

THE EMA MAGAZINE

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GUEST EDITOR:

GILLIAN BROWN

HEAD OF PROPERTY SUSTAINABILITY
OFFICE OF GOVERNMENT PROPERTY



**EV CHARGING
INFRASTRUCTURE
AND OPERATION**

**QUEENS QUAY
DISTRICT HEATING
PROJECT**

**NET ZERO
& ENERGY
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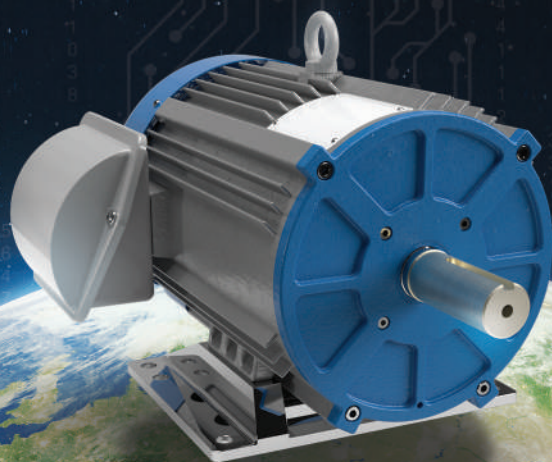
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GUEST EDITOR

Gillian Brown, Head of Property Sustainability at Office of Government Property and Vice-Chair of the EMA Board of Directors



Gillian is an accomplished energy manager with over 13 years of experience in public sector energy management. Prior to starting her current role at the Office of Government Property, she was the Energy Manager at University of Glasgow where she was responsible and accountable for the optimisation of energy sources and active management of the energy consumption within the context of the University's Energy Strategy. Her role covered all areas of energy management; from legislative compliance to project works and the management of building energy consumption across a technical and varied portfolio.

Within previous roles Gillian has been the lead on a number of large scale energy projects and renewable designs and installations in some complex and highly critical buildings. Gillian is an established member of the academic community. Her current area of research is into the development of positive energy building groups of mixed age construction.

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by Gillian Brown, Head of Property Sustainability at Office of Government Property and Vice-Chair of the EMA Board of Directors



Dear Reader,

This issue comes at a time when the world is in complete turbulence. COP27 has been a disappointing reflection of what happens when the loudest voices alone are heard. Hundreds of delegates from the world's wealthiest countries and 600 oil lobbyists descended upon Egypt, to make decisions for the common good, but it was no surprise that little has actually been achieved. Still there was no strong and clear message about the phasing out of fossil fuels and the enhanced discussion around climate adaptation was as close as we will get to a publication of the belief that we will likely miss the 1.5° degree threshold of global warming. A begrudging agreement by the wealthiest countries to set up a loss and damage fund for those suffering the most from the effects of climate change was a step in the right direction, but the lack of clarity and firm commitment means we will undoubtedly be having the same conversations in COP28 and 29. None of this did anything to set one's heart ablaze with motivation to act.

The energy crisis faced by so many in this country is a stark reminder of how our national reliance on a fossil fuel can, and without warning, cause catastrophic impacts on our lives. Many domestic customers are finding themselves torn between funding their fuel bills and putting food on the table. Many commercial customers are finding themselves torn between funding staff wages or being able to continue to operate. It is a time when the role of Energy Management and the professionals within the sector have never been so important. Our sector has the skills and abilities to make a difference. It should be recognised that through our actions of energy management and energy/carbon reduction projects we are able to make a difference to the energy consumed by buildings therefore reducing our reliance on fossil fuels and its inevitable fluctuations.

This issue should be a helpful reminder to all that we, as a sector, are playing our part in changing the world. It may not be as well reported on as the COP proceedings or hit news headlines as often as discussions on the national energy crisis, but our actions make a difference for the better.

I hope you enjoy this issue.

Gillian Brown

THE EMA MAGAZINE

PUBLISHER

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The EMA would like to thank to the above contributors for their time and effort in providing the content and making this issue possible. Their willingness to share experience and knowledge is exemplary and inspiring, and we hope it will encourage others to come forward and contribute in the future.

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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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Building the Right



There has never been a more important time to ensure that the energy and carbon reduction projects we propose in our organisations see their way through to final completion. The current energy crisis makes projects both financially beneficial as well as creating the reduction in energy consumption which is key to how we navigate our way out of our reliance on fossil fuels. Yet still many of these obvious spend to save ideas are not pursued.

Historically, when building a project team to instigate an energy or carbon reduction project there were really only three key parties who had to agree; the finance representative, the procurement representative and the approving senior management team. With the money sourced and the correct procurement route identified, senior management sign off was almost a sure thing. Whether this was because organisations had more disposable finances, less questions were asked or organisations had enough of an understanding of the actual project, is unclear. Because of this, energy management professionals have been working for many years to reduce the energy consumption and relative carbon emissions of organisations. Many of the easy wins and easy to do projects have been tackled and now many of

the project works required in this energy transition are more complex.

These complex projects require a number of parties to be involved and a single missing link can be the reason that project work either stalls or does not start in the first place. What may seem like additional burden in sourcing project team members from across an organisation, is in many cases the way to ensure a balanced and collaborative approach is developed. This collaborative approach ensures that the project is a success both operationally but also delivers the savings or changes in energy expected.

When building a new project team, there are some key members which must be included. The finance teams, procurement teams and senior management teams all still reside within the new project team structure. In addition, there is now a requirement for other business areas to be included and consulted who were not previously considered as key stakeholders. The following groups are, from experience, missed in many project teams. Their lack of inclusion can not only delay project implementation but can reduce the project effectiveness and potential savings achievement once the project is completed.

The building user

A key group of people at times

not considered when planning an energy reduction project. In the most general sense, if people didn't use buildings then buildings wouldn't have a requirement for energy. The building user therefore becomes the linchpin to ensuring project success after the installation. What all projects should try to avoid is the building user fighting against the new installation, whether this be through lack of understanding of how the system works, historical processes or attitudes or non-acceptance of changes to working procedure. To help combat these challenges, building users should be brought in at the earliest possible stage. Bringing building users in early to a project allows the project team to understand the building and its occupants' ways of working, building specific idiosyncrasies and any occupant specific issues which could be addressed as part of the project works. It is important that communication is two way and project leads should ensure that they put across to the building user why the project works are taking place, how it will affect them, if at all, and how to work with the new installation upon completion.

The surrounding community

As we move into an era of district heating, communal heating and cooling solutions and renewable technologies which can be seen by or shared with others,

“Great things in business are never done by one person. They’re done by a team of people.

Steve Jobs

it is important to speak with the surrounding community and have them as close allies at strategic points throughout the project. Historically, it was only exceptionally large projects which considered engagement with the community, but more modern solutions such as large-scale district heating is a recurring example where more than one party has to work together to achieve project success. Whether a large or small project, it is important that communication with the surrounding community is carried out initially to understand the potential to develop or connect to such collaborative solutions. In these types of projects, scalability and future proofing will become more important, therefore getting initial communications right will inevitably pay off in the future. Community groups, surrounding business, domestic residences and central and local government are all key bodies who could be considered as key project team members with these types of projects.

The solution operators

The transition to a low carbon economy has come with a plethora of new technological solutions, but it would seem that the skill sets of technical operators has not kept pace with these new developments. It is important that the people who will operate the new carbon and energy reduction solution are brought into the project team early. Their contribution can not only highlight areas of conflict with current technology but it

allows members of the project team to consider any new training requirements for the operational team upon project completion. Ensuring these team members have the correct skills to create successful onward delivery after project completion will help ensure overall project success.

Data and modelling team

With new technological solutions comes a new wave of data sources so it is important to engage with the data and modelling team early. Many technological solutions installed for carbon and energy reduction now have either data movements within the solution itself or can provide data insights as part of output reporting. Although a relatively new concept to store and utilise these large data sets for better operational and management performance, it has become a quickly growing field in many organisations. Data connectivity, data labelling, data language and data visualisation are just some of the key items which need to be discussed with experts internally within the organisation. Getting these basics right at an early stage of the project can ensure a smooth transition after project completion.

Internal departments

When trying to install a new project it can be counterproductive if too many people are involved. Many organisations are large and have many department teams, some of which have no correlation to projects installed for carbon and energy reductions. Sending internal memos for each project can become a burden not only because of the additional administration but dealing with the opinions of those not involved can be labour intensive. But in many organisations, there are departments which would not naturally align with certain projects but can make significant contributions. There are great examples of teams external to

traditional project teams providing benefit such as bringing in space planners when undertaking projects which require building decant. But there are also departments which could play a smaller role. Communications teams for example may be able to develop succinct narrative for a complex project to allow dissemination of an idea to non-technical people or provide graphical expertise to develop visuals for those not familiar with particular spaces. Project planning teams which perhaps traditionally were only used on large scale projects could be brought in to assist with the development of timelines to keep projects on track. Soft FM teams can also play a key role in the adoption of new technological solutions as many projects can disturb internal and external spaces. Having members of the soft FM team as part of the project team ensures that they are aware of any additional workload which can be planned in advance to ensure that areas can be kept in working condition for the building users and eventually returned to a suitable state at project completion.

As we develop energy and carbon reduction projects both now, and in the future, the team we surround ourselves with will be one of the key factors in the ability of a project to succeed. For smaller projects we must walk a fine line between too many and not enough when it comes to the people involved in the project. It is not simply more is better as too many voices can lead to lengthy delays, can hamper innovation and can ultimately lead to a solution that becomes right for now and not right for the future. But it is important to ensure we have the right team skills to enable success and these skills may not be the ones that tradition dictates as we move forward. Each organisation is different and the best starting point is knowing the organisation and its people and then finding the solution that’s right for everyone.

by George Munson, Senior Project Manager and Chad Newton,
Senior Policy and Communications Officer at Leeds City Council



Leeds PIPES District Heating Network

Like most local authorities, Leeds City Council has declared a climate emergency in 2019 and committed to working towards becoming a carbon-neutral city. Key to this ambition will be the decarbonisation of heat, which in 2019 represented just under a quarter (23%) of UK carbon emissions. The council views its heat and energy related policies and projects as an opportunity to address its environmental challenges as well as supporting the one-in-six households in Leeds that were classed as living in fuel poverty in 2019. The Leeds PIPES district heating network is a great example of one of these projects.

Project background

The £49 million 'Leeds PIPES' network was imagined and developed with the aim of providing affordable, reliable, and low carbon heat and hot water to benefit both the council and commercial customers.

'Affordable' means that the network is designed to provide heat to connected commercial customers at competitive and attractive rates, whilst at the same time providing heat to connected social housing tenants at cheaper rates than alternative technologies, helping to alleviate fuel poverty. Being linked to an energy from waste facility means prices are less volatile than the global fossil fuel-based energy market.

'Reliable' means that the network provides a consistent service that customers can rely on, with multiple



layers of resilience designed in to ensure continuity of supply.

'Low carbon' means that heat from the network is significantly less carbon intensive than electricity from the grid or other traditional methods of heating building, namely gas or oil.

The scheme currently uses energy recovered from the city's non-recyclable household waste at the Leeds Recycling and Energy Recovery Facility (RERF). There are around 360,000 homes in the city and most of these have their waste collected by Leeds City Council and taken to the RERF. With the average household in Leeds producing enough waste each year to recover around 1.3 megawatt-hours of heat, the RERF has significant heat generation capacity. This potential use of the facility for heat supply was considered at the earliest stages of developing the site and informed the council's approach

to procuring a long-term operator.

Theoretically, once any network of insulated underground pipes is in place then it could be retrofitted so that any heat source—or combination of heat sources—could be used to power the network. Despite not technically being powered using a 'renewable' resource, the Leeds PIPES project helps cut the city's carbon footprint in multiple significant ways.

First, recovering energy from waste releases fewer (and less potent) greenhouse gas emissions than waste sent to landfill. Second, the energy that is recovered from waste can be converted into either electricity or (more efficiently) heat as a by-product which reduces the burning of fossil fuels. Typically, the RERF produces 5-7+ units of heat for each unit of electricity sacrificed, which is significantly better than any heat pump on the market. Third, heating

a building by connecting it to a district heating network typically replaces or makes redundant less sustainable heating methods such as gas combustion systems. The Leeds PIPES network supports the council's long-term ambition of the district becoming the first net zero major city in the country.

Stakeholder buy-in

When the council first began consulting prospective customers about connecting to the network, a clear message came back that customers would only seriously negotiate once construction had started, and ideally with the network already operational. However, without a firm idea of potential customers, the risks of beginning construction were high. In response to this concern the council took a calculated risk, underpinned by 'anchor' connections to its own social housing and public sector partners, to commence construction on the assumption that new customers would connect once district heating infrastructure was available.

This assumption is now being realised but is a real barrier to many large strategic networks ever commencing. It was made possible in Leeds in part due to successful engagement with regional, national, and European bodies to secure a combination of grants and use of our own low-interest borrowing capability. Leeds PIPES continues to expand and is regularly connecting to new buildings with the expectation of becoming one of the UK's largest heat networks in the near future.

Around 1,800 residential properties, 8 public buildings, and 2 commercial buildings are currently connected to the network. Several more customers (including the Ministry of Justice and

a second major connection to the Leeds Teaching Hospitals Trust) have recently announced plans to connect and discussions are progressing well with many potential customers.

Stakeholder engagement was also important for minimising disruption. The project team worked with highways officers to coordinate pipe-laying and planned roadworks to minimise the duration of road closures and their associated impacts. Similarly, as domestic connections involved work in people's homes, close liaison with council housing team helped reduce the number of



visits and therefore disruption for both tenants and installers.

Project execution

Leeds PIPES began construction in 2018 and was constructed in three phases, some of which were constructed in parallel. Phase 1 was completed during 2019, phase 2 in 2020, and construction on phase 3 has now commenced.

Phases 1 and 2 of the network were designed to facilitate connections for public sector organisations and council buildings. Once phase 3 is installed and operational, we expect new customers to primarily be new developments, with a mix of residential, student accommodation and non-domestic customers. Every

new connection helps to raise the profile of the network in the city, attracting potential customers and reaffirming the viability of district heating connections.

Resilience was considered at an early stage. A new energy centre was created to take low energy steam from the RERF and convert it into low-temperature hot water for the district heating network. A second energy centre at Saxton Gardens was created to meet peak demand and add resilience to the overall system using gas boilers, ensuring continuity of supply in all

circumstances. Our approach to resilience has meant that there has never been a loss of heat to customers at any point. Whenever the RERF has had outages, the back-up boilers at Saxton Gardens have automatically fired to ensure uninterrupted service is provided to customers.

The project has received funding from a number of regional, national and European sources:

- £5.8m from the European Regional Development Fund to help connect 1,080 council homes to the network.
- £5.5m from the Heat Network Investment Project, managed by the Department for Business, Energy and Industrial Strategy (two separate grants for phase 2 and 3).
- £4m from West Yorkshire Combined Authority and Leeds City Region Enterprise Partnership (LEP) through the Leeds City Region Growth Deal.
- £0.1m from the LEP Energy Accelerator programme, funded by the Leeds City Region Growth Deal and the European Investment Bank's European Local Energy Assistance (ELENA) programme.

The business case for the Leeds PIPES network was approved on the basis that the council would attract additional customers to the network once the infrastructure had been installed and the benefits of connecting had been demonstrated. The council will continue to add commercial connections to the network over the next phase of works.

Unlike privately owned networks, the council isn't driven to make a profit from the network, deliberately setting tariffs to be competitive with fossil fuelled alternatives to tackle fuel poverty and improve business competitiveness. Any surpluses generated are used to reduce debt, reinvest in expanding the network to serve even more of the city and, longer-term, to invest in additional low carbon heating sources.

Project evaluation

Leeds PIPES is now a well-established low carbon heat utility, with a rapidly growing customer base and several extensions under construction during 2022/23. It has collected four awards this year, demonstrating both innovation and a focus on meeting customers' needs. By replacing thousands of polluting, inefficient fossil fuel powered heating systems with a more sustainable alternative the network is helping to cut Leeds' carbon footprint and also improve local air quality. The network now stretches around 26 kilometres in length and work is currently underway to extend it another 2.5 kilometres to enable more buildings to connect.

Over the last financial year, more than 15,000 megawatt-hours of heating was provided by Leeds PIPES which helped reduce the city's carbon footprint by more than 2,000 tonnes. The more buildings that connect and take heat from the network, the greater the positive environmental impact and phase three of the main

spine extension is currently underway, increasing the connection capacity. It is estimated that the scheme has the capacity to save more than 16,000 tonnes of carbon from being emitted every year once fully built out.

Unlike the use of electric storage heating or heat pumps, buildings connecting to the network also help to reduce demand on the city's electricity grid, freeing up capacity as we transition to an increasingly electrified transport and heating system. Alongside environmental benefits, the network is currently providing around 1,800 homes with affordable warmth, supporting efforts to alleviate fuel poverty in some areas of the city experiencing high levels of deprivation.

The network's commercial customers are benefiting from competitive and predictable pricing of heat, supporting local economic growth. External factors, particularly the gas price volatility and institutional investors' focus on carbon, mean that Leeds PIPES now has an even more compelling commercial offer. Finally, the project has helped employ more than 430 people in the local low carbon sector including 36 apprentices.

Future plans

In addition to constructing the third phase of the network and connecting new customers, work is already underway to prepare the Leeds PIPES network for future policy and regulatory changes. The government has committed to introducing 'Heat Network Zoning' policies by 2025. These zones will operate by designating areas within cities where buildings (and potentially heat sources) are mandated to connect to networks, unless exempt, enabling the expansion of networks where they are recognised to be the lowest cost way of decarbonising heat.

It is expected that local authorities will

have responsibility for coordinating Heat Network Zones and determining how they will operate. Leeds is well placed for the policy's introduction after voluntarily participating in two government sponsored pilots. The council expects the introduction of zoning to increase heat network take up exponentially by removing the biggest barrier to initial establishment and strategic growth: uncertainty. The government has also announced that Ofgem will become a future regulator of heat networks with responsibilities including setting and enforcing regulatory requirements relating to the provision of information, pricing, technical standards, and quality of service standards to protect domestic and microbusiness consumers.

Heat networks are currently unregulated, with voluntary codes of practice and standards used by the better networks, but no obligation to use these for privately funded networks. As a result, there is significant variation in the customer service standards provided to customers and in the cost of heat. This variation is detrimental to public and stakeholder trust in district heating which inhibits growth, so the council is supportive of regulation.

Although the full details of the regulation are yet to be announced, it is widely anticipated that the good practice required by BEIS district heating grant funds will be used as the basis of the quality standards. Leeds PIPES has been built in compliance with the Chartered Institution of Building Services Engineers (CIBSE) Code of Practice (a technical standard), has recently adopted the Heat Networks Investment Project (HNIP) developed legal documents, and has been developed to meet the requirements of the Heat Trust (a customer service standard). The network is in the process of formally joining the Heat Trust to improve its readiness for the incoming regulation even further.

Increasing Business Energy Cost?

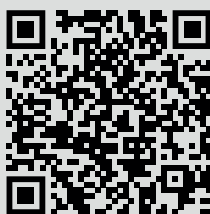
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Queens Quay District Heating Project

West Dunbartonshire Council (WDC) have an ambition to shape the future, with three core objectives. Firstly, they want to lower energy bills for domestic and non-domestic buildings, including reducing heating fuel costs for existing and new residents – contributing towards the alleviation of Fuel Poverty. Secondly, they want to reduce carbon emissions using innovative technologies and finally to increase the security of energy supply.

A major step forward in these ambitions is the introduction of the Queens Quay District Heating project. Queens Quay is an area in the town of Clydebank. Historically used as a ship building location, the ground has lain derelict since the closure of John Browns ship yard during the 1970s. The redevelopment of the entire site features a ground-breaking project of Scotland's largest Water Source Heat Pump (WSHP) installation to date, taking water from the nearby River Clyde at between 6 and 12 degrees centigrade and using it to generate heat which is distributed to customers through an underground district heating pipe network. To oversee the strategic development of the district heating network the Council established a wholly public owned energy company, West Dunbartonshire Energy LLP.

Project background

The ambitious £20million project, was supported with £6.1m funding from the Low Carbon Infrastructure Transition Programme (LCITP)

and was completed in December 2020. The main heat supply pipes have been laid across the entire length of the Queens Quay site and have been designed with future extension in mind. The initial phase provides heat to Council offices at Aurora House, the Titan Enterprise Centre, Clydebank Leisure Centre and the new care home at the site, Queens Quay House. Points of connection for additional phases are also in place ready to supply a new NHS Health Centre, over 140 flats with ancillary retail units, as well as Clydebank Library and Clydebank Town Hall. Future connection of West College Clydebank campus and other commercial uses to be delivered are under active consideration.

The introduction of the network makes a major contribution towards West Dunbartonshire Council's climate change targets of net zero by 2045. Residents of more than 1,000 proposed new homes due to be built on the site will be able to enjoy reliable low carbon heating as the district heat network provides an alternative to individual gas boilers at a similar or lower cost. The low carbon system has also been designed to enable future expansion beyond Queens Quay, with scope to heat the Golden Jubilee Hospital some two miles away. Savings are already predicted to be the equivalent to the total carbon footprint of 1,240 local homes using fossil fuels as a primary source of domestic heating. In addition to these savings it has the added benefit of providing clean, inexpensive energy to

residents as well as providing a comfortable place to live and enhancing the health and wellbeing of the local residents. Based on heating demand estimates and with a focus on encouraging expansion within the network, it could be able to deliver a cumulative reduction of at least 130,000 tonnes of CO₂ by 2040.

Project execution

To design the system there had to be a mixture of actual data and modelled data as much of the site was either yet to be finished or still to have plans approved. Historical heating data was reviewed to provide WDC with accurate profiles for the new build and in-design sections of the land development. For the existing buildings, gas consumption data was utilised and modelled for future energy needs. The analysis showed that while peak demand would reach approximately 20 Megawatt Thermal (MWth), this load would typically only be required for 25 hours per year. This analysis provided a clear picture of current and future heat requirements and therefore ensured the right decisions were made in relation to the size of the heat pumps. It was however clear that a large amount of preliminary work would be required for the existing building stock if this was to work efficiently with a new heating source. The older buildings on the proposed network were designed for historic heating systems favouring a higher 82°C flow and 71°C degree return, which differ from the new builds, typically based around a 75°C flow and 45°C

return or in some cases lower. To allow the older buildings to operate with lower flow and return temperatures provided by a WSPH, WDC carried out a retrofit of the heating systems by modifying the heating controls and radiators. This enabled a site-wide uniform flow and return temperature, giving the heat pumps a higher coefficient of performance and making the overall system more efficient. Over time with fabric improvements, it may be possible to achieve improved network efficiency by further reducing flow and return water temperatures.

With this work completed, the system could be designed as two 2.65 Megawatt (MW) WSHPs which are intended to run as close to maximum output as possible to optimise efficiency, while in turn delivering most of the annual heat demand. This configuration means that in the summer months, when demand is low, one heat pump can be taken offline at any given time to perform scheduled maintenance, with the other still providing heat. The scheme also has added resilience of two gas boilers installed within the energy centre which, when used, can deliver an additional 15 Megawatt (MW) to meet peak demand. These boilers are only expected to be used during peak demand times or as a backup option. The heat pump process uses ammonia as a refrigerant, therefore an emergency ventilation scheme had to be developed to ensure it met relevant legislation as well as safeguarding anyone in the energy centre or further afield. An internal enclosure which also provides acoustic attenuation was installed to house the heat pumps and associated plant. This is vented via the 30m flue together with flues for the gas boilers. The chimney design was informed by a flue



dispersion model which considered the future surrounding residential developments.

WSHPs rely on electricity but have a high coefficient of performance. This means for every MW of electricity used, the heat pumps produce approximately 3MW of heat. One of the biggest challenges faced during the development of the project was designing a system which would maximise the use of the WSHPs and use off-peak decarbonised grid electricity as a primary energy source to ensure maximum carbon emissions reductions. This was made possible in part by utilising a 120,000 litre thermal store which allows the system to optimise off-peak energy supplies and the relatively slow heat pump reaction times to deliver a constant supply of heat to meet fluctuations in demand.

Project evaluation

While the system is already effective at reducing carbon emissions, it will become even more environmentally friendly as the electricity grid continues to decarbonise in the future. Because of the increase of renewable electricity generation contributing to the grid, it is expected that the grid carbon factor should decrease by over 87% between the years 2018 and 2044, with the heat pumps carbon emissions decreasing by a similar

amount over that period.

WDC made a firm commitment that the system would not damage the river's ecology, and a comprehensive study was undertaken to ensure consideration of key factors including water temperature, wildlife, eco structure and average flow rate. As well as preserving the river's ecology, the average flow rate was important in determining the distance between where water is taken from for the WSHP supply and where the water is returned, the WSHP return. This was to ensure the system did not collect cooler water which had already been through the system. The abstraction system feeds the heat pumps with 125 litres of water per second each and so ensuring that accuracy of design calculations and providing an effective filtration system were extremely important.

Future plans

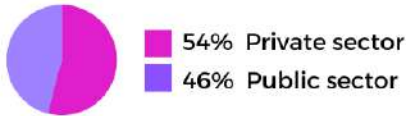
The Energy Centre is designed to include future phases and planned expansion, creating an easily expandable district heating network. Extra capacity has been catered for with space inside for a third and fourth heat pump, and an additional thermal store, to be installed as required. To achieve net zero aspirations, the natural gas boilers will be replaced in due course with suitable low-carbon alternatives.



Introduction

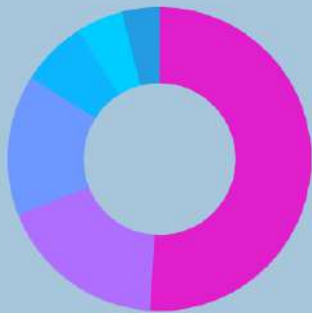
The EMA sounded out its membership on the impact of the current energy crisis on energy management and sustainability teams, projects and challenges for 2023. Here are the survey results.

RESPONDENTS



- 39% In-house energy managers
- 36% In-house facilities/sustainability managers
- 22% Energy service providers
- 3% Other

ENERGY CRISIS EFFECT ON:

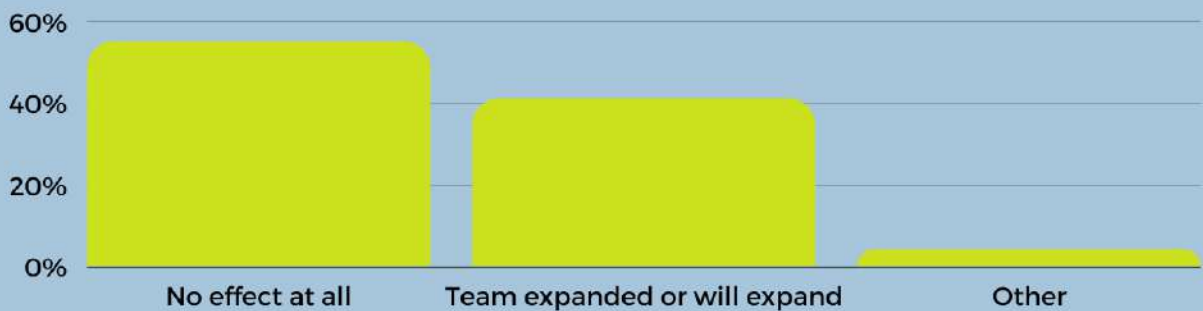


• ORGANISATIONS' ANNUAL ENERGY SPEND

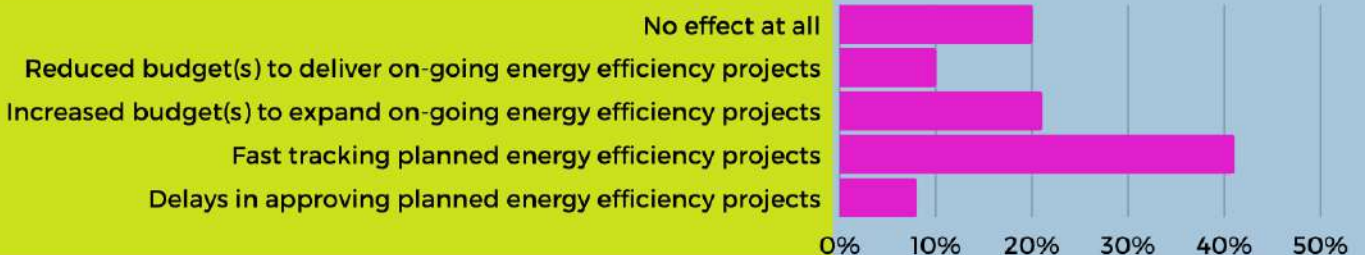
- 51% Increased significantly
- 18% Increased somewhat
- 15% Remains the same (increase in 6+ months)
- 7% Remains the same (increase in next 6 months)
- 5% Decreased significantly
- 4% Other



• THE SIZE OF ENERGY MANAGEMENT OR SUSTAINABILITY TEAMS

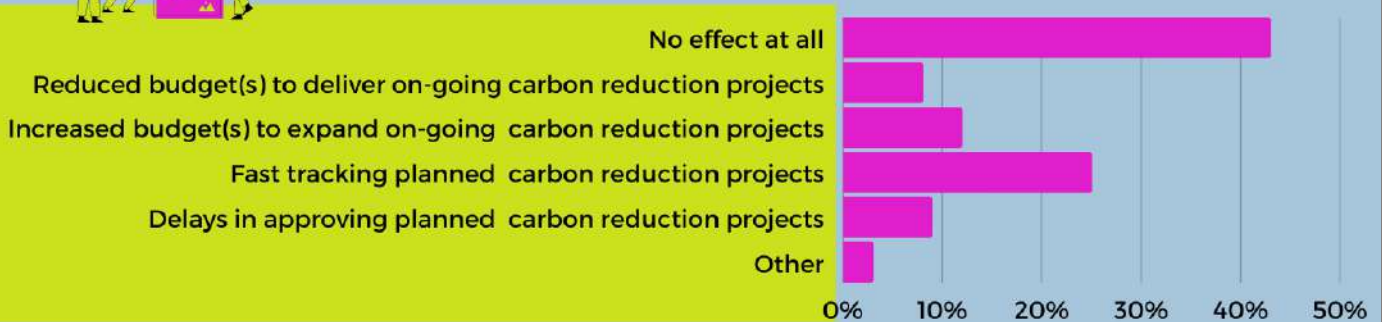


• ON-GOING OR PLANNED ENERGY EFFICIENCY PROJECTS

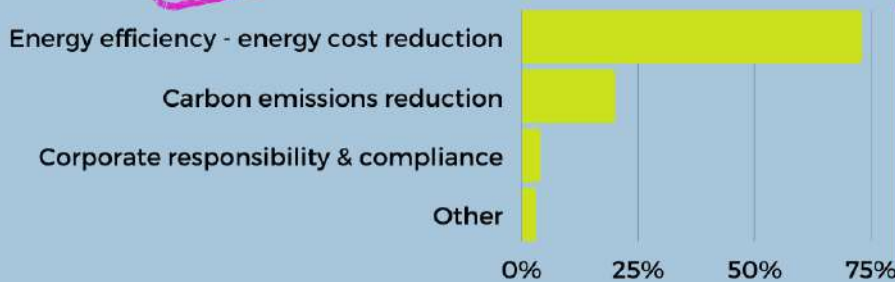




• ON-GOING OR PLANNED CARBON REDUCTION PROJECTS



• CURRENT DRIVERS FOR PROJECT APPROVAL

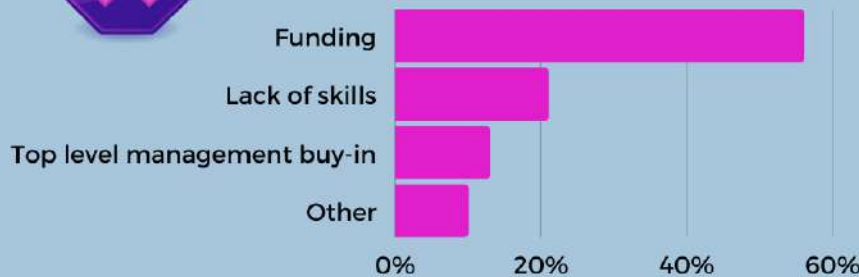


HAS THE DRIVER CHANGED RECENTLY?

- 48% Yes, due to the energy crisis
- 45% No
- 4% Other
- 3% Yes, but for other reasons



• CURRENT BARRIERS FOR PROJECT APPROVAL

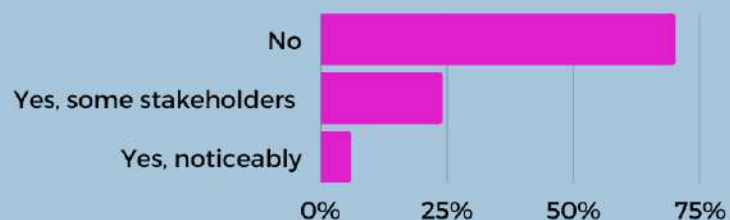


HAS THE BARRIER CHANGED RECENTLY?

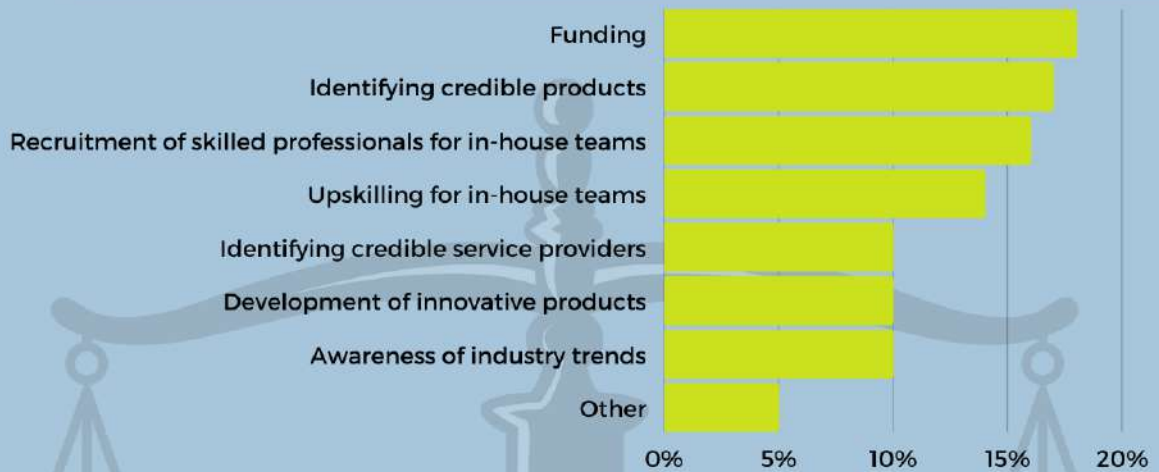
- 20% Yes, due to the energy crisis
- 65% No
- 2% Other
- 13% Yes, but for other reasons



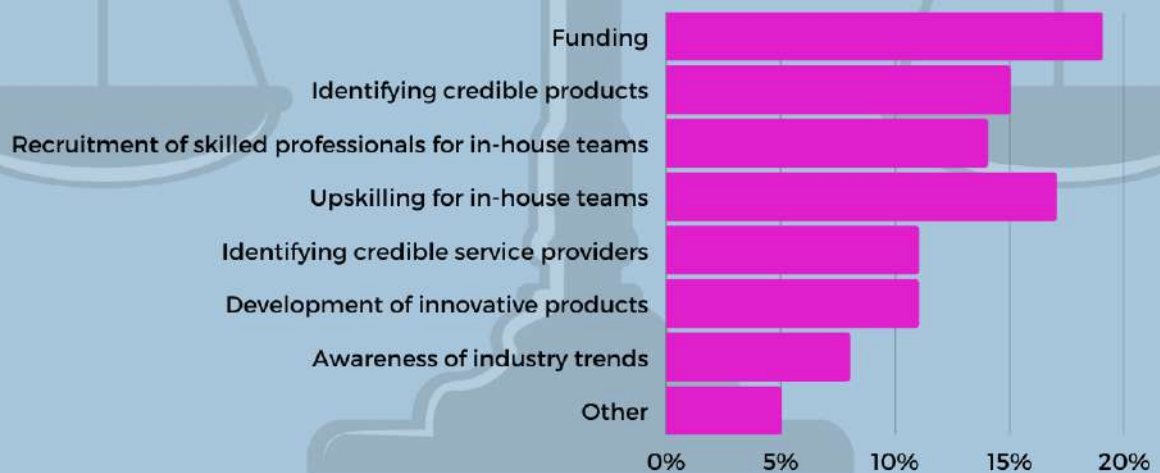
• A LOSS OF INTEREST IN THE CLIMATE CHANGE TOPIC




WHAT AREAS OF DEVELOPMENT ARE NEEDED TO MEET NET ZERO TARGETS AT YOUR ORGANISATION?



WHAT AREAS OF DEVELOPMENT ARE NEEDED TO MEET ENERGY EFFICIENCY TARGETS AT YOUR ORGANISATION?



2023 CHALLENGES



Lack of urgency on carbon reduction and buy in from senior leaders.

DNO delays and limitations associated with grid connection of renewable energy systems, we are already encountering widespread export limitation challenges for solar PV which is expected to worsen in 2023.

Having sufficient funding and personnel to implement required energy efficiency and carbon reduction.

Access to resources (human and equipment) capable of implementing energy efficiency and renewable energy projects already identified, approved and "shovel ready".

Mis-selling of products and services that distract from real decarbonisation works and energy efficiency measures.

Obtaining funding - after this final window of BEIS IETF funding, there are not many schemes open to industry for energy efficiency projects. Many sites have projects they would like to implement but lack the finances and in-house resources to install the new equipment.

Tackling energy prices - despite government intervention, prices are still very high and will continue to rise after the 6-month intervention period is over. This is likely to cause many businesses to struggle and increase the difficulty in funding energy efficiency projects.

Increased amount of scam products and services, as the market is seen as an easy target.

Lead time and supply chain. There are significant labour and parts shortages which is hindering our ability to roll out energy efficiency measures quickly.

Diffusion of attention across multiple problems. In the NHS, we have multiple operational difficulties (overwhelming demand, staff burnout, filling vacancies, aged estate etc.) as well as the NHS climate targets and financial risks around energy consumption and procurement. This will make it difficult to focus efforts on anyone for the lengthy period required to get projects completed.

As a business we are largely dependent on interaction with local authorities to provide funding support for implementing energy projects. Cost pressures in the public sector may mean that this support is limited or harder to come by.

Targeting areas and processes to reduce consumption.

Prioritisation of funding between energy efficiency projects and carbon emission projects.

Fuel cost impinging on senior management perception of achievability of stated targets.

Keeping carbon a priority alongside energy efficiency - climate change is still perceived as a long term issue and so has quickly dropped down priorities with the current financial pressure of inflation.

Lack of knowledge & skills.

Uncertainty regarding Government legislation and the UK's pathway to net zero.

Controlling cost, lead time and supply chain.

Balancing cost against carbon and speed of delivery.

Funding, financial cuts in public sector and competing with other priorities.

Increasing demands for Scope 3 emissions data will mean challenges on supply chain.

Measuring Scope 3 emissions.

Getting projects through quickly with others competing for consultants / contractors / equipment.

Staff shortages - problems recruiting skilled staff.

Short term cost cutting - reducing maintenance, buying cheaper is already part of conversations due to financial pressures despite the long term cost increases/sustainability compromises that these are likely to introduce.

Identify best technology moving forward.

Lack of internal resources to manage project delivery.

ESOS will mean resource constraints in consultancy pool.

Energy procurement - how to buy energy in a broken market where there is no expectation of certainty and no apparent good option.



EMA ENERGY MARKET REPORT

SUBSCRIPTIONS AVAILABLE:

3 MONTHS

6 MONTHS

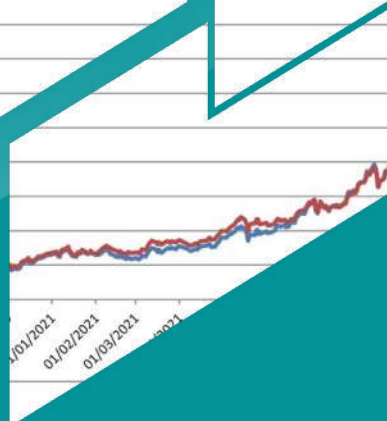
12 MONTHS

Forward annual gas and electricity prices

	This week's price	Last week's price	Change
Gas (£/MWh)	141.5	140.6	+0.9
Electricity (£/MWh)	105.1	104.4	+0.7
Gas (£/therm)	105.0	104.3	+0.7
Electricity (£/MWh)	77.4	77.4	0.0
Gas (£/therm)	75.7	74.8	+0.9

Latest energy wholesale prices

— Gas wholesale price — Electricity wholesale price



Email: ema.team@theema.org.uk

Website: www.theema.org.uk/energy-market-report/

The EMA Energy Management Awards give prominence to those leading the energy management industry and inspire other professionals to follow in the same footsteps.

ema ENERGY MANAGEMENT AWARDS 2022



We are pleased to introduce our 2022 winners:

ENERGY MANAGER 2022 - PRIVATE SECTOR

Christopher Jones - Head of Energy and Sustainability - APH Limited

Christopher started his career within the Royal Airforce where he trained and worked for 9 years as an Aerospace Engineer. He additionally decided to train as a domestic Electrician, pipefitter and A/C Engineer, which meant when leaving the Airforce, he was able to move to Johnson Controls and work as a Building Services Engineer. Over the next 8 years, Christopher worked his way up to Supervisor and eventually FM & Ops Manager, running a team of Engineers across multiple sites ranging from retail, offices, research laboratories and schools which started his energy management journey through identifying and implementing energy initiatives. After this, Christopher worked at Selfridges for 5 years as an Engineering Project Manager and then at APH Holdings as an Energy Manager. At Selfridges, his role involved identifying key energy initiatives on all construction projects, influencing the procurement of green electricity and gas and strategising the organisation's 10-year Carbon Reduction Road Map. At APH Holdings, his role involved procuring a renewable energy contract whilst working closely with OPS and FM teams to drive down existing utilities consumption and improve overall visibility and monitoring. Most recently, Christopher moved to Vita Group as their Energy and Sustainability Manager to support them on their future sustainability journey.

ENERGY MANAGER 2022 - PUBLIC SECTOR

Matthew Gitsham - Carbon and Energy Manager - North Bristol NHS Trust

Matthew graduated from Bristol University in 2008 with a first-class honours degree and started work at Arup as a Mechanical Building Services consultant. There he learnt how to design heating, hot water, ventilation and cooling systems for new and refurbished buildings. During his time with the business, he gained chartership through IMechE and was promoted to Senior Engineer with responsibility for the delivery of the mechanical designs for multi-million pound projects. Between 2014 and 2020, Matthew worked at Sustain (later Anthesis) and AECOM to follow his passion for low carbon building design and retrofit. Matthew worked on many heating upgrade projects, on site rectification of issues for recently constructed buildings and continued his development as a net zero carbon engineer, taking buildings on a journey to zero carbon. In his current role, Matthew is tasked with creating and delivering a road map to move North Bristol NHS Trust to zero carbon by 2030. His focus is on buildings, developing opportunities to remove fossil fuels, become more energy efficient and install renewable technologies.

[VIEW OUR WINNERS ONLINE HERE](#)

CONGRATULATIONS TO ALL OUR 2022 WINNERS AND HIGHLY COMMENDED.



SUSTAINABILITY MANAGER 2022

Emma Johnson – Senior Sustainability Delivery Manager - Lloyds Banking Group

Following completion of the Lloyds Banking Group (LBG) graduate scheme in 2016, Emma has held a variety of operational, support function, strategy, and delivery roles within the organisation. Emma currently works as a Sustainability Programme Manager in the Future Workplace team within the People and Places function. She is responsible for overseeing and delivering several projects aimed at reducing the environmental impact of the organisation, particularly in terms of carbon, energy, travel, water and waste. She also manages the finances and reporting of the investment programme, coordinating with other initiatives, and ensuring all decisions are data-driven. Emma relishes learning and has recently completed a Postgraduate Certificate in Sustainable Business at the University of Cambridge Institute for Sustainability Leadership (CISL). This course provided an excellent academic grounding for embedding sustainability within the context of an organisation, and she is enjoying putting the teachings into practice at LBG. Prior to this, Emma studied BA (Hons) and MA History at the University of Exeter, and a Chartered Banker Diploma with the Chartered Banker Institute.

UTILITIES MANAGER 2022

Colin Farrell - Global Procurement Specialist - Trelleborg Sealing Solutions

Colin has been working as a Global Sourcing Specialist for Trelleborg Sealing Solutions since 2015. Working within a large, corporate, decentralised business has been challenging at times, and changing people's perspective of category procurement thinking was key to success. In 2018, Colin was appointed UK Indirect Country Coordinator with the main focus to change the UK energy path to support all key Trelleborg sites within the UK by gaining understanding of the restraints and ensure readiness and ability to react to changes in energy markets and government legislation. Through determination and knowledge Colin was able to achieve the great position the key manufacturing sites are in today, by listening to stakeholders, attending energy webinars, and with the support of Trelleborg's partners it was possible to make influential and informed decisions for Trelleborg Holdings UK Ltd. Trelleborg UK have mitigated increased energy costs with the strategies and initiatives implemented and these are now being rolled out to the company's global sites. Reducing costs, CO2 and creating energy initiatives have put the organisation in a good position for the future, with the real possibility to achieve zero emissions in the next five years on their energy procurement within the UK.

YOUNG ENERGY MANAGEMENT PROFESSIONAL 2022

Hannah Litchfield - Energy Manager - Somerset NHS Foundation Trust

Since 2020 Hannah has taken on a significant responsibility of managing energy at a large NHS Trust and made a measurable impact as a driven self-learner who does not shy away from challenging operational changes and doubling workload. As an effective and informed professional, Hannah has not only contributed to embedding energy management practices across the organisation but she is also actively engaged in the delivery of important projects that will be delivering a positive change in the future. Hannah was sponsored by the Royal Navy to study Mechanical Engineering at University College London, achieving her MEng. She then joined the Navy in 2013 and was streamed into the submarine service as an Engineering Officer. In 2019, Hannah decided on a career change and studied for an Open University Module in Communication Skills for Business and Management to help prepare for civilian work environments and started her role at the Trust shortly after.

ENERGY MANAGEMENT TEAM 2022 - PRIVATE SECTOR

The Energy Management Team - Electricity North West Limited

Property Manager – Matthew Tregilgas | Net Zero Carbon Manager – Daniel Shanley | Energy Manager – Nicola Davies

The Energy Management Team are responsible for managing all Electricity North West's direct consumption of energy and water, including procurement and ISO50001 certification, and depot EV charging infrastructure. The team manage over 500 building assets, including substations, depots, data centres and telecom sites, achieving significant reductions over the previous years. The team ensure that decarbonisation is at the forefront of operations, through key collaboration with net zero carbon champions on each site, project teams for capital programme development and facilities management teams for asset maintenance. The team has managed a number of transformational decarbonisation projects, most notably at their Training Academy, where the energy hierarchy is prioritised to minimise consumption through improved monitoring, management, technological innovation and solar generation. The site will achieve net zero carbon status next year. As a distribution network operator for the North-West, the team have a significant role to play to support the UK's low carbon transition targets by supporting our colleagues and customers, ensuring they have the necessary framework and information to minimise their carbon impact. Electricity North West aim to become a leader in the reduction of carbon emissions and achieve net zero carbon by 2038.

ENERGY MANAGEMENT TEAM 2022 - PUBLIC SECTOR

The Energy Management Services Team - Coventry City Council

Coventry City Council's Energy Management Services team consists of Utility Specialists, Energy Advisors, Sustainability Consultants and Project Delivery Staff who deliver work across all energy related activities for both internal council services as well as schools and other 3rd party organisations. The team has recently expanded to offer 2 apprentice positions and an employee development placement position to help build on the existing capacity and prepare the Local Authority for tackling the actions needed to transition the city to Net Zero. The Energy Management Services team delivers energy related activity including Utility Management, Energy Compliance, Carbon Auditing and Reporting and Energy Project Development and Delivery for a growing client list. In addition, the team is a central resource that supports wider Council services with Climate Change and other Green Futures related strategies and provides energy expertise where required for strategic projects in the region. The small team has shown exceptional results in a very difficult year and delivered positive impacts well exceeding expectations. The team's performance has seen increasing demand for their services both within the council and other 3rd party organisations in the region.

EMA MEMBER 2022

Mark Taylor - Director - Taylor Made Energy Solutions

Mark is a qualified controls specialist and has spent 20 years working within energy management. He was previously the energy manager for Welsh Water and United Utilities, responsible for all aspects of energy procurement, metering, energy efficiency and renewable generation on over 3,500 sites. He has run his own consultancy for the last 9 years working for both public and private companies and across a range of sectors, offering procurement advice, sustainably reducing energy consumption and identifying and delivering renewable generation opportunities. Mark is also a specialist in the optimisation of BMS. Mark is a Fellow of the EMA, a qualified ESOS lead assessor and a non-domestic energy assessor. Mark teaches a number of courses for the EMA including Energy Procurement, HVAC optimisation, Water Management, Generation, Lighting and Battery Storage.

CONGRATULATIONS TO ALL OUR 2022 WINNERS AND HIGHLY COMMENDED.



NET ZERO STRATEGY 2022

South Western Railway - Journey to a net zero future: our 2040 plan

South Western Railway (SWR) is leading the way as the first train operating company to set out a robust, transparent and cost-effective roadmap to net zero, supported by the Department for Transport (DfT). SWR committed to reach net zero carbon emissions by 2040 at the latest, 10 years ahead of the UK national target. The roadmap has incorporated the latest science-based targets in line with the Paris Agreement to limit global warming to 1.5 degrees. SWR's route to net zero will be underpinned by five key principles:

- Scientifically grounded: emission reduction targets have been calculated in accordance with globally accepted scientific standards
- Value for money: a rigorous cost-benefit analysis will be central to the decision-making process when selecting interventions
- Targeting 'quick wins' first: swift and decisive action will be taken to decarbonise where there is the most control and influence
- Remaining dynamic: the roadmap remains flexible and ready to respond to changes in the wider industry and economy
- Collaboration: working closely with the supply chain and key stakeholders in the industry, including Network Rail and the DfT

ENERGY MANAGEMENT CONSULTANCY PARTNERSHIP 2022

Coopertec - Haven Holidays

Haven Holidays operate 38 large holiday parks around the coast of the UK, employing 8,000 team members and operating around 38,000 caravans and holiday homes.

Coopertec are an energy and sustainability consultancy business with speciality in Refrigeration, Heat Pumps and BMS. Their service offer includes ESOS, SECR and supporting businesses in their transition to ISO50001 (Energy Management Systems).

In 2022, Coopertec Systems Ltd supported Haven Holidays with developing a strategic carbon reduction plan which addresses the key corporate target of a 10,000 tCO₂e pa (15%) reduction by 2024. Strong results from projects in the trial phase allowed the Haven business to move forward confidently with their strategic investment plan. The plan included:

- Solar PV rollout across the nation, initially focusing on rooftop, but also then considering ground mount and carports.
- Extensive rollout of Refrigeration upgrades.
- Comprehensive rollout of BMS to all parks.

We believe that the infrastructure and processes the partnership is putting in place as part of the 2023 investment will be industry leading in the leisure sector.

DECARBONISATION PROJECT 2022

University Hospitals Bristol and Weston NHS Foundation Trust - Heat Decarbonisation Project

**VIEW OUR HIGHLY COMMENDED
ONLINE HERE**





EV charging infrastructure and operation – a destination perspective from The Eden Project

Background to Eden

Located in the far South West of England, The Eden Project in Cornwall is an iconic example of regeneration and nature recovery, which aims to build relationships between people and planet to demonstrate the power of working together for the benefit of all living things. Now more than 21 years old, the popular attraction is a living theatre of plants and people that welcomes almost 1m visitors a year to explore its mission through education, plants and nature, arts and culture, regenerative sustainability and communities.

Having generated £2.2 billion in economic impact, the organisation is now using its success to expand its mission to new audiences with further sites planned both in the UK and abroad.

Eden Project Cornwall

Being home to more than 300 full-time employees, our demonstrator site is proof that positive transformation is possible and that by working with nature, rather than against it, we can achieve great

things. The site recovers two-thirds of its water demand for irrigation and toilet flushing from ground and rainwater sources, and is in the middle of delivering a ground-breaking deep geothermal energy plant that will provide a plentiful source of on-site renewable heat to be delivered directly to its Rainforest and Mediterranean Biomes.

The site's energy demand is managed with a highly specialised Building Management System and the organisation promotes a culture of energy and sustainability awareness through its teams and working practices.

Our commitment to being Climate Positive by 2030

Following 10 consecutive years of certification with Planet Mark and achieving consistent reductions in operational carbon, in 2021 we reaffirmed our response to planetary emergency by setting the ambitious commitment of becoming a climate positive organisation by 2030 as part of the United Nations Race to Zero

campaign. The level of our ambition in our pathway seeks to not only rapidly reduce all emissions across scopes 1, 2 and 3 but crucially, go beyond net zero to a point where we store away more carbon than we emit.

Our approach is centred around nature recovery – we see the biodiversity and climate crises as being part of the same wider problem rather than separate issues. Ultimately our approach to going beyond net zero seeks to demonstrate the possible to our audiences and inspire them to make changes in their own lives.

The challenge and opportunity

Having calculated our extended scope 3 emissions footprint through a detailed study with Planet Mark (these account for 75 per cent of total emissions), it was clear that tackling emissions from visitor travel would be a key area of focus in delivering our decarbonisation pathway. Despite being served by a regular bus route with onwards connections to St Austell railway station, the rural location of our site

makes for challenging use of public transport (which was especially highlighted during the coronavirus pandemic) and means 95 per cent of our visitors arrive by private car. Despite these challenges, the scale of the opportunity to develop our site into a regional sustainable transport hub that supports rapidly increased demand for electric vehicles (EV) and public transport is significant.

The benefits and case for electrification

To seize the opportunity, we rapidly needed to increase our on-site capacity for EV charging and upgrade the electrical infrastructure needed to support a new EV charging service. As a destination location, our use case for EV charging is somewhat atypical compared with a convenience location and needed to satisfy a number of different users. As well as improved charging facilities for visitors, creating an incentive for greater take up of staff personal vehicles (we offer a salary sacrifice scheme via Octopus EV) was important. Whilst expensive, investing in our site’s electrical infrastructure would also create opportunities for additional revenue streams as well as facilitate future connections to energy generation sources (such as solar canopies) and battery storage. Finally, introducing better

charging facilities for our fleet of electric vehicles would also support improved logistics across site with a lower environmental impact from operations.

Transforming our infrastructure

Arguably the largest hurdle to delivering the EV charging hub was completing the required infrastructure upgrades. An in-depth electrical study concluded that to meet future demands for electrification of transport and heat as part of the site masterplan, an increase in grid capacity of 2 Megavolt-amperes (MVA) could be needed within five years’ time.

Following an initial request for an additional grid connection with Western Power Distribution, it quickly became apparent that relying on further reinforced grid import connections would quickly become insufficient. In fact, by engaging with the distribution network operator (DNO) early on, we were able to settle on a suitable network design quickly which, rather than relying on an external grid connection, would be predicated on developing our own private high voltage (HV) network in order to support our goal of achieving energy autonomy in the future. Delivering the EV hub was therefore phase one of expanding our private HV network, with the intention that it would incorporate

further strategic power hubs over time as demand requires.

Following an eight-week design and due diligence exercise, we completed the installation of a new 1 MVA substation within 12 weeks which now provides power to 10 x 22kw dual alternating current (AC) dwell time appropriate chargers spread across 20 dedicated, well-spaced EV charging bays.

Market evaluation – choosing the right commercial approach

From our market evaluation, it quickly became clear that there was no ‘one size fits all’ approach when contracting for an EV charging service. In fact, the reality emerged to be far from it! In a rapidly expanding market with regular new entrants, for us, it came down to a trade-off between being able to retain operational control of our hub versus the level of capital investment we could stretch to. The three options we considered were broadly as described in the table below. In the end, we settled on option 3 – a hybrid option that allowed us to contract for a fully subcontracted operational and maintenance service but still retain control of rights and revenue for the hub. It also didn’t require us to resource operations and maintenance support ourselves – we had to be realistic about our level of expertise in the EV market!

	1 Self-finance, own & operate	2 Outsource and lease to CPO	3 Hybrid model (EV charging as a service)
Pros	Retain full control and rights	Minimal capital outlay	Minimal capital outlay
	No requirement to lease	Outsourced O&M to experts	Control over appointed CPO
	No financial liabilities		Retain revenue and rights
Cons	Capital outlay	Loss of operational control	Ongoing repayments
	Responsibility for O&M	Potential loss of revenue	Ongoing service fees
		Lengthy lease term	

Table: Choosing the right commercial approach options

Although the EV as a service model results in ongoing service and maintenance fees, these are largely offset by the revenue generated from the charging tariff payments. Crucially, our chosen approach keeps our options open for future service development in what is a rapidly evolving market.

EV charging hub in numbers

The EV hub went live in early August 2022, just in time for peak season, and was immediately welcomed by our visitors, delivering 26 charging sessions on the first day and receiving positive feedback on Zap Map since. Our highlights from August and September 2022 data include:

- Charging sessions delivered – 652
- Energy delivered – 15,704 kWh
- Avg. charge time – 3.5 hours
- Avg. energy per charge – 25 kWh
- Emissions avoided 1.3 t/CO₂e

Key considerations – lessons learned so far

We are still learning as we go, refining and evolving our EV service as required, but some of the key lessons we have learnt so far are as follows:

- **Signage and pre-visitor comms** – keep it simple and clear – we want our visitors to enjoy a stress-free stay with us.
- **Etiquette and overstay policies** – think carefully about the behaviours you want to encourage and be prepared to adapt and change your approach when needed.
- **Consider user policies for staff** – we implemented a short policy to ensure fair and responsible use of charging facilities for all staff and fleet users, again making the sort of behaviour we want to encourage clear from the start.
- **Keep improving user**



experience – we are still listening, reviewing and adapting!

• Technical design

– don't underestimate the practical considerations – an EV hub without sufficient spacing between bays is unlikely to meet accessibility requirements and might not be suitable from a fire and health and safety perspective.

Future plans – what's next?

The first phase of our electrical infrastructure expansion has successfully enabled demand for EV charging to be met and provided the platform for future growth as demand builds over time, as we anticipate it will. We are fine-tuning our user experience as much as possible and keeping a close eye on emerging EV usage trends with a view to being able to capitalise on these within our service offering.

We realise it won't be long before demand for charging outstrips our current capacity and by future-proofing the design of our electrical infrastructure, it may be that we can soon provide a rapid, convenience-style charging solution support with direct current (DC) chargers for both

our visitors and regional transport providers alike.

Author's profile:

Charles Sainsbury is Energy and Sustainability Manager for The Eden Project, responsible for delivering its regenerative sustainability approach both at Eden Project Cornwall and in the design and construction of future Eden Projects. Charles is an Energy Savings Opportunity Scheme (ESOS) lead assessor, accredited with the Energy Managers Association (EMA).





Net Zero & Energy Management

In recent years, the term Net Zero has become somewhat of a buzz word in energy and wider business management, without individuals using the term, fully understanding (or sometimes ignoring) that Net Zero means to reduce all emissions in scope 1 (direct emissions), scope 2 (indirect emissions) and scope 3 (upstream and downstream emissions) to zero; in its purest way, it's excluding offsets.

The latter is a massive challenge for any organisation to achieve by 2050 to meet the UK Government targets, let alone by 2030, as some large organisations have committed themselves to. Therefore, it's likely that the scrutiny on organisations that have published these bold ambitions is going to increase and some large multi-nationals have already been criticised for their published Net Zero plans not being credible and, in most cases, relying too much on unspecified offsets to reach Net Zero.

I'm a firm believer that a credible Net Zero plan is the foundation to the success of any energy management professional in an organisation to deliver strong business cases for energy efficiency reduction measures, investment in renewable energy generation and other energy management activities (e.g., procurement, behavioural change, etc).

A credible Net Zero plan provides clear purpose to the proposed energy management interventions and in return, the delivered energy savings associated with these interventions, provide a clear demonstration of the organisation's ability (i.e., its competency to deliver) and its dependability to deliver on its

Net Zero commitments. The latter combined with being transparent as an organisation, is key to earn the trust of key stakeholders, like investors, regulators, government and the wider community.

Current best practice shows that a credible Net Zero plan of an organisation should be publicly available and contain the following key components:

- **Purpose: Setting specific and substantiated targets**

An organisation should explicitly state whether its publicly stated target covers all three reporting scopes and provide interim targets that support the longer-term vision. These interim targets should have the appropriate level of depth and scope, supported by clear timescales that require immediate actions. These interim targets shouldn't be longer than 5 years from the time of publication and clearly state whether meeting the targets are dependent on offsets.

- **Dependability: Tracking and full disclosure of the organisation's emissions**

An organisation should annually disclose their emissions and progress towards their targets, broken down in the different reporting scopes and clearly outlining whether it uses location based and/or market based accounting methodology to report its emissions (preferably an organisation does both).

- **Ability: Demonstrating the reduction of emission measures**

To demonstrate the organisation's ability to deliver its targets, it should provide details of the measures they are taking to reduce its carbon

footprint and how it's following the carbon mitigation hierarchy to ensure that energy consumption is firstly avoided and reduced, before it's substituted (e.g., by renewables) or even offsets.

- **Transparency: Reporting on other relevant climate contributions and offsets**

Lastly, an organisation should provide details on the offsetting claims they are making as part of its annual emissions inventory report and any other relevant climate contributions (up and down the value chain) for which the organisation has provided financial contributions, but hasn't claimed any carbon emission reduction in its annual report.

I'm very conscious that many organisations are at different stages in their journey to Net Zero and the level of transparency will vary in accordance to what they feel comfortable with. Therefore, your organisation might not be ready for disclosing all of this information at this stage of your journey.

However, as Energy Management professionals we should have this information ready in case customers, investors, shareholders and other stakeholders approach the organisation for this information.

Therefore, as a profession we can play a pivotal role in building and maintaining the trust that people have put in organisations to tackle climate change and provide the strong business case internally to take action now. With the significant energy price rises that we have seen in the last 18 months, the case for action is now even stronger.

Author's profile is available here.

ENERGY MANAGEMENT ONLINE TRAINING SCHEDULE

Energy Management Theory Combined with Real-World Applications

DECEMBER

16th Net Zero Fundamentals and Strategies

JANUARY

26 - 27th Fundamentals of Energy Management

FEBRUARY

3rd Become an ESOS Lead Assessor
9-10th Energy Management in Building Services
17th Essential HVAC Control and Optimisation

MARCH

3rd Lighting - Basic Understanding
10th On-site Electricity Generation
16th Turning Data into Energy Savings (in-person)
24th Monitoring, Targeting and Validation
31st Reaching Net Zero

APRIL

21st Water Management
28th Energy Procurement

**BOOK 2023 COURSES
FOR 2022 PRICES**

until 31 December 2022

Group Training

The majority of the courses can be delivered virtually to teams or groups of stakeholders from the same organisation or industry in a standard format, or as tailored sessions (minimum 6 candidates). For a quote email jana.skodlova@theema.org.uk with your chosen course title and approximate number of staff. We can also develop new, bespoke material to fit your specific needs.

Knowledge and Skills Gap Analysis Interview

Understanding of a range of energy management competencies is required for professionals to effectively manage organisation's energy cost and consumption, monitoring and reporting energy use, as well as meeting energy efficiency requirements. The EMA can assess your knowledge and skills through the Knowledge and Skills Gap Analysis Interview. The Interview is an informal 60-minute conversation that

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

Consultancy Partnerships for Net Zero

Net Zero has become the phrase that defines the ambition of how society will act on climate and the relationship between consultancies and end users will be critical to achieving the net zero goals.

Ambitions for net zero are incomplete without tackling energy efficiency in a transformational way and there is a need for a fresh, informed perspective to support organisations in reaching their net zero goals. With pressure mounting on the public and private sectors to take concrete action to prevent the worst impacts of climate

change, major consultancy firms have been joining the race to net zero. This has seen a number of firms aim to hit net zero within a short amount of time, while investing large sums in greening their organisations, and launching a number of dedicated services to help their clients on the same journey.

To this end, the EMA Steering Group surveyed circa 25 consultancy service providers and end-use organisations (“end users”), ranging from business to public sector organisations. The aim was to understand stakeholder

awareness about the need to improve the relationship between consultants operating in the net zero space and end users. The results were interesting and different key considerations and views from both parties should inform Energy and Sustainability professionals as they engage in consultancy partnerships to deliver on their ambitions. The focus is on what should be taken into consideration when engaging consultancy partnership; areas where forming partnerships are especially useful; and the things to look out for as the relationship develops:

What should be taken into consideration when choosing to engage in a new consultancy partnership?

SERVICE PROVIDERS

- Net Zero has multiple meanings to different organisations and it is difficult enough with all the jargon out there to know what action to take. Relevant experience, previous references, clear scope of work and clear deliverables are an essential initial starting point. The expectation these days is for a service provider to offer a comprehensive set of services and expert industry knowledge. However, humility is also needed in the offering. Net zero requires a wide range of advisory expertise, as well as technical support of sustainability specialists.
- Open mind to review all possible solutions for Net Zero. Ability to identify novel ideas for consideration. Flexibility, not having a standard audit process to allow discussions on particular industry specific issues.
- Net Zero planning starts by understanding your impact on the planet, agreeing the boundaries of your climate ambitions, and devising a robust and informed strategy for action. To understand what the key piece of work that organisations need help with – e.g., Scope 1,2,3 emissions inventory and action plan.

END USERS

- Where within the vast array of energy topics their specialism lies, validate all claims of ability/experience, and select the right people for the work, based on a good due diligence exercise. Different consultancies have different specialties. An engineering consultancy might be the best fit to deliver operational net zero from buildings, whereas a specialist environmental consultancy might be better placed to support an exercise calculating Scope 3 emissions.
- Ability to fulfil the services offered in a very constrained market. Ability to offer a comprehensive spectrum of services relevant to the task - in a world of net zero this involves everything from energy efficiency to renewable electricity and heat.
- If variations are needed to the initial scope of works to better deliver the solutions, then these should be agreed. Quality of work is everything for net zero. If organisations and Energy and Sustainability Managers are going to make significant long term infrastructure decisions based on opportunities identified in consultancy reports, the information must be correct.

Are there any areas of energy management, sustainability or environment where consultancy partnerships are especially useful?

SERVICE PROVIDERS

- Consultants can often be better at addressing senior management because their external impartial voice can address truth to power which may not be the case with an employee.
- As industry has had to focus on energy saving and, therefore, identified their own potentials, an ability to identify as yet unidentified savings or calculate potential cost or carbon savings that the industry has failed to identify.
- There is clearly work that is explicitly focused on carbon reduction, but this goes beyond the direct operational. It is the emissions embedded in other services. One example is supply chain management. For many end users, Scope 3 emissions - those that lie outside their control, including the operations of their suppliers - can represent the bulk of their carbon footprint. But for companies with a vast global network of suppliers, reducing this footprint is complex and calls for advice from those with supply chain expertise.



END USERS

- Areas where things change rapidly and areas which may only be 'visited' every few years. For example, ESOS, Energy Audits, ISO 50001, energy behaviour awareness and training.
- Areas such as EV charging infrastructure or any renewable energy technologies such as solar panels or heat pumps. Consultants can devote significant amounts of time to tasks that require in-depth review. Often the required expertise is not available in-house.
- Choose the right consultancy partner to best meet your needs. If services around supply chain emissions are needed, use a specialist consultancy with expertise in Scope 3 emissions measurement and management.

What should a good consultancy partnership include?

SERVICE PROVIDERS

- Advice, assistance and a clear vision.
- Free flow of data, information, trust and teamwork with clients. Consultants alone cannot achieve success.
- True commitment to embed the knowledge gained throughout the project.
- Recognising the signs of trouble early and take mitigating action.
- Regular face-to-face meetings to review the project(s) and the cooperation both sides are getting/providing.

END USERS

- Trust: You need to build a lot of trust between energy efficiency consultants, process engineers, maintenance engineers and managers. Accurate assessment of savings, investments and effects on reliability and productivity require significant upfront investment in engineering studies.
- Good communication and transfer of knowledge during the consultancy support, i.e., they leave having added some knowledge or skills into your business if possible... or at least you understand what they have done!
- Clearly detailed pricing, specifications, timescales, health and safety considerations. A single point of contact for the duration of the partnership, as well as an additional back-up contact are essential. An escalation strategy to highlight risks is an important element to good project management with consultancies.

What should a good consultancy partnership exclude?

SERVICE PROVIDERS

- Mission creep beyond the scope. Most of my unsuccessful partnerships have been where the client failed to meet their roles and obligations. Then to save face, they blamed me as the consultant and bad mouthed me to others. This is unacceptable behaviour and I tend to avoid troublesome clients.
- Stakeholders' engagement, particularly within the public sector which should always be responsibility of the local authority officers.
- A good consultancy partnership should not commit to outcomes, because outcomes depend on the action taken by the client.



END USERS

- Try to keep them focused on where they can add value. For example, if you have access to internal low skill 'admin' or 'data' support then use that for the administrative components. The key to this is understanding of:
 - a) what you require;
 - b) where the real skill sets of externals are;
 - c) committing time up front to planning - how the consultancy support will work.
- Unnecessary services that would water down the quality of the service provided. We are willing to pay for services that add value to our operations as outlined in our tenders or instructions.
- Some Energy Managers avoid using consultants due to the lack of trust in the quality of work to be delivered. It can never hurt to expand your knowledge in the outsourced area which falls under the scope of a particular consultancy partnership. Even a basic knowledge may just help you to avoid falling to false or overstated promises and waste precious resources which could be used more effectively.
- Vague definitions which can caused misunderstandings and assumptions, lack of communications.



KEY TIPS:

SERVICE PROVIDERS

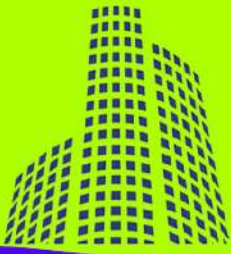
- Understand the intrinsic motivation that the customers are engaging on each topic - Net Zero, energy efficiency, etc.
- Hard skills are needed but so too are soft skills to win the hearts and minds of the organisation along the way.
- Deliver on time with a quality job.
- Communication. Communication. Communication.
- Understand the drivers and targets and tailor your processes - every client is different.
- Have a multi-disciplinary team in place with specialists in different areas.

END USERS

- Understand your own skill sets and needs.
- Consider whether better value would be gained by training up and bringing in-house.
- Test a consultant's true 'expertise'.
- Joint planning in advance of the start.
- Ensure to organise the work programme to make the best use of consultants.
- Upskill in the outsourced area, you do not need to become an expert but it will allow you to judge their expertise better and avoid being misled overstated claims.

Summary:

Ultimately, a multi-disciplinary approach is needed to solve the net zero challenge. The challenge and opportunity are bringing different skills sets into one room. The best partnerships require clear communication, following of clear project management principles, and laser focus on delivering net zero. Find a consultancy partner for whom the whole engagement matters. When someone is committed to something you get that extra 10 to 20 per cent. A good consultancy partnership will support an organisation's net zero journey from start to finish. Go out there and find it.



THE EMA MAGAZINE



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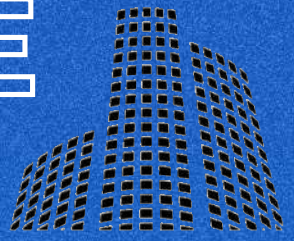
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