THE EMA MAGAZINE

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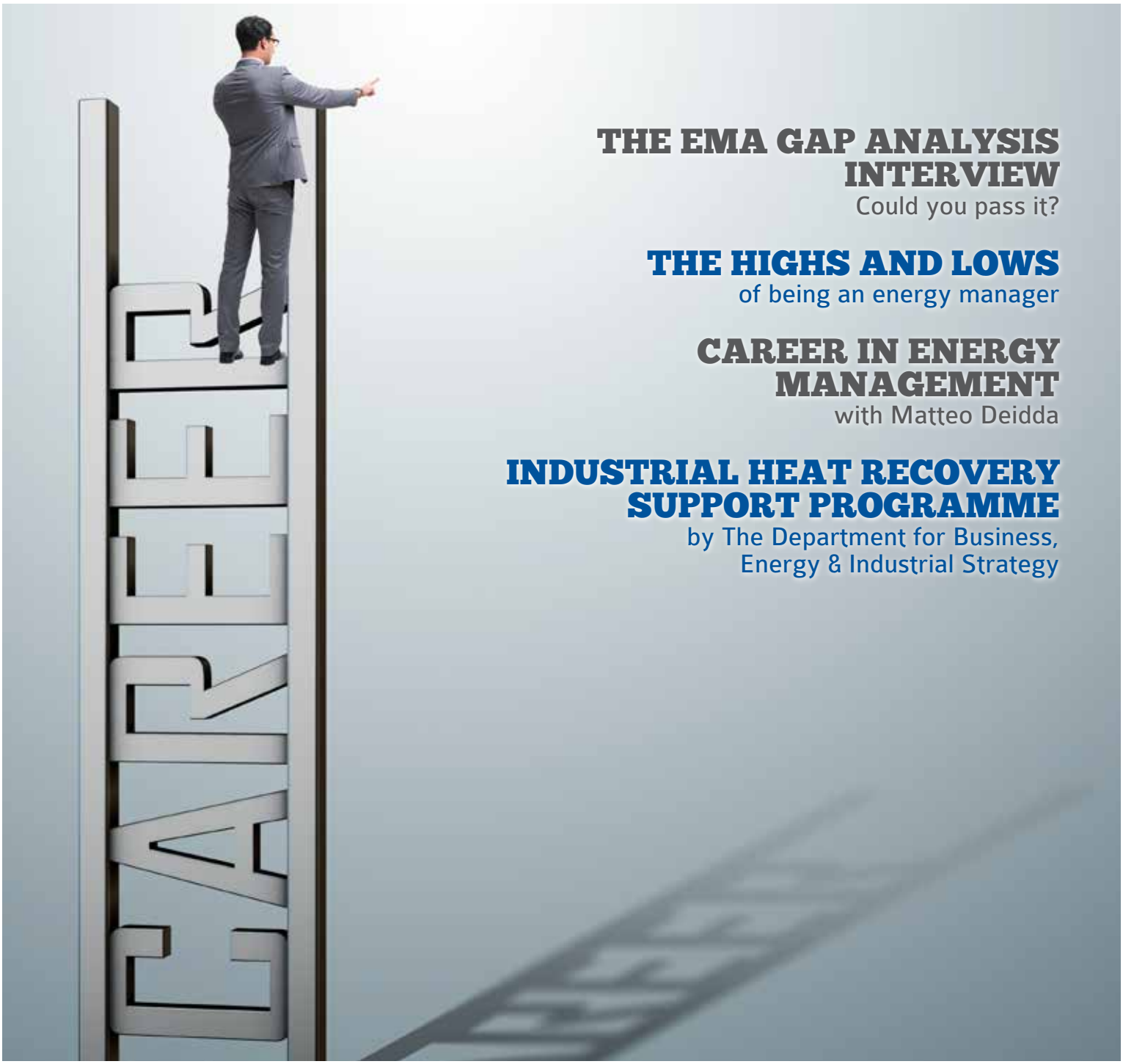

THE EMA GAP ANALYSIS INTERVIEW
Could you pass it?

THE HIGHS AND LOWS
of being an energy manager

CAREER IN ENERGY MANAGEMENT
with Matteo Deidda

INDUSTRIAL HEAT RECOVERY SUPPORT PROGRAMME
by The Department for Business, Energy & Industrial Strategy


Energy Management Trends for 2020


EMA Energy Management Awards 2019


Guide to Fleet Management

Are you throwing away RHI-revenue?

This could save you £1,750p/a

...if you run a Biomass heating system

According to the Department of Energy and Climate Change, you could be losing 10% RHI or more from dirty water on the average system. That equals £1,750p/a

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Dear Reader,

Welcome to the first issue of The EMA Magazine in 2020. Last year's climate change demonstrations and the Government's commitment to a 'Net Zero' emissions target by 2050 brought the importance of energy management to the forefront for many organisations. We saw organisations declaring climate emergencies, setting ambitious targets and many Boards finally taking notice and questioning their corporate responsibilities and strategies.

With this increased interest in our industry, we can only hope that the last year's actions will make a positive impact on getting approval for your ideas, projects and technologies a little easier and faster. We are always happy to hear from you so please let us know how we can support your work and professional development.

Energy management professionals have been making a difference for their organisations for decades and every role has a different focus. Whether it is procurement, policy, technologies or behaviour change, to meet the Government's target will require a combination of approaches. The EMA will continue to develop practical training courses in 2020 to upskill energy management professionals in topical subjects at all levels and promote energy management career to new entrants into the industry.

We have devoted the first issue of 2020 to the career in energy management. Whether you are an energy management veteran, at the height of your career, new to the industry or just thinking about entering a career in energy management, we hope that you find something interesting and helpful in this issue.

Enjoy & a Happy New Year!

The EMA Team

THE EMA MAGAZINE

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Save the date for

25th & 26th November

ExCeL London

Energy Management Trends for 2020

We are entering the new decade with an increased importance of the energy management industry, heightened awareness of the climate change and emergence of new energy reduction technologies. 2020 is promising to be an exciting year, and following a recent membership survey, here are some of the EMA members' views on what to look out for.

Michael Blades – Energy and Sustainability Officer, Northumbria Healthcare NHS Foundation Trust

Electric vehicle charging

Electric vehicle charging points will, over time, replace fuel stations as the UK transitions away from fossil fuelled vehicles. With new EVs arriving with batteries capable of much greater ranges, charging will experience a rapid growth at home, in carparks and kerbsides as well as in the workplace.

Much of the charging will be carried out using 3.5 – 7kW AC chargers although faster charging will be provided by 24 – 50 kW DC chargers or larger, AC chargers are limited by EVs inbuilt AC/DC convertors. The limiting factor may be the current capacity of the grid to supply the power required.

Battery storage

Battery storage may be in its infancy in power applications, but it has been around for many years in earlier uses, thus it's a new use for a mature technology. The modern use will be either connected directly to the grid where it will provide services to the national grid or behind the meter where it can provide both grid services and other solutions to the end user such as peak lopping, load balancing and tariff offsetting.

> "BATTERY STORAGE MAY BE IN ITS INFANCY IN POWER APPLICATIONS, BUT IT HAS BEEN AROUND FOR MANY YEARS IN EARLIER USES, THUS IT'S A NEW USE FOR A MATURE TECHNOLOGY."

All of these can provide either an income or reduce energy costs by charging at lower tariff costs and discharging at peak periods.

Grid management

Grid management services will become a requirement for the national and regional grid operators. The demand for a move to a cleaner energy source will move energy generation away from traditional generation utilising fossil fuels to wind, solar and other forms that depend on sunlight and wind alongside other cleaner fuels.

Grid management will control power storage, demand reduction and introduce local generating assets to provide smaller local power generation to ensure the grid is balanced and able to provide for the demand at all times.

> "WE ARE MOVING TOWARDS MACHINE LEARNING AND AI AS TOOLS TO DRIVE FURTHER ENERGY SAVINGS"

Andrew MacBride – SMaRT hub – Energy Manager, Arcus FM Limited

Big data analysis

We are moving towards machine learning and AI as tools to drive further energy savings and to improve equipment performance with condition based maintenance.

Behaviour change

We are at the point where system and equipment controls are really good. What we do not have control over is the human element that can ultimately influence energy consumption. We are looking to increase awareness training and also utilising available data to point us in the right direction to affect change.

IoT

Having visibility and control of a greater number of assets is seen by us as key to reducing energy consumption as far as possible. More importantly we see the additional data as a tool to manage energy reduction on an on-going basis.

> "BUILDING MANAGEMENT SYSTEMS ARE FUNDAMENTAL FOR PLANT ENERGY MONITORING, BUT BUILDING ANALYTICAL SYSTEMS HELP IDENTIFY ENERGY, COMFORT AND MAINTENANCE ISSUES AND FURTHER REDUCE CONSUMPTION/COST."

Paul Luxton – Asset & Compliance Manager, Taunton and Somerset NHS Foundation Trust

Building design

Energy Management strategies should be incorporated into all developments to support low energy consumption/ efficiencies over the life cycle of a building.

Building Management Systems/Building Analytics

Building Management Systems are fundamental for plant energy monitoring, but Building Analytical Systems help identify energy, comfort and maintenance issues and further reduce consumption/cost.

Government policy/support

Ultimately for any sector to develop energy/sustainability processes there must be senior management/board level

commitment. Commitment is difficult with an array of cost pressures and energy/sustainability tends to be low on the priority list. We need legislative instruments to prioritise energy/sustainable solutions.

Astley Fenwick – Director, Trinity Energy Management Ltd

Monitoring and targeting using automatic collection and warning of increased usage

I'm a great advocate of monitoring energy consumption and strongly believe that this is an important tool in energy management. There is an adage which says, "If you can't measure energy, then you can't manage it." How true this is, not just for energy but for anything that one seeks to improve, you need a starting point of the existing situation.

There are plenty of automatic metering systems in the marketplace which can be easily monitored via the internet; however, it is generally perceived that these are expensive to install.

My hope is, that just like LED introduction for lighting, automatic metering providing 'live' information becomes freely available and readily usable for easy access to the relevant data.

Auditing of energy usage associated with manufacturing processes and seeking more energy efficient measures

I have been associated with manufacturing processes and energy consumption connected with varying systems. I'm amazed that I come across situations whereby the lighting has been renewed but no thought was given to reviewing the manufacturing equipment usage, which sometimes can be as much as 80% of the total usage.

In my opinion, there are several factors associated with this. The first one being the Paradigm syndrome as I call it. You hear folks say, "We always done it like that and if we change it the quality may not be as good." In other words, we haven't got the time or inclination to look at different methods of controls or operations, and what difference would it make besides extra work for us. The other main factor I think is capital cost of equipment.

Obviously, more energy efficient equipment comes with an increased price; but some people don't consider life cycle costs. For instance, a highly efficient electric motor is more expensive to buy, but over the life of the motor significant savings in energy consumption can be made. There are other obvious similar systems such as variable speed drives and heat recovery systems.

Education of staff to provide an insight of the energy consuming processes/facilities so that they treat energy at work as they would at home

> "IF YOU CAN'T MEASURE ENERGY, THEN YOU CAN'T MANAGE IT."

Within this category I have met with managers who have no idea of what the cost for the facility's energy consumption is, and the only type of monitoring is checking the invoice from the supply company to make sure that it is within budget.

It is of no surprise therefore, that the staff also have no idea. I feel that the energy consumption and management

> ELECTRIC VEHICLES ARE GRADUALLY JUST BECOMING VEHICLES IN THE PUBLIC CONSCIOUSNESS. TECHNOLOGY IS BEING FORCED ALONG BY DEMAND AND THE INDUSTRY'S COMMERCIAL IMPERATIVE.

should be part of the everyday business agenda, similar to progress with regard to quality, customer satisfaction, accident free days, health and safety, etc.

It would be relatively easy to include energy consumption and management in team meetings, from the top down to the workshop floor. Also, information could be displayed on notice boards, screen media, news bulletins and pamphlets.

The greater the awareness of energy consumption then the greater the possibility of staff involvement and reduction. As well as Health and Safety representatives there could also be Energy Management representatives.

Andy Creamer – Energy Manager, Mapeley Estates Limited

Increase in electric traction (cars/lorries)

We all know that internal combustion is a major polluter – not only with carbon, but also with particulates too. The whole point of saving energy, apart from the obvious cost centred benefits, concerns carbon emission reductions. Electric vehicles are gradually just becoming vehicles in the public consciousness. Technology is being forced along by demand and the industry's commercial imperative.

As long as the taxation breaks regime remains, and charging points are focussed on, then there will be a demand to further expand the available range; hence fuel further demand. In the meantime, however, immediately we need to keep our eyes on the Fuel Cell and Natural Gas power development for all the vehicle fleets.

> IF WE'RE LOOKING TO GO NET ZERO, WE WILL HAVE TO ACT NOW AND FAST, AND RATHER THAN SINGLE MEASURE, TAKE A WHOLE HOUSE APPROACH.

Transformation of power stations from coal to lower carbon options

In the short term, by way of winter demand mitigation. Battery storage is going to be a major player in the long term, but as with all strategies, there has to be tactical events to facilitate the end result.

We have coal power stations, which we pay to be on hot standby. If we converted more to use other fuel such as have already been done by some, then with the ongoing Wind/PV projects we may well be able, in time, to offset the 4 AGR nuclear closures due by 2024.

Reducing the cost of saving carbon – tax breaks essential to break the patterns

As a large commercial landlord, Mapeley has had a considerable cost burden on us for CRC & ESOS programmes, as well as the cost of installing updated and technologically more advanced kit and services. Had the CRC costs not been so high, we would have been looking to invest in CHP, PV generation and ground source heat pump at sites where we know it is viable.

Whilst I appreciate some would just 'pocket the saving', by making the carbon discount dependant on the works, the UK could see an exponential increase in non & low carbon energy projects. In the end, it is down to 'money talks', so taxation reduction or investment matching breaks the circle.

Risa Wilkinson – Energy Manager, London Borough of Haringey/London Borough of Hackney

Zero carbon ambition

This is shaping how we are planning strategic direction across the authority.

Power Purchase Agreements (PPAs)

While Renewable Energy Guarantees Origin (REGO) backed energy is an important step, PPAs will enable energy users to go deeper green.

Whole house retrofit

If we're looking to go net zero, we will have to act now and fast, and rather than single measure, take a whole house approach. We will need to blend longer term payback measures with shorter term payback measures to enable business cases to stack up better.

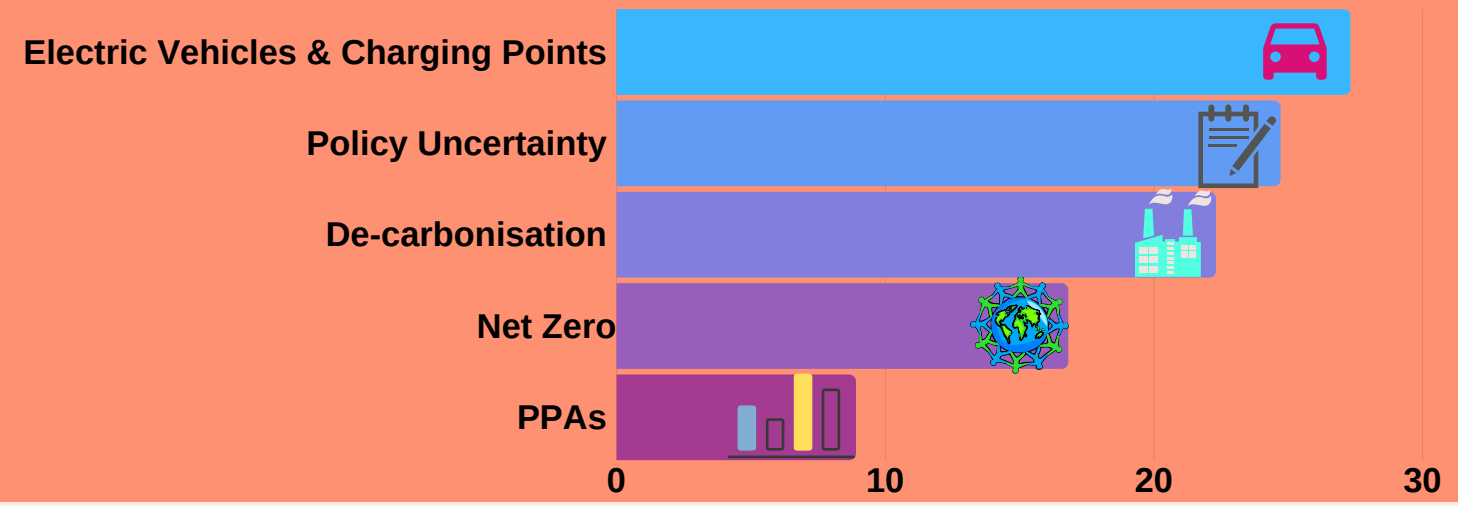
TRENDS TRANSFORMING ENERGY MANAGEMENT IN 2020

WHO RESPONDED?

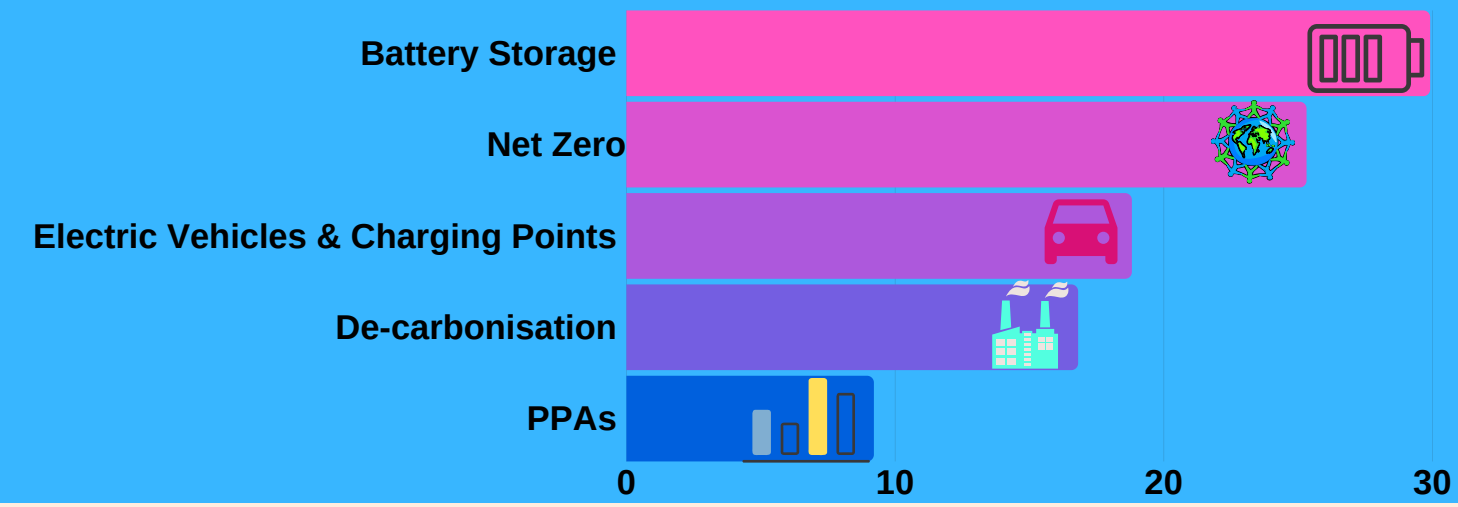
37.1%	22.9%	20.0%	20.0%
Energy Managers	Facilities, Sustainability or Environmental Managers	Energy Services Providers	Others

SURVEY FINDINGS

TOP 5 PUBLIC SECTOR TRENDS



TOP 5 PRIVATE SECTOR TRENDS



OTHER TRENDS DRIVING THE INDUSTRY

ARTIFICIAL INTELLIGENCE / MACHINE LEARNING / AUTOMATION / DIGITALISATION / BEHAVIOURAL CHANGE / BUILDING ENERGY MANAGEMENT SYSTEMS / RENEWABLE ENERGY / MONITORING & TARGETING / TPI REGULATION / CLIMATE CHANGE AWARENESS / REPORTING / WATER TREATMENT / HYDROGEN FUEL STORAGE / ENERGY EFFICIENCY

Recognising Achievements in Energy Management

The EMA Energy Management Awards were launched in 2015 with the aim to recognise and celebrate outstanding work in the energy management and sustainability industry. Every year the EMA Awards attract entries from dedicated and passionate individuals and teams who give us the opportunity to celebrate the exceptional achievements and talent in our industry.

The 2019 winners and highly commended once again demonstrated an incredible dedication, resilience and can-do attitude. The importance to celebrate successes and share pitfalls resonated throughout the entries and the EMA hopes that the Awards will help the winners prove their credentials to tackle climate change and raise their profiles in the industry.

The EMA Awards 2019 winners are:

Energy Manager 2019 – Private Sector

Lee Preston – Group Carbon and Utilities Manager – Aviva

Lee is an experienced and passionate environmentalist, with 16 years of industry experience working within large automotive and financial FTSE 100 corporations.

Since 2014, Lee has been Aviva's Group Carbon & Utilities Manager. Aviva's potential sustainable impact is vast and is reflected in their far-reaching sustainability objectives. Lee's work directly impacts the progress Aviva has made towards achieving these targets. Lee has driven a 60% global carbon emission reduction, versus a 70% target by 2030 through many energy efficiency projects.

Lee is currently embarking on multiple market leading programmes including: A global smart building programme that will save over £5 million, currently at over £2 million to-date, big onsite renewable energy projects including solar carports, energy storage and onshore wind.

Energy Manager 2019 – Public Sector

Dan Fernbank – Energy and Sustainability Manager – University of Reading

Dan has been Energy & Sustainability Manager at the University of Reading since 2011, leading their estate-wide sustainability programmes. Dan has overseen some of the largest carbon reductions in the higher education sector, delivering a 41% cut in the University's carbon emissions, saving £30 million cumulatively. The ISO50001 energy management system he has developed includes a number of bespoke tools to help prioritise energy efficiency interventions, as well as to predict future changes in energy demand.

Dan is a registered Practitioner in Managing Successful Programmes (MSP) and is also a voluntary Director for Reading Community Energy Society.

Junior Energy Management Professional 2019

William Begg – Energy Manager – Kingston University

William is an experienced energy management professional with a proven record of delivering successful carbon reduction projects in the higher education industry, skilled in project management, sustainable development, carbon management and energy analysis.

Since 2016, William has worked at the Kingston University as an Energy Management Assistant scoping and delivering a number of energy reduction and efficiency projects.

He has now moved into the role of Energy Manager at the University with responsibility for developing, maintaining and managing the University's Carbon Management Plan.

William holds a Degree in Environmental Science from the University of Nottingham and is currently studying towards his Masters in Building Surveying at the Kingston University.

EMA Member 2019

Ben Burggraaf – Head of Energy Optimisation – Welsh Water

Ben received his Mechanical Engineering degree from Twente University in 2003 and became a Chartered Engineer with the Institute of Mechanical Engineers in 2008. He started his career in 2002 at the Corus/ Tata Steel R&D facility in the Netherlands and in 2007 was appointed as the Energy Optimisation Manager at the Port Talbot Steelworks.

In 2014, he made the switch to Welsh Water, becoming responsible for the day-to-day energy costs of the 4,000+ sites across Wales & Herefordshire.

In October 2018, Ben was appointed as the Head of Energy Optimisation leading on all aspects of energy management for Welsh Water.

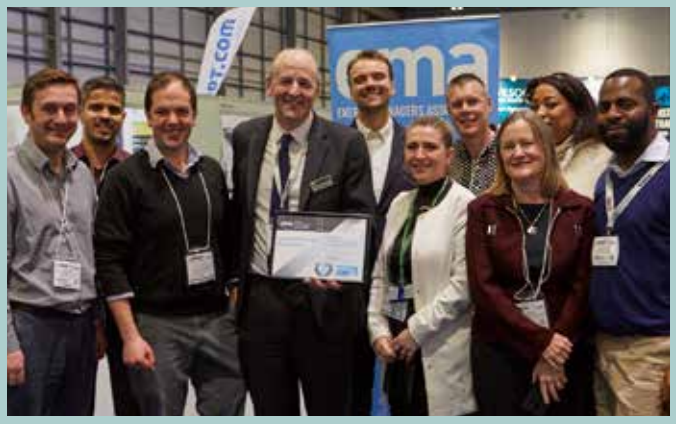
Energy Management Team 2019 – Private Sector

The Energy Management Team – Cannon Bridge Properties Ltd

The energy team at Cannon Bridge House covers an array of people from different organisations (Building Management Team – BNP Paribas, Optimum Group Service, Chartwell BMS, Carbon Credentials) to ensure that the building's Energy Management Plan (EMP) program is implemented and monitored regularly to ensure energy performance targets are on track.

The team is sponsored by Josh Ashim (General Manager) and led by Foon Tse (Technical Services Manager) who is passionate about energy and puts in the hours to energise the team to always prepare and follow through with what they are doing as this is the only route to success.

In 2019, the program implementation resulted in a reduction of 1.7MWH in the electricity usage which equates to circa £200K and 518 Tco2.



Energy Management Team 2019 – Public Sector

The Energy Services Team – London Borough of Islington

The Islington Energy Services Team is made up of 28 energy professionals working across many fields. The Energy Advice officers help vulnerable residents in Greater London via the award-winning SHINE service, a telephone help line, and via Energy Doctors who install energy-saving measures in homes.

The Energy Project officers develop and operate various projects, including installing heat networks, managing a borough-wide network of energy partnerships and developing the 2030 Zero Net Carbon action plan. Within the team, specialist officers conduct energy audits, help small businesses with energy management and offer energy advice on planning matters.

Energy Management Project 2019

Transport Scotland

Transport Scotland is responsible for the management, procurement and payment of energy consumed from Roadside Electrical Assets (REAs) on the Trunk Road Network. REAs mainly include trunk road lighting, illuminated signs and bollards, traffic signals and Traffic Scotland equipment (intelligent transport system assets) with road lighting accounting for approximately 86% of the energy consumption associated with these assets.

The project undertaken by Transport Scotland and its operating partners has reduced energy consumption by 30%, this equates to 27,081,877 kWh (financial year 2018/19), when being compared to a baseline of 38,787,047 kWh. The effects of the efficiency programme have seen carbon emissions associated with the Scottish trunk road electrical assets reduced by approximately 60%.

Energy Management Consultancy Partnership 2019

Leisure Energy Limited - Freedom Leisure - Derbyshire Dales District Council

Leisure Energy is a consultancy focussed on helping the leisure industry save energy, increase sustainability and save money, supporting operators to help more people be more active more often. The partnership with Freedom Leisure has been in place for 4 years with the aim to help the organisation reduce energy spend at approximately 25 sites.

Freedom Leisure recently won the Derbyshire Dales' contract to operate 4 centres in the area. Leisure Energy is helping both organisations to install new energy efficient equipment, controls and train staff to drive down usage, resulting in savings estimated at 138 TCO2e per year which will contribute to the Council's carbon targets.

Energy Product 2019

Weatherite Air Conditioning Ltd – Weatherite Direct Adiabatic Cooling Unit

Over the last 47 years, Weatherite Air Conditioning Ltd has established itself as the UK's leader in the design and manufacture of innovative, energy efficient, low carbon, high quality Heating, Ventilation and Air Conditioning (HVAC) equipment for all sectors of industry. Rather than supplying an 'off-the-shelf' product, which may or may not offer the right solution, Weatherite Air Conditioning Ltd design, manufacture test and pre-commission made-to-measure equipment, which meet the client's exact requirements.

Energy efficiency and the reduction of carbon emissions are high on almost every organisations' agenda and Weatherite Air Conditioning Ltd continually looks at ways of reducing energy usage whilst also looking at ways of helping reduce harmful greenhouse gas emissions.

Innovative Energy Product 2019

Marton Geotechnical Services Limited – PCM Thermal Energy Store

Utilising plant based - Bio Phase Change Material (PCM) offers a dynamic thermal store and buffer provision for Biomass, CHP and process heat /cooling systems. PCM's latent heat characteristic gives significant space saving over water thermal stores and overcomes issues of bulk water storage. This compact store's ability to charge and discharge multiple times if called upon, can influence positively its nominal capacity of 100kWh. Highly flexible, the modular design is a transportable and connectable solution.

The world needs energy efficiency and carbon reduction; and the thermal store is an exciting future proposition.

Amongst the 2019 Highly Commended are:

Energy Manager (Private Sector)
Sam Arje – Group Energy and Sustainability Manager – Bourne Leisure

Energy Manager (Public Sector)
Gillian Brown – Energy Manager – University of Glasgow
Richard Willson – Environmental Strategy Manager – Norwich City Council

Junior Energy Management Professional
Aimen Taki – Energy Manager for Kent and Sussex Routes – Network Rail

Energy Management Project
Coventry City Council
Places for People

Congratulations to all of our 2019 Winners and Highly Commended.

The entries for the EMA Energy Management Awards 2020 will open in June.

THE CAREER INTERVIEW

Career in Energy Management

The Energy Managers Association aims to encourage and enable more professionals to enter the world of energy management and environmental roles. Being an energy manager may not seem like the most obvious career for many. The EMA has taken on a challenge of changing the perception of energy management, by raising the sector's profile and sharing its members' – leading energy managers – insights into their career progress and achievements.

In this issue, we have asked Matteo Deidda, Networks Energy Manager at Vodafone about his career in energy management.

What made you choose energy management as a career?

My interest in energy and sustainability started in the early years of my academic studies in Civil Engineering. At that time, I started to read several online journals, newsletters and forums about sustainable building techniques and energy efficiency in facilities management.

My interest then shifted into the wider sustainability subject matter when I attended my University seminars, and I selected optional modules related to sustainable economic development.

The lightbulb moment came when I decided to extend my Higher Education journey by reading for an MSc in Renewable Energies. This is when I knew deep down that my future career path would be in energy.

When I joined Sainsbury's as an Energy Analyst, I then realised how broad the energy industry is and how diverse an energy management role could be.

What does your role at your organisation entail?

As many other Energy Managers will probably tell you, no two days are the same in this job. Especially in an organisation like Vodafone that have strong ambitions to achieve their energy and carbon reduction targets in a meaningful way.

At the moment, I am working on some onsite renewable energy initiatives, offsite PPAs and energy efficiency projects. These will be key initiatives to achieve the 2025 targets of only consuming renewable electricity and half the business carbon emissions versus 2017 baseline.

We have also launched a new monitoring and targeting platform, and I am working to improve the accuracy of the system. Data and analytics play an integral part in our energy management strategy and there is an emphasis on delivering reliable data that the business and key stakeholders can trust.

I also spend a lot of time promoting energy initiatives internally, this may sound like a "nice to have", but the reality is that you can have the best energy management strategy in the world, but if you cannot communicate it properly by engaging peers and the leadership board, you will struggle to drive change.

What is the most exciting part of your job?

There are two aspects of being an Energy Manager that I find very exciting:

- The continuous innovation. The speed at which new solutions and disruptive technologies are researched, developed and implemented in mass is second to none. Wind and solar power are an example of this trend, as they developed from niche solutions into an integral part of the global electricity generation mix in just over a decade. Most recently, the shift to smart solutions and the integration of IoT, big data, machine learning and artificial intelligence is driving a new revolution in the energy management sector.
- The variety. The continuous technology innovation, together with an ever-changing policy and market landscape, makes this job a continuous learning experience. There is always a new supplier, research or application that leads into a new journey of discovery.

What has been your biggest achievement in the past year?

I have organised the first Technology, Media and Telecom (TMT) Energy Forum by bringing together some of the leading organisations in this sector.

We met for the first time in October and the feedback from attendants was very positive and endorsing of the forum.

Energy Managers can sometimes feel "lonely" as they work to drive change in an organisation where usually energy isn't the core business. Building a network with peers from other organisations that face the same challenges is really important.

Similar consumer forums already exists in other sectors, like retail for example, and are a great opportunity to share knowledge, challenges and drive innovation with peers.

The TMT forum will meet again in February and hopefully this will become a recurring event in the future.

What was the most exciting project that you worked on and why?

When I joined Sainsbury's back in 2013, we designed and launched a new energy behavioural change programme. The idea was to define simple actions that 100,000+ colleagues could implement across the business to reduce energy consumption on areas such as cooling, baking and lighting.

Helping people changing their habits is one of the most difficult things to do, but also one of the most rewarding when achieved.

Over the next 5 years, the programme developed from the initial concept to usual business practice, even being included in new employee induction packs.

It was fascinating to be involved in such a large-scale programme and to hear from colleagues that I have never met before talking about energy, asking questions and coming up with great ideas to reduce the company's energy consumption.

Some of the Store Managers were so passionate about the programme that four of them joined the Energy Team on a temporary role. They delivered a nation-wide energy roadshow, engaging face to face with every Store Manager in the country (over 1,200) and sharing best practise, ideas and collecting feedback.

What is the most frustrating part of your job?

Changes in policy and regulations are needed as the energy industry evolves to deliver a clean, smart and flexible system to meet societal and market demand.

However, I find it frustrating when regulatory changes disregard the impact on existing investment on things like renewable energy, energy efficiency and other energy management projects.

This uncertainty and lack of stability have a negative impact on the ability of Energy Managers to build strong business cases and get access to CAPEX.

A very recent example is the Targeted Charging Review and the financial implication that it will have on existing and potential onsite renewable generation and storage demand side response projects.

If you had the opportunity to change one thing that would make your job easier, what would you change?

Vodafone has a very large portfolio in terms of number of sites. The vast majority of them are radio base stations, they are small sites from an energy consumption perspective, and they are scattered around the country, they are unmanned, difficult to access and often on a Non Half Hourly supply with no AMR connectivity.

Having access to granular and reliable energy consumption data for these sites would be one thing that would make my job easier. This is something that we are currently working on, but the process is long and resource consuming.

I also think investing time and effort in developing good quality and reliable data feeds, together with the development of a smart reporting and analytics tool is essential for a successful energy management strategy.

If you could recommend three things to have success as an energy manager, what would you recommend?

Keep it simple – energy can be a very complex topic, involving different technologies, policies and acronyms. Especially when working as an Energy Manager on the consumer side, for organisation where energy isn't the core business, it is essential to be able to simplify the concepts to engage colleagues and senior executives, pitch the business cases and get the business on board.

Engage the business – energy is a cross functional topic in large organisations that often involves Finance, Corporate Responsibility, Procurement, Operational, Government Affairs, FM and more. As an Energy Manager, you need to involve colleagues from different parts of the organisation by tailoring the message so it is meaningful to the audience. Doing so will make it much easier to deliver projects and drive change when the time comes.

You don't need to know everything – as an Energy Manager you may have a very broad remit that sometimes involves procurement, technology, policy, data analysis and behavioural change. You don't need to be an industry expert on every part of energy management, but you need to be able to rely on your supply chain, colleagues and peers to drive the right outcome. See it as an orchestra director, you need to know the music and be able to make all the instruments play together, but you don't necessarily need to know how to play all of them.

What advice would you give to someone looking to become an energy manager?

My personal advice to anyone considering becoming an Energy Manager is to show their passion and interest and to share it with others.

As Energy Managers, we come from a more diverse background. Some of us used to work in HR, FM or as Store Managers but what we all have in common is a strong passion and curiosity for energy, and a willingness to share this interest with our colleagues.

The most successful Energy and Sustainability professionals are those who can drive change in the organisation where they operate by making energy management visible, relevant and important.

You can learn most of the technical aspects on the job, so what makes a real difference is your attitude and personality. I also think that building a network of peers and suppliers across the industry is essential. The EMA or the Energy Institute offer great platforms for young professionals to build their professional networks.

What is the most absurd statement that you have heard in your job?

I sometimes come across service and technology providers who present their product claiming an unrealistic opportunity to reduce CO2 emissions or energy consumption.

When numbers look too good to be true, they are usually exaggerated or untrue. Of course, this is not always the case and there are initiatives that deliver large energy and carbon savings, but it is important to look at the science behind these technologies and understand how the result can be measured and verified properly.

Some of these technology providers are cyclical and suppliers with different names but same product come and go.

What are your long-term motivations in the position?

As I mentioned before, two things that I really enjoy in this industry are the variety and the speed of change.

Net zero carbon commitment, radical changes to the distribution and transmission physical infrastructure, development of EV market, new smart technologies, and pressure from public opinion to climate change action.

These are only some of the changes and challenges that our society will face in the future, and they all have something in common, they're all related to the way that we consume and generate energy.

I am really curious and excited to see what the future of energy will look like, and this passion for change and innovation is also my main motivation in this role.

How do you think the role of an energy manager will change in the future?

I believe that the role of Energy Managers will become increasingly important as public bodies and private organisations are under public scrutiny to set and achieve ambitious carbon reduction targets.

The application of smart connectivity and analytics solutions will certainly have a large impact on our day to day job, and we will have to learn about technologies and techniques that we may not be familiar with such as IoT, machine learning, big data and AI. This also means that we will have to engage with teams, colleagues and suppliers who we haven't met before, and we will have to get used to new ways of working that in the past have been closer to software development than energy projects.

Finally, I believe the next few decades will see radical changes in the carbon and energy policy landscape, hence Energy Managers will need to be aware and be able to navigate and influence new regulations.

The Highs and Lows of Being an Energy Manager

The role of an Energy Manager is varied and requires many skills. You can be office based one day and visiting a plant room the next; every day can bring its challenges and victories. We have asked the Members of the EMA Board of Directors about their ups and downs of working in energy management.

Scott Armstrong – Group Head of Energy and Sustainability, Bourne Leisure

My career in energy management has allowed me to gain great operational insight into all areas of an organisation. Whether this is in a services business, an industrial process business, a private sector or a public sector organisation, energy use is the common thread.

As an energy manager you are exposed to engineers, finance professionals, facilities teams, project managers, construction teams and sustainability professionals. As such, we wear a multitude of hats and have to quickly develop interpersonal skills and understand the drivers and motivations of other business functions. These skills are highly transferable and great for professional development.

Whilst historically energy management has not been high on many organisations' priorities, the past decade has seen this change with the double hit of poorer economic conditions and increasing utility costs. Today, operational excellence and cost management are high on all Board agendas and this has strengthened the position of energy managers who drive real financial benefit.

Team engagement is a key passion of mine, training teams from all of our sites at our annual Utilities conference is a highlight of my year.

What I have always found very important is to keep abreast of technological developments, ensuring that I bring a solution-based approach to what I do. This means that every day in energy management is a school day where learning is paramount to success.

Energy management is a profession that will continue to gain importance in the coming decade as businesses focus on net zero energy strategies and continued cost management.

Overnight audits in the winter months!

Wendi Wheeler – Energy & Carbon Strategy Manager, Network Rail

My work as an energy manager has always been a really varied workload, which means that I'm never bored! There's a real mix of detailed analysis work, site visits, project development, strategic thinking, innovation, business engagement and much more besides.

And every day is a school day, learning something new. In addition, it's great to be able to measure the difference that my actions are taking and to be able to demonstrate the benefits to my business in a number of different ways.

It is a constant struggle to change attitudes and behaviours to a more sustainable modus operandi, and often you can feel like a lone voice in the wilderness. However, when you do break through those boundaries and make good progress it's really gratifying.

Julia Blackwell – Energy Officer, Huntingdonshire District Council

It's never boring and no two days are ever the same. I have been very lucky that over the last couple of years I have been able to invest significantly in equipment and technology to reduce energy use, so it has been a steep learning curve not just on the measures themselves, but also the logistics, planning and H+S legislation required to manage a large scale investment project.

I've also had a few adventures; climbing up 50ft of scaffolding to get onto a sport's hall roof to check out the latest PV installation gives you an amazing view of the Cambridgeshire countryside as well as a healthy appreciation for the requirements for edge protection! And sometimes I get to do something really different – this autumn, because I have a thermal imaging camera, I had to help identify where bats were roosting, in order to ensure they wouldn't be disturbed by some renovation work on one of our Countryside Education Centres.

Local authority resources are always being cut back, so I find that I am not able to spend as much time as I would like tackling issues.

It is often hard to engage staff in energy saving, seeing new lighting or PV systems being installed goes down well, but more subtle measures such as ensuring Building Energy Management Systems are kept up to date to reflect current building use (important in leisure facilities when class times can change) can be hard work.

I think my pet peeve is seeing all the insulation, recently installed around pipework and valves, lying on the floor in the plant room after maintenance contractors have been in. Energy management is a profession that will continue to gain importance in the coming decade as businesses focus on net zero energy strategies and continued cost management.

Ben Burggraaf – Head of Energy Optimisation, Dwr Cymru Welsh Water

I love the diverse nature of the profession; no day is the same when working as an energy manager. One day you can be undertaking energy audits or encouraging operators to use less energy and the other day you are evaluating Power Purchase Agreements or presenting an energy strategy update to the executive team of the company.

Due to the diverse nature of the profession, energy managers are generally very influential in an organisation and have the ability to make a real and lasting impact on its financial & environmental sustainability. You work with front line staff who operate plant and machinery, accountants who assist in developing budgets or business cases, engineers who design new energy efficient processes or hydro generation plants, auditors who assess the effectiveness and accuracy of your processes and data, etc.

All these touch points with other professions in an organisation provide you with a continuous opportunity to learn and to transfer some of your knowledge that will empower them to make better decisions regarding energy costs or carbon in the future. The challenge of this all that makes me enjoy the job, is that you have to understand what drives their day to day decision making (company targets, personal values and beliefs, etc.) and adapt your style to have the biggest impact.

My least favourite part of the profession is that in an energy intensive organisation most of the work done to implement energy consumption and cost savings generally results in energy cost stagnating at best, rather than improving. The latter is mainly due to energy unit cost rising more quickly than you are able to implement energy cost savings.

Another reason is that investment to improve product quality or production capacity, generally means more energy is being used to meet customer demand / expectations or more stringent regulatory requirements. Not seeing the improvement in energy cost and/or consumption can be a bit demoralising on the team and yourself but can also harm the wider organisation's interest in saving energy and carbon.

In my experience, the best way to keep everybody interested and motivated is to regularly assess what the organisation's energy bill and carbon footprint would have been, if you had not implemented the energy savings. To enable this piece of analysis in a credible way, it is vital that as an energy manager you properly baseline the organisation's energy consumption and cost, prior to implementing the energy saving measure and review the energy performance once the measure has been implemented. Spending time to accurately review each individual project is often overlooked, but in my opinion, it is vital to ensure that the organisation retains trust that the money and other resources invested to save energy and carbon are delivering a real business impact.

Gillian Brown – Energy Manager, Estates and Commercial Services, University of Glasgow

Easily the best part of being an Energy Manager is the variety. No two days are ever the same. No matter what size of organisation you work in from a small set of shops to large complex hospital estates, the variety of work which has to be undertaken will always be there. The only change from one organisation to another is the volume of data which feeds into each work area. We as energy managers are required to cover a huge number of areas; from legislation to data management to energy reduction projects, these are some of the exciting areas which we all get involved in on a daily basis.

To make things even more interesting the variety of areas vary even more with changes within each sector. There are always new and exciting developments in technology which can be utilised to achieve energy/carbon reductions, you only have to look at the developing area of 'smart technologies' to understand how nearly everything we do can be changed to be smarter and more connected. Legislation changes frequently bring in new areas to be included for reporting and in this time of political flux there is even more to be considered.

My least favourite part of being an Energy Manager is probably volume of work. With legislative reporting, budgetary planning and traditional project implementation throughout the year, there never seems to be enough time to get involved in the exciting new developments or new technologies to achieve the targeted reductions set. Within my own organisation there is a lot happening; new buildings, large refurbishment projects and responsibility changes which means there are a lot of new areas to cover over and above the management of energy in our already large building portfolio. There are so many exciting developments which take place in our industry all the time and we would all like to trial them throughout our own portfolios, but the volume of current work never subsides and therefore it is difficult to find the time to implement new ideas.

EMA ENERGY MANAGEMENT TRAINING SCHEDULE

Energy management theory combined with real-world applications

FEB	27TH	Become an ESOS Lead Assessor
MAR	3RD	SECR Compliance
	5-6TH	Fundamentals of Energy Management
	12TH	Lighting – Basic Understanding
	19TH	Energy Procurement
	24TH	Battery Storage for Business
APR	2-3RD	Energy Management in Building Services
	28TH	On-site Electricity Generation
	30TH	Monitoring, Targeting and Validation
MAY	14TH	Essential HVAC Control and Optimisation
	19TH	BMS Essentials, Monitoring and Optimisation NEW
	19TH	Turning Data into Energy Savings
JUNE	2ND	Waste Management
	3RD	Energy Auditing Techniques
	4TH	Understanding and Delivering Behavioural Change Programme

In-house training

All courses can be delivered in-house 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, approximate number of staff and location. We can also develop new, bespoke material to fit specific client needs.

Candidates' testimonials

"An engaging and useful course with relevant examples."
Waste Manager / Trainee Energy Manager, Kingston Hospital NHS Foundation Trust

"Very helpful, targeted and specialised. A big help to my professional development."
Property Project Manager, Field Studies Council

"The course gave me a lot of good ideas for improving our work for clients."
Senior Engineer, Sweco UK Limited

www.theema.org.uk | jana.skodlova@theema.org.uk | T: 0203 176 2834

Could you Pass the EMA Gap Analysis Interview?

The EMA believes that the knowledge and understanding of a range of energy management competencies are required for individuals to effectively manage organisational energy cost, consumption and its monitoring and reporting, as well as energy efficiency requirements. Many energy management practitioners have the skills to understand their organisation's energy usage, consumption patterns, trend data and operational requirements but very few are professionally recognised as Energy Managers.

The EMA introduced the Knowledge and Skills Gap Analysis Interview to assess a professional's knowledge and skillset at any point in their career through an informal conversation based on a professional's experience achieved to date.

As a result of the interview, professionals who demonstrate holistic knowledge of energy management will be awarded the EMA Recognised Energy Manager status. Why not start the New Year with a self-assessment of your energy management knowledge and skills, and see how you would do?

Technical and operational competencies

- Do you know where energy is generally consumed in different types of buildings within your remit?
- Do you know what type of major energy using equipment and systems are used in your business?
- Do you understand how energy consumption plays a role in the design, installation and commissioning of equipment, systems and buildings?
- Do you understand how good control systems and effective maintenance can be used to make equipment and systems efficient?

Energy assessments (finding energy savings opportunities), measurements and verification

- Do you understand basic metering types and the data they collect?
- Do you know how to carry out basic checks on bills and other recorded data to verify accuracy and repeatability?
- Do you know how to set targets in line with published guidelines?
- Are you able to explain reports against targets to a range of stakeholders?
- Are you able to compare energy assessment methods?

Behavioural change and motivation

- Are you able to identify changes required to improve energy performance?
- Are you able to develop structures and strategies for change to improve energy performance?
- Are you able to monitor and report on progress towards defined goals?.

Regulatory & legal compliance and carbon management

- Do you understand key EU directives and UK legislation relevant to energy and climate change?
- Do you understand economic incentives that may encourage energy generation or efficiency?
- Are you able to anticipate broad changes that might affect long-term organisational plans?
- Do you know how to assess simple carbon footprints?
- Are you able to factor the cost of carbon into business cases?

Energy management strategy/plan

- Do you understand global energy trends and their impact on business operations?
- Are you able to determine suitable objectives and targets for improvement?
- Do you know how to develop a basic action plan around energy, carbon and water?
- Do you understand how success can be measured and verified?

Waste management

- Do you understand the key challenges in dealing with waste streams?
- Do you understand financial advantages and opportunities of an organisation's waste stream?
- Do you understand the possible use of waste as a renewable resource via recycling?
- Do you know how to undertake a basic waste audit?

Procurement

- Do you understand what may drive energy prices in the UK?
- Are you able to carry out simple procurement actions?
- Do you have a basic understanding of electricity tariffs to allow best use of time of day charges?

Transport

- Do you understand the overall use of transport within an organisation?
- Do you understand what impact transport has on the organisation and potential ways to reduce its impact?

Water management

- Do you know how to undertake a basic water audit of a workplace, identify water using fixtures and fittings and suggest water efficient replacements?
- Are you able to identify water efficiency within processes?
- Do you understand the links between water and energy in a workplace?
- Are you able to develop behaviour change programmes and communications for water efficiency?

Information technology

- Do you understand where energy and water are used by ICT in a workplace?
- Are you able to estimate the carbon footprint of an organisation's ICT infrastructure including offsite services?

If you have answered yes to the majority of the questions, then you may be eligible for the EMA Recognised Energy Manager status. Get in touch with the EMA to arrange the EMA Gap Analysis Interview and start the New Year with taking a step forward in your professional development.

If you have identified competencies where you may need up-skilling, then check out the courses the EMA offers in these areas.

If you are unsure which areas to focus on, then also consider the EMA Gap Analysis Interview. The interviewees receive a verbal and written feedback on how to develop their professional career further and, if necessary, are given advice and guidance on which areas of energy management to focus on in order to up-skill.

For more information or to arrange the EMA Gap Analysis Interview, please email jana.skodlova@theema.org.uk.

by THE DEPARTMENT FOR BUSINESS, ENERGY & INDUSTRIAL STRATEGY

Department for Business, Energy & Industrial Strategy

Industrial Heat Recovery Support (IHRS) Programme

There are two more application windows left for the Government's Industrial Heat Recovery Support (IHRS) Programme supporting energy efficiency and industrial decarbonisation measures.

The £18m programme has been specifically designed to encourage and support manufacturing and data centre industry investment in heat recovery technologies across England and Wales. This means helping businesses of any size to identify and invest in opportunities for recovering and reusing heat that would otherwise be wasted.

The IHRS can support eligible industrial waste heat recovery projects from concept and definition through to implementation and operation start-up. So far, the IHRS has supported 20 projects in cutting their energy bills and reducing carbon emissions, spanning numerous sectors including Paper, Food and Drink, Chemicals, Cement and Mineral Products, Metallic Products and Steel. The final application deadlines are 31st January 2020 and 31st July 2020.

Basell's Carrington Heat Recovery and Integration Project

LyondellBasell Industries (LBI) is one of the world's largest polymers, petrochemicals and fuels companies. LBI is a global leader in polyolefins technology, production and marketing; a pioneer in propylene oxide and derivatives; and a significant producer of fuels and refined products, including biofuels. Through research and development, LyondellBasell develops innovative materials and technologies that deliver exceptional customer value and products that improve quality of life for people around the world.

The LyondellBasell Carrington polyolefins site, 10 miles to the south-west of Manchester has made significant strides in reduction of energy use through optimisation and small/medium projects. A feasibility study had previously been carried out into the potential of a further step-change reduction in boiler gas consumption by the installation of a heat integration scheme. The conclusion was that, although interesting, the return on such a project would be marginal and further development was on-hold until March 2019 when BasellPolyolefins put in an application to the Department for Business, Energy and Industrial Strategy's (BEIS) Industrial Heat Recovery Support (IHRS) Programme.

The IHRS Programme is designed to encourage and support investment in heat recovery technologies. The recovered heat can be used within the industrial site, by another end user or used to generate power, helping businesses to lower their fuel costs, reduce waste heat and cut emissions. Chemicals is one of the industrial sectors eligible to participate in the Programme due to an acceptable SIC Code plus data centers.

BasellPolyolefins was awarded up to £40,680 grant funding towards preliminary engineering for their project. The project proposes utilising the heat available in two vapour recycle streams (heat source) to provide the re-boil duty of a distillation column (heat sink) resulting in savings of steam for the distillation reboiler and cooling water for the recycle condensers.

The availability of support via the IHRS Programme unlocked internal funding to further develop the project to the Front-End Engineering (FEED) stage. A local engineering design consultancy who had carried out other project design for the company was appointed to further develop the design into a full FEED package, with support from a small team of LyondellBasell's own engineers where appropriate.

The heat recovery was achieved by providing piping for the vapour recycle from the main production plant to the distillation unit ~150m away. Based on the pressures and compositions of the hot and cold streams, the differential temperature across the system was limited, thus resulting in a much larger reboiler being required. A separation vessel was also included in the design to allow the liquid and gas streams to be returned separately to the main production plant.

The overall energy savings of the proposal are approximately 17,000 MWh (net) of natural gas and associated reduction of approximately 3,500 tonnes of carbon dioxide emissions from the site boilers. Wider benefits achieved include a commensurate reduction in electrical energy on the cooling water tower pumps and fans and a small reduction in make-up water to the cooling tower from the nearby river.

The site energy manager, David Royle, said "The IHRS Programme made the difference to further develop the heat integration project which had been shelved for the last 2-3 years. This also created the chance to assess the

opportunity in more detail and provide more information on technical and economic feasibility that may be the difference between such a project being installed or not." If you are interested in finding out more about the IHRS Programme, please visit the IHRS gov.uk webpage or email ihrsprogramme@icf.com to talk to BEIS's IHRS delivery partner, ICF.

by Jason Franks, Managing Director, EMEX

EMEX Post-Show Report

We've been so proud of the positive feedback from attendees, exhibitors and speakers. The comments come from a range of product suppliers and experts and reflect a broad cross-section of business sectors which suggests that we are providing a good depth of knowledge in the right areas.

EMEX is very much the EMA's show; it is a way that we can get the members together and build our community. Through the seminars, we hope we offered you a wide range of topics on which experts gave up to date presentations; one of the most interesting was on climate change.

At EMEX, we're rather fortunate that we are able to separate seminars from sales presentations. The content of the theatres is uniquely programmed by Lord Rupert Redesdale, the EMA, its board and surveys of the membership. There is a real desire by senior Energy Managers to ensure that the seminars are appealing and instructive to attendees, many of whom no longer attend other events. Not only do our attendees come to hear informative presentations but they are delighted to spend the rest of their time visiting the exhibitors, playing with new technology and hearing their pitches on how they can reduce their energy bills.

EMEX exhibitors and visitors tend to use a genuine face-to-face opportunity to prod and poke innovative products and have meaningful conversations with the common aim to reduce energy consumption. This means that they are only too happy to share contact information and pursue collaborations and deals during the weeks and months after the show.

Here is a snapshot of EMEX in facts and figures:

- 4,443 attendees graced the show over two days. EMEX is UK's only stand-alone energy efficiency event, and its audience continue to represent the lion's share of UK Energy Managers.
- 133 speakers, over 130 exhibitors and 81 seminar sessions, 8 hours of CPD credits and 1,000 attendees sit in each of the 5 seminar theatres.

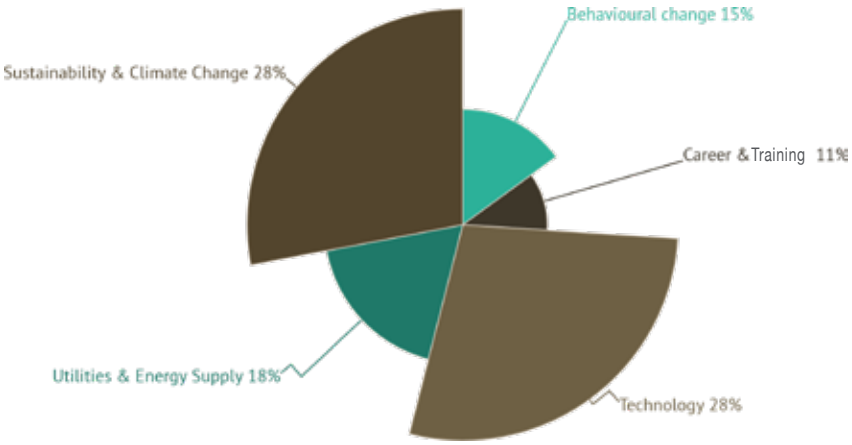
Our post-show survey reveals that:

- Visitors have given an average score of 8 out of 10.
- 88% of our attendees are likely to recommend EMEX to their colleagues. .
- Our attendees spend a combined £9–12bn on energy every year, which is more than half of the UK's total non-domestic energy consumption! And over 53% will spend six or seven figures on energy efficiency.

When it comes to important areas to watch over the coming months and year, here are the topics covered in the most attended sessions:

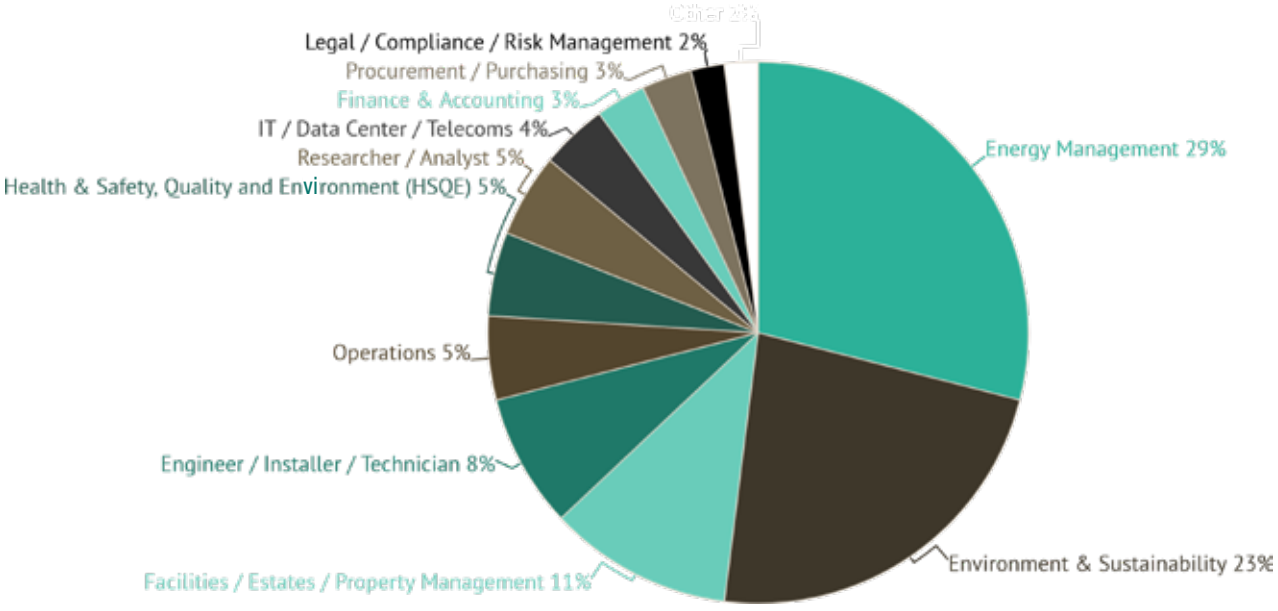
- Energy Management Trends 2020: What to Expect Next Year
- Energy Auditing - All you want to know to make a lasting impact
- Delivering Energy Efficiency in the Public Sector
- Redefining Business Engagement with Energy to Accelerate Sustainable Development
- Corporate PPAs - The Risks, Issues and Opportunities
- Communicating Climate Change
- Climate Change Adaptation - New International Standard ISO14090 and an ISO/Bsi adaptation and resilience standards update
- The case for zero carbon
- Climate Neutrality and driving transitions - Visionary international practice and developments in International standards
- Your Emergency Briefing - Declaring a Climate Emergency and driving
- The Future of the UK's Environmental Governance
- Climate Change: Corporate Outlook
- The Future of Heat Networks
- Battery Storage: Getting Ready For Mass Roll Out
- Streamlined Energy and Carbon Reporting - Compliance Update
- Batteries Need Batteries: the Case for Energy Storage in EV Charging
- Riding Sunbeams - Powering The Railways With Solar PV
- Using Data to Create an Energy Efficient State
- SECR Compliance - The Basics
- Energy Management Strategy: from policy to implementation
- Changes in Regulation Around Battery Storage
- SECR Compliance - What To Look Out For!
- The UK's net-zero target: what are the greatest challenges

Attendee areas of interests



Many of the seminar presentations are available on the EMEX website, www.emexlondon.com/2019-seminar-presentations/

Attendee primary job functions of attendees.



Here's what some of you have said about EMEX:

Julia-Szajdzicka
Managing Director
ND Metering Solutions

"EMEX was the most successful event in terms of quality leads we've ever had! We've been exhibiting since the 70's so pat yourself on back"

Executive Director
Simble

"Thank you Lord Redesdale, EMA and EMEX London for a great event. The Simble team had a great time networking and sharing our experience, and we look forward to next year's event."

Senior Manager, Utilities Strategy & Provision, Jaguar Land Rover Limited

"I'd recommend EMEX to all my colleagues. It is targeted, focused and embraces the excellence of our profession while challenging perceptions and striving for greater knowledge and understanding."

HSE Manager,
MSC (UK) Ltd

"While I wasn't sure what to expect from this event… it still exceeded my expectations! An excellent choice and variation of topics and I really liked being able to make up my own programme. There were some outstanding speakers and I have certainly taken away some invaluable information."

Low Carbon Economy Project Officer, Suffolk County Council

"It was a busy but fulfilling day at EMEX. It's excellent to be able to find so many providers of the latest technologies under one roof."

Wendi Wheeler
Energy & Carbon Strategy Manager, Network Rail

"EMEX is a fantastic event which gets better and better each year. The seminar programme, product information and networking opportunities are second to none and are invaluable to an Energy Manager in progressing energy and carbon reduction strategies."

Utilities, Waste & Sustainability Manager, Kingston Hospital NHS Foundation Trust

"EMEX provides both a showcase for suppliers and useful insight to Energy Managers through the seminar programme. I always find it worthwhile."

Partner
Max Fordham LLP

"There was a great range of talks covering the waterfront of subjects that I did know about, didn't know about and should have known about. I came away with many new ideas and perspectives, and a useful set of contacts."

We're enormously grateful to everyone who helps make EMEX the number one event in this market place. If you want to be more involved in 2020, please see our contact details on page 4 and join a very impressive line-up.

Our energy management community plan to spend over £1bn on energy efficiency measures next year – that's an impressive figure and a great reason to continue sharing ideas and exhibiting the best products and services. Visiting companies include:

ABP BEEF - Accor - AECOM - Aggregate Industries - Amazon - Amey Plc - Amnesty International - Arcadis - Arriva Group - Arsenal Football Club - Associated British Foods - Atalian Servest - Avara Foods - Aviva - AXA UK - Babcock International Group PLC - BAE Systems - Balfour Beatty - Barclays - BASF - Berwin Polymer Processing Group - Birmingham Airport - Bisley - BNP Paribas Real Estate - Boots UK - Bourne Leisure - British Airways - British Sugar - British Steel - Broadgate - BT Group - Bupa - Bywaters - Canary Wharf Group - Capita Plc - Cancer Research UK - Capital One - Co-op - DHL - East Midlands Railway - Fortnum & Mason - Fox's biscuits - Freedom Leisure - Fujitsu - Govia Thameslink Railway - Great Western Railway - Hanson UK- HBS - HENDERSON BIOMEDICAL - Hertz - Hilton - Intel Corporation - intu retail services - Jaguar Land Rover JLL - John Lewis Partnership K&A Construction - Kerry Group - Kier - Lacoste UK - Langdale Leisure Limited - Lloyds Banking Group - Lockheed Martin - M&S - Marriott International - Matalan Retail Limited - Mercedes-Benz Cars UK - Mitchells and Butlers PLC - Mott MacDonald - O2 - Parkwood Leisure - Pets at Home - Pfizer - Places for People Plasser UK - Plastipak - Premier foods Rail Gourmet UK Ltd - RBS - Rendall & Rittner - Ricoh UK - Sainsbury's - Scania - Selfridges - Shin-Etsu - Skanska - Sodexo - Tata Steel Europe - Taylor Wimpey - The AA - The Stables Theatre - The Walt Disney Company Limited - Virgin Atlantic - Vodafone Warner Bros - Whitbread - Willmott Dixon

See you on 25–26 November 2020, at ExCeL London

Register for free at emexlondon.com

by Wilson Power Solutions

End Users Could Benefit from Avoiding £80m of Wasted Energy

2.9% of all energy generated in Europe gets wasted through transformer losses. That's enough to power Denmark for three years. In the UK, network losses account for 1.5% of the CO2 emissions. 25% of which are caused by distribution transformers. This raises two questions, who pays for this wasted energy and what can we do avoid these losses? The first is a rhetorical question.

Most distribution transformers in the UK were installed when energy wastage was not a crucial problem; technology was focused on access to energy with little regard to how efficiently this was done. According to an FOI request to ofgem, the average age of a distribution transformer in the UK is 64 years and to put that into perspective, this means that most transformers were installed in the 1950s and have not been replaced since then.

ENA Adaptation to Climate Change First Round Report suggests there are 230,000 11kV to 400/230V distribution substations nationally. If we take a 10% sample of these substation transformers and assume they were installed in the 1970s, not 1950s as the statistics show, the saving potential if these transformers get replaced could be enormous.

This puts a strong case for 23,000 distribution transformers to be replaced with new efficient ones. Wilson Power Solutions manufactured Wilson e3 Ultra Low Loss amorphous transformer that exceeds ECO Design Directives for transformer losses (due to be effective in 2021) and the new reduced transformer losses make it financially feasible and actually a no-brainer to upgrade these networks.

Compared against Ultra Low Loss amorphous transformers, these 23,000 transformers could collectively save 894.8GWh of electricity every year. Taking off the cost of the replacements and considering the total cost of ownership, that results in over £83m savings every year just by doing this single infrastructure upgrade which is too obvious to neglect.

Ayah Alfawaris

Call us on +44 (0)113 271 7588 or email info@wilsonpowersolutions.co.uk

ema
energy managers association

Practical Guide for Energy Management Professionals

FLEET MANAGEMENT

(Cars & Light Commercial Vehicles)

"Putting Energy Management at the Heart of British Business"

The need for an effective grey fleet and transport management has once again increased last year with the UK Government's Streamlined Energy and Carbon Reporting regulation.

Yet, not all organisations make it imperative to manage their and their employees' use of vehicles which offers a solution to improving their fuel consumption, eliminating associated costs and reducing environmental impact.

Whilst, the grey fleet management can differ depending on the type and size of business, vehicles' volume, data availability or established behaviours, the 'drive' for managing it should apply to all.

The drivers behind organisational energy and fleet management can be manifold depending on each organisation. These can be driven by:

1. Regulatory requirements
2. Cost reduction
3. Finite resource depletion
4. Climate change
5. Air quality

1. Regulatory requirements

As emissions increase and air quality decreases, Governments are setting standards on energy and fuel efficiency. For example:

- The Streamlined Energy and Carbon Reporting (SECR), introduced in April 2019, sets legal requirements for Quoted, Large Unquoted and Large Limited Liability Partnerships (LLPs) to report annually on greenhouse gas emissions, fuel and energy consumption for their built estate and fleet.
- The Energy Savings Opportunities Scheme (ESOS) sets out mandatory requirements on large companies to conduct compliant energy and fleet assessments every 4 years.

2. Cost reduction

In addressing energy and fleet fuel efficiency, companies can make significant financial savings against their costs. A company that has previously not addressed energy efficiency can save upwards of 40% of these costs. Where a company is spending a conservative 20% of its outgoings on energy and fuel, then even a 10% saving against is a 2% saving on annual available income. That's a 2% increase to the company's profit line.

3. Finite resource depletion

The earth's naturally occurring fossil fuel resources (coal, oil and natural gas) evolved over hundreds of millions of years. More than half of these reserves have been extracted and burnt in the production of energy, transport fuel and goods since the start of the industrial revolution in 1760. A period of a mere 260 years.

The rate of fossil fuel extraction, consumption and combustion has increased dramatically. In 1927, the world's annual Carbon emissions from fossil fuel burning reached 1Gt for the first time. Only 62 years later, this figure was 6Gt per year. It is currently close to 10Gt.

4. Climate change

Climate change is a real and present danger. In 2016, in reaching 26% of all greenhouse gas (GHG) emissions, transport overtook Grid power generation for the first time. Emissions from transport rose from 15% of total GHG emissions in 1990 to 26% in 2016. Figures for the EU as a whole are 24%. Importantly, air quality levels around the world are at an all-time low in the history of human occupation.

5. Air quality

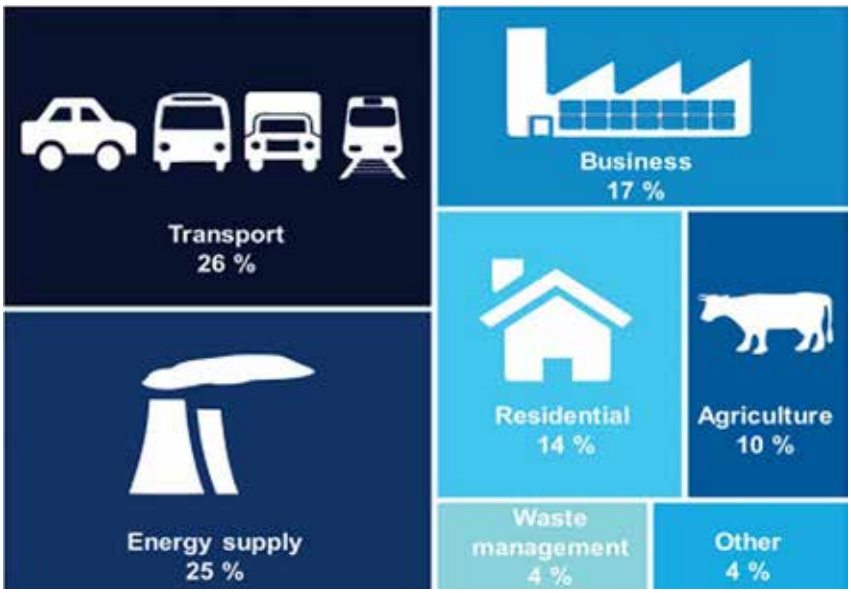
Air Pollution kills more people worldwide each year than does AIDS, malaria, diabetes or tuberculosis. Air quality throughout the world has been worsening year on year due in large part to vehicle emissions. The findings of Diesel-gate are leading to the addressing of emissions in new vehicles, but in the UK alone there are almost 38.2m vehicles on the road of which 31.5m are cars.

Fleet management (cars and light commercial vehicles)

The most prevalent form of business car use in the UK is grey fleet. Grey fleet is a historic term which broadly relates to mileage reimbursement. In particular, using a driver's personal car for business purposes.

Grey fleet use in the UK is significant, the Public Sector travels 1.5 billion miles per year at a cost of £786 million. This is made up of:

- 40% National Health Service (NHS);
- 34% Local Authorities;
- 16% Civil Service;
- 10% Further Education and Blue Light Services combined.



Transport becomes the largest emitting sector of UK 2016 greenhouse gas emissions (www.gov.uk)

In comparison, the Private Sector travels 11 billion miles per year at a cost of £5,000 million (£5bn).

Grey fleet in the UK is made up of vehicles that are on average 8.2 years. This means that depreciation values are low, whereas emissions are high. These vehicles deliver on average 152g/km of Carbon Dioxide CO2 into the environment. For context, the average emissions of UK cars at 2018 was 124g/km. Clearly there are many cars now available that are low and ultra-low carbon and vehicles that are sub 100g/km CO2 are very easy to access.

The financial case for tackling grey fleet is compelling. However, there are many competing factors, predominantly financial but not solely limited to reimbursement, which can limit progress. Employees in the public sector have been subject to pay restraint for several years, which makes negotiating any perceived cuts in benefits difficult.

The level of business mileage reimbursement can be perceived as part of the overall salary and compensation package. As a result, there is a strong incentive to drive and claim potentially unnecessary mileage. The responsibility for grey fleet management is often poorly defined in the public sector.

Often the department responsible for, and with expertise in, vehicle fleet management has little, if any responsibility for grey fleet. In the private sector, the choice afforded by using a grey fleet car and the relatively low and consistent impact on personal taxation through income tax and National Insurance (NI), in comparison to annual increases in Company Car Tax, requires a determined effort by the organisation to provide equally attractive alternatives which reduce overall costs and comply with HMRC and duty of care requirements.

Organisations will often opt for the use of their staff's personal cars as it saves them the outlay of purchased or leased cars. In some situations, there remains a strong case for the retention of grey fleet. Examples of this are where the use of vehicles is so infrequent that any other option would be unjustifiably expensive.

For fleets that use cars for sales and marketing, the case for replacing and addressing grey fleet is powerful:

- Cost saving
- Control
- Health and Safety (MOT, servicing, license checks, insurance checks, roadworthiness)
- Corporate manslaughter
- Congestion reduction
- Air quality improvements
- Reputational advantages

Grey fleets can be monitored by mileage management which involves the understanding of the nature, frequency and duration of business journeys made. A detailed picture of organisational travel requirements will help an auditor determine and recommend the most suitable alternative to grey fleet.

In addressing any vehicle fleet, availability of good data is paramount.

Accurate filling station fuel data against vehicle registration is meaningless without access also to accurate and regular odometer readings. Any organisation that is not recording odometer readings should start to do so immediately. This should be an absolute requirement of anyone driving a grey fleet car that is expecting to submit a mileage reimbursement, it is questionable why this should be any different for commercial drivers.

This article is an extract from the EMA Guide to Fleet Management. The Guide has been developed to help companies to take control of their transport and fuel use. It focuses on explaining grey fleet and conducting transport audits for cars and light commercial vehicles with an aim to assist businesses and fleet managers in undertaking assessments and identifying opportunities.

The full version of the EMA Fleet Management Guide for energy management professionals is available on the EMA website in the Resources section. It includes further sections outlined below:

- **Alternatives to grey fleet;**
- **Effective fleet management;**
- **Transport energy auditing – assessing a fleet (mileage claims, fuel receipts, fuel card invoices, fuel types, telematics), establishing a baseline, simple payback, return on investment, internal rate of return, life cycle cost analysis;**
- **Driver behaviour and benchmarking – stakeholders, business case (benefits matrix), value at stake;**
- **Opportunities in tackling car and commercial fleets - travel policy, benchmarking, monitoring methods;**
- **Solutions for car and commercial fleets – fuel, electric vehicles and charging infrastructure, hydrogen, car share, rationalised mileage rates, control of managed fleets;**
- **Case studies.**

RESOURCES NOW AVAILABLE

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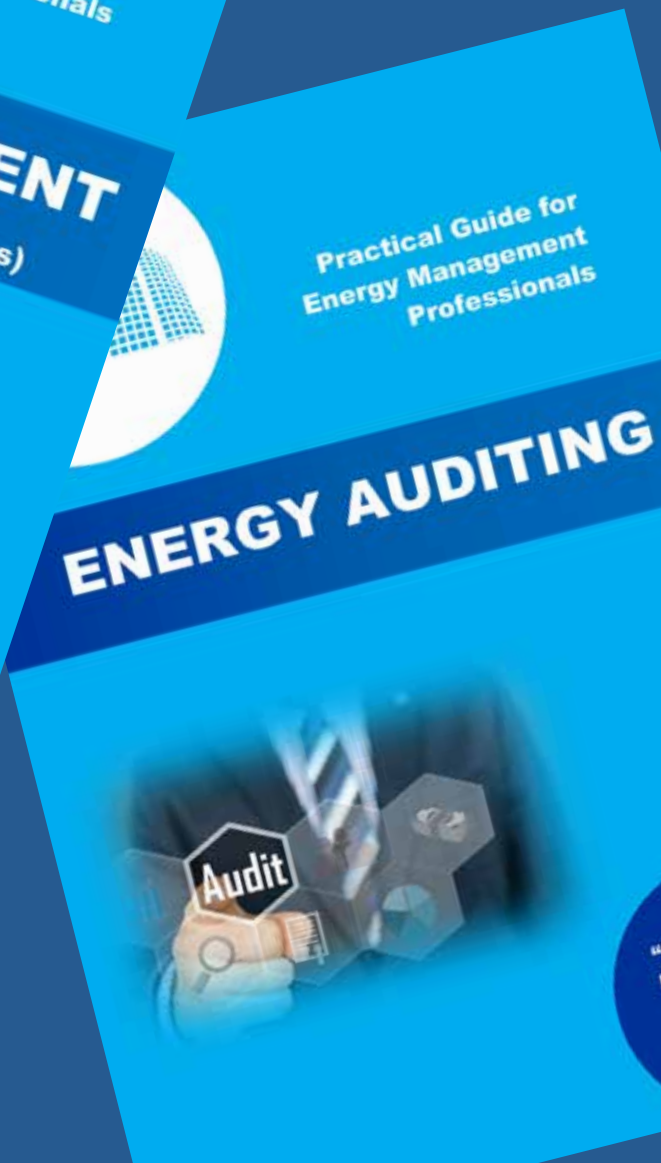

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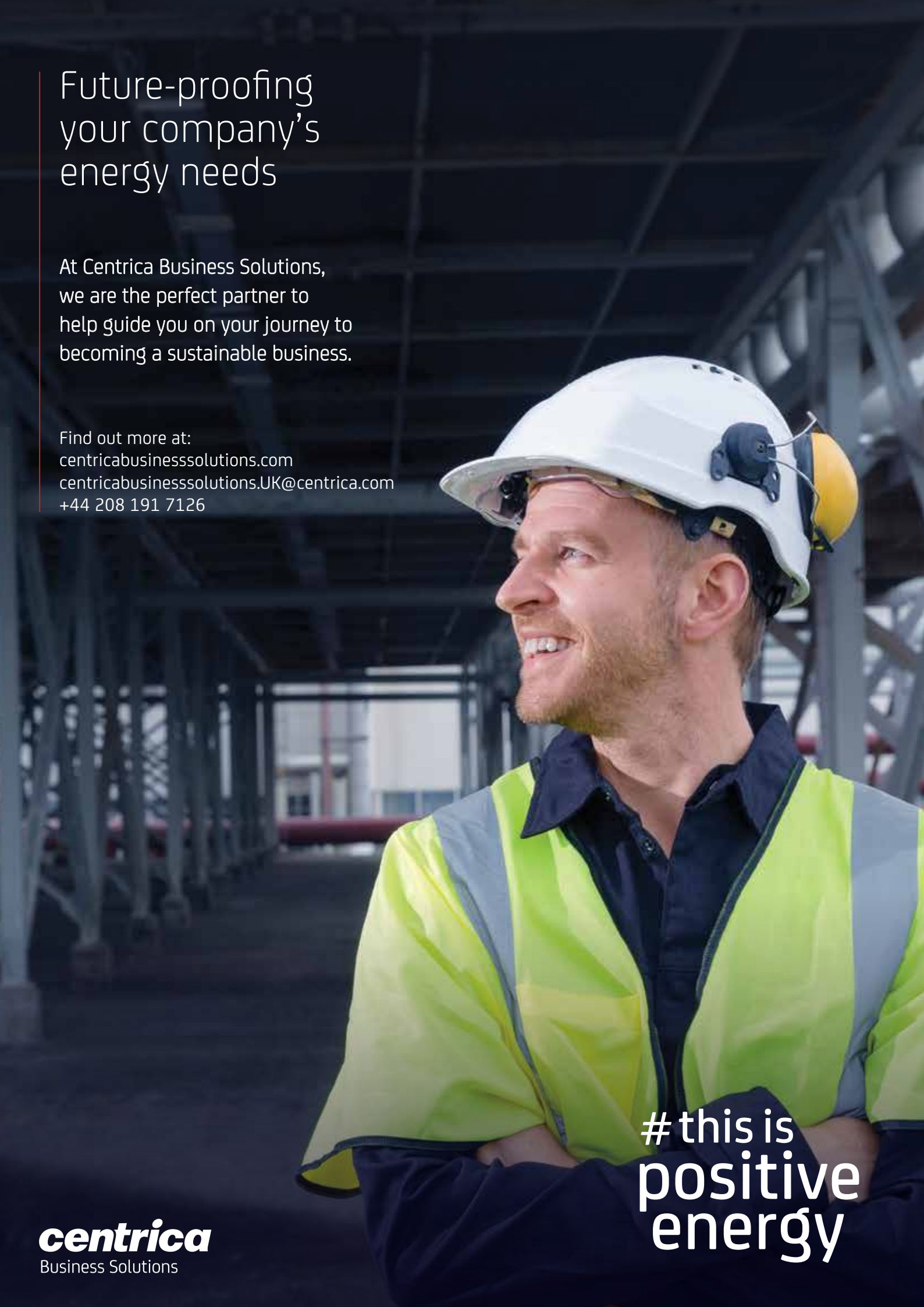

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