

THE EMA MAGAZINE

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**Energy
Management
Awards**

2020



Impact of Covid-19 on EM Roles



New Normal for Facilities Management



Behaviour Change and Motivation

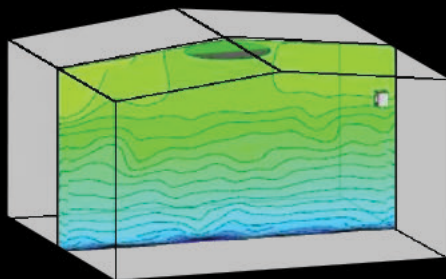


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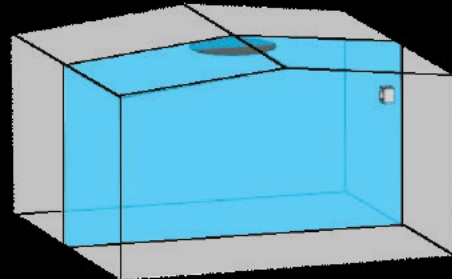
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4 FOREWORD

By Julia Blackwell

FEATURES

6 IMPACT OF COVID-19 ON ENERGY MANAGEMENT ROLES

By Andy Creamer, Andrew MacBride, Astley Fenwick, Sarah Jolliffe, Chris Norburn and Paul Graham

12 WHAT IS THE 'NEW NORMAL' FOR FACILITIES MANAGEMENT

By Dr Andrew Lewry

CAREER & TRAINING

14 SHAPE YOUR ESSENTIAL ENERGY MANAGEMENT SKILLS

By the Energy Managers Association

17 EMA WEDNESDAY WORKSHOPS

By the Energy Managers Association



20

18 EMA ENERGY MANAGEMENT AWARDS 2020

By the Energy Managers Association

INDUSTRY FOCUS

20 WHAT NOT TO DO... IN BEHAVIOUR CHANGE AND MOTIVATION

By Stuart McLeod, Julie Smith and Claire McGeechan

26 TACKLING THE ENERGY MANAGEMENT CHALLENGE WITHIN SMALL TO MEDIUM-SIZED BUSINESSES

By John Kyffin-Hughes

30 PRACTICAL GUIDES FOR ENERGY MANAGEMENT PROFESSIONALS

By the Energy Managers Association



26



18



6

Dear Reader,

Welcome to the latest issue of The EMA Magazine. I doubt that COVID-19 has been far from anyone's mind over the past few months, with lockdown and reopening facilities continuing to provide some significant challenges for both energy managers and our facility management colleagues.

In my role as an M&V Manager, overseeing the guaranteed energy savings for measures installed in Cambridgeshire schools, I have had several discussions with head teachers, who have highlighted their concerns over the impact that the extra hand washing and increased natural ventilation in classrooms will have on their gas bills and school budgets over this coming winter. This edition of the magazine includes more on how you can respond to these challenges, as well as learning from the experiences of others.

Developing a behaviour change campaign to reduce energy use can be difficult, how do you measure its success, how do you tailor the messages for the different groups within your organisation? Here is your chance to learn more on 'what not to do' when running your campaign.

One of the highlights of our year have always been the EMA awards, a chance to celebrate success and recognise the innovation of individuals and teams throughout the country. Whilst we will not be able to meet for the announcement this year, we do still want to celebrate your success, so now is the time to tell the world about your projects and teams.

There are 10 award categories this year:

- Energy Manager of the Year, for both Public and Private sector;
- Energy Management Team of the Year, both Public and Private sector;
- Junior Energy Management Professional of the Year;
- Energy Management Consultancy Partnership of the Year;
- Energy Management Project of the Year;
- Energy Product of the Year;
- Innovative Energy Product of the Year and;
- EMA Member of the year -nominated by the EMA.

Full details can be found on the EMA website:

www.theema.org.uk/energy-management-awards-2020/

Julia Blackwell,
Member of the EMA Board of Directors and Energy M&V Manager
at Bouygues E&S Solutions Limited

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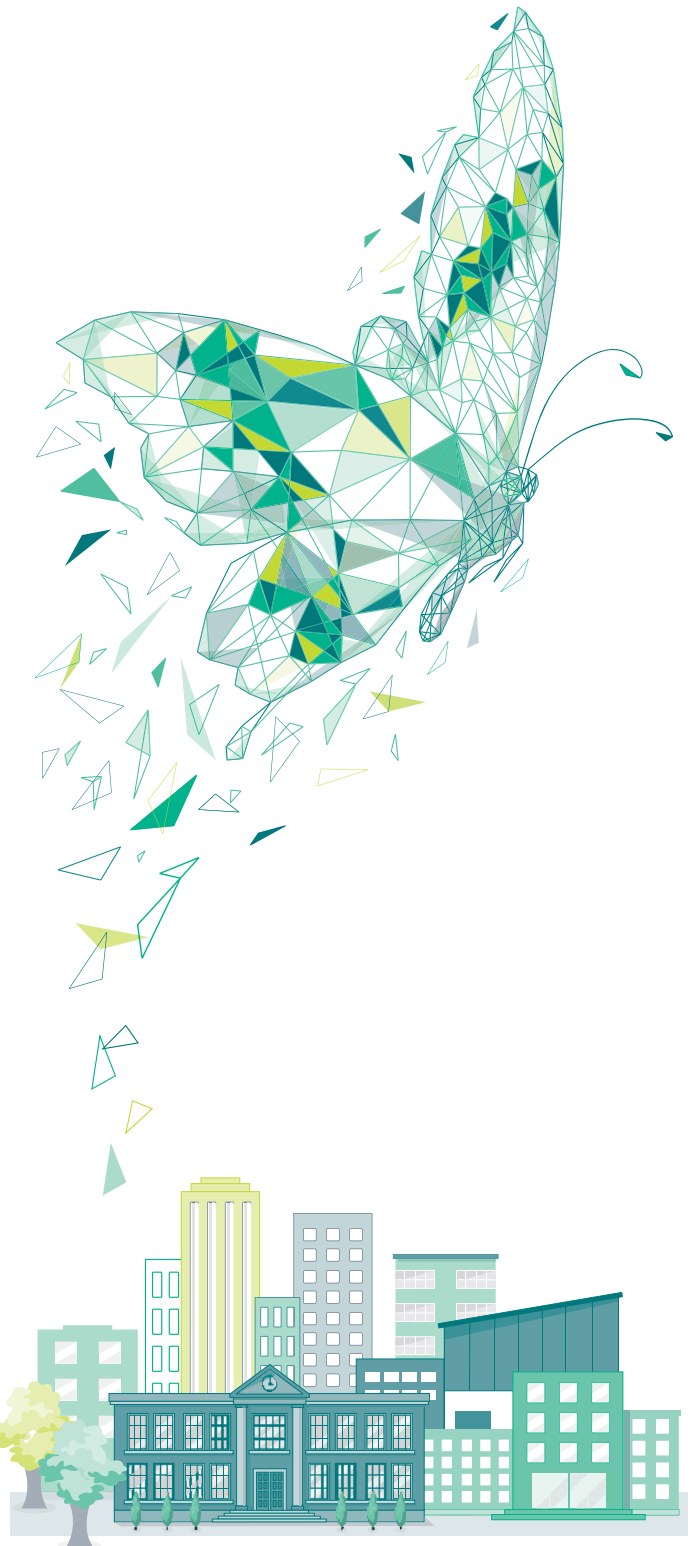
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by Andy Creamer, Andrew MacBride, Astley Fenwick,
Sarah Jolliffe, Chris Norburn and Paul Graham

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Impact of COVID-19 on Energy Management Roles



Andy Creamer,
Energy Manager
at Mapeley
Estates and
Group

Mapeley manages

a large estate of several hundred commercial and residential properties. I started in Energy Management about 5 years ago. Initially, to manage utilities for the group and to implement a sub-metering project, having experience in electrical, technical, customer service, buying and project management – one of the benefits of being so long in the tooth.

Over the 2 years before lockdown, this role had morphed into a more strategic role. I am responsible for the whole gamut of energy and water related activities, but mainly focussed on efficiencies of consumption and carbon, and hence cost – arguably our *raison d'être*. This mostly involved office based strategic activity e.g. ASC and HV/LV electrical billing projects, physical projects e.g.. urinal water controls, procurement of contracts for energy and services, and compliance; and site based tactical actions related to installations and audits, and supplier reviews.

“THERE IS A MUCH GREATER FOCUS ON EFFICIENCIES ALMOST AT THE EXCLUSION OF ALL OTHER NON-COST RELATED ACTIVITY.... THE £ IS KING. I HAVE NO CAPEX PROJECTS NOW, THEY HAVE GONE WEST AT THE POINT OF LOCKDOWN.”

I am also responsible for offering an internal consultancy within the Group to our Development, FM and Lifecycle Teams for energy related issues and queries.

Since the lockdown, I have worked from home almost exclusively – only rarely venturing out to the office when I need a bigger screen or printer/scanner. No other business visits have been permitted until September. There is a much greater focus on efficiencies almost at the exclusion of all other non-cost related activity.... The £ is King. I have no CapEx projects now, they have gone west at the point of lockdown, and in any case few contractors to do them. I don't foresee any real change until the next financial year and that will be a continued effort to reduce cost by efficiency and procurement. Working on MS Teams/Zoom/Google Meet is challenging as living out in

the sticks means a 2-MB broadband is a really good day – add to that little/no mobile signal makes life harder than it needs to be for work. In any case, I just find these programmes completely impersonal. I don't think we should, or could, abandon face to face forever, despite the utterances of some of the NASDAQ listed companies.

We have seen energy contracts and fuel prices falling, and have taken advantage of that; however, one unexpected bonus was the reduced carbon for our SECR return, although next year will see an equivalent increase, but I am happy to take any small mercy out there.

I don't usually proffer advice to anyone – so here's three for the price of one:

1. Get a proper office chair if you are at home. Cost me £15 on eBay and



so much more comfy.

2. Find a way to separate work and home lives. When I am working at home I always put on a tie and it's like a brain switch for me...either that or I truly have lost it.

3. Maintain a sense of humour...

Follow these and keep yourself sane – the work then gets done as a matter of course.



Andrew MacBride
- SMaRT
hub - Energy
Manager,
Arcus FM

I have been energy manager for Arcus FM for 5 ½ years. Previous experience included refrigeration engineering and contract management. Our primary focus is around reducing energy for our clients through the optimisation of buildings, plant & equipment. Looking back over my relatively short time in this industry it is clear to see that we are continuously learning and developing techniques, what was right 5 years ago may not be right today. We have learnt to embrace continuous change.

Pre-COVID, we were working with a good working knowledge of our client's business operating models and how they were using their buildings; on the whole things were relatively predictable and as such most of our energy reporting and alerting systems were easy to use and interoperate. My role would involve regular meetings with client's key stakeholders to ensure we were supporting their Net-Zero targets. Most of our meetings were face to face, however there was a trend towards reducing unnecessary travel and making better use of video conferencing technologies prior to the arrival of COVID-19.

COVID-19 brought some large-scale changes for Arcus FM. Those most affected are our engineering teams and front-line workers. Luckily for my energy team, we have been able to work successfully from home. We have found that the use of Microsoft Teams has played a huge part in keeping us all connected, in fact in some respects we are communicating better now than before. Being in an office environment has its advantages and we are all hopeful that we will be returning when it is safe to do so.

During the first few months of COVID-19 my team were very busy

keeping up with the amount of change our client was having to implement. We found that we were requiring daily Teams meetings with client departments to keep abreast of change. Change can be daunting for a lot of people but as a team we have been working on embracing continuous change. Pre-COVID, we were aware that we are living in volatile times and that we need to be able to adapt and change at a moment's notice. This awareness has meant that we were able to move rapidly with our client whilst maintaining a high level of support and future development.

COVID-19 is going to be around for a long while so for us as a team we are going to have to keep up the same level of adaptability we have demonstrated so far. Our clients have a difficult journey ahead and it is our department's goal to support them every step of the way.

My learning since the arrival of COVID-19 is the importance of the whole company working together to achieve a common goal. There is no room for silo working and teams that might not have worked together closely before are now having to pull together. We have been working towards 'One Arcus' for a while and in the present circumstances it is clear to see why unity is so important.



Paul Graham,
Utilities,
Waste and
Sustainability
Manager at
Kingston
Hospital NHS
Foundation Trust

I've only been involved in energy management for three years, but I've noticed some changes. In the NHS, we lag behind the latest advances so things like building level sub-metering and AMR are still quite new but have proved their worth during the pandemic.

Before COVID-19 started to make itself felt in the Trust, my role was mostly desk-based, on site with a focus on solving 'urgent' problems like "why has the water bill gone up

this month?" and "what do I do with this waste?" as well as supporting colleagues from my site knowledge and IT capabilities. I took a day each week to work from home during which I could focus on anything that required uninterrupted concentration. COVID-19 first affected my role early in the year when we still thought the waste was a Category A pathogen (it's not). However, until the government started encouraging people to work from home, work mostly continued as normal.

In late March, I switched overnight from a mostly office-based role to working from home full time. I borrowed an office chair and an extra PC monitor to differentiate my work setup from my downtime PC use. Working was increasingly stressful as changes came thick and fast. The operational challenges for waste and centralised decision making were the biggest challenge for the first few months.

However, due to our remote monitoring setup, I was still able to keep track of energy use across the site. I could conduct remote meetings (first by mobile phone, then by MS Teams) and keep up with developments on site. I also found that I had more capacity to focus and, as a result, some important projects we had on the backburner have moved forward since the lockdown started. I've also enjoyed the wealth of webinars available which were always hard to get working on our internal equipment.

Since July, the Trust has re-started most clinical services. Internal face to face meetings are banned, with exceptions only by special application. We have all been given access to Office 365 and other tools to enable remote working which was not a widespread practice before lockdown. I feel that the organisation has supported me to continue working from home with minimum difficulty, I attend site for a few hours every week to catch up with colleagues and batch some site-based tasks. Daily email bulletins communicate things we need to know and are supplemented by videos from the executive team when something is particularly important.

I think that home working will continue to be encouraged for back office staff. The organisation is short on office space and specialist applications are increasingly cloud based with remote access. In a hospital, there are many functions that you would not want to push off site due to the need for direct collaboration and data security. I hope that teams will adapt quickly to communicating by video call and messaging, it has been a struggle to maintain team spirit as communication now requires more intention and doesn't just happen.

My advice to other energy managers, especially in the NHS, is to take advantage of the opportunities afforded by the current openness to change and maintain your personal and spiritual energy. I wasn't aware how stressed out I was getting until I took a break and it took the whole week to calm down. My church has kept meeting via streaming and zoom calls which has been the greatest support and helps me to maintain perspective.



Astley Fenwick,
Director at
Trinity Energy
Management
Ltd

During my career as an Energy Management Consultant, I have seen numerous changes over the years in technology associated with the industry and new methods of approaches to energy management. I have always managed to adapt to these changes, but nothing like the changes I am now experiencing because of COVID-19 pandemic. And I know that I'm not alone in this since the whole country has had to come to terms with a new way of life.

I started my career as an electrical engineer, designing and managing installation of electrical services for building services and manufacturing industry, and have always had a strong interest in what could be done to limit the amount of energy being used in the areas I designed. Following a move in 1990 to GSK, I subsequently became the Site

Electrical Engineer and then due to an edict from the directors to reduce energy consumption by some 25%, I was also asked to take on the role of Site Energy Manager as well. I formed a team comprising engineers from the different manufacturing areas and embarked on a three-year project to reduce site energy consumption, bearing in mind the target set.

The project briefly involved better motor management, improved lighting, tighter control of compressed air, installation of two wind turbines and several others. However, the most important to me was the involvement of all the staff by involvement and communication with them. At the end of three years, we had met the target and saved some 40% compared to the start of the project.

In 2004, I decided I needed a career move and became an independent energy management consultant. Since then, I had become interested in the subject of trying to save the limited resources that the Earth has to offer. I concentrated on manufacturing and large industrial premises because of the significant amount of energy usage. My work involved, and still does, the carrying out of energy audits and producing reports to indicate how savings could be achieved. If required, I can also design and project manage the replacement of equipment or modification of existing equipment to operate more efficiently. I would also look at the prospect of renewable energy but would only recommend this approach after the use of energy had become more efficient. This is like comparing renewable energy as the water in a leaking bucket going to drain - you want to limit energy wastage before you supply this from the energy produced by a valuable investment.

Obviously, during lockdown I have not been able to carry out any audits and understandably, companies are concentrating on how to keep their businesses afloat rather than being distracted by energy management. And, as I see it, that's the problem all energy managers will be experiencing at this point in time. It was hard enough before COVID-19 to

ascertain interest from the company heads but it is even a greater challenge today.

During lockdown, like many others I spent a lot of time in my garden, but now it's just a case of trying to keep up with the latest changes in technology, especially using the EMA resources and planning for the future. One of the topics that I am actively pursuing is systems for monitoring and targeting energy. To me, this is the most important approach to energy management because if you don't know where and how you're using energy then how can you manage it?



Sarah Jolliffe,
Company
Energy Manager
at BAM
Nuttall Ltd

Energy management in the construction industry has always been a mixed role. In my career so

far, the role has included managing energy needs for a handful of offices, managing temporary power connections for our projects, and ensuring the business meets its obligations under the ESOS and SECR regulations. But in construction, the lion's share of energy use is in the form of liquid fuels and this is something managed by the projects and is nothing like as complex to manage compared to electricity and gas supplies. The industry continues to be reliant on liquid fuels and is associated with construction plant, equipment and power generation – these are items that are currently quite difficult to shift to electric power trains.

Therefore, the energy manager role inside this industry is quite different from the average energy manager and for me at least, it has been dominated by a need to report on energy use and manage the business' wider sustainability objectives. This is a very project-centric industry and means that it has been very difficult to make investments in

energy/carbon saving technologies. Anything with a return on investment of over 18 months generally fails to be realised.

Over the past 5 years, there has been a real surge in rhetoric around action on climate change. Since COP21 in 2015, real momentum has been gathering and most energy managers I've spoken to concur that their roles have seen an increasing component of climate change management. In 2018 and 2019 the IPCC published 2 reports on the topic, and this seems to have further catalysed media attention and general public awareness to the point where we are beginning to see businesses being targeted to take action. This has been good for roles such as those in energy management since energy use is the primary cause of fossil fuel consumption leading to climate change. Therefore, we are being increasingly relied upon for expertise in tackling the problem and are at the forefront of forming strategies for our businesses to help meet these challenges. It has also given



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birth to new roles which is good for the energy management and sustainability related professions.

So, when it comes to COVID-19, like many businesses, the construction industry has suffered greatly with a mass scaling down of physical operations which has unfortunately led to job losses. The civil infrastructure sector however has fared considerably better with only a limited impact and so far has led to a reasonable continuation of business. For me personally, I wasn't furloughed and continued to work from home like I already had been for many years.

The only thing that has ceased completely is energy auditing in person for which I would normally visit an office or site to undertake. Also, in-person meetings have completely stopped in favour of digital conference tools such as Microsoft Teams, Zoom and Skype. These tools have been quite effective, and they have in fact opened all our eyes to realise significant expense and travel time savings.

Post COVID, I expect physical auditing activities will resume as normal, but there is a big question mark as to when that might be right now. Only business critical activities are permitted so it is quite difficult to make the case for in-person visits where there is no clear need. In-person meetings on the other-hand are likely to be almost completely moved to digital conferencing over time – the cost savings to the business are just too appetising to ignore.

In summary, I remain very open minded about my career opportunities and this has always served me well stemming all the way back to when I left school as a general builder. Being versatile and able to adapt to changes in the industry will always make you attractive to employers no matter what your role description is.

I would also recommend that energy managers pay attention to the wider climate change agenda since this is presenting new opportunities all the time and is quite exciting in some ways.



Chris Norburn,
Director
of Energy
Operations
at Breathe
Connect

I have been in the Building Services Controls and energy industry for over 30 years. When I started out in this profession I would state - in my personal opinion:

- "Energy Management was mainly involved with consumption, M&V data analysis, reporting and billing."
- "Building Services Control was mainly pertaining to comfort of staff and protection of the building and its assets."

I would suggest as climate change became common knowledge and the cost 'penalties' became the norm, I have seen customers' drivers for energy management evolve over the last 20 years – where initially the ask was to help alleviate the burden of carbon penalties and rising energy prices with quick ROI initiatives. However, in the last decade, I have seen this 'simple return on investment' approach become more part of the enabler within business cases, with the new 'data' criteria such as staff comfort, wellbeing, security of supply, lifecycles and efficiency of maintenance labour taking just as much a precedence.

Wellbeing and 'safe healthy buildings' are now a very much discussed topic with my customers on how we control, monitor and manage the buildings' environment to help minimise risk of infection transfer – some practices associated with this may well now increase energy usage and costs!!

My role pre COVID was two-fold – ensure my clients are serviced well with tangible benefits whilst ensuring my staff were constantly trained and developed to ensure a professional delivery on budget, expectation and time. This involved regular face to face meetings internally and externally. Once I knew the lockdown was imminent, I had to ensure all the planning and processes I had in place for many years to

cover any situation like a pandemic - the Business Continuity plan – was ready to be mobilised. This included amongst many factors the below:

- Staff working from home with seamless effect on delivery and/or customer experience.
- All sites to maintain remote connectivity and monitoring with a robust and fit for purpose IT infrastructure in place.
- Staff welfare and continual support.
- Customer and staff communications and reporting.

The pandemic affected a large portion of my role. I had to learn and/or improve skills associated with remote communication and reporting, adapt to new ways of working 'live and online' and management of time with what was in effect working from home every day whilst in a family environment. This meant I had to create and stick to a strict task and activity plan. When to get up (no commute), planning my days to maintain efficiency, ensuring I had breaks and took daily exercise. I became more conscious of my own mental health and wellbeing.

Looking ahead a few months, the main factor being looked at now is, "do I need to attend an office every day or even every week?" "Do my customers need me to travel distances for meetings when online is just as good?" "Do I need the daily personal interaction with my staff and clients?" I do not need to waste costs, carbon and time commuting long distances for a brief meeting. Do I actually need a fixed office and the costs associated with such?

My thoughts are that working remotely is more carbon efficient, cost effective and also improves productivity. However, I feel that a mix of pre and post COVID working practices would be ideal as some personal social interaction still has value and importance.

My tip for any managers looking at this. It's not just about cost benefits and savings but also about mental wellbeing and social interaction. Embrace the good points from lockdown and mix these with the beneficial aspects of pre lockdown.

5 opportunities to manage energy costs

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What is the 'New Normal' for Facilities Management

A very difficult question to answer with the future uncertain and the Government doing more U-turns than a learner driver. This is mainly due to the conflict between Health, Economics and Well-being but leadership and a strategy is sorely lacking.

How do we return to work safely? And what will that workplace look like?

Despite the Government's drive to get us back to the workplace, the reality is that the number of workers heading back to the office has increased in fewer than half of the UK's biggest cities and town centres, using data from the Centre for Cities High Street Recovery Tracker. Early August weekday footfall rose by just one percentage point compared to the early July in central London and Manchester. While Leeds, Bristol and Nottingham all saw no change and in Birmingham city centre the number of workers has fallen this summer.

This is supported by analysis from US bank Morgan Stanley's research unit AlphaWise which shows that almost three-quarters (69%) of employees in the British capital have not returned to their workplace and that about half (49%) of London office workers are working from home for five days a week.

The persistently low numbers of workers going back into city centres is driving the Government's 'back to work' policy due to its concerns for the future of shops, cafes, restaurants and bars that depend on office workers for custom.

However, this drive to return is not mirrored by many. For example, Alex Brazier the Executive Director for financial stability at the Bank of England and a member of the Financial Policy Committee (FPC) said: "A sharp return to dense

office environments should not be expected. Instead, we should expect a more phased return." Additionally, he said: "I feel safe coming to work, but I quite understand why many people might not." and "It's not possible to use office space, particularly in central London and dense places like that, with the intensity that we used to use it."

This aligns with the Premises and Facilities Management (PFM) Editorial Advisory Board, with several members stating that their facilities were reopening on a gradual basis. The majority were reopening to a small percentage of the workforce initially, allowing Facilities Managers (FMs) and service providers to assess where any changes needed to be made, either to provide colleagues with more reassurance or address any areas to improve social distancing.

There have also been announcements from companies stating that their workers would be allowed more flexibility in their working arrangements. Others have stated that they are not expecting workers to return en masse until the beginning of next year.

PwC's latest CEO pulse survey indicates that over two thirds (68%) of UK's CEOs believe there will be an enduring shift towards low density office usage, with the move towards remote collaboration resulting in long-term changes to office accommodation strategies. Against a backdrop where major organisations and retailers are considering repurposing or closing properties within their portfolios, the survey reflects how changes in how we live and work will impact the business models of construction, infrastructure, real estate and housing organisations as they respond to this 'new norm'.

In summary, companies are unwilling to put their employees at risk with

home working currently the new norm and visits to the office only when necessary until they consider the working environment safe for full time occupation. The lockdown has shown that remote working is feasible for the majority of the office population and that the consequences of home working are starting to fundamentally filter into long-term thinking about existing office accommodation models. There was already a gradual but significant shift in the way people chose to consume – physical retail assets versus online, served via logistics warehousing for example – but with lockdown this home delivery trend has swiftly accelerated into food and perishable items with a new, often more elderly, buyer group joining the younger, tech-savvy generation.

The result is likely to be different looking town centres and suburban areas in future which has larger real asset implications for the built environment with developers and investors needing to navigate this changing landscape.

In short-term, this puts a greater strain on the FMs who have to adapt their buildings to be COVID-19 safe against a background of cost control due to lack of revenue streams and occupying organisations looking to downsize their square meterage or go completely to remote working. The good news for the environment is that reduced occupancy will in the short-term give reductions in energy usage both at building and transport infrastructure level – but this is probably just an illusion and in the long run will probably just be a blip. However, with the current Government adopting a 'Roosevelt approach' of supporting large infrastructure projects to stimulate the economy, it will probably help accelerate progress in the journey to Net Zero Carbon.

So, in order to safely re-occupy buildings and give staff confidence in the environment they are re-occupying, a number of issues need to be considered (the Government's guidelines should be followed - see government websites for the most up to date information).

This requires a number of steps such as those in CIBSE guidance:

- Plan a timeline and scope of works required, taking into account new working practices needed to accommodate specific guidance on minimising the risk of viral transmission.
- For multiple occupancy, the FM will need to hold detailed discussions with the occupiers to find out what their own plans are with regard to re-occupying their working space.
- All activities need to be reviewed as tasks which were previously considered low risk, with straightforward methods of working, may now present new risks and new ways of working.
- The occupier's plan should identify which activities may involve additional health risks in the current circumstances and establish how to avoid or minimise such risks.
- The FM should review the occupier's plan to carry out their activities within the building and consider the impact this will have on the usability of the building and its building services.
- The FM will need to ensure all activities carried out to prepare a building for re-occupation are risk assessed

and carried out following a safe method of working.

- The FM should carry out a pre-occupancy inspection in order to inform and define the extent, timing and order of maintenance and cleaning activities and new cleaning regimes which will need to be put in place.
- Training will be required for the maintenance and cleaning teams on good hygiene practice, to establish activity schedules and to explain the availability and requirements relating to PPE. It is likely that increased supervision and checking of cleaning work may be needed to build staff confidence, including providing obvious evidence that regular cleaning has taken place.
- The FM will need to implement an enhanced cleaning regime, especially where workspaces may need to be used by more than one person during the day, and in 'common areas' or for commonly touched surfaces such as door handles, with more frequent, thorough cleaning following.
- Building managers and occupiers need to consider who will be asked to return to work, activities to be undertaken, working hours, travel plans and the intended occupancy density.

Once the planning is complete you can determine the requirements on building systems, including the supply of domestic hot water, life safety systems and provision of appropriate ventilation rates, as well as entry and exit plans. Although

some services will require more energy, for example for the provision of high levels of ventilation in all occupied areas of the building, there are going to be opportunities for energy saving. For example, if hours of occupancy are to be reduced or less space is used, this will allow optimisation of the Building Management Systems to the new occupancy period and zoning of services to the occupied areas.

Going forward, measuring the performance of a building is going to be difficult with the traditional kWh/m² becoming redundant until some normality is restored, probably around early 2022. Therefore, an option is the use of tailored Energy Performance Indicators (EnPIs) such as kWh/m² occupied, kWh/person and kWh/ no. of hours occupied.

In a lot of ways, things will be different, but some things will remain the same, such as the requirement to do more with less!

Author's profile:

Andrew is an expert in Carbon and Energy Management with over 22 years varied certification, technical, marketing and management experience preceded by a further 10 years similar experience within various parts of the Environmental and Construction Sectors. He also has in-depth knowledge of sustainability issues including BREEAM AP, CEEQUAL assessor, BIM IP, ISO 14001, and ISO 50001 lead auditor.





NEW SKILLS

Shape your Essential Energy Management Skills

As Covid-19 pandemic impacts the UK's economy, it is almost impossible for your organisation not to have seen a significant change in the operating model, shift in workplace culture and development of skills that would normally be outside of a day to day remit. Our variety of training options develop your and team's skills, identify means to reduce your organisation's climate change impact and deliver practical solutions to suit everyone's budget, requirements and schedule.

11-DAY ENERGY MANAGER COURSE

Become a Recognised Energy Manager by undertaking our new fast and comprehensive energy and carbon management training course. We have selected the most vital and essential areas of energy managers' competencies and offer to accelerate your or your team's learning to become competent and balanced energy managers able to tackle the carbon footprint of any organisation.

This comprehensive training course covers the energy management fundamentals and building services, HVAC, lighting, behavioural change, strategy and legislation, energy procurement, generation, measurement and verification and energy auditing. In total, these represent ten days of training which are delivered by former energy managers through virtual tutor-led and participatory sessions over six-ten weeks.

The training concludes with an assessment consisting of a comprehensive knowledge test, onsite audit report and an interview. The participants that pass the assessment will be awarded the EMA Recognised Energy Manager professional status.

With this training we also offer an optional on-site practical training that includes an expert's visit to your plant room and walk around the site identifying possible measures for energy efficiency.

COST: FROM £3,995+VAT

MANAGEABLE TRAINING CHUNKS

Those who are not at liberty of time for a comprehensive 11-day training or have been in the energy management for a while, can select individual energy management courses from a range of topics as per their interest, requirement and availability. Delivered online, a day's training courses can be spread across multiple months, allowing learners to train in manageable chunks or with preference for one topic over another. This also means that learners can expand on their knowledge and apply it to real-time scenarios in-between each training session, allowing for a greater understanding overall.

The overview of the available 1-day and 2-day virtual training courses:

Fundamentals of Energy Management Course (2-day course)

Course content:

- Energy fundamentals
- Global and UK energy use
- Prime energy legislation and UK energy industry structure
- Energy procurement overview
- Energy use in buildings
- Introduction to monitoring and targeting
- Introduction to energy auditing
- Introduction to lighting
- Introduction to heating ventilation and air conditioning
- Introduction to renewable and low carbon on-site generation

Energy Management in Building Services Course (2-day course)

Course content:

- Energy use in buildings
- Lighting
- Heating systems

- Cooling systems
- Domestic hot water
- Ventilation systems (air handling and conditioning)
- Pumping systems
- Renewable and low carbon generation in buildings
- Using maintenance for energy efficiency
- Applicable legislation

Monitoring, Targeting and Validation Course (1-day course)

Course content:

- Monitoring, targeting and validation
- Data gathering for M&T/M&V
- Range of metering technologies and sources of data
- Organising M&T data
- Using M&T
- How to interpret data and create value
- Baselines and benchmarking
- Sustaining M&T
- Using M+T for validation of savings

Essential HVAC Control and Optimisation Course (1-day course)

Course content:

- Boilers and hot water pumping systems
- Air handling systems
- Fan coil units
- Chilled water systems
- Air conditioning systems

BMS Essentials, Monitoring and Optimisation Course (1 day course)

Course content:

- BMS – what it is and what it does
- Subsystems controlled by the BMS and explanation of their integration (HVAC, Fume and Dust Collection, Heat Blowers, Steam, Hot Water System and Central Heating, Chilled Water System, Sprinkles System, Electrical Monitoring System)
- Strategy to drive all changes associated with BMS
- Connections between different types of stakeholders
- Business case for BMS

Lighting – Basic Understanding Course (1-day course)

Course content:

- Basic lighting measurements & calculations
- General forms of lighting
- External lighting
- Basic lighting design
- Lighting controls

On-site Electricity Generation Course (1-day course)

Course content:

- On-site solar generation
- On-site wind generation

- On-site CHP generation
- Other generation technologies
- Connecting generation to the grid
- Export agreements and export prevention

Battery Storage for Business Course (1-day course)

Course content:

- Basic types of battery used for storage
- Basics of charging and discharging cycles, battery sizing and battery life
- Basics of 'behind the meter' battery system deployment
- Grid connection requirements
- Potential savings on billed consumption
- External financial incentives

Energy Auditing Techniques Course (1-day course)

Course content:

- Basic process for energy auditing
- Pre-audit analysis
- Energy auditing techniques
- Control systems
- Basic reporting and costing

Energy Procurement Course (1-day course)

Course content:

- UK Electricity Industry – structure and its effects on tariffs and billing
- UK Gas Industry – structure and its effects on tariffs and billing
- UK contract pricing
- Energy contracts
- Procurement processes
- Using Third Party Intermediaries

Energy Management Strategy and Plan Course (1-day course)

Course content:

- Key strategy drivers
- Organisations' energy use and requirements for improvement
- Building a business case
- Setting targets, identifying opportunities for improvement
- Plan to implement the opportunities

Understanding and Delivering Behavioural Change Programme Course (1 day course)

Course content:

- The psychology of people – why we behave the way we do
- Identifying your audience and potential options
- Preparing and gaining approval for the business case
- Making it happen – delivering the programme
- Measuring and reporting on the impact



Water Management Course (1-day course)

Course content:

- UK water industry structure
- Water billing
- Water industry competition
- Water metering and monitoring
- Water auditing
- Water and energy consumption
- Changing behaviour to reduce water use

Waste Management Course (1-day course)

Course content:

- Waste management practices
- Waste legislation in the UK
- Waste disposal and recycling options
- Mapping waste streams / waste auditing
- Identify improvement opportunities
- Setting SMART waste targets and KPI's
- Measuring, monitoring and reporting waste data

Regulatory and Legal Compliance and Carbon Management (1-day course)

Course content:

- Key UK legislation and EU directives relevant to energy and climate change
- Key economic incentives
- Impact of legislation on company operations
- Sources of up-to-date and accurate information
- The difference in boundaries of carbon footprints

COST: FROM £290+VAT

EMA WEDNESDAY WORKSHOPS

The EMA's weekly workshops are interactive weekly online sessions that cover different practical aspects of energy management and bring professionals together to present and discuss their matters and share expertise.

The sessions keep learners well informed and are the chance not to only learn but also discuss your practices and ask questions that are specific to your organisation, system or project.

For the October workshop schedule please view next page (p17).

COST: FROM £15+VAT

Adapting to changing circumstances, gaining new knowledge, discussing your projects and tackling carbon footprint does not have cost a fortune nor take months on end. Take advantage of the virtual training delivery, develop your skills and implement the knowledge to boost organisation's performance.

If you would like to discuss your specific training requirements, please contact jana.skodlova@theema.org.uk.





EMA Wednesday Workshops

Join us for our Wednesday workshops, at 11 am every week, when we devote an hour to a new topic in areas across energy management and sustainability. The workshops are delivered by experienced energy management professionals and are a great way to learn something new and top up on your CPD requirements.

Here is our October schedule:

7 October - ENERGY AND WATER AUDITING TECHNIQUES – PRACTICAL EXAMPLES

Auditing is a valuable skill set to enable the identification of how electricity, gas and water are used within buildings and to allow the identification of opportunities to reduce use in a sustainable manner. This workshop session will focus on some basic auditing techniques that can be used in most buildings and processes for electricity, gas and water use, and offer attendees practical examples for review and control techniques that they can apply.

14 October - TACKLING SINGLE USE PLASTICS

This workshop will provide an overview of the complex problems associated with single use plastics in an organisation and also look at a number of solutions to

some of the main sources. Join Dewi Day, Sustainability Advisor at Aberystwyth University – the first university to achieve 'Plastic free status' – who will share his experiences of the university's challenges and achievements.

21 October - INNOVATIVE ELECTRICITY PROCUREMENT SOLUTIONS ACCELERATING THE PATH TO NET ZERO

This workshop will define what Net Zero target means in the UK's electricity market and discuss whether the conventional solutions to achieve the target are working. It will explore alternative solutions such as local energy markets, peer-to-peer exchange and virtual power plants (VPPs), and what they mean to an organisation in terms of achieving carbon neutrality. It will enable attendees to understand the available tools to better meet the Net Zero Carbon target and make a great impact.

28 October (afternoon) – EMA MEMBERS' MEETING

The EMA is pleased to announce a date for its first virtual members' meeting. The focus of this meeting will be on members' presentations and experiences of sustainable recovery from Covid-19 and a number of updates on new developments in the energy management field. Please look out for further announcements.

SPONSORED CONTENT

ENERGY MARKET REPORT

Weekly analysis of the energy markets:

- Forward annual gas and electricity pricing
- Price drivers
- Outlook commentary

20% OFF



EMA Energy Management Awards

In its 6th year, the EMA Energy Management Awards give prominence to those leading the energy management industry and inspire other professionals to follow in the same footsteps.

Entries are open until 15 October 2020

10 Awards' Categories

- Energy Manager of the Year - Public Sector
- Energy Manager of the Year - Private Sector
- Junior Energy Management Professional of the Year
- EMA Member of the Year - nominated by the EMA
- Energy Management Team of the Year - Public Sector
- Energy Management Team of the Year - Private Sector
- Energy Management Project of the Year
- Energy Management Consultancy Partnership of the Year
- Energy Product of the Year
- Innovative Energy Product of the Year

Energy Manager of the Year – Private and Public Sector

Nominees

We are seeking applications from professionals who have been working in energy management for several years. The entry should reflect entrants' industry knowledge and experience, their achievements and initiatives to promote energy efficiency, and include overall savings and energy reduction achieved for their organisation. We are seeking entries from professionals who believe they meet these criteria and those who wish to nominate their colleagues and peers. Entrants will be expected to evidence their impact and achievements with examples and results.

Why enter?

This Award is a unique opportunity for professionals to showcase their expertise in energy management, celebrate their successes and achievements, and at the same time raise their profile in the energy management industry and within their organisations.

Junior Energy Management Professional of the Year

Nominees

We are seeking applications from professionals who have been working in the energy management industry for no more than three years. The entrants should be able to demonstrate their impact on energy reduction and achieved savings at their organisation, and their drive and passion to promote the benefits of energy management. We are seeking entries from professionals who believe they meet these criteria and those who wish to nominate their colleagues and peers. Entrants will be expected to evidence their impact and achievements with examples, showcasing their role in the achieved results/savings.

Why enter?

This Award recognises new talent in the energy management industry, showcases and highlights energy management as a rewarding career option for new and upcoming energy managers.

EMA Member of the Year - nominated by the EMA

Nominees

This special category is nominated by the EMA team. This Award seeks to reward a member of the EMA for their support throughout the year.

Recognising and Rewarding Excellence in the Energy Management Industry
theema.org.uk/energy-management-awards-2020/

Entries are free
of charge and
open until 15
October 2020

S 2020

Energy Management Team of the Year - Private and Public Sector

Nominees

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

Why enter?

This Award recognises the teams' contribution to their organisations/clients, celebrates their successes and achievements, and demonstrates the benefits of a structured approach to energy management.

Energy Management Project of the Year

Nominees

We are seeking applications on energy and engineering projects that have been successfully implemented and the savings achieved can be demonstrated. All projects, including but not limited to, optimisation, upgrading, replacing or behaviour change that have been implemented for organisations by in-house personnel/teams or in a partnership with a consultancy service provider

will be accepted. The project results should be able to demonstrate successful implementation, reduction or savings achieved.

Why enter?

This Award recognises the organisational effort that is needed for leading an energy management project of any size, celebrates successful implementation and achieved savings.

Energy Management Consultancy Partnership of the Year

Nominees

We are seeking applications from in-house teams and service providers about collaborative partnerships of two or more parties that can demonstrate the benefits of delivering energy management in a partnership. We are seeking entries from partnerships that have been in place for a period of time that allows for the evidence to be presented.

Why enter?

This Award seeks to recognise a successful partnership where a collaborative approach to delivering energy management has been successfully implemented. The Award offers a unique opportunity to showcase a successful partnership and highlight benefits for all parties.

Energy Product of the Year

Nominees

We are seeking applications from technology manufacturers, suppliers or end users for products that have achieved energy reduction or savings. The product's performance will need to be documented and the evidence of benefits, achieved energy efficiency savings and carbon reduction presented over a satisfactory period of time.

Why enter?

This Award seeks to recognise a product that has through its application delivered proven energy reduction or savings over a satisfactory period of time.

Innovative Energy Product of the Year

Nominees

We are seeking applications from technology manufacturers, suppliers or end users for innovative products that have achieved energy reduction or savings. The product's performance will need to be documented and the evidence of benefits, achievable energy efficiency savings and carbon reduction presented over a satisfactory period of time. Furthermore, as this category focuses on innovation, the entries should include an explanation as to why this product should be included in this category.

Why enter?

This Award seeks to recognise an innovative product that has through its application delivered documented energy reduction or savings.



ENTRIES

Entries are free of charge and can be submitted on the EMA website until 15 October 2020.

WINNERS AND HIGHLY COMMENDED

The winners and highly commended in each category will be announced during a virtual awards' ceremony in November 2020 and will be entitled to the following benefits and opportunities:

- The use of the EMA Energy Management Awards 2020 logo;
- Have their profiles published in The EMA Magazine and EMA website;
- Highlight their achievements with published case studies and/or articles (The EMA Magazine and website).

What Not to Do... In Behaviour Change and Motivation



Energy management professionals usually define themselves as 'wearing many hats', which makes the profession interesting and dynamic but also requires an all-round knowledge and experience in key subjects. Whilst there is a plethora of information available out there in each topic, there are only so many hours in the day that can be devoted to reading and research.

Have you ever wondered what is the one thing that you should avoid doing when looking for a new supplier, undertaking a waste audit or setting energy management goals? The EMA is looking at key areas of energy management and asking those who focus on those areas at their organisations. In previous issues, we tackled what not to do in energy procurement, in waste management

and in energy management strategy. In this issue, we focus on behaviour change and motivation.

**Stuart McLeod, Project Manager
at Oaksme Design**



When identifying different options for a behaviour change programme, you should

never ever forget the following:

- What are you trying to achieve?
- It may seem obvious but you must keep your overall objective in mind and ask yourself whether each of your identified options will help you achieve your overall goals.
- Who is your target audience?

- Whose behaviour do you need to change in order to reach your goal, how will you communicate this and will any of your available options help to align their interests to yours?
- How will you encourage your target audience to take accountability for their energy consumption and how do you intend to ensure progress is measurable?

This could be a combination of budget responsibility and regular reporting; however, the optimum solution is likely to differ from organisation to organisation.

When identifying key stakeholders for a behaviour change programme, you should never ever solely focus on your target audience, i.e. the end users who have a direct effect on consumption.

Many of your other colleagues might have an indirect effect through their influence on the behaviour of others, some examples include:

- Marketing and PR teams can have a positive influence through sustainability and waste reduction campaign messaging. As the manager of an energy efficiency behavioural change programme you can help create a link in people's mind between the two.
- Although more often associated with carbon emissions reduction, finance and top management teams can influence how we travel for work and can encourage the use of public transport over diesel and petrol consuming company vehicles.
- You can feed specifications to procurement teams to ensure equipment is purchased with the energy conscious end consumer in mind, such as refrigeration display cabinets fitted with night blinds, speed-controlled motors on air handling plant and inverter-controlled compressors.

When preparing a business case for a behaviour change programme, you should never ever forget to include the entire range of benefits associated with a behaviour change programme.

Energy efficiency may only constitute one part of the argument for carrying out a behavioural change programme. For example, if colleagues are encouraged to be more mindful of closing cold room doors, in addition to energy efficiency benefits, you are likely to see lower carbon emissions, reduced maintenance costs, lower equipment downtime and a positive effect on food storage temperatures and therefore food quality. It is important to get this message across to non-energy professionals, to help them realise the wider financial benefits of energy efficiency.

When trying to gain approval for a behaviour change programme, you should never ever exclude reference to the ways in which your behavioural change programme will bring wider benefits to the business.

Perhaps more importantly, you must show how your proposed activity will

not impede the ability of colleagues to offer customers and clients the same level of service or product quality and that it could in fact bring additional benefits. We have already identified benefits to food quality, however behavioural change that helps improve operation of the HVAC system is likely to improve comfort for all occupants. To effectively communicate this message, you must have a well thought out execution and associated backout plan. You should also have the means to make continual improvements as you gather learnings from the process, this will help to give the approver confidence in your ability to manage the project.

When considering key elements of delivering a behaviour change programme, you should never ever forget that all elements in a behavioural change programme need to work together.

There is no use in building a fantastic communications plan only to realise you have no means of measuring success. You should also ensure that all key elements are scalable and have longevity. In order to continually benefit from changing behaviour, you must weave it into the cultural fabric of the organisation. You cannot achieve this with one-off energy usage reports or narrow stakeholder engagement.

When delivering a behaviour change programme, you should never ever lose sight of the original goal but also not to be afraid to make changes along the way.

Sometimes decisions made at the beginning of a project need to be revised as you adapt to changing contexts and environments. Wider business objectives might change the way your organisation operates but this doesn't mean energy conservation shouldn't remain at the forefront of employees' minds.

When continuously motivating stakeholders, you should never ever:

- Stop considering the personal and professional motivations of your stakeholders or trying to align this with your energy efficiency agenda.
- Stop celebrating success

and sharing learnings and improvements when things don't always go to plan.

When measuring the results of a behaviour change programme, you should never ever get disheartened by the difficulties involved in measuring the benefits of behavioural change.

Remember the wider set of criteria that may have been included in the business case and the long-term changes you are trying to affect. It won't happen overnight.

**Julie Smith, QHSE
Manager at Cepac Ltd**

When identifying different options for a behaviour change programme, you should never ever think one size fits all!

Changing behaviours is very challenging at times and there is no one size fits all. Employees all have differing motivations and to this end differing approaches are sometimes required. For example, it's easy with accounts department as you just tell them the cost savings! But of course, in a production area, operatives simply don't see running conveyors at breaks as a cost, it simply doesn't register so here you have to be a little more inventive and appeal to their motivation such as bonus schemes or awards for innovative suggestions. This all sits alongside the reliable close off checklist of course – daily, weekly and weekends can all have differing requirements. I have experienced some equipment that if turned off causes major set up issues on the Monday morning so it is important to work closely with the Engineering Department on site too.

When identifying key stakeholders for a behaviour change programme, you should never ever forget the operatives!

They are the ones with the equipment and use knowledge, and they are on the production line all shift so can keep an eye on things. I like to create ambassadors for energy. Giving ownership to the employees is a great way to engage with them.



I love using inhouse talent where possible, this often goes unnoticed and it is very rewarding when you speak with people and suddenly, they are volunteering to take the reins and support the drive. Listening is great as you learn so much, who knew that Operative A walked his village every day collecting aluminium cans for a charitable cause or Operative B ran a home composting system that fed his flourishing vegetable patch – win win! These people don't need motivation you just need to find a way to channel it.

When preparing a business case for a behaviour change programme, you should never ever overpromise!

Let's face it, we are never going to transform everyone, are we really? We have to set our objectives at a sensible level with gradual growth. The use of surveys is a great way to measure behavioural change; a set of simple quantitative questions that people can complete without thinking it's a test. It also provides some really interesting data and a useful qualitative comments box at the end, giving people the chance to have their say. How many empty suggestions boxes have you seen? Do a survey - it shows you are listening AND most importantly publish the results, investigate suggestions and give feedback. Sometimes that's all it takes. I am a great believer that the majority of employees do care, it's just how you reach out to them – respect earns respect!

When trying to gain approval for a behaviour change programme, you should never ever promise tenfold payback.

It's simply not going to happen overnight. A full behavioural change has a cost impact on the business, training even in-house has a cost and there is no specific payback to show so you must be prepared to have flat spots in the programme and realise it's a gradual process that doesn't always manifest itself in pounds, shillings and pence (yes, I am over 21)! Prepare the reasons for the behavioural change programme based on factual requirements. Was it a number of accidents driving the change? Was it excessive expenditure that now needs addressing? If you are zero incidents and run permanently under budget then why are you changing? The change has to be driven by something otherwise you will never be able to measure or have clear objectives.

When considering key elements of delivering a behaviour change programme, you should never ever expect too much!

Unless you have a degree in psychology (which in most cases you won't) then remember when necessary to call in The Professionals. I have attended a very expensive and a very well-known training course and to be honest.... waste of money. I find the best resources are very often free! It's a seek and source challenge! Look at your suppliers, what can they provide you with? I had a skin demo and free hand creams from a very large PPE supplier, a local counselling charity attended site and gave talks on some very sensitive issues - both free and both very effective. Employees were buzzing about the topics for a long time after, remember the touch point of if it helps at work it will help at

home! Supporting your employees is key in the driver to behavioural improvement!

When delivering a behaviour change programme, you should never ever rush!

It is important to feed the programme in to employees at a rate that is acceptable to them, too full on at the start is a recipe for disaster. Start small and when you establish your motivators in the group utilise their energy (no pun intended!) to help you gain momentum. Communicate key information in a simple format; don't confuse people with complex numeric equations. The thing I love is that I sell the idea that anything we do at work can also benefit employees at home. There are many unhappy teenagers who thanks to me no longer leave their TV on in the bedroom unattended – sorry kids!

When continuously motivating stakeholders, you should never ever bore them!

It is very important to deliver your messages in a positive manner. Nobody was ever motivated by repetition and dictatorship. Check out their understanding of your expectations, let's educate them and remember they may have lived under the old regime of poor management where they had tried, but 'nobody ever listened so I gave up'. If only I had a pound every time, I heard that one! Keep it fresh, ask them to bring you their ideas, turn it around and you support them!

When measuring the results of a behaviour change programme, you should never ever overcomplicate things!

Remember you will never win everyone over but you can improve the majority. As you progress along your journey introduce new methods of motivation. External speakers are a great way to motivate, who wants to listen to the same person droning on? Not me and when measuring, it's time to get that survey out again. Now you can compare, has 'not always' turned into 'most of the time'? Then you are getting somewhere!! Display those results, however small,

ENERGY MANAGEMENT ONLINE TRAINING SCHEDULE

Energy Management Theory Combined with Real-World Applications

OCT	8 th	Energy Procurement
	13 th	Water Management
	14 th	Understanding and Delivering Behavioural Change Programme
	15 th	On-site Electricity Generation
NOV	3 rd	SECR Compliance
	4-5 th	Energy Management in Building Services
	10 th	Lighting Basic Understanding
	12 th	Waste Management
	19 th	Essential HVAC Control and Optimisation
DEC	3 rd	Energy Auditing Techniques



Please note that all courses will be delivered online on the scheduled dates until further notice.

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 concludes with a feedback on how to progress your professional development and advance your career.

Group Training

All courses can be delivered 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 specific client needs.

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

“Comprehensive, digestible and well structured.” Energy and Environment Advisor – Linklaters

“The course built on all aspects of previous knowledge and added a potential new skill that I did not have before attendance.” Energy & Environmental Manager - Celtic Manor Collection

“It was informative, useful and given confidence to challenge quotes and suppliers.”
Energy Efficiency Manager - Parkwood Leisure

“I found the course extremely useful, and it greatly simplified the process of analysing critical plant and equipment, so that we can increase effectiveness and hopefully reduce energy use.”
Facilities Manager - Huntingdonshire District Council

remember you will gain momentum as your team behaviours change and you'll soon be re-setting the target! A happy healthy workforce is a safe and productive workforce (not to mention efficiencies and cost savings!). Come on, what are you waiting for?!

Claire McGeechan, Director at Geb's Energy

When identifying different options for a behaviour change programme, you should never ever forget that behaviour change is not a one size fits all approach.

Tailor your programme to an identified objective and audience. Make sure you understand and are clear on why this corrective action is needed and what the intended outcome is.

There may be a simple linear solution but quite often it is more complex, not just involving people but companywide organisational processes, and operational plant and technology as well.

When identifying key stakeholders for a behaviour change programme, you should never ever assume it is only applicable to your own employees.

Would it be relevant to sub-contractors, outsourced service providers, suppliers, customers and/or the wider community? Ensure all interested parties who can have an impact on your organisation's energy use and performance are considered.



When preparing a business case for a behaviour change programme, you should never ever forget that it is implemented for a reason.

Be it a compliance or reputational risk, energy performance improvement opportunity or sales opportunity. All will have a financial aspect associated to them (which the 'C'suite will not normally ignore). Kilowatt Hours often mean nothing to those making the spending decisions but attach a £/p impact and you will get their attention.

For instance, an example I like to give is that for every kWh saved there may be an equivalent monetary saving, by at least 3 times, kWh Unit Cost, Standing Charge, CCL and VAT. Also, with energy and environmental regulation increasing globally, UK wide and within the regions, non-compliance often comes with an associated financial penalty.

Do not forget also to include how you will ensure that, as the programme progresses, it is delivering the objective. Always include a method of evaluating the programme's effectiveness. It should not become 'white noise' but should give those who have approved it confidence that it is being controlled and managed in a structured manner.

When trying to gain approval for a behaviour change programme, you should never ever ignore the potential risks of not implementing it.

Think PESTLE – political, environmental, social, technological, legal and economic. How might it affect your organisation if it is not undertaken and what would the impact be?

When considering key elements of delivering a behaviour change programme, you should never ever ignore the fact that, to maximise its effectiveness, you need to consider the following 360 degree approach:

- People – get the people doing the right things, through training, communication, awareness, and culture
- Process – make sure any processes are relevant, applicable, current, and effective

- Energy Consuming Plant, Tools and Technology – ensure the plant is efficient and operating at optimum levels so that there is no underlying reason for poor operating practices and behaviours.

When continuously motivating stakeholders, you should never ever let the message become stale, consider that effective communication is usually two way.

Think about how your audience interacts with you. How many times do posters become wallpaper, often covered by the next interesting thing, be it the next bake sale, charity sponsorship or forthcoming social event? Think about how digital media is delivered, is it on loop, will it become invisible? Keep your message relevant, fresh and tailored to your audience. Consider what motivates your intended recipients.

Often, we forget to communicate where we have had success. Remember to reference those individuals who have worked hard or significantly contributed to the result.

When measuring the results of a behaviour change programme, do not forget to ensure that you have a clearly defined objective with applicable targets and associated actions.

Make sure that you clearly understand the difference between objectives, targets and actions and how they are relevant to the programme.

- Objectives – the intended outcome, what are you trying to achieve (normally words i.e. we intend to reduce the fuel used in company vehicles against the previous year.
- Targets – measured results (numbers) i.e. 15% reduction in fuel consumption
- Actions – what you need to do to achieve your objectives e.g. 100% of company car drivers to undertake driver training, where effectiveness will be evaluated against the defined company benchmark or performance indicator.



EMA SERVICES

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HEART OF BRITISH BUSINESS

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- We can help you to understand and calculate your carbon footprint
- We can help you to create an action plan and put practical measures in place to meet your targets

SECR COMPLIANCE

- We can help you to prepare your report and meet the compliance requirements
- We can verify your report to assure accuracy, completeness and consistency to ensure compliance

ENERGY MANAGEMENT

- We can help you to deliver energy management and energy efficiency
- We can identify training needs, deliver tailored training & embed the knowledge within your team



Tackling the Energy Management Challenge Within Small to Medium-Sized Businesses

I am sure that all readers of The EMA Magazine fully appreciate how important energy management and energy efficiency is for an organisation and for the wellbeing of planet earth.

For large organisations with multi-million-pound energy bills the drivers to take energy reduction seriously are plentiful. Reduce costs, compliance with legal and corporate responsibilities, energy security and good PR can all help to build a compelling case to take action.

Even with all these persuasive reasons for delivering energy efficiency improvements, doing it at a pace demanded by the urgent need to tackle the Climate Change Emergency will be challenging.

The pace of change being demonstrated by the proliferation of ambitious carbon dioxide reduction targets. The most relevant carbon reduction targets for me, based at Aston University in Birmingham, are those set by the West Midlands Combined Authority (a 69% reduction by 2027) and Birmingham City Council's target for Birmingham to be Carbon Neutral by 2030.

So, a challenging time ahead for large organisations but please spare a thought for smaller companies. Those

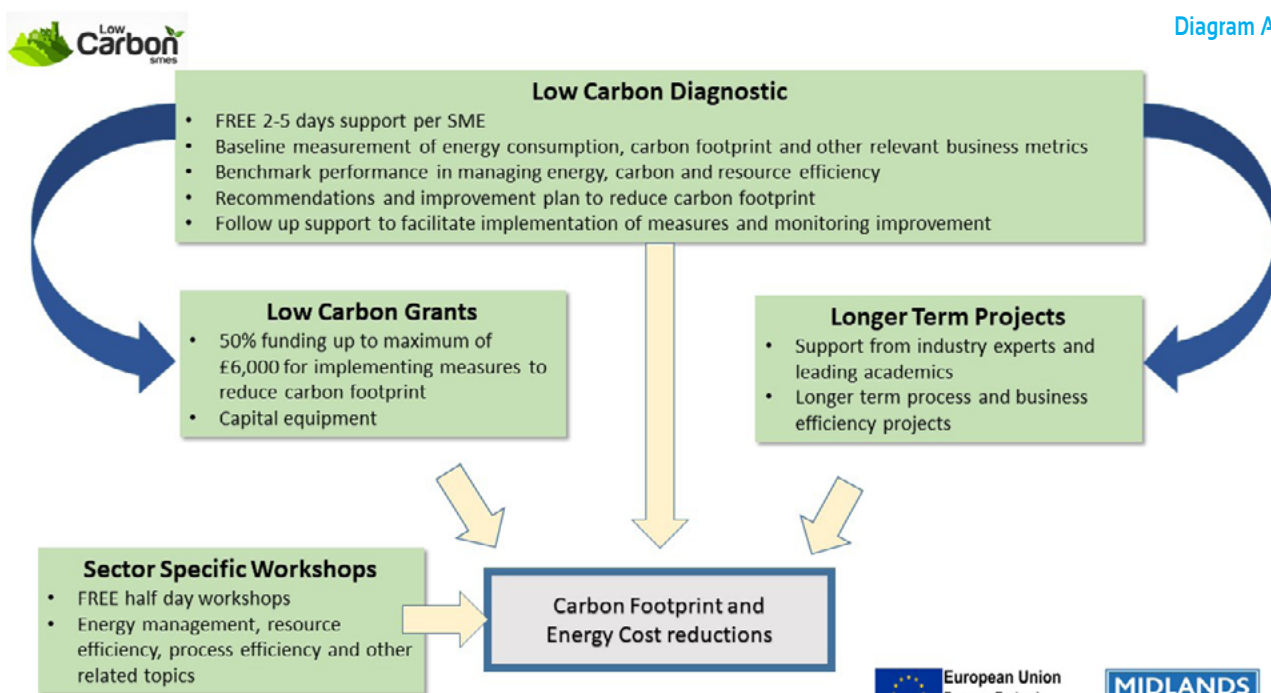
referred to as Small to Medium size Enterprises (SMEs), with fewer than 250 employees, typical energy spend in the tens of thousands of pounds not millions and rarely employ anyone whose job role includes managing energy.

But improved energy efficiency within SMEs is crucial if the ambitious carbon reduction targets are to be achieved. SMEs in the UK number 5.9 million.

The consultation document 'Energy Efficiency Scheme for Small and Medium Sized Businesses' produced by the Department for Business, Energy and Industrial Strategy (BEIS) in May 2019 indicated that 'SMEs account for over 99% of businesses in the UK. Individually SMEs consume modest amounts of energy, but collectively their energy demand is considerable, accounting for around 50% of business energy use, using 58TWh/year in England and Wales'.

The power of collective energy consumption (pardon the pun) has been borne out by work Low Carbon SMEs programme is doing. The programme is delivered by Aston University and is co-financed by ERDF (European Regional Development Fund). Low Carbon SMEs have been working with mainly manufacturing SMEs around the West Midlands for three years helping them to reduce their

Diagram A



energy usage and carbon footprint. The table below gives the averages and collective figures for the companies we are supporting and compares these figures with similar data for Aston University.

	Carbon footprint scope 1 & 2	Employees	Energy Spend
Average figure for supported SMEs	320	38	£77K
Collective figure for supported SMEs	16,000	1,900	£3.8M
Aston University	6,400	1,785	£2M

While we have supported only a modest number of SMEs to date the collective figures for carbon footprint, employees and energy spend all are greater than Aston University's.

I purposely use Aston University as an example for comparison because I am very passionate about the need to demonstrate leadership. As an organisation, Aston University has been outstanding in cutting its own carbon footprint and is on track to achieve a reduction of 48% by 2021 as set in its carbon management plan.

So, SMEs have a crucial part to play in delivering a low carbon future but how do you encourage them to participate in the journey, given the lack of drivers and resources at their disposal.

The starting point in solving this conundrum is to understand why SMEs find energy efficiency a hard topic to incorporate into their everyday business.

To gain an insight into this matter Low Carbon SMEs held a workshop involving the first few businesses to sign up to the programme. The findings from our workshop won't surprise anyone that has worked with SMEs in this field. Indeed, our findings very much echoed the barriers to energy efficiency expressed in the BEIS consultation document.

The challenges for SMEs that deter them from adopting energy efficiency measures can be summarised as follows:

- Lack of time and resources to devote to energy management and exploring energy efficiency options.
- So many other priorities taking precedence over energy management.
- Lack of knowledge of

- how and where energy is used in their businesses.
- Lack of in-house expertise.
- Lack of independent trusted information and advice.
- Finding capital to finance energy efficiency projects and the dilemma between investing in production versus investing in energy efficiency.
- Energy efficiency measures giving paybacks that are too long.
- Scepticism on claims made by suppliers of energy efficient equipment.
- Lack of legal and other drivers.
- Understanding technology.

Armed with this understanding, a delivery model for supporting SMEs in reducing their energy use can be constructed. The diagram (A) is the Low Carbon SMEs delivery model which evolved from the above findings.

The ethos of the Low Carbon Project is to empower SMEs to improve their energy management performance by embedding good energy management practices within the culture of the business. So, when the time comes, and we walk away, businesses are suitably equipped to continue their low carbon journey themselves.

We begin with what we call a Low Carbon Diagnostic. This essentially deals with the lack of understanding about energy use and energy efficiency. The Low Carbon Diagnostic involves the collection of energy data either from bills or data logging; the subsequent analysis of the energy data; a site walk around to identify obvious energy saving opportunities and for senior management to undertake an energy management benchmark exercise. The benchmark exercise requires senior management to evaluate the company's current energy management performance and then set a target of where they would like it to be in three years' time. The spider diagram (B) gives a typical example of the results of the energy

Diagram B



management benchmark.

A quick way of telling how well energy is managed by a business is by asking the question: "How much do you spend on energy?" When the answer comes back, "I don't really know" then it's pretty likely that there is to be plenty of scope for improvement.

At the end of the diagnostic phase the business will have:

- A calculated baseline carbon footprint, energy consumption and costs. Used to monitor improvements and equally importantly validate the efficiency improvements from installing energy efficient technologies.
- Monthly, weekly and daily energy consumption profiles, where the energy data allows.
- Findings of the Energy Management Benchmark and a comparison of performance against other businesses on the programme.
- List of improvement actions covering three distinct areas:
 1. Improving the accuracy and quality of energy data used for monitoring the business's carbon footprint
 2. Prioritised actions related to energy management
 3. Energy efficient technical measures that could be installed.

Once the diagnostic is complete, we then help the business go about implementing any agreed measures. The most common support required involves developing a business case for technical measures such as installing LED lighting, Solar PV arrays and upgrade compressed air systems. Other areas of popular support include energy awareness raising initiatives within the workforce, best practice in procurement, data logging to determine energy consumption per machine and implementation of

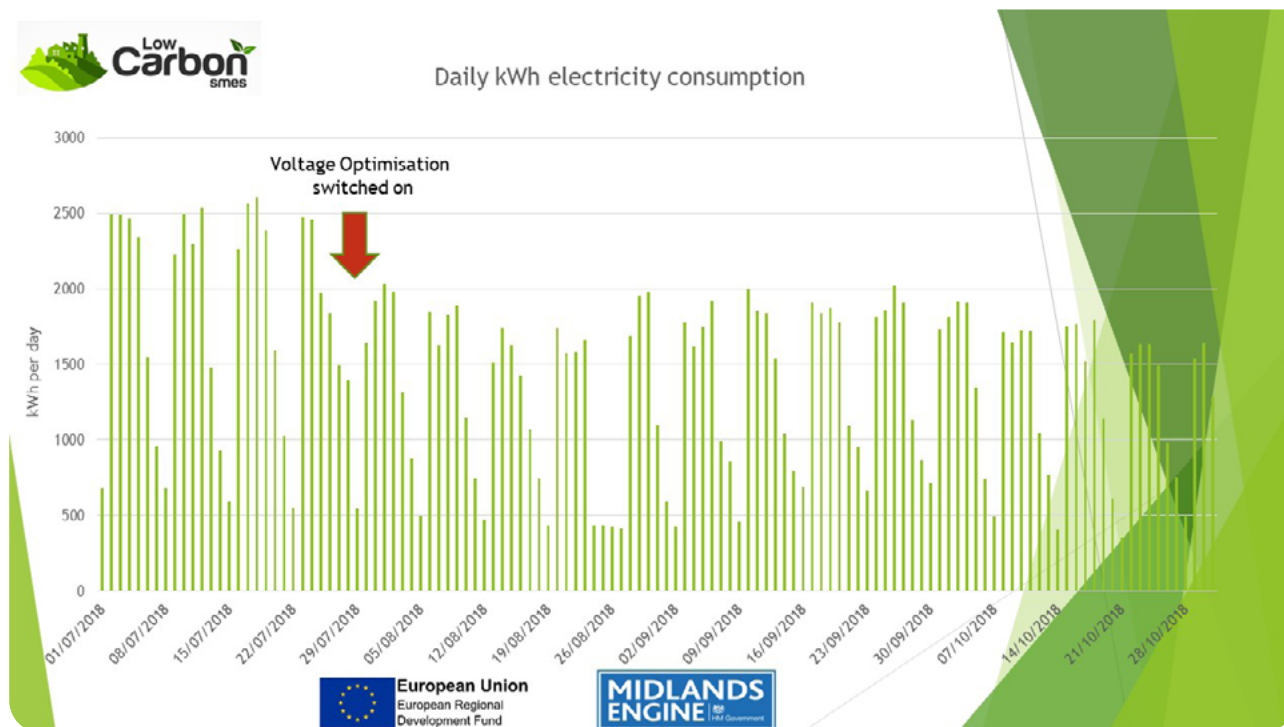
the environmental management standard ISO 14001.

To increase the conversion rate of business cases into actual implementation we can also provide a modest grant. Generally, payback periods of 5 years are beyond the investment acceptance threshold for SMEs, but if with a grant we can bring this down to 3-4 years this often helps swing the business case in favour of proceeding. Particularly if we are on hand to offer assistance with procurement and provide an independent evaluation of the solutions offered by suppliers.

The real test of whether our delivery model is helping overcome the challenges faced by SMEs, around improving energy efficiency, is by the results achieved by the programme.

The headline metrics to date are:

- Actively working with 50 SMEs with another 30 Low Carbon Diagnostics underway. There has been an upsurge of interest over the last year due to the increased publicity around the impacts of climate change raised by the likes of Greta Thunberg and Extinction Rebellion. Social responsibility is now one of the main reasons quoted for participating in the programme.
- Collective carbon footprint reduction of 1600 tonnes. Around 50% of carbon savings have been down to no cost improvements in energy management and behavioural change measures. The most popular and effective no cost measures relate to the energy management categories of establishing a performance baseline, regular monitoring and analysis of consumption, setting improvement targets and improving awareness of energy use by staff. Several SMEs have set up environmental committees to



facilitate awareness raising and drive improvements.

- Over £650k of investment in energy efficiency technologies. The technical measures installed have included Solar Photovoltaic arrays, Variable Speed Drive air compressors and redesigned compressed air systems, LED lighting, draught strip curtains for loading bays, insulation for suspended ceilings, Voltage Optimisation, real time energy monitoring systems, sub-metering and efficient heating systems and controls.

At an individual company level typical carbon reduction has been in the order of 20% in a single year. There are a few star performers that come to mind.

One pressworks company reduced its relative carbon footprint by 26% and its absolute carbon footprint reduced by 435 tonnes. The game changing moment for this company was the results from data logging the electricity consumption of the presses and air compressor. These showed that the air compressor energy usage was greater than the combined consumption of all the presses. This was a revelation to the company's finance manager and promptly instigated an air leak reduction programme and investment in valves to isolate presses from compressed air system when the presses were not in use.

Energy data is now routinely obtained and analysed for abnormal usage. Monthly reporting of energy consumption has been introduced and this is used to raise awareness on the shop floor as to the importance of energy housekeeping.

However, the superstar has been a wire manufacturing company that has achieved a 62% relative reduction in its carbon footprint. This involved significant investment around the need to replace the factory roof. The company took the opportunity to install better roof insulation, LED Lighting and a 100 kWp solar PV array. The company have also installed a real time energy monitoring system for high energy usage equipment and reports six monthly to the management board on actions taken to reduce their

I certainly believe that the Low Carbon SMEs programme has been very successful. However, we need to dramatically increase the number of SMEs we can help.

To this end we have joined a Government funded project, funded as part of the "Boosting Access for SMEs to Energy Efficiency (BASEE)" competition. The BASEE initiative was launched by the Department of Business, Energy and Industrial Strategy (BEIS) as part of the Clean Growth strategy. The project aims to develop and test a digital energy efficiency platform aimed specifically at improving energy efficiency across the UK's SMEs. The platform will utilise a range of data sources such as energy consumption and building energy performance, retrieved automatically or supplied by the SME, to generate a bespoke list of physical and behavioural energy efficiency recommendations together with costs, trusted suppliers and finance options.

Undoubtedly, investing in energy efficiency is going to be a harder sell than usual due to the tough economic times ahead due to COVID-19. The messages that needs to be emphasised for SMEs are that significant energy savings can be made without the need to invest and to seek expert independent guidance where available.

Similar projects to the Low Carbon SMEs exist across the UK. Each with their own nuances of support offered and funding available. The easiest way to find out if there is support in your geographical area is to contact your local Growth Hub.

Author's Profile:

John has worked in the field of environmental and carbon management for over 20 years. John's carbon management experience includes managing the Climate Change Agreement and Emissions Trading Permit for Peugeot Ryton Plant, developing and implementing Coventry City Council's Carbon Management Plan and delivering various energy efficiency projects within a range of organisations.



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EMA MEMBERSHIP

Invite your colleagues to
sign up now!

Member

EMA Members are individuals who work, or have worked in energy, carbon, environment or sustainability management for not less than two years. They manage, develop and implement energy management policies and plans that support their organisational objectives.

Associate

EMA Associates are individuals who are re-skilling from different roles to become energy managers, those training to become energy managers and those typically providing professional advice on consultancy basis to energy managers across the businesses.

Affiliate

EMA Affiliates are individuals not eligible for Full Member or Associate membership. Affiliates have a link to the energy management sector through a variety of channels: marketing, sales, business development, finance, HR, recruitment etc.

Practical Guides for Energy

ENERGY AUDITING



Energy audits can be carried out for a number of specific purposes or reasons, both financial and environmental. An internal audit could be used to identify a potential program of efficiency projects or just to understand how a building or process is currently operating and its costs. An external independent audit may be required if a building is not performing to its expected capability or if the required expertise is not available internally. An audit may also be required to meet a legal obligation such as those under the Energy Saving Opportunity Scheme (ESOS) where audits are required every 4 years.

However, whatever their end purpose, an energy audit is a review of energy consuming equipment within part or all of a building or a specific process in order to

assess how installed systems and processes are currently operating and whether there is an opportunity to improve performance through optimisation, upgrading or total replacement.

The process of carrying out an audit will be similar in most cases regardless of the size of building or the equipment it contains. Although they may be different in scale and technical requirements, the process for auditing a whole building or a single industrial process will also be very similar.

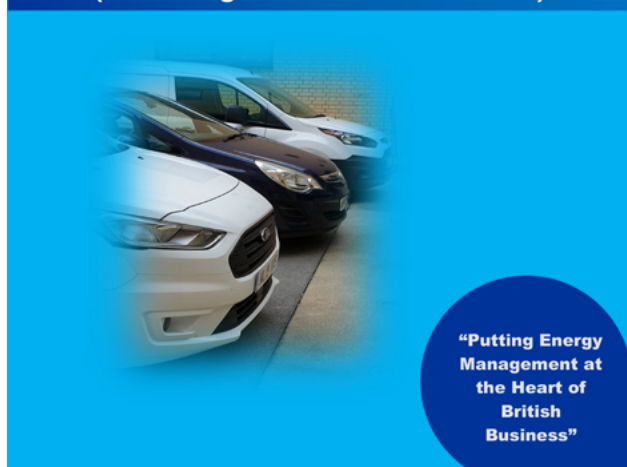
The EMA Guide to ENERGY AUDITING is a practical tool to help with an audit process. The full version of the Guide which is available on the EMA website in the Resources section, includes sections outlined below and practical examples throughout.

- **Purpose of an Energy Audit**
- **Preparation for an Audit**
 - Audit Scope
 - Site Access
 - Initial Data Analysis
- **Conducting an Audit of**
 - Control Systems
 - Lighting
 - Heating Systems
 - Cooling Systems
 - Ventilation Systems
 - Pumping Systems
 - Compressed Air
 - Other Opportunities: On-site Generation, Human Behaviour, Metering
- **Calculating Savings and Return on Investment**
- **Reporting**
- **Prioritising Opportunities**

Management Professionals

FLEET MANAGEMENT

(Cars & Light Commercial Vehicles)



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 EMA Guide to FLEET MANAGEMENT was 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 Guide which is available on the EMA website in the Resources section, includes sections outlined below.

• Transport Context

- Regulatory Requirements
- Cost reduction
- Finite Resource Depletion
- Climate Change
- Air Quality

• Fleet Management

- Definition
- Usage
- Grey Fleet Management
- Alternatives to Grey Fleet

• Effective Fleet Management

- Air Quality Improvements
- Controls
- Mileage
- Payments and Cost
- Journey Time
- Congestion Reduction
- Risks / Health and Safety
- Mileage Reimbursement Claims, Rates and Lump Sums
- Reduce Emission Fleet

• Transport Context

- 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

Net-Zero bills – Creating carbon neutral bills within budget

In 2019, the UK became the first major economy to target net-zero greenhouse gas emissions by 2050. To date, the UK has cut emissions by just above 15% since 2010. This is mainly due to the electricity sector, where a combination of demand reduction, carbon pricing and renewable incentives has seen emissions plummet. To prove that the demand is carbon neutral, companies can use the REGO and ROC renewable certificates, either by procuring renewable energy or by trading the certificates. However, the question remains, are the bills genuinely carbon neutral? If not quite, what is the solution?

Despite of Power Purchase Agreements with renewable generators, we believe the intermittent behaviour of renewable generators is a risk to supply. As a result, the procured renewable energy volume has always been traded, and the demand volume has always been bought to/from the wholesale market. This has led to the creation of a secondary market for exchanging renewable certificates. In some extreme cases, the practice of greenwashing for the demand of corporate clients has grown more sophisticated. Should this approach be our

solution to create carbon neutral bills? Is this really the future of energy?

On the bright side, a number of scientific researches about renewable energy have passed the trial stage and are ready to be commercialised. The realm of Entech, energy technology, has introduced new capabilities and showcased some solutions that are mainly focused on the current challenges with renewable energy management. Peer-to-peer trading, virtual power plants, demand side response with advanced prediction models, and smart grid management are some of the current solutions in the market. Let us see what a net-zero electricity bill is and how to create one with the new opportunities.

A net-zero bill is an electricity bill that has been generated as a result of a direct exchange between a renewable generator(s) and a consumer, and the exchange is transparent, traceable and accurate.

For net-zero bills, we need a system that enables peer-to-peer (p2p) exchange. The p2p system disintermediates and streamlines the selling and buying process. Additionally, to manage the intermittent nature of





renewable energy and ensure security of supply, advanced computational models provide highly accurate predictions of generation. Another risk management strategy in the system is the aggregation of different renewable generation volumes to match different consumption shapes. For example, a business with the total consumption of 100MW is open from 9am to 5pm and has the peak demand time between 11am and 3pm. To fill the energy requirement of this business, we would need 40% of a 3MW solar farm, 30% of a small hydro power plant, 20% of a 10kW wind farm, and a handful of 2-hour charging battery storage. This process needs to be automated in the p2p market.

The transparency of the p2p system and the ability to trace the origin of the power ensure the credibility of renewable energy certificates. In the automated system, the certificates of origin are issued per kWh generation of each renewable facility. Upon the p2p exchange, the certificates are distributed based on different volumes bought by different consumers. At the same time, transparency of exchange should not sabotage the data privacy and commercial sensitivity of generators' and consumers' data.

Finally, the accuracy of the net-zero bills means untampered data and accurate billing. The current methods to handle missing data in the billing activity record 30% more consumption volume than the actual one. In the net-zero bill, the missing data are treated with more sophisticated methods, reducing the error to less than 5%. In addition, pricing and billing processes are in real-time with advanced monitoring system to alert the managers to the times of system updates.

What about the cost? We all heard that p2p trading is energy intensive and advanced technologies are computationally expensive. Based on this assumption, a net-zero bill should be a premium bill. However, the reality is the system cost always depends on how it is designed in the first place. By designing and developing a commercially viable peer-to-peer system, the automated and advanced features of this system significantly reduce various costs in the p2p market. For example, in 2020, UrbanChain, an Entech in Manchester, supplied energy to a food chain consumer with its p2p system. The company's energy manager oversaw the management of the account in the system. The outcomes were: 30% saving as a result of advanced data prediction models, 25% saving as a result of p2p exchange with renewable energy generators, a carbon neutral bill, and accurate and transparent billing process. In another supply project, the p2p system saved around £150,000 for a local authority.

Among all the stakeholders in the energy sector, nobody is closer to consumers than energy managers. We can educate our clients on the values of the new energy exchange system, deliver massive savings and carbon neutrality, and benefit from the transparency and accuracy of new energy exchange systems.

Dr Mo Hajhashem

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Standard unit type transformers are available in 500kVA, 800kVA and 1000kVA, and we are increasing the level of our ex-stock transformers to meet the needs of the current market. In addition to the unit type transformers, we have supplied Super and Ultra Low Loss Amorphous metal core transformers to DNOs & iDNOs with strategic focus to reduce transformer losses across their networks.

Wilson Power Solutions has over 73 years of experience in designing, manufacturing and supplying transformers to the UK market. Pioneering in Wilson e3 amorphous distribution transformer, the UK's most energy efficient transformer, allows Wilson Power to provide the best

products and solutions to its customers while keeping carbon reduction at the core of its business.

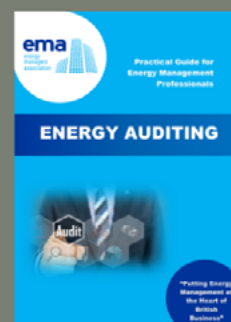
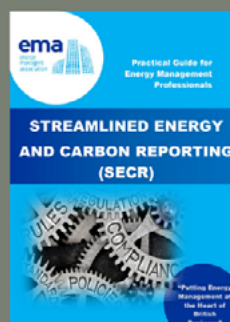
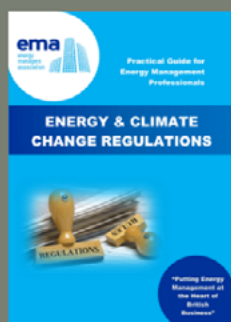
Government funds and corporate strategies are being set to help the economy recover from the pandemic. This recovery has to cover three important pillars: sustainability, intelligence and resilience.

The strategic partnership between Wilson Power Solutions and Toshiba and the framework agreements with DNOs and iDNOs gives Wilson Power Solutions the confidence to provide the best level of service to network competitive connection projects for ICPs and iDNOs.

If you are an ICP or iDNO and have a specific project in mind or you need more information

on pricing, datasheets and GA drawings, please get in touch with our regional sales managers using the contact details provided below.

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www.theema.org.uk/ema-guides-to-energy-management/

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Energy management sub-metering is 'made to measure' – But how deep should you go?

With savings of 30% of energy spend possible, and potential payback periods from 18 months to 1 month, how does sub metering help to unlock the savings potential of energy management and transform them into a return?

Sub-metering for energy management provides the data on which energy management strategies are based, a fundamental part of a Building Energy Management System (BEMS).

How deeply to sub meter is one of those Goldilocks questions with the answer firmly rooted in site specifics. Maximising returns on investment by balancing the costs of energy management systems with the savings to be made is dependent on a full, and ongoing understanding of all relevant factors on each individual site.



• Part L2 Guidance:

CIBSE's TM39, which provides the detailed guidance for compliance with Part L2 of the Building Regs, recommends installing sub-metering where there is a valid business case for doing so, roughly defined as one that will more than repay the cost of the sub-meters installed.

Part L2B recommends at least 90% of the estimated energy consumption within the mandated Part L envelopes is attributed to the relevant load type eg lighting etc.

Leveraging the breadth of parameters measured by energy management sub-meters.

As well as the depth of sub-metering to consider there is also a breadth of parameters to consider that can potentially be used dependent upon the specifics of each site.

Multi-function meters can provide data on a wide variety of parameters including : **•kVAh:** apparent or total energy; **•KWhs:** active energy; **•kvarh:** reactive energy caused by inductive and capacitive loads which reduces the proportion of active energy. This can be improved by improving power factor. **•Power Factor:** technically is the ratio of active power (kW) to the apparent power (KVA). It is a measure of how effectively the incoming electricity is being used. It is being used at it's best when the PF value is between 0.9 and unity. **Individual Harmonics:** can cause distortion in voltage & current waveforms caused by electronic switching devices. **Total Harmonic Distortion:** is a measure of the total distortion from the individual harmonics. **Export kWh:** eg Solar energy generated on site and exported to the grid... etc, etc. This is by no means an exhaustive list and with no 'one-size fits all' answer to the potentially very rewarding investment in energy management, it pays to search for advice from time served experts in this field.

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Julia Szajdzicka
Managing Director

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MARTIN OFFIAH M.B.E.

The pledge of a climate change professional

A Climate Change Professional can be from any walk in life, working within any roles in an organisation, they just have to care about the planet in which we live and want to make a difference.

The benefits of becoming a climate change professional



UNDERSTAND NEW TECHNOLOGY

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Meet like minded people

INFLUENCE GOVERNMENT POLICY

ACCESS TO THE BEST EMPLOYMENT AND TRAINING OPPORTUNITIES

Make a difference

TRAINING | RECRUITMENT | COMMUNITY

TAKE THE PLEDGE

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