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<sup>by</sup> LORD RUPERT REDESDALE Chief Executive at The Energy Managers Association



#### THE **EMA** MAGAZINE

## Dear Reader,

Welcome to the new issue and, if you have picked up a copy at registration, to EMEX 2018.

EMEX is aspiring to be our largest show to date and reflects a successful year for the EMA. Membership is continuously increasing, and we have also been working persistently on helping our members to upskill as the EMA Recognised Energy Managers. If you would like to gain this accreditation, please contact us for the first stage, a Knowledge and Skills Gap Analysis Interview.

The EMA has been expanding its training programme with courses for the ESOS Lead Assessor training and specialist courses on subjects from Energy Procurement, HVAC, Fundamentals of Energy Management, Battery Storage for Business to name but a few, courses that really help energy managers increase their skillsets.

The issue that we believe will have more effect on the work of energy managers in 2019 than any other is not Brexit but the new Streamlined Energy and Carbon Reporting (SECR) regime. The first ever report the EMA conducted was how CRC and GHG could be merged, and the Government has got around to doing just that. The Department for Business, Energy and Industrial Strategy (BEIS) representative will be presenting on SECR at EMEX, and you can also find an article in this issue outlining how the mandatory reporting mechanism linked to SECR works, and how the EMA is working towards helping you to meet the BEIS guidelines.

I hope you enjoy this issue and look forward to seeing you at EMEX.



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#### FEATURES

#### <sup>by</sup> LORD RUPERT REDESDALE Chief Executive at The Energy Managers Association



## Streamlined Energy & Carbon Reporting (SECR): What you need to know

The EMA was launched in February 2012, and one of the first pieces of work that we undertook was to see how GHG and CRC reporting could be merged.

Fast forward to 2016 and the Government made the announcement that this was their new policy direction. The CRC Energy Efficiency Scheme will close following the 2018-19 compliance year and be replaced by a new reporting framework, Streamlined Energy & Carbon Reporting (SECR), commencing April 1st 2019. The EMA believes the new reporting regime could be one of the most positive moves to incorporate energy management into companies thinking since the oil shock of the 1970's.

#### So what is SECR?

SECR is a mandatory reporting regime that will replace CRC and GHG reports. Organisations will report under the CRC for the last time by the end of July 2019 and surrender allowances for emissions from energy supplied in the 2018-19 compliance year by the end of October 2019. The new tax will be collected as part of Climate Change Levy payments; it will be collected by an organisation's supplier.

The legislation has passed through Parliament and the tax rates have been set. The rates are set out below.

Climate Change Levy Rates 2018-2019:

Taxable commodity	Rate from 1 April 2018	Rate from 1 April 2019	Change
Electricity (£ per kilowatt hour (KWh))	0.00583	0.00847	+45.28%
Natural gas (£ per KWh)	0.00203	0.00339	+67.00%
LPG (£ per kilogram (kg))	0.01304	0.02175	+66.79%
Any other taxable commodity (£ per kg)	0.01591	0.02653	+66.75%

THE EMA BELIEVES THE NEW REPORTING REGIME COULD BE ONE OF THE MOST POSITIVE MOVES TO INCORPORATE ENERGY MANAGEMENT INTO COMPANIES THINKING SINCE THE OIL SHOCK OF THE 1970'S.

The final element is the mandatory report that will be linked to the taxation. This report will be based around the company's financial reporting year and therefore will need to be submitted at the end of a full reporting cycle.

The problem at the moment is that most companies have not as yet heard of the scheme. The EMA will be publishing information about the new regime as it develops and will aim to help energy and sustainability managers compile the report without incurring substantial cost, whilst meeting the mandatory guidelines.

#### Who does SECR apply to?

A large number of companies and Limited Liability Partnerships (LLPs) will need to report as part of the mandatory report. The framework is mandatory and applies to companies defined as 'large' under the Companies Act of 2006. This means companies will

need to report if they hit two of the three benchmarks:

1. More than 250 employees

2. More than £36 million in annual turnover; and/or

3, An annual balance sheet larger than £18 million

And getting the most frequently asked question out of the way, will companies need to complete SECR if they are doing ESOS (Energy Savings Opportunity Scheme)?

The answer is yes. SECR will operate in parallel with ESOS and the reporting requirements for both schemes are markedly different.

#### Who is exempt?

- There is a de minimis energy consumption figure of 40,000kWh or less over a 12-month period. Therefore, companies that use less than this amount are exempt from the reporting requirements;
- Companies are not required to report information that would not be practical to obtain;

Based on government estimates, approximately 11,900

from the roughly 4,000 companies that were required to

however any commercial partnerships or activity will fall under the scheme, and an example would be Universities

receiving private funding which will make them liable.

To meet the requirements of the mandatory reporting

Financial Reporting Council (FRC) requirements;

For private companies a report will need to be registered

So what will be included in the report?

The Department for Business, Energy and Industrial

Strategy (BEIS) will be publishing draft guidelines in

November 2018, followed by final guidelines in January

Have the report audited to a standard that meets the

Be signed off by the Board and be included as part of

comply with CRC regulations. The public sector is exempt,

businesses will be required to comply with SECR, up

- Companies are not required to disclose what directors think could harm the interests of the company;
- UK subsidiaries will not be required to report separately if they are covered by parent company's group report. However, they can report voluntarily.

scheme, companies will need to:

Complete the report;

the company reports.

with Companies House.

Contents of the Report:

- Energy consumption and GHG emissions (Scope 1 & Scope 2);
- Scope 3 consumption and emissions reporting will be voluntary;
- Electricity, gas, and transport as a minimum;
- · An intensity metric is required;
- A narrative commentary on energy efficiency action taken in the financial year.
- **SECR CAN BE A VALUABLE TOOL** IN DEVELOPING STRATEGIES THAT WILL EMBED ENERGY SAVING RESPONSIBILITIES THROUGHOUT ORGANISATIONS. **99**

SECR should not cost enormous amounts of money to compile. The underlying principle is to understand what energy saving processes or policies are in place in a company and how those could be improved year on year. The EMA is working on

a reporting methodology that should achieve just that. The premise is a maturity matrix that looks at all elements of your company present policies and actions. The result will be set out in a simple graph, which can be presented to the Board and then to shareholders and owners of companies to indicate what companies have in place and how and in what areas they need to improve.

SECR will be a public document that will show what companies are doing, or failing to do, to reduce their emissions. The failure to address the rising cost of fuel through reduced use will be clear, but also the report will show how companies are reacting to the risk of climate change. The report will be in the public domain and therefore implies reputational risk if the report shows a company is failing to combat climate change through reducing emissions.

SECR can be a valuable tool in developing strategies that will embed energy saving responsibilities throughout organisations. The overarching principle is to use SECR in-source energy management expertise and processes from the board to the shop floor.

The Streamlined Energy & Carbon Reporting (SECR) topic will be discussed at EMEX on both days; on Wednesday 21 November at 12:10 in the Knowledge, Skills and Experience theatre and on Thursday 22 November at 13:30 in the Facilities, Technology and Innovation theatre.

Commente de la construction de l



## Energy Savings Opportunity Scheme "Best laid plans of mice and men"

**The Energy Savings Opportunity** Scheme (ESOS) is a mandatory compliance scheme in the UK, derived from Article 8 of the EU Energy Efficiency Directive. The regulations and routes to compliance are too complex and varied to be covered here but, in very general terms, ESOS occurs in four-yearly phases and introduces regular energy audits that highlight energy savings for large businesses. Such audits must cover 90% of an organisational energy and require sign-off from a qualified approved ESOS Lead Assessor. The carrot to business is that ESOS is a real chance to improve the efficiency and make significant cost savings. The stick is that penalties will be applied against organisations required to do so who do not participate in ESOS or are found to be non-compliant with its requirements. Further, such organisations may be publicly 'named and shamed'.

This article features on the experience of working with one organisation grappling with ESOS, how it is received, what it means for the business, route to compliance, understanding of the process and thoughts on the phase one as well as how they might tackle the second phase of the scheme.

Energy efficiency and environmental compliance is nothing new and there have been numerous schemes and regulations aimed at improving how organisations use energy and can reduce their impact on the environment. Understanding this background is important when considering thoughts from an organisation perspective surrounding the introduction, implementation and compliance of the first phase of ESOS, now that the second phase deadline is starting to appear on the "to do list" of those responsible within the organisation for ensuring compliance is achieved.

Over recent decades there has been a significant change in attitude of the importance of conserving our natural resources and the resultant benefits to the environment and eco system. For example, there can be no doubt that regulating emissions from industrial processes and transportation has improved air quality and been of significant benefit to the public health of the population. Further, improvements and changes in how we light, heat and insulate our buildings have also played an important part in the reduction in use and reliance of burning fossil fuel.

There have been many energy and environmental regulations and compliance schemes, such as Climate Change Agreements; Carbon Reduction commitment; **Energy Saving Opportunities** Scheme, Minimum Energy Efficiency Standards; Energy Performance Certificates and mandatory Carbon Reporting regulations that organisations need to understand, achieve and meet. While the overarching beliefs behind such schemes are to be commended and most organisations that have had to comply have seen improvements in their energy usage, emissions and a reduction in costs, the bombardment of regulation after regulation has left organisations feeling overburdened, disassociated and numb to any further pressure to improve energy efficiency or environmental impact.

While similar comments were noted in carrying out a number of audits, the following observations are taken from one organisation's experience:

WHEN WE FIRST HEARD ABOUT ESOS, WE THOUGHT, HERE WE GO AGAIN, ANOTHER PIECE OF WONDERFUL LEGISLATION THOUGHT UP BY THOSE WITH LITTLE UNDERSTANDING OF THE REAL WORLD AND PRESSURES FACING BUSINESS. HOW DO WE COMPLY AT LEAST COST AND LEAST HASSLE SO WE CAN GET ON WITH MORE IMPORTANT MATTERS?

### Finance Director, Multi-site retail organisation.

Initially, when organisations were made aware of the regulations, the usual attitude of "that's a long way off, we'll deal with that nearer the time" ensued and it was only once the organisation realised that time was slipping by and that there was more to these regulations than first thought that panic started to set in. The learning curve of trying to understand what the ESOS regulations actual were, if they needed to comply and if so what needed to be done and by what date to ensure compliance was a steep one and not without much head scratching and misunderstanding. Information and guidance from authorities was vague other than quoting the regulations and need to comply, leaving everyone feeling as if they were heading towards a compliance date with little understanding of what it was they needed to do.

The first challenge was the appointment of a lead assessor,

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as this was seen as the main route to compliance. Appoint the lead assessor and get them to sort out what's needed seemed to be the order of the day without considering what involvement in the process might be required or to the potential costs ranging from, time and resources required to collate required information, lead assessors and consultancy fees, management meetings as well as regulatory fees.

The limits of this article cannot hope to cover the detail or results of the audits, or actions taken. However, the reviews were taken by the organisation in the same light as any past energy audit with the main focus being to carry out the required reviews as quickly and with as little disruption to the business as possible, so that they may get on with their business operations. Staff was receptive during the reviews, but in general were not well informed by management of the reasons behind the reviews and how they could help ensure the organisation gains the most from the process.

Following the completion of the reviews and subsequent meetings to discuss the findings, the focus of management first and foremost

was to ensure compliance by the required deadline and submission and verification of such compliance by the governing body. Following this the second area of interest was to ensure that processes were in place to be able to justify compliance should an audit follow. Only once these parameters were met, was the organisation willing to engage in a conversation about the review findings or how they might improve energy efficiency. While the reports did highlight potential pportunities not considered or missed by the organisation, the feeling was that they already took energy efficiency seriously, had carried out reviews before, and implemented saving schemes where possible and given cost constraints and believed that being forced to undertake this was of little help and that implementation of any issues highlighted were not a priority.

Now, that details about the second phase have reached the organisation, they are starting to take note and asking about what is needed to comply. However, initial discussions surrounding the impact of the first phase on a practical level have been very limited with the reports mainly just taking up computer space or room on the shelf, ready to be waved in the face of anyone asking for evidence of compliance. Hence why the attitude towards phase two seems to be moving along the same lines as phase one and as described earlier "How do we comply at least cost and least hassle".

Whether changes should be made to encourage and reward action and penalise apathy is the million dollar question and has its champions and critics but simply continuing in the same vein each 4 yearly cycle, dooms energy efficiency into the ever growing list of compliance ticks that organisations need to achieve but pay little real attention to. A missed opportunity perhaps.

#### Author's profile:

Hugh Kelly is a Partner at Argyle Energy Consulting. He has over 25 years consulting experience in energy efficiency, environmental compliance and utility procurement, has carried out many energy audits and helped guide numerous organisations to energy cost savings and environmental compliance. <sup>by</sup> THE ENERGY MANAGERS ASSOCIATION

## Energy Savings Opportunity Scheme

The EMA, as one of the ESOS Lead Assessor Registers, has reached out to Lead Assessors to reflect on ESOS Phase 1 and to share their thoughts on what improvements they would like to see in preparation for Phase 2.

ESOS will be discussed in the Knowledge, Skills and Experience theatre at EMEX on Wednesday 21 November at 11:00–11:45 and on Thursday 22 November at 11:10–11:45.

#### Katie Elmer, Senior Sustainability Consultant, Carbon Footprint Ltd



#### In your opinion, how has the ESOS Phase 1 been received by organisations?

The general consensus seems to be that ESOS is a good idea in principle, but could have done better in terms of improving the business case for energy efficiency. Organisations who are

**ORGANISATIONS WHO ARE TAKING** 

**RECOMMENDATIONS ON BOARD ARE THOSE** 

IMPROVEMENTS AND REACHED AGREEMENT

IT IS SIMPLY A COMPLIANCE ISSUE. 🤊 🤊

WITH THEIR ESOS ASSESSMENT. FOR OTHERS,

WHO HAVE ALREADY PLANNED TO UNDERTAKE

taking recommendations on board are those who have already planned to undertake improvements and reached agreement with their ESOS Assessment. For others, it is simply a compliance issue and they have very limited control over their significant

There has also been criticism of overlap with other reporting programmes with such as CRC for example, although this is in the last year. Furthermore, without the need to demonstrate any implementation, for many organisations reducing energy comes down purely

energy streams.

to the business case and battling against other capital investment projects for support.

There has also been some confusion over approach to compliance. What is the choice of pathways and which will be best? Do you use energy audits (conducted every 4 years) or comply by ISO 50001 (Energy Management System)?

Many organisations have also been difficult to convince that they need to comply. Some organisations have criticised the Environment Agency (EA) for having only a low number of communications to businesses. Internal communications within businesses has also been problematic with letters from the EA getting lost somewhere between the Company Secretary and Operations/Facilities (who aren't always the closest friends or neighbours)! As a result of the EA's letters not hitting the right person's desk, some organisations have faced fines for late or non-compliance.

However, there seems to be a change in attitude with many of our ESOS Phase 2 clients, who believe that the scheme is beginning to engage people more in energy management, and that they will stand to gain a lot more from the process going forward.

### What were the top 3 recommended measures in the reports that you have undertaken?

The main recommended measures focus on capital and human resource expenditure with immediate/less than 24 month paybacks:

- Improved lighting design and switching to LED.
- Better energy management systems, control and maintenance to optimise: compressed air; HVAC, lighting, transport (telematics) etc.
- Energy policy & associated behavioural change: encouraging and training staff to reduce their impact (transport and building energy).

## What improvements would you like to see in ESOS Phase 2?

Our Phase 2 advice to organisations was to embark on the onsite energy audits as soon as possible, spreading them out over four years, to limit the resource burden and realise savings earlier. This seems to have worked well in Phase 2, as well as convincing

clients to adopt energy monitoring and auditing as the norm (e.g incorporating into their ISO 14001 systems; undertaking annual Carbon Footprint Appraisals).

Energy reduction targets need setting in a pragmatic way that is both meaningful and achievable to businesses. Many of the energy reduction opportunities will realise some significant cost and carbon savings, which need Senior Management support.

10

#### Claire Scott, Environmental Business Advisor, GC Business Growth Hub



#### In your opinion, how has the ESOS Phase 1 been received by organisations?

I think there was an initial tendency for qualifying companies to see ESOS as a compliance exercise that had to be completed as opposed to an opportunity to drive energy efficiency

improvements. The danger there was that, by making ESOS Phase 1 a box-ticking exercise, compliance became purely an administrative and financial burden and companies failed to see and benefit from the substantial financial and environmental savings available.

As such, ESOS itself has not necessarily galvanised action in companies not already engaged in environmental improvement activities. Plus, those already working on energy efficiency may have found that ESOS compliance duplicated other efforts.

Having said that, being faced with a total energy consumption figure can certainly focus the mind and I would hope that more organisations have taken on board the improvement suggestions made in the energy audit reports. A small percentage improvement across

the board can result in a substantial cost saving and the total energy consumption figure makes that difficult to ignore.

#### What were the top 3 recommended measures in the reports that you have undertaken?

Most of my energy audits were in commercial, training and retail environments, so the top 3 recommended measures in my reports were, unsurprisingly:

- Lighting improvements encompassing LED upgrades and alternative switching mechanisms such as movement and daylight sensor switches; these are really simple measures that make a big difference.
- HVAC improvements mainly relating to use of controls and staff awareness improvements; there's simply no point having great kit if people don't know how to use it.
- Grey fleet efficiencies for example journey planning, remote meeting solutions and options to encourage alternative methods of transport; these also save time, money and staff stress and fatigue as well as reducing air pollution.

### What improvements would you like to see in ESOS Phase 2?

ESOS only requires companies to propose improvements – there is no obligation to implement and yet that was the objective of the legislation. In order to make the exercise meaningful in terms of bottom line cost savings and reduced environmental impact, ESOS needs to be seen, internally, as an opportunity not an obligation. Plus, only looking at energy consumption and efficiency every 4 years means that opportunities will be missed. Companies that aren't continuously looking to reduce consumption will miss the fact that technology prices are falling as energy prices are increasing so what wasn't feasible 12 months ago could now be a solid investment.

With this in mind, I'd also like to see future ESOS reports to, at least, require a comparison of annual total energy consumption so improvements can be monitored.

#### Emily Chapple, Head of EMEA Sustainability Consulting, CBRE

In your opinion, how has the ESOS Phase 1 been received by organisations?

BEING FACED WITH A TOTAL ENERGY CONSUMPTION FIGURE CAN CERTAINLY FOCUS THE MIND AND I WOULD HOPE THAT MORE ORGANISATIONS HAVE TAKEN ON BOARD THE IMPROVEMENT SUGGESTIONS MADE IN THE ENERGY AUDIT REPORTS.. **99**  ESOS Phase 1 was received with a mixed response. This ranged from those who chose not to make a submission, to organisations who have actively adopted the recommendations from the audits to improve energy efficiency. ESOS Phase 1 provided another key tool to engage with clients about the importance of energy efficiency. Organisations have

clearly learnt lessons from engaging in Phase 1 late and are much more prepared for Phase 2 planning well in advance to meet the compliance date.

### What were the top 3 recommended measures in the reports that you have undertaken?

- BMS optimisation
- Lighting strategy and retrofit
- Re-commissioning of plant

### What improvements would you like to see in ESOS Phase 2?

An improved consistency in Environment Agency's verification audits. Having supported a range of clients

to complete ESOS Phase 1 we have in recent months also been supporting clients to complete their Environment Agency verification audits. The approach from auditors has differed greatly, in some cases lacking efficiency. Those conducting the audits need to adopt a standardised approach to cover all scenarios that represent the 90% coverage.

Vincent Lane, Sustainability Engineer, FDT Consulting Engineers & Project Managers Ltd



#### In your opinion, how has the ESOS Phase 1 been received by organisations?

Amongst our clients, there seems to be a willingness to get assessed, for many of them their own internal corporate policies dictate that they must embark on energy

and/or carbon reducing schemes. For many of them independent assessment is a way to benchmark their progress and to speak to someone objectively about how they can achieve further improvements.

### What were the top 3 recommended measures in the reports that you have undertaken?

 The most important thing for us, is that the organisations are actively managing their energy (water and effluent too) consumption and spend.
 Going hand-in-hand with this are energy champions within the organisation and or departments. Buy-in from senior management is also crucial. If these things aren't in place this would always be our primary



recommendation before a Euro/Pound is spent.

- Challenge and reduce set-point wherever possible. There are a lot of industries with "sacred-cows", it is now that there is pressure from regulators and society that we are starting to see these challenged in novel ways for the first time.
- Most of our clients use large amounts of thermal energy in the form of process heating and cooling, we therefore always look at ways that heat can be recovered within the process, eliminating the need for additional energy to be consumed to achieve the required goal.

### What improvements would you like to see in ESOS Phase 2?

As clients embark on energy management, a lot of the easy wins will disappear. There needs to be a mechanism to encourage companies to go after the medium payback interventions. One way to role this out is with the latest ISO 50001 revision, make it mandatory to start seeing improvements in companies' performance.

ESOS will be discussed in the Knowledge, Skills and Experience theatre at EMEX on Wednesday 21 November at 11:00–11:45 and on Thursday 22 November at 11:10–11:45.



#### <sup>by</sup> **JANE DEVLIN** Energy Strategy Manager at East Hampshire District Council



## Opportunities and Challenges of Delivering Electric Vehicle Charging Points

Imagine your next car is electric. Are you confident that the market will provide the charge-point infrastructure you can rely on?

And if you are part of the supply chain with an eye on a piece of the action, how can you succeed? There is good news: the market is emerging, and it could grow faster than you think.

The Business, Energy and Industrial Strategy committee asserts that the government's deeds do not match the ambitions of its words. The committee's chair, Rachel Reeves MP. said (BBC Website, October 2018) the government's targets gave "little clarity or incentive to industry or the consumer to invest in electric cars."

If zero really does mean zero, how big is the challenge? There are about 43,000 EVs out of 32 million vehicles on the road in 2018, but in 2040 the numbers will likely be reversed.

My first question is how the uptake of EVs will progress, since there is pressure to switch to EVs in less than two decades? Are there any similar emerging markets to provide evidence? The people you see driving around in EVs in 2018 are the innovators - 2.5% of consumers who go for something because it is new. Next come the 16% of people who see an advantage, known as early adopters. Most of us fall into the next 68% of early and late majority. The last people to switch are laggards, and may form a long tail in the market, and so we will still see the odd internal combustion engine (ICE) well into the 2050s. public-facing charge points needed to facilitate charging for all those cars. Each retailer does a good job of promoting their own network, but it is disjointed, and I have yet to see anyone providing a whole-market picture.

How many charge-points will be needed? Where will the public facing ones be? And will the rapid (50kW) chargers be everywhere, or just on through-route forecourt-type



locations? And if we are going to decarbonise transport, how much renewable electricity will be needed?

Range anxiety is the biggest barrier to EV up-take. But, if there were a reliable public-facing charger infrastructure, with chargers for users in the right locations and recharge times that match users need, that

Model the curve needed to meet the 'no new petrol or diesel cars from 2040', allowing for the average number of years we keep our cars (about 4 years), and the average age when cars are scrapped (between 16 and 20 years after first registration), and the halfway point is around 2033. Then estimate the number of barrier would disappear.

2040: No new ICE

Most EV drivers will charge their cars at home, following daily, familiar journeys with a full charge. The public-facing infrastructure for most people means the freedom to relax when the routine changes. So what are the barriers to rolling-out a fit-for-purpose infrastructure?

Around 850 new chargers appearing each month (zap-map.com) but only about 160 of those are 'rapid' 50kW points. Of course, we are at an early stage, and these chargers are clustered in London and other urban areas.

Our strategy (for a rural local authority) is to locate chargers on through-routes, and in 'destination' locations, like town centres and leisure centres. The idea that the tyre-fall (like foot-fall, but-literallyrepresents traffic) at these locations provides users with the top-up charge they need, and deliver the payback on investment.

Is this the right approach? Where else will EV users need to plug-in? The market drivers (sorry) are delivering a patchy mix. Some areas are over-provided with chargers, yet leave swathes of 'deserts' with no public chargers for miles.

The key to delivering a network that EV drivers need to feel more confident is partnerships. From hosts and installers and their contractors to the distribution network operators ensuring that the grid connections provide a long-term, secure and sensible growth profile, the back-office and banking systems to the generators of renewable electricity.

As standards-based approach might bring all the stakeholders to the table and has the potential to expand the market which benefits everyone. And deliver charge-points in the gaps currently seen by EV drivers as no-go areas.

Is there a bigger role for local authorities through policies in Local Plans and communities through Neighbourhood Plans? Planning applications could mandate provision of EV charge points based on a set of economic criteria.

If we can deliver EV chargers on through-routes and in convenient locations at the destination locations in the high level strategy, a network will emerge that helps consumers choose to make their next car electric. By looking at the whole picture suppliers and investors will be able to provide for the visitor economy (in hotels and at attractions) whilst industry and enterprise has the right provision, too.

Are there lessons from other

countries for avoiding clustering of provision and filling the 'deserts'? Is there scope for modelling infrastructure growth, based on big data? Who needs to join us, and what skills are needed to do this? University researchers?

In the end, I think it is about one big question: Will the active players be able to work together collaboratively and scale-up the EV charge-point market, so that everyone benefits?

#### Author's profile:

Jane is the Energy Strategy Manager at East Hampshire District Council implementing renewable energy and sustainable lifestyles. She is currently working on a local authority-led energy services company and, electric vehicle charge point networks across two council areas.

The barriers and solutions to a wider roll out of EV charging points will be discussed during a panel session at EMEX on Wednesday 21 November at 13:40–14:20 in the Facilities, Technology and Innovation theatre.





## Battery Storage: Making the Income Stack Work

The UK is facing potential energy shortages as the gap between supply and demand narrows ever closer, mainly due to the closure and demolition of coal power stations and the intermittent nature of renewable power. It is common knowledge in our industry that a way of levelling the grid is key and batteries in every commercial and some domestic sites could be the answer.

Imagine a company coming to you, offering to install batteries on your site and pay you a fee to do so. This may be a scenario you could face in the not too distant future.

Changes to the electricity codes, which will come into effect next year, will fundamentally change the income stack around the use of batteries and create an income then the value of power from batteries used for demand reduction could be significant. To realise this value-chain there will need to be changes to the electricity codes. The code changes are not complicated and the work has already begun through ELEXON, which is the arm of National Grid that deals with balancing services.

To allow trading, batteries will move from a behind the meter solution to assets with their own fiscal meter that can trade the energy that the grid would have to supply otherwise. This change could help to solve one of the key challenges the grid faces at present, which is levelling supply and demand. Ofgem has challenging targets for Demand Side Response (DSR) but, through a number of surveys, the EMA has found few actual applications of DSR presently being deployed by our members. Batteries used



The potential income stack from trading peak hours battery storage

stream that will see the demand reduction capabilities of batteries become an independently traded commodity. The question that will need to be answered is how much will the demand reduction be traded at? The answer should be at the same rate as peak generation! Demand reduction to the grid is essentially the same in power distribution terms as generated supply. If this is the case at scale could meet Ofgems' targets because the potential scale of their utilisation could be in the Gigawatt range.

The EMA is currently working with the newly formed Decentralised Energy Trading Association (DETA) and the initial stages of trials are currently in planning on how batteries could be used to reduce demand from local grids at peak along the route of the North East mainline. This major electrified rail line between London and the Scottish Borders uses over 100 megawatts of power which is fed in at fourteen different points along the line. The idea is simple, place batteries at the feed in points which

will be charged off peak, and then use them during peak hours to reduce demand from the local networks. There would be significant value for the local District Network Operator (DNO) who could purchase the demand reduction. The value could be either recognised through Balancing Mechanism Units (BMUs) or through contracts with the DNOs.

IF A COMPANY DOES COME KNOCKING ON YOUR DOOR WITH A BATTERY PROPOSITION, IT WILL BE IMPORTANT FOR YOU IN THE NEAR FUTURE TO UNDERSTAND THE POTENTIAL VALUE OF THE PEAK LOAD YOU CAN OFFSET. THE INCOME STACK MAY SURPRISE YOU.

It would seem obvious that the DNOs would want to offer this service directly,

however DNOs are specifically barred from owning batteries by Ofgem (an extremely odd position) but could draw up contracts with independent battery operators.

The basis of these contracts would be that as long as the batteries use their discharge on site, rather than exporting to the grid, there is significant avoidance of the need to either upgrade or reinforce the local grid.

This potential saving is huge if you consider that batteries could manage supply to an extent that would negate the need to build and operate an expensive substation. The most valuable areas to place batteries will be in areas of stress and this should be reflected in the reward the battery operators receive. The trials, which will involve Network Rail, will be looking at how much demand reduction at peak is worth at the fourteen different feed in points.

There may be significant difference between the London

end and the feed in point on the Scottish Border, however it may be that due to being at the end of the line or local constraints, the rural end of the line is more stressed and could be willing to pay more for battery services. To make this scenario a reality will not take any major technological leaps, most of the equipment and software exists, but will need a working understanding of the value chain. The work that DETA will undertake on the rail line and on other pilot projects will give a

baseline for any calculation and any findings will be published, so watch this space.

If a company does come knocking on your door with a battery proposition, it will be important for you in the near future to understand the potential value of the peak load you can offset. The income stack may surprise you.

The changes to the BMUs and how to make the battery storage income stack work will be discussed in the Renewable Energy, Supply and Storage theatre at EMEX on both days: Wednesday 21 November at 14:10–14:50 and Thursday 22 November at 14:30–15:10.



<sup>by</sup> THE ENERGY MANAGERS ASSOCIATION

## Build your Career and Gain a Recognised Energy Manager Status

Our professional status award is a great way of gaining recognition for the hard work you have put into achieving your energy management expertise. The EMA Recognised Energy Manager status is awarded to those professionals who are able to demonstrate comprehensive knowledge of energy management.

The knowledge and understanding of a range of energy management competencies are required for individuals to effectively manage organisational energy cost, consumption and its monitoring and reporting, as well as energy efficiency requirements. We are aware that many energy management practitioners have the skills to understand their organisations'/clients' energy use, consumption patterns, data trends and operational requirements but very few are professionally recognised as Energy Managers, hence the EMA Recognised Energy Manager status.

The professional status can be achieved through two routes:

#### Route 1

Experienced energy management professionals can achieve the recognition by undertaking the EMA Knowledge and Skills Gap Analysis Interview. During the interview two energy management experts assess the professionals' knowledge and experience through an informal conversation. The interview can be attended at any point in a professional's energy management career but we recommend at least 2 years of experience.

As a result of the interview, professionals that demonstrate a comprehensive energy management expertise will be awarded the EMA Recognised Energy Manager status and also receive a verbal and written feedback on how to continue developing their professional career further. If the professional status is not awarded post interview due to some knowledge and skills gaps, an advice and guidance will be given on which areas of energy management to focus on in order to up-skill.

The core energy management competencies that are addressed during the interview:

- Technical and Operational Competency
- Energy Assessments, Measurement
  and Verification Competency
- Behavioural Change and Motivation Competency
- Regulatory and Legal Compliance, and Carbon Management Competency
- Energy Management Strategy and Plan Competency
- Waste Management Competency
- Energy Procurement Competency
- Energy Efficient Transport
- CompetencyWater Management Competency
- Information Technology Competency

#### Route 2

The professionals who are new to energy management and aspire to achieve the EMA Recognised Energy Manager status are encouraged to undertake energy management training and gain more practical on-job experience. If the professionals undertake the training with the EMA, we offer a portfolio of training courses as part of the EMA LEC 3 Energy Management in Practice training



recoanised

programme delivered in-class by experienced energy managers.

The entire programme consists of 13 individual training courses and can be completed in less than 2 years. Upon the completion of the training, candidates aspiring to achieve the EMA Recognised Energy Manager status will complete an end point assessment that consists of a test, energy audit, report and interview to demonstrate that they have the required level of knowledge and expertise.

For the available courses and their learning outcomes, please see the 'Everything You Need To Know About Energy Management' article on the next page.

To find out about next steps to enhance your career and gain recognised professional status, please visit www.theema.org.uk or contact enquiries@theema.org.uk. Alternatively, come and talk to us at the EMA stand in the Networking Area at EMEX on 21-22 November 2018 at ExCeL London.

The career in energy management will be discussed on both days in the Knowledge, Skills and Experience theatre at EMEX, on Wednesday 21 November at 13:50 and on Thursday 22 November at 12:50. <sup>by</sup> THE ENERGY MANAGERS ASSOCIATION

# Everything to Know

#### Fundamentals of Energy Management course (2 days = 10 CPD hours)

This introductory course is designed to provide a comprehensive and practical overview of the key energy management tasks with an emphasis on the energy management knowledge and skills that are required from an energy management professional. To understand energy management, it is important to recognise that it can differ across organisations and as the course unfolds the overview of regular energy management practices applied to manage and save energy, as well as decrease energy related costs and emissions will be presented and discussed. The goal of the course is to leave a lasting impression about what energy management practices can be applied within businesses, what can be done to increase energy efficiency and what skills and knowledge are required to deliver these.

#### Learning outcomes:

Upon completion of the course, participants will have gained knowledge and understanding of:

- What energy management means for its practitioners and their organisations and/or clients
- Basic energy management practices
- Technical concepts of energy use
- Technical and non-technical responsibilities of energy management practitioners
- · Basic monitoring and targeting principles
- Energy auditing
- Legislative compliance related to energy management
- Waste and water management basics
- Energy procurement overview
- Relationship between all modules in LEC 3 Energy Management in Practice Training Programme

#### Monitoring, Targeting and Validation (1 day training course = 6 CPD hours)

This course provides an introduction to principles of monitoring, targeting and validating energy consumption. It is aimed at those needing an understanding of methods of gathering, using and interpreting data, as

well as a range of available measurement technologies. The course is designed to give guidance on creating value and setting energy baselines and benchmarking, validating energy savings and ultimately using M&T to sustain energy savings.



programme, and more importantly an insight into the psychology of people and the way they behave which is essential in ensuring that any behavioural change programme is correctly structured and targeted in order to achieve a successful outcome.

#### Learning outcomes:

Upon completion of the course, participants will have gained knowledge and understanding of:

- What monitoring, targeting and validation mean
- Data gathering techniques and the basics of using data
- How to interpret data and create value
- Developing simple energy baselines and benchmarking
- How to utilise energy baselines to sustain ongoing measurement and targeting
- Savings' verification and project validation

#### Regulatory and Legal Compliance and Carbon Management (1 day training course = 6 CPD hours)

This course is designed to provide overview of energy management and environmental regulatory landscape, explain any upcoming regulatory changes and help energy and environmental managers to fit them into their organisation's plans and strategy.

#### Learning outcomes:

Upon completion of the course, participants will have gained knowledge and understanding of:

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

#### Understanding and Delivering Behavioural Change Programme (1 day training course = 6 CPD hours)

This course provides participants with the knowledge of how to prepare and deliver a behavioural change

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#### Learning outcomes:

Upon completion of the course, participants will have gained knowledge and understanding of:

- Why people behave the way they do, why people behave differently
- The psychology of persuasion, just how we are going to change people's behaviours
- How to identify the potential audience for change, who's going to make the biggest impact? Who will be your key allies
- Identifying your different options for a behavioural change programme
- Preparing a business case using tangible and intangible elements
- Gaining approval to your proposal
- How to make it happen, the key elements of delivering the programme
- Making sure that you're able to measure the success and report effectively on this
- What next steps you should always take to ensure a successful completion to the current programme and setting the foundations for future programmes

#### Energy Management Strategy and Plan (1 day training course = 6 CPD hours)

This course offers an overview of key steps in developing an energy management strategy as part of the organisational energy management practices. An understanding of the drivers and various approaches to setting the strategy will be explored. The aspects of an essential energy management strategy: scope, baseline, targets and resources, achieving the target, monitoring, targeting and control, behavioural change, efficiency, reporting and reviewing will also be taken into consideration.

#### Learning outcomes:

Upon completion of the course, participants will have gained knowledge and understanding of:

- Key strategy drivers
- Organisation's energy use and requirements for its improvement
- How to gain a stakeholder commitment and build a business case
- How to set targets, identify opportunities for improvement and set an action plan
- How to plan the implementation of the opportunities, report on the outcomes and review the strategy

### Waste Management course (1 day training course = 4 CPD hours)

This course is designed as a comprehensive overview of waste management. It focuses on waste legislation in the UK, waste disposal and recycling options. The course provides participants with all the essential knowledge of mapping waste streams, undertaking waste auditing, identify improvement opportunities and setting SMART waste targets and KPI's, as well as measurement,



monitoring and reporting techniques relevant to waste data. The course programme draws on established practices of organisational waste management and helps participants to develop more waste efficient practices.

#### Learning outcomes:

Upon completion of the course, participants will have gained knowledge and understanding of:

- The benefits of managing waste effectively
- The key components of current waste legislation in the UK
- What happens to waste when sent for disposal
- How to carry out a waste audit to help identify improvement opportunities
- How to set suitable waste targets that are SMART
- How to measure, monitor and report waste data

### Energy Procurement (1 day training course = 5 CPD hours)

This course guides participants through the basic procurement processes for electricity and gas in the UK. It describes how the electricity and gas industries are structured and how this impacts on the prices customers pay. It explains the main drivers of energy pricing in the UK and how electricity and gas tariffs are structured. It will also explain the types of energy contracts that are available and the simple procurement processes that can be used by energy buyers. The course also includes information about how third party intermediaries work, how to get the best out of them, reveals how they get paid and how to minimise their cost.

#### Learning outcomes:

Upon completion of the course, participants will have gained a basic understanding of:

- UK electricity and gas industry structures
- What makes up delivered energy tariffs
- What are the basic drivers of energy prices in the UK
- The basic contract types available in the UK
- How to run a basic procurement exercise
- What third party intermediaries do and how they get paid

### Water Management (1 day training course = 5 CPD hours)

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

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

#### Learning outcomes:

Upon completion of the course, participants will have gained an introductory knowledge in:

- UK water industry structures
- What makes up a water bill
- The opening of the English water market to retail competition
- Water metering and monitoring systems
- Basic techniques on how to undertake a water audit and what can be done to reduce water
- consumptionRelating water to energy
- consumption
- Techniques to change behaviour to reduce water consumption.

general uses and basic, pros and cons

- Outline for participants to understand the basic process for new lighting installations and upgrades with pictorial examples
- Basics of lighting design using free software to help participant be able to understand what information lighting companies may present them with
- Basic lighting control systems that can increase energy efficiency while maintaining required light levels and safe environments

#### Essential HVAC Control and Optimisation – Technical and Operational (1 day training course = 5 CPD hours)

Heating, ventilation and air conditioning (HVAC) systems are an essential part of most modern buildings and can consume a large part of any energy used. This course aims

to inform participants about the most widely used form of HVAC, their basic control and potential methods for optimising their operation for the least energy use while maintaining the comfort within buildings.

The course also covers:

• Basic operation and control of systems such as boilers, air handlers, fan coil units, chillers, pumping systems and air conditioning and

air co

- relate them to energy consumption. Potential control methodologies that can be used for optimisation such as speed, flow and differential temperature which can be used to optimise their use for lowest energy consumption while maintaining adequate temperatures and comfort levels. This will also include how many of these systems can be controlled via a BMS.
- Implementation and correct use of variable speed drives across the range of HVAC systems.
- The renewable versions of some of the HVAC equipment such as biomass boilers and heat pumps.

#### Learning outcomes:

Upon completion of the course, participants will have gained knowledge in:

- The operation and energy use of the main types of HVAC
- The standard control philosophies which tend to be used for the equipment
- Potential optimisation methods to reduce energy cost of HVAC and improve its performance
- Where to install variable speed drives on HVAC and optimize their use

#### Lighting – Basic Understanding – Technical and Operational (1 day training course = 5 CPD hours)

This course provides a basic understanding of the lighting systems commonly found in the UK, their general uses and guidance on how organisations can become generally more energy efficient with respect to lighting. The course is also aimed at helping people to engage at a higher level with lighting suppliers who may be presenting them with information. This can quite often be complicated and misleading and hopefully this course helps participants to understand what may be put in front of them.

#### Learning outcomes:

Upon completion of the course, participants will have gained knowledge in:

- Basic measurements for lighting output and efficacy to help participants gain knowledge to be able to engage with lighting companies
- Identification and basic understanding of the common types of lighting currently found in the UK, their



- Control through systems such as a BMS
- Basic understanding of biomass boiler use and heat
  pumps

#### On-site Electricity Generation – Technical and Operational (1 day training course = 5 CPD hours)

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

This course aims to inform participants about the main types of on-site generation and provide information on how to effectively deploy it and gain commercial benefit. It describes how the most common forms of on-site generation such as solar, wind and CHP can be specified, installed and operated, how to effectively size

the generation, how they would connect within an existing site and the financial incentives and mechanisms available to each technology.

The course also includes the process for applying for and obtaining permission from the local Distribution Network Operator (DNO) to connect any type of

generation and to understand how to find out whether export provision may be available.

#### Learning outcomes:

Upon completion of the course, participants will have gained a basic understanding of:

- The main technologies used for on-site electricity generation
- Identifying the correct technology for deployment in a building
- How to size the generation technology required
- How and where to connect the generation technology
- The financial incentives and returns available for each technology
- What may prevent on-site generation from being deployed
- The process of dealing with DNO's to gain permission for generation and the possibility of exporting to the grid

#### Battery Storage for Business – Technical and Operational course (1 day training course = 5 CPD hours)

Battery storage has been the subject of a substantial amount of publicity and market interest recently. This course provides a basic understanding of battery storage systems, the various battery technologies and their general use, how they can be deployed within buildings, charging and discharging methodologies, as well as looking at their limitations.

The course also looks at the financial incentives and electricity charge savings available, the energy contract type required to achieve savings and guide on how to evaluate the benefits of battery systems in businesses. The course equips participants with the basic knowledge, skills and tools to consider integrating battery storage systems into their organisations.

#### Learning outcomes:

Upon completion of the course, participants will:

- Understand how battery storage systems work and can be integrated into buildings
- Be able to identify whether battery storage is suitable for their use and would be allowed
- Be able to perform a risk and mitigation analysis
  Be able to review their



• Be able to review the electrical system, usage, charging and discharging cycles, current energy contract and define their objectives and targets

• Be able to use tools to review the cost modelling for battery storage and establish what variables may affect viability at their sites.

#### Turning Data into Energy Savings (1 day training course = 5 CPD hours)

This course gives participants an opportunity to learn how to maximise the savings that can be achieved from the effective use of energy data. Using real examples this course is designed to help participants to establish their data requirements and the different ways to deliver real measurable savings.

The course will cover:

- Sources of data
- What is data commonly used for, what else could it be used for
- How will you use your data within your business
  - What do you really need:
    - Displays
    - Dashboards
    - Reports
    - Alerts
- Scoping data requirements
- The types & uses of metering devices
- Types of data analysis and performance indicators
- Identifying the opportunity
- Delivering the opportunity
- Real life examples

#### Learning outcomes:

Upon completion of the course, participants will be able to:

- Make the best use of their existing data, turning it into deliverable savings.
- Assess what additional data will genuinely help in achieving better results and how they would go about delivering this.

#### Energy Auditing Techniques – Technical and Operational course (1 day training course = 5 CPD hours)

Energy auditing is a relatively specialist skill but one that can identify and produce major savings in energy use and cost. While energy audits will always be specific to each building, this course provides the basic techniques and the key elements to look out for during an audit.

The course describes the basic techniques of energy auditing, from initial data analysis through to the on-site process or equipment identification and operational review. It explains the main types of opportunities that are likely to be identified, the types of equipment that can be replaced or upgraded and will discuss the control of energy consuming process and equipment where much of the savings can be made.

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

#### Learning outcomes:

Upon completion of the course, participants will have gained a basic understanding of:

- The basic process for energy auditing
- Initial analysis of site data before an audit commences Basic audit techniques will be addressed for the
- systems below but they can be applied to most energy consuming items:
  - Heating systems
  - Cooling systems
  - Pumping systems
  - Air handling systems
  - Lighting
  - Compressed air
  - Identifying appropriate control systems
- Basic reporting techniques
- Basic calculation of savings and return on investment

#### Energy Management in Building Services – Technical and Operational course (2 day training course = 10 CPD hours)

Energy in buildings is consumed in a large variety of ways and on a large number of different processes and types of equipment. This course is designed to provide an introduction to many of the most common energy consuming systems found in existing buildings and their operations. Some of the basic legislation that may apply in buildings such as Minimum Energy Efficiency Standard (MEES) will also be covered during the course.

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

The following areas are also covered during the course delivery: heating and cooling systems (including recovery of both), hot water systems, air handling and conditioning systems, lighting and their associated control systems as well as renewable and low carbon generation systems producing heat and power.

#### Learning outcomes:

Upon completion of the course, participants will have gained a basic understanding of:

- The types of energy used in buildings and how electricity may be conditioned
- Heating systems
- Cooling systems
- Domestic and commercial hot water
- Air handling and conditioning systems
- Lighting
- Control systems for building equipment
- Renewable and low carbon generation systems producing heat and power such as solar and CHP
- How maintenance can impact energy management
- Main applicable legislation such as MEES.





## Utilities and Enterprise Risk Management (ERM) at Jaguar Land Rover

Enterprise Risk Management (ERM) involves a structured and integrated approach for the systematic identification, management and control of potential threats and maximisation of opportunities that could affect the organisation's objectives.

The process will support and enable the realisation of strategic future value creation and the preservation of sustained benefits of routine operations. It requires clear ownership, as well as completion and monitoring of mitigating actions, to manage risks within agreed and acceptable levels of exposure.

The output is the provision of information to management to improve business decisions, reduce uncertainty and provide reasonable assurance regarding the achievement of business objectives. The Jaguar Land Rover risk management framework is based around ISO 31000: 2009 (Risk Management guidelines).

#### Start with WHY?

One of my favourite TED talks is 'Start with Why' by Simon Sinek<sup>2</sup> but from a very different perspective to the one I believe Mr Sinek was intending (how great leaders inspire action). In fact, what it did inspire me to do was challenge my decision and prioritisation processes; I had been focusing on the 'What' (projects, tasks, actions) and 'How' (influence, persuasion, skills, collaboration, systems and behaviour). Had I ever guestioned 'Why' this decision or why it was required in the first place? Why began to drive Energy Policy and Strategy and then the underlying support systems.

For Utilities, particularly energy, many of us are still battling with the trilemma that is carbon, cost and security. As non-commodity costs continue to rise, we must not lose sight of the remaining two pillars of the energy trilemma: carbon and security of supply. As I challenged the 'Why' particularly for energy; security and resilience kept rising

up the ranks alongside cost. Irrespective of affordability our power needs were increasing exponentially and being met head on by considerable internal and external capacity and capability constraints.

Unless we understood the risks throughout the energy supply chain to the point of consumption we could not begin to comprehend the impacts or indeed our 'risk appetite' and truly answer 'WHY' in order to plan and prioritise the 'WHAT' and 'HOW'.

#### WHY Enterprise Risk Management (ERM)?

Industry disruption not least electrification is driving greater power consumption through design, research, manufacturing and supply chain. This coupled with legacy (old sites, ageing infrastructure – internal and external) and an increasing need to decarbonise heat means, quite literally, that the water line is dropping and exposing our vulnerability in terms of secure and resilient energy supply systems from generation to consumer.

#### The presentation on 22nd November at 11:50 in the Renewable Energy, Supply and Storage theatre at EMEX will look

to explain 'Why we use the ERM framework' for Utilities risk mapping, assessment and resilience planning; how we use it and our learning to date e.g. synergies / alignment with other business strategies, project assessment, prioritising funding, engagement, influencing strategy and management reporting.

While the overall scope of the project is utilities, the presentation will focus predominantly on electricity.

#### Author's profile:

Caroline is a graduate of Kingston University with 28 years automotive experience covering Process Engineering, Production Management, Supply Chain/Logistics, Corporate Social Responsibility, Energy & Carbon Management and, more recently, Facilities Management (Utilities). Caroline's role involves utilities (power, gas and water), strategy and provision for all sites (manufacturing and non-manufacturing) within the portfolio. The role is guite broad from guiding and influencing daily energy management to long term (2025+) policy and strategy.

<sup>1</sup>International Organization for Standardization. https://www.iso.org/standard/65694.html <sup>2</sup>Start with why; how great leaders inspire action, Simon Sinek. https://www.youtube.com/ watch?v=u4ZoJKF\_VuA&vl=en



International Organization for Standardization<sup>1</sup>



## "The Value of Good Performance" – How high-performance buildings protect the asset and increase your bottom line

The performance gap challenge may seem straightforward – after all the acumen to design 'good' buildings and the knowledge to operate them in an effective and efficient manner is understood – but the reality from design 'feed through' to performance in-use is more complex than it might at first appear.

In reality, the performance gap has two components: the compliance gap; and the actual performance gap. The contention is 'real use', such as occupancy hours and occupancy density, and 'unregulated loads' for example lifts and small power, a lack of maintenance, limited data and management structure and governance each play a part.

However, the underpinning reasons for the second and larger actual performance gap are less well known and understood. But no one knows for certain by how much each impacts the whole. Anecdotal evidence from the asset management industry has indicated a number of possible reasons:

- Issues with the management structure and governance;
- Lack of maintenance due to resource and skills shortage;

Limited data;

Lack of practical solutions and their costs.

The fact that nobody knows presents an opportunity for whoever finds the evidence for the underpinning causes and then presents practical solutions to solve them. The main barrier to this is quality data from a large enough sample with full access to the building and their occupants – we have now been presented with that opportunity.

Previously, what was missing is "real-life" exemplars to investigate the actual causes of the performance gap and



propose practical solutions. As a result, the 'Mind the Gap' research project was born. This research project is in two stages where the on-going first stage defines the methodology using trial buildings to determine the correct data to collect and the right questions to ask; with a proposed second stage rolling this out over a larger number of buildings.

BRE has embarked on a research project with an industry asset owner partner that aims to understand and explain why there is a difference in energy performance, between design and the building in-use, a 'gap' of 200-450%. The concluding evidence will be utilised to develop the tools and solutions required to reduce the gap.

Observations from this initial data and results are:

- The initial data collection was difficult to collect and the remaining data required for the first phase will be collected or measured on-site.
- Current data collection and storage processes are ineffective due to the lack of management and a dedicated resource.
- Lower and shorter rental values, as a consequence of high service charges and poor comfort conditions;
- Capital expenditure on HVAC equipment failures, due to poor maintenance;
- Tenants wanting to renegotiate rent values based on comfort and maintenance issues.

On a pure cost basis, the operation energy or the energy used in using a building is up to 50% of the operation costs or 40% of the total cost of a building; see below:



- The performance gap was confirmed as real and in the range 209 to 491%.
- The values observed were similar to that observed by previous studies which were between 200 and 450%.
- There was no relationship between the perceived operational status and that observed.

The second stage will concentrate on investigating both the asset, operational and management features of 5 buildings in order to obtain more granularity in terms of key performance aspects/indicators and the underpinning reasons/drivers for the poor performance.

The research comes at a pertinent time for the non-residential buildings sector. Minimum Building Energy Performance Standards (MEPS)<sup>1</sup> came into effect 1 April 2018 that prevents asset owners from issuing new leases on F and G EPC rated buildings until improvements have been undertaken to bring the stock up to an EPC E rating or above. It does not impact existing leases until 2023.

Loss of revenue due to the new legislation may not be the reality for most asset managers, however few are inured from the performance gap conundrum and its myriad impacts. Indeed, those who act on it will experience significant benefits as high-performing buildings generate maximum profit via:

- High and continuous rental income
- Low operating & maintenance cost
- Low depreciation

However, poor operational management undermines the aims of asset management and leads to:

- Increased tenant complaints regarding comfort conditions and loss of reputation;
- Higher service charges;
- · Longer void periods leading to a reduction of income;

If this is inflated by a multiple of 2 to 4.5 the cost to the end user is considerable. However, if the occupier is leasing these may just be passed onto them and they more not have much say in the management of the building.

The effect on the asset and its value is just as dramatic with:

- Deterioration of value;
- Service life of plant reduced;
- Fabric lifetime reduced;
- Costly remedial works to maintain value;
- In 'void' periods there is likely to be still further deterioration through lack of use;
- Loss of reputation.

The performance gap impact on asset value that the research seeks to demonstrate will be debated by an expert panel at EMEX 2018 in the Facilities, Technology and Innovation theatre on 21st November 2018 at 12:20.

#### Author's profile:

Dr Andy Lewry is an expert in Carbon and Energy Management with 20 years varied technical, marketing and management experience. He has in-depth knowledge of sustainability issues including BREEAM, Home Quality Mark, BIM, ISO 14001 and 50001 (Lead Auditor). Over the last 10 years, he has had a leading role in investigating the 'performance gap' — why buildings do not meet their design expectations in operation.

<sup>1</sup>https://www.gov.uk/government/publications/the-private-rented-property-minimum-standard-landlord-guidance-documents

#### <sup>by</sup> **RACHEL TORESEN-OWUOR** Programme Director at Local Partnerships





This article explores the early engagement activity and key areas to consider when deciding to procure an Energy Performance Contract (EPC). It shares experience and views from framework users and providers on what makes an attractive and successful EPC project.

#### Leadership

A key element

of any successful project, Energy Performance Contracting or otherwise, is senior management buy-in. Projects need to be owned and matched to wider organisational objectives. Energy is very frequently the golden thread through an organisation's plans and strategies - ensuring that the right motivation is identified can greatly assist the project's approval through to the development of a business case.

Leadership is needed during delivery phase as well as in the early stages of a project. Spend some time identifying the right leaders for each phase. In the initial stages of developing an EPC, the leader helps raise the profile of the project and promotes the need to act within the organisation. This leader is useful to help overcome both real and, very often, perceived barriers. As a project progresses, they will be a champion, helping to overcome any issues.

During the delivery stage the right project leader will ensure that the right resources and plans are in place. Importantly, they will also make sure decisions are made in a timely manner. This is often the estates director or a person responsible for a particular improvement programme, for example a programme covering environmental improvement, savings' delivery or, increasingly common, the person responsible for delivering energy programmes.

Kostas Papadopoulos, Head of Energy Performance at SSE, a successful supplier on the Re:fit framework, shares some of his views on what SSE looks for with a potential client.

"When SSE reviews opportunities, we initially look at strong client buy-in, ideally by senior management. This should also include prior site stakeholder engagement and their agreement to participate in the project. Finally, that the project funding is secure and has defined milestones for its approval to move to its installation phase. This initial review helps SSE to invest time and mobilise its resources to tender for this type of project."

#### **Business case**

Agreeing terms and parameters for the project's business case is key; they should be



based on wider strategic reflection at an early stage, so they are integrated, rather than purely solution-lead, opportunities. Understanding the organisation's limitations and opportunities for funding will help to explore financing approaches. It is important to have an understanding of how to leverage the impact of and opportunities for the project, for both immediate and longer-term benefits.

A clear narrative around the benefits of the business case is key especially the financial benefits. When linking energy projects to wider strategies and objectives, remember to "save the savings" for repaying any loans used for project finance, or to set up internal recycling funds for future project delivery. It is also a good idea to remember that most Measurement and Verification (M&V) approaches for energy savings present the data as avoided consumption or avoided cost. This ensures that the business case clearly outlines the principle at an early stage which may help with reporting the benefits at later stages following project implementation.

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Understand the impact of potential policy changes the business case. An ever-changing estate portfolio adds uncertainty business case and the attractiveness of a project. Including additional sites project briefs can mitigate a site drops out, another brought in to replace it. policy changes can impact pricing, which again can the business case.

Bamford, Business Development Manager, Ameresco, said: "We look for a project that has considered its scope and future scale. We find that successful projects have senior level buy in from the start. Moreover, they have deliberated their approach, particularly when working at buildings with different site owners.

The ability to provide us with asset and energy information is key to getting the best outcome from a project."

#### **Project management**

Projects fail without the effective coordination of multiple elements including resources and



sites during the procurement, design and installation phases. It is critical to involve supporting teams and colleagues in the early stages and to communicate with all stakeholders throughout the process. From our experience, energy performance contracts work best when the personnel below are fully engaged from the outset, working with energy teams to develop the project.

Legal – to provide advice on contract formats for tender documentation and works' agreements with appointed suppliers. Although frameworks may have extensive set of standard terms, with minimal adjustments allowed or required, the contract does need to be understood and executed by the client organisation.

#### Procurement

to assist
 with clarifying
 processes and
 roles, capturing
 requirements,
 supporting
 tender
 evaluations and
 scoring of bid
 documents.
 Procurement
 colleagues
 are essential
 for addressing
 queries and



supporting arrangements for bidders' and coordinating the publication of the tender documents on the client's online portal.

**Finance** – always important owing to investment decisions. The business case will need support and/ or approval from Finance, and the financing method will also need approval to ensure that requirements are achieved, for example off-balance sheet treatment if required.

The amount of time required for each of the above may be fairly limited and this can, and has, been a main barrier and blocker of progress. This is typically owing to lack of resource when needed, rather than actual problems with the proposals.

#### Associated delivery functions/

teams – the estates team should be heavily involved and there may be other teams or estates' sub-teams whose input could include the property maintenance teams and building users, if they aren't already involved and positively engaged. Typically these teams should support the delivery of an EPC as it should be helping achieve some of their key objectives if appropriately set. This might include reduction in energy use/costs and

better system resilience.

#### Asset

management teams can help to explore the potential for including more than just the portfolio of buildings. This might include other assets such as multi-use sites. The clerk of works will help to finalise the design and installation phases to achieve sign-off.

External facilities management suppliers – many organisations using Energy Performance Contracts have outsourced some or all of their facilities management activities. Generally, this has not been a problem area for projects, as most delays tend to relate to lack of internal staff engagement. Early engagement and direction by the client, of external suppliers is important, even if this is just to allow easy access to maintained plant.

Finally, a key area to check: is there any conflict with existing capital plans or scheduled refurb plans at identified potential sites? This might include stopping two projects being delivered at the same time, for example a lighting upgrade closely followed by a full refurbishment.

The Service Provider will be keen to progress the design phase to enable progression to the delivery phase. They can't do it all on their own. Service Providers will need good and timely access to site, and site information, to enable an



appropriate solution that delivers the business case. Involvement of the site and relevant client resources will help to ensure that the investment grade proposals address key issues and can be quickly progressed through understanding priorities and potential barriers for progress.

It is important that the appropriate resources from the contracting authority attends the initial meeting with the Service Provider to help establish the project plan and requirements for successful delivery.



#### Contract management

An Energy Performance Contract

extends well beyond the procurement and installation phase, throughout the payback period of the project. Most typically, this means the contract will be in place for 8-10 years. Management of an energy performance contract (beyond the initial implementation phase) is usually best undertaken by an organisation's energy team. This is because it requires an understanding of energy consumption data and, ideally, also an understanding of the measurement and verification principles.

Most EPCs use the International Performance Measurement and Verification Protocol (IPMVP). For a successful energy performance contract over the lifetime of the payback period, a client organisation must understand the obligations required of them in relation to the M&V plan. This includes the provision of good quality data and keeping an agreed change log to report changes and incidents that will have impacted on the energy consumption or generation at a site. It is recommended that a third party M&V professional or organisation reviews these submitted annual reconciliation reports as an independent reviewer to provide assurance with the process.



In summary, energy performance contracts can, and do, provide opportunities for long-term partnerships and successful delivery of a wide range of energy projects that drive efficiencies and generate income. Early stakeholder engagement and business case development, capturing how to address multiple strategic objectives, and a focus on contract management

> for the project lifetime, are the keys to success.

In 2017, Calderdale Council launched phase one of its Re:fit programme to reduce energy usage and costs in 14 of its non-domestic public buildings. Measures included upgrading LED lighting, replacing inefficient boilers, improving control of heating systems and



installing electricity-generating solar panels. The Council is committed to reducing its CO2 emissions by 40% by 2020 and by 80% by 2050 (compared to the levels in 2005).

Talking about the success Re:fit has helped to achieve, Cllr Barry Collins, Calderdale Council's Cabinet Member for Regeneration and Economic Strategy said: "We know how important it is to reduce our impact on the environment to protect Calderdale's quality of life. The *Re:fit scheme is already helping* us to build a sustainable future for our borough. In phase one, we have reduced energy usage and costs in 14 of our public buildings and are already on track to make energy savings of £156,000 a year alongside an 843 tonne

annual reduction in carbon dioxide emissions. The second phase will offer even greater opportunity for us to achieve further reductions of carbon emissions as well as saving money for vital services."

#### Author's profile:

Rachel Toresen-Owuor, has 9 years Local Authority experience, where she led on energy management, procurement and strategy development. Experienced in project and contract management, Rachel has delivered multiple energy efficiency and renewable energy projects and an energy performance contract.

Rachel will discuss the EPC topic during a panel discussion at EMEX on Thursday 22 November at 11:00-11:50 in the Facilities, Technology and Innovation theatre.



## EMA Courses in 2018-2019

### **Energy Management in Practice Training Programme**

(Practical training not only for energy managers and EMA members)

The EMA value for money courses have been developed with energy management professionals in mind and offer practical solutions to some of the most important challenges facing today's professionals. Not only will participants be presented with professionally valuable information from energy managers who deliver the courses, but they can also pick up new ideas from other participants and apply them to their organisation.

#### The portfolio of practical courses features established, as well as new, EMA courses. Unless otherwise stated, the courses will take place in London.

- Fundamentals of Energy Management: 4-5 April 2019
- Energy Monitoring, Targeting and Validation: 6 December 2018, 3 April 2019
- New\*Energy Auditing Techniques: 6 March 2019
- New Energy Management in Building Services: 9-10 May 2019
- · Lighting Basic Understanding: 25 April 2019
- Essential HVAC Control and Optimisation: 13 November 2018, 14 March 2019
- Energy Management Strategy: 4 June 2019
- Understanding and Delivering Behavioural Change Programme: 13 March 2019
- Energy Procurement: 5 March 2019
- Water Management: 30 April 2019
- Waste Management: 5 June 2019
- Battery Storage for Business: 29 November 2018, 19 March 2019
- On-site Electricity Generation: 21 March 2019
- Turning Data into Energy Savings: 24 April 2019

#### In-house training

All courses can be delivered in-house in a standard format or as tailored sessions (minimum 6 candidates). For a quote, email jana.skodlova@theema.org.uk with your chosen course title, approximate number of staff and location. We can also develop new, bespoke material to fit specific client needs.

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<sup>by</sup> JASON FRANKS Managing Director at HEELEC Ltd





## Welcome to EMEX 2018!

MEX is THE Energy Management Exhibition driven by the Energy Managers Association (EMA). From the bottom up it will support your efforts to reduce your energy use and there is a packed programme spread across free-to-attend CPD-accredited seminar theatres. This content, curated by the Energy Managers Association and its Board of major energy users, includes the opportunity to meet with top industry experts, peers and numerous leading suppliers that will unveil the latest technology and energy efficiency strategies available right now.

Applying silo thinking to energy management rarely delivers the maximum savings possible. A far more effective approach is to focus on the whole operation and identify the interdependencies between each function. With this broader view, it is possible to develop and implement solutions that deliver greater cost reductions by increasing energy efficiency across multiple facilities, reducing maintenance costs, reducing water consumption, decreasing production downtime, remove supply chain costs, delivering a return on investment, increasing business assets value and enhancing workplace productivity.

For the first time at EMEX, IEMA, BIFM, SOE, BEIS, NFU, Environment Agency, BRE, BSI, National Grid and The EMA have joined forces to provide professionals with practical knowledge, innovative solutions and insights from successful implementations of the latest energy-saving projects and low-carbon strategies.

EMEX celebrates its 5th birthday with over 130 exhibitors and 80 free-to-attend CPD-accredited seminars spread across 5 topical theatres:

- Knowledge, Skills & Experience
- New! Sustainability & Climate Change
- Facilities, Technology & Innovation
- Renewable Energy, Supply & Storage
- Flexible Power Zone

Please take the time to talk to our exhibitors and sponsors too and learn about some fabulous products, services and innovations. Our aim is that you leave the show better informed and better able to manage your energy use. After all, an effective day reducing one of your largest annual expenditures could have just as profound an effect on your bottom line as the sales team exceeding targets.

I hope that you have an enjoyable and productive show.

Jason Franks Managing Director HEELEC Ltd



#### **Useful Information:**

#### **Opening times**

Wednesday 21 November: 09:30 – 17:00 Thursday 22 November: 09:30 – 16:30

#### Venue

ExCeL London, 1 Western Gateway, Royal Victoria Dock, London, E16 1XL

#### Where to go?

Hall N1. Nearest station is Custom House. More information is available at www.excel-london.co.uk/visiting-excel

#### Cost of Entry?

Entry is free with prior registration at www.emexlondon.com. Please print your badge (PDF) and bring it with you for immediate access.

#### Networking

A great meeting point is the EMA Central Networking Area.

#### 2019 Information

EMEX takes place at ExCeL on the 20 and 21 November 2019.

#### Code of Conduct

Canvassing or soliciting for business by non-exhibitors or unauthorised personnel during the exhibition is strictly prohibited. Entry to EMEX is permitted to trade visitors on the condition that they do not attempt to canvass products or services whilst visiting the exhibition. Any visitor attempting to canvass EMEX exhibitors or visitors will be asked to leave.



#### SHOW PREVIEW

## Top Energy Efficiency Megatrends covered at EMEX 2018

EMEX (www.emexlondon.com) and its community are returning to the ExCeL Centre in London on 21st and 22nd November with a packed programme spread across 4 free-to-attend CPD-accredited seminar theatres. This content, curated by the Energy Managers Association and its Board of major energy users, includes the opportunity to meet with top industry experts, peers and numerous leading suppliers that will unveil the latest technology and energy efficiency strategies available right now.

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EMEX is over 130 exhibitors and 80 free-to-attend CPD-accredited seminars spread across 5 topical theatres:

- Knowledge, Skills and Experience (see page 42)
- New! Sustainability & Climate (see page 44)
- Facilities, Technology & Innovation (see page 46)
- Renewable Energy, Supply and Storage (see page 48)
- Flexible Power Zone (see page 50)

To give you a glimpse into the 2018 show, here are some of the highlights of the seminar programme and the exhibition.

#### 1. The Energy Efficiency Revolution in the Built Environment

The built environment is going through a rapid transformation driven by a constant increase in energy prices, disruptive innovations, ongoing changes to building regulations and upcoming legislation. About half of CO2 emissions in the UK come from energy used in our homes and buildings leading the UK Government to implement tougher regulations in the built environment.

#### High-performance buildings protect the asset and increase

the bottom line. Get on top of new Government energy standards, assess risks and, where necessary, act now to make improvements that ensure buildings exceed the minimum energy efficiency standard or face the prospect of your energy bill increasing rapidly and the value of your assets decreasing significantly.

Since April 2018, it is unlawful to renew or grant new leases for residential, or commercial properties with an EPC rating below "E" unless registered as an exemption. By April 2020, the regulation will be extended to apply to all residential lettings (both new and existing).

By simply auditing, commissioning or upgrading existing systems, you can expect energy savings of 20-40%, which typically represent a simple payback ranging from 6 months up to 3 years depending on your project.

#### **Building data analytics and BMS**

revolution. Affordability of large-scale data handling technologies has seen the emergence of disruptive solutions that offer a quick and effective to measure, model and analyse live data from any device anywhere to optimise building energy performance, simplify and reduce maintenance costs. Companies exhibiting at EMEX include 4D Monitoring, arbnco, Enerbrain, Ecocentric, Ecoplitot, Innotech Europe, IonSign, iScape Ltd, Metron, EDF Energy PowerNow, SMS plc, Optima Energy Management and Optimised Buildings.

With over 130 exhibitors ranging from major utilities to brokers and consultants, equipment manufacturers to training companies and showcasing a broad range of energy efficient solutions and services under one roof, EMEX has become a unique opportunity to learn about the new technology, systems and services available in this fast-changing environment.

#### 2. Optimising Costs Through Sustainable Operations

One area of operational expenditure that has been largely overlooked, but which has substantial potential to deliver savings, is the cost and use of indirect materials and resources, such as water, energy, maintenance and hidden value in assets.



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Beyond price, there are further financial considerations associated with buying and using these key resources. Energy efficiency is already a well-established part of the corporate and social responsibility (CSR) and sustainability agenda. Businesses committed to safeguarding their reputation for corporate responsibility – and the commercial value attached to that – have no option but to meet the challenge of developing sustainable operations.

Start implementing all the necessary improvements by mapping out the opportunities and building a solid business case to get a sign-off from the board of directors and company executives.

#### 3. Honing Knowledge and Skills

In addition to the technical expertise and data analysis, the role of the energy management team is evolving. Influencing and negotiation, communication and stakeholder engagement skills are becoming ever more important.

EMEX seminars will cover a vast range of energy management strategies and experiences across various sectors, providing attendees with vital knowledge and new skills on how to build a robust business case for investment in energy efficiency and renewable energy projects, and gain buy-in from senior stakeholders.

Experts, such as the former Head of Energy at Dwr Cymru Welsh Water, the Deputy Director of Public Sector and Local Energy Department for Business,

Meet us at EMEX

Stand B16

Energy and Industrial Strategy (BEIS), University of Aberdeen's Graduate Energy Engineer and the current Head of Energy at Dŵr Cymru Welsh Water, will share their experience.

EMA Empowering Women in Energy Management and Environment Group (Hilton's Energy and Compliance Manager, University of Glasgow's Energy Manager, University of Aberdeen's Graduate Energy Engineer, Network Rail's Energy & Carbon Strategy Manager) will provide an informal network for women in the energy management, facilities management, sustainability and environmental industries that can assist in supporting career development for professional women, mentor aspiring women to pursue energy management education and careers in the energy management and associated fields.

#### 4. Capturing the Full Benefits of Demand Flexibility

The UK is entering a period of energy transition. The main forces driving this transition are a growing consensus about the scale and importance of climate change, the need to ensure secure energy supplies for the UK in the face of rising global demand and an ageing and centralised grid. There is an urgent imperative to re-shape policy to decarbonise the energy that we use, evolve infrastructures and to secure sustainable local generation supplies.

The UK's energy market mix is already fast-changing with numerous flexible strategies that empower end-users to

manage their consumption, mitigate intermittency in supply, lower their costs and generate new revenue. Back by popular demand, EMEX will feature the `Flexible Power Zone' in partnership with Power Responsive (National Grid). DSR creates opportunities for flexible businesses to earn revenue by supporting National Grid in times of peak demand or system stress by shifting or reducing demand, or by making capacity available through renewable on-site generation when required. Exhibitors include E.ON Energy Solutions, Ecotricity, EDF Energy, Flexitricity, GridBeyond, Ørsted, Ecotricity, Energy Pool, Flexitricity and KiWi Power.

#### 5. Increasing Renewables in your Energy Mix

With the deployment of demand-side response systems and energy storage, renewables will play a central part of generation on the grid.

Renewables now account for 25% of the UK electricity generation, which is up from 9% in 2011. Switching to renewables and green-tech is a substantial and yet untapped opportunity for most businesses to reduce costs and meet carbon emission targets rapidly.

### On-site generation, renewable and energy storage revolution. Batteries

are the hot topic of the moment, so get a grip on technology development and the necessary changes in the electricity codes to increase the income generated by batteries. Understand the main issues when considering the installation of all types

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of on-site generation and gather key learnings to effectively deploy it and gain commercial benefits. Hear about how the public sector is leading the way with West Sussex County Council's energy team presenting the current YES programme, a 4MW solar farm with battery storage. Exhibitors include CleanEarth, DenchiGroup, Elgin Energy, Enercon, ESB, FlexiSolar, Norvento Enerxía and Solar Juice.

#### 6. Road to Zero and the Rollout of EV Charging Points

#### Plans to reform building regulations to accelerate the roll-out of electric vehicle charge points With Energy

charge points. With Energy Managers Association's CEO (Lord Redesdale), Skanska's Environment Technical Director, E.ON Energy Solutions' Electric Vehicle Sales Manager, Cenex's CEO and BT's General Manager - Procurement will look at the practicalities of the government's Road to Zero strategy. The Exhibition will also showcase solutions available right now to install EV charging points in commercial sites.

### 7. Keep up with Changes in Standards and Legislation

From April 2019, the rules on energy and carbon reporting are changing. Gary Shanahan, Head of Business and Industrial Energy prepare, what will be the qualifying criteria and how the new reporting framework will benefit companies.

Get prepared for ESOS Phase 2 and the latest version of ISO 50001 certification. Plan well ahead to ensure a smooth process for ESOS

Phase 2 that has a deadline on 5 December 2019 and an easy transition to ISO 50001:2018 by August 2021.

ESOS Lead Assessors will provide first-hand experience from ESOS phase 1 while leading experts from BSI, DNV GL, SGS and BRE will be at the show to help to transition or get certified to the revised standard.

Efficiency, Tax and Reporting at the Department for Business, Energy and Industrial Strategy (BEIS), will offer guidance on how organisations can EMEX is free to attend, and seminars are CPD accredited. Get your badge at www.emexlondon. com/register-now



# **Case Studies in Theatre 3 at EMEX 2018**



# Heating and Hot Water Refurbishment at St Paul's Cathedral on Wed 21 @14:30

The prestigious St Paul's Cathedral – over 300 years old – faced failing boilers. As a Grade I listed building, it is subject to strict regulations, prohibiting alterations without special permissions. Hamworthy provided two Wessex ModuMax mk3 modular condensing boilers consisting of 4 boiler modules and turndown ratio of 20:1 can deliver output from 50.8kW to 1,016kW. This ensures the load is matched to warm the building up and, in periods of low heat demand, the boilers are not wasting energy.

Savings achieved: Almost 40% saving

### Zero Carbon by 2040 on Wed 21 @14:55

Edinburgh University created a Renewable Energy and Low Carbon Options (RELCO) Group to explore the technical and business cases for different pathways to achieve their organisational goal, zero carbon by 2040.

The OnGen Expert was successfully used to screen dozens of sites across the 300+ buildings and land in and around south Edinburgh for their renewable energy potential and the financial case for installation.

The OnGen platform was a key tool to help to determine viable renewable energy strategies on buildings across the complex estate and provided particular reassurance to the Estates team.

Savings achieved: In the first tranche of 18 sites, forecast energy cost savings are £3.8m over 20 years and annual carbon savings are forecast as 600 tCO2e/year

### The Reduction in the Cost of Heating Hot Water at CBRE on Wed 21 @15:20

CBRE installed the CircoSense technology at the Tower of London as a 'proof of concept'. The device learned the hot water usage patterns of the building, firstly gathering a baseline reading and then using this data to predict the hot water usage moving forward. The AI technology then ensured that hot water was always available on demand, whilst turning off the pump when not required.

Savings achieved: 32.5% on the cost of fuel which is used to heat hot water, as well as reducing carbon emissions by 9.2 tonnes

# CPA Helps Strathmore Mineral Water Achieve 30% in Energy Savings on Wed 21 @15:45

CPA's air barriers are designed to create a 'virtual door' by generating a waterfall of air over an opening and producing a robust seal. This environmental separation prevents heat loss and the ingress of dirt and flying insects. Strathmore, owned by AG Barr, installed their air barrier to help maintain the temperature in the warehouse area, save energy and improve staff comfort.

After installing the CPA air barrier, Strathmore immediately turned off two 22kW radiant gas heaters

whilst maintaining ambient comfort levels. They closely monitor their gas usage with their main KPI being their total kWh per tonne of product.

Savings achieved: A reduction in gas use of 3,000 kWh per week, a saving of 30%. Ten years on and this one CPA air barrier has helped this national brand save over £41,000 in energy costs



### Transformer Replacement at Ninewells Hospital on Wed 21 @16:10

Modern super low loss amorphous HV supply transformers are a cost effective, simple and easily replicable energy efficiency measure "beyond the low hanging fruit". With ageing transformers across many hospitals in the UK, transformer replacement projects can deliver substantial benefits on comparatively modest investments (time and capital).

Early indications show that the replacement project at Ninewells hospital will deliver energy savings of 60,862kWh per annum for a single 1967 transformer replacement providing a blueprint for other hospitals to improve energy and carbon efficiencies at the same time as infrastructure resilience across their estates.

Payback on the complete project (including installation costs) will be achieved in less than 5 years. The typical life expectancy of the replacement transformer is 30 years and will therefore provide 25 years of savings that can be invested in other projects.

Savings achieved: ~£7,300/pa

# 23% Annual Energy Savings on a Distribution Centre Cold Store for a Major Supermarket on Thu 22 @14:50

Star Refrigeration were invited to assess possible energy savings on the cold store at a large distribution warehouse using their performance optimisation and energy management system which has been specifically developed to identify energy savings on refrigeration plant.

This system monitors and analyses data to assess the gap between how the plant is operating and how it should be operating under all conditions. It then provides insights which are corrective actions on how to close the gap. The total energy savings provided were 23% year on year. Further savings may be possible with equipment replacement the benefits of which can be easily demonstrated through quickly identifying those that offer fast payback and therefore justifying their capital sanction.

Savings achieved: 565,000Kwh with a saving of 160 tonnes of carbon dioxide

### Anglian Water Trial – Cambridge on Thu 22 @15:15

Anglian Water and Connected Energy worked together on this project to understand how they could maximise the potential of renewable energy projects and offer grid services support by integrating E-STOR energy storage systems on their sites.

Anglian Water's aim was to make the most of storing energy generated from their renewable sources, like the solar panels

they plan to install across the region. Integrating batteries into these projects would ensure more of the renewable power is used onsite. The system also takes advantage of any time of day energy costs differences.

Savings achieved: Six-month trial – managed and monitored the system through the cloudbased graphical user interface (GUE)

### Entering into the Spirit of Energy Savings on Thu 22 @15:40

William Grant started his Scottish whiskey distillery in 1887. Today, this well-known brand has an enviable reputation for the quality of spirits they produce and distribute internationally.

Always looking to see how they can improve, they approached Grundfos Pumps to review their energy efficiency. Having undertaken an initial energy check, Grundfos identified several areas where significant savings were possible. Taking the advice offered, two new boiler feed support pumps were purchased, and their performance was measured over a 6-month period. Results showed electrical savings of  $\pm$ 56k pa; the removal of the modulation valve saved  $\pm$ 18k per boiler on maintenance costs; a reduction in breakdown and/or steam issues on site; improved steam quality and well as gas savings of up to 9%.

Savings achieved: £74K pa

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Green Energy Solutions D60
GridBeyond Flexible Power Zone
Grundfos B20
Hamworthy Heating Ltd C34
HBS Group F65
HPC Compressed Air Systems G5
IEMA G10
Ignite Energy D20
Innotech Europe Ltd B10
Integrated Environmental Solutions (IES) Ltd . C70
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iScape Ltd A22
IWFM formerly BIFM B78
Katronic Technologies Ltd C72





### **Knowledge, Skills & Experience**

### Day 1 – 21<sup>st</sup> November 2018

#### 10:20-10:50 Energy Solutions in Action

Vincent de Rul - Director of Energy Solutions -EDF Energy

#### 11:00-11:45 Knock Knock. Who's there? ESOS Phase 2

Claire Scott – Environmental Business Advisor – GC Business Growth Hub Katie Elmer – Senior Sustainability Consultant – Carbon Footprint Ltd Mike Denbigh – Senior Technical Advisor – Environment Agency Vincent Lane – Sustainability Engineer – FDT Consulting Engineers & Project Managers Ltd

#### <sup>12:10-13:00</sup> Guidance on the Streamlined Energy and Carbon Reporting

Lord Redesdale – CEO – Energy Managers Association Gary Shanahan – Head of Business and Industrial Energy Efficiency, Tax and Reporting – Department for Business, Energy and Industrial Strategy (BEIS)

### 13:10-13:40 Appraising the Opportunities for Sustainable Business Travel

Darren Trotter – Environmental Manager – Ricoh UK

#### 13:50-14:35 Empowering Women in Energy Management and Sustainability

Ashley O'Neill – Energy and Compliance Manager – Hilton Gillian Brown – Energy Manager – University of Glasgow Roederer Rose Lyne – Graduate Energy Engineer – University of Aberdeen Wendi Wheeler MEI – Energy & Carbon Strategy Manager – Network Rail

#### 14:50-15:20 In-House Energy Management Training – Back to basics

Patrick Courtney – Utilities Management Trainer – Bourne Leisure Ltd Sam Arje – Group Energy and Sustainability Manager – Bourne Leisure Ltd

### 15:30-16:30 EMA Energy Management Awards 2018

Lord Redesdale - CEO - Energy Managers Association

#### THEATRE SPONSORED BY



### Day 2 – 22<sup>nd</sup> November 2018

#### 10:20-11:00 How to Succeed in Implementing an Energy Management Strategy

Dr Mike Pedley – Independent Consultant – Former Head of Energy at Dwr Cymru Welsh Water Scott Armstrong – Group Head of Energy and Sustainability – Bourne Leisure Ltd Emily Chapple – Head of EMEA Sustainability Consulting – CBRE

#### 11:10-11:45 ESOS: Reflect, summarise and prepare for Phase 2

Emily Chapple – Head of EMEA Sustainability Consulting – CBRE Ernie Shelton – Director – Horizon Power & Energy Ltd Mike Denbigh – Senior Technical Advisor – Environment Agency

#### 12:00-12:40 How to Develop and Successfully Present Business Cases

Dr Maria Spyrou – Energy Efficiency Manager – Balfour Beatty Kilpatrick

#### 12:50-13:30 Climbing the Career Ladder in Energy Management

Ashley Whichelow – Utilities Data Analyst – Bourne Leisure Ltd Caroline Holman, FIET, PIEMA, AEMA – Senior Manager, Utilities Strategy & Provision – Jaguar Land Rover Ltd Chris Barnes – Maintenance & Energy Manager – London South Bank University Dr Maria Spyrou – Energy Efficiency Manager – Balfour Beatty Kilpatrick

### 13:40-14:20 ISO 50001: The pros and cons of the standard

Amanda Pakes – EMEA Product Champion – Energy and GHG – British Standards Institution Ben Burggraaf – Head of Energy – Dŵr Cymru Welsh Water Dan Fernbank – Energy & Sustainability Manager – University of Reading

### 14:30-15:00 The ISO 50001 Route to ESOS Compliance

Colin Trotman – Head of Engineering – Avara Foods

### 15:10-15:40 Leading by Example in the Public Sector

John Fitzpatrick – Deputy Director – Public Sector Energy Policy – Department for Business, Energy and Industrial Strategy (BEIS)

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### Day 1 – 21<sup>st</sup> November 2018

9:30-10:30 **Professional Development &** Networking 10:30-11:15 **New Guidance & Standards for** Climate Change Adaptation John Dora – ISO Global Lead Maria Pooley- Principal Consultant, Climate Change - Mott MacDonald 11:30-12:15 **Breaking New Ground – Farming and** forestry providing new opportunities for Climate Action Jonathan Scurlock - Chief Adviser, Renewable Energy and Climate Change - National Farmers' Union (NFU) Pat Snowdon - Head of economics and climate change - Forestry Commission 12:30-13:00 Working Lunch and In Practice Surgeries 13:00-13:30 **Is your Facilities Management** (FM) Provider the Key to Energy **Reduction?** Robert Cunliffe - Sales and Marketing Director -ENGIE 14:00-14:45 **British Standards for Carbon** Management, including PAS 2080 The world's first standard for managing infrastructure carbon James Cadman - Lead Consultant - Action Sustainability Lesley Wilson - Lead Programme Manager - BSI 15:00-15:20 **Keynote Presentation by the Committee on Climate Change** Chris Stark - Chief Executive - Committee on Climate Change 15:20-15:50 **UK's Climate Change Transition**  A progress update and the next challenge? Andrew Simms - British Author And Political Economist Phil Cumming - Senior Sustainability Manager -Marks and Spencer THEATRE SPONSORED BY



### **IEMA** Transforming the world to sustainability

### Day 2 – 22<sup>nd</sup> November 2018

- 9:30-10:30 Professional Development & Networking
- 10:30-11:15 Driving Sustainable Business: Why generation Z is the key Emma Buyers – Head of Marketing – IEMA Tay Bennett – Advisory Programme Manager – Ricoh Uk
- 11:30-12:15 Climate Change & Sustainability Reporting: Core to business solutions Dr Tony Rooke – Technical Director – CDP Jamie Quinn – Corporate Responsibility and Environment Director – ENGIE
- 12:30-13:00 Working Lunch and In Practice Surgeries
- 13:00-13:30 Turning Opportunities into a Sustainable Energy Strategy Richard Sulley – Senior Energy & Sustainability Manager – ENGIE
- 14:00-14:45
   Environmental Management Systems & Auditing for Climate Change Action

   Anna-Lisa Mills – Director – True North Sustainability
   Nigel Leehane – Director – Director of Leehane

   Environmental Consulting Ltd
   Environmental Consulting Ltd

15:00-15:45 Environmental Skills in the Workplace Colin Malcolm – Technical Director: Environment Management Permitting and Compliance – SLR Consulting Paul Pritchard – Fellow – IEMA Sarah Handley – Carbon Neutral Programme Manager – Siemens plc



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### Facilities, Technology & Innovation

### Day 1 – 21<sup>st</sup> November 2018

10:20-10:50	How to Achieve Significant Energy Savings in Legacy HVAC Equipment Tony Wright – Divisional Director Upgrade Market – ebm-papst UK
11:00-11:30	Energy is a Great Catalyst for Making Sustainable Changes in your Organisation
	Richard Oakley – Customer Account Director – E.ON Energy Solutions
11:40-12:10	A Tale of Two Energy Futures
	John Armstrong – Head of Operations, City Energy Solutions – E.ON Energy Solutions
12:20-12:50	The Value of Good Performance: How high performance buildings protect the asset and increase your bottom line
	Debbie Hobbs – Head of Sustainability, Real Assets – Legal & General Investment Management Dr Andy Lewry – Principal Technical Consultant – BREEAM Existing Buildings Team, BRE Global Emma Bushell – Sustainability and Energy Manager – Octavia Housing Paul Lynch – Head of Energy & Water Management – VINCI Facilities
13:00-13:30	Practical Approach to Waste
	Management Gemma Birley – Director – Green Finch Environmental Consulting Dr Vassia Paloumbi – Sustainability and Energy Management Expert
13:40-14:20	Opportunities and Challenges of Delivering Electric Vehicle Charging Points
	Jane Devlin – Energy Strategy Manager – East Hampshire District Council Julia Blackwell – Energy Officer – Huntingdonshire District Council Michelle Giles – Head of Synergy Alliance – IMServ Europe Richard Willson – Environmental Strategy Manager – Norwich City Council Husnain Khan – Operations Director – ChargePoint Services
14:30-14:50	Heating and Hot Water Refurbishment at St Paul's Cathedral
	Sam Boshier – Marketing Manager – Hamworthy Heating
14:55-15:15	Zero Carbon by 2040
	Chris Trigg – Managing Director – OnGen Ltd
15:20-15:40	The Reduction in the Cost of Heating Hot Water at CBRE
	Craig McKendrick – UK Sales Manager – CircoSense Ian Shaw – Energy Manager and Head of Technical (Energy) Development – CBRE
15:45-16:05	CPA Helps Strathmore Mineral Water to Achieve 30% in Energy Savings
	Alan Collin – CEO – CPA Engineered Solutions Ltd
16:10-16:30	Transformer Replacement Project at Ninewells Hospital – Energy savings beyond the low hanging fruit
	Erika Wilson – Managing Director – Wilson Power Solutions

### Day 2 – 22<sup>nd</sup> November 2018

10:20-10:50 Take Control of your Energy Costs and Profit from New Opportunities Rob Wood – Portfolio Risk and Third Party Costing Manager – E.ON UK

#### 11:00-11:50 Energy Performance Contracts: Successes and pitfalls

Costas Panagiotakopoulos – Energy Manager – South Western Railway Rachel Toresen-Owuor – Programme Director – Local Partnerships Robert Baylis – Environmental, Quality and Compliance Manager – Calderdale Council Dr Vassia Paloumbi – Sustainability and Energy Management Expert James Phillips – Partner – Burges Salmon LLP

### 12:00-12:30 Delivering the Sustainability Imperative – One building at a time

David Roper – Service and Energy Upgrade Sales Manager – Armstrong Fluid Technology Tunji Asiwaju – Global Performance Management Services Manager – Armstrong Fluid Technology

### 12:40-13:20 Road to Zero

David Mason – Environment Technical Director – Skanska Lord Redesdale – CEO – Energy Managers Association Natalie Robinson – Electric Vehicle Sales Manager – E.ON Energy Solutions Robert Evans – CEO – Cenex Robert Williams – General Manager - Procurement – BT

#### 13:30-14:00 Update on the Streamlined Energy and Carbon Reporting Lord Redesdale – CEO – Energy Managers Association

## 14:10-14:40 A Future of On-site Generation Stephen Newman – Country Head Bid Management OSG UK – E.ON Energy Solutions

#### 14:50-15:10 23% Annual Energy Savings on a Distribution Centre Cold Store for a Major Supermarket

Anne Flanagan MInstR – Business Development Manager – Star Technical Solutions

- 15:15-15:35 Anglian Water Trial Cambridge Jason Cox – Head Of UK Sales – Connected Energy Ltd
- 15:40-16:00 Entering Into the Spirit of Energy Saving Mark Bennett – National Business Development Manager – Grundfos Pumps

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### **Renewable Energy, Supply & Storage**

#### Day 1 – 21<sup>st</sup> November 2018 10:30-11:00 How Realistic is it to Expect Energy 10:30-11:00 Security in a Historic Estate Gillian Brown - Energy Manager - University of Glasgow 11:10-11:40 11:10-11:50 Water and Energy Auditing **Techniques – Practical examples** Mark Taylor - Energy and Carbon Consultant - Taylor Made Energy Solutions Ltd 11:50-12:20 12:00-12:30 Sustainability as a Point of **Competitive Advantage** Ashley Phillips - Sales and Marketing Director -Ørsted 12:30-13:00 12:40-13:10 The Islington Council's **Groundbreaking Heat Network Project** Rodrigo Matabuena – Energy Capital Projects Manager - Islington Council 13:10-13:40 13:20-14:00 Untangling the Complexity of On-site **Electricity Generation** Mark Taylor - Energy and Carbon Consultant - Taylor 13:50-14:20 Made Energy Solutions Ltd 14:10-14:50 **The Battery Storage Revolution** Lord Rupert Redesdale - CEO - Energy Managers Association Dr Timothy Hughes - Global Principal Scientist: 14:30-15:10 Batteries - Siemens plc John Lucas – Market Architect Team Leader – ELEXON I td **Collaboration is Key – Rolls Royce** 15:00-15:30 attaining energy and sustainability 15:20-15:50 goals across the supply chain Anthony Hatfield - Senior Energy Manager - Rolls-Royce plc Paul Wrighton - Director, North West Europe & Nordic - Schneider Electric, Energy & Sustainability Services 15:40-16:10 The Importance of Energy Storage in Securing the Supply and Maximising **Renewables** Dr Alex Mardapittas - Chief Executive Officer -Powerstar

### Day 2 – 22<sup>nd</sup> November 2018

- 10:30-11:00 The Fourth Industrial Revolution – How will it impact energy? Ivan Kristian Pedersen – Head of Energy as a Service – Ørsted
- 11:10-11:40
   On-Site Renewables in a Post-Subsidy Landscape

   Dr Mike Pedley – Independent Consultant – Former Head of Energy at Dwr Cymru Welsh Water

#### 11:50-12:20 Utilities & Enterprise Risk Management (ERM) at Jaguar Land Rover

Caroline Holman, FIET, PIEMA, AEMA – Senior Manager, Utilities Strategy & Provision – Jaguar Land Rover Ltd

- 2:30-13:00 Balancing Energy Demand: road to successful low carbon transition Richard Hughes - Director of Sales and Marketing -EDF Energy
- 13:10-13:40 Foundations of Energy Auditing James Kirkwood – Energy Projects Officer – Nottingham City Council

### 13:50-14:20 Public Sector Energy Storage Investment

Daire Casey – Energy and Data Manager – West Sussex County Council Tom Coates – Project Manager – West Sussex County Council

#### 14:30-15:10 Battery Storage as a Solution

Dr Alex Mardapittas – Chief Executive Officer – Powerstar Guy Bartlett – Sales Director – SMS Plc Lord Rupert Redesdale – CEO – Energy Managers Association

#### 5:20-15:50 Independent Energy Audits and Funding

lan Burrow – National Head of Agriculture and Renewable Energy – Natwest & RBS

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### All information accurate at time of going to press

**Green Energy** Consulting

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### **Flexible Power Zone**

Designed to provide an opportunity for those looking to broaden their understanding of DSR and flexibility opportunities to meet with the experts in the field. A dozen participating DSR and Battery Storage partners of National Grid will each give a presentation (schedule below) and be available to talk with you one on one. It's your opportunity to find a supplier that talks your language and makes sense for your business.

Businesses of all shapes and sizes can make money, reduce their bills and cut their carbon footprint by getting involved in demand-side flexibility.

This fast-growing market is all about using energy more intelligently. It provides flexibility that enables National Grid to balance Britain's electricity system cost-effectively, while our energy landscape changes rapidly. If your business has the flexibility to increase, decrease, or shift its electricity use, then the power is in your hands to take full advantage.

### Day 1 – 21<sup>st</sup> November 2018

10:30-11:00	Lighting Up the Dark Side – What happens when demand response enters wholesale energy markets and the balancing mechanism Dr Alastair Martin – Founder and Chief Strategy Officer – Flexitricity
11:30-12:00	<b>PowerShift – Harnessing power from</b> <b>your flexible energy assets</b> Chris Regan – Head of Business Development - Customers – EDF Energy
12:30-13:00	Balancing Services: Reforms, the future, and the whole system approach Rhiannon Marsh – Power Responsive Manager – National Grid
13:30-14:00	Safe, Smart and Sustainable Cities Darren Gardner – Strategic Account Manager (Public Sector and Smart Cities) – E.ON
15:00-15:30	Finding Flexibility: A year on Michael Phelan MBA – CEO & Co-Founder – GridBeyond

### Day 2 – 22<sup>nd</sup> November 2018

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- 10:30-11:00 **DSR – The challenges &** opportunities for business Mark Meyrick - Head of Smart Grids - Ecotricity 11:30-12:00 **Embracing Battery Storage as a Key** Source Of Flexibility and a New Pillar for your Energy Management Strategy Phil Pearson – UK Operations Manager – Energy Pool 12:30-13:00 **Balancing Services: Reforms,** the future, and the whole system approach Rhiannon Marsh - Power Responsive Manager -National Grid 13:30-14:00 Beyond 'Flexible Flexibility' -Balancing risk and reward through a fully integrated DSF strategy Stuart Duncan - Flexibility Business Development Manager – Ørsted
- 14:30-15:00 How to Maximise Revenue with your Storage Asset Stephan Marty – General Manager - Energy Storage & International Demand Response – KiWi Power





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# Long term security against rising electricity prices



### About EWT

EWT is the world's leading turbine supplier for local energy generation, repowering at the MW scale, and distributed energy investments. The company has a turbine fleet covering 250 kW to 1 MW, a leading direct drive technology, a strong operational track record, and a presence across Europe, the Americas, and Asia. EWT's expertise spans mid-size projects for self-consumption and generation for direct-sale, off-grid, and microgrid solutions, as well as offering power purchase agreements. EWT is also a leader in the wider distributed energy marketplace, providing development solutions around the world.



At the site of Kingspan in North Wales, a well-known global industrial insulation company with over 11,000 employees across five continents, EWT delivered a DW52-900kW wind turbine during a 3-day factory shutdown period late summer. The turbine stands at 78 metres tall, from the ground to the tip of the blade. Sirius Renewable Energy own and operate the turbine and are supplying Kingspan with renewable energy under a long term corporate PPA to cover the lifetime of the project. This project will help reduce manufacturing plants overheads, and provide long term security against rising electricity prices, helping the business to remain competitive. It is expected that 90% of the power from the wind turbine will be consumed on-site when all four production lines are running virtually 24/7. And when it is not powering Kingspan, during the factory's Christmas shutdown or over other quieter periods, the power it generates will feed into the national grid. The turbine will complement the already installed 400kW of Solar PV on the plant.

Kingspan has made a pledge to be a Net Zero Energy company by 2020 and is committed to maximising renewable energy sources for sustainable business continuity and growth. The existing Holywell rooftop solar panel array, together with additional contribution from the turbine enables Kingspan to maintain its long-standing and ongoing presence as a sizeable employer in the region for the foreseeable future, whilst reducing its carbon energy consumption and environmental impact.

'Delivery of this project was an excellent example of team-work and project planning with EWT, Sirius and Kingspan co-operating on all aspects of the installation to ensure that the project could be delivered on a very busy production facility without adversely affecting factory operations.' says Nick Davies, Managing Director of Sirius Renewable Energy.





### **Exhibitors' contact details**

### E57 - 2G Energy Ltd

2G Energy is an internationally leading manufacturer of combined and heat and power plants (CHP) with outputs of 20-2,000kWe

Clifton House, Ashville Point, Clifton Lane, Sutton Weaver WA7 3FW 01928 718 533 | sales@2-g.com www.2-a.com

### **B75 - 4D Monitoring**

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Si One, Parsons Green, St Ives PE27 4AA 07890258672 | askus@4dml.com www.4dmonitoring.co.uk

### E10 - AB ENERGY UK LTD

AB has been operating for over 30 years in the field of cogeneration and the promotion of energy from renewable sources. AB is currently made up of 24 companies and over 850 employees and is a single entity able to manage, by itself, the entire manufacturing cycle of a cogeneration plant: from design, to start-up with a comprehensive service. With 1.250 plants made, AB is leader in Italy and is also expanding into the rest of the world: Spain, Romania, Poland, Croatia, Serbia, Czech Republic, Austria, the Netherlands, United Kingdom, Germany, Brazil, Canada, USA, Israel, Germany, Russia and Mexico.

Lower Ground Floor, One George Yard, London EC3V 9DF 07584 354380 I abenergyuk@gruppoab.com www.gruppoab.com



### H20 - Affinity for Business

We are completely obsessed by customer service and making your tap water and sewage supply as cost-effective as possible.

Affinity for Business, Alchemy - 2nd Floor, Bessemer Road, Welwyn Garden City AL7 1HE

0345 357 2424 enquiries@affinityforbusiness.co.uk www.affinityforbusiness.co.uk

### F10 - Airius Europe Ltd

Airius are world leaders in Destratification Fan technology. Our comprehensive range of fans reduce both heating and cooling costs from 20% - 50% or more in buildings ranging from offices to aircraft hangars. Designed to work alongside all types of HVAC equipment our fan units also dramatically improve internal environments. Easy to install, ultra quiet, low power requirement, no maintenance and our fans come with a 5 year warranty. Airius fans offer high performance with quality construction to give continuing operation over many years.

Holwell Farm, Cranborne, Dorset, BH21 5QP +44 (0) 1202 554200 | airflow@airius.co.uk www.airius.co.uk

### A80 - Ampower

Ampower is one of the fastest growing business energy suppliers in the UK, working closely with SME's and large organisations to help them get the best rate possible. Ampower uses a combination of conventional and renewable energy sources to help your business save money on annual gas and electricity bills.

03301 331 050 www.ampoweruk.com/for-business

### A37 - arbnco

arbnco is a building energy simulation company developing disruptive proprietary technology solutions that can change the built environment.

Inovo Suite F, 121 George Street, Glasgow G1 1RD 01415597130 I info@arbnco.com www.arbnco.com





Leading provider of smart energy solutions, Powerstar, is exhibiting the capabilities and benefits of its innovative energy storage solution, **VIRTUE**, on stand D34 during this year's Energy Management Exhibition (EMEX).

Powerstar **VIRTUE** provides a complete solution for behind-the-meter (BtM) applications, and has the ability to offer supply resilience through its site wide, full Uninterruptible Power Supply (UPS) capabilities, whilst maximising renewable generation, and contributing towards carbon neutrality goals.

Powerstar experts are on hand to answer your queries about Powerstar VIRTUE, as well as the company's patented voltage optimisation technology, and its recently launched super low loss amorphous core smart transformer, Powerstar SO-LO.



### BENEFITS OF VIRTUE

Increase supply resilience with site wide UPS capabilities

Maximise on-site renewable generation



Optimise existing technologies such as CHP

### N

Enhanced energy performance insights with remote monitoring capabilities

### £

Available through flexible finance packages with no capital outlay



Partake in grid contracts for additional revenue





### F5 - Armstrong Fluid Technology

Armstrong Fluid Technology has been a leading player in the global arena of HVAC since 1934. We design and manufacture innovative fluid flow equipment and high efficiency energy solutions for a broad range and scale of applications. Our expertise has been developed through a composite understanding of complete end to end fluid systems and the integration of fluid dynamics, heat transfer, variable speed, and demand-based controls. Integrating mechanical equipment and digital controls in a way that no other company can match, Armstrong solutions deliver optimum lifetime building performance combined with the lowest first cost and lowest life cost



Wolverton Street, Manchester M11 2ET 08444 145145 I uksales@armstrongfluidtechnology.com www.armstrongfluidtechnology.com

#### A55 - Autoflame Engineering Ltd

Combustion Management Systems

Unit 1 – 2 Concorde Business Centre, Wireless Road, Biggin Hill TN16 3YN 01959578844 I sales@autoflame.com www.autoflame.com

### **B80 - AXON Building Performance**

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### **B26 - BCAS (The British Compressed Air Society)**

The British Compressed Air Society (BCAS) provides technical support, training and best practice advice for the vacuum and pressure industry.

33-34 Devonshire Street, Marylebone, London W1G 6PY 02079352464 | enquiries@bcas.org.uk www.bcas.org.uk

### **B5 - Bell Flow Systems**

Bell Flow Systems – Leading UK supplier of flow meters, heat meters, data loggers and ground water monitoring products.

Unit 7 Swan Business Centre, Osier Way, Buckingham MK18 1TB 01280 817 304 I mail@bellflowsystems.co.uk www.bellflowsystems.co.uk

### B63 - Birdsall

Birdsall provide HVAC, Building Services and Energy Centre Services. Birdsall particularly specialise in cooling, building & energy centre optimisation.

13 Avebury Court, Mark Road, Hemel Hempstead HP2 7TA 01442 212501 | info@birdsall.co.uk www.birdsall.co.uk

### Partner - BPF

The British Property Federation is the membership organisation for, and the voice of, the UK real estate industry.

St Albans House, 57-59 Haymarket, London SW1Y 4QX

http://www.bpf.org.uk

#### A35 - BRE

BRE is a multi-disciplinary, building science centre with a mission to improve buildings and infrastructure, through research and knowledge.

Bucknalls Lane, Harrold, Watford WD25 9XX 0333 321 8811 I enquiries@bregroup.com www.bregroup.com



BSI is the business standards company that helps organizations all over the world make excellence a habit. For more than a century we have been challenging mediocrity and complacency to help embed excellence into the way people and products work. That means showing businesses how to improve performance, reduce risk and achieve sustainable growth. As a global leader in helping organizations improve, our clients range from high profile brands to small, local companies in 182 countries worldwide.

BSI Group, Kitemark Court, Milton Keynes MK5 07786611996 | wayne.spencer@bsigroup.com www.bsigroup.com

### H16 - Buy Business Water

Buy Business Water is a leading consultancy specialising in the water market. We recognise the importance of efficiency and sustainability which is why our business focuses on water efficiency measures including; water procurement, water auditing, water recycling, leak detection and metering works.

Arch 2, Hymers Court, Brandling Street, Gateshead NE8 2BA 03333706070 | http://buybusinesswater.com/

### A51 - Cablenet

Cablenet is a distributor of networking and power solutions. Cablenet is exhibiting with Raritan, a proven innovator of power management solutions that increase energy efficiency, improve reliability, & raise productivity.

AGP House, Unit 2A, Albany Park, Frimley GU16 7PL 01276 405300 | sales@cablenet.co.uk www.cablenet.co.uk





### Streamlined Energy and Carbon Reporting (SECR) Will your company qualify?



11,900 UK companies will need to comply with the new SECR framework which is coming into force from April 2019.

Replacing CRC, which is expiring next year, SECR will see over 7,900 more UK companies needing to collect, measure and report on their carbon emissions and energy use.

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### E52 - Carlo Gavazzi UK Ltd

Carlo Gavazzi has one of the largest energy management and smart building ranges in the UK. Simple to install, energy meters are easily integrated into the latest energy platforms whilst our 2-wire bus system for smart buildings provide a unified approach to controls services such as HVAC, lighting and other building services. Our solutions result in better management of any building. Meeting the demands of intelligent buildings require flexibility and intelligence within the infrastructure to keep up with the pace of change to ensure less energy is consumed. It's all about getting the technology and strategy right.

4.4 Frimley Business Park, Frimley, Camberley GU16 7SG 01276 854110 l info@carlogavazzi.co.uk www.carlogavazzi.co.uk



ETER

### **B27** - Centre for Energy and the Environment, University of Exeter

As a research group within the University of Exeter, the Centre for Energy and the Environment is uniquely placed to provide bespoke research which can help reduce carbon emissions and energy consumption. Our expertise covers all aspects of the built environment including sustainable building design, efficiency in existing buildings, carbon reduction strategies, adaptation to climate change, renewable and community scale energy, thermal and daylight modelling, acoustic design, transport, waste and related policy areas. We undertake short applied projects in both the public and private sector, as well as longer in-depth research and consultancy that can extend over several years.

G24 Hope Hall, Prince of Wales Road, Exeter EX4 4PL 01392 724143 | t.a.mitchell@exeter.ac.uk www.exeter.ac.uk/cee/

### **B47 - Chauvin Arnoux UK Ltd**

Chauvin Arnoux specialise in the measurement of electrical/ physical quantities, offering comprehensive advice in the electrical, thermal & energy markets.

Unit 1 Nelson Court, Flagship Square, Shaw Cross Business Park, Dewsbury WF12 7TH

01924 460494 | info@chauvin-arnoux.co.uk www.chauvin-arnoux.co.uk/en

### **G5** - Chelmer Pneumatics & Compressors (CPC) Ltd

Chelmer Pneumatics & Compressors (CPC) is an experienced, successful business specialising in compressed air systems and pneumatics based in Essex

Chelmer House, Bellcroft, Eastways Industrial Estate, Witham CM8 3YU 01376 500595 I nickconnolly@chelmercompressors.co.uk www.chelmeroneumatics.com

### B67 - CircoSense

CircoSense, a revolutionary new product designed to provide energy savings through intelligent water circulation and artifical intelligence.

Unit 14 Fleming Court, 2 North Avenue, Clydebank G81 2DR 0141 435 7774 I info@circosense.com www.circosense.com

### H30 - Clarke Energy

Clarke Energy is a multinational specialist in the engineering, installation and maintenance of reciprocating engine-based power plants and gas engine compression stations. Our offering ranges from the supply of an engine, through to the turn-key installation of a multi-engine power plant. Our facilities deliver fuel efficiency and help reduce carbon emissions. Applications include combined heat and power with natural gas applications, including hospitals, datacenters, manufacturing facilities, universities and high heat and power intensive industries. Installations include some of the UK's hardest working buildings including, St Barts NHS Trust, Guys & St Thomas, The Shard & The Natural History Museum.

Unit C, Power House, Senator Point, Knowsley, Liverpool L33 7RR 0151 546 4446 | Clarke-Energy.com www.clarke-energy.com



### E65 - CleanEarth Energy Ltd

At CleanEarth we work with businesses to find the solutions that meet your energy needs, your financial demands, and your environmental responsibilities. With decarbonisation and energy procurement becoming strategic concerns for businesses, our role is to provide the specialist knowledge and technical expertise you need to make the right, responsible decisions. Our experience of installing 50MWP of solar and wind systems means we understand the economics of renewable power, and the issues that businesses face in adopting green energy.

Unit 2A, Bess Park Road, Trenant Industrial Estate, Wadebridge PL27 6HB 01208 510012 | enquiries@cleanearthenergy.com cleanearthenergy.com



#### **G70 - Connected Energy**

Our British designed storage systems are rapidly changing the way industrial and commercial energy users can capitalise on load flexibility.

The Core, Science Central, Newcastle upon Tyne NE4 5TF 07496454557 | warren.hayes@c-e-int.com www.c-e-int.com

### C74 - CPA Engineered Solutions Ltd

Our engineered air solutions help businesses sustain productivity, improve their working environment and boost performance. Whatever your business challenge might be; production continuity, energy efficiency, temperature control, colleague wellbeing or more. We're here to help you find a solution

Calderhead Road, Shotts ML7 4EQ 01501825024 | sales@cpa-group.com www.cpa-group.com



### **B16 - DANLERS Limited**

DANLERS Limited design and manufacture a range of high quality electronic switches for the control of lighting and HVAC.

DANLERS Business Centre, Vincients Road, Chippenham SN14 6NQ 01249 443377 I sales@danlers.co.uk www.danlers.co.uk





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### www.nicotra-gebhardt.com



### A40 - Denchi Group

Denchi Group are a leading UK designer and manufacturer of Lithium-ion based battery systems for power and energy applications. They have been designing specialist batteries, battery management systems and chargers at their purpose built facility in Scotland for around 20 years. Supplying a diverse customer base spanning the defence, aerospace, marine and mining sectors, the applications for their battery products demand the highest levels of performance and reliability. Continually innovating, more recently they have extended their capabilities to the market for energy storage with their range of SLICE® Energy Storage Systems for behind-the-meter C&I applications

Building 67D(iv) Innovation Drive, Milton Park, Milton OX14 4RQ 01847808000 | david.aldrich@denchipower.com www.denchigroup.com

**Denchi**Group

### D6 - DNV GL

At DNV GL, we help businesses to use energy more effectively. Our experts help businesses from industrial to utilities and everything in between, to ensure their operations are efficient and robust – while local and international regulations and standards, such as ISO 50001 are met. Together, we are committed to helping businesses and consumers to save more energy, accelerating the path to a cleaner energy future.

Vivo Building, 30 Stamford St, South Bank, London SE1 9LQ 020 3816 4000 I sus.europe@dnvgl.com www.dnvgl.com/energy/use

#### D40 - E.ON Energy Solutions

What's your energy strategy? We offer a range of innovative and bespoke energy solutions that help you see beyond your energy contract and help you turn energy from just another overhead into an opportunity. Technology is helping us create products and services that were unthinkable a few years ago, including sustainable ways of generating energy that puts your business back in control. Energy is something every business should be managing and it is a great catalyst for making sustainable changes in your organisation, cut costs and benefit from new energy streams.

Westwood Business Park, Westwood Way, Coventry CV4 8LG 07970772968 | B2Bmarketing@eonenergy.com www.eonenergy.com/energysolutions



DNV·GL

### Networking Area - Eaton Electric Limited

Eaton is a global power management company that provides energy-efficient solutions that help our customers effectively manage electrical, hydraulic and mechanical power more efficiently, safely and sustainably. Eaton is dedicated to improving the quality of life and the environment through the use of power management technologies and services such as energy storage and LED lighting. Such solutions deliver a wide range of benefits for both residential and commercial buildings, saving you money on electricity and operational expenses whilst maintaining energy resiliency and reducing your carbon footprint.

252 Bath Road, Slough SL1 4DX 08700 545 333 I http://www.eaton.com/uk



### F53 - EcoCooling

Pioneers in efficient cooling technologies, EcoCooling use direct evaporative cooling to deliver 100% fresh air for a wide variety of public sector, retail, industrial and IT applications. An EcoCooling system uses up to 90% less energy and runs at less than 10% in comparison to refrigerated air con. The economic and ecological benefits of fresh air cooling are available with low maintenance, high reliability systems and tailored solutions - whatever the scale - new build or retrofit. EcoCooling has a wide UK installer network with over 3500 installations including BT, Marks and Spencer, Net-a-Porter, Unum and Cambridge University.

EcoCooling Ltd | Symonds Farm, Newmarket Rd, Bury St Edmunds IP28 6RE 01284 810586 | sales@ecocooling.co.uk www.ecocooling.co.uk



### C10 - Ecopilot

Ecopilot® improves the working environment, improves productivity and reduces costs. Ecopilot® automatically enables various systems to collaborate, rather than constantly working against each other. A more pleasant indoor climate is created and maintained, while costs are reduced. Plus, it contributes to fulfilment of EU requirements on greenhouse gas emissions. A smart solution which works with an existing BMS.

Langstone Technology Park, Langstone Road, Havant PO9 07827997768 | adrian.george@ecopilot.com www.ecopilot.co.uk

### **C1 - Elcomponent Ltd**

Supply and installation of Sub-metering hardware & software solutions.

Unit 5 Southmill Trading Centre, Southmill Road, Bishops Stortford CM23 3DY 01279 503173 | sales@elcomponent.co.uk www.elcomponent.co.uk

### E15 - ElectroRoute

ElectroRoute, is an Electricity Supplier and Power Purchase provider in the UK backed by Mitsubishi Corporation. Active across Europe and managing a portfolio of over 1GW generation, ElectroRoute's focus is on delivering solutions for our customers' energy needs.

No. 2 Pure Offices, Wilton Drive, Warwick CV34 6RG 01926679704 | enquiries@electroroute.com www.electroroute.co.uk



#### **A7 - ELG Solutions**

ELG Solutions is a leading specialist in the design, supply and maintenance of innovative lighting solutions.

Allenby House, Knowles Lane, Bradford BD4 9AB 01274473400 l info@elg-solutions.com www.elq-solutions.com



### C45 - ebm-papst UK Ltd

ebm-papst UK is a subsidiary of Europe's largest manufacturer of high efficiency EC fans and motors. With an extensive product range, world class technical support, bespoke design and assembly capabilities and a logistics service which is second to none, we can help find the optimum air movement solution, whatever your application. HVAC equipment accounts for more than 40% of a commercial building's energy consumption so it's important to consider the fans when looking to improve your energy savings. Upgrading from AC technology to the direct replacement EC technology in your HVAC systems could reduce your energy consumption by 70%.

Chelmsford Business Park, Springfield Business Park, Chelmsford CM2 5EZ 01245 468555 | Upgrade@uk.ebmpapst.com www.ebmpapst.co.uk/ec

ebmpapst

### A63 - Ecocentric Energy - Numen

Ecocentric is a purpose-driven business that has developed a world-leading data insight technology - Numen. At the core of any business is the drive for greater productivity and efficiency; to enable this, there needs to be a more sophisticated information and communications system which connects both the operation of the business and the built enviroment. Ecocentric Energy has developed Numen a hardware and software proposition that gathers high quality data which enables critical device monitoring, electrical infrastructure fault detection (arc's) and high quality electrical energy data.

6c Colthrop Business Park, Colthrope Lane, Thatcham RG194NE 07590621168 | hello@ecocentric.energy ecccentric www.ecocentric.energy

### C40 - Ecotricity

Britain's greenest energy company, energy and supply solutions supporting businesses to reduce their carbon footprint for a greener Britain.

Lion House, Rowcroft, Stroud GL5 3BY 03452306102 | business.sales@ecotricity.co.uk www.ecotricitv.co.uk/business-energy

### E20 - EDF Energy

You want your business energy to be clearer, low-carbon and more efficient. And, with our expertise, we can enable you to cut costs, increase your output and meet your sustainability targets.

329 Portland Road, Hove BN3 5SU 07875111052 | energysolutions@edfenergy.com www.edfenergy.com/large-business

### **D25 - EDF Energy PowerNow**

Power Now is a live energy monitoring solution that gives you visibility of your energy consumption at an asset level through easy to install hardware and on online dashboard. It can help you improve awareness of your energy consumption at a new level, allowing you to drive energy savings from behaviour change and energy efficiency measures. The platform itemises your energy usage and spend, providing you with complete transparency on where and when energy is being used- and wasted.

329 Portland Road, Hove BN3 5SU 0800 068 7171 | EnergySolutionsSales@edfenergy.com http://www.edfenergy.com/powernow





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### Official PPA Guide Partner | Networking Area **Elgin Energy**

EMEX PPA Partner, Elgin Energy is the leading independent solar developer in the UK & Ireland, delivering projects from origination through the development process. To date, they have secured consents on 50 projects (530MW) and delivered 22 projects (230MW) including the largest solar farms in Scotland (13MW) and Northern Ireland (46MW). Solar energy offers an attractive opportunity for corporates, both commercially and environmentally. Elgin Energy is working with corporate partners to deliver their projects through power purchase agreements (PPAs). With a pipeline of 1.2GW+ across 70+ projects, Elgin Energy can develop PPA solutions to meet any corporate demand.

3rd Floor, Audley House, 9 North Audley Street, London W1K 6ZD 0208 0684240 | ppa@elgin-energy.com www.elain-enerav.com



### D15 - EMEX 2019

EMEX, the energy management exhibition organised in partnership with the Energy Managers Association (EMA) has grown from strength to strength. Please get in touch now to reserve your stand for the 2019 show. EMEX, for Energy Managers by Energy Managers.

PO Box 2608, Chigwell IG8 1PW 02085057073 | sales@emexlondon.com www.emexlondon.com



### A42 - Enerbrain

Enerbrain radically improves the heating, cooling and ventilation in non residential buildings by reducing energy consumption and improving the comfort.

Strada alla villa d'agliè, 26, Turin 10132, Italy +39 3385749625 | info@enerbrain.com www.enerbrain.com

### F50 - ENERCON-UK

ENECON is focused on supplying an Energy Management System (Wind Turbine, Energy Storage & EV Charging Stations). German wind turbine manufacturer with factories, service companies and sales offices around the globe. ENERCON has been a market leader for nearly 30 years now having installed over 26,000 wind turbines (43 GW) worldwide. In the UK ENERCON has an installed capacity of over 1.5GW, accounting for 18% of the UK onshore wind turbine market in the last 2 years.

24 St Johns Road,, Edinburgh EH12 6NZ 01313140150 | sales.uk@enercon.de www.enercon.de/en/



### D18 - Energy in Buildings & Industry

For over 30 years Energy in Buildings & Industry has been the UK's prime source of information for energy managers.

16 - 18 Hawkesyard Hall, Armitage Park, Rugeley WS15 1PU 01889 577222 | info@eibi.co.uk www.eibi.co.uk

### **Central Networking Area - Energy Managers** Association (EMA)

EMA represents energy managers across all industries and acts as their united voice on issues of policy development and up-skillina.

N105 Vox Studios, 1-45 Durham Street, London SE11 5JH 020 3176 2834 | enquiries@theema.org.uk www.theema.org.uk



### Flexible Power Zone - Energy Pool

Energy Pool is the European leading energy flexibilities solutions provider, managing a portfolio of 6 GW of flexible load worldwide.

Evergreen House North, Grafton Place, London NW1 2DX 01707 244865 | contact@energy-pool.eu www.energy-pool.eu/en/united-kingdom

### Theatre sponsor - ENGIE

ENGIE is a leading energy and services company focused on three key activities: energy, facilities management and regeneration. With a strong focus on creating great sustainable business environments ENGIE works in partnership with customers to help them to optimise the efficiency of their buildings and operational processes. By integrating energy supply, efficiency, facilities management and business support services, we can deliver guaranteed savings, combined with improved efficiency and sustainability.

No 1 Leeds, 26 Whitehall Road, Leeds LS12 1BE 0113 306 2150 | business.energy@engie.com www.engie.co.uk/business



### F72, Media Partner - Environment Times

Established in 1993, Environment Times for 25 years has been providing business, industry and organisations with UK news of environmental good practice but also, on the downside, prosecutions. It features air, water, land, energy efficiency, environment reports, sustainability, new products, services and industry news. The Environment Times - information for industry since 1993. Daily updated sister website at www. environmenttimes.co.uk

Queen Victoria House, 2a Chapel Street, Adlington PR7 4JL 01257481878 info@environmenttimes.co.uk www.environmenttimes.co.uk



### E5 - ESB

ESB has invested in flexible and renewable generation assets in the UK for 26 years. Building on our strong heritage as Ireland's leading energy company, we have expanded our portfolio of services in the UK to include Smart Energy Services for Industrial and Commercial customers delivering significant energy savings as well as building electric vehicle charging networks across the UK and residential energy supply.

4th Floor, 85 Tottenham Court Road, London W1T 4TQ 020 7396 1034 | smartenergyservices@esbgroup.co.uk www.esbgroup.co.uk





### F1 - EWT

EWT is the world's leading turbine supplier for local energy generation, repowering at the MW scale, and distributed energy investments. The company has a turbine fleet covering 250 kW to 1 MW, a leading direct drive technology, a strong operational track record, and a presence across Europe, the Americas, and Asia. EWT's expertise spans mid-size projects for self-consumption and generation for direct-sale, off-grid, and microgrid solutions. EWT is also a leader in the wider distributed energy marketplace, providing development solutions around the world.

Thistle Court, 1-2 Thistle Street, Edinburgh EH2 1DD 0131 560 16 61 | info@ewtdirectwind.com www.ewtdirectwind.com

### **DEML**

### D36 - FlexiSolar Ltd

FlexiSolar is a design, manufacturing, installation and operations company specialising in the integration of solar PV, electric vehicle charge-point stations and commercial carports. Through the innovative integration of three technologies, solar PV, battery storage and electric vehicle charge-points, FlexiSolar are turning car parks into power stations and EV hubs; addressing the challenges of decentralised energy generation while supporting the electric mobility transition. FlexiSolar's integrated solar carport solutions reduce customer energy costs, provide premium car parking facilities and offer revenue generation opportunities from charging infrastructure, advertising and electricity grid services with a renewable energy source.

Oakley Office, Manor Farm, Low Road, Fenstanton PE28 9HU 01480 277866 I info@flexi-solar.com www.flexi-solar.com

FLEXISOLAR

### Flexible Power Zone - Flexitricity

Flexitricity is an innovative business energy supplier and a demand response pioneer.

Mainpoint, 102 West Port, Edinburgh EH3 9DN 0131 221 8100 | info@flexitricity.com www.flexitricity.com

### E72 - Fluke UK

Fluke is the world leader in the manufacture, distribution and service of electronic test tools and software.

52, Hurricane Way, Norwich NR6 6JB 020 7942 0708 I cs.uk@fluke.com www.fluke.com

### A16 - GEMchem Ltd

GEMchem is a specialist water treatment company, providing an alternative, simple and highly efficient, state-of-the-art boiler water treatment system. The benefits: increases steam system efficiency, reduces the boiler's fuel consumption, leading to lower fuel bills; protects the boiler, hotwell and associated equipment from scale/corrosion attack; deals with corrosion throughout the steam/condensate circuit, with large savings in maintenance/replacement costs; and relieves site staff of many of the daily treatment testing procedures, freeing them up for other duties. GEMchem also specialises in all hot and chilled water circuits and boiler water treatment training. Contact us for more details.

1 John Street, Bristol BS1 2HR 0117922 5544 | info@gemchem.co.uk www.gemchem.co.uk



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### D19 - GEWISS UK

GEWISS is a leading manufacturer of high-quality LED lighting ranges for industrial, floodlighting, street and decorative applications.

2020 Building, Cambourne Bus Park, Cambourne CB23 6DW 01954 712757 | gewiss@gewiss.co.uk www.gewiss.com

### **D10 - Green Energy Consulting**

Founded in 2012, Green Energy Consulting is a leading independent UK commercial energy consultancy, specialising in the renewable energy and sustainability sector. Our innovative services are designed to help save clients time, energy and money. We work to help with all energy matters; from procurement through to implementing energy management and consumption reduction strategies. Our dedicated team work closely with each of our clients to evaluate their needs and requirements; helping lower overall tariff rates, giving advice on more structured longer-term contracts, and moving to renewable sour

Energy House, 65 High Street, Gateshead NE8 2AP 01913006161 | info@greenenergyconsulting.co.uk www.greenenergyconsulting.co.uk



### **D60 - Green Energy Solutions**

Green Energy Solutions was formed to provide an integrated approach to reducing clients energy consumption, carbon footprint and increasing sustainability.

Citywest Business Centre, 3013 Lake Drive, Citywest, Dublin 24 D24 PPT3, Ireland +353 (0)1 469 3711 | info@nlges.com www.nlges.com

### Flexible Power Zone - GridBeyond

GridBeyond is a leading provider of demand side response and energy management services for large industrial and commercial clients. The company uses world-class technology to balance the electricity grid, enabling the integration of more renewables, and delivering enhanced benefits to large energy consumers. GridBeyond drives change in the energy markets through innovation and simplification. The company created the world-first hybrid battery and demand network, a portfolio of commercial batteries and demand assets working in harmony to provide flexibility to the grid, whilst giving inflexible sites access to the fastest responding and most financially rewarding balancing services.

GridBeyond, 54 Clarendon Road, Watford WD17 1DU www.gridbeyond.com



### **B20 - Grundfos**

Grundfos are a UK leader in the supply of pumps and pump systems for domestic, commercial building services and process industry applications, as well as being a major supplier to the water supply and treatment industries and provider of packaged fire sets. They are part of the Grundfos Group that employ 19,000 people in sales and production roles in 83 companies worldwide. Founded in Denmark in 1945, the Group has an annual turnover of £3billion+ and produce 17 million pumps p.a. It is estimated that every 10th newly installed pump, anywhere in the world, bears the Grundfos name.

**GRUNDFOS** Grovebury Road, Leighton Buzzard LU7 4TL 01525 850000 | grundfos-uk@sales.grundfos.com www.grundfos.co.uk

### C34 - Hamworthy Heating Ltd

With over 100 years' experience, Hamworthy Heating is a leading British commercial boiler manufacturer. Since introducing modular boilers in the 1960s, Hamworthy has supplied energy efficient heating, hot water and renewable solutions to commercial and industrial buildings across the country. With a large and varied range of commercial boilers, water heaters, solar thermal and system equipment, Hamworthy can provide you the most suited products for the application, from new build to refurbishment projects. More than just a manufacturer, Hamworthy provides in-house technical support to answer your queries as well as training, servicing, commissioning and a long-term commitment to spare parts.

Wessex House, Units 7 & 8 New Fields Business Park, Stinsford Road, Poole BH17 0NF 01202 662500 | sales@hamworthy-heating.com www.hamworthy-heating.com



### F65 - HBS Group

HBS offer impartial and practical advice, plus support with commercial LED lighting, M&E building or business services.

Unit 6, Tannery Business Centre, Northowram, Halifax HX3 7HR 03338000771 | enquiries@hbs-group.org www.hbs-group.org

### **G5** - HPC Compressed Air Systems

HPC Compressed Air Systems supply energy efficient, cost saving innovative products & solutions to the UK's highest quality manufacturing businesses.

Victoria Gardens, Victoria Industrial Estate, Burgess Hill RH15 9RQ 07799587097 | mark.sharman@hpcplc.co.uk www.hpccompressors.co.uk

### G10 - IEMA

IEMA is the worldwide alliance of environment and sustainability professionals, transforming the world to sustainability.

City Office Park, Tritton Road, Lincoln LN6 7AS 01522540069 | Marketing@iema.net www.iema.net

ιέΜΑ Transforming the world to sustainability

### **D20 - Ignite Energy**

Ignite Energy are experts in energy management for large businesses, offering a total solution for organisations looking to reduce their energy costs and consumption. Working with some of the UK's biggest names; including New Look, Pets at Home, WH Smith, Saint Gobain and SSP, Ignite have an established track record of achieving substantial savings for clients. Services - Bill Validation and Finance Support, Energy Procurement and Risk Management, Online Reporting and Colleague Engagement, Data Analysis, Energy Efficiency Implementations, Support and Ongoing Energy Management.

The Orangery, East Lockinge, Wantage OX12 8QH 08452699517 | enquiries@igniteenergy.co.uk www.igniteenergy.co.uk





### The Energy Mailagy EXCEL, LONDON # 21-22 NOVEMBER 2018 BOOTH F-50 SYSTEM SUPPLIER FOR RENEWABLE ENERGIES



### **B10 - Innotech Europe Ltd**

Innotech are a privately owned manufacturer of HVAC Controls & Building & Energy Management Systems hardware and software. Established in 1984, Innotech are recognised for product quality, competitiveness, support, backup and innovation, as proven with the recent Omni native BACnet BEMS platform.

Unit 18 Henley Gardens, Yateley GHU46 6LG = 01252 669317 | sales@innotechcontrols.eu www.innotech.com



### **C70** - Integrated Environmental Solutions (IES) Ltd

IES uncovers hidden cost and energy savings that support smarter energy-efficient choices across new building investments, building operation and refurbishment.

Helix Building, West of Scotland Science Park, Glasgow G20 0SP 01419458500 | sales@iesve.com www.iesve.com

### B24 - ionSign Oy

ionSign Neutron energy & utility consumption monitors provide aggregated data from all of your meters. Neutron AMR brings electricity, water, gas, heat – any pulse or Modbus data – to your fingertips. ionSign specialises in data acquisition for IoT & Big Data applications. Energy management is a field where we have extensive experience and advanced solutions. In the UK, you can get our products from Elcomponent and MWA Technology.

Paananvahe 4, Rauma FI-26100, Finland +358 405881679 | sales@ionsign.fi ionsign.fi



### A22 - iScape Ltd

iScape develops wireless, long-range, energy and environmental monitoring devices, with GPRS, MBus, Modbus, AES-128 encryption, ATEX options and cloud software.

20 Mulcaster Ave, Grange Park, Swindon SN5 6EH 01793251250 I support@iscape.co.uk www.iscape.co.uk

### **B78 - IWFM formerly BIFM**

IWFM, formerly BIFM, is the professional body for workplace and facilities practitioners promoting excellence among a worldwide community of 17,000.

1st Floor South, Charringtons House, The Causeway, Bishop's Stortford CM23 2ER 01279 712620 I info@bifm.org.uk www.bifm.org.uk



### C72 - Katronic Technologies Ltd.

Katronic is an experienced, specialist UK manufacturer of clamp-on ultrasonic flowmeters and non-invasive energy / heat meters.

Earls Court, 13 Warwick Street, Coventry CV5 6ET 07866674814 | asutton@katronic.co.uk www.katronic.co.uk



MBS

### **B18 - Kelda Technology**

Kelda has created the world's most efficient shower system. Their mission is to transform the way we use water.

Kelda Technology, 2 Venture Road, Chilworth, Southampton SO16 7NP 02381290640 | info@keldatechnology.com www.keldatechnology.com



### Flexible Power Zone - KiWi Power Ltd

KiWi Power is the UK's leading demand response aggregator.

3, London Wall Buildings, London EC2M 5PD 02071831030 | info@kiwipowered.com www.kiwipowered.com

### A53 - Limpsfield

High Performance Burners.

Unit 7 Concorde Business Center, Wireless Road, Biggin Hill TN16 3YN 01959578850 | sales@limpsfield.co.uk www.limpsfield.co.uk

### E11 - MBS & MBStv

MBS magazine covers the UK building services sector, and has the largest controlled circulation (23,724 ABC).

5 Viewpoint, Babbage Road, Stevenage SG1 2EQ 01438 759000 | ckeel@portico.uk.com www.modbs.co.uk

### **D77 - LaminaHeat UK**

LaminaHeat are the leading innovators in versatile, high-efficiency, low-maintenance heating films suitable for applications ranging from primary residential & commercial heating systems to heating bridges, vehicles, clothing, seating, composite materials and more.

Beacon Centre for Enterprise, Dafen, Llanelli SA14 8LQ 07929627721 | brichardson@laminaheat.co.uk www.laminaheat.com



### E50 - METRON

METRON is an international company that develops digital platforms for industries aiming at manage, optimise and pilot . energy.

102 rue Réaumur, Paris 75002, France +33140296565 | info@metronlab.com www.metronlab.com

# Flow Measurement



TFX-500w Clamp-on Ultrasonic Water Meter

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### www.bellflowsystems.co.uk

## IGNITE Energy

# **EXPERTS IN ENERGY MANAGEMENT**

Ignite provide services that cover every aspect of energy management for large businesses, ranging from improving supply and billing practices to the implementation of estate-wide energy efficiency measures. Ignite ensure that energy is a controlled and accounted for cost at every level of your business.

### WITH A PROVEN TRACK RECORD OF DELIVERING FANTASTIC SAVINGS THROUGH OUR SERVICES, IGNITE ARE A PERFECT CHOICE FOR ANY ORGANISATION LOOKING TO REDUCE ENERGY COSTS.



### **B30 - NatWest**

We are committed to becoming a more sustainable bank; a more responsible company, doing business in a more sustainable way and helping our customers do so too. We've supported the journey to a greener economy for over 25 years including funding low carbon technologies at a range of scales from Solar PV, Onshore Wind, smart metering and anaerobic digestion to name a few. We set a three year target of £3bn in 2015 and have now committed to funding £10bn to the sustainable energy sector by 2020 – helping to accelerate the transition to a low carbon economy.

Floor 9, 250 Bishopsgate, London EC2M 4AA 07979246197 I energy@Natwest.com www.business.natwest.com/business/financial-expertise-by-sector/ sustainable-energy.html



### **A5 - NewFound Energy**

AtlasEVO am&t system for single and multi-site operations plus Profile and Cesinel portable energy quality recorders for sale/hire.

Park View House, Worrall Street, Congleton CW12 1DT 01260 290151 | info@newfound-energy.co.uk www.newfound-energy.co.uk

### H18 - NFU Energy Service

We can help you with anything to do with energy in agriculture, from buying and selling to regulations and efficiency.

10th Street, Stoneleigh park, Kenilworth CV8 2LS 024 7669 6512 | nfu@fec-energy.co.uk www.fec-energy.co.uk/nfu



### E14 - Nicotra Gebhardt Ltd

With more than 50 years of experience and the most extensive product range on the market, Nicotra Gebhardt is the leading manufacturer of high efficiency fans and related products for the ventilation industry. From our UK headquarters in Rotherham, we focus on providing clients within the building efficiency and sustainability sectors a highly efficiency fan retrofit and refurbishment service which greatly reduces power consumption within HVAC equipment. Our expert staff conduct on-site audits to determine the best possible solution using sophisticated measurement equipment ensuring continuity of operation as well as significantly improved efficiency.

Unit D, Parkgate Business Park, Rotherham S62 6JQ 01709 780760 I uk.sales@nicotra-gebhardt.com www.nicotra-gebhardt.com

NICOTRA Gebhardt

### **B65 - Northern Gas & Power Ltd**

Reducing energy use, effective energy procurement strategies, reducing carbon footprint, cutting time &cost of energy-related admin. Complete Energy Management

Baltic Place, Gateshead NE8 3AE 07908916124 | enquiry@ngpltd.co.uk www.ngpltd.co.uk



### E30 - Norvento Energy UK

Delivering renewable energy systems since 1981. On-site renewable generation, integrated hybrid microgrids, and provide SCADA reporting and control systems.

111 Power Road, London W4 5PY 07778685476 | commercial-uk@norvento.com www.norvento.com/en



Optima have been supplying Enterprise level software for Energy Management to major clients since 1989, with over 4500 organisations and over 300,000 sites now having their energy data stored and managed on the Optima platform. We will be showcasing our dashboard building system, Visualizer. This enable organisation to easily develop custom dashboards to their own requirements. End users can download the dashboards as images or Excel data as well as automate notifications to a user defined schedule. We will also be demonstration our bill validation, contract analysis, budgeting and tenant billing software as required.

Four Columns, Broughton Hall Business Park, Skipton BD23 3AE 01756 702488 I info@optimaenergy.net www.optimaenergy.net



### F35 - Ørsted

Ørsted is one of the largest energy groups in Northern Europe and a global leader in offshore wind. Our mission is to help drive the UK's energy transformation and create a greener and more cost-effective energy future. We are one of the leading UK energy suppliers to the industrial and commercial market. Our team provides tailored energy solutions, including innovative solutions designed to maximise business resources, create cost savings and unlock revenue. We have also invested to bring our customers premium-free renewable electricity. This makes lowering your carbon footprint a commercially sound decision.

5 Howick Place, London SW1P 1WG

0800 056 8109 | energyservices@orsted.co.uk orstedbusiness.co.uk

### **C3 - PE Energy Solutions Ltd**

PE Energy and stand partners PLS Lighting are providers of energy efficiency solutions to industry and government. PE Energy provides compliance services and auditors for ESOS Phase 2, TM44 AC Inspections, EPCs and Display Energy Certificates and project management for the implementation of energy efficient solutions including lighting, HVAC, controls and renewables. PLS Lighting specialise in fully financed lighting upgrades, including controls, sensors and customized ballasts and lamps. PLS provide the fully solution from design and specification, to sourcing or specification based development of lighting products for both interior and exterior requirements.

3rd Floor, 207 Regent Street, London W1B 3HH 01394 825933 I engineering@peenergysolutions.co.uk www.peenergy.co.uk



Orsted

### **D70 - Pilot Group Infrastructure**

Reducing your commercial energy usage by up to 60%. With over 25 years' experience in the electronics and electrical market, Pilot Group Infrastructure provide sustainable energy solutions for commercial environments. Our leading brands Hilclare and Vickers focus on: LED Lighting technology, we manufacture, design and install; and Smart Energy Management Systems, controlling your industrial heating systems. Book your free energy survey now and let us show you what you can save. 25% reduction, guaranteed.

15 Carnarvon Street, Manchester M3 1HJ 0161 886 7190 | info@vickers-electronics.co.uk www.vickers-electronics.co.uk



infrastructure

C3 - PLS Lighting Ltd

PLS is a designer and supplier of energy-efficient lighting systems for users in the education, leisure, industrial and commercial sectors.

Unit 10, Cardrew Trade Park South, Cardrew Way, Redruth TR151SW 0333 222 4043 I info@plslightingltd.co.uk www.plslightingltd.co.uk

### E45 - PowerLink Machine (UK) Co., Ltd

PowerLink manufacturers both diesel/gas and cogeneration units ranging from 50kW to 2,000kW for various types of natural gas, biogas, landfill gas, Liquid Petroleum gas and Coalbed gas. With efficient gas engine suppliers such as MAN, MWM, CAT, Perkins, we produce and supply high-quality and reliable equipment.

Vickers building, Sherburn Enterprise Park, Hurricane Cl. Sherburn in Elmet, Leeds S25 6PB 01977 689100 I info@powerlinkworld.com www.powerlinkworld.com

### Flexible Power Zone - Power Responsive

The pace of change in the industry is an exciting challenge, and one that compels whole industry collaboration. Electricity system needs are evolving, at both a transmission and distribution level, and we need additional sources of flexibility to meet these needs as we transition to a low carbon, digitised world. Now in its fourth year, Power Responsive continues to raise awareness, build confidence, and support the evolution of flexibility markets. If your business has the flexibility to increase, decrease, or shift its electricity use, then the power is in your hands to take full advantage.

nationalaridESO

responsive

power

National Grid House, Gallows Hill, Warwick CV34 6DA 01926 654 611 | powerresponsive@nationalgrid.com www.powerresponsive.com



Powerstar provides award-winning bespoke smart energy solutions that are designed, manufactured and delivered to provide maximum benefit to each client.

4 Cowley Way,, Sheffield S35 1QP 01142 576 200 l virtue@powerstar.com www.powerstar.com/virtue/

### E74 - Principal Lighting Ltd

Principal Lighting specialise in LED and other energy efficient lighting. Our extensive range provides for all internal and external areas.

Unit 21, West Moor Park Network Centre, Doncaster DN3 3GW 01302762160 I commercial@plighting.co.uk www.plighting.co.uk

### B36 - Re:fit | Local Partnerships

The Re:fit programme is a procurement initiative for public bodies wishing to implement energy efficiency and local energy generation measures to their buildings or their estate, with support to assist you in the development and delivery of the schemes. These measures improve the energy performance of buildings. As a result, carbon emissions are reduced and substantial guaranteed annual cost savings are achieved.

18 Smith Square, London, London SW1P 3HZ 02071877379 | LPenquiries@local.gov.uk localpartnerships.org.uk/our-expertise/refit/



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### Undertaking ESOS audits is designed to help businesses identify opportunities to save energy

The **Energy Savings Opportunity Scheme (ESOS)** is a policy issued by the UK Government that derives from the EU Energy Efficiency Directive, which mandate that business energy audits be carried out in large organisations.

### **HOW DOES IT WORK?**

-ESOS requests all qualifying organisations to provide energy audits and energy efficiency opportunities at least once every four years.

-An ESOS Assessment must consider all combustible fuels (petrol, gas, diesel), heat, renewable energy and electricity consumed by all of an organisation' s buildings, industrial processes, plants and transport, to assess the total energy consumption.

-ESOS energy audits must be carried out by an energy expert with extensive knowledge of energy efficiency assessments.

-An ESOS Assessment must be signed off by a Lead Assessor and a board-level director of the qualifying organisation. This aims to ensure awareness of senior staff members with regards to the ESOS.

-It is important to note, however, that while ESOS requires a qualifying organisation to assess its total energy consumption, the Scheme does not oblige that organisation to make any energy efficiency improvements to its sites or operations.

### **DO YOU QUALIFY?**

The Party of Long

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The criteria for needing to comply with ESOS can be baffling, thus it's advisable to contact the Environment Agency, which runs the scheme, to check!



**PE Energy Solutions** 

Global providers of energy efficient technology European Bank Small Business Consultants

### Tel: 01394 825933

Email: esos@peenergysolutions.co.uk www.peenergysolutions.co.uk



### **Networking Area - Schneider Electric**

Schneider Electric is leading the Digital Transformation of Energy Management and Automation in Homes, Buildings, Data Centers, Infrastructure and Industries. With global presence in over 100 countries, Schneider is the undisputable leader in Energy Management – we provide integrated efficiency solutions. In our global Ecosystem, we collaborate with the largest Partner, Integrator and Developer Community on our Open Platform to deliver real-time control and operational efficiency. We believe that great people and partners make Schneider a great company and that our commitment to Innovation, Diversity and Sustainability ensures that Life Is On everywhere, for everyone and at every moment.

2nd Floor, 80 Victoria Street, London SW1E 5JL 07814 271 797 I contact@ems.schneider-electric.com www.schneider-electric.com/ess Life Is On

Schneider Blectric

### D17 - SGS United Kingdom Ltd

SGS experts on stand D17 will help you to understand how effective energy management can provide your organisation with a number of benefits; from regulatory compliance and cost savings, to stakeholder assurance of your organisation's sustainable practices. Learn how you can achieve improved energy performance through ISO 50001 audits, independent ESOS energy assessments and training from SGS, helping your organisation through continual improvement, to become more energy efficient, creating real competitive advantage and allowing you to stand out from the competition. SGS is the world's leading inspection, verification, testing and certification company.

SGS House, 217-221 London Road, Camberley GU15 3EY 01276 697 715 | uk.nowisthetime@sgs.com www.sgs.co.uk



### E59 - Smart M&E

Smart M&E facilitate smart energy decisions, consulting on the best product for your heating application and providing project management.

Wooodhouse Farm, Stopgate Lane,, West Lancashire L33 4YA 0151 422 9109 | info@smartmande.co.uk www.smartmande.co.uk

### F48 - SMS Plc

SMS Plc offers an integrated approach to risk management across procurement, billing, energy efficiency, and project delivery.

Prennau House, Copse Walk, Cardiff Business Park, Cardiff CF238XH 02920 739 519 | info@sms-plc.com www.sms-plc.com

### H40 - Society of Operations Engineers (SOE)

SOE is a membership organisation which offers guidance and support for operations engineers.

22 Greencoat Place, London SW1P1PR 02076306666 I membership@soe.org.uk www.soe.org.uk



### **B1 - Solarjuice**

A fresh approach to M&E, software and sustainability. Our cutting edge services include BIM, 3D laser scanning & Hololens.

The Finsbury Business Centre, 40 Bowling Green Lane, London EC1R0NE 02074157051 linfo@solarjuice.co.uk www.solarjuice.co.uk

### C15 - SolX Energy Ltd

In addition to implementing other technologies, SolX Energy Ltd manufacture and install ThermX, a revolutionary patent granted process delivering exceptional ROIs. The technology harnesses the sun's thermal energy, dramatically reducing the workload of compressors within HVAC-R systems, in turn, generating groundbreaking reductions in energy consumption and carbon production. The technology can be supplied with new refrigeration and HVAC installations but crucially, can also be retrofitted to existing systems. ThermX produces efficiencies as high as 70% above existing technologies, with typical paybacks of under 3 years. SolX Energy Ltd strive for clean, efficient eco-energy solutions in the commercial market place.

Ribble Court Business Centre, 1 Mead Way, Shuttleworth Mead, Padiham BB12 7NG 0844 33 00 321 | info@solxenergy.com www.solxenergy.com



### H24 - Space4Climate

Supporting the UK's world-leading climate services community to deliver and use trusted climate information from space for global benefit.

University of Reading, Philip Lyle Building, Whiteknights Campus, Reading RG6 6RX

07785358776 | S4C@the-iea.org www.the-iea.org/space4climate

### **B28 - Steinel UK**

STEINEL. Pioneer and partner to professionals.

25 Manasty Road, Orton Southgate, Peterborough PE26UP 01733366700 | steinel@steinel.co.uk www.steinel.de/en

### D48 - Technolog Ltd

35+ years' experience in design and manufacture of battery powered data loggers, electronic pressure controllers for water & gas networks.

Technolog House, Ravenstor Road, Wirksworth DE4 4FY 01629823611 | technolog@technolog.com https://www.technolog.com/

### H28 - The Carbon Trust

The Carbon Trust team will be exhibiting the business opportunities associated with the Energy Technology List and Green Business Fund.

4th Floor, Dorset House 27-45 Stamford Street, London SE1 9NT 020 7832 4526 I info@carbontrust.com www.carbontrust.com

### A9 - The Farm Energy Company

Specialising in direct supply renewable energy. Providing part or all of your energy with no capital cost to your business.

The Brick Barn, Court Road, St Nicholas at Wade CT70PT 01795515530 l info@farmenergy.co.uk www.farmenergy.co.uk



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NORTHERN GAS AND POWER

# Powering the UK with renewable energy

With energy prices remaining volatile and distribution costs on the rise, smart businesses are looking to make savings and reduce risk through renewable generation.

At CleanEarth we provide the specialist knowledge and technical expertise you need to make the right, responsible decision – enabling you to meet your energy needs, financial demands, and environmental responsibilities.



- Make no-risk savings with zero CAPEX required
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- 500+ wind and solar installations
- Powering businesses across the UK
- See us at EMEX Stand E65



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PO Box 2608, Chigwell IG8 1PW 0116 3265533 I nigel@membertrade.co.uk www.theema.org.uk/the-ema-magazine



### A44 - The Weather Company, an IBM Business

The Weather Company, an IBM Business is the most accurate, personalized, and actionable weather data and insights.

76/78 Upper Ground, South Bank SE1 9PZ 0978 2344847 I mgolladay@uk.ibm.com www.business.weather.com



### Media Partner - ThisWeekinFM.com

ThisWeekinFM.com covers everything from who cleans and secures a building, through to high profile property acquisition & disposal. We look at building fit-out, energy & environmental management and even fleet. We cover wellbeing along with health and of course, safety. We look at hard and soft services - but more pertinently, we focus on what has an impact on the workplace and the people who go there to be productive. The ThisWeekinFM.com readership extends from the Young FM Group to the global Heads of Property and FM at firms such as HSBC, PWC and KPMG. It is supported by a >100,000 contact database, a >50,000 E-newsletter and a massive presence on LinkedIn, Twitter and other social media. 69% of our readership is end-users; 31% suppliers & trade.

Lower Ketlan, Low Road, Pentney PE32 1JF 07900 168872 I nergy@TWinFM.com www.twinfm.com

ThisWeekinFM

#### G35 - Verde LED

Verde LED is a market leader and one of the largest commercial LED lighting manufacturers and suppliers in Europe.

Unit 1 Eastgate Ave, Little Island T45 HK71, Ireland +353 21 486 1577 | info@verdeled.com www.verdeled.com

#### **D75 - Viessmann Limited**

Viessmann is a leading international manufacturer of heating, industrial and refrigeration systems with outputs ranging from 1.5 to 120,000kW.

Hortonwood 30,, Telford TF1 7YP 01952 675000 l info-uk@viessmann.com www.viessmann.com

### D55 - VINCI Facilities Energy & Water Management

We work collaboratively to help our customers save money and reduce risk through a tailored energy & water management service.

Astral House Imperial Way, Watford WD24 4WW 07816514100 I info@vincifacilities.com www.vincifacilities.com



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### E66 - The Water Retail Company

The Water Retail Company is a water retailer o ering a bespoke service to reduce consumption, cost and environmental impact.

N105 Vox Studios, 1-45 Durham Street, London SE11 5JH 020 3808 6608 I info@thewaterretailcompany.co.uk www.thewaterretailcompany.co.uk

### B61 - Weishaupt (UK) Ltd

Weishaupt is a world-leading burner manufacturer producing high quality oil, gas and dual fuel burners for over 60 years.

Neachells Lane, Willenhall WV13 3RG 07702369600 | info@Weishaupt.co.uk www.weishaupt.co.uk

### B44 - WILO UK LTD

Wilo is a premium supplier for building services, water management and industrial applications. We make complex technologies user-friendly, simple to operate, energy efficient and powerful for our customers. In the end, the main focus of everything we do is people. We offer them outstanding products, system solutions and services. Founded in Dortmund in 1872 as a factory for copper and brass goods, Wilo has evolved from being a local specialist to a global player in the course of its long and successful history.

Second Avenue, Centrum 100, Burton upon Trent DE14 2WJ 01283 523000 | sales@wilo.co.uk www.wilo.co.uk



-weishaupt

#### **C28** - Wilson Power Solutions Limited

Manufacturer of transformers and battery trip units. Pioneers of ultra low loss amorphous technology; killers of unnecessary energy wastage.

Westland Works, Westland Square, Leeds LS11 5SS 01132717588 l info@wilsonpowersolutions.co.uk www.wilsonpowersolutions.co.uk



<sup>by</sup> CPA Engineered Solutions Ltd



### Seal for Energy, Heat for Comfort – An innovation!

Energy is an essential commodity and each year businesses and households spend around £50 billion on it. This cost will no doubt rise as the trend would suggest increased energy costs as the norm. Saving energy, reducing costs along with ensuring customer and staff wellbeing will be part of businesses key strategic plans going forward.

How do you keep everyone happy? Keeping your air temperature, not too hot or too cold, maintaining that temperature throughout the day. Sure, you do all of that every day, but you can't keep your doors closed or restrict their use, and you can't control the external environment or stop it coming in, or can you?

At CPA, we have been known for our air barrier technology for over a decade. This technology creates a virtual door by re-circulating internal facility air and forcing it across an opening thus creating a robust seal. The critical element in conserving energy is creating the seal to prevent air movement through the opening. The invisible seal reduces the loss of heated air to the outside and the ingress of cold external air meaning that internal temperature and comfort is preserved whilst the door is open and when the door is closed, temperature recovery time is reduced.

After listening to feedback from our clients and through a programme of research and development we have now developed a revolutionary product that delivers all the benefits of an air barrier with the inclusion of heat. Unlike a heated air curtain, this patented technology uses separately generated individual air flows designed for specific purposes. The thermostatically controlled heating system operates independently and provides fully controllable space heating for your building entrance.

The new Air Barikade<sup>®</sup> delivers an industry first where the sealing capability of an air barrier is delivered with the comfort of gentle space heating without the associated energy losses. With absolute synergy the Air Barikade provides a seal for energy and heat for comfort.

To experience this new innovation, come to stand C74 where our R&D team and manufacturing team will be happy to discuss your needs.



® Air Barikade, CPA, logos and designs are registered trademarks of CPA Engineered Solutions Ltd

🔇 kelda

### Case study GLL – Windrush Leisure Centre

Working with the biggest leisure provider in the UK, we improved member experience by 60% whilst delivering savings of over 40%.

#### Windrush Leisure Centre

Greenwich Leisure Limited is the largest provider of sports and leisure facilities in the UK and runs over 250 facilities on behalf of local authorities as a sociable charitable enterprise.

The Windrush Leisure Centre is located in the heart of Witney, Oxfordshire and offers a wide range of facilities open to all. Due to its popularity, it is considered a high usage site.

#### Overview

The Kelda installation provided water and water heating savings of 42%; The total usage dropped by 3,364 litres per day which equates to an annual saving of 1,217,652 litres per year.



Through the reduction in water heating via gas boilers and supply and disposal of water as per government supplied figures, 9.76 metric tonnes of CO2 emissions are saved annually - after offsetting any other footprint created by installing Kelda Shower Systems.

The Kelda Technology System also decreased the chances of Legionella spread in this commercial environment by six times, as proven by independent studies to the Department of

and validated by Dr. T. Makin, advisor to the Department of Health, UK Government.

#### **Key Facts**

- 1. Shower spray force improved by 60%
- 2. ROI period under 12 Months
- 3. Water usage decreased by 42%
- 4. 1.2 million litres of water saved per year
- 5. 9.76 tonnes of CO2 emissions saved annually

#### Installation

John Busby, Facilities Manager managed the project and incorporated metering and



sub-metering to measure the results of the installation.

In this installation, Kelda control boxes were located in the ceiling void above the shower cubicles. Data was recorded for 22 days prior to the installation of Kelda Technology Shower System and for 22 days post-installation. The showers installed prior to this project were running at 9 litres per minute.

The decision was made to install Kelda Technology Showers with a flow rate of 6 litres per minute which would give an equivalent spray force of 14.4 litres per minute. This would provide a 60% improvement in customer experience. It was noted that customer experience would have still been improved, even if the Kelda Technology Shower System was specified at a flow rate as low as 4 litres per minute.

#### **GLL Feedback**

"GLL are always looking forward and exploring new technologies that will help meet our ambitious targets whilst retaining core company values in relation to customer experience. When contacted by Kelda Technology the message was clearly something that sounded like it would work for us; a consultation, surveys and calculations followed with a proposal that sounded almost too good to be true. The reality was far greater. What was delivered exceeded our expectations; the member experience, savings made, and service provided has been consistent in its excellence of delivering to our values of improving the customer journey and our social obligation to save energy." John Busby, Facilities Manager.




The UN predicts that by 2030 the world is projected to face a 40% global water deficit.

Kelda Technology has created the world's most efficient shower system, designed and manufactured in the UK. Our Triple-E Technology can be tailored to meet your business goals: Experience, Efficiency or Ecology.

Welcome to the next-generation shower.



To find out more please visit us at EMEX, stand B18.

+44 (0)2381 290640 sales@keldatechnology.com www.keldatechnology.com

<sup>by</sup>ØRSTED

## Orsted

### Better together: Optimise energy use, cut costs and CO<sub>2</sub>

The energy sector is evolving rapidly. The way costs are calculated has changed, new policies supporting the decarbonisation of the sector have been introduced and new technologies have entered the market place. Keeping ahead of all these changes can be a daunting task, requiring resources, time and expertise beyond the reach and means of many organisations. This is where Ørsted's Energy as a Service solution can help. It enables organisations to access the benefits of a smarter, streamlined, more sustainable energy strategy, without compromising cost and resource.

One organisation that has chosen to adopt Energy as a Service is the independent co-educational day and boarding school, Milton Abbey, in Dorset. Ørsted will take on all energy management on behalf of Milton Abbey; providing a full, tailored energy solution. Ørsted will help Milton Abbey to use energy in a much smarter way, ultimately reducing energy consumption and costs.

At the Milton Abbey site, Ørsted will:

- Take over all management and maintenance of the school's heating system, including three biomass boilers
- Optimise performance of the heating system by 35%
- Manage purchasing of biomass pellets
- Continually investigate future opportunities for further energy saving and on-site generation
- Provide seminars, classes and Q&As on energy use and consumption for Milton Abbey pupils

Judith Fremont-Barnes, Head at Milton Abbey, said: "As a school we are acutely aware of the beautiful surroundings we all enjoy at Milton Abbey and take our responsibilities for our environment extremely seriously. We look forward to working with Ørsted so we can further improve our energy saving across the school site and reduce our carbon footprint."

#### Julian Litchfield, Bursar at Milton Abbey, said:

"We have worked extremely closely with Ørsted on this 18-year partnership to really understand how our energy use can be optimised across the site. In having them step in as our Energy as a Service provider, we can make use of their significant expertise, leaving the school to get on with what it does best.

## We are particularly pleased that the Ørsted team will be delivering an educational programme to the pupils as part of our partnership."

Ørsted's Energy as a Service solution takes account of individual business needs, challenges and assets. It combines a range of techniques, including energy efficiency, sustainable sourcing, on-site generation and flexibility, to optimise the customer's energy use. This tailored approach achieves financial savings while reducing energy consumption and carbon emissions.

#### To learn more about Energy as a Service, visit https:// orstedbusiness.co.uk/en/What-we-offer/EAAS



# **Bater Retail** company



Save on your water bill by switching to us and becoming more water efficient Call us on 020 3808 6608 | www.wesavewater.co.uk

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Life Is On	Schneider Electric	Society of Operations Engineers	SGS	ThisWeekinFM
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## Birmingham City Council Case Study

## Birmingham City Council (BCC) is one of the largest district councils in Europe, with 2,189 properties and 4,323 metering/monitoring points.

When we approached BCC, utility bills were not validated in a central location. They were also being paid by local managers who were not actively identifying overspend.

Although BCC had adopted a Government procurement framework, not all council sites were part of the group contract, resulting in default rates and a lack of energy management efficiency.

#### Solution

When BCC commissioned Inspired Energy to provide Bureau Services, an Energy Management Strategy was developed and implemented. The objective was to manage energy consumption and bills more efficiently.

A comprehensive and detailed Specification Service Level Agreement (SLA) was agreed, encompassing portfolio management, utility bill validation, site optimisation and legislation compliant services.

#### Outcome

Inspired Energy have provided the following services to BCC:

#### Portfolio Management

- Created an up-to-date list of sites
- Obtained historical data and created a list of meters and accounts

 Consolidated all supplies under a Government procurement framework

#### **Bill Validation**

Identified sites that were in default or on incorrect rates

- Resolved queries relating to duplicate invoices and non-commodity billing errors
- Identified sites no longer under the BCC's responsibility and informed suppliers

#### Legislative Compliance

 Obtained Climate Change Levy (CCL) exemptions for qualifying schools

#### Site Optimisation

 Carried out an Agreed Supply Capacity (ASC) review to identify sites that would benefit from optimisation

#### Energy Management Software

 Provided BCC with access to their energy management/financial reports, utility invoices and billing queries via our online energy dashboard, assisting with their strategic planning

#### Result

With the help of our Bureau Services Team, BCC are confident they are now managing their site portfolio correctly, paying bills accurately, continuing to monitor energy consumption and identifying areas for improvement.

"Inspired Energy have carried out a variety of investigations on our behalf, identifying energy waste or where a particular site is oversupplied, saving thousands!" Bill Mealey, Contract Manager

## See you next year on 20-21 November



<sup>by</sup> FEILO SYLVANIA

### **SYLVANIA**

### Sylvania Lights Up Learning at Paddington Library

Paddington Library in central London provides a vital community service for people of all ages as a place to study, read and access the internet. Working on behalf of Westminster Council, and alongside Project Managers Amey, leading lighting provider Sylvania specified its new smart lighting solution SylSmart to provide a complete lighting upgrade at the library.

The library now benefits from an intelligent, efficient and powerful SylSmart lighting system. The extensive collection of books, newspapers, learning materials for students and computers are now displayed in clean, crisp lighting, helping Library users to concentrate in high quality lighting, whilst benefiting the Council through enhanced energy and cost savings.

The SylSmart system proves an incredibly efficient option as it uses the latest technology to detect human presence and natural light, adjusting the light levels to only emit exactly what is needed. This enables the quieter areas of the library work, the demonstrable payback period of less than five years, including maintenance, was vital for Paddington Library.

Jonathan Willis, Service Delivery Manager at Paddington Library, commented: "The new Sylvania SylSmart lighting system installed at Paddington library is fantastic. We needed a dependable and efficient lighting system, without the need for detailed surveys carried out before installation. With the library open seven days a week, any downtime for maintenance is very disruptive to users, so we had to keep that to a minimum. The installation was very straightforward as the lights program themselves and learn where the nearby fixtures are. The lighting system provides uniform light at reading level that promotes comfort and helps library users maintain focus without feeling disorientated or tired. There are carefully positioned spotlights in darker areas, helping library users to locate books or other materials. All of this whilst seeing a significant energy saving."



to save on energy costs, whilst ensuring the busier areas of the building are always properly illuminated.

With this system, energy savings of up to 87% are possible. This means as a space with fluctuating footfall levels the library can run as efficiently as possible, but still be adequately illuminated. In order to gain funding for council Future layout changes inside the library will require no re-programming of the lights, and as a low-maintenance product, the library can benefit from no downtime. With the help of SylSmart, Paddington Library has a bright future.

To find out how Sylvania could help you, please phone 0800 440 2478 or email craig.allan@sylvania-lighting.com

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