans and we work with humans and not just machines and equipment – we often need to deliver through others.

The softer skills, like leadership, communication and stakeholder management are just as important, especially in defence, where project delivery often involves multiple teams, from operations to engineering, sustainability and senior leadership. Effective communication is key to translating complex technical concepts that can be understood by non-technical stakeholders, ensuring that energy-saving initiatives can be mapped across to organisational goals and priorities.

Our own mental and physical wellbeing also plays a role, I have found that when under periods of stress through workload, finance or personal issues, we tend to revert to our comfort zone. Be conscious of that trait if you recognise it in yourself and it will make you a better energy manager and employee.

Leadership and influencing are critical when it comes to securing buy-in for sustainability initiatives. It's not uncommon to encounter resistance to change, particularly when it involves shifting long-standing practices or investing in new technologies. Recently, a colleague told me: "soldiers will never do that". For me, that's like a red rag to a bull, the ability to influence, build trust and guide stakeholders through the change process is invaluable. The ability to manage relationships, align various interests and foster collaboration across departments is vital in overcoming barriers to energy management and achieving long-term success.

**How do you think the concept of 'continuous learning' can be integrated into the daily routine of an energy professional who may already be balancing a busy workload?**

As an energy manager in the UK, the pace and complexity of daily responsibilities can make continuous learning feel like a luxury. Our work environment is being shaped by evolving technologies, regulatory changes and ambitious sustainability goals, and keeping knowledge fresh isn't optional, it's essential. Making learning part of a routine rather than an added task can be one solution, but the reality is you need to find a solution that works for you.

We all have different learning styles and we need to be cognisant of that. There are many new and innovative solutions evolving. Micro learning can be one effective approach. By dedicating just 10–15 minutes a day to industry podcasts, short articles or e-learning modules, energy professionals can stay current without major disruption. Many platforms offer CPD-accredited content in bite-sized formats. Think:

"can I double up on that commute by downloading content and listening to it over several days or weeks?".

On-the-job learning is another valuable opportunity. Every energy audit, project review or stakeholder meeting presents a chance to reflect, ask questions and share insights. Encouraging team discussions or quick knowledge-sharing sessions at the end of a project can help embed lessons learned across the wider group.

Leveraging digital tools also supports ongoing development. Setting up alerts for relevant legislation updates, subscribing to professional newsletters or joining online forums helps energy managers stay connected to wider industry developments. However, don't overdo this and become swamped by notifications and updates, otherwise they can become stressors, which will turn you off training. Importantly, organisations can support this culture by recognising and rewarding professional development, whether through formal CPD targets, internal mentoring schemes or simply giving time and space for learning during the workweek.

With my team over the last two years, we have achieved three professional memberships. Achieving them was made an objective (SMART) and learning time was diarised like any other work task or project. This was part of a greater discussion on ambition and progression. That helped Landmarc plan for the future and helped the employees to understand their ongoing contribution and evolution in role. Reflecting on other people's working and learning styles was important, with some preferring the discipline of studying from the office whilst others lacked the opportunity to work from home.

Ultimately, continuous learning doesn't have to mean formal study or time away from the job. It's about curiosity, reflection, and staying alert to the innovations and insights that help deliver smarter. When learning becomes part of how we work, not just something we do occasionally, it becomes both much more manageable.

**How do you view the emerging technologies like AI and IoT solutions in energy management? Are they changing the skills required for energy management?**
The world is experiencing the beginning of the 4th industrial revolution. AI is evolving at an incredible rate and already supports my work both directly and indirectly. Machine Learning has been the 'special sauce' of an energy management software we use. By back loading data back to 2017, MOD's carbon baseline year, and then normalising weather and defence specific metrics have enabled accurate predictions of energy demand patterns, optimised energy consumption across multiple sites, and even identified subtle areas of inefficiency that human operators might miss. The alerts we set are continually learning the defence training estate datasets to minimise the number of false alarms allowing lower thresholds to be enacted earlier, so we can understand usage and wastage earlier. The volumes of data-pieces being processed are enormous and beyond the capability of a human, and in nanoseconds.

Similarly, IoT solutions are driving the next level of data collection and connectivity. IoT sensors enable real-time monitoring of energy use across various devices and systems, providing granular insights that allow for much more informed decision-making. These connected systems can automatically adjust settings for lighting, heating and cooling, leading to more efficient energy use without the need for manual intervention. We have

rolled out 82 net zero carbon buildings over the last four years. Equipped with BEMs, they are not only managing their energy usage and generation, but the learning functions are able to predict failures in pumps and motorised valves by recognising how water flows vary against norms before they fail. Systems that alert prior to failure without the complexity of sensors on each module are the 'holy grail'.

In terms of skills, the rise of AI and IoT is absolutely changing the profile of energy management professionals. While the fundamentals of energy management, such as understanding energy consumption, efficiency measures and sustainability strategies, remain critical, there is now a growing emphasis on data literacy, digital tools and systems integration. Energy professionals need to be comfortable working with data analytics platforms, IoT devices and AI-driven systems, as well as understanding how to interpret the data they generate. This interconnectivity brings vulnerabilities. Operating and interfacing within MOD's IT systems brings with it the highest levels of information systems and communications security. The attractiveness of Bluetooth, Wi-Fi and WLAN connections bring with them challenges for secure environments. The building systems that we manage on behalf of the MOD are at the forefront of digital security. Concerns over the origins of hardware, back-door access into software or malicious attacks from foreign nations or just motivated individuals is ever present. The saying which came out of the Northern Ireland troubles rings true today. Malicious attackers "only have to be lucky once, we have to be lucky every day". The more interconnected our systems are, the more careful our preparations need to be as the vulnerability increases. The NHS, British Airways, PlayStation, NASA and other blue-chip organisations have all fallen foul to hackers and malicious attacks. Defence can never be vulnerable – how open are your business systems to attack?

In short, AI and IoT are transforming energy management by improving both the scope and precision of how we manage energy. The skills required are evolving from traditional energy auditing and reporting to a broader understanding of how to leverage technology to create more intelligent, adaptive and efficient systems.

**What are some of the challenges energy professionals face when it comes to upskilling, and how can organisations support their employees in overcoming these barriers?**

The challenges we face as energy managers are similar to professionals everywhere; however, let me personalise my thoughts by putting them into context. Professional development is critical for energy professionals, especially in the face of evolving regulations, technological advancements and the drive towards net zero. We are the interface between the objectivity of systems, data and finance, and the subjectivity of humans and their personal interface with energy use and wastage. However, there are several challenges that make this a complex undertaking.

Let's talk about time constraints. Energy professionals are often juggling a multitude of responsibilities, from monitoring energy consumption to meeting compliance deadlines. Finding time for structured learning or professional development can be a real barrier, especially in smaller teams where staff are spread thin with demanding stakeholders. Landmarc is not perfect but works hard to ensure we make time for a small team of three, supported by a year in industry student, who deliver energy, climate, sustainability, environment and social value across over 130 sites in the four nations of the UK.

Secondly, access to relevant training can be a challenge. With the pace of change in technology and policy,

the energy landscape is constantly evolving. Professionals may find that existing training courses are either outdated or too generic, failing to address specific needs, such as the integration of renewable energy systems, micro grids or carbon accounting methodologies. This often means that professionals need to be proactive in seeking out the right courses, sometimes at their own expense. However, on-line technology allows low cost hybrid training opportunities whilst joining isolated workers into integrated professional communities who share best practise. In my experience, we learn as much from the community of students as from the course and tutors.

Finally, budget constraints can hinder access to advanced training or certification programs. Energy professionals, particularly in smaller organisations, may not always have access to the resources necessary to take part in expensive training opportunities. To overcome these barriers, organisations play a pivotal role. Leadership support is key, organisations must recognise upskilling as an investment in the long-term sustainability of the business. Providing dedicated time for professional development, whether through paid training days or flexible schedules, ensures employees can take part in courses without impacting operational efficiency.

Committing to ongoing learning and providing the resources and support needed, organisations can help energy professionals stay ahead of the curve and effectively tackle the challenges of the future. Professional and continuous development in role needs to be considered like any other objective. Target it using SMART objectives and make time for it. If you standstill you are actually falling behind as the profession is moving forward all the time.

> ***"We're no longer just managing energy, we're shaping the future of how our organisations operate, how our country is adapting to a net zero carbon future, and the evolving and mitigating climate impacts."***

**Why is it critical for organisations to prioritise upskilling their staff and teams in energy awareness and energy management, especially in today's rapidly changing energy landscape?**
As an energy manager, I see first-hand how informed and engaged teams can significantly influence operational performance, resilience and sustainability outcomes.

The defence estate is vast, complex, and energy intensive. With increasing pressure to reduce carbon emissions, meet regulatory targets and improve energy security, it's essential that energy isn't seen as just the responsibility of a single department. When staff across all levels understand the impact of their actions — whether it's how they operate buildings, use equipment or report inefficiencies — they become active contributors

to energy goals rather than passive observers.

Upskilling empowers individuals to identify opportunities for improvement, make informed decisions and support a culture of continuous improvement. It also enhances compliance with evolving legislation and standards, reduces operational risk and supports the MOD's wider drive towards Net Zero and energy resilience.

Moreover, the rapid pace of technological change, from smart metering to AI-driven optimisation, means that energy managers and technical teams must stay current to make informed decisions about investments, operations and innovation. Regular training and development ensure we are not just keeping up, but leading where it matters.

In a sector where mission readiness, reliability and cost-effectiveness are critical, energy awareness becomes more than just an environmental concern, it becomes a strategic enabler. Prioritising upskilling is how we ensure our people are ready to meet that challenge.

**Looking ahead, what advice would you give to young professionals entering the energy management field to ensure they continue to grow and stay relevant in the industry?**

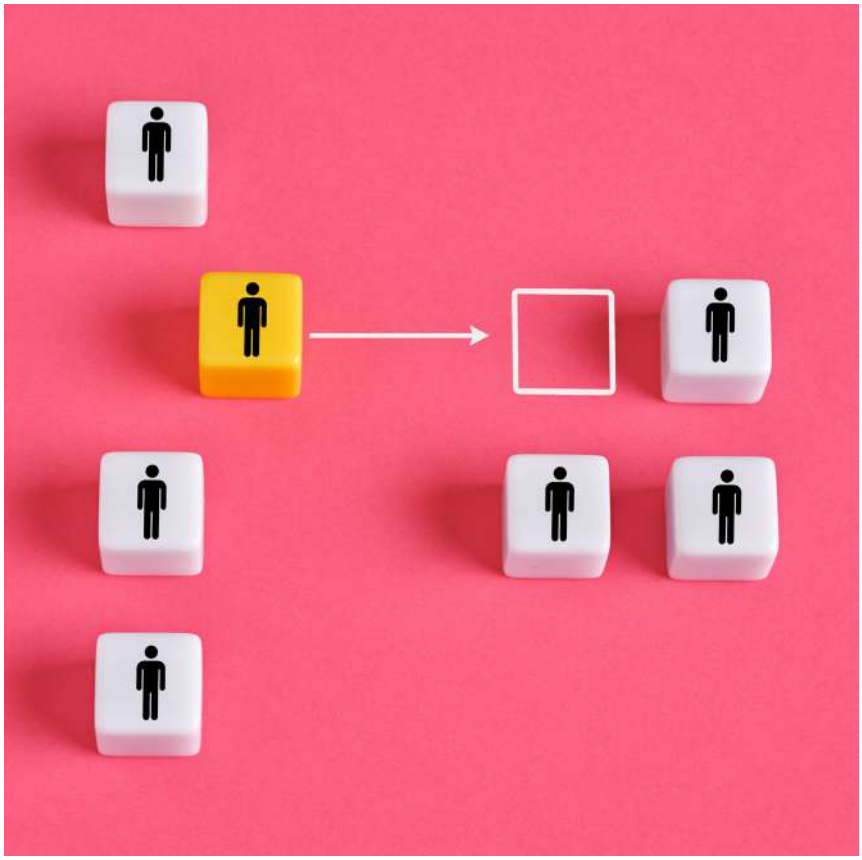
For young professionals entering energy management, especially within the defence sector, the key to long-term success is curiosity, adaptability and a commitment to continuous learning. The reality is that a good proportion will be new graduates. Landmarc has six year-in-industry placement students every year as part of our social value agenda. One of those students supported our energy management work. Having a young fresh mind entering a hugely experienced legacy team has been so valuable. The discipline of supporting a new employee and student into the work force has been energising and even though the challenge of "why would you do it like that?" can be testing, it has taught us all to reflect on the way we do things, and not to be content and challenge the way we work. This is an industry that evolves quickly—shaped by new technologies, shifting regulations and global sustainability goals—so staying still is not an option.

Soft skills matter too. Communication, collaboration and influencing are vital when you're working across diverse teams or trying to drive behavioural change. Be proactive, look for efficiencies others might overlook, and always be thinking about resilience and long-term impact.

Above all, stay passionate – we are contributing to a better planet. Energy management is about shaping a smarter, more sustainable future and young professionals have an exciting role to play in driving that change. When people ask me what have I been up to at work today, clearly working in defence I can't always give the detail, but I stay motivated because I am helping to save the planet and supporting the MOD to deliver a secure future for our nation.

**Author's profile:**

Steve has been working in Environmental and Energy Management for over 35 years. The Landmarc team are delivering sustainable solutions delivering both lower carbon and energy security to the DIO and the MOD on the Defence Training Estate, 24-7. Steve can be found on LinkedIn, he posts most weeks on energy, sustainability and environment subjects.



# The EMA Energy Management Awards celebrate those at the forefront of the energy management and wider sustainability industry and inspire other professionals to follow in the same footsteps


## Recognise your achievements and celebrate your successes

### AWARDS' TIMELINE

- SEP 18 — Entry deadline
- OCT 16 — Shortlist announced
- NOV 6 — Awards ceremony

### CATEGORIES & NOMINEES

individuals | teams | projects

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### TERMS & CONDITIONS

learn more

ema energy managers association

ENERGY MANAGEMENT AWARDS

ENTRIES ARE OPEN

## The 2025 Awards' Categories are:

### Energy Manager of the Year - Private and Public Sector

We are seeking applications from professionals who have been working in energy management for several years. The entry should reflect the entrant's industry knowledge and experience, their achievements and initiatives to promote energy efficiency, and include overall savings and energy reduction achieved for their organisation. Nominate yourself or a colleague and demonstrate expertise, celebrate wins, and boost visibility in the industry and within organisations.

### Energy Management Team of the Year - Private and Public Sector

We are seeking applications from teams of two or more people who engage in daily energy management activities for their organisation or clients. The teams should be able to demonstrate clearly defined roles, collaboration between the roles that is beneficial to the performance of the team, development of individuals within the team and successful performance outcomes. Nominate a team to recognise the contributions to the organisation, and celebrate successes and achievements.

### Sustainability Manager of the Year - Private and Public Sector

We are seeking applications from professionals who have been working in sustainability for several years. The entry should reflect the entrant's industry knowledge and experience in developing, implementing and monitoring organisation's sustainability strategies. Nominate yourself or a colleague and demonstrate expertise, celebrate wins, and raise profile in the industry and within organisations.

### Young Energy Management Professional of the Year

We are seeking applications from professionals who have been working in the energy management industry for less than three years. The entrants should be able to demonstrate their impact on energy and carbon reduction, and achieved savings at their organisation. Nominate yourself or a colleague and highlight new talent, and showcase the energy management/sustainability industry as a rewarding career option for new and upcoming entrants.

**VIEW THE REQUIRED CRITERIA BY REQUESTING A PDF COPY**

# ema ENERGY MANAGEMENT AWARDS 2025

## Net Zero Strategy of the Year

We are seeking applications from organisations with clearly defined Net Zero strategy and targets. The entry should include the organisation's short- and long-term plans for achieving the set goals, expected timelines, progress to date and any achievements so far. Entrants are expected to share their strategy documents as part of the submission. Nominate a net zero strategy and highlight your approach of a clear pathway towards the reduction of carbon emissions that occur directly and indirectly from the organisation's activities.

## Decarbonisation Project of the Year - sponsored by SystemsLink

We are seeking applications on energy, sustainability and/or engineering projects that have been successfully implemented and where achieved savings can be demonstrated. All projects, including but not limited to optimisation, upgrading, replacing or behaviour change, that have been implemented and resulted in a reduction of carbon emissions for the organisation will be accepted. Nominate a decarbonisation project and highlight the organisational effort that is needed for leading a decarbonisation project of any size.

## Energy Efficiency Project of the Year

We are seeking applications on energy, sustainability and/or engineering projects that have been successfully implemented and where any achieved energy reduction can be demonstrated. All projects, including but not limited to optimisation, upgrading, replacing or behaviour change, that have been implemented and resulted in an energy reduction for the organisation will be accepted. Nominate an energy efficiency project and celebrate successful implementation and achieved energy reduction and savings.

## Organisation of the Year

We are seeking applications from organisations that can demonstrate their commitment to energy and carbon emission reduction through an organisation wide approach and application of core areas of energy management. This category is open to end-user organisations of any size. Nominate your organisation and showcase your organisation's approach to energy management with robust policies, strategies and results in each area.

**VIEW THE REQUIRED CRITERIA BY REQUESTING A PDF COPY**

ENTRIES ARE OPEN

ema ENERGY MANAGEMENT AWARDS 2025

**ESOS Assessment of the Year**

We are seeking applications on ESOS assessments that were completed in the Phase 3 compliance period, and where tailored information on cost-effective ways to reduce energy use were prepared and provided to comply with ESOS. Nominate your organisation and partners and celebrate a delivery of a complex work that supports an organisation in regulatory compliance and in adopting measures to save energy.

**Energy Management Consultancy Partnership of the Year**

We are seeking applications from in-house teams and service providers about collaborative partnerships of two or more parties that can demonstrate the benefits of delivering energy management in a partnership. Nominate your organisation and partners and highlight your joint achievements which would not be possible without the partnership in place.

**Energy Champion of the Year - *NEW***

We are seeking applications from professionals outside the fields of energy management and sustainability who have actively participated in an energy or carbon reduction awareness programme. This programme should have contributed to promoting energy efficiency and sustainability, provided support to energy management professionals within the organisation, and aligned with the organisation's broader strategy or cultural change towards greater energy efficiency and/or carbon reduction goals. Nominate yourself or a colleague and demonstrate passion and commitment, and boost visibility in the industry and within organisations.

**Behaviour Change Campaign of the Year - *NEW***

We are seeking applications on energy and/or carbon reduction and sustainability campaigns that have been successfully implemented, with demonstrable results. Any campaign that contributed to reduction through education, incentives or target setting, including but not limited to promoting sustainable travel, reducing water consumption, food waste or single-use plastics, can be submitted. Nominate a behaviour change campaign and celebrate successful implementation and achieved reduction and savings.

**VIEW THE REQUIRED CRITERIA BY REQUESTING A PDF COPY**

**YOUR EMA MEMBERSHIP INCLUDES THE BENEFIT OF THE ENTRY FEE EXEMPTION.**

**ENTRIES CLOSE ON 18 SEPTEMBER.**

**TESTIMONIAL:**
Energy Manager 2019 (Public Sector)

***"I was delighted to receive this type of external recognition for my work, as it can be easy to feel overwhelmed at times. The award provided me with reassurance that my efforts are making a positive impact. Additionally, the University also acknowledged my achievement internally, further validating the significance of the award. Overall, this recognition holds great value to me and serves as motivation to continue pushing on in my work."***
Dan Fernbank, Energy and Sustainability Director, University of Reading

**TESTIMONIAL:**
Young Energy Management Professional 2018
Highly Commended in the Energy Management Team 2018 (Public Sector)

**"Having the recognition outside of the University really showcased our work, and highlighted the fact that we were doing something so good and important that it enabled us to win sector awards. It elevated our standing, our profile as a whole team but also as individuals.**

**On a personal level, winning the award was a big confidence boost for me and it showed me that I was having a positive impact. When I started looking for a new job in the private sector, the fact that I won Young Energy Management Professional 2018 and was also part of a Highly Commended Team helped me stand out during my interview."**
Roederer Rose Lyne, Net Zero and Emissions Manager, University of Aberdeen

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**Energy Management Awards**
**2025**

**CELEBRATE YOUR ACHIEVEMENTS WITH THE EMA ENERGY MANAGEMENT AWARDS THIS YEAR.**