THE EMA MAGAZINE

www.theema.org.uk | ISSUE NOVEMBER–DECEMBER 2019

TRANSPORT MANAGEMENT
The new skill-set needed by Energy Managers

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Changing focus

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SPECIAL ISSUE **SHOW GUIDE**

Distributed Energy Future Trends

The Insights Behind Sustainable Business Growth

What does it take to become a more sustainable, future-focused organisation? Our new report explains what it means to be a sustainable business and the steps you can take to start your journey.

We share the most significant results from our research, the changing role of energy, and the actions businesses should take to prepare for a more commercially and environmentally sustainable future.

If you have any questions about our research or if you would like help starting your journey please contact us: centricabusinesssolutions@centrica.com or visit: www.centricabusinesssolutions.com

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by LORD RUPERT REDESDALE
Chief Executive at The Energy Managers Association

Welcome

…to EMEX and this year's last issue of The EMA Magazine for 2019. This year will be remembered for the declaration of a climate Change Emergency, by organisations across the country. Companies are starting to set tough targets on slashing GHG emissions. The only question left is how to meet these ambitious targets. Happily, the job of delivery will fall to you.

EMEX 2019 therefore has been built around a programme that will give you the tools to do the job, from understanding legislation and regulation, in particular SECR and ESOS, to giving practical advice on strategies that work, emerging technologies, such as storage, along with guidance from your peers.

The Government's goal is Net Zero emissions by 2050, some of the technologies needed, Hydrogen and Carbon Capture and Storage do not exist at scale yet but until they come online, the most important work will be hitting the first 20%.

THE EMA MAGAZINE

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The EMA Magazine is published bi-monthly on behalf of the EMA by HEELEC Limited, the organisers of the annual energy management exhibition, EMEX.

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by LORD RUPERT REDESDALE
Chief Executive at The Energy Managers Association

Transport Management is the New Skill-Set Needed by Energy Managers

Until now, most Energy Managers have not seen transport as a core part of their responsibilities. This is changing. It is a mandatory requirement to record all fuel used in transport if your organisation needs to undertake SECR (Simplified Energy and Carbon Reporting). What makes your company or LLP qualified for SECR?

There are three criteria which are based on the qualification for large company status under the Companies Act 2016:

- They have a turnover of £36 million or more,
- Reserves of £18 million or more,
- Or 250 employees.

If you satisfy two of the three criteria you qualify.

If you are in the SECR bracket, what do you need to do? There are five mandatory reporting requirements as part of SECR, all of which will apply to your company's transport use.

Record and report on all energy use and carbon emissions through the use of electricity, gas and transport fuel

This means in the case of transport, all fuel that your company purchases to undertake its activities will need to be recorded. This includes not only your vans, trucks and forklifts, but also grey fleet. The simple rule of thumb is, if you pay the fuel bill you report. For example, say you are a construction company and you TUPE over a fleet of vehicles and their drivers from another company, if you pay the fuel bill, you will need to report the fuel use as part your SECR report.

One of the most frequently asked questions following this example is, do I need to include fuel used in my supply or logistics chain? The simple answer is, if companies you work with pay for the fuel, even if they are working exclusively for you, then you do not need to report on fuel used by those companies in your logistics chain.

Transport for unquoted companies includes sea and air freight and travel inside the UK but excludes international airline travel and shipping. If your company is quoted, then you will need to report all underlying energy use, but you will probably do that already under scope three emission recording.

For reporting purposes fuel used by transport has to be converted into kilowatt hours and the kilowatt hours used in the report. This will mean that the recorded figures for transport can easily be compared with energy used in buildings or processes. For many companies this may well be an eye opener as if they have a fleet of trucks or a large grey fleet, their transport fuel emissions could be far greater than emissions from their buildings.

> "THE SIMPLE RULE OF THUMB IS, IF YOU PAY THE FUEL BILL YOU REPORT."

The recorded transport emissions will need to include other GHG gases such as NOX emissions, however this figure can be calculated using the DEFRA conversion table.

The way that fuel use can be calculated for inclusion in the report can be done through one of three methods, either:

- Multiply the distance travelled by BEIS-listed C02 emissions conversion tables.
- Use total fuel spend during the reporting period to determine the consumption. This can be done by using the BEIS issued weekly average fuel prices. For example: Fuel Use = Fuel spend / Average fuel price; Total Emissions = Fuel use × Emissions factor
- The EMA recommended method is to multiply the volume of fuel consumed, by BEIS provided emission factors to reach precise energy consumption and GHG emission figures. Total Emissions= Fuel Consumption × Emissions factor.

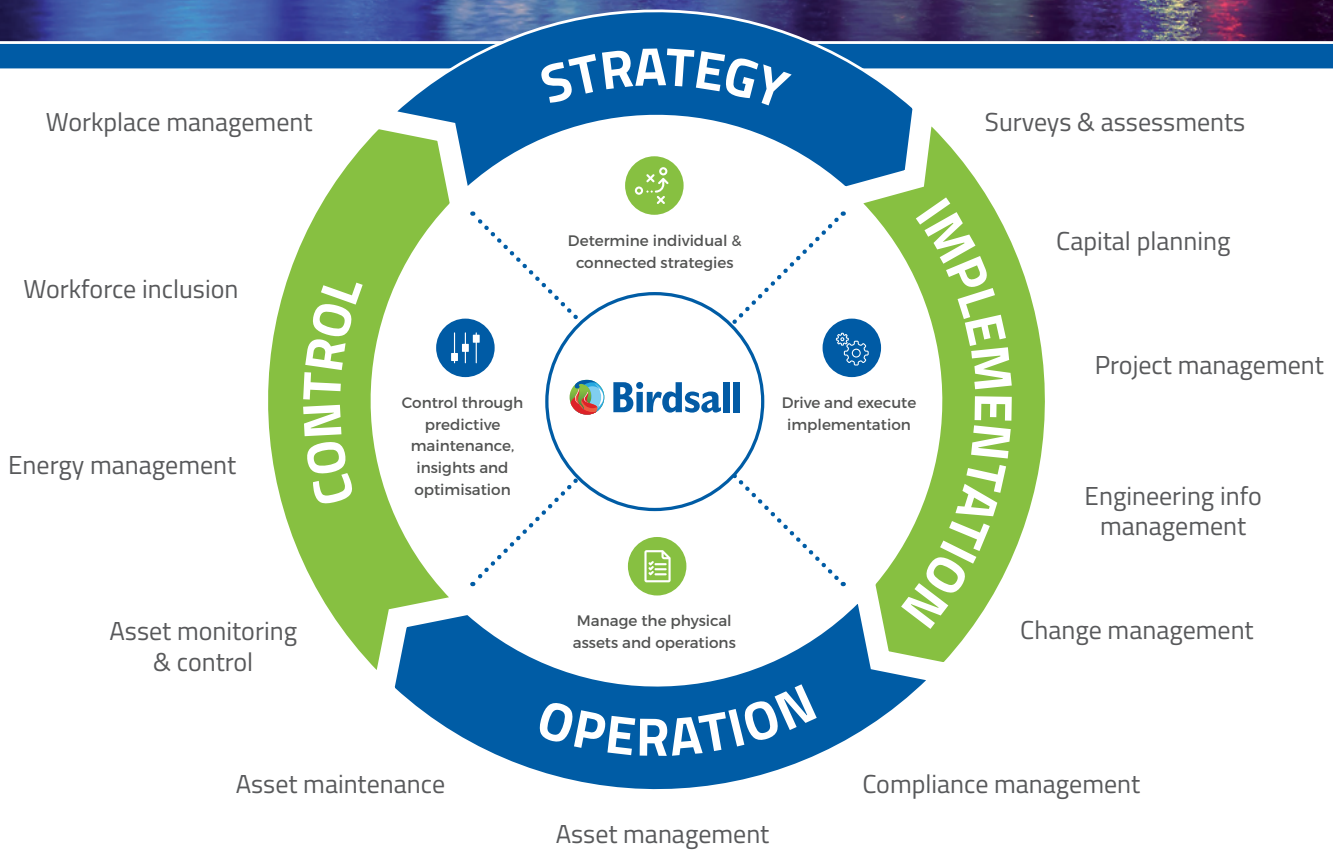
All principal energy efficiency actions must be recorded

The report must include all principal energy efficiency actions undertaken in that financial year. If none have been undertaken, that must also be stated. The question of what a principal measure is will vary from company to company but in the case of fleet vehicles, examples would fall broadly but not exclusively into the following categories:

- Moving fleet to electric vehicles;
- Improving servicing maintenance;
- Replacing older or inefficient vehicles;
- Behaviour change programmes that could include analytic tools.

The measures must be based on the financial reporting year linked to that report, so rolling programmes should only include elements paid for in that financial year. Deciding what is a principal measure should be based on proportionality. Does the principal measure have a significant impact on energy used? Claiming that the company has taken a principal measure by buying

Optimise your building



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one electric vehicle whilst running a fleet of a hundred vehicles could, as the report will be published as a public document, lead to reputational risk through a charge of green wash.

The obvious measures would be to move to an entirely electric fleet but understanding the knock-on effects and the infrastructure requirements will need to be thought through. If there are not enough charging points in your car parks, just increasing the numbers may have electricity capacity issues. There is also no electric version of Heavy Goods Vehicles as yet.

One of the measures that will have the greatest impact, would be to institute low carbon training across the entire fleet drivers, including grey fleet drivers backed by the use of telematics. Training on average can save 10% of fuel used. This should be supported by telematics which can analyse drivers' routes and behaviour. The change in behaviour brought about by training only lasts a period of months before old habits reassert themselves and thus a programme of ongoing training is essential. Telematics can not only make sure journeys by grey fleet are for business purposes but can identify heavy footed driving and also vehicles that are inefficient through lack of maintenance or engine type.

A quick win would be to divert fuel spend by helping employees where possible to use public transport and help improve cycling facilities.

Include an intensity metric

A metric must be used and submitted as part of the report. The metric used is not prescribed and you could even make up your own metric, and so use and state as many metrics as you like, however good practice would be to use the usual metric used by organisations in your sector. An example would be Tonnes of CO_2 per miles/kilometres travelled, or Tonnes of CO_2 per total £m sales revenue. The most common is often based on square meterage, but if fuel accounts for the highest energy use, then that metric might be the most appropriate to use.

Report the methodology used

You can decide to use any methodology or an amalgamation of a number; however, the GHG Protocol should be part of any methodology. The EMA has produced a concise methodology that can be used as the stated methodology. This is also incorporated into the EMA SECR reporting tool that has been designed to help companies report on SECR as cost effectively as possible. BEIS stated that best practice at this stage is to have the report verified by a third party and the EMA will be running a verification process that companies can use. This will not only ensure the report meets all regulatory requirements but that it is presented to the company's accountants in a form that they can audit easily, cutting down their costs.

Sign off by accountants, Board and include in company report

This process should be straight forward, especially if you use the EMA SECR reporting tool which will create a report with all the evidence recorded and easily accessible. Once the auditors have signed off on the report, the Board will need to approve the report, and this is a stage where energy managers can make the case for increased spending on energy efficiency measures including the company's transport infrastructure. Putting the case for principal energy efficiency measures should be compelling as SECR needs reporting year on year and improvements or failures can be tracked. SECR will force companies to try and improve their energy efficiency actions because the final part of the process is publishing the main elements of the report either in the company's report or in a separate submission to Companies House. Companies will need to publicly set out through the SECR report what they are doing around Climate Change and companies that are not taking this seriously could suffer reputational and financial risk.

Transport is an area that has often been ignored in an energy management context. However, ESOS helped audit the scale of the energy used by transport and SECR will make it an energy manager's responsibility to implement fuel efficiency as a company priority. Transport is key to combatting climate change, and now is the time for you to become an expert.

The Streamlined Energy and Carbon Reporting (SECR) will be discussed at EMEX in the Strategy, Regulation & Compliance theatre on both days. Please refer to the full programme for details.

by GRAHAM OXLEY
Managing Director of Energy with Services at ENGIE

Sustainable Carbon Reduction Requires Coordinated Approach

With growing concern about climate change and increasing pressure to reduce carbon emissions, businesses are putting zero-carbon targets at the top of the agenda. But making the transition to carbon neutrality is a complex process, affecting all aspects of an organisation's operations and activities.

Pressure from all sides

The pressure to reduce carbon emissions is unrelenting. The government has set a net zero carbon target for the UK by 2050. Businesses will have a major part to play in achieving this target, which means the road to carbon reduction is likely to become increasingly regulated as the deadline approaches.

In April 2019, the Network for Greening the Financial System (NGFS), a coalition of 34 global central banks and insurers, highlighted the huge financial risk that climate change poses to businesses. Its first comprehensive report stated that: "If some companies and industries fail to adjust to this new world, they will fail to exist." [1].

In some cities, clean air zones have been established, which impact the activities of businesses within those zones. Local authorities across the UK have also declared climate emergencies, with the introduction of targeted plans to reduce carbon emissions in their districts.

Businesses face pressure from their own shareholders too, as well as customers and the wider public. Employees expect their employers to minimise their environmental impact, and people increasingly value businesses that demonstrate a commitment to caring for the planet. All of which means that carbon-reduction policies could even impact an organisation's ability to attract and recruit the best young talent.

Pressure for climate action comes from supply chains too. Globally, businesses want to work with suppliers and partners who share their principles. Businesses that fail to take action on carbon reduction are likely to find it difficult to participate in the increasingly connected and environmentally conscious supply chains of the future.

Overcoming the barriers

There are, of course, many benefits of transitioning to a zero-carbon model, from improved operational and energy efficiency, to greater resource optimisation and cost reductions. The incentives for carbon reduction, and the need to take action, are nothing new – but businesses also face many barriers.

These include time pressures, everyday business priorities and external uncertainties, including Britain's impending exit from the EU. Access to funding to support carbon reduction, including investment in low-carbon technologies, is another significant barrier, alongside access to the expertise required to identify and implement the most effective measures.

Many businesses are also fragmented, not only geographically but also organisationally, with different people or departments responsible for energy management, facilities maintenance, operational management and other activities that impact the carbon footprint. All of these diverse and sometimes conflicting interests and departments need to be coordinated and to work in harmony if a business is to maximise opportunities for long-term carbon reduction.

One step at a time

So where to begin? It's important to take this complex process one step

at a time and to develop a structured action plan. The all-important first step is to identify where your carbon emissions are coming from. A company's greenhouse gas emissions can be classified into three scopes:

- Scope one – direct emissions. These can come from fuel combustion, your owned vehicle fleet and fugitive emissions.
- Scope two – energy indirect emissions. These originate from electricity, heat, steam and cooling purchased for your own use.
- Scope three – any other indirect emissions. These include emissions associated with purchased goods and vehicles, product use, waste disposal, transportation, distribution and employee business travel.

The newly introduced Streamlined Energy & Carbon Reporting (SECR) legislation requires all large companies to report on scope one and two emissions, which means these will be available to view in your next annual report. Once you know where your emissions are coming, you can begin to implement effective actions to reduce them.

Start with energy efficiency

A sensible starting point in any carbon-reduction programme is energy efficiency. Assess how much energy you are consuming, when and where it is being consumed, and where efficiencies can be made. Accurately targeting energy efficiency requires a clear view of all energy data. Sophisticated energy-management software can be used to analyse this data and identify opportunities for efficiencies. In many cases, improvements can be made by tweaking processes, altering temperature and control settings, modifying equipment set-points and adjusting timings. Implementing smart building systems can help to automate controls and manage all building assets for optimum efficiency.

In addition, you may need to convert existing assets into more energy-efficient alternatives or even invest in new equipment. With the right advice and guidance, you can ensure that any investments are more than repaid over the lifetime of the new assets.

Migrating your company fleet to electric vehicles is another major step towards decarbonisation. Installing charge points on your site, connected to renewable power supplies, provides a fully sustainable vehicle charging infrastructure.

Renewable sourcing strategies

After making the best use of the energy you consume, consider where that energy comes from. Sourcing electricity from renewable generators is an effective way to reduce your carbon footprint. Corporate power purchase agreements (PPAs) enable you to secure a direct supply agreement with a specific renewable generator, enabling you to demonstrate exactly where your energy is coming from.

Another option is to install 'behind-the-meter' renewables on site to directly supply your premises. If you're fortunate enough to have room on site to install solar panels, anaerobic digestion or other renewable plant, you can directly supply your own electricity. Installing these generation assets on your site provides a direct source of renewable power, reduces your reliance on grid energy, and offers an opportunity to earn revenue by exporting surplus electricity. Installing batteries on your site to store any excess electricity generated and provide back-up power can further reduce your need for energy from the grid.

However, you are unlikely to be able to supply your entire electricity requirements from an on-site plant, so this option will need to be combined with supply contracts for energy from other sources. Choosing a green energy supply contract gives the assurance that the energy you buy is generated from renewable sources. There are many green energy supply options available, so it's important to ensure you know what you are buying. To choose a truly zero-carbon option, you need to know the provenance of the energy. Some green energy contracts involve the supplier selling on green certificates purchased on the open market, rather than buying energy directly from a renewable generator. So be careful what you buy.

Ideally, carbon reduction should be achieved by adding new sources of renewable power to the electricity network, whether on-site or linked directly to your premises. However, once you have reduced carbon emissions to the lowest possible level for your business, it may be necessary to sign up to carbon-compensation schemes to counter any residual emissions associated with your operations.

Combined approach is key to sustainable carbon reduction

It's likely that reaching zero carbon will require a combination of many or all of these measures. It's essential

to achieve the correct balance of options for your business, which requires the expertise of a specialist partner to review your entire operation and devise a strategy that works for you. It's crucial to ensure that all measures work in harmony and avoid conflicting actions in different parts of your organisation.

For example, a business could fulfil a percentage of its demand via a corporate PPA, supplemented by grid energy supplied via a green energy supply contract. On-site solar panels could directly supply another percentage of the company's energy needs, while a programme of energy-efficiency measures and smart building technology could help minimise overall energy consumption. Such a combined approach provides the most cost-efficient and sustainable way to tackle the challenges of achieving zero carbon.

Wakefield Council: accelerating the journey to zero-carbon

Having declared a climate emergency in its district, Wakefield Council appointed energy and services group, ENGIE, to help achieve its target of becoming carbon-neutral by 2030.

The council recognised that it needed to go further and faster than the UK's target of becoming net-zero for carbon emissions by 2050. Its ambitious target will involve broadening and accelerating its existing Energy Plan, which has already provided significant energy and emissions savings.

ENGIE is using its expertise in delivering the zero-carbon transition 'as a service' to develop a road map of projects for the council that will achieve carbon-neutrality within the stated timescales. The plan provides Wakefield Council with a comprehensive analysis of its current energy and carbon footprint, which is used to identify specific opportunities for decreasing energy use and emissions.

To date, ENGIE has completed or is currently delivering 35 energy and carbon-saving projects with Wakefield Council. These will reduce annual energy use by 3.5 million kWh, equating to more than 900 tonnes of CO2 and resulting in annual cost savings of nearly £300,000.

Author's profile:

Graham has over 20 years' experience in the energy sector, initially in numerous roles in ENGIE's Supply business, and after a 7 year spell in Paris optimising and trading the group's long term oil indexed gas contracts he has returned to the UK in 2018 to work in his current role.

Graham will discuss ENGIE and Wakefield Council's journey to carbon neutrality at EMEX on Thursday 28 November in the Sustainability and Climate Change theatre.

[1] A Call for Action: Climate Change as a Source of Financial Risk, April 2019. Network for Greening the Financial System.

by Dr GILLIAN BROWN
Energy Manager at University of Glasgow

What Really is 'SMART'?

The term 'smart' has been used within the energy industry for a number of years now and it is clear that the intentions of people to create a 'smart building' either through refurbishment or new construction are driven by the understanding that smart buildings provide their occupants with a better overall environment. As an added incentive, smart buildings and smart systems are being sold as having the ability to create significant energy savings compared to standard building systems. However, with the phrase 'smart' being used to describe so much in the industry at the moment, are the 'smart' things we purchase joining together to create the smart buildings we are aiming for, and therefore leading the sector to the energy reductions we expect? Or are we simply gaining more information streams which show us performance but in reality, don't reduce energy any further?

For a building to be 'smart' it should be developed upon intelligent concepts and intelligent systems. Intelligent buildings have been defined by many as buildings which have minimal human interaction and are responsive to the requirements of occupants, organisations and society. From an environmental position an intelligent building should be sustainable in terms of its energy and water consumption as well as producing minimal emissions and waste. An intelligent building should be healthy in terms of wellbeing for the people using it and able to provide appropriate environmental conditions as required by the building occupant. It could therefore be argued that to take a building from an intelligent building, one which reacts to its occupants' requirements to a smart one, there are three distinct aspects which have to be considered:

- **Longevity**, whereby a building must now have the ability to adapt to changes in usage over time, ensuring it is able to perform a required function throughout its lifespan.
- **Wellbeing**, a building must be able to provide comfort and satisfaction for its occupants. Building users require greater functionality and specific conditions and a building must be able to adapt to these increased requirements.
- **Energy Efficiency**, a building must utilise energy efficiently with minimal to no wastage.

A smart building therefore must have the ability to be able to adapt in response to information received from smart systems within and out with the building, but it should be able to adapt in the long term to account for local and global changes.

The intelligence of buildings has increased over time and buildings now have a number of systems which intelligently control the internal environment. The integration of Heating Ventilation and Air Conditioning (HVAC) control through a Building Management System (BMS) as an example, can provide a stream of data sources which allows the mechanical systems within the building to change the internal environment to suit desired parameters. These systems take information on temperature, CO2 levels, outside conditions and time parameters as a few examples, and utilise this data to ensure the internal environment matches what is set by the system user. Data from a BMS can also be collected and recorded to understand building performance and energy consumption over specifically determined time periods. Lighting control through either Passive Infrared sensor technology (PIRs) or a more complex lighting control system is not uncommon in most intelligent buildings. For many years these systems have developed better information gathering abilities taking a leap forward from simple on and off direct system control to

systems of a more programmable nature. Intelligent systems such as these provide building users with a level of automation and control over their internal environment. The ability of intelligent systems to reduce the energy consumed by a building has been well documented. A BMS can clearly reduce energy wastage by minimising energy consumption when the system is not required but, in addition, the control over energy using equipment has delivered clear savings in energy consumption.

With intelligent buildings developing over a number of years and having the ability to record more and more data streams from both the building and the building users, it could now be questioned if the integrated adaptability of a smart system to do more than what is already available through intelligent systems is any different from what we have purchased historically. When we now purchase something labelled as 'smart' is this simply a product's ability to create increased volumes of information which could, in theory, be used by other systems to produce the adaptable functions we require for a smart building?

There is no doubting that the information we can take from intelligent systems has increased over time therefore it could be argued that smart systems are not in fact 'smart' per say, but their smartness comes from their ability to share information. Smart buildings will over time be developed for different functions, from educational institutions to hospitals, office blocks to leisure centres, therefore the systems which are required to integrate are varied and vast.

The determining factor to achieve smart adaptability comes with the system ability to be truly and completely connected to other systems. Each smart system must be able to provide information in a way which can be used by others to allow that system to make adjustments. A clear flaw in this process is the relationship between the systems and the connectivity, which is expected, but in reality doesn't exist. An example of smart integration could be that a car drives up to a building carpark barrier, the security system undertakes number plate recognition and allows the car to enter. As the car is registered to a specific individual the security door is opened with this person's identification. The building management system brings on the heating to a low level as the weather is predicted to be warm in the near future. The lighting in the workspace already booked by this person is brought on at a dimmed level due to the lux levels received from outside. Finally, the renewable systems take information from the grid to determine whether it is more valuable to utilise the self-generation or to sell this back to the grid network. Technical machine language barriers aside, the key question for this evolution to take place in full is which system would take the controlling lead or is this an overarching system which sits above them all? There appears to be very few examples of smart systems which are willing to make adjustments based upon information gleaned from other smart systems as no system wants to fault based upon information feeds that it does not control or install.

> "HOWEVER, WITH THE PHRASE 'SMART' BEING USED TO DESCRIBE SO MUCH IN THE INDUSTRY AT THE MOMENT, ARE THE 'SMART' THINGS WE PURCHASE JOINING TOGETHER TO CREATE THE SMART BUILDINGS WE ARE AIMING FOR, AND THEREFORE LEADING THE SECTOR TO THE ENERGY REDUCTIONS WE EXPECT?"

For a building to be labelled as truly smart it has to adapt, but this adaptation shouldn't be restricted to instant changes needed by the building or its occupants, this adaptation must consider longer term changes which are required based upon external factors as well as internal ones. Within short term adaptability a building should be able to recognise space usage and alter the building's conditions to suit this usage pattern. For example, increased numbers of people in rooms leads to increased CO2 levels, therefore a building system should be able to recognise this issue and automatically increase ventilation when required to the space, without affecting other spaces nearby. The smart action here is that the systems recognise, through a room booking system, instances where this has the potential to be replicated and alter the room parameters, so the increased levels of CO2 are not reached in the future.

In the medium term, a smart building should be able to adapt to changes brought about by seasonal occupancy or temperature changes

> FIRSTLY, AND MOST IMPORTANTLY, WE SHOULD QUESTION WHAT MORE A 'SMART' SYSTEM CAN DO OVER AND ABOVE AN ALREADY INTELLIGENT ONE.

as well as prediction of routine usage. Examples of these patterns could be increased by numbers of building users during specific weekdays or recognition of traditional holiday periods where building usage would likely alter. The building should be able to utilise information from different systems and adjust the internal environment to account for these changes.

In the longer term, a smart building must develop the ability to adapt to more external global issues. The ability of a building to recognise the effects of climate change and the impact this has on a building or self-generation patterns due to a changing climate as examples is paramount to recognising a truly smart building. However, from research it would seem that there are very few examples of 'smart' technologies utilising information produced by other devices to manipulate their own systems in a building wide fashion to create a truly smart building.

The main question, connectivity aside, is does this save energy? The answer would obviously be based around each system's ability to react to the occupants' requirements in a connected way. Intelligent systems are clearly proven to make energy savings based upon reduction of usage. Smart systems and therefore smart buildings have a more complicated answer to a seemingly simple question. They do have the potential to make energy savings however, it would seem that smart buildings will need time to learn how a building operates before being able to make significant energy reductions. Medium term adaptation and beyond show more realistic opportunities to make energy savings through better understanding of building usage patterns, but also the data collected. Increased volumes of data allows for building learning and better opportunity to adapt to recurring situations.

Although this article does not provide an exact answer to the question of whether a smart building is more energy efficient, it does highlight a number of key areas which should be considered when the word 'smart' is used. Firstly, and most importantly, we should question what more a 'smart' system can do over and above an already intelligent one. If the answer is simply provision of more data streams, I would question the validity of the smart label. Secondly, the inherent point of a smart system is its ability to connect and inform other systems, this should be the key attribute in making it smart. If a so-called smart system is closed in anyway it would be unlikely to contribute to a smart and therefore adaptive building installation. Finally, it would appear that smart is not simply the installation of a piece of equipment, it is that system's ability to change and learn over time, therefore smart systems may not be smart straight away, but become smart as they learn more about the building and its occupants.

The development of smart systems and fully smart buildings is only the first step in the journey. The connection of smart grids to smart buildings leading to smart networks and smart cities is where there is real potential to better manage the grid output and carbon emissions to facilitate a national and global change to the impact that buildings have on the climate.

Author's profile:
Gillian is responsible and accountable for the optimisation of energy sources and active management of the energy consumption, within the context of the University's Energy Strategy. She has recently completed MSc in Carbon and Energy Management and her current field of research for her PhD is based around the development of positive energy campus estates.

Gillian will chair a panel discussion on the topic of 'smart' buildings in the Strategy, Regulation and Compliance theatre at EMEX on Wednesday 27 November at 13:00-13:40.

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WHAT’S IN THE WHITEPAPER?

Authored by **Darren Silverthorn, National Controls and Metering Specialist at Spirax Sarco,** the new guide aims to support operational management teams by highlighting areas for improvement that could be made to enhance efficiency and reduce the money spent paying for energy.

WHO IS THE WHITE PAPER FOR?

This guide aims to help energy, maintenance and plant operators to help themselves by providing them with the areas they could improve upon to boost boilerhouse efficiency, reduce operating costs and make tomorrow a more efficient, cost-effective day.

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EXPERTISE | SOLUTIONS | SUSTAINABILITY

by LORD RUPERT REDESDALE
Chief Executive at The Energy Managers Association

Battery Storage: A profit centre with no cost

Imagine a world where your site has storage assets, mainly batteries, installed at no cost to you and the installers pay you, whilst reducing your energy costs at the same time. This sounds like a dodgy sales pitch with hidden catches but is not. The final part of this article even sets how you might be paid to charge your batteries. This market is about to be opened up and revolves around Demand Reduction (DR).

DR will be a vital component of the operation of the grid as it moves forward into a renewables-based world. DR works well if storage is utilised but unlocking the value chain has been as elusive as the Holy Grail. The key is the introduction of a humble new meter that will create a whole new energy trading marketplace based on grid levelling services.

The new meter class P375 will measure the charge and discharge of batteries or other storage assets independently of the MPAN. This simple function of measuring DR will allow the DR from almost any site be traded with the District Network Operators (DNOs) or District Service Operators (DSOs). The significance of P375 is that it moves DR from behind the fiscal meter (MPAN) and creates a market where DR can be traded independently of the supplier.

DNOs already pay for DR; however, the present contracts are limited. P375 will allow any site from domestic houses through to the largest industrial sites to measure and trade DR. The prices paid for DR at peak times could be significant. Reduction of demand from the grid, rather than export to the grid, will be a key element of the value chain, as it will help DNOs avoid upgrade and reinforcement costs.

The grid is facing a bill that will run into billions of pounds to maintain the present system capacity and stop it falling over in the future. Paying for DR rather than upgrade will be a low cost, low carbon solution that will increase resilience. One of the major benefits of using storage and DR is that it will allow companies, and homeowners to use power when they want to.

DR as a grid levelling service has huge benefits; however, the stumbling block to roll out has been the limited tools the DNOs have to pay for this benefit. The advent of P375 means that any load shifting through storage that a site undertakes can be measured, not only for amount but at what time periods DR takes place.

DNOs will through P375 create contracts for specified amounts of DR and dictate when that DR is required. Storage owners or aggregators could then bid to meet the contract. DNOs could pay higher market prices in constrained areas and pay a premium to attract installation of batteries in particularly stressed areas such as Cambridge. However, sites next to Hinkley Point B that are not in a constrained area will not be as attractive.
DR will become a tradable asset; however, most sites will not have the ability or knowledge to trade directly with the DNO and therefore will trade through an aggregator.

Aggregators will want to build a portfolio to include as many sites as possible to meet the DNOs' contracts. The more sites that provide DR, the more the contracts will hit significant grid levelling capability, which will increase the value to the DNO. Sites that can load shift, charging the batteries off peak, or when there is excess load on the grid, and using the power to reduce its demand during peak periods will be sitting on an asset rather than the present liability.

Your company could reduce the amount it pays at peak load periods as the batteries discharge, through displacing import, whilst at the same time being paid for the paid DR. This is where the no cost comes into play. The cost of battery ownership has through CAPEX and risk made the purchase of batteries unattractive.

This will cease to be an issue as the aggregators under the contract model, will install the batteries at your sites. The aggregators themselves could lease the batteries off finance houses, who will own the batteries and lease them as an asset class.

The issuing of contracts by the DNOs/DSOs will rely on agreement that these contracts can be entered into by Ofgem. Considering these contracts would meet all the Government's stated targets around DR and storage, this should happen next year, after which the value of the contracts can be calculated.

Unlike other Demand Side Response (DSR) models, this solution does not require turn down at peak, and therefore companies will not have to change their operational use of electricity. A safeguard is that if for any reason the batteries failed, the site would revert automatically to the grid.

In the new market understanding the value of the DR you can trade will be essential in agreeing to contracts. This market will develop on a competitive basis so shopping around rather than signing with the first entrants, may pay dividends.

> "DR AS A GRID LEVELLING SERVICE HAS HUGE BENEFITS; HOWEVER, THE STUMBLING BLOCK TO ROLL OUT HAS BEEN THE LIMITED TOOLS THE DNOS HAVE TO PAY FOR THIS BENEFIT."

One point that needs to be raised is that batteries do not generate power themselves; this sounds ridiculous, but many Boards will forget this small detail. Charging the batteries at the right time will be key in the profit made.

The final point mentioned in the first paragraph is that charging could earn money. This sounds illogical; however, as the grid transitions over to wind and solar, times of oversupply might become an issue. When there is too much power on the grid from either wind during a storm, or solar at midday, rather than wasting the power, battery operators could be paid to charge in these periods.

Next year, the economics of storage are set to change, it's time to look at installing your new P375 meter.

The topic of battery storage will be discussed at EMEX on both days; on Wednesday 27 November at 14:30-15:00 in the Strategy, Regulation and Compliance theatre and Thursday 28 November at 10:40 – 11:20 in the Built Environment, Technology and Innovation theatre.

THE CAREER INTERVIEW

Career in Energy Management

The Energy Managers Association aims to encourage and enable more professionals to enter the world of energy management and environmental roles. Being an energy manager may not seem like the most obvious career for many. The EMA has taken on a challenge of changing the perception of energy management, by raising the sector's profile and sharing its members' – leading energy managers – insights into their career progress and achievements. In this issue, we have asked Ashley O'Neill, the Senior Energy and Compliance Manager at Hilton, about her career in energy management.

> "THE MOST EXCITING PART OF MY JOB IS WITHOUT A DOUBT WORKING WITH A FANTASTIC TEAM OF LIKE MINDED INDIVIDUALS ALL FOCUSED ON ACHIEVING OUR GOALS TO REDUCE ENERGY, WATER AND CARBON."

What made you choose energy management as a career?

At University, I studied Meteorology and Climate Science, which stemmed from a passion for the Environment and Climate as well as a love for Maths! During my degree, I developed a huge interest in Energy, particularly its relationship with Climate Change. This led me to undertaking an internship at the Department of Energy and Climate Change – it was then I knew that the Energy Industry was where I wanted to begin my career. Four years ago, after I graduated, I was delighted to obtain an entry level role at Hilton as Energy Analyst. The role provided everything I was looking for, combining my passion for data analytics with my interest in energy management perfectly. Working for a large company like Hilton means the work we do can have a huge impact, which is a definite highlight for me.

What does your role at your organisation entail?

Sitting within the Engineering Department for Europe, Middle East and Africa, I am responsible for energy procurement and contracting for hotels across the region – covering over 250 hotels in over 50 counties. Within this, I carry out performance tracking, forecasting, budget and target setting for both utility consumption and costs. It's essential that we focus on reducing our environmental impact, whilst delivering value for our owners. I'm also responsible for managing environmental compliance, legislation and reporting for the group.

What is the most exciting part of your job?

The most exciting part of my job is without a doubt working with a fantastic team of like minded individuals all focused on achieving our goals to reduce energy, water and carbon whilst delivering exceptional guest experience and value for our owners.

There is a real family feel within both my team and at Hilton as an organisation. Each day I am inspired by those around me – creating a caring culture where we can thrive together.

What is your biggest achievement to date?

One of my biggest acheivements has to be the quick progression I've had within Hilton from Energy Analyst to

Senior Energy & Compliance Manager in under 4 years, but I'm also particularly proud of some of the external recognition I've received within the industry.

At the EMEX 2018 event, I was thrilled to have the opportunity to join the panel discussion on Empowering Women in Energy. The Energy Management industry can often feel very male dominated and something I'm extremely passionate about is empowering others and encouraging more women to join the industry.

I'm also a part of the edie 30 under 30 group for 2019, which allows me to bring an energy management and engineering perspective to the group and highlight the importance of diversity in our sector.

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

Since my role is much more analytical than hands-on Energy Management, for me the most exciting project I've worked on is developing a dynamic and functional Excel Reporting Tool. We use this to forecast hotel utility costs and consumption, and share it with our finance teams on a monthly basis. This involves collating data from numerous sources; financial plan, hotel level forecasts, market costs, invoices, as well as projected and half-hourly actual consumption across more than 60 hotels.

This report is now in it's 3rd year and developing in both features and accuracy on an ongoing basis. From this I've also had the responsibility of compiling utility budgeting advisories for our hotels across EMEA.

> "FOR ME, I'VE SEEN SO MUCH CHANGE IN THE INDUSTRY IN A VERY SHORT SPACE OF TIME WITH CLIMATE CHANGE AND ENVIRONMENTAL ISSUES NOW SUCH A FOCUS IN EVERY DAY LIFE AND BUSINESSES BECOMING MORE AWARE AND ENGAGED IN THE IMPACT THEY CAN HAVE."

What is the most frustrating part of your job?

Working in such a large organisation, it would probably be the time it can take to get from idea to implementation. However, this is due to the preparation required to ensure that any ideas are well thought through so that roll out can be consistent across multiple locations. This means that when an idea is implemented, the ripple effect and impact we can have is significant.

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

For me, I've seen so much change in the industry in a very short space of time with climate change and environmental issues now such a focus in every day life and businesses becoming more aware and engaged in the impact they can have. Hilton is the first major hotel company to institute science-based targets, pledging to cut its environmental footprint in half by 2030 by reducing Scope 1 and Scope 2 carbon intensity by 61%. While we have made good progress to date, in order to achieve this, we need everyone to be on board.

In Hilton's first 100 years, nearly 10 million Team Members have welcomed more than 3 billion guests, therefore the one thing I would focus on would be getting everyone to be an ambassador of achieving our goals. That way, we can make our impact as significant as possible.

What is the best approach to attract women into energy management sector?

As I've mentioned, this is something I'm really passionate about and I believe it's important to share our success stories and become role models, not just to those interested in energy management already, but to those who haven't thought about this as a career option. For those people, hearing our stories might spark an interest in pursuing this path, and that's where we can make a real difference.

At Hilton, we celebrate International Women in Engineering Day every year to engage our female team members to be proud of their achievements.

This is important not just for women but also to encourage young people to explore a career in the energy management sector. Exploring opportunities to engage with students either through school and university outreach or offering work experience and internships can also have a really positive impact.

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

If you're looking for a career that's varied, challenging, exciting and gives you the opportunity to make a difference then energy management is for you! Bring your passion, ideas and willingness to learn and the role can really be what you make of it. From Engineering to Sustainability issues and from Energy Data Analytics and Environmental Compliance – it's a growing industry that requires enthusiasm, the confidence to ask questions and strong transferable skills such as decision making, communication and problem-solving.

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

It has to be that climate change is a myth and not human induced!

What are your long-term motivations?

As mentioned, Hilton recently set bold targets to reduce its energy consumption. I believe that as an industry we need to collaborate even more, sharing best practice and setting challenging targets to make a difference and reduce our collective environmental impact. There's so much more we can learn from each other and I'm motivated by the opportunity we have to make a difference. My long-term motivation is to be a change maker, working with others to create innovative solutions and strategies to deliver these targets at Hilton.

It's down to us to pave the way for positive change and set an example for others and that's what makes this career so exciting in the long term.

THE EMA RECOGNISED ENERGY MANAGER

Professional status awarded for successfully demonstrating the knowledge and skills in energy management.

Does the EMA Recognised Energy Manager status highlight your credentials as an energy manager?

JOEL KIRBY

"Absolutely, and this is one of the main reasons I wanted to become a Recognised Energy Manager. I would like to think that this also helps me to demonstrate competency to key members of staff within my workplace. It has not been long since I got the status, but it has helped from a confidence point of view if nothing else, knowing that your knowledge has been validated and that you do know what you are talking about."

PAUL GRAHAM

"Yes. It demonstrates a level of competency and knowledge which I have used to assure my organisation of my abilities."

CHARLIE COX

"It is nice to have the official endorsement of the EMA, and I am sure that it will increase my profile both inside and outside of my organisation. My natural position is to think that it shouldn't matter what qualifications or recognition someone has, as long as they do a good job. However, in reality it is essential for an energy manager to be seen as credible by a broad spectrum of colleagues, in order to garner support for the important work that they do."

DEWI DAY

"I believe that an energy management training programme like this is an important aspect of my career development and has helped broaden my skillset. I have learnt a great deal from the modules that I completed as part of this programme as well as other professional training courses. Shortly after gaining the EMA Recognised Energy Manager status, I was recognised as a star performer in my department at QinetiQ. I also believe that having a recognised energy management qualification can strengthen a CV and help future career progression."

ema energy managers association

Rewarding Energy Management Knowledge and Skills

Visit www.theema.org.uk for more information

Learn What You Didn't Even Know You Didn't Know

Sometimes, the process of managing the energy can get overwhelming. There is so much to tackle when it comes to energy management, so much to learn to do it right and, frequently, not enough time to devote to really diving in. When you get in a situation where you feel that expanding your knowledge is the way forward, it can help to turn to some outside inspiration. Explore the EMA training courses and be inspired by energy management professionals who develop and deliver them, and by other participants sharing their ideas and experiences.

Fundamentals of Energy Management (2-day training course = 10 CPD hours)

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

The course will help you to:

- Understand global view of energy consumption and its impact
- Define what energy management means for its practitioners and their organisations and /or clients
- Understand basic energy management practices
- Understand technical concepts of energy use
- Identify technical and non-technical responsibilities of energy management practitioners
- Understand basic monitoring and targeting principle
- Gain understanding of energy auditing
- Understand legislative compliance related to energy management
- Grasp waste and water management basics
- Gain energy procurement overview
- Understand relationship between all EMA Energy Management in Practice training courses

Energy Management in Building Services (2-day training course = 10 CPD hours)

Energy in buildings is consumed in a large variety of ways and on many different processes and types of equipment. This course is designed to introduce 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) is also 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.

The course will help you to:

- Identify the types of energy used in buildings and how electricity may be conditioned
- Understand heating systems
- Understand cooling systems
- Understand domestic hot water
- Understand air handling and conditioning systems

- Understand lighting
- Review control systems for building equipment
- Understand renewable and low carbon generation systems producing heat and power such as solar and CHP
- Relate to how maintenance can impact energy management
- Identify and understand main applicable legislation such as MEES

SECR Compliance (1-day training course = 5 CPD hours)

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

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

The course will help you to:

- Understand basic concepts contained within SECR
- Examine the scope of the regulations
- Identify data collection methods for energy, gas, and transport
- Understand the creation and use of intensity metrics
- Describe the stated methodology used
- Define and scope energy efficiency principal measures
- Compile the report for auditors, Board of Directors, and Companies House.

Monitoring, Targeting and Validation (1-day training course = 5 CPD hours)

This course introduces principles of monitoring, targeting and validating energy consumption. It is aimed at those needing an understanding of methods of gathering, using and interpreting data, as well as a range of available measurement technologies. The course is designed to give guidance on creating value and setting energy baselines and benchmarking, validating energy savings and ultimately using M&T to sustain energy savings.

The course will help you to:

- Define what monitoring, targeting and validating energy consumption mean
- Identify methods of gathering, using and interpreting data
- Understand a range of measurement technologies available
- Interpret data and create value
- Develop energy baselines and benchmarking
- Validate energy savings
- Use M&T to sustain energy savings.

Understanding and Delivering Behavioural Change Programme (1-day training course = 5 CPD hours)

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

The course will help you to:

- Understand why people behave the way they do, why people behave differently?
- Grasp the psychology of persuasion, just how are we going to change people's behaviours?
- Identify the potential audience for change, who's going to make the biggest impact? Who will be your key allies?
- Identify your different options for a behavioural change programme
- Prepare a business case using tangible and intangible elements
- Gain approval to your proposal
- Plan how to make it happen, the key elements of delivering the programme
- Make sure that you are able to measure the success and report effectively on this
- Identify 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 = 5 CPD hours)

This course offers an overview of the key steps in developing an energy management strategy as part of organisational energy management practices. The key drivers and various approaches to setting the strategy are examined during the course. 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 are also taken into consideration.

The course will help you to:

- Understand the key strategy drivers
- Review organisation's energy use and requirements for its improvement
- Identify how to gain a stakeholder commitment and build business case
- Set targets, identify opportunities for improvement and setting an action plan
- Plan the implementation of the opportunities, report on the outcomes and review the strategy

Waste Management (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 KPIs, 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.

The course will help you to:

- Understand the benefits of managing waste effectively
- Identify the key components of current waste legislation in the UK
- Understand what happens to waste when sent for disposal
- Formulate how to carry out a waste audit to help identify improvement opportunities
- Recognised how to set suitable waste targets that are SMART
- Measure, monitor and report waste data

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

This course guides participants through the essential procurement processes for electricity and gas in the UK. It describes how the electricity and gas industries are structured, and how this impacts 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 also explains the types of energy contracts that are available and the simple procurement processes that can be used by energy buyers. The course also includes information about how third party intermediaries (TPI) work, how to get the best out of them, reveals how they get paid and how to minimise their cost.

The course will help you to:

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

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

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

The course describes how water is metered and monitored and how to analyse consumption. It gives participants advice on carrying out a basic water audit, identifying likely areas of consumption and techniques that may allow reductions in water 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.

The course will help you to:

- Understand the UK water industry structures
- Understand what makes up a water bill
- Understand the opening of the English water market to retail competition
- Review water metering and monitoring systems
- Identify basic techniques on how to undertake a water audit and what can be done to reduce water consumption
- Relate water to energy consumption
- Identify techniques to change behaviour to reduce water consumption.

Lighting – Basic Understanding (1-day training course = 5 CPD hours)

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

The course will help you to:

- Understand basic measurements for lighting output and efficacy to help participants gain knowledge and be able to engage with lighting companies/supplier
- Identify and understand the common types of lighting currently found in the UK, their general uses and basic, pros and cons
- Understand the basic process for new lighting installations and upgrades with pictorial examples
- Understand basics of lighting design using free software to help participants be able to understand what information lighting companies may present them with
- Identify basic lighting control systems that can increase energy efficiency while maintaining required light levels and safe environments

Essential HVAC Control and Optimisation (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 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 also includes 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

The course will help you to:

- Understand the operation and energy use of the main types of HVAC
- Identify the standard control philosophies which tend to be used for the equipment
- Understand potential optimisation methods to reduce energy cost of HVAC and improve its performance
- Identify where to install variable speed drives on HVAC and optimise their use
- Control HVAC through systems such as a BMS
- Gain a basic understanding of biomass boiler use and heat pumps

BMS Essentials, Monitoring and Optimisation (1-day training course = 5 CPD hours)

The aim of the building management system (BMS) is to guarantee the safety of buildings operation, while also monitoring and optimising the use and efficiency of the building's electrical and mechanical equipment such as power system, lighting, and HVAC to assure efficiency. This course focuses on the essential aspects of BMS: what it is for, its suitability and integration, how to monitor its performance, how to optimise its functionality, how to build a business case for BMS.

The course will help you to:
- Understand what the BMS is and what it does
- Describe the below listed examples of the major subsystems controlled by the BMS and explain their integration:
  - HVAC
  - Central Fume Collection, Dust Collection System, Central Vacuum System, Heat blowers
  - Steam systems
  - Hot Water System and Central Heating
  - Chilled Water System
  - Sprinkles System
  - Electrical Monitoring System
- Identify how to make the most of your already installed system
- Apply structured approach to designing a strategy to drive all changes associated with BMS
- Draw connections between different types of stakeholders when integrating the system into the facility
- Construct a business case for BMS.

On-site Electricity Generation (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.

The course will help you to:
- Define the main technologies used for on-site electricity generation
- Identify the correct technology for deployment in a building
- Understand how to size the generation technology required
- Assess how and where to connect the generation technology
- Evaluate the financial incentives and returns available for each technology
- Recognise what may prevent on-site generation from being deployed
- Understand the process of dealing with DNOs to gain permission for generation and the possibility of exporting to the grid

Battery Storage for Business (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.

The course will help you to:
- Understand how battery storage systems work and can be integrated into buildings
- Be able to identify whether battery storage is suitable for your use and would be allowed
- Be able to perform a risk and mitigation analysis
- Be able to review your electrical system, usage, charging and discharging cycles, current energy contract and define your objectives and targets
- Be able to use tools to review the cost modelling for battery storage and establish what variables may affect viability at your 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 also covers:

- Sources of data
- What is data commonly used for, what else could it be used for
- How will you use your data within your organisation
- 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

The course will help you to:

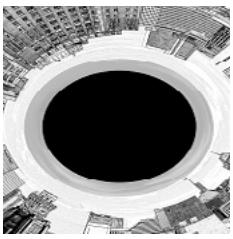
- ✔ Make the best use of your existing data, turning it into deliverable savings
- ✔ Assess what additional data will genuinely help in achieving better results and how would you go about delivering this

Energy Auditing Techniques (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.

The course will help you to:

- ✔ Understand the basic process for energy auditing
- ✔ Prepare and conduct an energy audit
- ✔ Scope and interpret site data before an audit commences
- ✔ Grasp auditing techniques that 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
- ✔ Identify appropriate control systems
- ✔ Gain understanding of basic reporting techniques
- ✔ Undertake basic calculation of savings and return on investment



Regulatory and Legal Compliance and Carbon Management (1-day training course = 5 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.

The course will help you to:

- ✔ Identify the key EU directives and UK legislation relevant to energy management and climate change
- ✔ Understand key economic incentives
- ✔ Interpret impact of legislation on company operations
- ✔ Identify sources of up-to-date and accurate information
- ✔ Define the difference in boundaries of simple carbon footprints.

For more information about the EMA training courses, up-to-date schedule, fees and in-house delivery, please contact jana.skodlova@theema.org.uk, visit www.theema.org.uk or call +44 (0) 203 1762834. You can also talk to Jana on the EMA stand in the EMA Networking Area on 27-28 November 2019 at EMEX.

by GORDON WALKER
Environmental Manager at Northern Powergrid

Managing Hazardous Waste Competence

Changing focus

Waste is quite an emotive subject at present, ably assisted by the recent spate of publicity and programmes depicting plastics (amongst other things) floating in the oceans and wreaking havoc with biodiversity.

That said there are a number of us stalwarts who have been managing our waste operations in relative silence for many years with the subject of waste and its management tending to be the often forgotten portion of the Safety, Health and Environment world.

Given this surge of interest we are no longer seemingly consigned (pardon the pun) to a small corner of the office or left to our own devices. There is now an active interest in what we actually do and how we go about doing it. We are now firmly in the limelight and we should take the opportunity to shine while we can.

But whilst there is a newfound focus on waste activities, and in particular where waste ends up, it has been a steady path of similarity for most of us in the industry who continue to manage our (or others) waste activities.

Managing waste

Waste can take many forms and can often be rather complex and difficult to manage. Where an organisation produces or handles hazardous waste, more stringent rules apply and an organisation must ensure their hazardous waste causes no harm or damage. Waste is generally considered hazardous if it is harmful to humans or the environment and an organisation must segregate items of waste of differing types – i.e. don't mix hazardous waste with non-hazardous waste or mix different categories of hazardous waste with each other[1].

If an organisation uses, recycles, treats, stores or disposes of waste they may well need to have an environmental permit issued by their regulatory body and will need to fulfil specific criteria both to apply for, and keep that environmental permit. For example, an organisation must be the legal operator of the facility (this will include such things as having day-to-day control of the facility and making sure permit conditions are complied with) and they must be considered to be a competent operator by the regulatory body governing the permit.

Technical competence

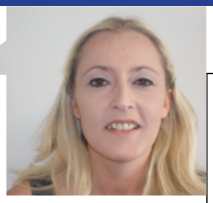
The operation of a waste activity will not only require an environmental permit but the organisation will also be required to have appropriately qualified staff to manage the waste activities and they must be members of a government approved technical competency scheme.

Depending on the scheme this may require keeping records of the operating hours and ensuring the qualified manager is on site (in person) for specified amounts of time per week. There are currently two government approved schemes[2]:

- The scheme run jointly by the Chartered Institution of Wastes Management (CIWM) and Waste Management Industry Training and Advisory Board (WAMITAB).
- The scheme run jointly by the Energy & Utility Sector Skills Council (EU Skills) and the Environmental Services Association (ESA) – commonly known as Competence Management System (CMS).

Each scheme operates in a different way. The CIWM and WAMITAB scheme requires managers to work towards gaining the scheme's qualifications and you need to pass a continuing

by CLAIR DIXON
Environmental Specialist at Northern Powergrid



competency assessment every 2 years. The EU Skills scheme considers the competence of an organisation as a whole and to join this scheme an organisation must have a competence management system in place certified by one of the scheme's approval bodies.

The requirements to record the operating hours of your waste facility and how much time your technically competent manager is on site apply if you are a member of the CIWM and WAMITAB scheme, however they do not apply if you are a member of the EU Skills scheme.

One size doesn't fit all

It may come as a surprise, but the complex nature of waste is further compounded by having to determine which technical competence scheme works for your organisation, as they are very different.

CIWM and WAMITAB
The type of waste activity an organisation operates and its associated risk will drive the type of permit required. This, along with the operating hours of the site itself, can affect the qualifications required and the number of hours a competent manager is required to physically be on site if you use (or intend to use) the CIWM and WAMITAB scheme. If the waste activity is spread across a number of sites then the organisation could require several technically competent managers (TCM) to manage their waste activities. That said, the CIWM and WAMITAB scheme is completely independent of an organisation and its specific activities and as such is transferable to other waste facilities run by the organisation or to other organisations altogether.

There are varying levels of technical competence under this scheme based on the level of risk and type of waste facility being operated, but it is much more wide ranging than just managing waste. For example, the WAMITAB Level 4 – High Risk Operator Competence for Managing Transfer of Hazardous Waste – training typically includes maintaining health and safety, managing the impact of the work activities, organising transport of loads, managing the delivery & storage of wastes, controlling maintenance and other engineering operations, procedural compliance and maintaining systems for responding to emergencies.

EU Skills
The EU Skills scheme enables operators to demonstrate technical competence of their permitted activities themselves. The scheme is based on the recognition that individual competence contributes to the overall performance of a site rather than having reliance on specific trained individuals.

> "IF AN ORGANISATION USES, RECYCLES, TREATS, STORES OR DISPOSES OF WASTE THEY MAY WELL NEED TO HAVE AN ENVIRONMENTAL PERMIT ISSUED BY THEIR REGULATORY BODY AND WILL NEED TO FULFIL SPECIFIC CRITERIA BOTH TO APPLY FOR, AND KEEP THAT ENVIRONMENTAL PERMIT."

In order to demonstrate your organisation operates responsibly you have to demonstrate you have processes in place to manage your waste activities. Training is of course required, but rather than being wide-ranging and general it is bespoke to your organisational activities and tailored towards an individual's role - it also doesn't require a formal qualification.

As technical competence is based on individual contribution it tends to promote wider staff awareness of environmental issues, knowledge of permit conditions and increased awareness of emergency requirements. It also helps identify employee skills gaps and assists in creating standardisation if the operation spans several sites.

What size fits me?

Which scheme an organisation should use is entirely their own choice and will be driven by such factors as the mechanics of internal operations, where waste fits in the organisation (its relative importance – likely to be based on risk factors), the type of waste activities undertaken, number of locations involved (and distance between them), scale of activity and how the organisation intends to manage legal and permit compliance.

At Northern Powergrid, we migrated from the CIWM and WAMITAB scheme to the EU Skills CMS scheme. Not because we necessarily wanted to but due to external drivers altering our operational and compliance requirements.

Northern Powergrid is responsible for the distribution network that delivers electricity to some 3.9 million homes and businesses across the North East, Yorkshire and Northern Lincolnshire. To deliver the electricity we have to undertake work on our assets which can generate thousands of tonnes of waste including items such as asbestos, batteries, oil, plant & equipment, paper, food, wood, and spoil.

We operate around 30 separate facilities many of which include hazardous waste bulk storage areas. Up until recently though, we only required two bespoke waste permits which were adequately managed via an outsourced WAMITAB trained competent person, which had been our operating model for many years.

The introduction of the Waste Framework Directive (and in particular the application and interpretation of the term 'discard') set out a number of situations where permits and consignment documents would be required. These included:

- Sites used to store used insulating oil prior to reprocessing;
- Sites used to reprocess the oil as

well as mobile reprocessing plant;
- All transport movements of used insulating oil;
- Registering of substations consigning more than 500kg of oil per annum.

Whilst the requirement to register substations consigning more than 500kg of oil per annum was removed with the repeal of RPS 025 in April 2016, the requirement to consign used insulating oil and permit facilities that are used for bulk storage of such oil still stands.

This significantly altered the way the electricity distribution network operators managed their oil operations, and in particular in relation to the number and type of environmental permits required for their numerous and widespread facilities.

The issue of consignment notes aside, the industry was now faced with the requirement to hold environmental permits for bulk storage of oil and oil-filled transformers. For Northern Powergrid that has meant us migrating from 2 bespoke environmental permits, which covered our operating area of Yorkshire, Northern Lincolnshire and the North East of England, to 7 permitted sites and numerous exemptions to store lower quantities.

As we journeyed to this new way of working we continued with our management of the permitted sites via the use of a WAMITAB trained competent manager. As the number of sites grew so did our requirement for additional competent managers – more sites means more time on site overall so eventually the requirement for one technically competent manager grew to several as there are only so many hours in a week.

At this point it was abundantly clear that we would require a more robust approach to meeting our expanding waste needs than just to contract-in another trained competent manager when needed. We needed a more robust and enduring solution and there were many internal debates on whether to train internal staff or continue to contract the service provision or even to alter our operations.

We decided it would be preferable to remove the reliance on one individual per site and adapt a more holistic approach including the education of a large proportion of our operational staff.
For us the EU Skills Competence Management System scheme provided a mechanism to build internal resilience to future changes and waste permit expansion by using our own trained and competent staff. The added benefit for us was all our staff involved in hazardous waste activities received enhanced and updated training on waste management, completing consignment notes, permit conditions and achieving compliance.

The EU Skills Scheme was adopted by Northern Powergrid and it was embedded across the organisation as we started to own technical competence. In August 2018, we became certified to the EU Skills Competence Management System Scheme and continue to be the only UK electricity distribution network operator to be certified to the scheme.

Authors' profile:
Gordon and Clair are Northern Powergrid's Environment Team overseeing all aspects of legal compliance, pollution prevention and continual improvement. They manage a diverse and wide-ranging portfolio including management of incidents and pollution control activities, waste reduction & recycling, energy use and carbon footprint.

Gordon Walker will be presenting on the topic of organisational waste management in the Strategy, Regulation and Compliance theatre at EMEX on Wednesday 27 November at 13:50 – 14:20.

[1]An environmental permit can be obtained for mixing waste if you can demonstrate that the mixing of these wastes is the best available technique.
[2]Schemes approved by the Environment Agency for permits issued in England.
[3]Environment Agency regulatory position statement RPS 025 - Premises notification for the Hazardous Waste Regulations.

EMA ENERGY MANAGEMENT TRAINING SCHEDULE

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2019	DEC	11TH	SECR Compliance
2020	JAN	21ST	SECR Compliance
		23RD	Become an ESOS Lead Assessor
	MAR	5-6TH	Fundamentals of Energy Management
		12TH	Lighting – Basic Understanding
		19TH	Energy Procurement
		24TH	Battery Storage for Business
	APR	2-3RD	Energy Management in Building Services
		28TH	On-site Electricity Generation
		30TH	Monitoring, Targeting and Validation
	MAY	14TH	Essential HVAC Control and Optimisation
		19TH	BMS Essentials, Monitoring and Optimisation NEW
		19TH	Turning Data into Energy Savings
	JUNE	2ND	Waste Management
		3RD	Energy Auditing Techniques
		4TH	Understanding and Delivering Behavioural Change Programme

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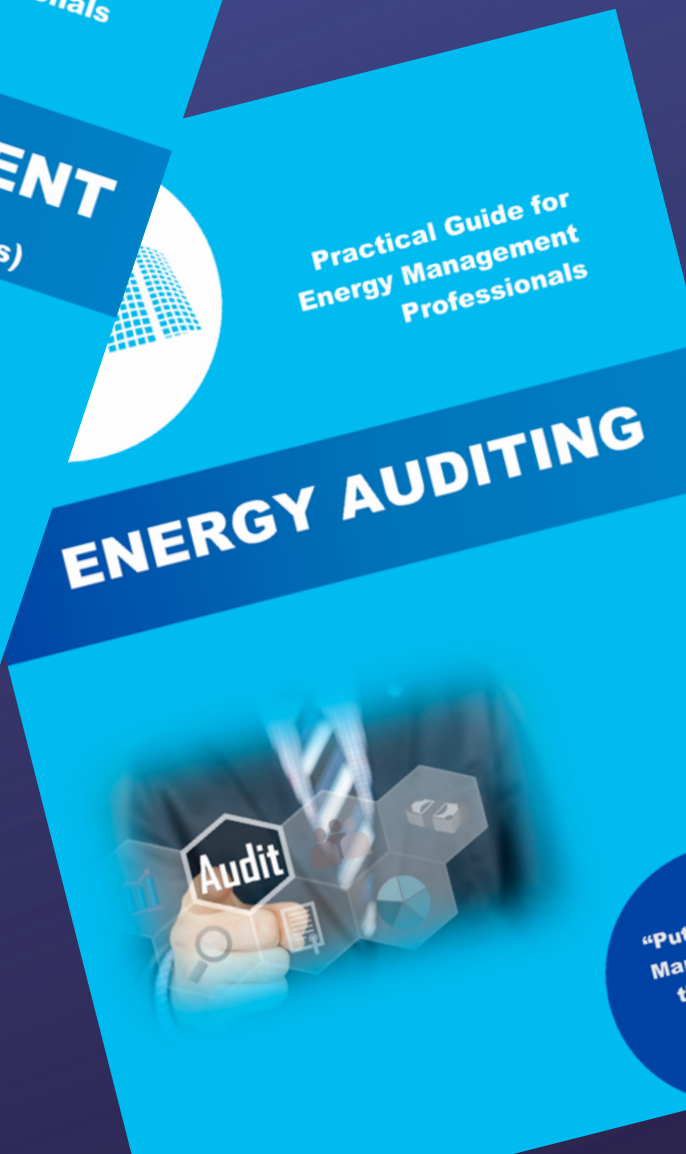

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by STEVE HUGHES
Digital Lead – Motion, ABB Ltd

Choosing the Right Type of Electric Motor Can Improve Energy Savings

Not all low voltage motors are the same. With a wide range of different motor technologies on the market, each with their own strengths and weaknesses, choosing the most appropriate motor type for an application can pay strong dividends over the course of the motor's lifetime.

The four most widely used types of motor are:
- Induction motors
- Permanent magnet motors
- Synchronous reluctance motors (SynRM)
- Electronically commutated motors (ECM)

Each technology achieves the same end - generates torque - but via a different method. The most efficient and cost-effective motor type will depend on the individual application, considering factors such as application type, required running speed, available space and integration with other equipment and systems within a facility.

Induction motors

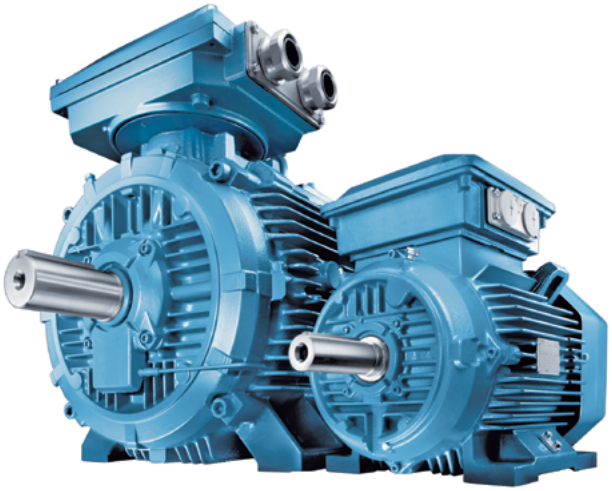
Induction motors are the most commonly used industrial motors. This type of motor has been around for many decades, and as such they are a tried and trusted technology with which many engineers will already be familiar. The fact that they are so widely used means that spare motors and parts are often readily available and are relatively easy to maintain and rewind. They have a wide power range, speeds and mounting arrangements that make them suitable for almost all industrial applications.

Energy efficiency of induction motors has substantially improved in recent years with IE3 now the industry standard within Europe, and IE4 variants also increasingly entering the market. However, induction motors, particularly at lower power ranges, cannot always match the extremely high efficiency levels that other motor types are capable of.

Permanent magnet motors

Permanent magnet motors can achieve very high energy efficiency levels in most industrial applications, although the power range covered by this motor type can vary between manufacturers. The permanent magnets used in the motors reduce rotor losses thus increasing efficiency, while facilitating a more compact design compared to induction motors, with high torque density, less weight and lower heat losses. Permanent magnet motors must be used with a variable speed drive (VSD), although this is already strongly recommended for many motor-driven applications.

One downside to permanent magnet motors is the purchase cost, although this can be mitigated up to a point by efficiency savings over time. The requirement for rare-earth permanent magnet materials means that such motors can be much higher than the price of an equivalent induction motor. Permanent magnet motors are also significantly more difficult to maintain and repair due to the magnets used in their production and as such should only be undertaken by competent repair personnel.



Induction motors are the most commonly used industrial motors, but they are by no means the only option available

Energy efficiency of induction motors has substantially improved in recent years but, at lower power ranges, they cannot always match the extreme efficiency levels that other motor types are capable of

Synchronous reluctance motors (SynRM)

The concept of synchronous reluctance (SynRM) has been around for nearly a century, yet it is only in recent decades that the technology has evolved to become commercially viable in electric motors. Compared to both equivalent induction and permanent magnet motors SynRMs can deliver superior efficiency levels up to IE5. This is made possible with the use of a special cageless rotor which removes traditional rotor losses, while also producing less heat and increasing operational lifecycle. As with permanent magnet motors the SynRM motors must be used with a VSD.

There are relatively few downsides to SynRM, and whilst they are particularly well suited to quadratic torque applications like pumps and fans, constant torque applications such as conveyors can also be considered.

Electronically commutated motors (ECM)

These are brushless DC motors that use a built-in inverter and magnetic rotor. They can achieve greater efficiency levels for fans compared to other AC motors, making them a particularly good fit for, and are often used on, HVAC applications. Rather than traditional configurations which comprise a separate motor and VSD, ECMs are an integrated standalone package, which can make them very quick to install with only one connection required. Whilst ECMs typically have a long life, they are very difficult to repair, and so often in the event of a failure will typically need to be fully replaced.

ECMs also have some other technical drawbacks: they cannot ride through power dip situations, cannot catch a spinning load, have limited speed/power duties and can generate large amounts of harmonic distortion, particularly at higher frequencies.

What does the future hold for motors?

Motor manufacturers will no doubt continue to make incremental improvements to performance, efficiency and reliability levels across all four motor types. However, the arrival of smart, wireless technology is likely to lead to a step change in how the monitoring and optimisation of motors is carried out, unlocking new levels of efficiency performance.

Smart sensors are now available which attach directly to new or installed motors without the need for additional wiring and transmit real-time performance and condition data wirelessly via the cloud. At the time of writing these sensors are only currently available for induction motors and SynRM's, but other motor types will inevitably be catered for soon.

This brings predictive maintenance into play for a company's entire LV motor fleet. Users can check their motors' status at any time using smart devices, which provide a traffic light display indicating which motors are running satisfactorily, which ones require monitoring, and which ones require immediate attention. Where previously electric motors have always been relatively simple, analogue devices, the future will see them become digital, combining connectivity with data analytics to constantly optimise performance within the smart factory.

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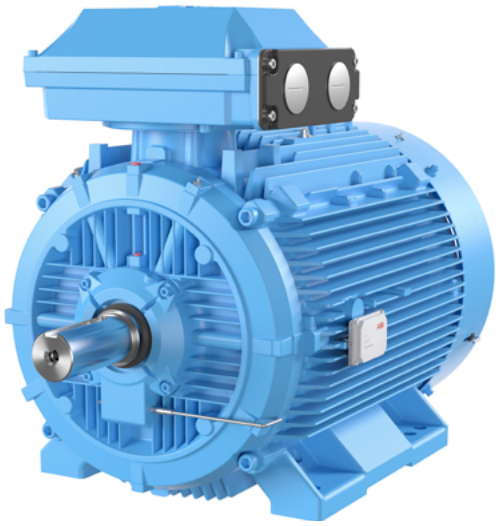
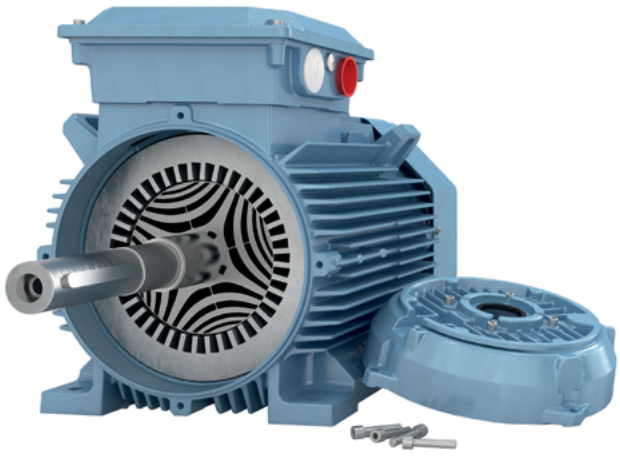
Author's profile:
Steve Hughes has worked in ABB for 23 years in sales and channel management roles for both variable speed drives and instrumentation products. Whilst working in the drives business Steve was an integral part of ABB's energy efficiency campaign when it began almost 20 years ago in the year 2000.



SynRM motors are particularly well suited to quadratic torque applications like pumps and fans



Smart Sensors are no bigger than a deck of playing cards, and attach directly to the side of a motor to wirelessly transmit real-time performance and condition data

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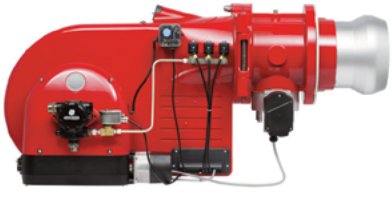

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by JASON FRANKS
Managing Director at HEELEC Ltd

Welcome to EMEX 2019!

EMEX 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 the impact on the environment around you - 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.

What could happen if we all worked together as an industry to reduce our carbon footprint – to share best practice and to pass on our knowledge to others? Do you actually know what the easiest wins are in the battle against climate change? These questions and more will be answered at EMEX.

EMEX is the only place where IEMA, IWFM, SOE, BEIS, 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 6th birthday with over 120 exhibitors and 80 free-to-attend CPD-accredited seminars spread across 5 topical theatres:

- Best Practice, Career & Training
- Sustainability & Climate Change
- Built Environment, Technology & Innovation
- Strategy, Regulation & Compliance
- 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 27 November:
09:30 – 17:00
Thursday 28 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 DLR station. 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.

2020 Information
EMEX takes place at ExCeL on the 25 and 26 November 2020.

Seminars – Editor's pick

Day 1 – Wednesday 27th November

The UK's Net-Zero Target: What are the greatest challenges?

Theatre 1 **09:45**

How top business leaders are weighing the risks and opportunities that will emerge as the net-zero transition gathers pace. Dr Manfred Rudhart and Lord Redesdale will layout the foundation of the greatest challenges ahead for businesses and policy makers.

Lord Redesdale
CEO, **EMA**

Dr Manfred Rudhart
CEO, **Arriva Group**

Streamlined Energy and Carbon Reporting – Compliance update

Theatre 4 **10:00**

Streamlined Energy & Carbon Reporting (SECR) extends reporting requirements to all large UK companies from April 2019. This panel session will cover an update from key stakeholders of the scheme and offer the audience an opportunity to ask questions. *Panel includes Gemma Birley, Director, Green Finch Environmental Consulting; Naomi Rigby, Non-Financial Assurance Specialist for PwC.*

Gary Shanahan, Head of Business and Industrial Energy Efficiency, Tax and Reporting, **BEIS**

Jennifer Guest, Project Director - FRC Taxonomies
Financial Reporting Council

Delivering Energy Efficiency in the Public Sector

Theatre 1 **11:00**

Following the UK government's plan for carbon neutrality by 2050, many public sector organisations have declared a 'climate emergency' to help deliver tangible benefits through local sustainability and environmental projects. This session will focus on the challenges and opportunities that are faced by those tasked with the delivery of the carbon reduction targets on daily basis. A panel with *Lord Redesdale, CEO for the EMA; Wendi Wheeler, Energy & Carbon Strategy Manager for Network Rail.*

Dr Lowell Lewis
SHEQ Manager
Coventry City Council

Julia Blackwell, Energy Officer, **Huntingdonshire District Council**

Climate Change Adaptation – New International Standard ISO14090 and an ISO/ BSi adaptation and resilience standards update

Theatre2 **11:30**

ISO 14090 launched in 2019, developed with wide international consensus and as a UK-led global standard. The UK national expert attending the meetings, will talk us through what's inside ISO 14090 and how ISO 14090 can be used by organisations to create a resilient business now and into the future. We will also in this session hear about related standards and guidance in development on Climate Change Adaptation, including the important role of adaptation pathways.

Lesley Wilson
Lead Standards Development Manager, **BSI**

Doogie Black
Director
Climate Sense

Challenges and Opportunities for Cutting Carbon at Universities

Theatre 1 **11:55**

This session will focus on how University energy managers meet increasing expectations to deliver carbon reductions in a large, complex organisation. The panel discussion will focus on the challenges and opportunities faced by energy managers at universities with the Government's Net Zero target in mind. A panel with *Dewi Day, Sustainability Advisor for Aberystwyth University; Elliot Jones, Energy Manager for Keele University.*

Gillian Brown
Energy Manager
University of Glasgow

Dan Fernbank, Energy & Sustainability Manager, **University of Reading**

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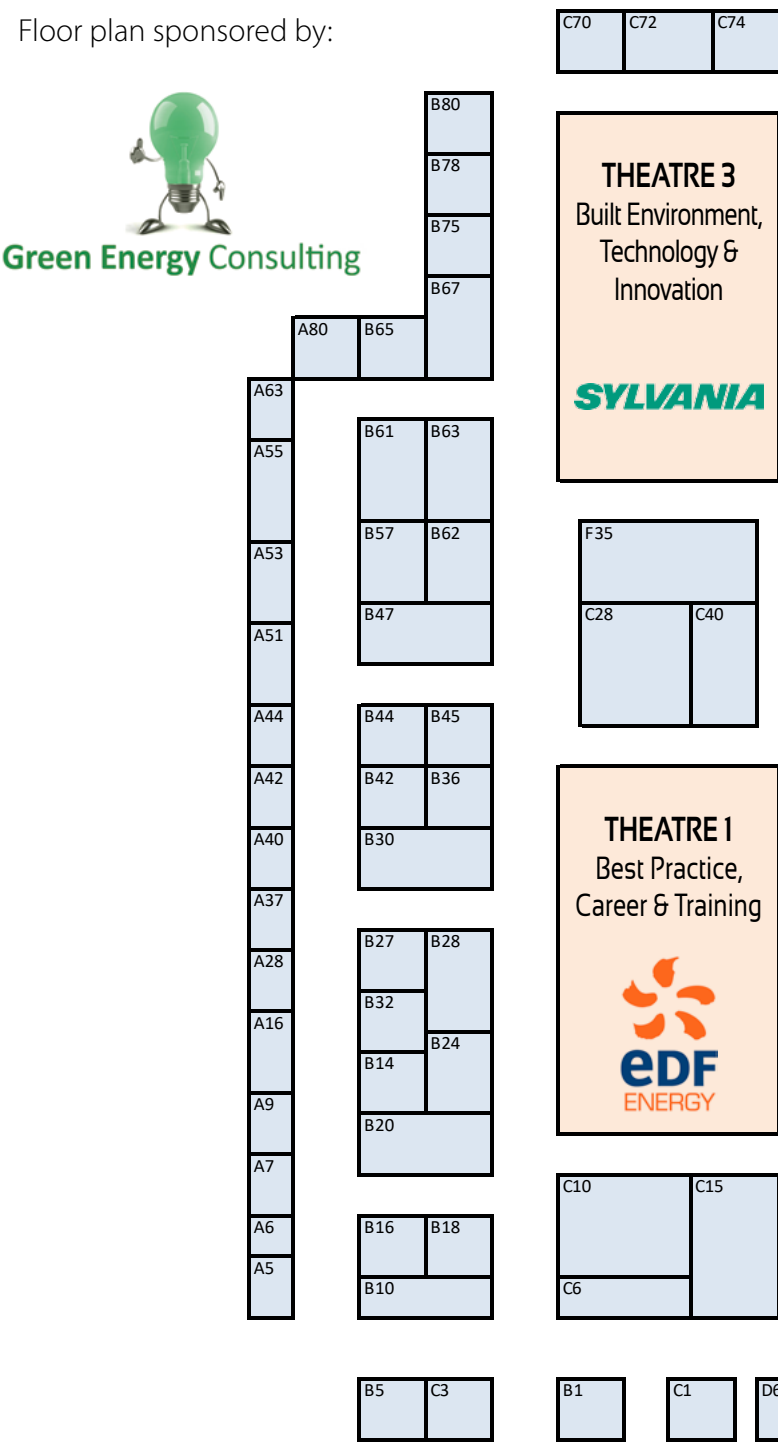

EMA Energy Management Awards 2019

Theatre 1 **15:40**

The EMA will be announcing the winners and highly commended in 10 categories.

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PE Energy Solutions Ltd C3
Piclo (also SSEN) ..... Flexible Power Zone
Pinnacle Power Ltd B80
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Principal Lighting Ltd E74
Roadnight Taylor A42
SECR Reporting Ltd H58
SGS United Kingdom Ltd D17
Simble Solutions G74
SMS plc F10
Society of Operations Engineers H40
SolarEdge Technologies H20
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Solvera Lynx D50
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The Weather Company B16
Thorlux Lighting E5, E45
Verde LED D70
Vexo International (UK) Ltd B67
Vinci Facilities F35
Wattstor H5
Weishaupt (UK) Ltd B61
Wilson Power Solutions Ltd C28
ZTP B30

Energy Management Strategy: from policy to implementation

Theatre 4 12:10

This session brings together energy managers who will discuss the challenges and solutions to a successful implementation of an energy management strategy. The panellists will offer their views and experiences on defining energy management aims and objectives, and how to formulate implementation plans to deliver energy savings. Panel with *Scott Armstrong, Group Head of Energy and Sustainability for Bourne Leisure; Victoria Limbrick, Energy Manager for Royal National Lifeboat Institution*.

Parthena Exizidou
Energy & Carbon Reduction Manager
British Antarctic Survey

Martin Bilton
Engineering Manager (Utilities)
Gatwick Airport

Changes in Regulation Around Battery Storage

Theatre 4 14:30

Recent changes in regulation mean that battery storage will be able to be metered separately to the MPAN, boundary meter. This will allow trading the services that storage can supply, including grid levelling services, on a new marketplace. This session will explore the changes and how your sites could turn storage into a profit center. A panel with *Iain Nicoll, Metering Team Leader for ELEXON.*

Lord Redesdale
CEO, EMA

Peter Frampton
Market Architect
ELEXON

Corporate PPAs -The Risks, Issues and Opportunities

Theatre 3 15:00

The Corporate PPA market is growing, with total of 13.4 GW of Corporate PPAs signed globally in 2018 (more than double the previous year). This trend is set to continue as corporations continue to be increasingly conscious about managing their energy needs and procuring electricity directly from renewable sources to lower their carbon footprint. This session will focus on the risks and issues that need to be addressed, and the challenges associated with procuring and negotiating a Corporate PPA. A panel with *Mark Westwood, Head of UK Commodity Solution Sales for Ørsted; Dr Mike Pedley, Independent Consultant.*

Zosia Riesner
Head of Corporate PPA
Lightsource BP

Matteo Deidda
Networks Energy Manager
Vodafone

Day 2 – Thursday 28th November

SECR Compliance – What to look out for!

Theatre 4 10:00

Streamlined Energy & Carbon Reporting (SECR) extends reporting requirements to all large UK companies from April 2019. This panel session will cover the background and requirements of SECR and the panel will discuss their respective experiences with the new scheme. A panel includes *Chris Bowness, Senior Energy Manager for FES Limited; Jessica Harris, Senior Energy and Carbon Consultant for Envantage Ltd; Keith Maloney, Managing Director for Maloney Associates Ltd.*

Dr Vassia Paloumbi
Sustainability & Energy Management Expert
threeG Sustainability

Andy Creamer
Energy Manager
Mapeley Estates Ltd

Your Emergency Briefing – Declaring a climate emergency and driving transformative change

Theatre 2 11:30

What declaring Climate Emergency means in practice? How can we use this concept either directly or to supportively engage. This session will hear from leading professionals and their experience and the case study use of declarations for an NHS Foundation Trust, a Borough Council, and also for a leading professional body. We will also be joined by colleagues from business. Join us for an emergency briefing.

James Dixon
Head of Sustainability
The Newcastle upon Tyne Hospitals NHS Foundation Trust

Jason Light
Strategy Lead - Environment
Eastleigh Borough Council

The Impact of ESOS

Theatre 4 11:50

With the final date for compliance with ESOS Phase 2 and submitting notifications fast approaching, this session will include an update on the scheme from the Environment Agency. The update will follow a discussion with ESOS Lead Assessors around ESOS Phase 1, the outcomes of the Environment Agency's compliance audits and expectations from Phase 2. Panel with ***Daniel Shanley, Low Carbon Consultant for Stopford Energy and Environment; Paul Redding, Director for Redding Associates; Richard Felgate, Director for Hospitality Energy Saving.***

Mike Denbigh
Senior Technical Advisor
Environment Agency

Sam Arje
Group Energy and Sustainability Manager
Bourne Leisure

Beyond Compliance – How do we deliver high performance?

Theatre 4 12:40

In a world dominated by compliance and tick box exercises how do we deliver high performance and what does this mean? Different stakeholders perceive this differently from the asset managers who want high rentable values and low void times to the tenants who want high quality space at low rents and then occupiers who want a comfortable and well equipped working space which the facilities managers have to provide. A panel with ***Dr Andy Lewry, Senior Technical Associate for Focus FM; Michael Nagle, Utilities Manager for London Luton Airport.***

Julie Hogarth
Head of Sustainability
Regent Street Management Direct – JLL

Chris Mayhew
Operations Improvement Manager – Energy
British Sugar

Strategic Partnerships That Lead To Savings – How important is data?

Theatre 4 13:30

This session will discuss how an improved collaboration between Energy Managers, BMS Engineers and incumbent M&E teams can lead to a more efficient operation of buildings. The discussion will focus on BMS operational data and how to effectively use them to achieve greater savings. Panel with ***Daniel Harvey, Building Technology Specialist for Intech Controls Ltd; Derek Martin, Divisional Director for Focus FM.***

Tom Parrott
Head of Energy & Sustainability
University of Surrey

Jonathon Candy
Energy Manager
Mitie Sustainability

Implementing Energy Performance Contracts: Successes and pitfalls

Theatre 4 14:20

Over the past 5 years, NHS Scotland has implemented three major Energy Performance Contracts across its estate with an overall capital value in excess of £30million. This session will look at the realities of implementing Energy Performance Contracts – what's required from the contracting organisation, what can go wrong, and how you can ensure success.

Kathryn Dapré
Head of Energy and Sustainability
NHS National Services Scotland

Climate Change: Corporate outlook

Theatre 2 14:45

For years, forward-thinking policymakers and businesses have targeted deep sectoral emissions cuts. What seems to have changed in the last year is the sense of urgency that comes with discussion of a net-zero target, and apparent collective will to deliver. Can politics and businesses fast transition to align with the new net-zero goal and work together to provide concrete actions to this global challenge? A panel with ***Lord Redesdale, CEO for EMA; Nick Blyth, Policy & Engagement Lead for IEMA; Sarah Handley, Carbon Neutral Programme Manager for Siemens plc.***

Lord Deben, Chairman
The Committee on Climate Change

Simon Bimpson, Managing Director, Water, Energy and Utilities, **Arcadis**

Best Practice, Career & Training

Day 1 – 27th November 2019

09:45-10:15 **The UK's Net-Zero Target: What Are the Greatest Challenges?**
Dr Manfred Rudhart – CEO – Arriva Group
Lord Rupert Redesdale – CEO – Energy Managers Association

10:20-10:50 **Redefining Business Engagement with Energy to Accelerate Sustainable Development**
Vincent de Rul – Director of Energy Solutions – EDF Energy

11:00-11:45 **Delivering Energy Efficiency in the Public Sector**
Dr Lowell Lewis – SHEQ Manager – Coventry City Council
Julia Blackwell – Energy Officer –Huntingdonshire District Council
Lord Rupert Redesdale – CEO – EMA
Wendi Wheeler MEI – Energy & Carbon Strategy Manager – Network Rail

11:55-12:40 **Challenges and Opportunities for Cutting Carbon at Universities**
Dan Fernbank – Energy & Sustainability Manager – University of Reading
Dewi Day – Sustainability Advisor – Aberystwyth University
Elliot Jones – Energy Manager – Keele University
Gillian Brown – Energy Manager – University of Glasgow

12:50-13:20 **Lessons Learnt from the TfL's Palestra Project**
Quinten Babcock – Environmental Manager – Transport for London

13:30-14:15 **Career Path in Energy Management: Lessons Learnt**
Joanna Marshall-Cook – Senior Sustainability Manager – University College London
Joel Kirby – Energy and Environmental Manager – The Celtic Manor Resort
Mohammad Rafique – Energy and Environment Officer – Surrey Police
Rhea Campbell-Smith – Sustainability Coordinator – Bourne Leisure
Suki Gilliland – Networks Energy Manager – Vodafone

14:30-15:30 **Energy Auditing – All You Want to Know to Make a Lasting Impact**
Ben Burggraaf – Head of Energy – Dŵr Cymru Welsh Water

15:40-17:00 **EMA Energy Management Awards 2019**
Lord Rupert Redesdale – CEO – Energy Managers Association

Day 2 – 28th November 2019

10:20-10:50 **Proving the Business Case for Implementing Energy Saving Improvements**
Jes Rutter – Managing Director – JRP Solutions

11:00-11:30 **Aiming for Carbon Positive through Regenerative Sustainability**
Charles Sainsbury – Energy Manager – Eden Project Limited

11:40-12:20 **Energy Management in the NHS: From Strategy to Implementation**
Paul Graham – Utilities, Waste and Sustainability Manager – Kingston Hospital NHS Foundation Trust
Kathryn Dapré – Head of Energy and Sustainability – NHS National Services Scotland
Lord Rupert Redesdale – CEO – Energy Managers Association

12:30-13:30 **Energy Management Trends 2020: What to Expect Next Year**
David Mason – Environment Technical Director – Skanska
Julia Blackwell – Energy Officer – Huntingdonshire District Council
Lord Rupert Redesdale – CEO – Energy Managers Association
Robert Williams – General Manager - Procurement – BT

13:40-14:10 **Can you Teach an old Energy Manager New Tricks?**
Chris Mayhew – Operations Improvement Manager - Energy – British Sugar

14:20-15:00 **Masterclass: Do We Have Too Much Data?**
Richard Felgate – Director – Hospitality Energy Saving

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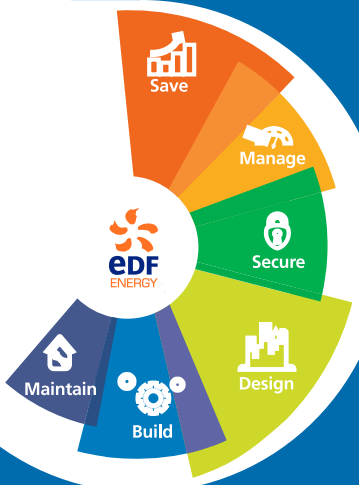

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edfenergy.com/energysolutions

EDF ENERGY

Sustainability & Climate Change

Day 1 – 27th November 2019

10:30-11:15 **Communicating Climate Change**

Richard Smith – Sustainability Manager – BBC
Tom Richardson – Account Director – Futerra
Tricia Duffy – Strategic Advisor – BAFTA albert
Anna-Lisa Mills – Director – True North Sustainability

11:30-12:15 **Climate Change Adaptation – New International Standard ISO14090 and an ISO/ BSi adaptation and resilience standards update**

Doogie Black – Director – Climate Sense
Lesley Wilson – Lead Programme Manager – BSI
Marc Jourdan – Policy & Engagement Lead – IEMA

13:00-13:30 **The Case for Zero Carbon**

Richard Sulley – Senior Energy & Sustainability Manager – ENGIE

13:45-14:30 **Future Trends and Challenges in Cooling**

Dan Hamza-Goodacre – FIEMA Executive Director, K-CEP – ClimateWorks Foundation
Prof Toby Peters – Professor in Cold Economy – University of Birmingham

14:45-15:30 **Counting the Carbon – Are international standards always your best practice?**

Dr Matthew Brander – Senior Lecturer in Carbon Accounting – University of Edinburgh
Lucy Candlin – Carbon Accounting – University of Edinburgh

15:45-16:30 **Key Developments in Sustainable Finance – New guidance from IEMA and new developing British standards**

Greg Chant-Hall, FIEMA – COO – Carbon Free Group
Louise Pryor – Chair – London Climate Change Partnership
Dr Paul Pritchard – FIEMA Fellow – IEMA

Day 2 – 28th November 2019

10:30-11:15 **Climate Neutrality and Driving Transitions – Visionary international practice and developments in International standards**

Emmy Tollin – Head of partner and sustainability development – GodEl
Nick Blyth – IEMA Policy & Engagement Lead, Chair of ISO Climate Change coordination task force – IEMA
Sarah Handley – Carbon Neutral Programme Manager – Siemens plc

11:30-12:15 **Your Emergency Briefing – Declaring a Climate Emergency and driving transformative change**

Roxanne King – Sustainability Manager – Environment and Green Economy – Bournemouth, Christchurch and Pool Council (BCP)
James Dixon – Head of Sustainability – The Newcastle upon Tyne Hospitals NHS Foundation Trust
Jason Light – Strategy Lead - Environment – Eastleigh Borough Council

13:00-13:30 **The Road to Carbon Zero – A customer journey**

Graham Oxley – Managing Director of Energy with Services – ENGIE
Kevin Fisher – Service Manager – Wakefield Council

13:45-14:45 **The Future of the UK's Environmental Governance**

Martin Baxter – Chief Policy Advisor – IEMA
Nick Molho – Executive Director – Aldersgate Group
Simon Evans – Deputy Editor and Policy Editor – Carbon Brief

14:45-15:45 **Climate Change: Corporate outlook**

Lord Deben – Chairman – The Committee on Climate Change
Lord Redesdale – CEO – EMA
Simon Bimpson – Managing Director - Water, Energy and Utilities – Arcadis
Nick Blyth – IEMA Policy & Engagement Lead, Chair of ISO Climate Change coordination task force – IEMA
Sarah Handley – Carbon Neutral Programme Manager – Siemens plc

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ENGIE

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 smart buildings solutions, we can deliver guaranteed savings, combined with improved efficiency and sustainability.

www.engie.co.uk

Built Environment, Technology & Innovation

Day 1 – 27th November 2019

10:00-10:40 **The Future of Heat Networks**
Charlotte Owen – Policy Officer – Association for Decentralised Energy
Francis Ugboma – Head of Energy Services – Islington Council
Sam Moore – Business Development Manager – Pinnacle Power
Simon Taylor – Operations Director – Redrow Homes Ltd

10:50-11:20 **Lighting, Energy and the Environment**
Richard Caple – Lighting Applications Director – Thorlux Lighting

11:30-12:00 **Batteries Need Batteries: The case for energy storage in EV charging infrastructure**
Danny Jones – Founder and Director – Off Grid Energy

12:10-12:50 **Riding Sunbeams – Powering the railways with solar PV**
Leo Murray – Director – Riding Sunbeams Ltd
Oliver Pendered – Director – Riding Sunbeams Ltd
Wendi Wheeler MEI – Energy & Carbon Strategy Manager – Network Rail

13:00-13:30 **The Rise of the Prosumer**
Luke Osborne – Energy and Emerging Technologies Solutions Advisor – ECA

13:40-14:10 **Using Data to Create an Energy Efficient Estate**
Colin Wills – CEO – 4D Monitoring
Frankie Bryon – Senior Sustainability Surveyor – Lambert Smith Hampton

14:20-14:50 **Enabling Energy Efficient Lighting through Intelligent Finance and Turnkey Solutions**
Nick Clark – Global Strategic Development Director – Sylvania Lighting Europe

15:00-15:40 **Corporate PPAs – The risks, issues and opportunities**
Dr Mike Pedley – Independent Consultant
Mark Westwood – Head of UK Commodity Solution Sales – Ørsted
Matteo Deidda – Networks Energy Manager – Vodafone
Zosia Riesner – Head of Corporate PPA – Lightsource BP

15:50-16:05 **Giving Buildings a Heartbeat – IoT at scale in retail**
Jordan Appleson – CEO – Hark

16:10-16:25 **Closing the Heating & Cooling Performance Gap through HVAC System Optimisation**
Chris Davis – UK Manager – Hysopt

Day 2 – 28th November 2019

10:00-10:30 **Energy Saving with VSDs in a Digital Age**
Steve Hughes – Digital Lead - Motion – ABB Ltd

10:40-11:20 **Battery Storage: Getting ready for mass roll out**
Guy Bartlett – Sales Director – SMS Plc
Lord Rupert Redesdale – CEO – Energy Managers Association
Stuart O'Neil – Head of New Portfolio Development - Community Energy – Siemens Managed Services
Dr Alex Mardapittas - Chief Executive Officer – Powerstar

11:30-12:00 **The Role of EVs in the Renewable and Low Carbon Energy Mix**
Phil Valarino – EV Lead – EDF Energy

12:10-12:40 **Flow Informs – A new approach to system upgrades**
Tunji Asiwaju – Global Performance Management Services Manager – Armstrong Fluid Technology

12:50-13:20 **Smart Lighting – Unlocking the potential of light sources for beyond lighting applications**
Pierre Taing – Director Smart & Beyond Lighting Solutions – Sylvania Lighting Europe

13:30-14:00 **Smart Electric Urban Logistics (SEUL)**
Claire Thompson-Sage – Sustainable Development Co-ordinator – UPS Ltd
Jonathan Bassett – Technology & Innovation Consultant – UK Power Networks Services

14:10-14:40 **Luton Airport Save 1,300,000kWh of Energy through Plug Fan Upgrades**
Michael Nagle – Utilities Manager – London Luton Airport
Tony Wright – Divisional Director of Upgrade – ebm-papst UK Ltd

14:50-15:20 **The UK's First Zero Energy Cost Business Park – Six years on**
Dave Armstrong – Managing Director – Great Minds Property Group

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Strategy, Regulation & Compliance

Day 1 – 27th November 2019

10:00-10:50 **Streamlined Energy and Carbon Reporting – Compliance update**

Gary Shanahan – Head of Business and Industrial Energy Efficiency, Tax and Reporting – BEIS
Gemma Birley – Director – Green Finch Environmental Consulting
Jennifer Guest – Project Director - FRC Taxonomies – Financial Reporting Council
Naomi Rigby – Non-Financial Assurance Specialist – PwC UK

11:00-12:00 **SECR Compliance – The basics**

Gemma Birley – Director – Green Finch Environmental Consulting
Dr Vassia Paloumbi – Sustainability and Energy Management Expert – threeG Sustainability
Reg Coker - Data Analyst - Fabriq

12:10-12:50 **Energy Management Strategy: From policy to implementation**

Martin Bilton – Engineering Manager (Utilities) – Gatwick Airport
Parthena Exizidou – Energy & Carbon Reduction Manager – British Antarctic Survey
Scott Armstrong – Group Head of Energy and Sustainability – Bourne Leisure Ltd
Victoria Limbrick – Energy Manager – Royal National Lifeboat Institution

13:00-13:40 **What Really is SMART?**

Gillian Brown – Energy Manager – University of Glasgow
Mark Davenport – CEO – Smart Buildings Ltd (part of the ENGIE group)
Richard Caple – Lighting Applications Director – Thorlux Lighting
Dean Italiano – National Sales Manager - Nortek Global HVAC

13:50-14:20 **Organisational Waste Management: What to consider**

Gordon Walker – Environmental Manager – Northern Powergrid

14:30-15:00 **Changes in Regulation Around Battery Storage**

Iain Nicoll – Metering Team Leader – ELEXON
Lord Rupert Redesdale – CEO – Energy Managers Association
Peter Frampton – Market Architect – ELEXON

15:10-15:40 **The Benefits and Pitfalls of ISO 50001 Certification**

Kirit Patel – Environment Manager – DHL Supply Chain – Mainland Europe, Middle-East & Africa
Terry Coyle – UK Product Manager for Energy Management Systems – SGS United Kingdom Ltd

15:50-16:20 **From Compliance to Leadership: RBS's energy management journey**

Lesley Holloway – Energy & Environment Manager – The Royal Bank of Scotland
Lindsay Ventress - Service Line Lead–Energy – EcoAct

Day 2 – 28th November 2019

10:00-10:50 **SECR Compliance – What to look out for!**

Andy Creamer – Energy Manager – Mapeley Estates Ltd
Chris Bowness – Senior Energy Manager – FES Ltd
Jessica Harris – Senior Energy and Carbon Consultant – Envantage Ltd
Keith Maloney – Managing Director – Maloney Associates Ltd
Dr Vassia Paloumbi – Sustainability and Energy Management Expert – threeG Sustainability

11:00-11:40 **Key Considerations to Effectively Manage Transport Energy Usage**

Rob Anderson – Senior Fleet Specialist – Cenex

11:50-12:30 **The Impact of ESOS**

Daniel Shanley – Low Carbon Consultant – Stopford Energy and Environment
Mike Denbigh – Senior Technical Advisor – Environment Agency
Paul Redding – Director – Redding Associates Ltd
Richard Felgate – Director – Hospitality Energy Saving
Sam Arje – Group Energy and Sustainability Manager – Bourne Leisure

12:40-13:20 **Beyond Compliance – How do we deliver high performance?**

Chris Mayhew – Operations Improvement Manager – Energy – British Sugar
Dr Andy Lewry – Senior Technical Associate – Focus FM
Julie Hogarth – Head of Sustainability – Regent Street Management Direct - JLL
Michael Nagle – Utilities Manager – London Luton Airport

13:30-14:10 **Strategic Partnerships That Lead To Savings – How important is data?**

Daniel Harvey – Building Technology Specialist – Intech Controls Ltd
Derek Martin – Divisional Director – Focus FM
Jonathon Candy – Energy Manager – Mitie Sustainability
Tom Parrott – Head of Energy & Sustainability – University of Surrey

14:20-14:50 **Implementing Energy Performance Contracts: Successes and pitfalls**

Kathryn Dapré – Head of Energy and Sustainability – NHS National Services Scotland

15:00-15:30 **Closing the Performance Gap in Building Services**

Caroline Weeks – Quantum Programme Manager – BRE
Cormac Ryan – General Manager – Copilot Building Commissioning Solutions

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WE ARE EXHIBITING AT EMEX - COME AND SEE OUR DEMO ON STAND H58

ema SECR Compliance tool

Streamlined Energy & Carbon Reporting is a requirement introduced in April 2019 mandating that large UK companies must report annually on:
Energy consumption / Carbon Emissions / Intensity Metrics
Energy Efficiency Actions / Methodology Used

The EMA has created a software management service for SECR compliance which streamlines the data collection and reporting process. It is easy to use, requires little or no training, can be setup quickly, and provides all the required reports as standard with no hidden costs.

Evaluation Tool
Capture your data to create compliant and standardised reporting

Compliance Course
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Advice
Energy Management professionals assist with compliance

ema energy managers association

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Email admin@secrreporting.co.uk
Visit www.theema.org.uk

SECR REPORTING LIMITED

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 – 27th November 2019

10:30-11:00 **Weather data and analytics – Improving the forecast for network operators and demand forecasters**
Mark Stephens-Row – Meteorologist – The Weather Company, an IBM Business

11:30-12:00 **Embracing the Flexible Power Future with a Comprehensive Energy Strategy**
Dr Alex Mardapittas – Chief Executive Officer – Powerstar

12:30-13:00 **Future Flexibility Markets – Removing barriers and creating opportunity to drive zero-carbon operation**
Adam Sims – Power Responsive Manager – National Grid ESO

13:30-14:00 **Demand Side Response – What next?**
Louis Fairfax – Managing Director – CUB (UK)

14:15-14:45 **POC-MAST: The innovative grid connection solution**
Martin Buckland – Managing Director – Freedom Group
Matt Pryor – Technical Manager Overhead Lines – Freedom Group

15:00-15:30 **Is Demand Response the Key to Delivering Net-Zero?**
Mark Davis – Director UK & Ireland – GridBeyond

Day 2 – 28th November 2019

10:30-11:00 **SSEN & Piclo – The DSO transition and evolution of Network Services**
Alex Howison – Flexible Solutions Manager – SSEN
Stefanos Anagnostopoulos – Account Manager – Piclo

11:30-12:00 **Positive Disruption: Flexibility as the key to net-zero**
Kevin McDonald – Senior Manager Demand Side Response – EDF Energy

12:30-13:00 **Future Flexibility Markets – Removing barriers and creating opportunity to drive zero-carbon operation**
Adam Sims – Power Responsive Manager – National Grid ESO

13:30-14:00 **Demand Side Response – What next?**
Louis Fairfax – Managing Director – CUB (UK)

14:30-15:00 **Practical use of Wattstor's EMS for Dynamic Load Management of EV Utra-fast Charging Hubs**
Steven Clarke – Senior Business Development Manager – Wattstor

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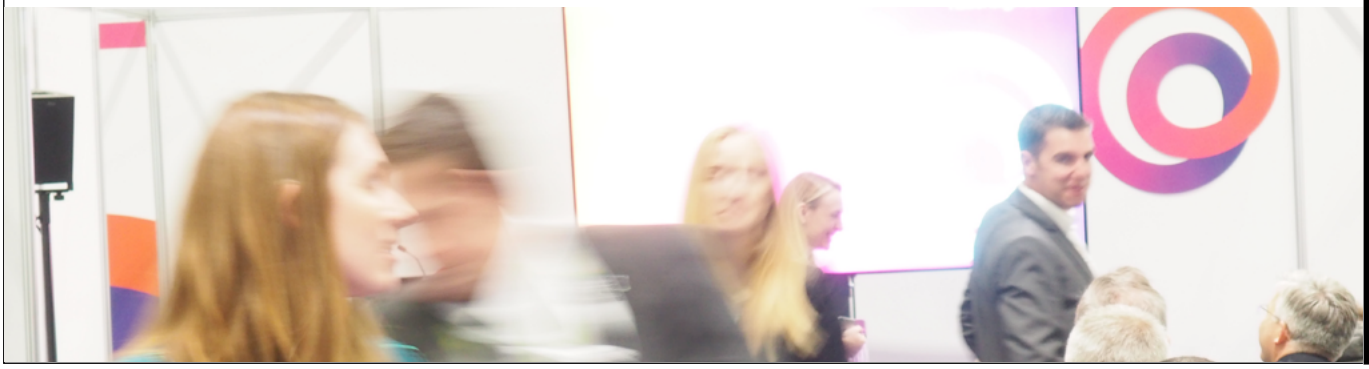

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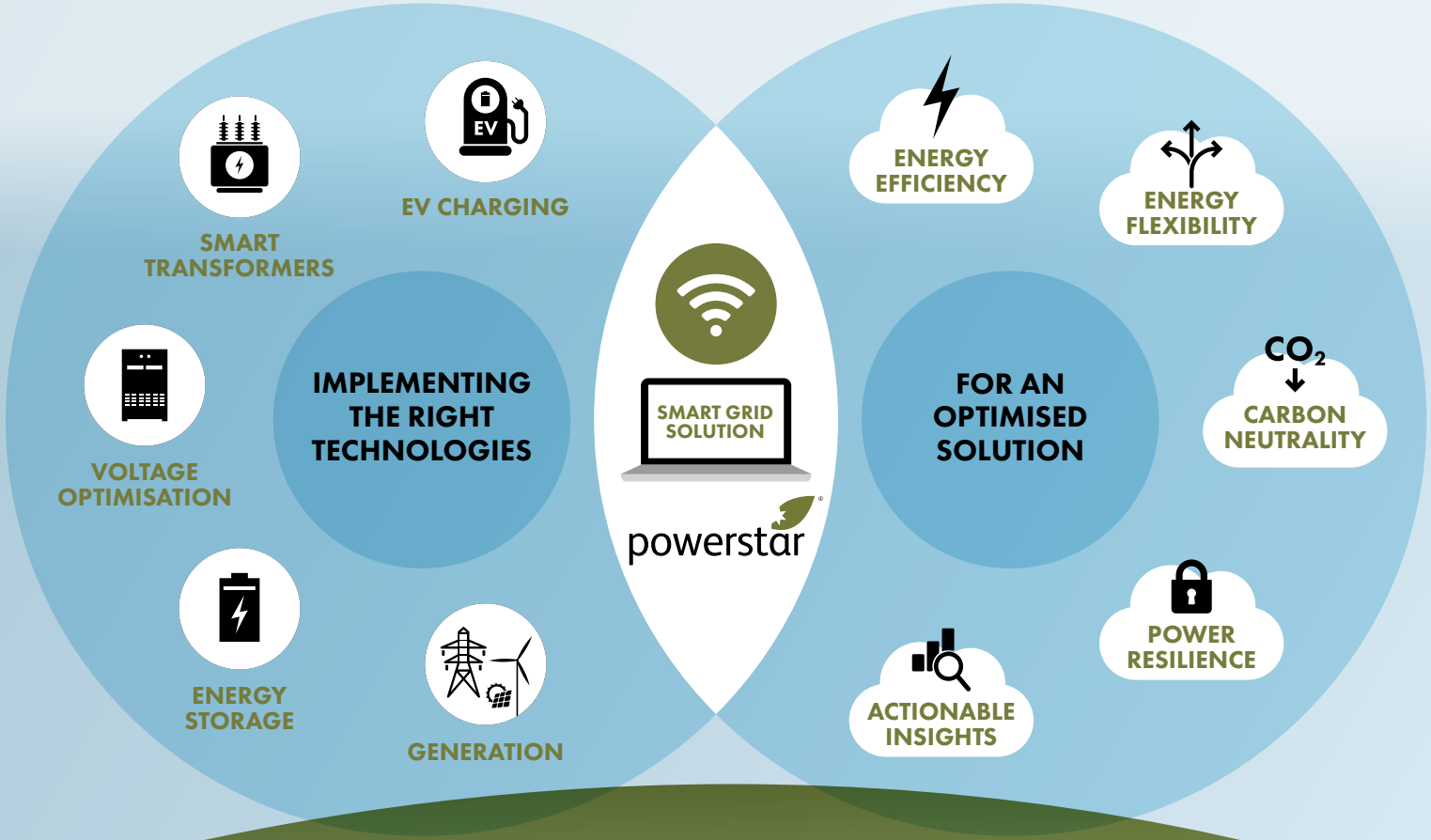

DISCUSS YOUR ENERGY OBJECTIVES WITH POWERSTAR DURING EMEX 2019:

- **Stand D34** of the main hall, 27 – 28 November
- Available in the **Flexible Power Zone**, 27 – 28 November
- **Speaking** at the Flexible Power Zone, Wednesday 27 November, 11:30am
- **Speaking** on the Battery Storage panel, Thursday 28 November, 10:40am

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Exhibitors' contact details

E57 - 2G Energy Ltd

2G Energy are one of the world's leading manufacturers and solution providers of Combined Heat Power (CHP) systems, and can supply CHP solutions from 20kWe to 2.5MWe.

Unit 1 Sycamore Court, Manor Park, Runcorn WA7 1RS
www.2-g.com

B75 - 4D Monitoring

4D Monitoring's smart building technology provides actionable insights into building performance, drives down energy consumption across portfolios and facilitates a predictive approach to maintenance.

Si One, St Ives Business Park, Parsons Green, St Ives PE27 4AA
www.4dmonitoring.co.uk

E40 - ABB Ltd

When it comes to using energy efficiently, there is a big gap between what is being done and what could be done. As a global leader in power and automation technologies, ABB leads the way with an extensive range of products and services to help industries as diverse as healthcare, water & wastewater treatment, food & beverages, commercial buildings and plastics & rubber, not just to improve the energy efficiency of their operations but to increase productivity and drive down total life cycle costs.

Daresbury Park, Daresbury, Warrington WA4 4BT
www.abb.co.uk/energy

E10 - AB ENERGY (UK) LTD

Founded in 1981 by Angelo Baronchelli, AB is today the global benchmark for cogeneration, biogas and biomethane sectors. AB designs, manufactures, installs and services the best performing solutions on the world market. Over 1,250 cogeneration plants have been installed to date, with a total nominal electrical power of more than 1,600 MW. In the past few years the company's production capacity has quadrupled, with the number of employees increasing to 900. AB now has direct subsidiaries in Europe, Russia, North America and South America.

Lower Ground Floor, One George Yard, London EC3V 9DF
www.gruppoab.com

A44 - AEMS

AEMS is a cutting-edge energy management system, presented to you by innovators AND Technology Research, a globally trusted technology company, with more than 39 years of hands-on experience. Presented as an intuitive dashboard and mobile app, the system provides you a simple way to manage and control your energy. Start your free trial today! AEMS is offering SMEs all over England the opportunity to trial the system for free. Become a pioneer user and see how the AEMS system can work for your business. To find out more and to register, please visit: https://myaems.com/register.

4 Forest Dr, Theydon Bois, Epping CM167EY
www.myaems.com

A37 - arbnco Ltd

arbnco is a building performance technology company developing disruptive and scalable solutions for the global market.

Inovo, Suite E & F, 121 George Street, Glasgow G1 1RD
www.arbnco.com

F5 - Armstrong Fluid Technology

Armstrong Fluid Technology are a leading global player in HVAC. We design and manufactures innovative fluid flow equipment and high efficiency energy solutions for a broad range and scale of HVAC applications. Our expertise comes from a composite understanding of 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
www.armstrongfluidtechnology.com

B24 - BCAS

The British Compressed Air Society will be at EMEX to offer impartial advice about compressed air systems. It will also be an opportunity for visitors to get copies of BCAS' latest whitepapers.

33-34 Devonshire Street, London W1G 6PY
www.bcas.org.uk

B78 - Beckhoff Automation

PC-based control technology from Beckhoff has become an integral component of intelligent building automation. The demands on the intelligence of buildings have increased constantly in recent years, such that optimal energy performance as well as a good return on investment is the priority. Sustainable, energy-efficient buildings that focus on occupier comfort can be realised with intelligent, integrated building automation. Beckhoff offers a universal, scalable building automation control platform covering PC- and Ethernet-based controllers and a modular I/O system for controlling and logging all data points in buildings.

The Boathouse, Station Road, Henley-on-Thames RG9 1AZ
www.beckhoff.co.uk/building

B63 - Birdsall

Birdsall specialise in optimising a building's performance, to achieve improvements in energy efficiency, carbon footprint and user experience. We utilise the latest products & software to achieve these goals. Birdsall can help integrate many of the fine products on offer at EMEX into your building. On our stand we shall feature examples of building optimisation projects undertaken in 2019. By optimising the core energy consuming systems in a building, Birdsall can help achieve impressive results. Please visit our stand B63 to discuss your project.

13 Avebury Court, Hemel Hempstead HP2 7TA
www.birdsall.co.uk

A51 - Bri-Tek Technologies Ltd

LED lighting manufacturer,supplying projects around the UK and overseas. Offering a full service solution for all sectors , see our latest innovations RGB and emergency streetlighting.

Unit G10, Hartford House, Weston Street, Bolton BL3 2AW
www.britektechnologies.com

H16 - Bryt Energy

Bryt Energy, part of the Statkraft Group, is a passionate, future-focused electricity supplier, offering zero carbon, 100% renewable electricity and energy management solutions to British businesses.

1 Victoria Square, Birmingham B1 1BD
www.brytenergy.co.uk

B5 - Carbon Trust

The Carbon Trust is an independent, expert partner of leading organisations around the world, helping them contribute to and benefit from a more sustainable future.

27-45 Stamford Street, London SE1 9NT
www.carbontrust.com

F53 - Carlo Gavazzi

Carlo Gavazzi understands how smart buildings are designed, built and managed. Advances in technology and continued investment ensures buildings provide optimal user experience, reduced energy, future flexibility and efficient building operation. Visitors will see the latest innovative solutions, whether you need a wired or wireless energy management system that delivers information to reduce your carbon footprint or a smart building system that can provide a consolidated approach to controls services such as HVAC and lighting or an infrastructure that ensures future flexibility and intelligence; why not talk to the experts on Stand F53.

4 Frimley Business Park, Frimley, Camberley GU16 7SG
www.carlogavazzi.co.uk

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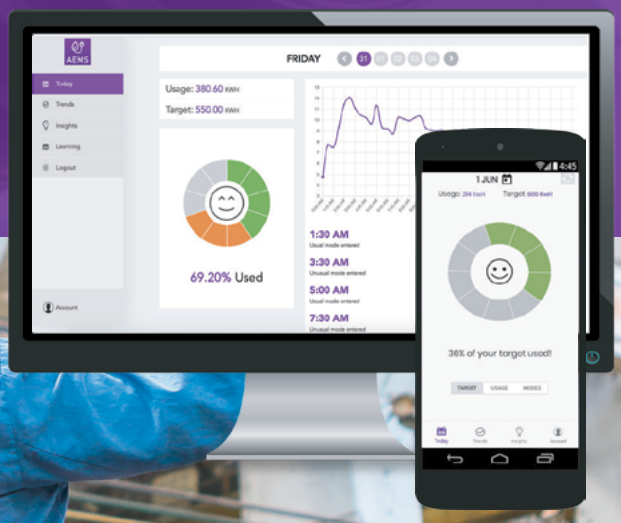

B47 - Chauvin Arnoux UK Ltd

Chauvin Arnoux offer comprehensive advice in the electrical, thermal and energy markets; we offer expertise and real solutions for energy saving, efficiency and optimisation.

Unit 1 Nelson Court, Flagship Square, Shaw Cross Business Park, Dewsbury WF127TH
www.chauvin-arnoux.co.uk

B36 - CIM

CIM creates innovative building analytics software that helps run large buildings at their peak operational performance. Our award-winning PEAK platform integrates building intelligence, machine learning and technical engineering support in a way that is smart, simple and transparent to improve efficiency, sustainability and comfort across property portfolios. We provide our global customers with fast and accurate data-driven insights so they can optimise energy consumption, eliminate waste, slash carbon emissions, improve and track environmental performance, obtain better ratings and achieve environmental, social and governance commitments.

89 Worship St, Hackney, London EC2A 2BG
www.cim.io

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
www.clarke-energy.com

Clarke Energy
A KOHLER COMPANY
Engineer - Install - Maintain

A40 - Conrad Energy Ltd

Conrad Energy is an Independent Power Producer that owns and operates gas-fired generation and behind the meter assets. We also operate third-party energy management services for large energy users.

Suites D & E, Windrush Court, Blacklands Way, Abingdon OX14 1SY
www.conradenergy.co.uk

H18 - Corona Energy

Corona Energy is a leading independent commercial energy supplier with over 25 years' experience supplying gas and electricity to a range of small and large enterprises in the UK.

Building 2 Level 2, Croxley Park, Watford WD18 8YA
www.coronaenergy.co.uk

Flexible Power Zone - CUB (UK) Ltd

CUB are a third generation, family run energy consultancy business that have taken their expertise in procurement and brought it into the DSR space. CUB work with many business who gain from their insight and knowledge in selecting a supply contract that allows them to participate in DSR activity. Since establishing themselves as a player in Demand Side Response CUB have helped their clients to save or earn over £500k, by taking advantage of the changing market place they are keeping their clients ahead of the curve, finding revenue for customers with flexibility.

6 Melbourne Avenue, March PE15 0EN
www.c-u-b.com

CUB UK
Your Trusted Energy Partner

F65 - Digital Energy Solutions

Digital Energy Solutions have been supporting businesses with Energy Efficiencies for over 15 years, driving reductions and ensuring the best can be gained out of compliance requirements.

PO Box 6552, Coventry CV6 9NN
www.digitalenergy.solutions

D19 - Distech Controls

An innovation leader in energy management solutions, Distech Controls provides unique building management technologies and services that optimize energy efficiency and comfort in buildings.

558 Avenue Marcel Mérieux, Brignais 69530 , France
www.distech-controls.com

DISTECH CONTROLS™

F72 - DoubleCool UK Limited

Manufacturer of Double Pane Acrylic doors for multideck chiller cabinets, we can supply cabinet manufacturers, or simply supply and install if required.

Park Lane, Dove Valley Park, Derby DE65 5BG
www.doublecooluk.com

Central Networking Area - ebm-papst

ebm-papst are worldwide leaders in energy efficient fan and motor innovation, producing over 20,000 different products. We offer a quick and easy fan retrofit service that help customers reduce their energy usage. We believe there is always room to saving more energy or optimise your existing HVAC systems further: ebm-papst can replace inefficient fans that use AC motors with highly efficient EC technology of the same mechanical design. Switching from AC to EC fans not only benefits the environment and cuts operating costs, it also enhances end-users comfort.

Chelmsford Business Park, Springfield Lyons Approach, Chelmsford CM2 5EZ
www.ebmpapst.co.uk

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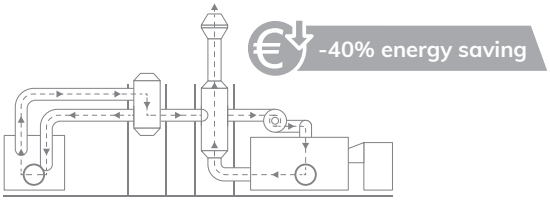

Reenergy+ is a revolutionary automatic system which delivers unprecedented energy savings through its hood-integrated gas turbine layout. Certified results include:

-80% toxic gas emissions
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Reenergy+ is a brand new autonomously-controlled integrated production model tailored to the demands of industry.

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EIL
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B44 - ECA

The UK's largest trade association representing electrotechnical & engineering services organisations, at regional to European level. ECA Members are rigorously assessed before membership is approved.

ECA - Rotherwick House, London E1W 1YZ
www.eca.co.uk

C1 - Elcomponent Ltd

Elcomponent have a 32 year record of innovation in metering systems & portable data loggers and offer cost-effective solutions to improve energy efficiency & carbon footprint for all types of business.

Unit 5 Southmill Trading Centre, Bishops Stortford CM23 3DY
www.elcomponent.co.uk

C10, Theatre sponsor - Ecopilot UK Ltd

Ecopilot integrates into any modern BMS to automatically reduces consumption in commercial buildings, without the need for further intervention, interpretation or implementation.

Langstone Technology Park, Langstone Road, Havant PO9 1SA
www.ecopilot.co.uk

D38 - EMEX 2020

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 2020 show. EMEX, for Energy Managers by Energy Managers.

PO Box 2608, Chigwell IG8 1PW
www.emexlondon.com

E20, Theatre sponsor- EDF Energy

EDF Energy recognises that energy is more challenging than ever, so are striving to make it simpler – to understand, buy, manage and save. Our shared expertise across industries helps organisations to implement a sustainable energy strategy that takes into account environmental, financial and social factors. We combine our experience in energy management and delivery capabilities to help you reduce your energy consumption, your CO_2 emissions and your energy bills.

90 Whitfield St, Fitzrovia, London W1T 4EZ
www.edfenergy.com/energysolutions

A63 - Endo Enterprises (UK) Ltd

EndoTherm is an award-winning, energy-saving additive, which can be installed into any wet heating system to reduce energy costs by up to 15%.

Unit 231 Europa Boulevard, Warrington WA5 7TN
www.endotherm.co.uk

D25 - EDF Energy PowerNow

We design and manufacture our own range of intelligent energy meters that measure consumption at an asset and circuit level, that stream to our cloud platform in real-time, providing live alerts of spikes in usage.

90 Whitfield St, Fitzrovia, London W1T 4EZ
www.edfenergy.com/powernow

C15 - ENERCON

ENERCON is a German wind turbine manufacturer focused on supplying full Energy Management Systems (Wind Turbines, Energy Storage & EV Charging Stations). A market leader for nearly 30 years (29,000 wind turbines (51 GW) installed worldwide) known for groundbreaking direct drive technology and dedication to innovation and quality. In the UK, ENERCON provides support for clients throughout the entirety of the project life cycle from development, through construction, to operations and maintenance, whether for single turbine sites or multi WEC wind farms.

24 St Johns Road, Edinburgh EH12 6NZ
www.enercon.de

D40 - EIL

An Italian electrical company, 40 years of experiences in energy saving, electrification and authomation of all industrial process.

Via Mascagni 30, Porcari 55016 , Italy
www.renergyplus.com

H28 - Energy Elephant

EnergyElephant helps organisations make better energy decisions using their data. See how A.I. can help reduce your energy costs, save you time & improving sustainability.

The Tower, Trinity Technology & Enterprise Campus, Grand Canal Quay, Dublin D2
www.energyelephant.com

D18 - Energy in Buildings & Industry (EiBi)

Energy in Buildings & Industry (EiBI) is the magazine industry, commerce and public sector organisations turn to for guidance on cutting back on energy use. For over 35 years the UK's only monthly magazine in this sector has helped thousands of companies save millions of pounds through the more efficient use of energy. Every month the magazine provides an unrivalled coverage of the latest technical developments in the industry as well as detailed analysis of the policy and legislative changes that are shaping the market. Please visit our stand D18 to register for your FREE personal copy.

16-19 Hawkesyard Hall, Armitage Park, Rugeley WS15 1PU
0188 957 7222 | info@eibi.co.uk
www.eibi.co.uk

PROMOTING ENERGY EFFICIENCY
Energy in Buildings & Industry EiBI

Theatre sponsor - ENGIE

ENGIE is a leading energy and services company, employing 17,000 people in the UK, across three main activities: energy, facilities management, and regeneration. With a strong focus on creating great sustainable business environments, we work in partnership with our customers to help them to optimise the quality and efficiency of operations, reduce their carbon footprint and lower costs. By integrating energy supply, efficiency, facilities management and smart buildings solutions, we can deliver guaranteed savings, combined with improved efficiency and sustainability. Helping our customers to make the transition to zero carbon.

No 1 Leeds, 26 Whitehall Road, Leeds LS12 1BE
0113 306 2000 | emma.rushworth@engie.com
www.engie.co.uk

ENGIE

Networking Area - Energy Managers Association (EMA)

The EMA is the leading professional membership association improving the position of energy management experts, establishing best practice in energy management and encouraging knowledge exchange. The association acts as a united voice for energy managers across all industries with the aim of putting energy management at the heart of British business. It is run for the benefit of individual energy managers, and all delivered initiatives and activities, underline its energy demand focus, with energy reduction being the key driver.

N105 Vox Studios, 1 -45 Durham Street, London SE11 5JH
0203 176 2834 | enquiries@theema.org.uk
www.theema.org.uk

ema energy managers association

E59 - Engineered Systems (Electrical) Ltd

ESE Ltd provides quality assured electrical engineering and contracting services to customers across the UK. Established in 1992, we specialise in full turnkey solutions for electrical infrastructure.

1 Waterside Industrial Park, Waterside Road, Leeds LS10 1RW
www.eselimited.co.uk

G72 - Enviroment Times

Established in 1993, Environment Times for 26 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
www.environmenttimes.co.uk

ENVIRONMENT times
CURRENT ENVIRONMENTAL BUSINESS INFORMATION FROM THE UK SINCE 1993

B42 - Enwa Water Technology UK

Enwa supply environmentally friendly technologies for water treatment; EnwaMatic® chemical free water treatment and side stream filter for HVAC systems. Plus disinfection solutions; Bin-X,UV and AOP.

The Engine Block Units 5-7, The Sidings, Merrylees Ind Est, Desford, Leicester LE9 9FE
www.enwa.co.uk

D55 - eSight Energy

eSight Energy is the leading global supplier of energy management software for businesses. We empower businesses to reduce energy consumption and manage their environmental responsibilities.

5 Carisbrook Court, Buckingway Business Park, Cambridge CB24 4UQ
www.esightenergy.com

F1 - EWT

EWT large rotor wind turbines are designed to proven Direct Drive technology, deliver excellent energy yields, ideal for industrial sites. With UK based service techs, the fleet is 24/7 monitored.

Thistle Court, Edinburgh EH2 1DD
www.ewtdirectwind.com

A9 - Farm Energy

The Farm Energy Company was formed in 2011 as 'The Farm Energy Partnership' by two UK farmer / landowners with a common desire to develop sustainable renewable energy projects. We are driven by ensuring that the appropriate site is chosen for the correct renewable technology and have developed a portfolio of wind, solar and biogas projects across the UK.

The Brick Barn, Court Road, St Nicholas at Wade CT7 0PT
www.farmenergy.co.uk

Flexible Power Zone - Freedom

We advise, design, build, connect, maintain & renew infrastructure assets across both the private & public sectors in the UK.

7 Brown Lane West, Leeds LS12 6EH
www.freedom-group.co.uk

H10 - Global Office Supplies Ltd

Global Office Supplies are the UK's leading Eco-friendly office supplier specialising in cutting down costs on all the products your office requires on a daily basis.

Global House, Bexleyheath DA6 8AH
www.globalofficesupplies.co.uk

global
OFFICE SUPPLIES

D10, Sponsor - 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 sources.

Energy House, 65 High Street, Gateshead NE8 2AP
www.greenenergyconsulting.co.uk

Green Energy Consulting

A55 - Greentec International Ltd

Manufacturers of the O-PEN, the world's first open PEN detection for three-phase PME infrastructures. Allowing for safe compliant installation of EV charge points without Earth rods.

Unit 5 Common Barn Farm Tamworth Road, Lichfield WS14 9PX
www.greentecint.com

Flexible Power Zone - GridBeyond

GridBeyond, founded in 2007, is the leading provider of demand side response, intelligent energy services and flexibility solutions for industrial and commercial organisations.

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

A6 - GridDuck

Energy management system for consumption monitoring and analysis, remote control and automation. Includes wireless hardware, an online dashboard and an API. Certified for cybersecurity (ISO 27001).

Unit G.06, Belgravia Workshops, Marlborough Road, London N19 4NF
www.gridduck.com

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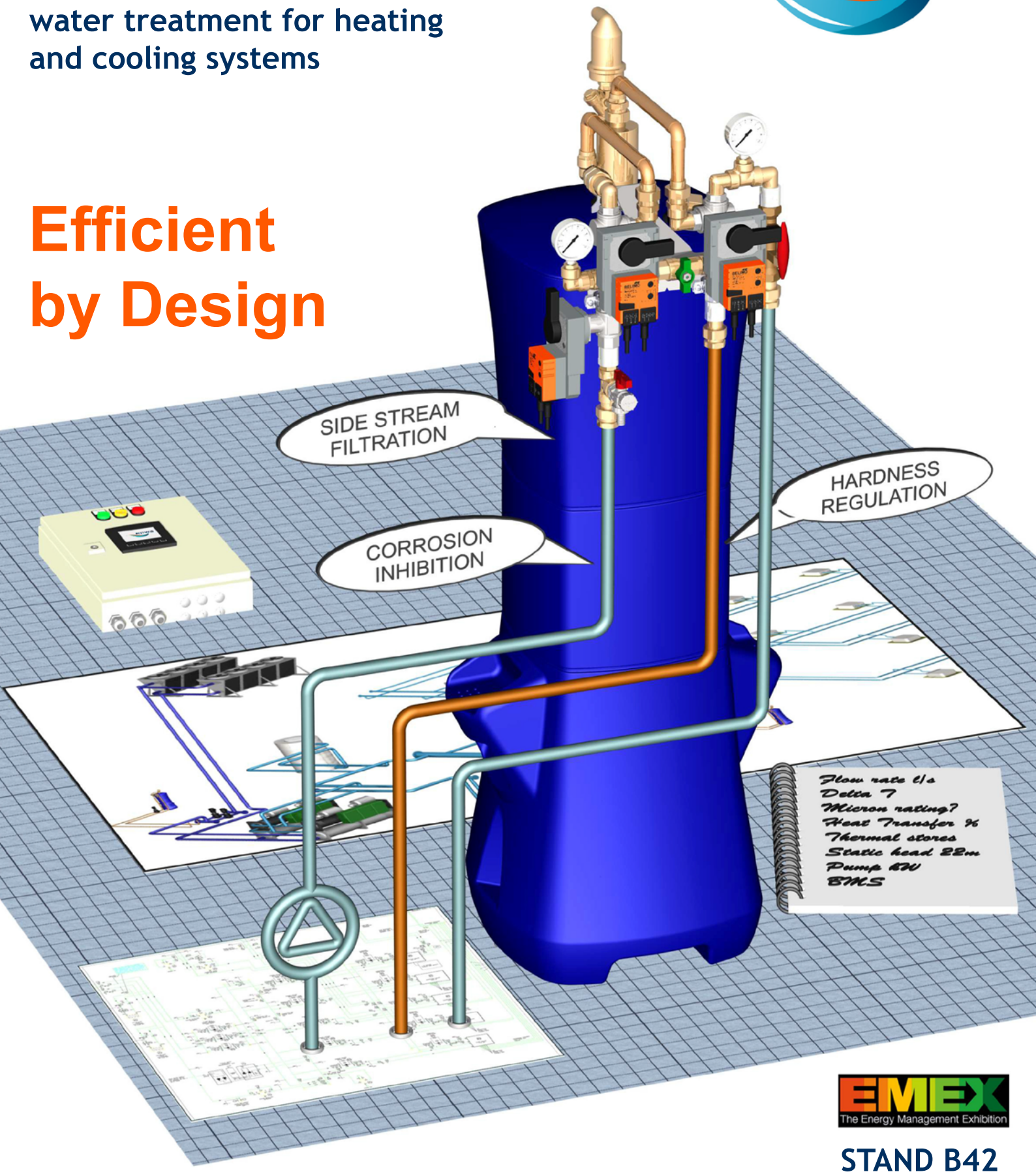

EMEX
The Energy Management Exhibition

STAND B42

ENWA WATER TECHNOLOGY 01530 830 354 uksales@enwa.com www.enwa.com

C74 - gridIMP

gridIMP is a provider of AI driven energy demand management technology. Based in the UK, we develop highly scalable products for the UK and international energy markets.

Somerset Energy Innovation Centre, Bridgwater TA6 4FJ
www.gridimp.com

B57 - Group Horizon

Group Horizon have launched the new Junior Energy Management Apprenticeship with partners npower. Group Horizon are a National Training Provider offering a specialist range of Apprenticeships and workforce development programmes. We offer Apprenticeships in Manufacturing, Management and are one of the first providers in the UK to offer the new Junior Energy Management Level 3 Apprenticeship. This Apprenticeship will address the need for in-house energy management skills which can benefit organisations and lead to long term savings. Visit our stand to speak to one of our team.

G24 The Avenues, Gateshead NE11 0[illegible]
www.grouphorizon.co.uk

GroupHorizon
LIGHTING UP YOUR FUTURE

B20 - Grundfos Pumps Ltd

Grundfos, the world's largest dedicated pump company, is focussed on sustainably delivering pumps and pumping solutions with in-built reliability, energy efficiency and intelligence for process industry and chemical applications. Their in-depth knowledge means they can supply a bespoke range of pumps, drives, sensors and controls that deliver energy and process optimisation through system integration. With over 70 years of experience and expertise, the Grundfos Group employ 19,000 people in sales and production roles in 83 companies worldwide. Founded in Denmark in 1945, the Group now has an annual turnover of £3 billion+ and produces 17 million pumps per year.

Grovebury Road, Leighton Buzzard LU7 4TL
www.grundfos.co.uk

GRUNDFOS

B28 - Hark

Hark are servicing industries from manufacturing to retail through their cloud-based platform which allows companies to simplify their route to intelligent assets, improve efficiencies & reduce waste.

Unit 1.1 Mortec Park, Leeds LS15 4TA
harksys.com

G1 - Hertz Kompressoren

Hertz Kompressoren is a premium brand of Dalgakiran Group Company, one of the leading air compressor producers in the world which has developed a truly international Compressed Air Sales & Service network worldwide. Hertz Kompressoren was founded in Germany with aim of manufacturing air compressors with high level of German engineering.

15 The Meadows, Radcliffe M26 4NS
www.hertz-kompressoren.co.uk

B27 - HMS Networks

HMS Networks is the leading independent supplier of solutions for industrial communication and the Industrial Internet of Things, IoT.

The Venture Centre, Sir William Lyons Road, Warwick University Science Park, Coventry CV4 7EZ
www.hms-networks.com

B62 - Hysopt

Hysopt is unique design software that helps building managers optimise heating and cooling systems to reduce annual energy costs by 30-40% and improve HVAC performance.

BredaBaan 837, Antwerpen/Merksham 2170
www.hysopt.com

C40 - Hytronik UK

Hytronik is a leading supplier of energy saving products and intelligent lighting control solutions and have been designing and manufacturing since 2007.

Priory House, Mimram Road, Hertford SG14 1NN
www.hytronikuk.com

G10 - IEMA

IEMA is the professional body for everyone working in environment and sustainability. We provide resources and tools, research and knowledge sharing along with high-quality formal training and qualifications to meet the real world needs of our members. We believe that together we're positively changing attitudes to sustainability as a progressive force for good. Together we're transforming the world to sustainability.

City Office Park, Tritton Road, Lincoln LN6 7AS
www.iema.net

IEMA
Transforming the world to sustainability

C70 - IES Ltd

IES delivers technology that reduces the carbon emissions of buildings and cities worldwide. Our aim is to see that technology used by every building of every city to secure a sustainable future.

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

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.

The Orangery, East Lockinge, Wantage OX12 8QH
www.igniteenergy.co.uk

IGNITE ENERGY

A53 - Infrared Heating Supplies

We have been quick to establish ourselves as one of the leading providers of Infrared Heating in the United Kingdom. Offering competitively priced products, strong product guarantees, and product.

Unit G10 Hartford House, Bolton BL3 2AW
0120 452 0544 | info@infraredheatingsupplies.com
www.infraredheatingsupplies.com

B45 - IngSoft GmbH

We develop software for energy management. Market-leading solutions and open, trusting cooperation are our hallmarks. When developing our energy management software, we always think one step ahead and consider all facets of energy management. IngSoft InterWatt is full of innovative solutions for your energy management. The software offers maximum flexibility for your current and future tasks, including data connection and evaluation. Artificial intelligence, such as pattern recognition, and other automatisms relieve you in your daily work.

Irrerstraße 17, Nuremburg 90403 , Germany
www.ingsoft.de

B10 - Innotech Europe Ltd

Innotech Europe has represented the BEMS/BMS control systems from Innotech Australia since 2004. Innovation guarantees affordability, simplicity, flexibility and unparalleled life-cycle costs. Since it's release in 2017, the Innotech Omni BEMS platform with, native BACnet, cross-platform web-server, alarms, and fully programmable points has gone from strength to strength with continuous development and enhancement. Come and review Omni at EMEX 2019 and discuss partner opportunities and see how Omni will provide your competitive edge.

Unit 18 Henley Gardens, Yateley GU46 6LG
www.innotech.com

E16 - Innovatium Group

Innovatium is a technology company which focuses on renewable energy. We invent, develop and commercialise equipment and processes which reduce the carbon intensity of existing processes.

Spiersbridge House, 1 Spiersbridge Way, Glasgow G46 8NG
www.innovatium.co.uk

A16 - iScape Ltd

In 20 years of Wireless Monitoring, iScape products have monitored energy and environment in basements, offices, water-pits, plant rooms & fridge/freezers, using MODBUS, MBUS, GPRS, Ethernet, Pulse & Current Transformers.

20 Mulcaster Avenue, Swindon SN5 6EH
www.iscape.co.uk

G70 - IWFM

The Institute of Workplace and Facilities Management (IWFM) is the body for workplace and facilities professionals.

1st Floor South, Charringtons House, Bishop's Stortford CM23 2ER
www.iwfm.org.uk

iwfm
Institute of Workplace and Facilities Management

A80 - JRP Solutions

JRP Solutions are energy, sustainability and FM outsourcing specialists with vast practical experience of delivering energy, carbon and cost savings across the whole asset base in all sectors.

Richmond House, Hawkesbury Upton GL9 1BX
www.jrpsolutions.com

C72 - Katronic Technology

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
0786 667 4814 I asutton@katronic.co.uk
www.katronic.co.uk

D75 - KBR GmbH

KBR is a family owned company in the south of Germany with more than 40 years experience in the business of energy data management and power factor correction. In our facilities in Germany we develop and produce our energy management devices, software for energy data management solution, power capacitors, filter reactors, power factor controllers and complete pfc units.

Am Kiefernschlag 7, Schwabach 91126 , Germany
www.kbr.de

KBR
Energy Management

B18 - Kelda Technology

Kelda Technology has created the world's most efficient water-saving shower designed and manufactured in the UK. Against a backdrop of global water scarcity and water stressed regions in every continent of the world, Kelda Technology is the pioneer of water-in-air shower systems that are independently proven to reduce water consumption, energy consumption and carbon emissions by at least 50% compared to traditional showers - without compromising on shower experience.

2 Venture Road, Chilworth SO16 7NP
www.keldatechnology.com

kelda

A28 - Lightsave LED

We are a high tech specialist LED lighting developer, manufacturer and supplier of LED light fittings and fixtures. We provided technical expertise and lighting solutions.

Lightsave Led, Unit 91 Court Hill House, Water Lane, Wilmslow SK9 5AJ
www.lightsaveled.com

E11 - Modern Building Services (MBS)

Modern Building Services is the leading independent journal for designers, contractors, installers and end-users in the building services sector. We have 23,726 readers across the entire UK industry.

5 Viewpoint, Babbage Road, Stevenage SG1 2EQ
www.modbs.co.uk

MBS
MODERN BUILDING SERVICES

B14 - ND Metering Solutions

ND Metering Solutions: "Engineering a business case for energy efficiency since 1973". Our UK made energy management meters provide real time, accurate measurement of a full range of energy parameters, enabling end users to manage their energy usage effectively. Installed around the world in all sectors, our design ethos is embedded in a full appreciation of the urgency of our climate emergency. This translates into modular designs, multiple meters per case, automated commissioning, net zero direct operations, and a 5 year industry leading warranty. We look forward to discussing your energy management metering projects on Stand B14.

228 Bolton Road, Bradford BD3 0QW
www.ndmeter.co.uk

ND
Metering Solutions
www.ndmeter.co.uk

H32 - Netcontrol UK Ltd

Energy reduction and control is our focus. We work with DNOs and Energy Intensive Industries to control and monitor MV and LV networks to improve security of supply and reduce energy costs.

Unit 4E, Bramhall Morr Technology Park, Pepper Road, Hazel grove, Manchester SK7 5BW
www.netcontrol.com

A5 - NewFound Energy Ltd

Supplying energy monitoring and control systems since 1988 see our latest AtlasEVO Energy Monitoring System, plug-in 3 ph meter, Profile Portable Energy Recorder and Smappee Infinity cloud package.

Park View House, Worrall Street, Congleton CW12 1DT
www.newfound-energy.co.uk

B65 - Northern Gas & Power

We have been providing professional energy services for almost a decade and saving our clients millions in the process. Northern Gas and Power offers specialist services in energy procurement, energy management, targeting, and reduction. We are the largest energy consultancy by customer volume and managed TWhs and we work with tens of thousands of clients across three continents.

Baltic Place, Floor 8 East Tower, Gateshead Road, Tyne & Wear,, NE8 3AE
www.ngpltd.co.uk

E14 - Nicotra Gebhardt

With over 60 years expertise and experience as well as one of the broadest product ranges available, Nicotra Gebhardt is a market leading manufacturer of high efficiency fans. Whether backward or forward curved, belt or direct-driven, single inlet, double inlet or free-running plenum (plug) fans, Nicotra Gebhardt leads the market in efficiency. Our ground-breaking RQM Hybrid fan sets the benchmark in terms of aerodynamic and system efficiency levels with the lowest possible SFP's, specifically designed for air handling units and ideal for retrofit and refurbishment of existing HVAC plant.

Unit D Parkgate Business Park, Rotherham S62 6JQ
www.nicotra-gebhardt.com

NICOTRA Gebhardt

D48 - Novalux Energy Solutions Ltd

Novalux Energy has grown extentially from energy efficiency to incorporate biomass, solar and CHP and EfW technology and is now one of the leading renewable energy companies in the UK.

Blackbrook Estate, Abergavenny NP7 8UB
www.novaluxenergy.com

F42 - Off Grid Energy

OGE deliver clean and efficient energy solutions across a wide range of commercial and domestic applications. Hybrid battery storage offers low carbon, energy efficient and sustainable power.

Unit 6 Pelham Road, Central Park, Rugby CV23 8YP
www.offgrid-energy.co.uk

offgrid energy

C3 - Optimised Buildings

Delivering a typical ROI<12 months through the optimisation of the HVAC/BeMS through Analytics, DSM and aM&T as a managed service.

1 Ivanohoe Office Park, Ashby de la Zouch LE65 2AB
www.optimisedbuildings.com

A7 - PE Energy Solutions Ltd

International provider of complete energy efficiency solutions from legal compliance auditing (TM44 Inspections, EPCs, DECs, ESOS) right through to lamp upgrades, provision of CHP, renewables, controls and Energy Performance Contracting options. Working in partnership with leading international businesses, manufacturers and industrial partners we have helped over 700 businesses reduce energy waste, ensure legal compliance and advance their efficiency measures to become fully optimised efficiency organisations.

3rd Floor, 207 Regent Street, London W1B 3HH
www.peenergysolutions.co.uk

PE Energy Solutions

Flexible Power Zone - Piclo

Piclo Flex is the independent marketplace for trading energy flexibility online.

64 Clifton Street, EC2A 4HB
www.picloflex.com

B80 - Pinnacle Power Ltd

Pinnacle Power designs, builds, operates, maintains, and provides the customer services for UK District Heat Networks. We work withlocal authorities, developers and housing associations.

6 St Andrew Street, London EC4A 3AE
www.pinnaclepower.co.uk

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 fifth 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.

National Grid House, Gallows Hill, Warwick CV34 6DA
www.powerresponsive.com

power responsive
nationalgridESO

D34 - Powerstar

Powerstar is a leading manufacturer of smart energy technologies with an engineering core, dedicated to helping clients achieve their short- and long-term energy goals through bespoke solutions.

4 Cowley Way, Sheffield S35 1QP
www.powerstar.com

powerstar

E74 - Principal Lighting Ltd

Principal Lighting specialise in energy efficient LED lighting. A free no obligation lighting design/energy saving service is available.Our product range provides for all internal and external areas.

Unit 21, Doncaster DN3 3GW
www.plighting.co.uk

A42 - Roadnight Taylor

Deep, independent consultancy expertise covering renewable and flexible generation, demand management, energy storage, grid connections, microgrids, vehicle charging, tariffs, metering and heat.

Long Barn, The Old Brewery, Priory Lane, Burford OX18 4SG
www.roadnighttaylor.co.uk

H58 - SECR Reporting Ltd

Streamlined Energy & Carbon Reporting is a requirement introduced in April 2019 mandating that large UK companies must report annually on energy consumption, carbon Emissions, intensity Metrics, energy efficiency actions, methodology used. The EMA has created a software for SECR compliance which streamlines the data collection and reporting process. It is easy to use, requires little or no training, can be setup quickly, and provides all the required reports as standard with no hidden costs.

Unit N105, North Building Vox Studios 1-45 Durham Street, London SE11 5JH
www.theema.org.uk

SECR REPORTING LIMITED

D17 - SGS United Kingdom Ltd

SGS experts 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.

Rossmore Business Park, Ellesmere Port CH653EN
www.sgs.co.uk

SGS


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Global Procurement Group™

G74 - Simble Solutions

Simble is a smart energy technology company focused on energy management and IoT solutions. Our mobile apps empower users to monitor, control and reduce their energy consumption and carbon emissions.

33 Queen Street, London EC4R 1BR
www.simbleenergy.co.uk

F10 - SMS plc

At SMS Plc, our consolidated metering, data, and energy management services are helping large UK businesses deliver their sustainability strategies and contribute to the UK's net-zero carbon targets.

Copse Walk, Cardiff CF23 8XH
www.sms-plc.com

H40 - Society of Operations Engineers

SOE promotes efficient and environmentally sustainable operations engineering, through the support of best practice, safety initiatives and a commitment to the professional development of our members.

22 Greencoat Place, London SW1P 1PR
www.soe.org.uk

Society of Operations Engineers

H20 - SolarEdge Technologies

By leveraging world-class engineering capabilities, and with a relentless focus on innovation, SolarEdge creates smart energy solutions that power our lives and drive future progress.

2 Angel Square, London EC1V 1NY
www.solaredge.com

B1 - Solarjuice

Solarjuice engineering is part of the wider Solarjuice family of companies with a common goal of helping companies achieve a smooth transition from fossil fuels to a sustainable future, whatever shape that takes

The Finsbury Business Centre, 40 Bowling Green Lane, London EC1R 0NE
www.solarjuice.co.uk

D50 - Solvera Lynx

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www.solvera-lynx.com

H24 - Space4Climate - NCEO

pace4Climate supports the UK's climate community in delivering, sustaining and making use of trusted climate data from space. Visit the stand to meet National Centre for Earth Observation researchers.

The University of Reading, Room 3L37 Dept of Meteorology, 58 Earley Gate, Reading RG6 6BB
www.nceo.ac.uk/space4climate

Flexible Power Zone - Scottish and Southern Electricity Networks (SSEN)

At SSEN we are responsible for maintaining the electricity networks supplying over 3.7 million homes and businesses across central southern England and north of the Central Belt of Scotland.

Inveralmond House, 200 Dunkeld Road, Perth PH1 3AQ
www.ssen.co.uk

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Sylvania Lighting's SylSmart uses the latest technology to detect human presence and natural light levels, adjusting the levels of artificial light to match the needs perfectly. Busy areas like foyers and corridors will stay bright and well lit, where as quieter areas like meeting rooms and lesser used corners of the your building will automatically dim gradually over time to save energy. Additionally Sylvania provides a suite of SmartServices designed to complement its comprehensive range of light fixtures - taking a project from initial audit through to final commissioning - including the option to finance from the energy savings achieved.

Avis Way, Newhaven BN9 0ED
www.sylvania-lighting.co.uk

SYLVANIA

Official magazine - The EMA Magazine

Published 6 times a year, THE EMA MAGAZINE covers features related to energy management, sustainability and environment. It is aimed at anyone with energy management responsibilities who needs to stay informed about the latest news, legislation and best practice.

Distributed to more than 5,000 national readers, responsible for over 44% of spend in the Energy Sector which equates to an annual market expenditure of over £8bn per year. Research conducted by the publishing industry shows that more than 70% of recipients share a professional magazine with at least four peers or colleagues, reaching 20,000 people in the industry every month. Please visit our website to become a subscriber or call to advertise.

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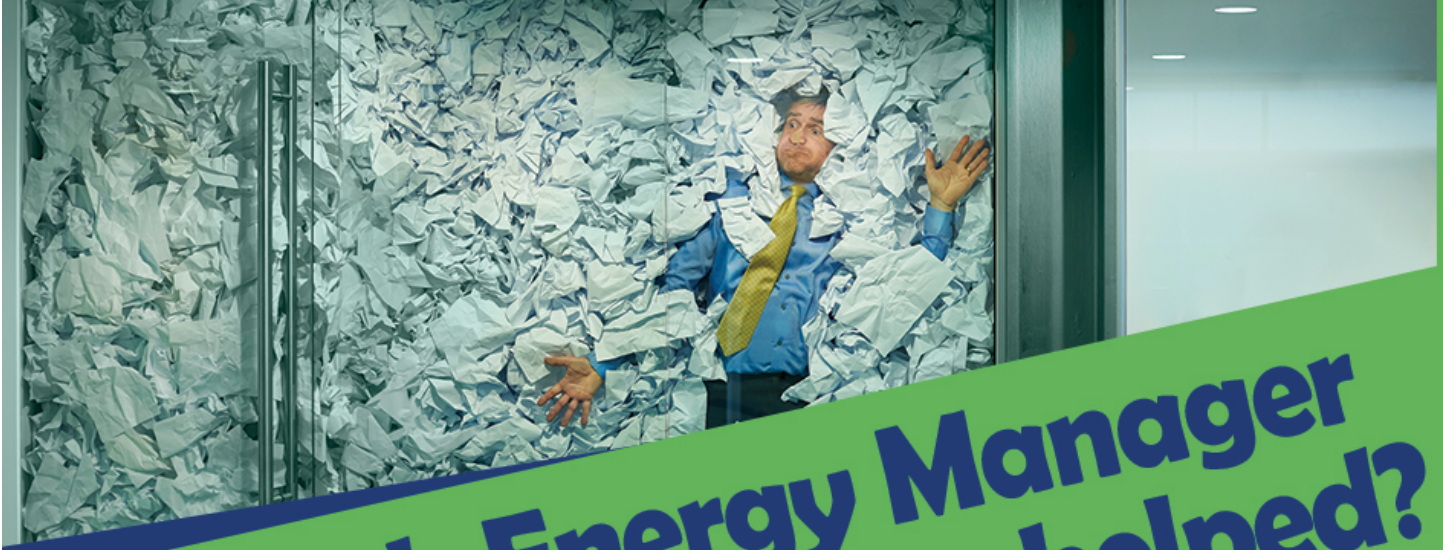
THE EMA MAGAZINE



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The Weather Company is the world's largest private weather enterprise delivering up to 26B forecasts daily and the most accurate, personalized, and actionable weather data to inform business decisions.

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E5, E45 - Thorlux Lighting

Thorlux Lighting designs and manufactures a range of professional lighting and control systems including energy efficient solutions for commercial, floodlighting, industrial and tunnel applications.

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0152 758 3200 | thorlux@thorlux.co.uk
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D70 - Verde LED

VERDE LED is an established force within the LED industry, and has a presence in the medical, pharma, industrial food processing warehousing, retail, education, sports & commercial/office sectors.

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H5 - Wattstor

Wattstor builds intelligent Energy Storage Systems to facilitate the transition towards a renewable energy ecosystem and emerging smart grids. Founded in 2013 in Cornwall, United Kingdom, we have 5+ years of experience in design and delivery of speciality battery systems for homeowners and small businesses and have traditionally had strong relationships with PV installers. Our team is dedicated and spread throughout offices in London, Cornwall, Northern Ireland and an R&D and production facility in Czech rep./ Slovakia. Now, we are launching a brand new product line with a strategic plan to roll-out nationally and internationally.

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Weishaupt is a future-oriented organisation. Looking forward, the greatest challenge that we see is the responsible stewardship of the earth's resources; something we have been working on for more than 80 years. New products developed in our own in-house R&D facility enable Weishaupt to offer combustion equipment that can achieve the most stringent emissions requirements from around the world. If you would like a no obligation survey of your existing combustion plant then visit Weishaupt at stand B61 and make an appointment.

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www.weishaupt.co.uk

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C28 - Wilson Power Solutions

Award-winning energy-efficient power and distribution transformers manufacturer. With over 1000 installations across the UK, WPS helps organisations reduce their CO2 through ultra-low loss transformer.

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www.wilsonpowersolutions.co.uk

B30 - ZTP

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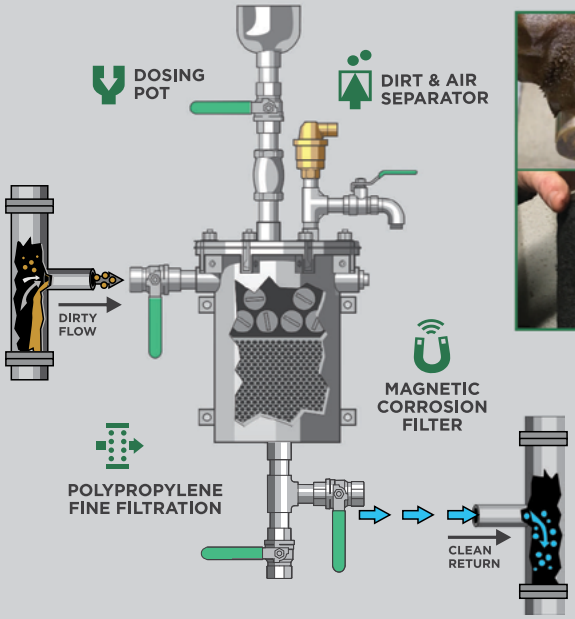

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by KELDA TECHNOLOGY

kelda

EMEX stand B18

Case study
GLL – Oasis leisure centre

Working in partnership with GLL, Oasis Leisure Centre reduced their annual water and energy consumption through installing Kelda showers by £10,000 per year, at current costs.

Oasis 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 Oasis Leisure Centre is a large entertainment and sports complex, situated outside Swindon town centre.

Installation

Twenty-one of Kelda's innovative water-saving showers were installed in the poolside area. Each panel was specified with an E3 Fixed shower head and timed-flow digital button, to promote water reduction.

The new high-efficiency shower systems operate using low flow rates without compromising on experience. Each shower system provides the optimum ratio of water and air, which is accelerated using a jet-type nozzle, creating 200% the power of a traditional mains pressured shower.

The previous showers were operating at an average flow rate of 8.0 l/min - the Baseline Flow Rate. Kelda showers were set to a flow rate of 5.0 l/min, providing an equivalent spray force of 10.0 l/min.

Resultssss

Installing Kelda showers in the poolside area resulted in a 38% reduction in water and generated annual savings of £10,892, at current costs, against a capital investment of £12,999.

This is equivalent to an Return on Investment (ROI) of 15 months. Assuming a standard industry refurbishment of c. 5 years, this would provide a total project saving of £41,461 at current costs.

Despite offering a 38% reduction in water consumption, Kelda's unique and patented shower system provided a 125% improvement in shower experience thanks to it's innovative E3 technology.

Key Facts

- Patented water-in-air technology
- Reduces water consumption
- Increases spray force by 200%
- Improvement in shower experience
- Reduces water & energy costs
- Reduces CO2 emissions

GLL Feedback

"Working with Kelda was simple and easy. The project has supported our vision, which includes reducing consumption but improving customer experience. To say we are happy is an understatement."
Max Wilshaw, General Manager at GLL

To find out more, please visit us at EMEX, stand B18, or get in touch: keldatechnology.com; sales@keldatechnology.com

by VEXO

Saving money, water & CO_2 emissions, by restoring and cleaning-up your heating or cooling water systems doesn't have to be expensive nor intrusive.

More than ever, there is a need to address climate change, water use and sustainability. Focus is now being placed on both habits, policies and legislation within organisations to ensure we "all play our part". It is great to see new greener technologies advancing and becoming more commercially viable, but this uptake still has some way to go if we are to meet the UK's commitment of signing-up to the Paris climate change agreement (November 2016).

The fastest impact we can make towards achieving carbon Zero is a call to action to address our current infrastructure and habits, whether it be intelligent controls for energy use, better building insulation, electric cars, triple-glazed windows and so on. There is not only an emphasis on new technologies to address climate change and water conservation, but also retrofitting solutions to current infrastructure to make a significant impact, augmented by the never-ending need of education to change habits within society.

One area of improving energy efficiency is within the performance of heating and cooling systems in residential and commercial properties as, once commissioned, the efficiency of these systems is never calculated. However, information pertaining to the correlation of water quality within these systems mentions facts one should be aware of:

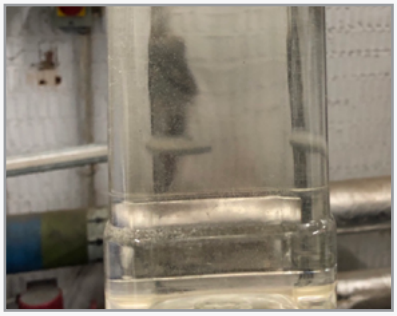
- "A 1-mm layer of limescale will cause a 7% increase in energy input to the boiler to meet the same heat demand." – Carbon Trust
- "An estimate of between 5–10% loss of efficiency due to the build-up of excess air/hydrogen gas within the radiators – Carbon Trust
- "A new system can be up to 6% less efficient within a matter of weeks if it hasn't been treated correctly" – DECC
- "Indications are that dirt or other deposits can cause very large measurement errors of over 10%" - AECOM/DECC/BSRIA (an investigation into Heat Meter Errors)

When taking this into account, it also should be noted the impact on sustainability (due to the above), as 'dirty water' systems affect the lifecycle of system components, reliability and water loss. Just as a car owner understand the need to service and maintain his car engine (in particular the oil and filter), so should we understand the need to maintain a high level of water quality within closed loop heating & cooling systems.

Sold with great success across the globe, the patented and award-winning Vexo X-POT (all-in-one) closed-loop water conditioning unit, along with 2× environmentally friendly 'non-flush' Vexo X-PO additives, has already been retrofitted onto thousands of systems throughout the UK, and hundreds overseas. Vexo X-PO10 Inhibitor has proven energy savings of up to 10%, and the Vexo X-PO35 unique 'non-flush' cleanser provides customers important capital and operational budget savings, whilst improving system performance and temperatures.

This is a user-friendly retrofit solution example of an innovative technology available today, addressing improvements to current infrastructure. This is why it is used by many of the UK's universities, hospitals, schools, commercial and Government buildings to restore performance, reliability and lifecycle without wasting any water, making it a non-intrusive and cost-effective solution.

Get in touch with Vexo today for more information at www.vexoint.com or +44 (0) 1767 500 150



Clean system water post 5 micron

X-POT XP magnet grate with magnetite

X-POT6 magnet grate with iron and biofilm

Wilson Power transformers win IEMA sustainability award

The Institute of Environmental Management and Assessment (IEMA) launched Sustainability Impact Awards to recognise businesses and individuals with a prominent sustainability impact.

Wilson Power Solutions received the award for the New Product, Service or Technology category. The award came as recognition of Wilson e2 Super Low-Loss transformers that have been in the market for over 10 years now. Wilson Power's amorphous transformers addressed the losses problem to reduce carbon emissions.

Ayah Alfawaris from Wilson Power said "we are proud that our transformers got recognised for the carbon reduction and energy savings they offer. This is an often-overlooked area of energy efficiency that we addressed through R&D. Universities, NHS hospitals, Retailers and Manufacturers are some sectors we focus on to push for this carbon reduction route."

IEMA judge's comment on Wilson's application was "This product has made a real difference in practice in the often-overlooked area of energy efficiency, and within this area, the equally overlooked technology of transformers. It demonstrates innovative thinking – innovation which is continuing to be developed in the e3 model."

IEMA Transforming the world to sustainability
IEMA Sustainability Impact Awards 2019
WINNER

Leeds-based manufacturer was named amongst 19 winners out of 106 total shortlisted organisations and individuals. Foreign and Commonwealth Office, Arriva, University of Manchester, and Environment Agency are some of the winners alongside Wilson Power.

Over 1000 Wilson e2 Super Low-Loss amorphous transformers are installed around the UK. These transformers help organisations reduce their energy waste through improved transformer losses. This is very instrumental for organisations with strict carbon reduction targets. Wilson amorphous transformers can save organisations on average more than 500 tons of CO_2 emissions when they replace old energy-guzzling transformers.

Wilson Power has recently launched recently Wilson e3 Ultra Low-Loss Amorphous Transformer. It far exceeds EU Eco-Design (Tier 2) specifications that are due to come in force in 2021 and sets ambitious standards for Tier 3.

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

by LED Industrial Lighting

Compliance and energy efficiency in one solution

For businesses involved in the storage of dry bulk goods, such as animal feeds, the requirement for regulatory compliance is essential – energy savings can often be seen as a bonus. .

Imagine combining these two elements into one bespoke solution. That is what Bristol Port achieved when converting one of their Avonmouth warehouses to a dry bulk storage facility.

G Shed is a dedicated animal feed warehouse offering storage, blending and milling of animal feeds and grains. The operations within the shed required a wholesale upgrade to hazardous area fittings, including provision of emergency lighting. The project also enabled the existing HPS floodlighting to be replaced with high efficiency hazardous area lighting through the LED Industrial Lighting Co. Ltd.

The ATEX LED lighting solution

The key objectives were to find suitable low maintenance ATEX light fixtures which would improve the quality of the lighting, were reliable, durable, and could achieve energy savings. The Dialight SafeSite product range was able to match these criteria, having a long track record in the aggressive marine environment. The solution was a combination of ATEX High Bay for the main operating areas and Dialight's LED Stainless Steel Linear for the emergency requirement.

The rewiring of the building to comply with hazardous area regulations, facilitated the opportunity to reposition the high bay lights to improve uniformity and lux levels around the main milling and blending machinery. The drab orange light from the old fittings has been replaced with a clean white light enabling the personnel to operate in greater safety and enhanced colour definition of the bulk feeds.

The switch to LED has multiple benefits for Bristol Port, including halving the energy consumption for the shed, CO2 savings, zero maintenance, and a return on investment of under four years. With a 10-year warranty and rated product life of 150,000 hours, this solution eliminates maintenance and significantly improves efficiency and safety in a challenging and volatile environment.

Call us on 01242 250633 or email info@ledindustriallighting.co.uk for a bespoke solution to your lighting project.

by Global Procurement Group

Global energy specialist launches new technology to help businesses cut energy costs and carbon

A fast-growing global energy and technology consultancy has developed ground-breaking new technology to help businesses monitor and manage their energy usage more effectively.

Global Procurement Group (GPG) has developed innovative new technology which provides real-time data that helps companies determine how much energy their assets use at any given point in time. The technology has been developed by the company's tech arm ClearVUE Systems and Energy Lab, based in Malta and India, respectively.

The innovative technology allows businesses to accurately measure usage and proactively manage it, helping them to reduce costs and carbon, in the drive towards the UK Government's 2050 zero net economy.

ClearVUE's Alpha.Lite energy software as a service (e-SaaS) is the first of its kind, cloud-based, low-cost monitoring and targeting platform, requiring no expensive hardware or site visits. It provides businesses valuable insight into their energy consumption, identifying inefficiencies and helping them reduce energy costs and waste.

While Alpha.PRO is a next-generation, cloud-connected monitoring and targeting system offering businesses the opportunity for live streaming of energy data down to 1-second granularity, which provides the opportunity for instant action. Businesses gain a 360-degree view of their energy fundamentals, from a single circuit to multiple assets across the globe. It instantly shows them where energy efficiency can be improved and energy waste reduced, saving costs and cutting carbon emissions.

The company launched its technology at its annual conference on 4 October in Newcastle to an audience of 450 plus, including colleagues, customers, business energy suppliers and global media.

Fokhrul Islam, GPG CEO and founder of Northern Gas and Power – part of GPG – said: "From talking to our customers, we understand there's a real demand for change. But the utilities sector needs not only a change of attitude; it also needs a change of technology.

"There is the opportunity to totally transform how businesses use and manage energy, as we move towards a sustainable, low-carbon economy. People want change – businesses tell us they want to become more eco-friendly, but technology has limited their ability. We know there is a real demand for change in people's behaviours and we need to drive that through technology."

The company's technology is used by customer Alnwick Garden, a leading attraction in Northumberland with 360,000 visitors per year. The Duchess of Northumberland's venue boasts the largest Treehouse in Europe and a stunning water fountain display.

Mark Brassell, Alnwick Garden director, said: "This partnership has put the power back in our hands, giving the team access to plan ahead. It's all about avoiding high energy costs and reducing waste. Sustainability is high on our list."

Not only does the technology transform how businesses manage their energy portfolio, it also underpins GPG's future growth. Founded in 2012 by Fokhrul Islam and headquartered in North East England, Northern Gas and Power employed 75 people by 2016/17, growing to 228 the following year and currently at 550 globally. In 2018, revenues reached £29m and are on track for £44m by the end of 2019, with projected GPG revenues to reach £62m by 2020.

In addition to new technology, the company has also launched two energy price comparison sites – Business Energy Quotes and Energie SuperMarché. Targeted to the UK and French markets these are the fastest and easiest low-cost, online business energy prices comparison sites available in their respective markets. Requiring minimal customer input, just business name and post code, can generate a comprehensive range of competitive tariffs from a variety of suppliers.

To find out how GPG could help you, please phone David Bootle on 07506084186.

by LED Eco Lights

Goodlight and NeuxPark light up four major international station car parks with 3,000 LED luminaires

NeuxPark have completed a major Goodlight LED project to refit the lighting in four international station car parks in the South of England with long life, energy efficient LED lamps and luminaires from the Goodlight range. 3,000 LED luminaires including 400 emergency kits were installed in multi-storey and open car parks across these sites, providing the car park owners with up to 80% energy savings.

NeuxPark is a specialist contractor providing bespoke products and niche projects in the commercial and industrial sectors, who has a vast amount of experience within the Rail sector, so welcomed this opportunity. NeuxPark was commissioned to replace the outdated fluorescent and metal halide luminaires in the car parks at St Pancras, Ebbsfleet, Stratford and Ashford, with a total capacity of up to 8,000 spaces. The new luminaires reduce energy consumption and carbon footprint as well as providing brighter illumination for increased safety and security. The operators of the car parks sought longer lasting lights to reduce the frequency of replacement thus eliminating maintenance costs.

Commenting on the project, Richard Jenkins, Technical Director at NeuxPark said, "Knowing the client's requirements within the rail industry, the Goodlight LED luminaires and lamps were the ideal solution to address the client's stringent security and safety specifications. It was at the forefront of the clients specification to deliver the following end result – reduced carbon footprint, lower energy consumption, commercial cost reduction, safer working and public environments, zero maintenance cost, quality well-built products, increased lumen output and enhanced lux levels for this high risk environment. The Goodlight LED products met every requirement and together Goodlight and NeuxPark delivered an exceptional end result."

Saima Shafi, Sales and Marketing Director at Goodlight commented, "Our LED lighting technology offers car park owners more efficient light at a lower cost. The LED lamps and luminaires reach full brightness instantly and are virtually maintenance free with no ballasts or starters needed. This is especially beneficial in external areas, such as in car parks, where the environment is harsher and light fittings may be hard to access. Our products are already specified in exterior installations including London Underground, Liverpool Street Station and a major supermarket chain's car park."

Founded in 2006, LED Eco Lights celebrates 13 years as an award-winning LED lighting and wireless lighting controls manufacturer. Their Goodlight™ range of LED lamps and luminaires are recognised as the most reliable, bright LED lights on the market, suitable for commercial, industrial, amenity, leisure and hospitality environments. Goodlight LED luminaires are compatible with Light Boss Wireless Lighting Control for the ultimate energy efficiency.

For more information, please contact:
LED Eco Lights, Unit 7, J4 Camberley, 15 Doman Road, Camberley, Surrey GU15 3LB
Email: marketing@ledecolights.com
Websites: www.goodlight.co.uk & www.lightboss.co.uk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- Reduce water consumption by at least 50% compared to traditional showers
- Reduce water and energy costs
- Reduce CO_2 emissions

And all of this is done without sacrificing user experience.

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

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