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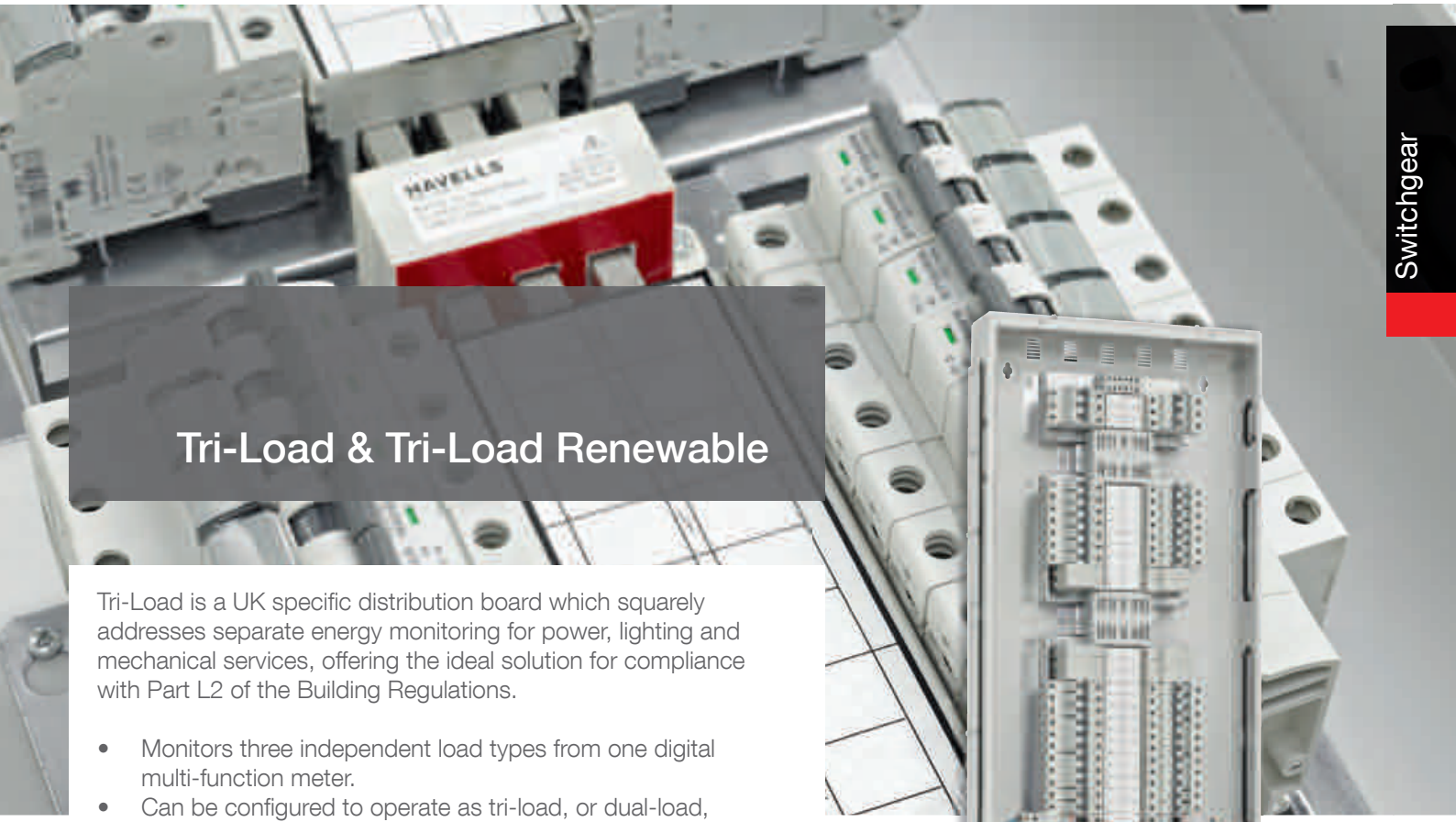

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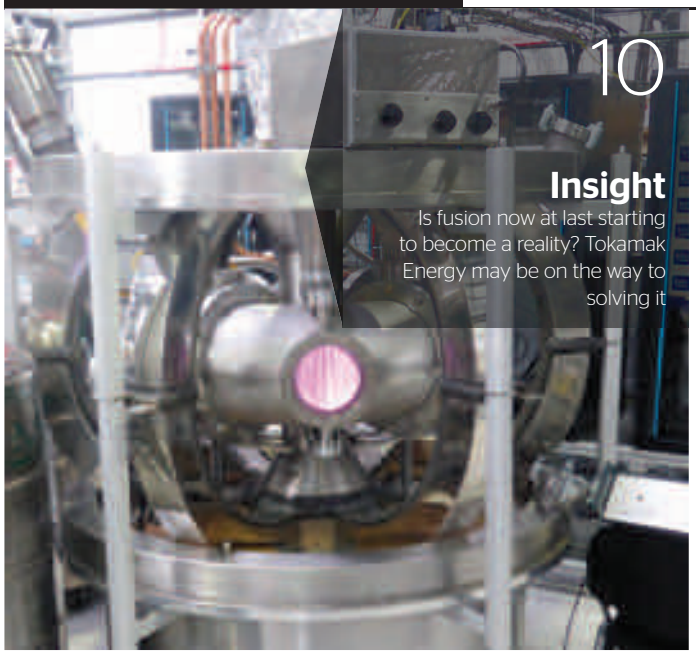

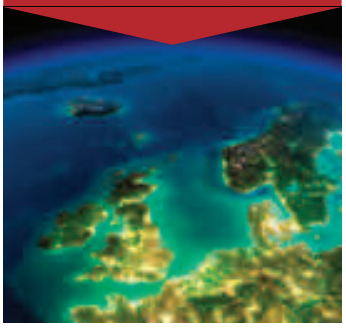

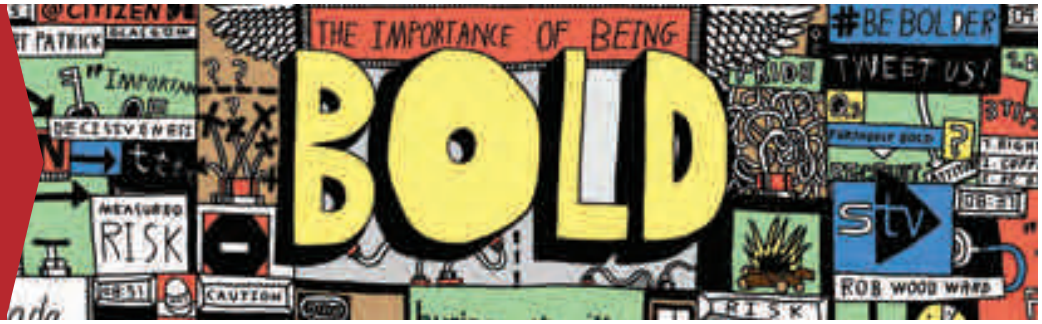

"If an average discount of 5% applies across all consumers, the increased cost would be over £20m"

Demanding a response

The changing nature of the UK's energy mix is forcing grid operators to turn to customers for help. That, in turn, is opening new opportunities for organisations with the right mix of technology and business models to meet those needs. Renewable energy is a disruptive technology to traditional models of generation and it needs a back-up. The challenge this creates to the effective working of an energy grid system is also an opportunity for end-users.

> ***"79% of those that currently do not implement DSR would be interested in doing so***

An effective demand side response (DSR) market can help keep costs down for UK businesses and enable some of them to earn revenue via a demand side response market. By generating revenue in return for some flexibility in their energy use, they can offset energy costs and invest in further energy efficiency measures, thereby making their business more robust, should prices become more volatile as the UK energy market continues to evolve.

The DSR market is currently small, but National Grid believes significant growth can be achieved within the next five years. So what must happen to scale the market?

Readers appear to be interested in demand side response. A recent Energyst survey indicated that 79% of those that currently do not implement DSR would be interested in doing so, with the majority believing they could shift up to 10% of load. Almost a third (29%) think they could shift up to 25% of load. That level of response tallies broadly with companies surveyed which already provide demand response. Yet the vast majority of UK businesses are not engaged in DSR.

Why is it that end-users are not doing something that clearly is of interest and yields revenue for existing assets? It is a complex market with perhaps too many schemes and no real 'glide path' for companies to understand the route from dipping a toe in the water to high-level engagement in demand response markets. There is also the issue of half-hourly settlement. Currently only around 100,000 businesses are settled half-hourly. Scaling DSR will require more urgency in expanding half hourly settlement.

On the 10th September The Energyst in association with National Grid & Open Energi will host a breakfast briefing at the London Capital Club. We invite businesses to attend, share their views and ask questions about demand side response in order to better understand how it will affect future operations and help inform policy decisions.

To download a copy of the report and register for the event go to theenergyst.com/dsr

the energyst

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Businesses braced for cuts to small scale generation and export rates

Government has proposed steep cuts to small scale renewable energy subsidies. The department of energy and climate change (Decc) clarified its intentions in a consultation published today and could yet propose further cuts to the rates paid to firms which export power to the grid.

Decc plans to streamline subsidy bands for each qualifying technology and reduce the amount paid for each kilowatt hour of generation. While the department does not at this stage propose changes to the export tariff, the consultation points out the issues created at a local level by high concentrations of distributed generation. It also noted uncertainties between the rates paid to exporting generators and the wholesale power price.

Export tariffs

The department is mulling whether to lower the export tariff or to implement a dynamic tariff. However, that would require wholesale half hourly metering and settlement.

While that decision is yet to be made, the government set out aggressive cuts and digression rates for small scale renewable subsidies under the feed-in tariff (FiT) scheme. The smallest scale solar PV rate cuts are the deepest.

Solar PV

However, under the proposals, commercial and rooftop PV schemes such as those deployed by UK businesses will also become less generous as of January 2016. For example, installations up to 50kW would receive 3.69p/kWh as opposed to the current rate of 11.30p/kWh. A reduction of some 67%.

> ***Small scale solar PV is the closest of all the renewable technologies to becoming commercially viable without support***

The rates for larger PV installations, between 1MW up to the 5MW limit under the FiT, would be cut more dramatically, from the current rate of 5.94p/kWh to 1.03p/kWh.

The administration is also paving a path to end subsidies for new scheme entrants. It stated that small scale solar PV is the closest of all the renewable technologies to becoming commercially viable without support.

Wind and hydro

Proposed subsidy cuts for small scale wind are less drastic. Sub 50kW schemes will see rates decrease 37% to 8.61p/kWh. However, support for new larger installations above 1.5MW could be scrapped entirely from 2016.

Small scale hydro developers will see less steep cuts. Schemes within the 100kW to 250kW range will see support rates fall by 14%.

Capacity firms cleared

Ofgem has closed its investigations into Power Balancing Services and GF Power Peaking Ltd. The regulator found no evidence of either generator providing false information about planning consents to National Grid as part of the December 2014 capacity auction.

The investigations into Berangere, Adret and Alkane Energy UK continue. Ofgem made clear that the fact that these investigations are ongoing "does not imply that we have made any findings about non-compliance".

Dash for gas II: Government seizes shale planning powers

Government will fast track shale planning applications. The move follows rejections by local authorities of Caudrilla's applications in Lancashire. It ultimately gives government the power to decide whether or not fracking will go ahead. The new rules are effective immediately.

In a joint statement, the department of energy and climate change and the department for communities and local government heads Amber Rudd and Greg Clark said that shale was a national priority and the government would not countenance further delays.

"To ensure we get this industry up and running we can't have a planning system that sees applications dragged out for months, or even years on end," said Rudd.

"Communities will always be involved in planning applications but no one benefits from uncertainty caused by delays in planning decisions. By fast tracking any appropriate applications today's changes will tackle potential hold ups in the system," said Clark.

They stressed health and safety and the environment would be given due consideration when determining fracking applications, and stated that all applications would receive "due process and a fair hearing".

The measures put in place to make sure shale gas cannot again be held up by local authorities taking what government considers too long to consider.

Reducing 'alphabet soup' of environmental legislation 'not working'

Attempts to rein in environmental red tape are proving underpowered, according to UK manufacturers. The current government must go further to reduce the plethora of environmental legislation and taxes currently hampering UK competitiveness, according to manufacturing and engineering body EEF.

The organisation's latest survey found that less than one in ten manufacturers had saved time or money as a result of the previous government's red tape blitzes. One a quarter of firms surveyed thought efforts have had the right focus with around a third suggesting that red tape culls should focus more on Europe rather than UK.

The findings are published in a new EEF report, Green tape: manufacturers' views of progress on Defra's regulatory reform agenda. The report is published as the new government consults on cutting back on environmental taxes.

It states that while Defra's attempts to scale back green red tape are welcome, it is still well short of the ultimate goal, according to EEF. That is, a single point of access for guidance for each core area and one single data reporting system for all environmental data.

"Our report shows that manufacturers remain committed to addressing environmental and climate concerns, but are still having to wade through unnecessary levels of complexity and red tape in order to do so, which in too many cases is holding them back," said Terry Scuoler, CEO of EEF.

"The previous government got off to a good start in identifying the roadblock caused by poor legislation and began to take steps to simplify the stock of guidance and legislation in this area.

"There is, however, a real appetite in the sector for bolder reform that increases fairness, creates markets and improves the environment without damaging competitiveness, impeding innovation or creating barriers to trade, investment and efficiency."

RWE replaces Npower boss, warns over Tory policies

RWE has acted to arrest sharp decline in its UK operations. The firm has appointed Paul Coffey, formerly the driving force behind its UK renewable operation RWE Innogy, to replace outgoing CEO Paul Massara. Current chief financial officer Jens Madrian will also leave the company.

Two of the group's finance specialists will join Coffey. Dirk Simons, currently CFO of RWE Innogy, will become COO. Martin Mikláš, currently CFO at RWE Polska, will take over as CFO.

The move follows steepening profit decline at Npower. Operating profit tumbled 60% in the first half of 2015. For the same period in 2014 it fell 38%. Billing issues were cited as contributory factor, largely in the domestic sector. However, posting its results the company said Npower had also suffered customer losses in its commercial business.

In a statement the company said it wanted the Npower supply business to be "back on track" by the end of 2016. The company thanked Massara and Madrian for moving the company from bottom of the big six customer complaints league, to second bottom.

- Announcing first half results, RWE noted that changes to the Climate Change Levy announced by George Osborne in July's Budget would hit profits by Đ20m in 2015 and about Đ40m thereafter.

The company said the Conservative election victory was having a "substantial impact" on the energy sector. While the spectre of Labour's price freeze has been exorcised, RWE said that price cap proposals by the Competition and Markets Authority could see its "difficult" UK supply business deteriorate further. If cuts to green energy subsidies made renewables projects unprofitable, they would be abandoned, said RWE.

Demand side response: Free breakfast briefing with National Grid for Energyst readers

National Grid wants more businesses to help balance the UK power system via demand side response (DSR) programmes. The system operator has committed to aggressive expansion of DSR – which will require many more businesses to become flexible in their electricity consumption in return for payment.

Following on from The Energyst's recent report Demand Side Response: Bringing Businesses into Balancing, Energyst Media will host a breakfast briefing in London on 10 September, supported by National Grid and aggregator Open Energi.

There are a limited number of places available for end users that want to find out more about engaging in demand side response mechanisms.

Download your copy of the report and request an invitation to the briefing go to theenergyst.com/dsr

Esos: 152 companies compliant, can it be enforced?

The Environment Agency remains committed to enforcing Esos despite growing consensus that it will have to extend the deadline for compliance and may lack the necessary enforcement budget.

As of 25 August, the Agency confirmed that 152 companies had notified it of full Energy Savings Obligation Scheme (Esos) compliance. That figure is up from 32 companies at the end of May.

The current run rate suggests that the vast majority of companies will struggle to comply by 5 December, even with the anticipated late surge. The Agency has sent reminder notices to 14,000 businesses.

Failure to comply could result in fines of up to £50,000. But business leaders now question whether the Agency will be able to enforce the scheme.

Head of the Energy Managers Association (EMA), Lord Redesdale, suggested it was questionable whether the Environment Agency "actually has a budget for enforcing it". However, he said companies that did not conduct the audit and act upon on its findings would only be wasting their own profits. The EMA has trained more than 80 Esos assessors to date. Redesdale added that if a late surge materialises "capacity and quality issues" would arise from an assessment perspective.

EA 'will enforce'

The EA said it remains committed to enforcement and will publish enforcement guidance in October. It will "in due course" publish a list of organisations that have complied, according to a spokesman.

However, businesses that have at least made an effort to complete the process should be spared fines, according to Utilitywise. The company suggests a six month extension.

"We are concerned about the pace at which things are going in the run up to the deadline," said head of energy markets Jon Ferris. "We don't believe it will be [sufficient] to effectively complete the requirements of Esos."

More time

Ferris said the Environment Agency was "right to threaten enforcement" right up to the deadline, but suspects it will then admit it is not possible to enforce "because too many businesses have not complied and a lack of lead assessors".

> ***A "total lack of enforcement would undermine the credibility" of both the scheme and the Environment Agency***

"It is a difficult position [for the Agency] to be in, given that it is an EU requirement to meet the deadline," Ferris added. "However, we believe it would be more effective if it were to extend the deadline and allow more businesses to undertake the Esos process as more than just a box ticking exercise."

Ferris suggested "six months" would be a reasonable extension, enabling businesses to identify projects that will reduce consumption, but admitted that "the danger is that one extension begets another".

David Cockshott, chief commercial officer at Inenco, said a "total lack of enforcement would undermine the credibility" of both the scheme and the Environment Agency. But there should be "some leniency towards those businesses who struggle to complete the full ESOS report in time compared to those who fail to make any effort", said Cockshott.

"However, until the Environment Agency offers to extend the deadline, the threat of financial penalties is very real and our message to any business yet to complete their audit is to begin without delay."

National Grid moots DSR rule changes as winter power margins tighten

National Grid is consulting on whether to change the rules around demand side response participation as the UK faces several winters of tight power supply margins.

Stating that the capacity margin for winter 2016/17 could fall to zero, the system operator has issued a consultation which tables wide ranging changes to balancing services. These include increasing the cap on the amount of strategic and demand side balancing reserve (DSBR) it is allowed to procure, potentially incentivising demand side response, creating a broader range of prices for demand response balancing services, and creating an entirely new demand side response product.

National Grid has also moved to clarify the rules around how various demand response mechanisms, such as the capacity market and demand side balancing reserve, interact with each other.

While "not minded" to introduce incentives for DSBR, National Grid indicated it could be persuaded to develop them if enough people asked. It has also proposed a new fee structure in a bid to encourage DSBR provision from 5-6pm, or throughout the entire evening peak period. So far, said Grid, it's mainly encouraged service provision after 6pm.

To avoid confusion and cannibalisation of balancing services, National Grid also proposed that tenders for future demand side balancing reserve should only take place once results of the capacity market transitional arrangement (TA) auctions elements are known.

Energy managers must build better business cases

Energy managers must build better business cases if they are to succeed in getting energy efficiency projects signed off by their boards, according to the Green Investment Bank. Meanwhile, firms that cherry pick only short term payback solutions risk pricing themselves out of more substantial savings.

A survey earlier this summer by The Energyst found that finance was one of the biggest barriers to energy efficiency, readers also suggested that board directors had other priorities than energy.

But Miles Alexander, director of energy efficiency at the Green Investment Bank, disagrees that projects are failing for lack of finance. He believes they fail because the business case for energy efficiency is not being presented sufficiently strongly. He also thinks board-level apathy is not the issue.

"Finance isn't a barrier because there is plenty of capital out there, both within companies and externally," says Alexander.

"Often people say they can't get financing. But actually they can't get financing because they haven't necessarily put forward the right business case. For example, one that can compete internally against a plant manager in China who is putting in a request to central office for £10m to build out a new plant. Unless those projects are packaged up into – not just megawatt hours or tonnes of carbon dioxide saved – but in financial terms to a CFO, then that project is going to lose out to the plant. People are going to say, 'that plant is core business'."

Alexander sees leadership around energy efficiency as the crux of the issue. "It is not that CEOs and board members don't get it, they do," he says. "But they don't necessarily dedicate someone to focus on it full time with the skillset to understand about the energy side as well as build the business case, work through contracts and basically be a champion for pushing projects forward."

2 yr
Paybacks this short can make larger savings difficult to achieve

Think beyond lighting

The Green Investment Bank has commissioned a quarterly report via Bloomberg New Energy Finance and EEVS Insight. The most recent report confirms similar data from Energyst Media's reader survey that lighting and building management systems are the most popular choices for energy efficiency investments. It also confirms that many firms will not commit to projects with payback periods longer than two or three years.

Alexander says that short term view is myopic. "You can't get a two or three year payback on CHP. For LED lighting, yes you can. But if you are doing it that way you are only doing the simple decarbonisation.

"It is really important that companies look across their portfolio and at what improvements they could make to their business that would save costs, make their business more robust and at the same time has a sustainability positive impact," says Alexander.

Businesses have to take that approach and look long term – and not purely at payback, says Alexander, because it is the "wrong measurement" to use for energy efficiency. He says Internal Rate of Return (IRR) is more appropriate.

"If it is a positive rate of return, then they should be going ahead with it. If it doesn't reach their internal criteria on IRRs then that is a different story and they can get third party financing in."

Small wins may be big losses

Companies that select only the low hanging fruit such as lighting and BMS projects also risk making bigger savings unobtainable later, warns Alexander.

> ***"If it is a positive rate of return, then they should be going ahead with it. If it doesn't reach their internal criteria on IRRs then that is a different story and they can get third party financing in***

"It is important to bundle technologies across the spectrum taking in the short term and long term return so you can average that down. Companies shouldn't just be cherry picking and saying that 'I will only do everything under two years [payback]'. Otherwise they are making it harder to do the longer term ones which somebody else [e.g. an Esco] would pick up if they could also do the shorter term measures [as part of a package]."

If businesses think more strategically and businesses cases can be presented effectively, taking up third party financing should be a straightforward decision, says Alexander.

"Companies should basically be investing into their core business. Energy efficiency isn't part of that. Therefore it would be better to get third parties to finance energy efficiency so they can reinvest the capital they do have into their core business."

Find out what other financiers believe to be the barriers to scaling the energy efficiency market, plus the views of energy managers, consultants and Escos in the free, 32 page Financing Energy Efficiency report at theenergyst.com

A fusion force for good

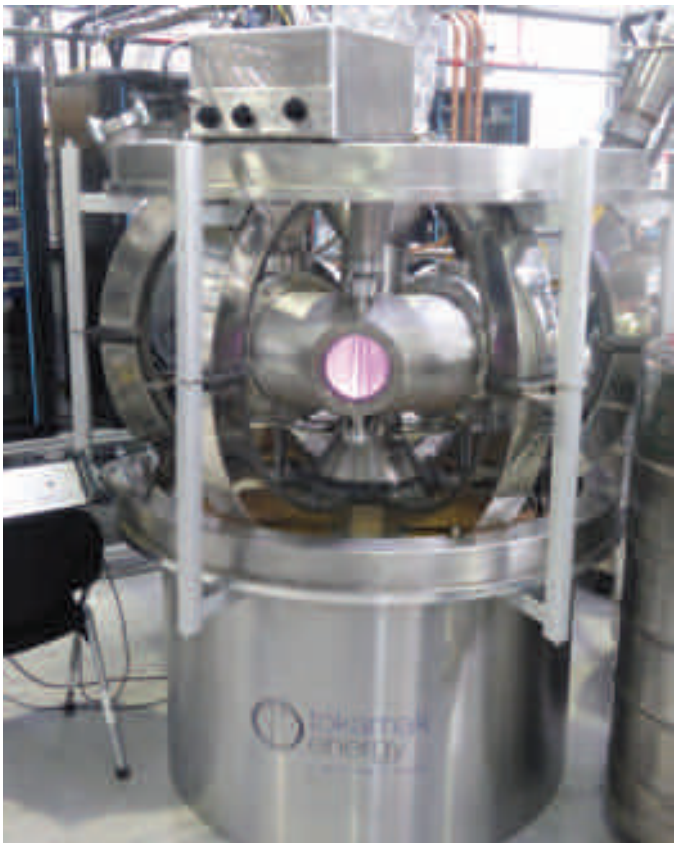
The standard joke is that nuclear fusion as a power source is 20 years away from being available and has been for the past 50 years. In fact, it is now starting to become a reality, with Tokamak Energy named as a 'Technology Pioneer' by the World Economic Forum

UK company Tokamak Energy has been recognised for its approach to accelerate the delivery of fusion energy – a safe CO_2 free, long-term energy source.

The company, which aims to accelerate the development of cost-effective, clean energy from fusion, has been named a 2015 World Economic Forum 'Technology Pioneer'.

Tokamak Energy aims to fast track the development of fusion energy by combining two emerging technologies – compact, spherical tokamaks and high-temperature superconductors.

It is one of only 49 companies to receive the prestigious distinction from the World Economic Forum this year, which honours innovative organisations from around the world that are poised to have a significant impact on business and society.



> ***The world needs a clean base-load energy solution that is abundant, safe and CO_2 free***

What is fusion and how can it help?

Fusion powers the Sun and the stars and it could provide a new, clean base-load energy source on Earth – one that is practically inexhaustible. It could be a true solution to the world's energy needs.

From its base near Oxford Tokamak Energy is working to realise the potential of compact spherical tokamaks. The company believes that by exploiting emerging superconductor technology it can shrink the size of the devices to build more economically viable reactors and achieve commercial fusion faster. This approach has been recognised by the World Economic Forum, which recently named Tokamak Energy as one of its Technology Pioneers for 2015.

Tokamak Energy focuses its research on the 'tokamak' as this is the most advanced fusion concept in the world. A tokamak is a ring-doughnut-shaped machine that uses magnetic fields to contain a hot, charged gas called plasma. When fast plasma particles collide, they can fuse together, creating energy.

The tokamak is an established, well-understood concept whose heritage stretches back more than 40 years. This depth of understanding provides a clear advantage over starting from scratch, but the concept requires modernising.

Working with compact spherical tokamaks leads to benefits from the design's inherent performance advantages. Squashed up like an apple rather than a ring-doughnut, spherical tokamaks are more efficient. They can achieve a much higher plasma pressure for a given magnetic field than conventional tokamaks. However, until recently, spherical tokamaks were unable to achieve the high magnetic fields required to trap a fusion plasma.

A further benefit to developing smaller devices is a modular solution with the flexibility to scale up to meet base load energy demands.

Tokamak Energy expects to be able to supply a core unit of about 100 megawatts. Units could be combined for various levels of demand. For example, 10 units could produce a gigawatt of power, enough to supply 700,000 homes.

"To be recognised by the World Economic Forum as a Technology Pioneer alongside so many other innovative ideas (both past and present) is a great endorsement of our approach to realising a future energy source for the world," said Tokamak Energy chief executive officer, David Kingham.

"The world needs a clean base-load energy solution that is abundant, safe and CO_2 free. Fusion is one of the few options available and we believe it is critical to find the quickest, most cost effective and realistic pathway to fusion energy."

Tokamak Energy was chosen by a professional jury from hundreds of candidates as one of the 49 selected companies. Through this award it will have access to the most influential and sought-after business and political network in the world, and be invited to the World Economic Forum's 'Summer Davos' in Dalian, China, this September, or the annual meeting in Davos in January.

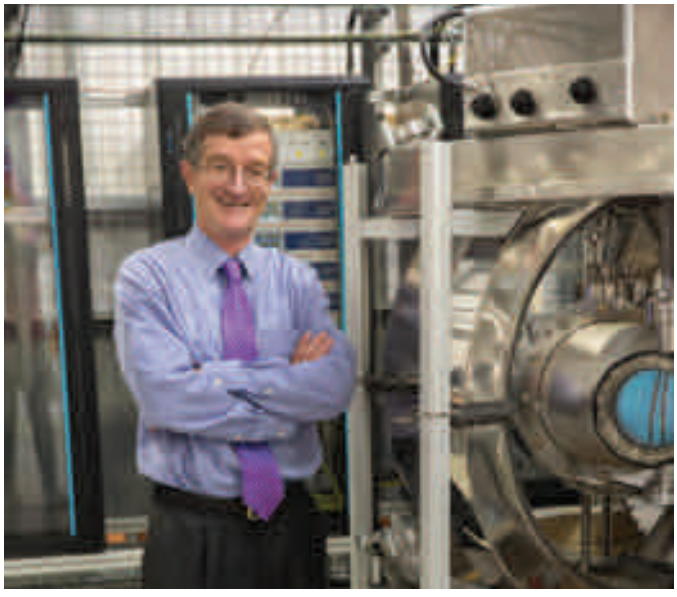
As in previous years, US-based entrepreneurs continue to dominate the list of technology pioneers: they account for more than two-thirds of the recipients, followed by the UK (4), Israel and the Netherlands (2), and individual recipients of Canada, Germany, Ireland, Italy, Sweden and Taiwan, China.

Tokamak Energy is a private company working to develop compact fusion power. The company was originally established to design and develop small spherical Tokamaks and compact fusion reactors for a range of applications. Since then, the strategy has evolved to focus on building a pilot plant to exceed fusion energy breakeven.

Tokamak Energy has grown from Culham Laboratory, a leading centre for magnetic fusion energy research and home to the what is claimed to be the world's most powerful tokamak, JET, which produced 16MW of fusion power in 1997.

Tokamak Energy is particularly focused on spherical tokamaks, pioneered at Culham, because these compact devices can achieve a much higher plasma pressure for a given magnetic field than conventional tokamaks, – they are more efficient. Combining spherical tokamaks with high temperature superconductors, which can give higher magnetic field than conventional superconductors at more attainable temperatures, means we can achieve high fusion power from compact tokamaks. te

tokamakenergy.co.uk



David Kingham, Tokamak Energy

Recovering utilities costs from commercial tenants: are service charges a simple accounting exercise or complete minefield?

By Martin Jaehme, Director, TEBS

Consultant's Casebook...

As energy consultants we often manage utilities for large commercial properties working with clients who are either landlords or managing agents. Our task is to prepare utilities recharge statements, which on the face of it should be a simple apportionment of costs to each tenant, but invariably never is!

Naturally we adhere as closely as possible to the RICS code of practice – service charges in commercial properties and we model our recharge statements on the ICAEW service charge accounting sample report included in the RICS COP Appendix C, but these only provide guidelines. In practice, working with the managing agent or landlord, we have to decide what costs to include and how to apportion these among tenants.

The first step is to see what level of sub metering has been installed to measure tenant's direct use of electricity. So we request to see the meter tree (a diagram showing where meters are positioned in the electrical infrastructure). What's a meter tree? is the usual response! So we then carry out a comprehensive meter audit to determine which meters serve tenanted areas and landlord services. Clarifying this is absolutely essential if tenants are to have confidence in our recharge calculations.

Next comes all the detailed questions such as can we recover VAT and CCL, CRC costs, energy procurement costs and despite RICS expressing a preference for preparing service charges based on accruals, most tenants only want to pay for what has been used – i.e. we adopt a cash accounting approach.

RICS sets clear principles for recharging: tenants should only pay for the services they use. This brings into question whether tenants who only occupy ground floor areas should pay for lift electricity and maintenance – back to the meter tree – are lifts separately submetered? What about working hours?

One company in the building works extended hours and requires all building services to operate for 80 hours/week, so why should another tenants who works just 50 hours/week pay the same? OK back to the tenant leases to determine what the operating hours are. Sometimes building leases state occupancy as being 24/7 (much preferred by media companies), so tough if your company doesn't work the same extended hours.

Obtaining satisfactory answers to all these questions is very worthwhile as clear and transparent recharges can then be prepared. This approach is much appreciated by tenants, removing potential concerns about paying too much or paying for services they do not use. Removing such negatives from discussions with the landlord or managing agent opens the door to positive discussions on how all parties can work together to green their operations to drive down energy use. I was recently invited to present at a tenant's meeting arranged by one of our managing agent clients who operates a campus office park of 10 modern office buildings.

Naturally, I was expecting some searching questions about utilities recharges and so I was very pleasantly surprised when the meeting, comprising of property directors and facilities managers was extremely positive where questions focussed on joint opportunities to improve energy efficiency, sharing experiences with everyone present. To my mind this is the real benefit from an open dialogue with tenants – trust and co-operation.

If you have been affected by issues similar to the above and would like to discuss this with someone, we at TEBS are happy to talk through our ideas without any obligation. Just give us a call.

TEAMWORK ENERGY BUREAU SERVICES LTD

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Rudd backs shale and nuclear

Energy secretary Amber Rudd made clear the Conservative government's firm commitment to nuclear power and shale gas, as well as conventional fossil fuels at her first appearance before the Energy & Climate Change Committee in July

Outlining the department's priorities to MPs, energy secretary Amber Rudd said that while Decc remains committed to meeting the UK's carbon targets, security of supply and affordability were paramount. Carbon targets, said Rudd, were "more essential" than renewable energy targets.

Protecting UK industry from unaffordable policy decisions was also a priority, Rudd said, with "value for money at the top" of her list.

Labour MP Alan Whitehead suggested to Rudd that locking in nuclear power at 93p per kW for 35 years might not represent best value for money. Rudd countered that he "should not be surprised" that reliable low carbon baseload commanded a premium.

Rudd said she expects a decision on Hinkley Point C to be made this year. She added that the ruling by the European Commission that support for nuclear power did not breach state aid rules was "completely robust", despite an "unwelcome" legal challenge mounted by Austria. "So we don't think it will impact on the final investment decision," she said.

> ***Shale will be an important part of the energy mix for the UK***

Speaking the day before Decc confirmed cuts to Feed-in Tariffs, Rudd offered few crumbs of comfort to renewable energy industries, refusing to confirm whether there would be a further round of contract for difference auctions (there will not). There will however be another capacity market auction, which has so far largely rewarded existing fossil plant.

While stating that heat will also be a priority for the department, an area in which Rudd accepted it had lagged, she admitted that there was uncertainty about the future of the Renewable Heat Incentive.

Rudd was unapologetic for ending onshore wind subsidies a year earlier than anticipated. She claimed that three "larger" wind developers had approached her with plans for subsidy-free schemes in recent weeks.

Speaking alongside Rudd at the Energy & Climate Change Committee, Decc permanent secretary Robert Lovegrove, suggested that costs tended to come down fastest in industries "when subsidies begin to exit the system" because "normal market forces" then prevail. At that point companies realise "relying on subsidies is not necessarily the most sustainable way of making a profit," Lovegrove said.

Lovegrove added that, on current projections, the Levy Control Framework budget was spent, although he said it would remain within its 20% "headroom" threshold.

Speaking a month before Decc and the Department for Communities & Local Government moved to speed up shale gas planning applications, Rudd said that the decision by local authorities to reject shale gas planning applications was "disappointing". But it was early days yet for the UK shale industry, she added.

"Shale will be an important part of the energy mix for the UK," said Rudd.

"It is an important part of our decarbonisation targets, because it is effectively a low carbon source," she suggested. "And given that gas is going to remain an important part of our security of supply going forward, how much better to have our own gas than be importing it?

"So I remain committed to ensuring that we can explore for shale. I am aware of concerns, but experts have given their ... stamp of approval ... that it can be extracted securely and safely," said Rudd. te

Government grabs shale planning powers

The government will fast track shale planning applications. The move follows rejections by local authorities of Caudrilla's applications in Lancashire. It ultimately gives government the power to decide whether or not fracking will go ahead. The new rules are effective immediately.

The Decc and the Department for Communities & Local Government announced the plans in a joint statement. Department heads Amber Rudd and Greg Clark said that shale was a national priority and the government would not countenance further delays.

"To ensure we get this industry up and running we can't have a planning system that sees applications dragged out for months, or even years on end," said Rudd.

"Communities will always be involved in planning applications but no one benefits from uncertainty caused by delays in planning decisions. By fast tracking any appropriate applications today's changes will tackle potential hold ups in the system," said Clark.

They stressed health and safety and the environment would be given due consideration when determining fracking applications, and stated that all applications would receive "due process and a fair hearing".

The measures put in place to make sure shale gas cannot again be held up by local authorities taking what government considers too long to consider applications include:

- The communities secretary actively considering

Subsidy cuts confirmed

The government has confirmed further cuts to renewable energy subsidies. Support rates for biomass and solar power will be reduced following consultation.

Decc will remove the grandfathering element (guaranteed levels of subsidies for a set duration) for biomass conversion and co-firing. It believes the move could save the annual budget for renewable subsidies some £500m in 2020/21. Some exceptions will allow grandfathering arrangements to continue, to protect firms that had already made major investments.

Meanwhile Decc is planning to cut subsidies for sub-5MW solar under both the renewables obligation and the Feed-in Tariff scheme. It plans to close the RO early and remove grandfathering and will also look to reduce subsidy rates for smaller solar schemes, including domestic installations in a wider consultation.

The department has also confirmed that a further round under the Contracts for Difference support auctions will not now be held in October.

The drive to reduce renewable energy subsidies has been well trailed by the Conservative government. Energy secretary Amber Rudd signalled to the Energy & Climate Change Committee in July that the so called trilemma (the need to balance security of supply with decarbonisation of the power system and affordability) had shifted in emphasis. The merit order now appears to be security of supply, affordability and then decarbonisation.

Reducing or removing subsidies for renewable power will require the department to deliver much more stringent energy efficiency policies in order to achieve legally binding carbon targets.

Currently elements for businesses such as Esos do not mandate action on energy audits to be taken. Meanwhile, hundreds of thousands of UK businesses are not obliged to undertake any energy efficiency measures.

While Decc-commissioned analysis of the Carbon Reduction Commitment scheme suggests that rising energy prices had been the main driver of business energy efficiency measures, Rudd must now establish a robust and credible framework around energy efficiency if she is genuinely committed to decarbonising the economy at the lowest cost. te

calling in on a case by case basis shale planning applications and considering recovering appeals
- Identifying councils that repeatedly fail to determine oil and gas applications within the 16-week statutory timeframe requirement (unless applicants agree to a longer period). Underperforming councils' gas and oil planning applications could be determined by the communities secretary
- Adding shale applications as a specific criterion for recovery of appeals, to ensure no application can 'fall through the cracks'
- Ensuring planning call ins and appeals involving shale applications are prioritised by the Planning Inspectorate
- Taking forward work on revising permitted development rights for drilling boreholes for groundwater monitoring. te

Not just passing through

***Sam Bailey**, Resourcing Manager at BIU, explains why pass through charges are here to stay and are getting bigger*

Increasing US gas supplies, mild weather, trouble on the Chinese stock markets and deals with Iran have all contributed to the continuing decrease in wholesale energy costs. This should be good news for consumers. However, it seems as commodity costs fall, third party or 'pass through costs' are increasing, leaving energy still one of the largest areas of expenditure for UK businesses.

> ***Policy and legislation costs are estimated to increase from 7% of the average energy bill to 22%***

What are 'pass through costs'?

Pass through costs are charges levied by third parties (usually the government), the costs of which are then 'passed through' to the end consumers via your energy suppliers invoices.

Pass through charges include green levies such as Renewables Obligation (RO) which obliges suppliers to source a proportion of energy from renewable sources and the Feed-in Tariff (FiT), launched in 2010 and designed to encourage consumers to generate their own renewable energy.

More recently, the Electricity Market Reform led to the introduction of two new charges; Contracts for Difference (CfD) and Capacity Market (CM). CfD is a mechanism which ensures generators receive a set price for power produced while CM pays generators to ensure there is enough capacity to meet demand. The full impact of these new charges is yet to be seen on many contracts, but will doubtless contribute to the increasing growth of pass through elements on consumer bills.

There are also charges that go towards the development and maintenance of the National Grid such as Transmission Network Use of System (TNUoS) and payments such as Distribution Use of System (DUoS) which goes towards the upkeep of pylons and cables across the company, owned by Distribution Network Operators (DNOs).

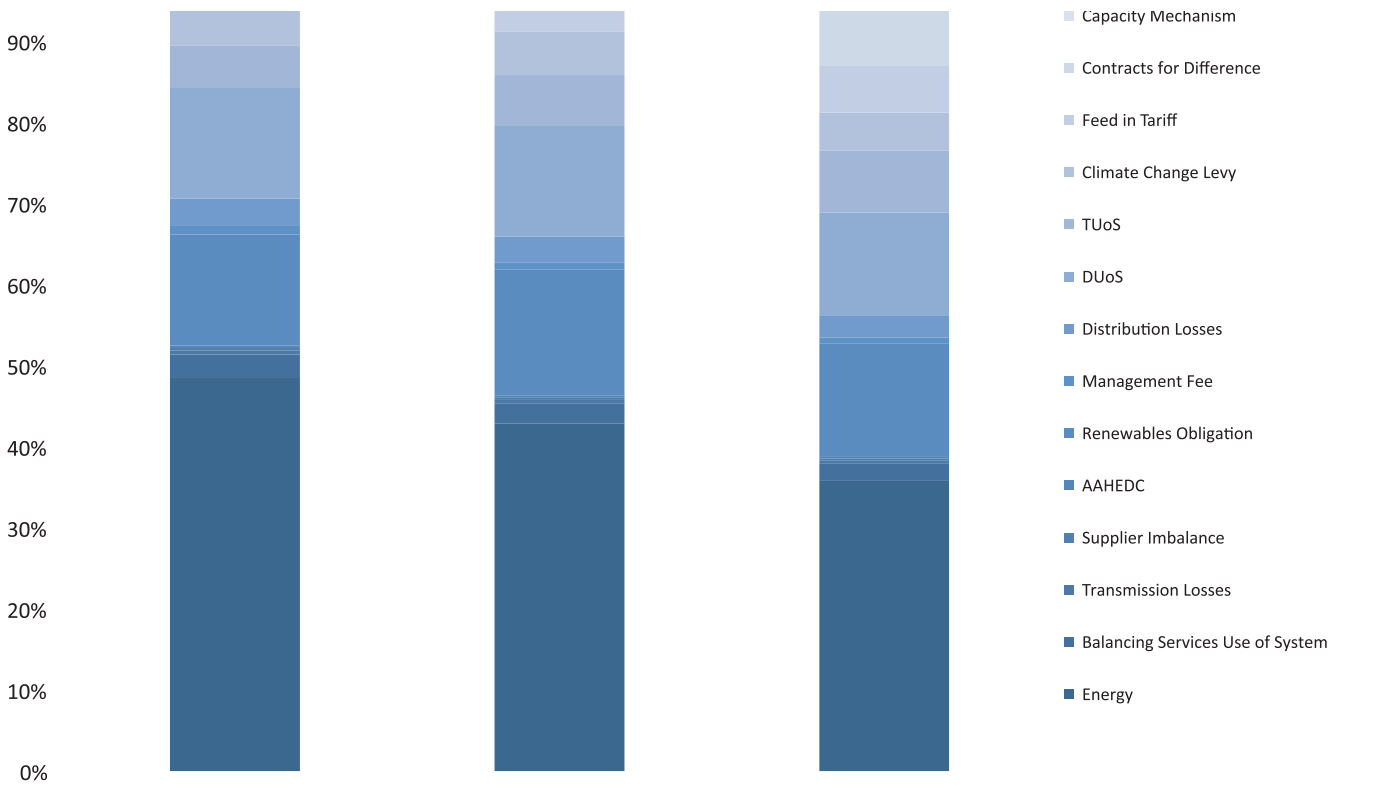
Why are 'pass through costs' increasing?

Aside from the introduction of new charges such as CfD and CM, established charges are increasing. It is estimated that by 2020, only around a third of the average commercial energy bill will be for the actual power consumed, with a myriad of pass through charges such as Climate Change Levy (CCL), Cost to Serve and Distribution Losses pushing up the total – and that's before the supplier turns a profit.

Government policy and legislation has the biggest impact on the increase of pass through charges. These are driven by a mix of environmental concerns, improved energy efficiencies, VAT and ensuring security of supply. Policy and legislation costs are estimated to increase from 7% of the average energy bill to 22%.

Likewise, Transportation costs are set to surge due to significant investment in improving the power networks. New technologies need the existing infrastructure to adapt and this costs money. These costs will be passed through to end consumers and are expected to increase by another 40% by 2020.

P272, an amendment to the Balancing and Settlements code which requires all advanced meters in Profile Classes 05-08 to be migrated to the HH Market, will also mean around 160,000 supplies in the UK will now move to HH invoicing and these charges will start appearing



on bills, as opposed to being wrapped up in the standing charge. In addition, these supplies will now require Meter Operator (MOPs) and Data Collectors (DCs) to manage the meters and data. This is more complexity for Britain's business and further increases costs.

What can be done to drive costs down?

The short answer, in terms of most Pass Through Charges is "not a great deal". However, there are ways to avoid some of the pain. A strong DSRP (demand side response programme) can ensure consumers manage their consumption patterns to avoid peak times and peak charges. Getting this right can be complex and the use of an expert energy consultant who can provide sophisticated monitoring and targeting and strategies to reduce consumption is invaluable.

Ensuring charges are correct is also paramount in a world of ever growing energy charging complexity. Again, invoice validation services are available from energy consultancies and BIU recommends choosing a consultancy with robust systems and expertise.

Sam Bailey, resourcing manager at BIU advises, "Look for a consultancy that performs forensic analysis of all the elements in your billing, rather than an operation which simply checks unit rates post payment. Consultancies can help you reduce costs in a number of ways, but selecting the right one with the right systems and experience is essential."

The long-term view

Unfortunately, given the need to move towards a low carbon future and the impact that intermittent and embedded renewable generation has on transmission and distribution networks, investment in infrastructure will need to continue to rise well beyond 2020. We have illustrated the changing make up of energy costs based on current commodity market prices and pass through cost forecasts.

As the above graph shows, energy costs will decrease as a proportion of your invoice, while pass through charges will make up around 65% by 2020. While the energy cost may be a falling as a percentage of your invoice, it will not fall very far (if at all) in numeric terms. Pointing to bills only moving in one direction. Up.

How should businesses mitigate against these costs I hear you ask. The BIU view is to proactively manage both the supply and demand side of your energy spend and usage. A risk managed purchasing strategy alongside a positive drive toward efficiency, behavioural change and if possible, investment in embedded renewable generation at your premises. This will enable your business to create efficiencies that your competitors can only dream of.

biu.com

BIU services

BIU covers a wide range of energy services for medium and large businesses including:

- Energy procurement
- Energy saving methods, implementation and reporting
- Policy and legislation – including P272, Project Nexus, CRC
- ESOS (phase 1 through to full 4 year strategies)
- Energy surveys and audits – including AMR, Energy alarms
- Invoice validation and bureau services
- Historic bill auditing to identify error charges and incorrect billing detail
- Open Water 17 – what the deregulation means and how we can help your business

We cover electricity, gas and water along with advice and support on energy efficient methods. To find out more please contact one of our qualified energy consultants at **hello@biu.com** or visit our website **www.biu.com**. Or you can call our head office on **01253 789816**.

Levy exemption warning

Climate Change Levy exemption axe will add eight figures to business energy bills, warn third party intermediaries. ***Brendan Coyne*** *reports*

The decision to tax renewable power under the Climate Change Levy will likely add tens of millions of pounds onto business energy bills, third party intermediaries have warned. They want the government to allow existing energy contracts to be honoured.

Utilitywise and Inenco, two of the biggest TPIs, told *The Energyst* that the chancellor's unanticipated move to end the exemption for renewable power under the CCL had created market uncertainty.

George Osborne has created market uncertainty

How the CCL exemption worked

Businesses have to pay for using fossil-generated power under the Climate Change Levy. But if they use renewable power, the charge is not added to their energy bill. The CCL came into force in 2001 to encourage energy efficiency, and with it the exemption, to encourage uptake of renewable electricity. It is essentially a carbon tax.

Since 1 August, the exemption for renewable power no longer exists after the Treasury announced it would be cut in the Budget. That means renewable (or non-carbon emitting) power is now subject to a tax designed to penalise carbon emissions.

HMRC stated that scrapping the exemption will save £3.9bn by 2020. However, it said that the move was "not expected to significantly increase business energy bills" nor "impact on wholesale prices".

Energy-intensive businesses "can already exempt themselves from 90% of CCL costs by signing climate change agreements," said HMRC.

> *If an average discount of 5% applies across all business consumers, the increased cost would be over £20m*

"Prepare for an element of renegotiation"

Whether all suppliers would pass on the costs of the exemption onto customers is not yet clear, according to Inenco head of trading Stuart Lea, but he said pass-through was permissable given that it is a tax change.

Businesses "should prepare for an element of renegotiation" on prices as a result, said Lea.

Axing the exemption without notice or consultation had shocked the industry, said Utilitywise head of markets Jon Ferris, with suppliers now taking legal advice over the policy decision.

He added that HMRC's claims that "removing the exemption is not expected to significantly increase business energy bills" was "demonstrably wrong".

What will it cost?

The precise cost of the move is hard to quantify given that it does not affect all contracts and that discount rates vary by supplier, said Ferris.

"However, Treasury analysis suggests an impact of £450m in 2015/16. If an average discount of 5% applies across all business consumers, the increased cost would be over £20m," he said.

The exemption ceases to apply from 1 August.

However, Ferris called on policymakers to make sensible transitional arrangements to avoid wholesale disruption to business energy contracts.

"The uncertainty over the transitional arrangements means that suppliers may be able to use Levy Exemption Certificates granted post August for generation up to the end of July to satisfy these contracts, but we have already been made aware by suppliers that they are taking legal advice and cannot quantify the impact yet."

Utilitywise, he said, "calls on HMRC to allow existing contractual arrangements to be met in full". te

alfaenergy

Regulation of the UK energy consultancy space – A different trilemma to tackle!

Written by Ian White, Director of Strategy at alfaenergy

The majority of the TPI community want regulation (alfa**energy** included), but there is a feeling that whatever regulation looks like, it will fall short of resolving the bigger issue around transparency. I see three reasons for this:

Challenge 1 – The suppliers
I often hear how some TPIs 'rip off' consumers by adding up to 3.0 p/kWh commission onto supply contracts. That's pence per kWh, not therms! To the traditional TPI, these fees seem absurd. I agree. However, the TPIs that add these commissions can only do so if the supplier(s) permit it. If they permit it, they condone it. If they condone it, they need to be accountable for it. If I was to drive a robber to a bank and wait in the car while he robbed the place, I would be an accessory. I'm not saying that suppliers are complicit in rogue TPI activities, but by offering massive commission levels as an incentive, there has to be acknowledgement from the supplier community that these fees will promote undesirable behaviours from some TPIs. Ultimately, the consumer experience, and their business, will suffer. The regulatory mandate should not lay solely at the door of the TPI.

Challenge 2 – The consumers
Three pence per kWh. I had to write it again; it beggars belief, more so that anyone would agree to sign a contract at these commission rates. If your energy spend matters to you and your business, it is important to have an idea of what a good price is.

If you are an SME business:

- Review the unit rates on your renewal letter. This will give you a good steer on current market rates.
- Ask for market intelligence data from your TPI/supplier. Get a feel for what the market has done since you last renewed.
- Avoid verbal contracting – if a TPI promises that they can save you 40%+ in the first few seconds of talking to you, ask yourself how they know that without having your details, then run a mile.

"It is important to have an idea of what a good price is."

If you are a larger user, you're likely closer to the market than most, but there are still pitfalls. More on that later.

Ultimately, the consumer needs to be making the most informed decision for their business to mitigate against mis-selling. That comes through research and understanding. Without this education, rogue brokers will continue to profit from bad buying decisions.

Challenge 3 – TPIs
Where there is money to be made, there will be rogues willing to do/say anything to make a sale. However, no matter what regulation is put in place, they will find a way. It is not them I would like to focus on. The challenge I see is driven by the influx of cash. A multitude of mergers, acquisitions and flotations has meant that for some TPIs the core focus is no longer the consumer. There is pressure to answer to the city, shareholders, or private equity partners. Therefore, it isn't a surprise that those at the coalface are driven to push high commissions. The demands from their management in the pursuit of the best financial return/result is the highest priority.

I also hear that this is an SME TPI issue. Not true.

Many 'bigger boys' play a similar game, where the risk they now manage is shareholder value rather than client exposure. Not declaring transaction charges carried out as part of a risk management strategy is tantamount to the same level of exploitation as massive uplifts. It is either transparent or it isn't, either fair or not. It is not fair.

As each stakeholder points at each other, it is about time we were all more honest with each other to forge a coherent energy community. Who should drive that? Government, TPIs, suppliers, consumers? They are all part of the problem, they should all be part of the solution.

If you are an energy consumer, TPI, or supplier and would like to discuss this further with Ian, please do by emailing him on ian@alfaenergy.co.uk. Consumers can also attend our energy conference on 7 October, details of which are at alfaenergygroup.com, or follow the course of events via Twitter with #AlfaConf15

‘The billion won’t be paid’

Tempus Energy boss Sara Bell says a five year old can see the capacity market is anticompetitive. ***Brendan Coyne*** *reports*

Ahead of a verbal hearing, Tempus Energy boss Sara Bell is “very confident” that the legal challenge filed with the European Court of Justice will result in the UK capacity market being found to be anticompetitive. Generators with contracts under the scheme will not be paid, she claims.

Bell filed the complaint last December on the basis that the contracts within the capacity market mechanism favoured generation over demand side response technologies. The former can bid for up to 15 year contracts, the latter are restricted to one year contracts. That means it should never have cleared EU state aid rules, claims Bell.

“The capacity market contravenes competition law and state aid approval is premised on competition law,” Bell told *The Energyst*.

“I can explain why the capacity market is anticompetitive to a five year old. If you ask resources to bid in on the same terms when you give one of them a one year contract and one of them a 15 year contract, a five-year-old understands that one times one is a smaller number than one times 15. This is not rocket science; it is an anticompetitive auction.”

Ahead of an anticipated verbal hearing in autumn, Bell said she was “very confident that we will win”, although she accepted that a judgement would not likely be made until 2016.

“We have challenged on a procedural basis where the requirements to win the case are lower. So we have taken a very strategic view on this case. I am very confident of winning it. The commission didn’t do a very thorough job.”

Bell: ‘This is not rocket science; it is an anticompetitive auction’

> ***Will I win? There is absolutely no doubt. In 2018, once state aid approval goes, all of those contracts are null and void. That billion will not be paid out and nor should it***

The capacity market is one of a number of government policies originally intended to keep the lights on and do so affordably while decarbonising the economy.

It was designed to incentivise investment in new generating plant and reward companies that could provide guaranteed capacity and demand response services. The policy was also implemented to help make the economic case for plant operating around intermittent renewable generation.

The government ran the first capacity auction in December, awarding around £1bn in contracts, largely to existing gas and coal power stations.

While the department of energy and climate change remains confident in the European Commission’s approval of the capacity market, Bell said the contracts awarded will not be paid.

“Will I win? There is absolutely no doubt. In 2018, once state aid approval goes, all of those contracts are null and void. That billion will not be paid out and nor should it,” she said.

“It is a complete waste of money. We are paying almost a billion pounds to generation units that would have been in the market and would have been generating anyway.” te

tempusenergy.com

Challenging big suppliers

Tempus Energy uses algorithms and smart equipment to automatically shift usage away from expensive times and into periods when prices are lower, such as during the night or times when renewable generation is very active. Suitably flexible equipment and processes include storage heating, refrigeration, air conditioning, heat pumps, electric vehicles and industrial processes

Sara Bell said that originally she planned to offer the service via partnerships with energy suppliers, but was given the brush off by all of the major energy retailers. So the firm acquired its own energy supply licence and is now signing up commercial customers.

“So far, not a single customer has said no to us,” says Bell. “[Because of the lack of help they are receiving from energy suppliers] it is easy to pick up customers.”

“The problem we have with the electricity market now is that all the big suppliers do not want you to move away from peak demand because that’s the highest revenue period for their generation set.”

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Record growth for independent renewables

The Energy Entrepreneurs Report 2015 reveals soaring investment in renewable generation

More than £400m – or £1.1m a day – was invested in independent renewable energy generation projects by businesses, farmers, landowners and communities last year.

The continued strong growth being seen in generation outside the big power companies came despite the renewables sector facing significant headwinds in political uncertainty and changes to renewable subsidies.

The independent generation sector has also had to deal with the impact of a fall in wholesale power prices, which wiped an estimated £132m off the value of electricity generated last year.

£21bn invested

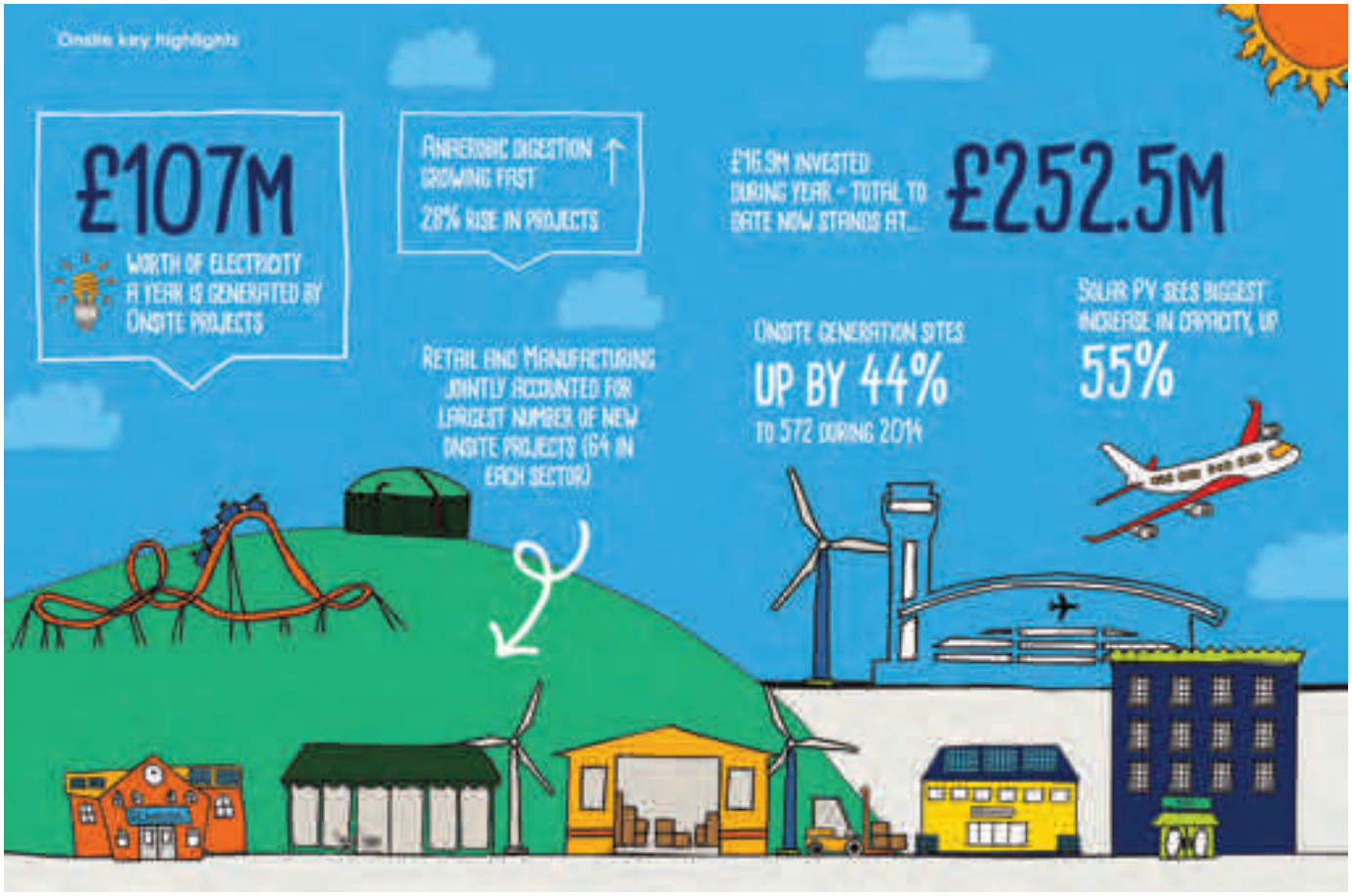
The 2015 Energy Entrepreneurs Report, compiled by SmartestEnergy, reveals that the total invested in the sector outside of the major power utilities has now risen to almost £2.1bn with 4,460 commercial-scale sites of at least 50kW capacity now in operation.

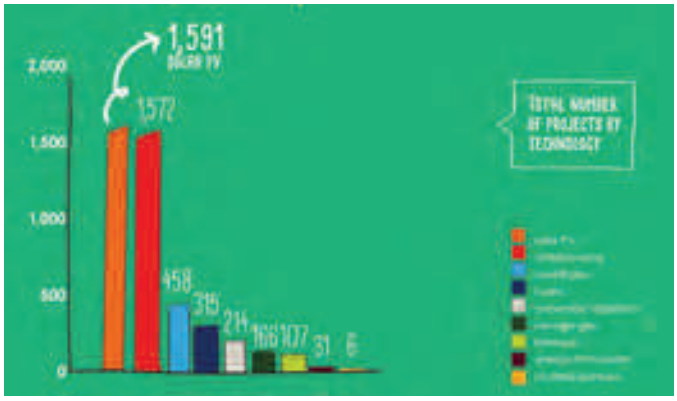
> ***This report has highlighted the resilience of the independent generation sector against the backdrop of political uncertainty***

The projects – ranging from community wind turbines to onsite generation plants at manufacturing sites – generated an estimated £1.08bn in wholesale energy a year, enough to power 5.7 million homes, or meet all of the public sector's power needs.

The average invested to develop the 1,619 new projects last year was £258,000, down from £352,000, reflecting a higher proportion of solar projects which tend to be lower volume than other renewable projects.

Since the first Energy





Entrepreneurs Report in 2013, the amount invested in the sector has risen by 75%, project numbers have more than doubled and their share of total UK generation risen by more than 50% to stand at over 7%.

Robert Groves, chief executive officer for SmartestEnergy, said:"This report has highlighted the resilience of the independent generation sector against the backdrop of political uncertainty, changes to renewable subsidies and falls in wholesale power prices that occurred last year."

Challenge ahead

But Groves also said that recent changes announced by the government will challenge this growth.

"With the early end to support for onshore wind under the Renewables Obligation and the end of the exemption from Climate Change Levy for renewable source electricity, 2015 could prove to be a difficult year for generators and investors," said Groves.

"Our hope is that, as always, energy entrepreneurs find a way to seize opportunity so they can continue being a significant part of the energy landscape and contributing to meeting the nation's energy needs and climate change targets."

Key highlights from the 2015 Energy Entrepreneurs report include:

- 1,619 new projects developed, a 57% year-on-year rise
- 8.57GW of independent generation capacity now in place – 39% rise
- Project numbers have more than doubled from 2,011 to 4,460 in three years
- Investment of £417.7m in sector during the year – average project cost of £258,000
- Independent projects now generating £1.08bn of wholesale energy a year (figure would have been £1.21bn before recent energy price falls)
- Output is enough to power 5.7 million homes – or all of the public sector
- Onsite generation projects developed by businesses have increased by 44.4%
- Wales is fastest growing part of Great Britain, with 70.3% rise in projects
- Solar overtakes wind to become the biggest renewable technology in England
- Anaerobic digestion second fastest-growing technology by capacity with a 29% increase from the 86 new projects coming on stream. te

smartestenergy.com

Load factors for different renewable technologies are estimated as anaerobic digestion 60.45%; biomass 65.78%; co-fired biomass 62.3%; energy from waste 42.1%; hydro 31.65%; landfill gas 57.05%; ocean energy 9.70%; onshore wind 30.10%; sewage gas 46.7 %; solar PV 10.20%. (Source: Ofgem)

PE PowerEfficiency

By David Maitland

"Customers will have to start paying CCL when they choose green energy, and it seems likely there will be a higher cost to pay"

The government's energy policy (which has, on occasions, seemed to lurch rather than take a smooth, joined-up approach) caused shock and consternation with the announcement in the recent Budget that renewable energy is about to become far more expensive.

It was announced that the current Climate Change Levy (CCL) relief (for renewably sourced energy) will be scrapped, and full CCL will now be applied, regardless of the generation mix, from 1 August 2015.

This relief had meant that generators producing renewable energy exchanged Levy Exemption Certificates (LECs) for relief from paying CCL, which is currently set at 0.554p/kWh for electricity. With this relief being scrapped from 1 August 2015, it means a significant increase in cost to renewable generation, which is set to be £450m for this financial year.

Further pain was added for generators as their long-term investments into renewable energy factored in this now scrapped relief. It was therefore no surprise that share prices tumbled in the renewable sector – eg Drax, a power plant owner, saw its share price plunge by more than 8% on the day of the announcement.

With the UK under obligation to achieve EU carbon reduction targets by 2020, it did seem counter-intuitive to see the scrapping of this relief as renewable generation becomes more expensive to produce, and subsequently more expensive to buy.

Until now business and public sector customers have been able to buy 'green energy contracts' from suppliers where the energy is from renewable sources, and as a result, have been able to also receive CCL exemption from their bills therefore avoiding additional cost when buying 'green'.

Going forward, it is still unclear exactly what impact buying green energy will have on the end customer, with many suppliers temporarily suspending selling 'green energy contracts' until they fully understand the impact. However, existing contracts for green energy are likely to be honoured without change by the majority of suppliers.

What is known is that in the future, customers will have to start paying CCL when they choose green energy, and it seems likely there will be a higher cost to pay, as generators also pass on the added cost to businesses; raising the question of the affordability of staying green.

We are intrigued to know how the government squares its objectives to promote the use of renewable energy, while at the same time apparently acting to make its use more expensive. We will watch this space!

powerefficiency.co.uk

Utilitywise is willing to bet against

*What would you wager on the lights staying on in the UK over the next six months? With Lord Redesdale, CEO of the Energy Managers Association, claiming there is a looming threat of blackouts, or at least brownouts, **Jon Ferris**, head of energy markets at Utilitywise, explains why he's willing to bet against the Peer. Dinner is at stake*

I was fascinated to hear Lord Redesdale say last issue that he would put money on blackouts or brownouts by the end of the year. It is an interesting position to take but I am very willing to take up his wager.

Why has Lord Redesdale taken up his position? We both know that blackouts and brownouts result from the combined failure of the wholesale electricity market and balancing services. It is a function of the wholesale market to ensure that there is sufficient electricity to meet demand – primarily from generation but also through interconnectors and storage.

Keeping the lights on: Jon Ferris is so confident blackouts are unlikely this year he is willing to put his money on it

Renewable growth

Of course, in recent years, measures to support the decarbonisation of electricity generation have resulted in the growth of renewable generation and closure of coal-fired power stations.

In addition, the high gas price following the Arab Spring and closure of Japan's nuclear fleet has resulted in the closure – temporary and permanent – of some of the UK's older gas fired generators.

As a result, supply margins have declined to the lowest levels for some years and both National Grid and Ofgem had warned that tighter margins may develop in the coming years. This would seem to suggest that those blackouts and brownouts might be just round the corner. Yet why am I so confident in betting against Lord Redesdale?

> ***I will put money on National Grid being able to keep the lights on – and I'll happily pick up my winnings from Lord Redesdale come the spring***

Firstly, the recent fall in gas prices has changed this pressure: SSE has announced that Ferrybridge coal power station will close at the end of the winter, but it will also reopen the mothballed Keadby gas plant by the end of October.

Secondly, the changes have not all occurred in generation.

Growing disconnect

There is increasing recognition of the growing disconnect between economic growth and energy intensity. While the recession in 2008 has clearly reduced demand, it appears as a blip in a trend that started beforehand, and has continued since. Both average and peak grid-supplied electricity demand has been trending down for a decade. This is partly due to on-site generation, which reduces demand from grid-connected generation.

However, a third factor is the reduction in underlying demand, due to both policies designed to increase board-level awareness, and technological developments.

Reports from the maligned CRC scheme show a reduction in energy use among participants, while Esos ensures that energy efficiency gets continued

blackouts risk

attention. The coming of age of LED lighting is perhaps the most visible development. Continued efficiency gains in electrical appliances, pumps and motors, combined with a greater focus on running costs in industrial investment since the recession have played their part in reducing demand.

This growing industrial interest in energy efficiency has reduced both peak demand and also increased the demand response to avoid Triads. National Grid has reported a reduction of 1.2GW in response to expectations of an impending Triad over the winter.

Regulatory change

In addition, further regulatory change will come into effect this winter, which will increase business awareness of energy costs at peak time. The Electricity Balancing Significant Code Review will amend the cashout mechanism, which should better reward and encourage more peak response.

Meanwhile, as a result of P272, 160,000 meters will start to be settled against actual consumption for each half hour instead of a standard profile. Many businesses will also see costs for the Capacity Market appear on their invoices.

Finally, while the changes to the generation mix and demand trends have increased the challenge for National Grid to balance the system, it has been evolving too, developing better forecasting tools for wind and solar generation, and introducing new services that the company can call on to balance the system.

Existing services, such as the Short Term Operating Reserve (STOR) remain oversubscribed, while the new Strategic Balancing Reserve (SBR) and Demand Side Balancing Reserve (DSBR) will provide additional capacity outside of the market.

These are expected to be called upon only after a Notification of Insufficient Supply Margin (NISM) has failed to elicit a market response. The last NISM was called in 2012, and in 2009 before that. There are now more tools available to help manage the system.

It is not impossible that National Grid will issue a Demand Control notice for DNOs to reduce demand across their networks. Yet, it's so unlikely that I will put money on National Grid being able to keep the lights on – and I'll happily pick up my winnings from Lord Redesdale come the spring. te

The wager

Terms: Jon Ferris bets Lord Redesdale (pictured) that there will be no blackouts or brownouts this year (before 31 December 2015). The loser will buy the other dinner, in which both sides can discuss why it did or did not happen and also discuss future fears. The plant will prevent fossil fuel carbon emissions that would have come from the burning of gas for heat, and from the burning of (primarily) gas or coal for electricity. The plant will prevent more carbon emissions, tonne for tonne, than a heat-only biomass boiler by replacing carbon-intensive electricity from the grid.

Be sure your voice is heard

Dave Cockshott, chief commercial officer at Inenco

The new government has wasted no time in addressing changes to energy policy: within the first 100 days we have been given a flavour of how the next five years will pan out in the sector with slashed subsidies but renewed support for business end users.

The renewable industry has been bruised, with onshore wind subsidies cut early and low carbon support reduced to help stem the overflowing Levy Control Framework, predicted to exceed its 2020 budget by more than £1.6bn at a cost to bill payers. One of the most unexpected announcements was the end to Climate Change Levy exemptions for electricity from green energy, impacting the bottom line of both renewable generators and potentially those businesses with green supply contracts who could see additional costs passed through.

There is good news however: a new consultation on business energy efficiency taxes this autumn could bring significant improvements for energy managers who struggle with the ever-increasing administrative burden of overlapping schemes and data duplication.

What's more, Treasury is working together with Decc and BIS to jointly address the issues in a revenue-neutral process to simplify and streamline reporting and incentivise energy efficiency. The consultation will look at merging and simplifying

"This is the chance for all businesses to have their say on decisions that will shape the energy tax landscape for years to come"

schemes, reducing the cost of compliance and ensuring taxes are fairly distributed across large businesses while protecting energy intensives. They are collecting views before the consultation begins, to be sure it addresses businesses' main concerns, and will be keen to hear from all end users during the main process this autumn.

Inenco is collecting views at inenco.com/haveyoursay via online surveys. We will be sharing all feedback with Treasury, BIS and Decc as part of the consultation process over the coming months.

This is the chance for all businesses to have their say on decisions that will shape the energy tax landscape for years to come. A consultation will only be effective if all views are reflected, including the silent majority who are frustrated at the status quo but may not feel they have the channels to feed back: it's time to make sure your voice is heard.

inenco
understanding energy

Going the extra mile

A major gas infrastructure project designed and delivered by Energy Assets to support the expansion of the internationally renowned Pirbright Institute in Surrey has won plaudits for its design and execution – and its comprehensive approach to community relations

The expansion of the Pirbright Institute in Surrey, involving a branch saddle connection to the gas main, the laying of 3,100m of medium pressure pipe and the installation of a twin stream rotary meter, was delivered 11 weeks ahead of schedule by the Energy Assets siteworks team under special dispensation from the network operator.

The Pirbright Institute undertakes research into viral diseases in livestock, including those that can spread from animals to people, and is partway through a £250m programme to create additional resource for this vital area of science.

"The institute is undergoing major redevelopment – we've commissioned a masterplan for the entire campus and we're building a lot of new laboratories," said Denise Pate, Pirbright's senior project manager.

"The new buildings need a gas supply to run and hence we commissioned the upgrade. From a masterplan perspective, it was really important that this project was delivered on time and on budget."

Energy Assets was awarded the gas infrastructure project by the institute's energy supplier through the Crown Commercial Services framework agreement supplied by Corona Energy. Under normal circumstances, this scale of project could take anything up to two years to plan and deliver, but a dispensation given by the network operator meant Energy Assets was able to get on site quickly.

> ***It was really important that this project was delivered on time and on budget***

First priority for the design team was to complete a digital survey, which was uploaded in real time and enabled an outline plan to be prepared in a matter of days from the award of the contract.

"From this point on we were in total control of the project – from making the connection to the distribution network through to installing the meter and collecting the Institute's energy consumption data," said siteworks manager Ricky Rogers.

"From Pirbright's perspective, it was critical that we hit the ground running, so we engaged very quickly with the institute's project team, with the local community and with the council and highways authority because

we wanted to bring forward the usual three-month notice period for major works."

With goodwill on all sides, these negotiations were successful and work commenced seven weeks after the order had been placed – which immediately provided a five-week gain over the usual timescale.

At the same time, Energy Assets negotiated an ancillary pressure agreement with the adopting network, because the site's pressure requirements were above the guaranteed pressure levels – this would usually be arranged by the customer or via the gas supplier.

As the project progressed, Energy Assets completed a branch connection to the mains supply and laid more than 3,100m of medium-pressure pipe to the institute, which included extensive use of horizontal directional drilling to cross a number of bridges and minimise road closures. By the time 50% of the pipe had been laid, the project was already nine weeks ahead of schedule.

Once the pipe had been laid, it was connected to a new 102m meter rig on the Pirbright campus, ready for the next phase supplying gas to each new building.

Throughout all this activity, community relations were a significant priority for the institute and for Energy Assets. Regular communication included updates, with maps, to all affected residents within the village, detailing the works and progress against schedule.

Contact details were provided for further information, notices were placed in the local press and on boards throughout the village, and regular updates were posted on Pirbright's social media sites.

11
Weeks ahead of schedule the project was completed

"The roads that Energy Assets had to work on were quite challenging and we knew from the very beginning that we had the potential to severely impact our neighbours," said Pate.

"But to be fair, the feedback I've had from the local community has been very generous – they've said that the team has been courteous and polite and have gone out of their way to ease the transition as the work has been done. So we really couldn't have asked for better." te

energyassets.co.uk

When not to trust your energy consultancy

Finding the best energy price and service can be a costly and time-consuming process for many businesses, no matter how big or small the company. Further more, a number of organisations see no benefit in changing suppliers due to the lengthy time it takes to manage the transfer and for the time it takes for one energy provider to hand over the contract to another.

Many businesses also see the same approach with energy consultancy, or have negative views of TPIs based on past or present transactions. With this in mind, we take a look at the most obvious signs of when not trust your energy consultancy.

'Our service is free'

No it's not. Every consultant charges for their service. If you receive a quotation or information about an organisation providing a free energy consultancy, this will not be the case. You will still pay for their consultancy time, but instead the cost will be hidden within your monthly, quarterly or annual energy payments, reflecting an untruthful cost of how much your business is paying for energy. If a company hides their consultancy fee, you are likely to be paying a service fee, which you can find out the exact amount by contacting the energy supplier direct.

Price breakdown

All quotations from your energy supplier or consultant should have a clear price breakdown that takes into consideration transport and distribution costs, environmental changes that include: the Renewables Obligation, which aims to increase investment in renewable forms of energy generation; the EU Emissions Trading Scheme, which aims to cut the amount of carbon emissions; and further details about the contract, whether it's fully fixed or not.

Be clear on the tendering process

Some energy consultancies may only approach a small number of suppliers, typically the energy suppliers that they have strong relationships with, or perhaps the 'big six'. This is because they can offer competitive rates for duel energy bills to secure the organisation's business.

TPI code of practice

Ofgem is currently in the process of developing a TPI code of practice to regulate consultancy practices. The practice sets out standards that include a professional and honest service, transparency of information and fees as well as effective monitoring of the market.

Level of Service

When you contact your energy consultant, do you have a regular point of contact? A high turnover of staff could be a reason for many things, including a lack of staff training and incentives as well as poor company culture. If you regularly speak to different team members, have a think about why this might be and are they qualified to analyse your energy consumption and bills?

If you're working with a 'free' energy consultancy or your energy consultancy is not providing a transparent and professional level of service, the team at CUB UK can help. Our five-star customer promise and our helpful and personable approach to energy consultancy is what keeps our clients coming back year after year. We provide an honest approach to fees and energy price breakdowns, we approach more than 20 suppliers for every client. Most importantly we follow the TPI code of practice in all areas.

If you would like to know more, contact a member of our dedicated team by calling 01354 606848 or visiting c-u-b.com/enquiries

CUB UK
Your Trusted Energy Partner

Power generation clarity

***Matt Lovell**, CTO at Pulsant, an enterprise class provider of IT infrastructure in the UK, outlines the progression of Britain's power strategy*

Green energy in Britain is becoming increasingly important in solving our energy needs. Global warming and climate change are two massive, potentially catastrophic worldwide issues, and what that tells us is that a big change to our behaviour regarding power generation and consumption is needed.

Recent figures from Decc show that in the first quarter of 2015, renewable energy accounted for a record 22.3% of all electricity generated, up 2.6% from the same period last year. Over the past 12 months, approximately 79% of this incremental renewable capacity has been attributed to large-scale solar plants.

22.3%
of the UK's electricity was generated from renewable sources in Q1 2015

Wind farm investment

The investment in wind farms is continuing as well, with more than 923 projects supporting more than 6,500 wind turbines across the country but these are not without issue, with critics often labelling them eyesores and a threat to the environment and questions remaining over the cost-effectiveness of offshore wind farms.

The combined acceleration and approval of onshore large-scale solar and on and off-shore wind plants may have enabled the UK to achieve the 2020 target for renewably sourced power, but recent unexpected government changes in financial support may challenge this.

More solar energy panels and more offshore and onshore wind farms being built means that we are producing more renewably sourced electricity but we also have to take a look at our major energy consumers when planning our long-term future. These big consumers have a responsibility to lessen their impact on the environment but how many actually will, is completely unknown.

With this uncertainty, as well as an increasing lack of clarity regarding long-term power generation and renewables, we urgently need answers about how we will meet our long-term emission reduction targets while still providing stability and competitive energy supplies to homes and businesses. With a number of the UK's gas, coal, nuclear and oil power stations now approaching end of life, our country's long-term power strategy is vital.

Since 2010, the UK has been a net importer of electricity, mainly from France, the Netherlands and Ireland. Net imports have remained largely unchanged over the past four years, equating to 4.9TWh, or 5.2% of our total electricity usage. By 2020, it is possible that we could be importing up to 12GW of electricity, which is not a cost-effective solution for anything other than managing peak demand.

Another big issue is the combined loss of our coal and nuclear plant capacity within the next 10 years. In total, eight nuclear reactors are due to be decommissioned by 2025, equating to a total of 14GW of capacity. The cost of decommissioning nuclear plants, which takes up to 60 years, will also increase considerably, placing further constraints on any new investments.

France, which sells its surplus electricity to Britain, is facing a similar issue. About 75% of electricity generated there originates from nuclear. Despite increased French investment in hydro and solar power, significant investment is needed to directly replace their outgoing fleet of nuclear power stations, which will be decommissioned over the next 20 years.

> ***Gas-fired power generation for short-term capacity replacement will be good for another 40 years and should be built with CHP***

The generation game

With all of this in mind, what should our electricity generation strategy be?

Nuclear generation capacity in the aftermath of what happened in Japan has slowed significantly across the globe. This has been increased further by the economic and financial risks required to build, run and decommission further nuclear power stations.

Fossil fuels will continue to decline, and although hydroelectric and geothermal sources offer more predictability and consistency, they are subject to geographical and geological constraints.

The UK will continue to invest in solar, wind and wave, but these cannot be relied upon during the colder months of the year as domestic load increases.

In the US, the development of shale gas power plants has accelerated enormously during the past five years as discoveries of gas reserves have challenged the significant legacy of oil and coal-fired power plants. The UK has not experienced the same level of transformation, and fracking still has to gain widespread public support, even if and when natural reserves are identified in Britain.

Increased efficiency

Our coal-fired power plants in the UK operate with an average efficiency of 38%, compared with 52% for gas-fired power plants. CHP efficiency can be as high as 80% and can be applied to renewable and fossil fuels as part of a cogeneration process. So there must be a greater opportunity to increase the efficiencies of our existing power generation sources in the short term, reducing the transmission losses across our national networks.

The same logic can and should be accelerated to make our homes more efficient and self-sufficient as reducing the domestic peak load demands will reduce the scale of the central generation investment. All of this actively contributes to our carbon reduction targets. But this will only work with the correct central legislation and support.

Longer term, we need to invest in technologies to store electricity more effectively. We must acknowledge and push for greater levels of renewably generated capacity, and reduce our overall electrical consumption, as difficult as this will be, and find a more effective strategy for heating our homes and buildings during the colder months. Gas-fired power generation for short-term capacity replacement will be good for another 40 years and should be built with CHP.

Another area to further explore in greater detail is hydropower. While there are obvious environmental issues to consider, it has the potential, alongside other biomass generation technologies, to balance out our reliance on wind and solar. Within this timeframe, the true cost and scale of decommissioning our existing nuclear fleet will be more clearly understood, which may alter our desire to build more nuclear power stations.

The Conservative government has been criticised by environmentalists and opposition politicians for policy changes as well as budget and subsidy cuts that have been predicted to hamper growth and support for renewable energy. The energy and climate change secretary recently announced a halt to subsidies provided to onshore wind farms, with solar energy also threatened by cuts to the Feed-in Tariff, which in turn makes state support for solar panels on domestic roof tops uncertain. The government is also removing the guaranteed level of RO subsidy for coal or other fossil fuelled-power stations which are converting to wood or another biomass fuel. The replacement of nuclear generation capacity, which may be as controversial is, I would argue, imperative as part of a clear guaranteed non-intermittent low carbon power generation strategy in the UK.

These actions from the government are troubling, and there remains a problematic lack of leadership and decision-making in regards to our short and long-term power generation strategies. It's time that we had some real clarity around Britain's power generation strategy and we think beyond political election cycles. If we do not, we will operate at increasing risk of power supply disruptions, failure to meet renewable energy and carbon reduction cycles and non-competitive power prices. te

pulsant.com

Speed up regulation for TPIs

*Regulation is needed for third party intermediaries and the sooner the better, says **David Hunter**, head of strategic alliances EMEA – Energy & Sustainability Services, Schneider Electric*

The delay in introduction of a code of practice for the third party intermediary (TPI) sector is frustrating. Good service deserves to be endorsed, while poor practices should be highlighted and eliminated.

Ofgem opened its consultation on the non-domestic TPI sector more than two years ago in an attempt to regulate and improve the relationships that customers have with their advisors.

As business energy costs have risen and markets have become more complex, Ofgem should be getting up to speed.

It has been recognised that TPIs provide valuable and varied services. Their role in helping consumers understand their energy use and optimise its cost is widely acknowledged and valued.

However, the lack of oversight in the industry has led to concerns over lack of transparency, instances of poor behaviour from intermediaries and questions over the independence of advice.

Evolved role

We must remember that the role of intermediary services and the guidance they offer has evolved far beyond traditional services such as finding the cheapest deal for consumers and businesses. Intermediary services have an impact on the entire energy chain, including corporate risk management, sustainability strategy, legislative compliance and data utilisation.

Having consulted widely and made progress towards the establishment of a mandatory Code of Practice for participants, the regulator essentially kicked the process into the long grass.

Ofgem has preferred to wait until the outcome of the Competition & Markets Authority's wider review into the energy market before progressing with its

> ***The drive to improve TPI standards is too important to be delayed***

own plans for regulation. This is a mistake.

While it is understandable that Ofgem has found the sector challenging to get to grips with due to the diverse nature of participants and services provided, the drive to improve TPI standards is too important to be delayed.

In particular, transparency regarding fees and services provided by TPIs is vital. It helps to build trust with customers as well as their understanding of what's available in the market, and at what cost. In the absence of a Code of Practice, Ofgem has issued 'principles' to which it expects TPIs to adhere, however these are vague, insufficient – and voluntary.

With regard to fees or commission for example, it recommends an intermediary should only state how they are being paid for placement of a supply contract, before that contract is signed.

Does the notification that 'the fee is included in the contract price', buried deep in communication, really suffice?

Informed decision

In order to make an informed decision, customers need better information, earlier in the process:

- Scope – customers should know what to expect, in terms of services provided, and how and when they will be delivered
- Cost – TPIs should be obliged to state and quantify all remuneration that they will receive from the customer and/or the supplier for any procurement and management services relating to energy supply contracts
- Disclosure – Both TPI and supplier should be obliged to disclose the full amount and rate of commission paid on any contract, past or present
- Independence – reassurance that the advisor is truly independent from the supplier, and if they accept differing rates of commission from different suppliers, that this is made clear.

Competitive market

It is undeniable that the TPI sector benefits consumers, and that there are many accomplished service providers in the market. We must not lose sight of the fact that energy provision is a competitive market, and a complex one, so any TPI that can legitimately bring clarity and value to the market and its customer base is ultimately a good thing for choice and transparency.

At the same time, the good work of many is put at reputational risk by the less scrupulous few.

As part of its continuing engagement in the process, Schneider Electric has asked Ofgem to undertake its own information-gathering exercise with suppliers to understand the amounts of commission earned by individual brokers, and the unit rates at which they are paid. This would highlight the extent of these fees in the market, and also allow scrutiny of excessive payments.

The 'hidden commission' mechanism that is prevalent in the sector needs to become a thing of the past, in order to increase trust and improve competition.

It is important that the evolution of the TPI market is understood and that shouldn't wait for the CMA review. Transparency will increase consumer understanding of the value of services on offer, and help to promote informed choices and competition. Raising standards will improve the reputation of the industry and further build energy buyers' confidence in TPIs. te

schneider-electric.co.uk

A rank idea

Energy performance league tables are capricious and misleading, according to ***Vilnis Vesma***

The fundamental problem with performance league tables is that if results are generally closely bunched, small errors in the participants' scores (which may happen for all sorts of reasons) will propel them wildly up or down the table, and as a result the wrong people get praised (or condemned), significant opportunities are missed and scarce resources get devoted to pursuing illusory potential savings.

To illustrate the problem I constructed a spreadsheet simulation (which is available to download) related to a currently fashionable application: driver behaviour.

Figure 1 shows the output. It reports on an admittedly artificial scenario, the performance of 26 drivers who use identical vehicles for the same duties and achieve a range of performance from 45 to 50mpg at equal increments. Their performance and rankings are shown on the left-hand half of the table where they appear neatly ranked from A to Z. But I then add a dose of realism: the simulation distorts the true mpg figures with some random error. So in the right-hand column of Figure 1 we see the measured mpg figures (which include some random error) and the resulting published rankings, which may now differ from the true order.

Ranking is not always the motivator that it is thought to be

Figure 1: Standard deviation: ±1 MPG

	True MPG	True rank	Measured MPG	Published rank
Driver A	50.0	1	51.0	1
Driver B	49.8	2	50.5	2
Driver C	49.6	3	49.3	4
Driver D	49.4	4	49.7	3
Driver E	49.2	5	48.7	7
Driver F	49.0	6	47.5	14
Driver G	48.8	7	47.8	13
Driver H	48.6	8	49.2	5
Driver I	48.4	9	48.2	9
Driver J	48.2	10	46.8	17
Driver K	48.0	11	48.8	6
Driver L	47.8	12	47.1	15
Driver M	47.6	13	48.2	8
Driver N	47.4	14	48.2	10
Driver O	47.2	15	48.1	11
Driver P	47.0	16	45.4	23
Driver Q	46.8	17	45.8	20
Driver R	46.6	18	47.9	12
Driver S	46.4	19	46.5	19
Driver T	46.2	20	46.6	18
Driver U	46.0	21	45.4	22
Driver V	45.8	22	47.0	16
Driver W	45.6	23	45.7	21
Driver X	45.4	24	45.2	24
Driver Y	45.2	25	44.6	26
Driver Z	45.0	26	44.9	25

Before we go on, let's just think about these errors. What would cause them in this transport scenario? Firstly, and obviously, road conditions and journeys will not be perfectly identical. Secondly, it is difficult to fill the fuel tank consistently to the brim at the start and end of the test, which distorts the fuel measurement.

The third and frequently overlooked error is in the recorded mileage. Tyre wear and under-inflation, for example, both reduce the effective wheel radius which results in overstated mileage. Try calibrating your speedometer against a satnav and you could be surprised (mine overestimates mileage by 4%), and if the speedometer is digital you will be looking at the figure from which mileage is computed.

How big might the error be? In the simulation reported here, they were normally distributed with a standard deviation of 1.0 mpg.

For those unfamiliar with statistics this means that smaller errors are more likely than bigger ones; about two-thirds of the measured results would have fallen within ±1.0mpg of their true values; and large errors, although very rare, may still occur. On average three observations in every thousand could have an error exceeding ±3.0mpg.

At first sight the results in Figure 1 seem fair. Although the middle rankings are a bit jumbled, drivers A, B and C come out near the top, and X, Y and Z at the bottom as expected. The trouble is that this is just a chance outcome.

Figure 2:

Published rank	Name	True rank	Error) (mpg)
1	Driver B	2	2.3
2	Driver G	7	1.5
3	Driver D	4	0.7
4	Driver A	1	-0.3
5	Driver C	3	-1.3
22	Driver W	23	0.4
23	Driver N	14	-1.4
24	Driver X	24	0.0
25	Driver Y	25	-0.6
26	Driver P	16	-3.1

Published rank	Name	True rank	Error) (mpg)
1	Driver K	11	2.3
2	Driver C	3	0.7
3	Driver A	1	-0.5
4	Driver D	4	-0.1
5	Driver E	5	0.1
22	Driver W	23	-0.5
23	Driver Y	25	-0.1
24	Driver Z	26	-0.1
25	Driver V	22	-0.9
26	Driver X	24	-2.0

Throw the dice again to inject different errors and the order changes. Figure 2 shows two other, equally likely, outcomes, this time ranked in order of reported rather than true performance.

In the top case we see that Driver B, who ought to be in second place, got first place thanks to a favourable error (+2.3mpg).

In the bottom case, the same advantage was enjoyed by Driver K, who thanks to bad luck for the others, got first place instead of her proper 11th. Meanwhile in the top case we see another mid-ranking driver, P, who was really in 16th place, comes out at the bottom thanks to an unlucky 7% adverse error.

Don't get me wrong: there are robust applications of the league table concept, one of which is actually a central plank of my approach to energy monitoring and targeting. But I worry about conventional competitive league tables as a management tool.

Players who come out on top will crow about it (often without justification) while the rest make excuses, plead special circumstances, or pooh-pooh the methodology (rightly, it seems).

Some people will 'game' the system to gain advantage (drivers topping up with fuel they paid for themselves, for example). But as for using league tables in a motivation campaign: forget it.

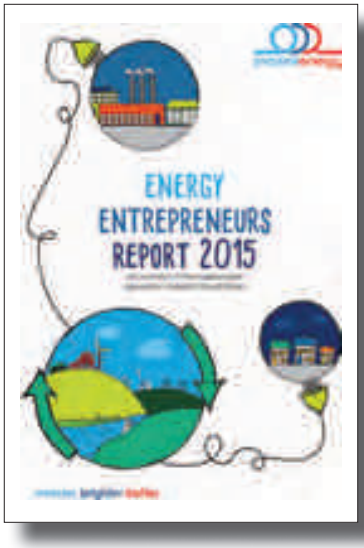
Just remember that the overwhelming majority of players, including those who made a serious effort, will see themselves as having failed to secure a top spot and, worse still, advertised as such. Some motivator that is. te

The author can be reached on 01531 821350 or at vilnis@vesma.com. For a copy of the simulation spreadsheet visit his blog at www.EnManReg.org/leaguetables

vesma.com

Why invest in onsite generation?

By James Graham, Head of Direct Sales



New figures have highlighted how businesses are increasingly investing in their own power generation projects to reduce costs, ensure security of supply and meet environmental aspirations.

Our Energy Entrepreneurs 2015 Report shows a 44% increase in the number of commercial scale onsite renewable energy projects in operation in Great Britain.

Almost £17m has been invested in 176 new projects since the 2014 report, taking the total invested in recent years up to £252.5m.

While the figures are impressive, business lobby group the CBI recently highlighted the significant potential for much greater roll-out of onsite generation among UK companies in the future.

It said businesses are no longer content to be "passive actors" within the energy landscape and are increasingly looking to take greater control of their energy future by generating their own power – "smart businesses see change and think opportunity, and this is exactly what's taking place right now".

While the business case for investment varies from company to company, we see four main drivers among our customers:

1) Financial savings – the cost of energy (and of non-energy charges such as those levied for distribution and transmission) has risen significantly over recent years. Meeting some or all of your energy needs through your own generation can have a major impact on operating costs and boost competitiveness.

2) Security of supply – with concerns over availability of generating capacity in the years ahead and a possible risk of supply shortages, being able to generate your own power provides greater confidence in business continuity and resilience.

3) Reduction in carbon footprint – energy makes up a significant proportion of the carbon footprint of most businesses and onsite renewables such as solar panels or a wind turbine can significantly reduce emissions.

4) Reputation – consumers and buyers for major companies and public sector bodies increasingly expect those they spend money with to demonstrate sustainability and onsite renewables are tangible evidence of a proactive approach.

If your business is thinking about onsite generation for any or all of these reasons, get in touch with us to discuss your options.

smartestenergy.com

smartestenergy

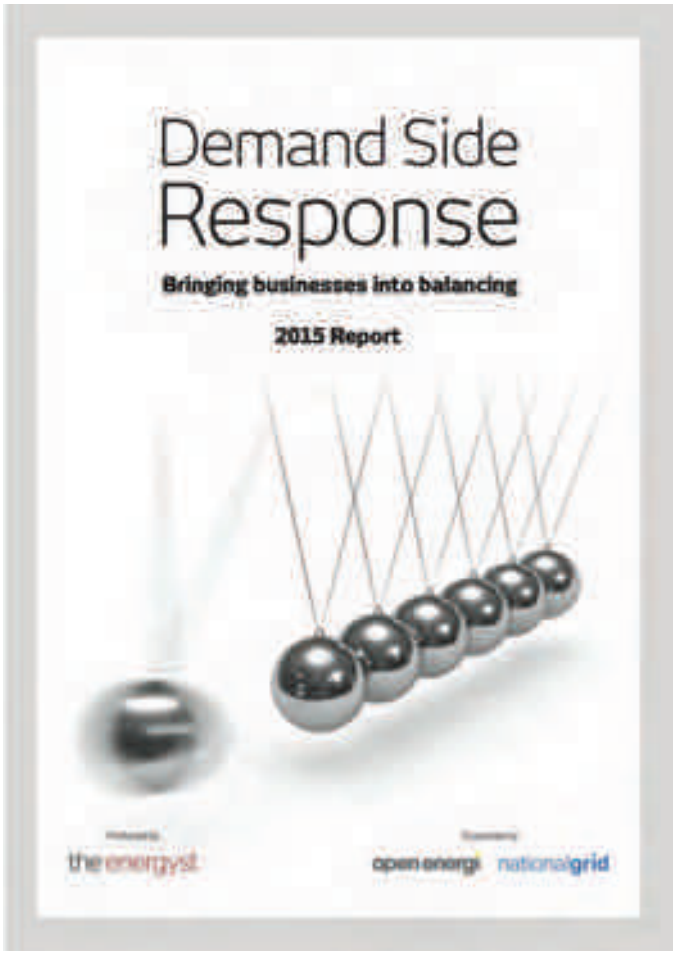
National Grid must simplify dema

National Grid wants to bring more businesses into system balancing via demand side response programmes. It will need to make life simpler for businesses to do so, say business leaders in a free report produced by The Energyst. ***Brendan Coyne*** *reports*

National Grid must simplify demand side response programmes if it is to meet its ambitious targets, according to business leaders.

The system operator has set out plans to derive up to half of system balancing by 2020 by asking UK businesses to respond to signals rather than telling power stations to adjust output.

The vast majority (79%) of businesses surveyed by *The Energyst* stated that they would be interested in providing demand response services if it did not disrupt their operations. Most of them could shift up to 10% of their loads upon request. Almost a third (29%) believe up to 25% of their energy usage could be made flexible. That statistic suggests National Grid can meet its target.



Welcome to the jungle

However, confusion about how existing demand response programmes operate and interact is stifling the current market, according to aggregators.

Current demand response mechanisms include Fast Frequency Response, Bridging Frequency Response, Short Term Operating Reserve (STOR), STOR Runway, Demand Side Balancing Reserve and the Capacity Market. Separately, Decc is running the Electricity Demand Reduction Pilot Scheme. Programmes such as Triad also incentivise major energy users to power down during winter peaks.

> *I think creating better guidance for businesses would deliver a quick win*

"There are an awful lot of schemes out there," Chris Kimmett, commercial manager at aggregator Open Energi told *The Energyst*.

"The language used around them is not easy to understand. There is no clear guidance to say: this is exactly what National Grid buys; this is why; this is the price it is willing to pay; and here are the assets that are suitable for these markets.

"Very little central guidance comes out from National Grid on that. But I think creating better guidance for businesses would deliver a quick win."

It's so easy

That might drive participation in existing programmes but does not address the underlying problem, according to Tim Rotheray, head of the Association for Decentralised Energy, with which the UK Demand Response Association recently merged. He thinks simplifying the market rather than rewriting the instruction manual might be a better approach.

"There is a need for education, but that is possibly the wrong way to go about things," said Rotheray.

"Instead of explaining a complex raft of mechanisms, flip it on its head. Let's understand what the market can provide and then design the simplest, most effective way for those services to be brought forward in a cost-effective manner."

"The work by National Grid, Ofgem and Decc must come together," Rotheray continued. "That is definitely not the way policy is presented to the user at the moment. They face a barrage of options."

Live and let die

Streamlining and simplifying policies may also head off problems further down the track. Utilitywise head of markets Jon Ferris suggests that if National Grid's attempts to rapidly scale the demand side response market pay off, it could create conflict at precisely the time when the capacity market kicks in.

and side response

"The question I have is, if that happens in 2018/19, how much does the capacity market coming in dampen the volatility in short term prices?" asked Ferris. "There are multiple schemes that conflict with each other and it is hard to see which ones are going to win out at the moment."

National Grid acknowledges the challenge it has set itself, and is looking to industry to help solve some of those type of problems.

"We don't have all the answers," said National Grid head of commercial operations Duncan Burt. "We understand that there are plenty of different industry agendas and interests to navigate."

79%
of businesses were interested in demand response services

29%
believe up to a quarter of their usage could be made flexible

Demand side response, said Burt challenges many existing business models.

"On the other hand, it creates opportunities for new ones. My hope is that Power Responsive [Grid's dedicated platform to scale DSR] will engage a wider range of industries... and open up the borders of the market beyond early adopters."

Burt urged businesses to help shape the future of demand side response by telling Grid how programmes might better work around their processes.

"We need to approach the future of DSR with an open mind. Which is why we're actively seeking out different thoughts and ideas through our Power Responsive campaign. And we need everyone else to be equally open-minded to maximise the benefits to all," he said.

"We don't have all the answers. What we do know is that the technology is primed, there's momentum behind the effort and working together we can shape and share the possibilities created by demand side solutions."

> *There are multiple schemes that conflict with each other and it is hard to see which ones are going to win out at the moment*

Demand Side Response: Bringing More Businesses into Balancing *is a report produced by Energyst Media, supported by National Grid and Open Energi. To download your copy visit theenergyst.com*

Half hourly settlement is key

Rolling out half hourly settlement is key to scaling demand side response, according to Tempus Energy CEO Sara Bell.

Bell is dismayed at the decision to delay implementation of P272, which will bring another 160,000 businesses into half-hourly electricity settlement rather than settlement against a generic user profile. She believes that energy suppliers scuppered P272 because it involves increased imbalance risk. "At the moment it is very easy for [the big six] to operate in the pretend environment, set their gen-sets and go out for a three hour lunch," Bell said.

She believes that once more businesses are half hourly settled, flexibility in the UK energy system will be unlocked.

"Only half hourly settled businesses can do Triad avoidance or reduce their distribution network charges," says Bell. "As soon as you force half hourly settlement on the market, a demand aggregator can manage network costs and move businesses away from those expensive periods."

Businesses have to 'play or pay'

Businesses that remain passive consumers instead of active market participants will have to pay for the privilege, according to Gary Swandells, director at Smart Grid Consultancy. He also thinks distribution networks will play a key role in demand response.

"[The energy market] will shift from the minority being involved to the majority being involved," said Swandells. "If you want to remain a dumb consumer, you will forego a significant opportunity either mitigating cost or generating revenue."

National Grid's move to scale demand side response to between 30-50% of balancing services within five years suggests that shift is already underway, Swandells said.

However, he questioned "whether you can leave it up to National Grid, talking about those types of volumes".

"The DNOs are the only ones with a view of the constraints on their network and they need to operate what is connected to it within those constraints."

Shaping the future of DSR

Demand side response is at a crucial crossroads – and National Grid needs more large industrial users to get on board if it is to achieve its potential. Here, National Grid's head of commercial operations, ***Duncan Burt****, discusses the future of DSR and how a new campaign, called Power Responsive, aims to get more businesses engaged*

Demand side response (DSR) may be in its infancy, but it is bursting with potential. If we can seize this opportunity, we can provide consumers with the flexibility they need in a changing energy market – and help build a secure, sustainable and affordable electricity system for the future.

We've set a target to achieve 30-50% of our balancing from demand side response by 2020 – but there's a long way to go to achieve it. While we believe DSR can benefit everyone – from the smallest household consumer to the largest manufacturer – our immediate focus is on large, industrial users. It's the logical way to make the quickest impact.

DSR is about offering businesses and consumers the flexibility to turn down or turn up their electricity consumption to help balance the Grid – when we need them to do so. In return, we offer financial incentives.

New tools

It is common wisdom that low-carbon generation and intermittent sources are a big feature of our current and future energy landscape. And it is vital we find new tools to help new electricity systems function well – and at an affordable cost. DSR plays a significant role.

In the past, the electricity

How to get involved

If your business would like to be a part of the DSR revolution, there are a number of framework agreements that you can sign up to and other opportunities to tender. Contact National Grid directly (commercial.operation@ nationalgrid.com) or an aggregator to find out more about the financial – and CSR – benefits that could be available. If you'd like to be a part of the important conversation about the future of DSR, visit the website at powerresponsive.com or send your questions to **powerresponsive@nationalgrid.com**

system was fairly simple and linear – large generators on one side, and power flowing in a single direction, to consumers on the other side. That world is already consigned to history.

We've been busily adjusting to this new reality. We are engaging more actively, not just with the big generators but with aggregators, customers and a new breed of smaller generators. However, we need a broader approach to take it forward and accelerate the acceptance of DSR.

Power responsive

A new programme of engagement on demand side participation, called Power Responsive, aims to achieve this. It is a framework for turning debate into action; a practical platform to galvanise businesses, suppliers, policy makers and others to seize the opportunity to shape the growth of demand side response collaboratively, and deliver it in practice, at scale, by 2020.

The goal of the campaign is for businesses and consumers to be active energy users, save on total energy costs and secure our energy now and in the future.

The real strength of Power Responsive is in collaboration. So, the more businesses that get involved the bigger the impact will be, and the greater impact it will have on hitting the 2020 target.

> *The real strength of Power Responsive is in collaboration. So, the more businesses that get involved the bigger the impact will be, and the greater impact it will have on hitting the 2020 target*

Removing obstacles

The underlying aim of the campaign is to identify and break down barriers to participation. We've spoken to a lot of stakeholders already, and some of the issues they tell us they face include:

- There is a need for a coordinated approach to addressing barriers and finding solutions
- Lack of knowledge of schemes, products and markets and the ways to participate
- The package of products available isn't wholly attractive for businesses to participate
- More certainty and stability is required to ensure the right investment signals exist

Through Power Responsive, it is our goal to deconstruct these barriers and create markets that don't discourage potential participants.

Of course, our ultimate ambition for DSR should relate to every customer – from industrial, to business, to commercial, to everyone at home.

But, today, we're a long way from that aspiration. And our immediate priority needs to be the quickest path to making a significant breakthrough. Therefore a sensible starting point has to be large industrial and commercial users.

So how can businesses get involved?

Firstly, businesses that are interested in the opportunities presented by DSR can look at the products we currently have available (at the National Grid or dedicated Power Responsive website) and see if any of them are a good match. Secondly, through Power Responsive, they can get directly involved in the debate and help us build the new products and mechanisms that shape future markets and enable the growth of DSR.

We understand that there are plenty of different industry agendas and interests to navigate. DSR challenges many existing business models. On the other hand, it creates exciting opportunities for new ones.

My hope is that Power Responsive will engage a wider range of industries and by making more companies aware of the benefits of DSR, we'll open up the borders of the market beyond early adopters.

Open mind

We need to approach the future of DSR with an open mind. Which is why we are actively seeking out different thoughts and ideas through our Power Responsive campaign. And we need everyone else to be equally open-minded to maximise the benefits to all.

When it comes to capitalising on the opportunities presented by the demand side, the time for action is now. At National Grid, we don't have all the answers. What we do know is that the technology is primed, there's momentum behind the effort and working together we can shape and share the possibilities created by demand side solutions. te

powerresponsive.com

How to achieve knowledge transfer

Experience might not be easily transferred but it must be actively shared says, Energy Institute chief executive ***Louise Kingham***

The Energy Institute's first Energy Barometer report – an annual survey of members on the energy industry's main challenges – identified that developing a pipeline of energy professionals for the future was a major concern for those at the heart of the sector today.

They emphasised the urgent need to maintain the supply of skilled workers into established and developing areas of the industry, and to transfer the knowledge of those about to retire to a new generation.

Workforces across all energy sectors are reported to be ageing and so harnessing the knowledge and skills of retirees to mentor recent and future entrants becomes of utmost importance. Many EI members recommend long-term planning, including advance succession planning for retiring highly skilled workers, to retain knowledge and increase the overall skill level in the industry.

83%
of EI members feel mentoring programmes are important

Some 83% of EI members feel that mentoring programmes are important and effective measures to retain knowledge. Professionally recognised individuals, those with accredited qualifications and chartered registration, are in the best position to develop and support new recruits and help to fill the skills gap in the timescale available.

There are some great examples of good practice among energy companies, but every experienced energy professional has a responsibility to keenly share their knowledge and offer guidance to those who will succeed them. This ensures that experience isn't lost and good practice is extended.

The EI currently runs a mentoring programme to help individuals achieve professional membership and provide mentors with an opportunity to develop new skills. Additionally, as hosts of the POWERful Women initiative, which seeks to advance the professional growth and leadership development of women across the UK's energy sector, the EI has launched POWERful Connections – a scheme overwhelmingly supported by CEOs in the industry to mentor female industry leaders of the future.

Another key area that is seeing an urgent skills shortage is in energy management. In the 1970s, the sector was most concerned with scarcity of resources – finding oil, building energy infrastructure and making sure we had enough. Now it's about reducing our use, getting the best price and managing our environmental obligations effectively. This is an area that can often be neglected.

> ***Every experienced energy professional has a responsibility to keenly share their knowledge and offer guidance to those who will succeed them***

COP21, being held in Paris later this year, will attempt to establish the biggest global effort to date in reducing emissions. Past efforts include the EU's Energy Efficiency Directive to achieve 20% CO_2 emissions reductions across EU member states by 2020.

To satisfy Article 8 of this Directive, the UK government has launched the Energy Savings Opportunity Scheme, mandating all large organisations to assess their energy consumption and identify energy saving measures in their operations. This has been the biggest non-domestic driver in energy efficiency for the past 30 years.

Energy needs to be a board-level issue for all organisations but, to achieve this, organisations need to make sure they have access to the skills needed to fully understand energy and how it is managed.

The energy sector doesn't just need engineers to design solutions, but an army of technicians to maintain technology so that our energy use is managed as effectively and efficiently as possible. te

energyinst.org

More than £400m was invested in independent renewable generation projects in 2014 across Great Britain...

- 1,619 new projects began generating
- Independent capacity now over 8.5GW
- Solar capacity increased by 187%
- 707 new onshore wind projects
- Onsite generation projects up 44%

Download the free report to find out much more about Great Britain's energy entrepreneurs – www.energyentrepreneursreport.com

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Gemserv works at the heart of the energy, environment, water and information security industries, providing independent support through our experienced team of consultants. Our services include:

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- Scheme administration e.g. the Biomass Suppliers List
- Compliance e.g. ISO 50001
- Information security e.g. data protection and ISO 27001
- Code administration e.g. the Smart Energy Code Administrator and Secretariat (SECAS)

Gemserv supports industry participants, Government departments and regulators to implement and operate transformational national schemes ensuring complex markets work for everyone's benefit.

To find out more why not visit us at The Energy Event on stand D41 or contact us on:

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E: bd@gemserv.com

Gemserv
www.gemserv.com

Event season – are you booked in?

Energy Services and Technology Association director ***Robin Hale*** *takes a look at some of the upcoming events taking place this autumn*

It's that time of the year again when the summer holidays draw to a close and the mayhem of the energy industry event season begins. From now until early December, you will no doubt receive invitations for both free-to-attend as well as fee-based exhibitions, conferences, awards ceremonies, webinars and training sessions on topics ranging from market analysis and price risk to measurement and verification and energy efficiency.

The question is, which ones deserve your time out of the office and which will provide you with the information, contacts, consultants, service providers and suppliers you need to assist in the continual development of your internal energy procurement and management strategy?

Kicking off the season is The Energy Event (15 and 16 September, NEC, Birmingham). Split over two days, it continues to be regarded by most in the industry as the one-stop-shop for all things energy. The seminar content and surrounding exhibition offer a wealth of knowledge and expertise and with about 30 Esta members exhibiting and Esta partnering the Information Theatre providing both presentation and panel sessions you can be assured the content and contacts will be worth travelling for.

Day one will provide insight on topics ranging from employee stakeholder engagement and check lists for Esos compliance to sourcing new opportunities for energy saving and benefitting your bottom line.

The 12 noon panel discussion 'Making every employee a stakeholder in your energy strategy', will tackle issues such as: what benefits can an engaged workforce create; and what are the associated cost savings? It will provide input from NetThings, Power Efficiency and Network Rail, that will cover both the service provision, monitoring and consumer views of this important part of a company energy strategy.

Day two will further provide thought-provoking sessions, the 11.45 panel session in particular looking at 'The SME Challenge: Unlocking the benefits of energy efficiency with fewer funds and resources'. With contributions by Esta's own honourary president Professor Martin Fry and joined by the BRE, Empirical Energy and t-mac Technologies, there is a wealth of knowledge and experience to tap into, so take your questions and issues along and make the most of the opportunity.

You will find Esta next to the Information Theatre on both days, so come along and let us help you with introductions and contacts to make your day more productive.

Continuing with an energy management and efficiency theme, Esta is launching a one-day conference and exhibition: Esta's Energy Efficiency Summit, bringing together energy industry stakeholders to further the efficient use of energy across the UK (22 October, Ricoh Arena, Coventry).

The conference will focus on the policy, application and future of energy efficiency and how the UK demand side market can deliver the energy savings potential we all know are possible.

It will also discuss thoughts around the autumn publication of the consultation set out in the summer Budget, which will probably be issued from Decc/HM Treasury looking at energy policies and considering the current reporting mechanisms.

The event will provide a great opportunity to share your experiences and voice your opinion on the way current legislation could be made easier and more effective. Certainly, with reporting mechanisms in place for CRC, CCL, Esos, GHG etc, there will surely be some consolidation. It's an ideal time to take a mid-season break and reflect on your accomplishments over the past year and take a view on what lies ahead.

Whatever events you plan on attending this autumn, there are three rules for a successful visit:

- block out the day otherwise something else may crop up and prevent you attending;
- set up meetings before you get there, to make sure you get time with those you want to see;
- ask questions in conference and panel sessions, to gain others experiences.

Make the most of your energy community and expand your contact and knowledge base this event season. With only a few days to go – are you booked in? te

esta.org.uk

> ***Make the most of your energy community and expand your contact and knowledge base this event season***

Energy manager apprenticeships arrive too late?

The Junior Energy Manager Apprenticeship Standard, published in August by the Department for Business, Innovation and Skills, promises at least a long-term answer to the yawning energy management skills gap, says ***Lord Redesdale****. But the short-term remains less than pretty, he tells* ***Brendan Coyne***

Lord Redesdale, the head of the Energy Managers Association, has welcomed BIS approval of the Junior Energy Manager Apprenticeship, a two-year training scheme that will equip the next generation of energy managers with the fundamental tools for the job.

While a firm start date for the apprenticeship intake is yet to be announced, Lord Redesdale says work on getting the scheme up and running has already begun. There is little time to waste, he says. There is sever talent shortage as companies fail to replace or outsource their energy management function, leaving themselves exposed to market shocks. While not yet on the doorstep, Redesdale believes those shocks are in the post.

"Most companies don't have an energy manager. The apprenticeship, which is over 24 months, will take people from beginner stage with little or no knowledge up to the point where they will have the knowledge base to become an energy manager of a company."

At which point Lord Redesdale believes they will be in demand by businesses struggling with runaway energy costs.

"The problem is, because oil and gas prices are going down, a lot of people are making the mistake of thinking that we are in an era of low energy costs," he says. "But because of generation problems and other issues in the supply chain around replacing power stations, we are going to see a dramatic increase in electricity prices."

Lord Redesdale has made that point many times, suggesting recently that blackouts, or at least brownouts, could be on the cards next winter and that the next few years will be tighter than previously assumed because of a drop off in wind investment, closure of coal plant and a lack of new gas

and nuclear power stations.

At the same time, businesses are ill-prepared for the result of 30 years of political flip-flopping on energy, he says.

Lord Redesdale believes National Grid will come increasingly to rely on peak shaving to maintain system security. That means a greater number of businesses will have to become more active participants in programmes like Triad and other demand-side response mechanisms.

"The problem is, how many businesses understand those mechanisms?" asked Lord Redesdale. "About 75% of companies don't have an energy plan let alone an energy manager that understands peak time pricing. So they can either buy-in that service or face real trouble."

Would graduate apprentices be able to take on such responsibility after two years in training? Lord Redesdale believes they could.

"Yes [they would be able to]. I am not saying they would be senior energy managers who could take on a large corporation. But what I am saying is that they would understand the power needs of the organisation that they are working for," he says.

"They would understand exactly what is drawing and when and they would understand the different needs between summer and winter and the procurement policies of the company – and that is half the problem," Lord Redesdale adds.

"They would be able to go to the board and present a business case. Would they be able to install demand reduction kit or battery technology or storage capacity? Probably not. But they could certainly work out what was needed and put out the tender."

That, he says, is a start – and more than most companies can handle at present. te

See more detail on the standard here: http://bit.ly/1MXfFdL
Lord Redesdale established the Energy Managers Association in February 2012 and it now represents energy managers from companies with a collective energy spend of about £3bn

theema.org.uk

Energy management tunes in to FM

Lord Redesdale believes that the energy management function will increasingly fall within the facilities management remit and thinks that the FM sector will provide a significant proportion of the intake.

"There is a big question over whether energy management is part of FM or whether it sits on its own. I think the way people are currently looking at it, apart from at the very senior levels, it is much more of an FM type thing than anything else."

That doesn't mean the apprenticeship scheme will be the preserve of facilities management.

"We will take anyone that wants to go on [the course]," says Lord Redesdale, "but we think that it is very much an FM orientated type of qualification."

> *About 75% of companies don't have an energy plan let alone an energy manager that understands peak time pricing. So they can either buy-in that service or face real trouble*

The Energy Event takes

Energy management, efficiency and procurement will take centre stage this September when The Energy Event returns to the NEC Birmingham

The Energy Event (15-16 September, NEC, Birmingham), is the country's leading energy exhibition and conference for major energy users and will help businesses as they grapple with energy security issues, Esos compliance and the drive to reduce energy costs and improve their sustainability performance.

Formulated in close partnership with key industry and event stakeholders to address the important issues, the popular conference programmes at each show are a strong focus for 2015.

More than 60 free-to-attend CPD sessions are scheduled to feature at the event across two show theatres in what will prove to be one of the major attractions for visitors.

The Energy Information Theatre

The Energy Information Theatre is supported by associate sponsor SMS, in partnership with Esta (the Energy Services and Technology Association) and content partner the Building Controls Industry Association (BCIA).

The theatre will feature headline presentations from a range of blue-chip companies alongside a special keynote talk on big data from Dr Gerd Kortuem, professor of computing at the Open University. Other important sessions include:

- Dr Bernd Leven, group head of energy at Tesco will discuss how the retailer has reduced its energy consumption in their current stores, whilst saving money through enhanced energy efficiency measures.
- Oliver Rosevear, energy and environment manager at Costa Coffee will explain how audited energy usage of building structure and operating equipment has resulted in a 32% energy saving across the company's retail estate.
- Mark Penny, head of sales, energy solutions at JCB will showcase how the company has driven cost savings through maximising efficiency and renewable energy integration.
- Ben Brakes, environment manager, Whitbread Group will join a panel discussion featuring Gareth Williams, energy and environment manager, Northern Rail; Steve Jarvis, director, Carbon Clear and Fiona Daly, head of sustainability, Bart's and St Thomas' NHS Foundation Trust to explore the business case for energy efficiency and the company-wide benefits of a strategic approach to energy management.

The Energy Leaders Theatre

Sponsored by Anglian Water and AXPO with content partner the Major Energy Users Council (MEUC), the Energy Leaders Theatre is focused on exploring the big issues that energy, finance and utilities procurement professionals face today. It will help them overcome these challenges through a series of content enabling learning, networking and knowledge sharing sessions. Chaired by Dr Steven Fawkes, author and founder of EnergyPro, the theatre will feature keynote presentations from Dame Frances Cairncross on Tuesday 15 September and Jim Watson, professor of energy policy at University of Sussex and Research Director at UK Energy Research Centre (UKERC) on Wednesday 16 September. Other notable sessions include:

- The Energy Supplier Panel featuring Haven Power, Omar Rahim, director of trading at LG Energy Group, and a senior representative from Utilitywise.

the lead on energy issues

- Bob Wilson, managing director of Anglian Water Business and Mark Sait, CEO of SaveMoneyCutCarbon will look at why it makes sense to take an integrated approach to managing utilities.
- Representatives from Lloyds Banking Group will also present a discussion looking at making cost and carbon savings through energy performance contracts.

For 2015, The Energy Event is introducing a brand new feature called Energy Connects. Energy Connects is a facilitated networking service, providing exclusive one to one meetings between the shows visitors and exhibitors. Energy Connect will be hosted by Sector Marketing, a specialist in integrated marketing services. Once registered as an attendee, visitors will be able to log in to an online portal and arrange 121 meetings with exhibitors and other pre-registered visitors allowing them to plan their day in advance and ensure they have a productive day at the show.

The Energy Event will also provide access to the services, products and advice of more than 140 exhibitors including Corona Energy, Philips Lighting, BIU British Independent Utilities, British Gas Business, Haven Power, Dart Valley Systems, Schneider Electric, Airedale International Air Conditioning, InTouch - IS Ltd, Lucy Electric, Clarke Energy, Airedale International Air Conditioning, ASL Holdings, Stokvis Energy Systems, EnOcean Alliance, Mattei Compressors, Lightsource RE, Wingas, SSE, Source for Business, JRP Solutions, National Grid, Carlo Gavazzi, and many more.

A few exhibitor highlights include British Independent Utilities (BIU) bringing its iconic double decker stand, which has been relocated and redesigned to create additional meeting zones. BIU will also be sponsoring the Utility Café where visitors can choose to take a break or arrange an informal meeting.

On Stand C01, Stokvis Energy Systems will introduce a range of new products including the latest Econoplate "H" Series interface unit, which is ideal for district heating schemes.

TVR Instruments will be launching the NG9 Energy monitoring system, which is a 90mm multifunction meter designed for use on electrical distribution network to monitor the energy consumption of up to nine single phase loads or 3x3 phase load or a mix of three and single phase loads on stand B52-C51.

Westbase Technology is planning to provide a "sneak preview" of its latest Sierra Wireless AirLink 4G LTE gateway, which supersedes the existing Raven model on stand E70. te

For more information and to register, please visit theenergyevent.com or check out twitter @EnergyReneWater

The Energy Leaders Theatre

The Energy Leaders Theatre 2015 Seminar Programme

Tuesday 15 September

10:20 — **Chair's welcome**
Dr Steven Fawkes, author and founder, EnergyPro Ltd

10:30-11:00 — **KEYNOTE: Reviewing to improve energy Sector regulation**
Lord Curry of Kirkharle, chair, Better Regulations Executive and member of EU Energy and Environment subcommittee

11:40-12:10 — **Why water and energy do mix**
Lee Shipsey, sales director, Anglian Water Business
Mark Sait, CEO, SaveMoneyCutCarbon

12:15-12:25 — **The Major Energy Users' Council's working lunch welcome**
Andrew Buckley, CEO, Major Energy Users' Council

12:25-13:35 — **On the customer's agenda-four topical briefings**
Louise Powell, business development manager, Gemserv
Christopher Nightingale, chairman, Major Energy Users' Council
Paul Lowbridge, power responsive lead, National Grid
Calvey Taylor-Haw, managing director, Electromotive

13:35-14:15 — **Liberating our energy future-The great energy debate**
Stuart Read, procurement category manager, Bernard Matthews
Chris Mayhew, associate director – energy hub, Mace
Richard Robey, sales and marketing director, Haven Power
Jeff Whittingham, managing director, DONG

14:20-14:50 — **P272-turning an obligation into an opportunity**
Mark Holdsworth, P272 lead, BIU

15:00-15:45 — **Panel: Making cost and carbon savings through Energy Performance Contracts**
John Field, vice-president, CIBSE and chair, Esta Energy Performance Contracting Group
Paul Eggleton, energy and environment director, Lloyds Banking Group
Martin Weigh, head of facilities service management, Lloyds Banking Group
Nick Keegan, energy analyst-business development lead, EEVS

15:55-16:25 — **KEYNOTE: Energy, water and the environment-Global trends to watch**
Dame Frances Cairncross

Wednesday 16 September

10:00 — **Chair's welcome**
Dr Steven Fawkes, author and founder, EnergyPro Ltd

10:10-10:40 — **KEYNOTE: Future energy challenge – technologies, resources and choices**
Jim Watson, professor of energy policy, University of Sussex and research director, UK Energy Research Centre

10:50-11:10 — **Electricity Market Reform – Striving for security and affordability of supply**
Jon Ferris, head of energy markets, Utilitywise

11:15-11:45 — **Why water and energy do mix**
Oliver Shelley, special projects manager, Anglian Water Business
Mark Sait, CEO, SaveMoneyCutCarbon

11:50-12:30 — **Carbon Emissions Trading Scheme: Policy, finance and verification**
Louis Redshaw, managing director, Redshaw Advisors

12:40-13:20 — **Panel: Making sense of the latest government subsidies and measures**
Senior representative, Haven Power
Barbara Vest, director of generation, Energy UK

13:25-13:55 — **Case Study: BAE Systems-realising energy reductions whilst increasing operational resilience**
Jonathan Farmer, sustainability engineer, BAE Systems
Adrian Trevelyan, UK service manager, Airedale International

14:00-14:10 — **Energy Managers of the Future: Presentation of Shortlists and Winners**

14:15-15:00 — **The energy supply panel: Adding fuel to the fire**
Omar Rahim, director of trading, LG Energy Group
Tim Hipperson, head of supplier relationships and regulation, Utilitywise
Senior representative, Haven Power

This is a draft programme. All content is subject to change

Energy Information Theatre

The Energy Information Theatre 2015 Seminar Programme

Tuesday 15 September

11:10-11:40 **Case Study: Rolls-Royce-delivering energy efficiency and a better workplace environment**
Anthony Hatfield, global energy manager, Rolls-Royce
James Bennett, senior key account manager, Industry, Philips Lighting

11:50-12:40 **Panel discussion: Making every employee a stakeholder in your energy strategy: Reducing consumption and benefitting the bottom line (Esta)**
Chaired by: Joe Williams, behaviour change lead, Carbon Trust
Wendi Wheeler, energy and carbon strategy manager, Network Rail
Ian Clark, marketing andbusiness development manager, NetThings
Richard Koszykowski, development director, Power Efficiency

12:45-13:15 **News UK: A holistic approach to carbon management: Key considerations across energy, water and waste**
Lugano Kapembwa, energy and environment manager, News UK

13:30-13:50 **The Energy Awards judge's supreme award winner: The energy efficiency change programme-a case study**
Chris Large, partner, Global Action Plan UK

14:00-14:50 **Panel discussion: The business case for energy efficiency**
Chaired by: Myles McCarthy, MD of implementation, Carbon Trust
Gareth Williams, energy and environment manager, Northern Rail
Steve Jarvis, director, Carbon Clear
Ben Brakes, environment manager, Whitbread Group plc
Fiona Daly, head of sustainability, Bart's NHS Trust

15:00-15:30 **Delivering value through Esos**
David Snow, head of energy and environment, SMS plc

15:35-16:05 **Looking beyond the low hanging fruit: Sourcing new opportunities for energy savings (ESTA)**
Steven Henry, managing director, Chalmor
Erika Wilson, managing director, Wilson Power Solutions

16:10-16:40 **KEYNOTE: Demystifying big data and the internet of things-realising energy savings in the future of smart infrastructure**
Gerd Kortuem, professor of computing, Open University

Wednesday 16 September

10:25-10:55 **Maximising the potential of your energy data for company-wide benefits (Esta)**
Joel Stark, managing director, Stark

11:05-11:35 **Case Study: Delivering impact and results - the rational and emotional benefits of a lighting upgrade**
Jeremy Palmer, sales manager, healthcare and education, Philips Lighting

11.45-12:30 **Panel discussion: The SME challenge: Unlocking the benefits of energy efficiency with fewer funds and resources (Esta)**
Chaired by: Paul Huggins, director of programmes, Carbon Trust
Prof. Martin Fry, honorary president, ESTA
Dr. Andy Lewry, principle consultant, sustainable energy team, BRE
Andrew Jones, director, Empirical Energy
Lisa Gingell, director, t-mac technologies

12:40-13:10 **Night Hawks case study: Reducing out of hours energy waste**
Mike Brain, head of business services and chair of the senior management team, Seveyn Wye Energy Agency

13:20-13:50 **Looking beyond compliance: Taking ESOS one step further in implementing efficiency opportunities (ESTA)**
Vilnis Vesma, director, Vesma.com

14:00-14:30 **Case study: Driving cost savings through maximum efficiency and renewable energy integration-key considerations for your business**
Mark Penny, head of sales, Energy Solutions JCB

14:40-15:10 **Case study from the UK's largest coffee shop chain - realising benefits of a smarter approach to energy efficiency and carbon emissions reduction**
Oliver Rosevear, energy and environment manager, Costa Coffee

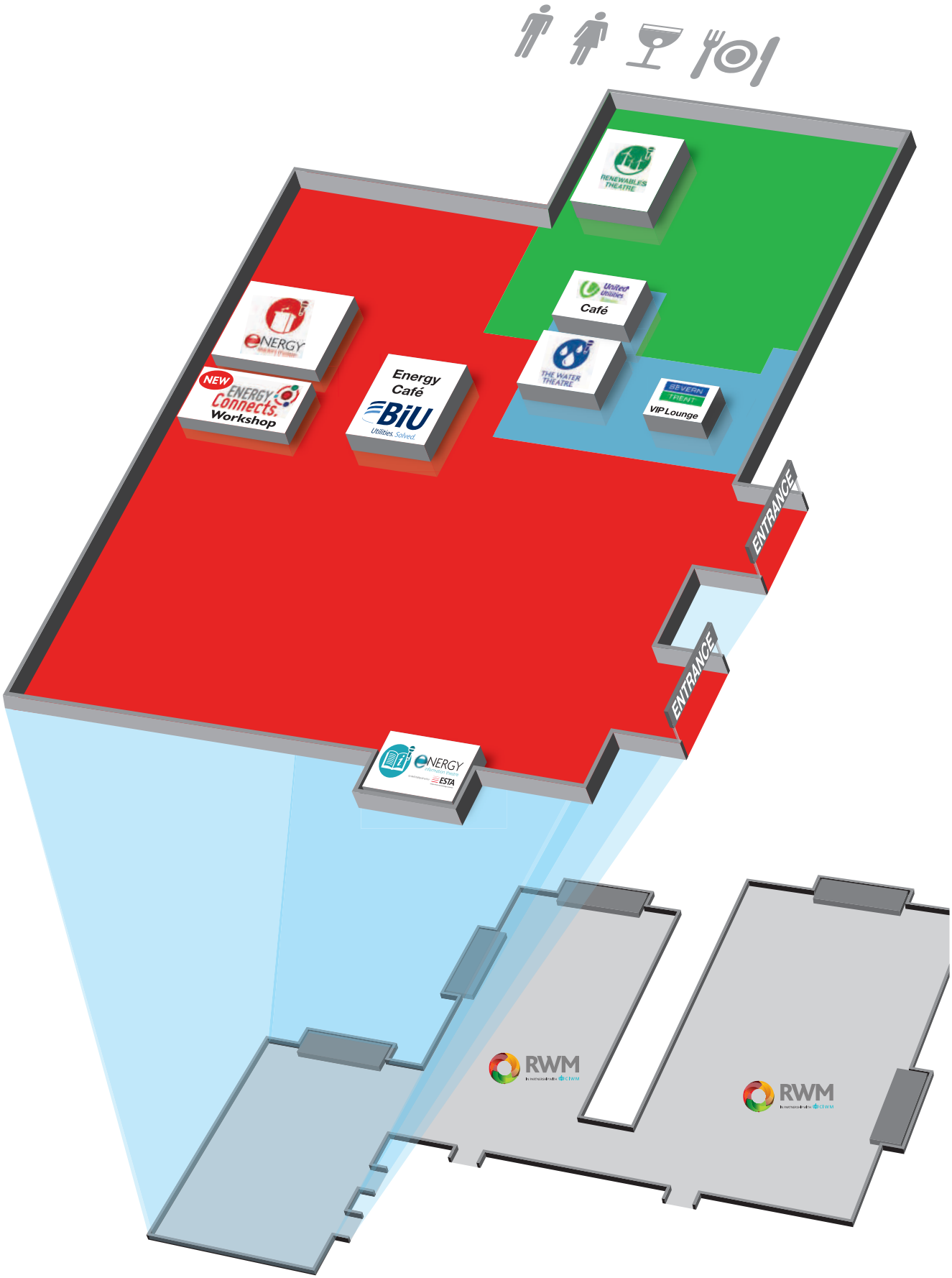
This is a draft programme. All content is subject to change

Floorplan and exhibitor list*

Energy Event
Renewables Event
Water Event

AFS Biomass K03
Agron-LED E70-F69
Airedale International Air Conditioning C38
Airius Europe B09
Alpha Financials Environmental K30
Anglian Water Business G50-H49
ARI Armaturen (UK) F29
ASL Holdings C10
Automaton Unique Engineering D31
Axpo UK (Energy Connect Room) A65
Bell Flow Systems D10
Beran Instruments G50
bhsl H09
Biogest UK G10
British Independent Utilities (BIU) D60-E59
British Energy Saving Technology E19
British Gas Business E30
British Research, UK R&D K16
British Solar Renewables K39
British Water F10
Bugfish F32-G31
Building Energy Controls Solutions (BECS) A11
Burkhardt L19
Business Stream E32-F31
Carlo Gavazzi UK A20
Chas A37
Chauvin Arnoux B14
Clarke Energy D72
CleanEarth J40
Compact Lighting C62A
Corona Energy D50-E49
Danlers A42-B41
Dart Valley Systems G20A
Datamere A12
Digitalenergy D14
Dunster Biomass Heating H15
E.on A70
EcoCooling E69
Edi4business B21
Elcomponent F62
The Electrical Industries Charity A53
Eltek C53
Endress+Hauser A01
Energy Ace A10
Energy Assets E29
EnOcean Alliance D20
Envantage A39
Environ UK L02
eSight Energy A01
ESTA A35
Eve Trakway K10
Faros Engineering E67
Fissara H12
Flexitricity B11
Fluke B40
Forest Rock Systems D29
FP McCann G05
GE Intelligent Platforms K47
Gemini Data Loggers (Tinytag) B51
Gemserv D41
Goodlight D32
Green Acorn Energy Solutions Lyd D51
Green Energy Consulting F66
Greener Times Publishing L04
GVS Filters C52
Haven Power F70-G69
Hawker Electronics F02
High Level Specialists J32
Hunter Apparel Solutions G09
Ignite Energy B10
Ikaros Solar G14
4eco K41
Institute of Physics D61A
InTouch - IS C70
Invisible Systems B50-C49
Itron K29
IWTM G12
Jark Power D80
JRP Solutions D27
Kamstrup Instrumentation B61
Kelda Water Services Retail G20
Lark Energy J20-K19
LCG Energy G40
Leclanché L29
Lightsource Renewable Energy Holdings D12
LSLCo UK A51
Lucy Electric C60
Lutterworth Ecolighting A09
MA Energy C02
Magnatech Fuel B19
Manutech Europe D13
Martindale Electric Company C30
Mattei Compressors D01
Meter Provida C39
MEUC F71
MHA H50
Micronics E21
Morrison Utility Connections C56
MWA Technology B49
National Grid Metering D59
ND Metering A52
Neoperl UK G25
NetThings A05
NewFound Energy A40
Nottingham City Council B60
NVC lighting C61
Ofgem E-Serve C51
Onesight Solutions D70
Pegler Yorkshire Group A60
Pfisterer B59
Philips Lighting C11
Photonstar led C34
Planetsaver C19
Power Efficiency E33
Energy Event Pressac Communications D17
Propelair G22
Regin Controls F19
ReMake Electric A50
Renewable Energy Association J52
Sabien Technology C59
Schletter UK J01
Schneider Electric C13
Severn Trent E10-F09
Siemens Operational Services B70
Siemens Financial Services UK C73
Sifam Tinsley Instrumentation C54
SMS C32
SolarCool L41
Source for Business F12-G11
SSE Contracting D16
SSE Enterprise K20
Stark Software International C22
Stokvis Energy Systems C01
Synapsys Solutions A40-B39
Technolog C12-D11
Thames Water Utilities H21
The Energyst G52
Thorlux Lighting C20
TMAC D30
TPA Portable Roadways L39
Treco L52
Trend Control Systems A30-B29
TVR Instruments B52-C51
United Utilities H20-J19
Utility People E20
Utilitywise D30
VuePoint Solutions C50
Water Direct H01
Water2Business F20
Waterscan F40-G39
Westbase Technology E70
Wilson Power Solutions D19
WINGAS B30-C29
WPD Smart Metering B20
Xylowatt K42
Zero H10 -J11

* Correct at the tme of going to press


RENEWABLES THEATRE
United Utilities
Café
THE WATER THEATRE
VIP Lounge
ENERGY
NEW
ENERGY Connects Workshop
Energy Café
BiU
Utilities. Solved.
ENTRANCE
ENTRANCE
ENERGY
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Looking to the future

The Energy Event has announced new initiatives including Energy Managers of the Future and is hosting a last chance to influence the government's red tape cutting review

The organiser of the Energy Event has announced an exciting new awards programme aimed at finding the next star in the energy sector. Supported by the Energy Institute, the Major Energy Users' Council and *The Energyst*, the scheme rewards one lucky winner with a an Energy Institute energy management course, and a year's affiliate membership of the institute. The winner will be announced at the event held at the NEC in September.

Candidates should upload their entry onto the form on the Energy Event website at theenergyevent.com, detailing their achievements in the energy sector and explaining why they believe they would be a worthy winner of the award. Entrants must be within the first three years of their professional careers, or be studying in this field.

"We are delighted to be able to launch this competition in time for the 2015 event," comments says Alison Willis, portfolio director at i2i Events Group.

A big part of our industry is about planning for the future and through the Energy Managers of the Future scheme this is what we are able to do, helping an outstanding candidate to propel their career within the energy sector."

Energy Institute training manager Will Sadler says: "Energy managers play a vital role in helping organisations reduce costs, improve efficiency and cut carbon emissions. The Energy Institute is proud to be supporting the Energy Managers of the Future Initiative as part of our commitment to supporting the development of a next generation of highly skilled and enthusiastic energy professionals.

"Completing training will allow a talented young energy manager to learn from the best experts in the industry and pursue a qualification that will allow them to demonstrably achieve the highest standard of excellence in energy management."

£10bn
Amount that can be saved by stopping wasteful red tape

To impress the judges, candidates should include details of campaigns or projects they have been involved in that have been particularly impressive, including the brief, objectives, strategy and outputs.

The entry submission should be no more than 500 words, and should include a summary of why the candidate believes they are worthy winners of the Energy Managers of the Future 2015 award. Entries can be made via the Energy Event website, with the option of including up to four pages as a supporting appendix featuring relevant work.

Also included in the entry form should be a personal Twitter handle, as progress throughout the awards programme could result in Twitter interaction.

The entries will be whittled down to a shortlist of finalists by the judging panel, which includes a representative from the Energy Institute, Tim McManan-Smith, editor of *The Energyst*, Jaz Rabadia, senior manager of energy and initiatives at Starbucks Coffee Company EMEA and i2i's Willis.

Finding ways to cut red tape

The Energy Event is also pleased to announce that the government will be holding two workshops at the event to discuss its cutting red tape energy review with visitors.

The government has launched ambitious reviews into burdensome red tape in five key industry sectors including the energy sector. The reviews are the first step to working with British businesses to axe unnecessary regulation and its poor implementation by a further £10bn over the course of this parliament.

> ***I am determined to take the brakes off British businesses and set them free from heavy-handed regulators***

During the event, the government is appealing for visitors to come forward and flag areas for change through the new cutting red tape programme. The Energy Event will be the last chance for people to input into the review.

Business secretary Sajid Javid said: "I am determined to take the brakes off British businesses and set them free from heavy-handed regulators. The government's pledge to cut £10bn in red tape over the course of this parliament will help create more jobs for working people, boost productivity and keep our economy growing.

"For the first time, these reviews will look not only at the rules themselves but the way they are enforced. We want firms to tell us where red tape is holding them back and help us make Britain the best place in Europe to start and grow a business."

Lord Curry, chair of the Better Regulation Executive, which leads regulatory reform, will also present a keynote talk on Tuesday 15 September in the Energy Leaders Theatre. te

theenergyevent.com

Keeping renewables at the top of the agenda

The Renewables Event, the only event to focus on the procurement and management issues affecting large UK end-user companies and organisations in industry and commerce, is at the NEC Birmingham on the 15 and 16 September with more exhibitors than ever before

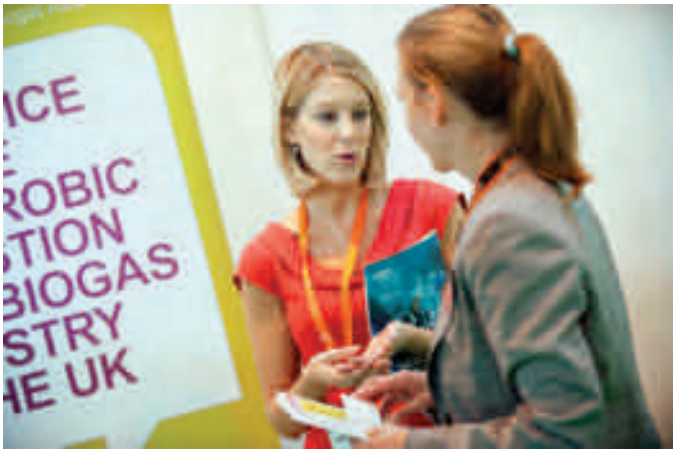
There is uncertainty within the industry about the future of energy policy and renewables technology, according to Alison Willis, environment portfolio director at i2i Events.

She says: "The free-to-attend Renewables Event and seminar programme will provide industry end-users with practical information on the key industry issues likely to impact on their business in the months and years ahead. It will offer a great opportunity to discover new ways for buying and managing utilities more efficiently in the future."

Among the major names taking part at The Renewables Event will be Treco, AFS Biomass, Environ UK, GE Intelligence Platforms, Siemens Financial Services UK, Juwi Renewable Energies, Lark Energy, Schletter UK and Zero. Renewable technologies which will feature at the show include: biomass, biogas and bio fuels; heat pumps and hydro; micro CHP; solar PV and thermal; and wind.

Some of the key exhibitor highlights include SolarCool on stand L41, which will be attending the Energy Event for the second year running and hoping to build on last year's success. Introduced to the European market via SolarCool Energy in mid-2014, SolarCool provides Solar Thermal assisted air conditioning and refrigeration systems.

On stand H12, visitors will be also to see Fissara, a comprehensive platform for management of work, projects, processes, assets and field services specially built and configured for the utilities and telecoms industry.



> ***The free-to-attend Renewables Event and seminar programme will provide industry end-users with practical information on the key industry issues likely to impact on their business in the months and years ahead***

Eve Trakway, stand K10, will be introducing its new Emtek mat to the marketplace as well as showcasing its plastic and timber trakway products, suitable for use in the energy and renewables sectors.

Large blue-chip companies, including Marks & Spencer, Bentley Motors, Greggs, Land Securities, Nestle and Tesco, will take to the stage in the shows Renewables Theatre. Supported by headline sponsor GE Intelligent Platforms and associate sponsor Lightsource RE, the theatre will provide visitors with advice an information on a range of topics including solar strategy, financial and legal requirements and understanding government policy and incentives.

Jem Stansfield, engineer and presenter of the BBC's science show *Bang Goes The Theory*, will also present a special keynote talk, taking place on Wednesday 16 September. He will outline his thoughts on the future for renewable energy and assess the likely impact of these changes for the business world.

Among the headlines sessions delivered by thought leaders in commerce and industry will be:

- Lydia Hopton, property project manager (Plan A) at Marks & Spencer will outline how solar is an integral part of the retailer's approach to business;
- Andrew Robertson, head of site planning at Bentley Motors, Neil Pennell, head of sustainability and engineering at Land Securities and Paul Rhodes, group safety, health and environment manager at Greggs will debate how to successfully implement large scale solar projects;
- Richard Clothier, managing director at Wyke Farms will discuss how on-site renewables can meet the heating needs of a business.

The programme will also feature a panel discussion exploring the renewable incentive and regulatory landscape for industrial and commercial end users. The Renewable Energy Association, the British Photovoltaic Association and the Anaerobic Digestion and Bioresources Association (ADBA) will all be playing an active part in the programme.

For more information and to register, please visit therenewablesevent.com or check out twitter @EnergyReneWater

Renewables Theatre

The Renewables Event 2015 Seminar Programme

Tuesday 15 September

10:20-10:30 **Chair's opening welcome**
Prof. Rob Holdway, director, Giraffe Innovation

10:30-11:15 **Panel: Unlock the power of your rooftops – successfully implementing your 'Solar Strategy'**
Chaired by: Prof. Rob Holdway, director, Giraffe Innovation
Andrew Robertson, head of site planning, Bentley Motors
Neil Pennell, head of sustainability and engineering, Land Securities
Paul Rhodes, group safety, health and environment manager, Greggs plc
Ray Noble, senior advisor – solar, storage and electric vehicles, Renewable Energy Association

11:25-11:55 **China's fast track to a renewable future**
Jenny Yi-Ping Chu, global partnerships manager, The Climate Group

12.:5-12:35 **Energy storage – capitalising on the efficiency gains for your business**
Ray Noble, senior advisor – solar, storage and electric vehicles, Renewable Energy Association

12:45-13:15 **Industrial "Internet of Things" for complex equipment – making it real and generate business tomorrow**
Steve Pavlosky, equipment insight business leader, GE Intelligent Platforms

13:25-13:55 **The 100% green strategy: Wyke Farms' holistic approach to carbon management – putting efficiency and renewable energy at the core**
Richard Clothier, managing director, Wyke Farms

14:00-14:45 **Panel: Honing in on heat – meeting your heat demands through onsite renewables**
Chaired by: Prof. Rob Holdway, director, Giraffe Innovation
Kirsty Rice, national energy advisor, National Trust
Martin Lowe, group facilities manager, The Co-operative
Richard Clothier, managing director, Wyke Farms
Stephen Newman, head of onsite generation sales, E.ON

15:00-15:20 **Opportunities arising from the UN Paris 2015 Climate Conference**
Paul Allen, external relations officer, Centre for Alternative Technology

15:30-15:40 **Setting the scene: The political landscape and the outlook for renewable energy**
Nina Skorupska, chief executive, Renewable Energy Association

15:45-16:25 **Panel: Putting the new government into perspective – fit for purpose?**
Chaired by: Prof. Rob Holdway, director, Giraffe Innovation
Reza Shaybani, chairman, British Photovoltaic Association
Nina Skorupska, chief executive, Renewable Energy Association
Charlotte Morton, CEO, Anaerobic Digestion and Bioresources Association

Wednesday 15 September

10:20-10:30 **Chair's opening welcome**
Prof. Rob Holdway, director, Giraffe Innovation

10:30-10:45 **Renewables customers' challenges and opportunities**
Stuart Read, procurement category manager, Bernard Matthews, and chair of the Major Energy Users' Council Renewable Energy Strategy Group
Andrew Smith, property manager, Numatic International Ltd

10.45-11.00 **Technologies at the tipping point**
Christopher Nightingale, chairman, Major Energy Users' Council
Calvey Taylor-Haw, chief executive, Elektromotive Ltd

11:10-11:40 **Lessons from Marks & Spencer: The largest single solar rooftop in the UK**
Lydia Hopton, property project manager, Plan A, Marks & Spencer

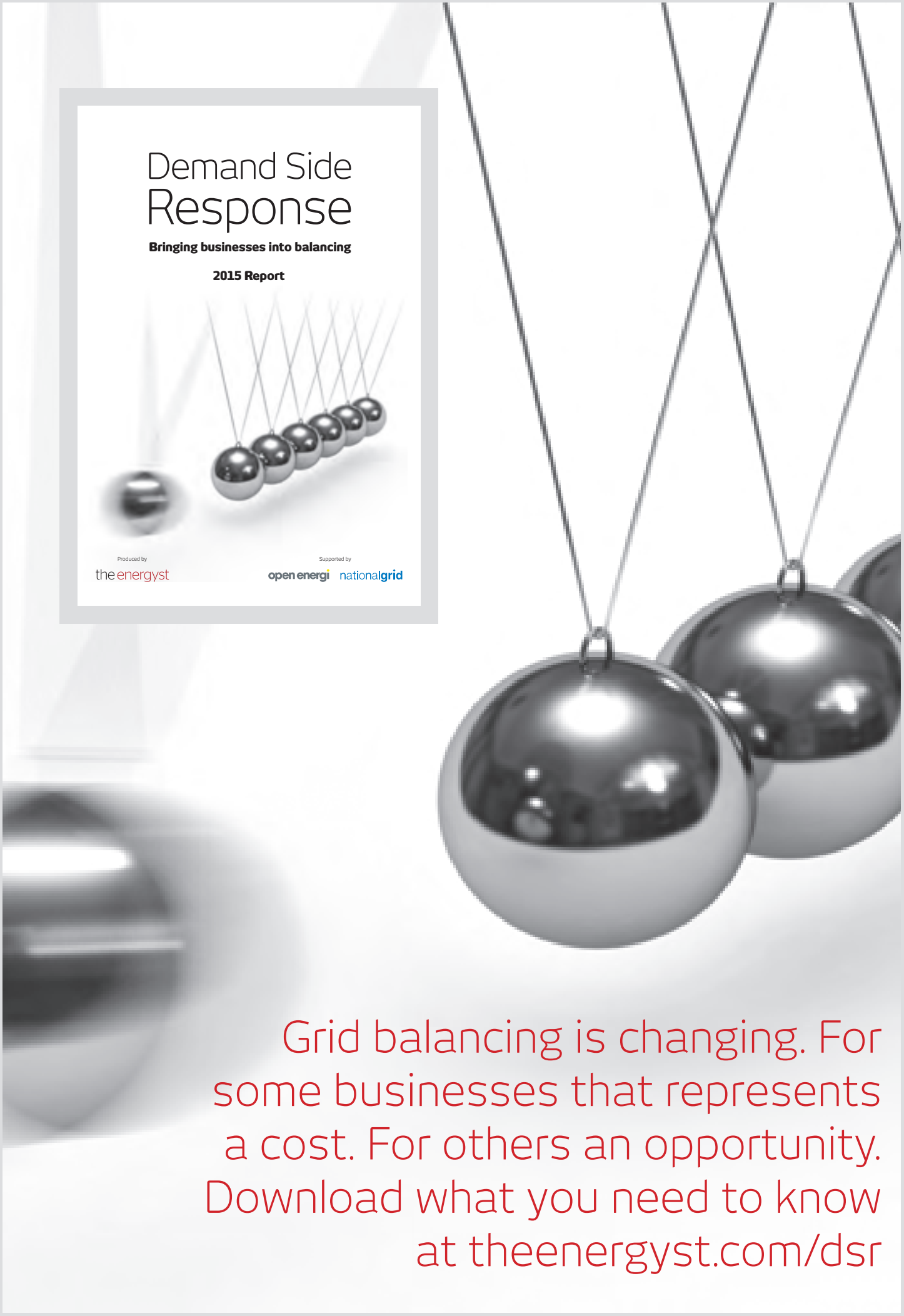
11:50-12:20 **Take control over your electricity bill**
Gary Sucharewycz, head of commercial rooftop sales, Lightsource RE

13:30-13:45 **Panel: Knowing your incentives – what's what and amendments to RHI**
Chaired by: Prof. Rob Holdway, director, Giraffe Innovation
Frank Aaskov, policy analyst, Renewable Energy Association
Dale Roberts, sales director, Treco Ltd
Adam Baddeley, head of energy, Eunomia
Simon Woodward, chairman, UK District Energy Association

14:00-14:30 **From Nestle to Viridor: The bottom line – making the business case for renewable energy**
Inder Poonaji, director of sustainability and SHEQ, Viridor

14:40-15:10 **KEYNOTE: What does the future hold for renewable energy, and what does this mean for sustainability in the business world?**
Jem Stansfield, engineer and presenter, BBC's *Bang Goes the Theory*

This is a draft programme. All content is subject to change



Grid balancing is changing. For some businesses that represents a cost. For others an opportunity. Download what you need to know at theenergyst.com/dsr

Cooling data centres

Large Data Centre uses Micronics clamp-on flow meters to monitor flow of water/glycol mixture in cooling system

One of the largest financial institutions in the UK is using 24 Micronics U3000B clamp-on flow meters in a new banking data centre in south Leicestershire to efficiently measure the flow of a chilled water/glycol mixture to control the water pump speeds in the cooling system and achieve a controlled constant temperature throughout the data halls.

The two buildings, the size of four football pitches and four storeys high, hold all the bank's data, with one building duplicating the other in case of failure.

The flow meters are installed on a wide range of pipe sizes including a large stainless steel pipe, 400mm in diameter but just 2mm thick. The Micronics clamp-on flow meters form part of the control system to maintain a steady room temperature, so essential to the smooth and cost-effective running of the establishment.

The temperature of the water mixture needs to be

constantly adjusted and the flow monitored to optimise the energy used for heating and cooling. This also keeps the computers at a safe 14°C, delivering significant maintenance benefits. Eight of the units are roof-mounted to control the main chiller operations, the rest are floor-mounted to control the main flows into the data halls.

The U3000B is a clamp-on, transit time, ultrasonic flow meter, which provides accurate measurement of liquid flowing within a closed pipe and provides an effective and reliable means of measuring flow accurately. The installed cost is considerably lower than similar in-line alternatives and, in critical HVAC systems such as data centres, they offer the subsequent maintenance benefits of no system drain down requirement and minimal disruption due to dry maintenance and servicing.

Micronics was selected as the supplier due to its competitive pricing in comparison with similar technology solutions or alternatives. Tony Coppinger, property operations manager, was pleased with the bank's choice of the Micronics flow meters which play a central part in the Data Centres' cooling strategy.

"The Micronics U3000B meters are installed at multiple points throughout the building's chilled water, which is the sole source of heat removal. They increase the efficiency of the system by accurately balancing the primary and secondary flow rates. This in turn allows the systems' flow rates to be accurately controlled whilst ensuring that the environment within the building envelope remains stable.

"Without these meters, it would be difficult to control the chilled water temperatures, without causing a risk to the critical environments."

This example demonstrates that the opportunity for replication in similar schemes across the UK is extensive and Micronics flowmeters have also been used in the London headquarters of the Bank of England for similar purposes. te

micronicsflowmeters.com

Computer room cooling

The EcoCooling CREC (Computer Room Evaporative Cooler) is a low energy, fresh air system which uses a combination of ventilation, evaporative cooling and highly efficient EC fans to provide ASHRAE-compliant conditions in data centres, irrelevant of load.

Unlike free cooling, now used by many refrigeration systems, the CREC system uses the outside air all year round by using the heat from the data centre itself to heat the incoming air when it is cold outside and conversely cool the air by low energy evaporative cooling when the outside temperature is too high.

Direct evaporative cooling is the only technology that can take full advantage of free cooling up to temperatures equal to the desired supply temperature. This, says the firm, allows huge energy savings to be made as most of the time the only energy required is to run the fan.

Sophisticated control systems designed to the tightest specifications for the data centre industry and manufactured in house are now in demand from other clients. Clients benefiting from this include a butterfly house where close control of temperature and humidity has enabled the breeding period of the butterflies to be increased.

EcoCooling says pharmaceutical companies are finding that its control systems can provide accurate information regarding the temperatures and humidities throughout their warehouses allowing MHRA compliance to be proved. te

ecocooling.org

Heathy savings

Worcestershire Health and Care NHS Trust is achieving potential energy savings of 50% thanks to energy management provider IMServ

Worcestershire Health and Care NHS Trust started working with IMServ, the UK's largest independent energy management provider, in 2012 and the trust has been continually impressed with the standard of its management and services.

Rehan Yunus, environmental officer at the trust, explained: "We have worked alongside IMServ, predominantly for electricity data collection services for the past three years. Health Trust Europe, on behalf of the Worcestershire Health and Care NHS Trust, chose IMServ because of the strength of its work ethic and reputation in the field after a competitive process.

50%
Savings on the billing differences from 2014-15

"We have a variety of buildings; community hospitals, inpatient units, health and treatment centres/ clinics and support services buildings. All of these buildings have different demands and keeping accurate data is essential in identifying opportunities for improvement.

"IMServ's services help our business meet environmental requirements in various ways including the recording of accurate energy usage and carbon emissions for buildings that the trust do not directly pay for, identifying where savings could be made and having access to data used in Display Energy Certificates."

IMServ works closely with many organisations across the country, advising on effective energy management solutions. The company offers a range of monitoring, visualisation and control services that allow businesses to gain greater insight into their water and electricity usage.

Results

Commenting on the partnership Rehan said: "IMServ has an established reputation within the industry, and it's not hard to see why; the team is very knowledgeable, flexible and great to work with. The services it offers are quick, with easily accessible data, graphical outputs and useful reporting formats.

"Our carbon management plan has encouraged the trust to look into all mechanisms to reduce our considerable carbon footprint. While working with IMServ we have been able to identify the potential to save nearly 50%*."

Rehan concluded: "Armed with the electricity data we receive from IMServ, we can now work to look at both behavioural and structural changes, which can be implemented to start making energy reductions.

"Looking to the future, the trust will apply for funds to improve sub-metering at two other sites and will produce building specific data that will in turn aid the trust in being more accurate with our energy management. The trust is in dialogue with colleagues from the Acute Trust to implement a comprehensive sub-metering strategy for all trust buildings for waste detection and accurate recharging of utility costs." te

imserv.com

** There was a potential to save more than £41,500 based on the billing differences from 2014--15 figures across two sites.*

> ***Armed with the electricity data we receive from IMServ, we can now work to look at both behavioural and structural changes, which can be implemented to start making energy reductions***

Energy and engineering

*UKAEE president **Rajvant Nijjhar** discusses the upcoming World Energy Engineering Congress*

The UKAEE is the UK chapter of the Association of Energy Engineers. As such, we are affiliated to an global organisation (Association of Energy Engineers) that is considered to be the largest global energy engineering membership organisation. This year, from 30 September to 2 October, the World Energy Engineering Congress (WEEC) will be taking place in Orlando, Florida. It is billed as the world's largest energy event.

The WEEC is the one truly comprehensive event where you can fully assess the big picture and see exactly how the economic and market forces, new technologies, regulatory developments and industry trend all merge to shape your critical decisions, as well as define what specific steps are needed to achieve large scale energy efficiencies within your organisation.

From personal experience, WEEC was about the following:

- Keynote speakers of considerable note: last year it was Bill Clinton; this year it will be Dr Condoleeza Rice.
- Extensive and comprehensive programme spanning across 14 tracks over three days with the following themes and topics:
  - Energy efficiency and energy management
  Renewable, green and alternative energy
  - The impact of climate change
  Cogeneration and distributed generation
  Smart grid and electric metering innovations
  - Integrated building automation & energy management
  Lighting efficiency
  - HVAC systems and controls
  - Thermal storage and load management
  - Boilers and combustion controls
  - Solar and fuel cell technologies
  - Applications specific to federal energy management programs
  - Energy project financing success strategies and incentives
- Great networking opportunities including meetings with other international chapters, international dinners, awards dinners, and networking lunches
- Great opportunity to win new business and expand into international markets
- Women's only networking groups: CWEEL (Council on Women in Energy and Environmental Leadership) breakfast meetings

> ***The WEEC is the one truly comprehensive event where you can fully assess the big picture***

WEEC is on 30 September to 2 October 2015, Orlando, Orange County Convention Center, Florida, (energycongress.com),

If you are interested in attending WEEC this year please contact President@ukaee.org.uk where discounted booking forms can be provided. te

ukaee.org.uk

Heat Network (metering and billing) Regulations 2014 seminar

UKAEE Events: Delegates are now signing up fast to our heat metering event on 8 September. We will have speakers from: National Measurement Office, Sustain, Building Sustainability Limited, ISTA and Savills (TBC). This event counts towards four hours of CPD. More details can be found below including the booking link.

The Long Room, Oxford Town Hall, Oxford City Council, Tuesday 8 September 1.30 to 5.30pm

UKAEE is hosting a seminar on the Heat Network (metering and billing) Regulations 2014 to disseminate information and practical next steps on the impacts for organisations, energy managers, facilities managers or those whose responsibility it is to manage heating and metering within the organisation. The seminar will provide information on the Regulation's requirements, who is affected and what needs to be undertaken by organisations by December 2015. It will benefit those that provide multiple occupancy/users with heating, cooling or hot water regardless of contract type.

To book please use the link here: https://www.eventbrite.co.uk/e/push-the-button-on-heat-metering-tickets-17968287632

Efficiency increases value

Recent data proves investing in energy efficient retail centres increases their market value. It's a potential win everyone in the sector should know about, says ***Bob Hall***

New research from the British Council of Shopping Centres (BCSC) suggests energy efficiency can increase the value of shopping centres by more than 5%.

The study looked at 35 UK retail centres. It found improvements are most pronounced for centres more than 25 years old.

For an average £100m shopping centre in the UK, the wins translate into higher market values of at least £105m when energy intensive equipment is replaced with new.

For centres less than five years old, the analysis shows a value gain of more than 1% is possible. Failure to undertake energy efficient investments therefore risks losing around £5m.

Specifically, the statistics say top savings are derived from replacing lighting, escalators, lifts and heating, ventilating systems, and air conditioning units.

"Shopping centres are one of the biggest single contributors to CO_2 emissions in the UK commercial property sector," said Rebecca Pearce, EMEA head of sustainability, CBRE.

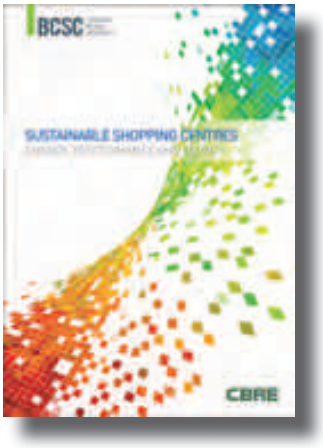
"To finally have evidence to prove energy efficiency is not just a costly exercise without financial benefits is massive for our industry."

The future is light

There are other wins to be had from upgrading outdated systems and equipment too. Let's take the case of lighting: consumers under intelligent, clearly defined, modern lighting can see products better. Less glare and discomfort will be caused. Ultimately, not only are values raised; the shopping experience and reputation are enhanced too.

All of this adds up to sales. Case studies from our retail customers have shown that well designed energy efficient retail lighting can increase sales by 278%.

Recommendations say shopping centre owners should embed analysis of energy performance. Regular life cycle assessments such as benchmarking of energy costs against total service charge should be used. Equally, monitoring energy costs as a proportion of rental income is key.



But most crucially, without implementation of the findings, wins can never happen. It's not enough to merely illustrate change; action is necessary.

Tackling a key barrier to energy efficiency

Of all obstacles to implementing energy efficiency, securing finance is often seen as one of the most significant.

Yet despite this there seems to be a reluctance to take up energy efficiency financing schemes, which sound 'too good to be true'. But the truth of the matter is, many of these schemes really are as good as they look – and the benefits to the customer are very significant. te

Bob Hall is managing director at Greenlite Lighting Solutions

greenliteuk.com

Galvanise your balance sheet

Carbon8 Lighting's LED Multifunction luminaires have been installed at Cardiff Galvanizers to reduce energy consumption and maintenance and improve light levels. As a result, total overall operating costs for all light fittings has fallen from £5,330.62 to £2,231.42 with a payback period of 2.5 years.

Lighting refurbishment commenced in the firm's Hot Dip Galvanizing plant, where 29 Carbon8Lighting 180W Multifunction floodlights were installed to replace the existing 400W Metal Halide lamps. That took the power consumption from 440W down to 180W per fitting. Carbon8Lighting then supplied 7 x 100W

LED floodlights mounted on pylons in the main loading area and 3 x 150W LED high bay luminaires in the galvanising control room. Additionally, the powder coating pre-treatment spray booth had 4 x 30W LED floodlights installed along with 4 x 100W LED floodlights in the

powder coating outside loading area.

With good levels of natural light available in the galvanizing loading area, Cardiff Galvanizers is using photocell light level sensors that detect light levels and switch the fittings off when natural light levels are sufficient.

"Having spoken to a few companies, Carbon8 was the most informative and had no hesitation in arranging a site visit to do a lighting survey," said Gareth Heath from Cardiff Galvanizers. "The recommendations provided exactly what we were looking for, even the position of the lights so that they didn't interfere with overhead cranes."

The maintenance-free high efficiency LED Multi-Function fixture has a patented design with built in surge protection and automatic thermal management.

carbon8lighting.co.uk

Get the lights that Brussels specifies

Aura Light now has a number of commercial and industrial LED fittings from modular ceiling luminaires for offices through to LED light engines for spots and downlights and LED equivalents of high bay and low bay fittings for industrial applications and car parks.

The group's products are specified on some prestige projects. One of the most recent in the UK is the LED fitting roll-out for the Virgin West Coast line. Other examples from around the world include lighting for the European Parliament in Brussels, Pfizer and the Coca-Cola production plant.

In February, the firm acquired Zobra, a Swedish luminaire manufacturer, and with it the Noral brand of exterior lighting.

"We now have a very comprehensive offer in sustainable lighting solutions covering both interiors and exteriors," said MD Simon Taylor (pictured). We have become a technology independent company providing not only LED but also HID and fluorescent options, all with guaranteed life."

The firm provides multiyear guarantees across its HID, fluorescent and LED ranges.

Further information on sustainable lighting solutions is available online.

aura-light.co.uk

You too can be dimmable

Latest ready2mains technology from Tridonic enables data to be transmitted in digital form via the existing mains, allowing dimming commands to be easily transmitted and executed without the need for expensive rewiring. That means conventional non-dimmable lighting can now be cost-effectively replaced with state-of-the-art dimmable LED lighting.

All that is required is to remove the existing conventional luminaires and install new dimmable LED luminaires. The associated Drivers must be equipped with ready2mains functionality but there is no need for any additional data cables such as DALI/DSI or 1-10V systems.

Conventional pushbuttons can be used as the control units, while sensors are easily integrated detecting presence or daylight. Integration in a DALI network is also possible via the one4all interface at the Gateway, which also adds DALI, DSI, switchDIM and corridorFUNCTION functionality.

A single control unit is capable of controlling or dimming all the connected luminaires in a room, whilst multiple control units or Gateways can be used in parallel, if required. The total connected load of a Gateway in the ceiling installation housing is 400 VA so up to 15 LED luminaires with ready2mains functionality can be connected. The maximum cable length is 250 m.

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Lacking real bite?

Government 'should subsidise energy efficiency over renewables and give Esos teeth' believes Mervyn Bowden. ***Brendan Coyne*** *reports*

While George Osborne may be playing the blame game for the busted cap on renewable energy subsidies, the truth is that successive governments have failed to decarbonise UK plc at the lowest cost.

Demand reduction would have been a cheaper option than the support levels afforded to some forms of generation, and should have been supported instead, according to Mervyn Bowden, former head of energy at Marks & Spencer turned energy consultant.

Bowden: 'Money should have gone into reducing demand'

Ill prepared

He also thinks that businesses are ill-prepared should the supply-demand balance this winter turn out to be less stable than some predict; and that Esos should have more mandatory elements to force businesses to become more energy efficient.

Only a fraction of firms have an energy risk management plan, said Bowden. "That is severely worrying [given that], if there is going to be a supply demand balance issue, and blackouts, this coming winter is going to be the one."

More encouragement and support from government is required, Bowden believes.

"Esos is fine but it has no real teeth. The problem is that is has not got enough mandatory elements."

That lack of bite will force up energy bills as more expensive options are supported, Bowden warns.

"Some of the stuff is so simple and such a no brainer. Successive governments have incentivised renewable energy generation big style, like the crazy subsidies on solar PV at 40 odd pence per kilowatt hour," Bowden said.

"That money should have gone into reducing demand. Because if you look at the relative returns, even at simple cash payback level, the feed in tariffs are based on a financial return of about 8%. Whereas you can get 50% or more from the right energy efficiency schemes.

"They are virtually in a position where they don't need subsidising. But I am not quite sure what is going to make some businesses wake up and go down that path."

Esos for SMEs?

Meanwhile, Bowden thinks that an Esos type scheme should be expanded to capture smaller businesses.

"There are lots of SMEs who are not quite in the energy intensive user category who probably could benefit hugely from taking a more sensible pragmatic view on energy management – but don't," he said.

"One of the odd things about Esos is that it goes down to organisations with 250 employees. But what about the organisations below that? They are the ones that really could save an awful lot of money depending on how important energy use is to their overall business." te

Esos: To save or not to save?

With three months to go until the 14,000 or so companies captured under Esos are required to file their audit with the Environment Agency, attention is turning towards maximising the opportunity from the process, according to BG Energy Solutions.

Managing director Duncan Biggins says firms must wake up to recommendations made by Esos lead assessors as part of the audit process – and take action.

"The Esos audit should be seen as simply the start of a journey to wider benefits," he advises.

His message to UK business is straightforward: "Act on Esos and take recommendations to the heart of your efficiency strategy. It is true that

"Esos costs upfront. But countered against this are myriad ways in which it embeds cohesion on energy, in addition to countless technical advantages."

Esos highlights easy, quick ways to save energy across an estate. Quick wins include retrofit LED and lighting upgrades or simple, smart building controls, says Biggins, which provide rapid returns on investment (ROI).

"The scheme only requires businesses to identify these opportunities. But by implementing them, the cost savings that can be achieved are typically more than 13.5 times the cost of auditing itself. Therefore, a £12,000 audit can actually identify savings of £162,000. Minus the initial outlay, that's an overall win of £150,000," Biggins adds

The firm touts both energy saving technologies and services as well as funding solutions so that any implementations are cash positive from implementation. te

bgenergysolutions.co.uk

Sooner rather than later

***James Rant**, business development manager at Utility Team, explains how the implementation of a bespoke energy management strategy will not only keep the auditor happy but also deliver substantial savings*

Industry sources reported that just 120 businesses had informed the Environmental Agency of compliance with the Energy Savings Opportunity Scheme (Esos) by mid-August – just a small fraction of the estimated 10,000-plus companies that qualify for the mandatory scheme. With costly sanctions for non-compliance and less than four months to go until the December deadline, the time has come to act.

According to recent research conducted by the Carbon Trust, the implementation of energy-saving measures could achieve a 35% reduction in CO_2 in non-domestic buildings by 2020, saving companies in the UK more than £4bn in energy costs. As part of the drive to reduce the UK's carbon emissions by 80% by 2050 (compared with 1990 levels), the government is introducing new legislation for businesses.

Esos, which comes into force in December, requires all non-SME businesses to produce detailed reports of their energy usage by 5 December, and then every four years thereafter. The alternative is to risk being fined a lump sum of £50,000 and/or a £500 fine for each day the business remains non-compliant.

Businesses will need to conduct energy consumption profiling to analyse the different ways in which energy is used and help identify areas for savings. According to government estimates, Esos could help save about £300m in energy costs in the first year alone, but the Carbon Trust believes this figure is an underestimation, with businesses potentially able to save three times this amount through the timely implementation of an energy management strategy.

Despite the saving potential companies are failing to act. The surprisingly low awareness of the mandatory scheme is magnified by the fact that there are less than 40 Esos assessors in the whole of the UK, and no more assessors will be qualified before the December deadline. This means that businesses that have yet to take action on Esos compliance are in grave danger of missing the deadline, and as a result being fined and 'named and shamed'.

Take control of your energy management

It makes sense to look beyond simply ticking the boxes to comply with Esos. In order to feel the full benefits of the scheme, you must have a strong understanding of your energy consumption.

An energy survey, using smart meters and the latest energy management platforms, will highlight the energy your business consumes and identify where savings can be made, as well as assessing the effectiveness of any energy efficiency measures already in place. This information can then be used to produce an energy management strategy that identifies short, medium and long-term energy-saving goals.

Once an energy management strategy has been implemented it needs to be constantly monitored against these goals to maximise savings.

Once an energy management strategy has been implemented it needs to be constantly monitored against these goals to maximise savings

Energy monitoring software can be an essential tool, which produces the data needed for this detailed analysis. Report capabilities can include the generation of multi-site league tables, statements and bespoke reports, as well as data analysis, AMR metering, carbon alarms, invoice validation, tenant billing and market intelligence. These reports not only provide the information necessary to make potential energy savings, but also give you the vital information to comply with the Esos scheme.

For companies to take advantage of the Esos scheme they must act fast, employing energy management strategies can help not only ensure regulatory compliance but also take advantage of the savings on offer. te

utilityteam.co.uk

The Utility Team is a utilities and energy consultancy that helps clients get the best value from their energy contracts, reducing energy consumption, and their carbon footprint.

Paying over the odds

Competition & Markets Authority says small firms are being ripped off by £500m a year on energy. ***Brendan Coyne*** *reports*

The Competition & Markets Authority has suggested that the UK's small businesses are overpaying on energy bills to the tune of £500m per annum.

In a report published in July, the watchdog said third party intermediaries should be made to disclose more fully how and where they are making their money. The CMA has also proposed that more price comparison data and price comparison websites for small businesses are brought to market.

The CMA's report into the UK energy market said Ofgem's inability to make things happen at speed and government's misguided attempts at allocating subsidies to certain technologies outside of a competitive framework were problematic.

Neither the wholesale markets nor vertical integration were major impediments to competition, it found. Some domestic customers were paying more than others for their energy because they were not actively switching supplier, said the CMA. Likewise small businesses.

The report suggested a need for reforms of locational charging and the introduction of locational transmission losses.

Meanwhile EMR elements such as the capacity mechanism and contracts for difference had merit, said the CMA. However, it pulled no punches when stating that Decc's decision to allocate contracts for some renewables projects outside of the competitive CFD framework will cost UK businesses and consumers up to £4.5bn more than necessary over 15 years. Whether Decc notes that criticism when negotiating final investment decision contracts with nuclear developers remains to be seen.

Decc's allocation of renewables into subsidy pots was also suggested to be haphazard by the CMA.

Small businesses and TPIs

Alleged malpractices by third party intermediaries had damaged trust in the SME and microbusiness market, said the CMA. Lots of businesses are paying around a third over the odds for electricity due to rollover tariffs, and around a quarter more than they would pay on retention contracts for gas. Those on deemed contracts could be paying up to double the rates for energy when compared to retention contracts.

As a result, suppliers were making up to four times the margin on small businesses than for large customers. The difference in margins and tariffs could not be justified by risk or costs, said the CMA.

The report noted a lack of price transparency on small business tariffs, with a substantial proportion of microbusiness tariffs being negotiated between customer and supplier. The CMA is now proposing remedies such as making suppliers publish prices and making more data available to encourage price comparison websites for business energy.

The CMA also said that TPIs were not sufficiently transparent on how they were making their incentives by recommending suppliers and tariffs to businesses. It wants them to state whether they are genuinely making the best recommendation or whether they are simply representing deals from a limited number of energy suppliers. The CMA also wants TPIs to state clearly to customers how they are incentivised by suppliers for their recommendations. te

Former energy regulators kick Ofgem

Five former energy regulators have welcomed the CMA's provisional findings that the wholesale energy market, vertical integration and tacit coordination by the big six energy companies are "not generally a problem".

However, they have urged the watchdog to rein in Ofgem's interventions in the market since 2008 around regional price discrimination, doorstep selling and restrictions on the number of tariffs each supplier is allowed to provide.

The former regulators Stephen Littlechild, Sir Callum McCarthy, Eillen Marshall, Stephen Smith and Clare Spottiswoode variously held senior or top positions at Ofgem, its predecessor Offer, Gema and/or Ofgas from the late 1980s to 2010.

They said their comments applied to the domestic retail market but were "analogous" also to the microbusiness sector. Their recommendations boiled down to telling the CMA not to reintroduce price controls and to undo Ofgem's restrictions on tariffs. They also said Ofgem should have two-year limits on its interventions so that they would naturally die off or have to be justified again if they appeared to be detrimental to competition.

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The need for formal compressed air accreditations

*Here, **Chris Dee**, executive director of the British Compressed Air Society, discusses how a compressed air system needs to be installed and maintained correctly in line with the Written Scheme of Examination to ensure it continues to be as energy efficient as possible*

There is continuing concern that there are currently no formal accreditation schemes for maintaining compressed air systems, so end-users could well be receiving poor energy saving advice.

Every compressed air system, virtually without exception, should have a Written Scheme of Examination in place, which the system should be regularly inspected in accordance with.

The Written Scheme of Examination is a legal requirement under the Pressure Systems Safety Regulations 2000 and carries a potential fine if you are caught without one.

The document contains a wide range of information, including the parts of the system that need to be examined, the nature of the examination required, the preparatory work needed and the maximum interval allowed between examinations.

However, the worry is that many businesses running compressed air systems either ignore this or are simply not aware of it, even though its been in place for more than 14 years, as there is no thorough policing.

> ***Compressed air is a vital part of the manufacturing process, and the way the system is maintained for efficient use should be formally recognised***

Compressed air is a vital part of the manufacturing process, and the way the system is maintained for efficient use should be formally recognised.

In the absence of formal compressed air training alongside the Written Scheme of Examination, the British Compressed Air Society offers courses for those involved in the installation and maintenance of compressed air systems.

However, these are voluntary, and BCAS would like to see the introduction of recognised training programmes for service engineers, designers and installers of compressed air systems that can work in support of the Written Scheme of Examination, so that end-users are receiving compressed air maintenance advice that can help to make their system as energy efficient as possible.

We would even go so far as to suggest that we need something similar to the Gas Safe Register that is in place for installers working with gas appliances, so that only people with proven competence can install and maintain compressed air systems.

Companies working in the compressed air industry can demonstrate their professionalism and competence as well as their commitment to health and safety and best practice by joining BCAS.

Membership is by peer review and members have to adhere to the society's codes of conduct. Members can also choose to proactively participate in the BCAS AIRSAFE register, which promotes the credibility and professionalism of BCAS members as identified by customer feedback. te

bcas.org.uk

Train to gain

Keeping up-to-date with the latest health and safety practices while managing a busy working schedule is challenging, and taking a whole day out of the office to attend training courses might not be practical. BCAS offers a wide range of online, elearning courses, which provide fast and easy-to-understand information to keep teams working safely.

A good place to start is with the 'Working Safely with Compressed Air' training; a one-hour, internet-based course designed for anyone that works with compressed air as part of his or her normal duties.

Developed by BCAS in conjunction with safety practitioners it addresses the needs of those who use hand held air tools, including blowguns. As well as identifying the employer's and the employee's responsibilities, the course explores the hazards arising from the use of air tools and the correct use of personal protective equipment.

In addition to 'Working Safely with Compressed Air', BCAS offers four other training courses – a Certificate in Compressed Air System Technology, the Diploma in Compressed Air Management, the Written Scheme workshop and a Competent Examiner course for those involved in carrying out examinations in accordance with the Pressure Systems Safety Regulations 2000 (PSSR2000) written schemes of examination – specifically the testing and certification of pressure vessels.

For more information on training courses currently available from BCAS, email chris@bcas.org.uk

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Working together

Despite the recent emergence of large-capacity combined heat and power units, it is often more efficient to operate a number of smaller-capacity units in a cascade arrangement – and this also offers benefits when it comes to servicing and maintenance. SenerTec general manager ***Gary Stoddart*** *tells us more*

The commercial heating industry is currently entering a new phase, shifting its focus from how heating systems are designed and intended to perform, to how they actually perform and the efficiencies they achieve over their operating life.

The use of energy performance certificates has woken up end users to the realities of building performance and the costs they could bear if a system fails to meet energy efficiency targets.

Alongside the economic drivers, legislation such as the Carbon Reduction Commitment (CRC) Energy Efficiency Scheme is an increased incentive to reduce energy consumption, forcing energy intensive businesses to assess their usage and pay for a carbon allowance based on their figures.

In addition, this month (September 26) sees the implementation of the Energy-related Products Directive (ErP). Applicable to space heaters including CHP units generating up to 50kWe, ErP will place stringent demands on manufacturers and heating system designers to achieve lifetime operating energy efficiencies. It moves the industry forward from the levels outlined by domestic regulation – primarily Part L of the Building Regulations – which have set a benchmark for improving energy efficiency.

The ability to closely match CHP units to predicted demand must now become an essential part of any modern energy saving strategy. It is no longer acceptable to design for peak demand and then add a generous margin for error because of the legacy of energy waste this builds into the system. There is no excuse for an approach that can leave the end user with an over-sized and, therefore, inefficient building services plant.

Proper integration of technologies backed up by intelligent commissioning can ensure that manufacturers' claims for maximum product efficiencies, achieved under ideal test conditions, can actually be delivered 'in the field' over an extended time period.

This does, however, depend on the whole system being flexible enough to respond swiftly, accurately and efficiently to changes in heating demand.

CHP cascades are rapidly emerging as an ideal way to deliver these performance benefits. They marry the best in modern heating technology with controls that ensure the CHP units operate at maximum efficiency, respond rapidly to changes in usage patterns, and extend the operating life and reliability of the equipment.

Installing a cascade of CHP units offers end users the option of shutting down parts of the system when there's a fall in demand, meaning that the remaining units can continue to run at full capacity – which is when the Dachs Mini-CHP operates at its maximum efficiency. Therefore, a cascade that operates multiple CHP units in series offers the best chance of achieving long-term savings.

They are suitable for a wide range of commercial building applications and, by accommodating up to 12 CHP units in series, can be very accurately sized to meet specific demands of the building occupants. For example at SenerTec, our Dachs Mini-CHP units can be built up in stages to ensure accurate sizing in line with the actual requirements of each project.

At the same time, by fitting a cascade building managers can be confident in carrying out maintenance or servicing on one or more of their units, leaving the remaining units to continue delivering heat and generating power. On board software ensures all units reach a service at the same time allowing minimal maintenance visits and also ensuring equal usage of all CHP units.

Rather than fitting a one-size-fits-all solution, a calculated assessment looking at building requirements and future heating demand is crucial. Along with efficient installation and minimised downtime, a well-engineered decision will ensure that systems can deliver the best performance possible in each unique setting. This will result in an installation that is in tune with the building's needs, providing output that not only satisfies current demand but can also cope with future growth. te

senertec.co.uk

> ***Installing a cascade of CHP units offers end users the option of shutting down parts of the system when there's a fall in demand***

Could do better?

Combined heat and power generated around 6% of UK electricity generated in 2014, according to latest data. But the technology remains underexploited

Latest data from Decc shows that the total number of CHP schemes increased to 2,066 in 2014, with 11% of systems using renewable fuel, compared with 9.5% in 2013. Some 13 million tonnes of carbon dioxide savings were achieved as a result of displacing fossil fuels.

The amount of 'good quality' CHP generated was actually marginally down (0.6%) on 2013. Good quality means output from CHP plant that has been sized so that most of the heat that is generated at the same time as electricity is actually used. Often it is channelled off via heat networks to homes or buildings or to feed industrial processes.

Such schemes are a highly efficient used of fuel, yet CHP remains an underutilised tool in decarbonising the energy system, according to ENER-G.

ENER-G CHP system at Loughborough University C

"It's good to see CHP providing a significant proportion of UK energy production, but the technology remains underexploited," said Chris Marsland, Technical Director for ENER-G Combined Power.

"There are thousands more organisations that could be saving money and reducing their carbon footprint by using CHP."

He added: "Combined heat and power is around twice as efficient as conventional power generation and provides cost savings of up to 40% over electricity sourced from the grid and heat generated by on-site boilers. It can also provide a secure off-grid supply in the event of power failure."

Some companies are reluctant to look at CHP because of relatively long payback periods and high capital outlay. For example, a recent survey by *The Energyst* found that many boards are reluctant to sign off investments with payback terms much beyond two years.

However, ENER-G claims typical payback on CHP is between three and five years. It touts energy performance contracts as a way of avoiding capital expenditure.

Financiers, including the Green Investment Bank, have also warned that companies which cherry pick only the quickest and cheapest energy solutions risk locking themselves out of bundled solutions further down the track. te

energ-group.com

Veolia lands big CHP gig

Veolia has won a 15-year contract to operate the Holbrook Community Renewable Energy Centre.

The 6.5MWe biomass-fired combined heat and power station will be built in Holbrook, Sheffield, and is designed to provide sustainable green energy for over 10,000 homes. The project has been developed by UYE (UK) and is being constructed on behalf of Equitix ESI CHP.

It will use around 55,000 tonnes of waste wood as carbon neutral fuel which will be provided from local suppliers and has the capability to export renewable heat energy to a district heating scheme.

Under the contract Veolia will have full responsibility for the 24/7 operation and maintenance, performance, emission monitoring, ash disposal and will manage the biomass fuel. Veolia will also provide technical support during the commissioning of the new plant in early 2017.

The plant is being developed on a brown-field site by Equitix, an infrastructural investment company, which has a dedicated £200m fund for renewable energy and energy efficiency projects including £100m from the Green Investment Bank (GIB). The firm has invested in a number of biomass type projects but this is its largest single investment to date.

The technology used for generating electricity is Organic Rankine Cycle which has the same thermodynamic cycle as steam turbine systems, but uses organic fluid vapour as the driving force for the turbine within a closed loop heating circuit.

The biomass fuel will be burnt in two water-cooled WID compliant moving grate furnaces and emissions will be strictly controlled using the latest flue technologies. te

veolia.com

Boost for renewable heating

Eon's solar thermal heat network demonstration wins government funding

A low carbon heating project led by Eon working with technology providers SK Solar and Star Renewable Energy and the University of Exeter has been awarded the second tranche of a government research grant to create an innovative energy system supplying one of the country's largest district heating systems with low carbon solar thermal heat.

The project is one of nine that will be funded by bill payers after Decc allocated £6m in funds to design and build a large scale solar thermal heat pump system that will supply Eon's community energy centre in Cranbrook to the east of Exeter.

Low carbon heating

After initial feasibility studies the project is now in advance planning stages and hopes to start installing technology in late summer. The aim is to improve the performance of heat networks, demonstrating how the combined technologies can replace or work alongside the existing combined heat and power district heating scheme to provide lower cost and significantly lower carbon heating and hot water.

The existing Cranbrook network takes a central source of heat from the CHP energy centre through a network of super-insulated underground pipes to homes in the village and the nearby Skypark commercial complex.

Eventually the network will connect to more than 3,500 new homes in Cranbrook as well as 1.4 million sq ft of industrial space at Skypark.

The demonstrator project will see the installation of an approximately 2,000 sq m solar thermal array on land near to the energy centre as well as a high temperature (>80°C) heat pump.

The Cranbrook energy centre is already fitted with rooftop solar PV panels and the project will seek to incorporate the electricity generated by those panels and the CHP to power the heat pump, providing another low or zero carbon energy source to replace mains power.

The ground-mounted panels will collect solar heat to supply the heat pump, which will increase the water temperature ready for use in the heating system. Hot water which is not needed immediately can be stored in a dedicated thermal storage tank which will be installed alongside existing equipment attached to the district heating system.

> ***This demonstration project will harness the solar thermal energy in the daytime and store it before boosting to 80°C overnight***

A critical challenge with renewable energy sources such as solar or wind is that supply doesn't always match demand. This demonstration project will harness the solar thermal energy in the daytime and store it before boosting to 80°C overnight, using off peak electricity for release onto the network at early morning peak demand.

Tim Rook, head of design for community energy at Eon, said: "It is fantastic to see the government supporting innovative engineering that has the potential to change the low carbon heat landscape so dramatically. By combining these technologies and an advanced control system to select and manage multiple energy sources we have the potential to create a viable heat source that is truly renewable and independent of a fuel source.

"In years to come the integrated technology we are pioneering here could be replicated in existing and new-build district heating schemes across the country and would make a significant contribution to easing the impact on the environment which comes from domestic heating."

The Heat Networks Demonstration SBRI competition was created by Decc to stimulate innovation that will help address cost and performance efficiency challenges related to heat networks, supporting the growth of low carbon heat networks across the country as well as providing real world evidence on reducing costs and improving energy efficiencies. te

eonenergy.com/heat

Air source for ground source

When the pioneering Hebburn Eco Centre needed to replace its 20-year-old ground source heating, the building's owner turned to a cascade air source heat pump system

Designed and built by Groundwork South Tyneside and Newcastle (STAN) and opened in 1996, the Eco Centre was a pioneering venture to demonstrate renewable technologies and sustainable design.

Today the Eco Centre remains one of Europe's most sustainable buildings. The building is the Groundwork Trust's headquarters, which has a mission to support local communities and therefore also lets out 16 office spaces, as well as daily hire of its board and conference rooms.

The office complex was originally built with a very green ethos in mind, with all materials recycled from sustainable sources, including reused bricks from a demolished factory, an aluminium roof resmelted from old drink cans, wood from farmed forests and woollen carpets.

It also has high levels of insulation to reduce the amount of energy needed to heat the building and keep the occupants warm.

Electricity is generated by an on-site wind turbine and photovoltaic display.

"The ground source system had worked well but it was getting on a bit, so groundwork took the decision to replace it with an air source system," explained Jason Oakes, business development director of Oakes Energy, which installed the four Ecodan units.

"What they needed though, was a new system that could work with the existing infrastructure and one that could cope with a variable demand for heating throughout the year".

Oakes Energy worked with Minden Wood Consultants to find an ideal solution, which turned out to be four Ecodan 14kW air source heat pumps working together in a cascade system.

"We looked at all the available options and the Mitsubishi Electric solution combined the best performance available with the complete flexibility needed for the building's multi-occupant use," said consultant Nick Harley of Minden Wood Consultants.

Andrew Watts, executive director of Groundwork South Tyneside and Newcastle, said: "Groundwork is built on a foundation of creating sustainable, vibrant and 'green' communities through programmes that educate and inspire.

"Our Eco Centre has always represented the embodiment of these ideal, being environmentally friendly to its core and a place where people who hold these strong working beliefs come together.

"It was a landmark building when constructed and it remains so today, but to ensure it continues to leave the most positive environmental footprint possible has meant a change to the heating system and a more modern upgrade.

"The added benefit of using the Ecodan system is that it offers greater control for individual offices and also qualifies for the non-domestic Renewable Heat Incentive, so this can help supplement the running costs for the next 20 years". te

mitsubishielectric.co.uk

University reduces boiler's energy consumption by 13.5%

In a measurement and verification project at the University of Salford, Sabien's M2G boiler load optimisation controls have been shown to deliver average fuel savings of 13.5% with a payback of about 0.6 years. As a result of these verified savings, M2Gs are now being installed across the university's estate.

The University of Salford is one of 33 universities taking part in the Carbon Trust's Higher Education Carbon Management (HECM) programme. Consequently, it has already taken a number of measures to reduce energy consumption and carbon emissions and is continually exploring further opportunities.

"One of the areas we investigated was that of boiler dry cycling," recalled the university's energy manager Matteo Littera.

"We explored a number of options on the market but recognised that, other

than the Sabien M2G, they would not deliver the required quality, performance and savings. We were also impressed that Sabien validates energy savings in line with the International Performance Measurement and Verification Protocol.

"We also considered reconfiguring the building management systems but it was clear this would require many hours of reprogramming and could not compete on cost," he continued.

Initially the M2Gs were installed on 11 Remeha Eco 3002 boilers in three buildings, selected on the basis of being typical of those across the estate. Energy consumption was then measured, compared to previous consumption using Degree Day data to allow for weather variation.

In addition to the 13.5% reduction in boiler gas consumption, the project will reduce CO_2 emissions by 186 tonnes per annum from the pilot sites. As a consequence, it deliver further savings by reducing CRC costs by nearly £3,000 a year.

The subsequent roll-out programme has now begun and will eventually see M2G units installed on about 30 boilers.

Sabien provided a comprehensive project management package from the initial feasibility study through to final commissioning. "The implementation was one of the best parts of the project. Sabien was fantastic and took care of everything without any chasing from my side," Littera added.

sabien-tech.co.uk

Mega just got bigger with hot water cylinder

Heatrae Sadia is extending its Megaflo Eco Plus unvented hot water cylinder range with the launch of new 800 and 1,000 litre direct, indirect and solar models.

Megaflo Eco Plus is manufactured from Marine Grade Duplex 2205 stainless steel, making the units lightweight and highly corrosion resistant.

The large-capacity Eco Plus cylinder is designed to offer high flow rates and high performance, even at lower pressures.

The new 800 and 1000L models are intended for installation in light commercial applications with a demand for constant hot water, such as hairdressing salons and guest houses, or larger domestic environments, and boast excellent heat recovery times – ideal when large volumes of water are required. Designed with heat retention in mind, the cylinders are encased in 100mm of the highest quality CFC free foam insulation. Even the temperature and pressure relief valve has its own insulated cover.

Previously, larger premises with high hot water demands would often need to install two or more units to meet their requirements. The new 800 and 1,000L units will enable just one Eco Plus to be installed – making specification easier.

heatraesadia.com/megaflo_eco_plus

Two new floor-standing boiler ranges

MHG Heating has introduced the Superbox and Alubox ranges of competitively priced, high efficiency, floor-standing gas condensing boilers for use in commercial applications. Prices are about 30% less per kW capacity than boilers of comparable quality and performance.

Superbox boilers are available in capacities from 160kW to 1,060kW and deliver net efficiencies of up to 106.4%, while the capacity range for Alubox boilers is from 208kW to 2,200kW, with net efficiencies up to 108.6%. Low NOx emissions to Class 5 are combined with a high modulation ratio to ensure efficient response to variable heat loads. Each also incorporates a master electronic control panel with independent control of up to three zones.

Both ranges feature a compact design and can be used in cascade configuration with up to 16 boilers interconnected. Superbox boilers use a stainless steel heat exchanger, while Alubox models use a special alloy cast aluminium heat exchanger.

mhgheating.co.uk

Why are retrofit boiler controls proving so popular?

Retrofit boiler controls are now making a significant contribution to energy and carbon reduction strategies? There are several reasons for this ...

Many organisations have already reduced energy wastage, especially electricity, and are now turning to gas and oil. Obvious measures include ensuring there are controls in place, the control strategy is aligned to current building usage and plant is regularly maintained.

Once these measures have been taken, retrofitted boiler optimisation controls are increasingly used to reduce energy consumption further and are often recommended in energy performance contracts.

This is because retrofit boiler controls require relatively low investment, deliver proven savings, are simple to deploy and deliver significant and quick financial returns.

Why not use the BMS?

Typically a BMS is configured to control the heating system as a whole rather than monitoring and controlling each individual boiler – making it impossible to identify dry cycling at individual boiler level.

Other factors include:

- Re-programming a BMS can be expensive when hardware, programming, commissioning and ongoing maintenance costs are taken into account.
- A multi-site estate may have several BMS and boiler types, each requiring its own re-programming procedure.
- Retrofit controls such as M2G can be easily deployed estate-wide regardless of the age, size and type of boiler

The rapid uptake of boiler load controls therefore brings an additional level of control. Sabien's M2G only addresses boiler dry cycling, it does not replicate or duplicate the BMS functions. This is why organisations such as BT, O2, Aviva and the MoD have all invested in this technology – as well as investing in modern BMS controls and boilers.

More than 9,500 Sabien M2G boiler controls have been installed worldwide, delivering cost-savings of 10-25% with typical paybacks of less than two years, and as they are self-learning there is no requirement for ongoing maintenance or commissioning.

How do boiler controls work?

Unlike many other attempts to control boiler dry cycling, M2G does not use a time delay, lower the boiler's operating temperature, conflict with existing control strategies or compromise comfort conditions. Instead, it provides real time analysis of each boiler's heat loss and recalculates the values every time the boiler reaches its required set point temperature.

This means it adapts to BMS/ optimiser variable set-points and, crucially, the boilers' designed set points are never altered.

Verification

Measurement and verification is important in any energy-saving initiative. Sabien recommends that savings are verified in line with the International Performance Measurement and Verification Protocol (IPMVP). This provides full transparency and ensures savings analysis is based on actual kWh rather than boiler runtime savings

Conclusion

As organisations search for further savings within their estates, boiler load optimisation should be one of the first technologies considered and deployed to deliver this. However, energy managers must ensure their BMS supplier and the boiler control supplier engage effectively so that a full understanding of the technology and the demarcation between the control strategies is understood by all.

www.sabien-tech.co.uk

Innovation and expertise

At this year's Water Event (15-16 September, NEC, Birmingham) visitors will be able to learn everything they need to know about the future of the water industry and deregulation in 2017

From 2017, the landscape of the water market is going to change dramatically as the industry is deregulated. Those working within the industry, whether they are a retailer or end-user, need to understand what will happen in 2017 and be prepared for the changes that come into force. The Water Theatre seminar programme will provide insight and advice from leading industry figures and case studies from those already preparing and planning for the future including Sainsbury's Supermarkets Ltd, Nestle, House of Fraser and News UK.

Business Stream, Scotland's largest supplier of non-domestic water and wastewater services, is headline sponsor of the Water Theatre and will be holding a drinks reception on Tuesday 15 September at to launch its white paper 'Fortune Favours the Bold: When does being bold in business deliver success?' As part of the seminar programme, Business Stream will also be demonstrating to visitors what can be achieved by switching water supplier with a case study about its work with House of Fraser on Tuesday 15 September to discuss the project and how to prepare for the future.

Fred Pearce, a global water expert and author of the 'When the Rivers Run Dry', will hold a closing keynote session on Wednesday 16 September looking at the obstacles and decisions we must make as water users and suppliers to secure the future of the World's more vital resource.

Among the headlines sessions delivered by thought leaders in commerce and industry will be:

- Carlo Galli, technical and strategy advisor, water resources corporate operation at Nestle will outline the company's water strategy and the obstacles it has overcome and the achievements it has made;
- Jose Davila, commercial director at United Utilities will provide a water competition update;
- Andrew Bainbridge, president of the Major Energy Users Council and Karma Ockenden, chair of the MEUC Water Competition Action Group, will hold a working lunch to discuss business information for non-household water and waste water customers;
- Sarah Mukherjee, director of environment at Water UK, will talk through a number of case studies from leading UK examples of successful waste water management projects followed by a joint panel discussion.

There will also be a number of discussions including a supplier panel which includes representatives from Thames Water, Severn Trent, Waterscan and Business Stream who will discuss 'Water for today, tomorrow and beyond April 2017'.

The Water Event will feature a range of exhibitors with relevant services and advice for large industrial and commercial end-users. Significant organisations and new companies signed up for 2015 include British Water, Anglian Water,

Thames Water, Dart Valley Systems Limited, Water Direct, Kelda Water Services Retail, Source for Business and Waterscan, and Severn Trent, which will be hosting a VIP area on the show floor.

Some of the exhibitor highlights from this year's show include Propelair (Stand G22) exhibiting its reinvented toilet, which has been designed to save water, energy and money and improve hygiene. It uses a unique displaced air technology to produce a high-performance flush which requires only 1.5 litres of water.

United Utilities supplies water and wastewater services to more than 200,000 businesses in the North West and more than 2,500 sites across Scotland, saving customers over £2.5m. It will be advising visitors on their water and wastewater needs in the United Utilities water café, stand H20-J19.

On Stand E20, recruitment company Utility People, will be conducting a short questionnaire on asking professionals about Water Liberalisation.

British Water, the lead representative and business development organisation for the supply chain of the UK water industry, will also be taking part in the event on stand F10.

Ashley Roe, chief executive at British Water, says of the show: "The Water Event is something that we believe will be beneficial to our British Water members especially as it is linked to a British Water / United Utilities Innovation Exchange event. This will enable our members and other companies to combine both the Innovation Exchange and the conference and exhibition adding value to their attendance." te

For more information and to register, please visit thewaterevent.com or check out twitter @ EnergyReneWater

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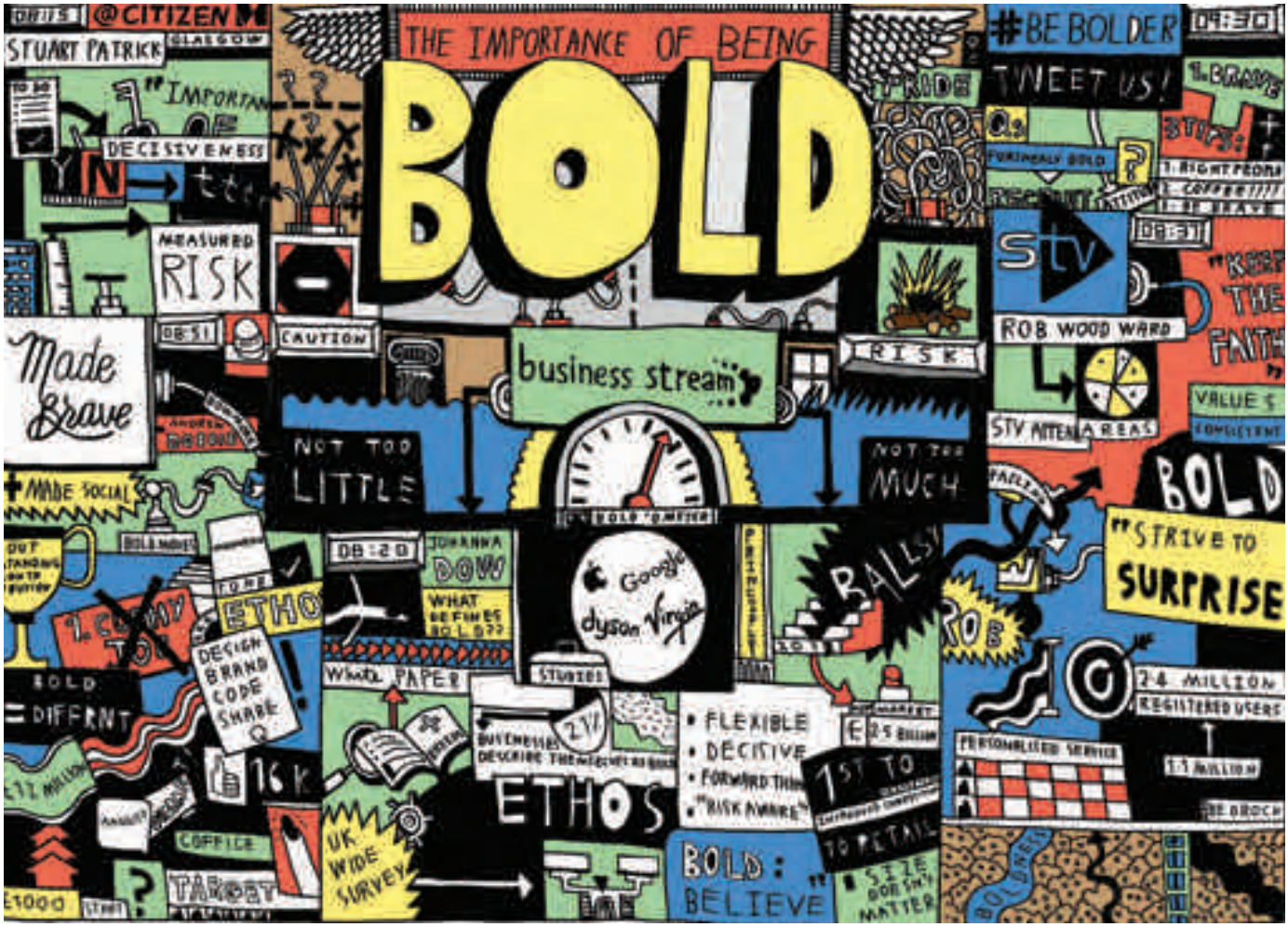

Fortune favours the bold

With less than two years to go until the opening of the new English non-domestic water market, there is still a great deal of work to be done to ensure customers reap the benefits. Business Stream's commercial director, ***James Cardwell-Moore****, argues that a bold approach is essential, a philosophy backed up by some recent research commissioned by the company*

In about 20 months' time, all non-household customers in England will be able to choose their water supplier, something which is currently restricted to companies that use more than 5 megalitres per year. While this might still seem far away, there is a great deal to be done before the market is in a position to provide the intended benefits for customers.

Yes, much has been achieved already, but three key issues remain: securing a level playing field, standardisation across the regions, and a big enough retail margin. There is currently a lack of clarity on these areas and it is essential that they are addressed promptly and effectively, to ensure there is a fair market in the interests of customers and suppliers.

As the leading supplier in the world's first open non-domestic market, we have considerable experience in what makes for a successful competitive market and have argued for particular developments on the strength of the evidence from Scotland.

Rules of enegagement

Firstly, while some reassurances have been made, there is some way to go to demonstrate separate funding and separate governance for the retail parts of an incumbent's business. This is important for ensuring there is no abuse of power by dominant companies in a particular area or unequal treatment of retailers by wholesalers. All retailers want to be comfortable that they are competing on the same basis as each other and equitable 'rules of engagement' need to be clearly set out.

Secondly, 18 wholesale providers in England means there are 18 structures for charges and at the moment there are no plans

for harmonisation. The same applies to different levels of service standards that exist between the different geographies.

If these disparities aren't resolved it will make processes difficult to manage internally for companies working with non-domestic customers across regions, but equally it will make for an inconsistent and potentially frustrating customer experience for multi-site users. We want to see a set of common standards adhered to by all retailers.

Thirdly, the retail margins (the difference between the wholesale and retail prices) that have been set are significantly lower in England than they are currently in Scotland and this causes us concern. If the margins are not big enough, it will be difficult for new entrants to compete in the market and almost impossible to offer customers discounts. In addition, low margins will mean no money available to fund innovation and service enhancements.

The retail prices will be reviewed in two years' time and we're urging that the wholesale prices are also reviewed so that they can be lowered, which would provide the scope to widen the retail margins ahead of market opening.

Delivering reforms

These issues need to be resolved if we're to ensure the market is a success. The industry has been bold in pushing for change but we now need to be bold in delivering the reforms so that customers get the choice they want. Indeed, recent research that we carried out suggests that being bold is essential to success.

Our belief in being bold encouraged us to look at what boldness means in a business context. The responses of our discussions with nearly 400 directors and decision makers to find out what they thought showed that to be bold was essential for success and was an attribute associated with some of the world's most admired companies, including Google, Apple, Virgin and Dyson. To be bold is about being clear, well defined and ambitious; taking calculated risks and stepping outside of the comfort zone; and being brave and standing by decisions.

> *If the [retail] margins are not big enough, it will be difficult for new entrants to compete in the market and almost impossible to offer customers discounts*

And this is especially important in particular situations. Launching a new product or service is one of the main areas, although it was spotting the opportunity in the first place that came top of their list.

Other situations, such as facing a difficult decision, expanding a business or entering a new geographical territory, also ranked highly. Our research shows that being bold is important during times of change and we therefore strongly believe it is an approach that needs to be taken in implementing the market reforms.

It is vital that we're bold if we are to deliver for customers. By addressing the issues outlined above then we remain confident that an April 2017 deadline date is viable and that the new market will be a success. te

business-stream.co.uk

Read the full report on 'Fortune Favours the Bold', and try the short quiz to assess how bold your business is, by visiting business-stream.co.uk/bebolder

Esos for water: Why wait to discover the obvious?

A prominent energy consultant recently floated the idea of creating a water equivalent to the Energy Saving Obligation Scheme (Esos). He called it Wsos. While Esos may be struggling to gain traction, and the Environment Agency may find itself without the budget to enforce the scheme, the principle of auditing water use as part of a broader resources audit is sound. But then, why wait to be told what you already know?

Recent reader surveys by *The Energyst* suggest that getting projects signed off by finance departments often represents the biggest barrier to unlocking efficiency projects. Esos represents an opportunity to show the finance director exactly how much energy each part of the business is using, potentially helping to help build the business case to unlock the necessary budget. A Wsos or Rsos (resource saving obligation scheme) would take that a step further.

Most facilities, energy and resources people will already have a very good idea where they could make efficiencies and an audit is unlikely to deliver some kind of eureka moment. But it does oblige companies over a certain size to actually do the survey and the sums, add them up and have a director sign them off. The thinking is that a director who signs off an audit which points out exactly where the company is wasting money might start to give resource efficiency greater priority.

As any facilities manager will know, water and energy use are interlinked. The opportunity to save both resources varies sector by sector and business by business. But there is one area which wastes more water than most and is common to virtually every business: the toilets.

Water saving devices for both men and women's washrooms are abundant and many products deliver substantial savings. However, there is one way of guaranteeing even more savings: Don't use any water to start with.

Water Solutions' Waterfree Urinal System is a simple way to save 150,000 litres of water per urinal a year. It is a fit and forget technology that delivers payback within eight months. After that, every drop is improved bottom line profitability. The technology, using one way valves and enzymes, is simple and proven, which is why companies from Ocado to Bluewater to Moto Road Services have specified it and are now saving water, energy and crucially, money.

The directors of those organisations didn't need an Esos or a Wsos to point out the obvious.

Contact Water Solutions today and your finance director will soon be saving pounds with every penny spent.

WATER SOLUTIONS

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Email: info@watersolution.com

The Water Theatre

The Water Event 2015 Seminar Programme

Tuesday 15 September

10:15	**Chair's Welcome** Karma Ockenden, editor, *The Water Report*
10:25-10:30	**Introduction** James Cardwell-Moore, director of sales and marketing, Business Stream
10:30-11:00	**KEYNOTE: Being prepared for the retail market-building on customer priorities whilst safeguarding the environment**
11:15-11:45	**Water Competition Update** Jose Davila, commercial director, United Utilities
11:55-12:40	**The Water Customer Panel: Getting the most out of your water supply** Tuval Rockman, environment resources manager, property, Sainsbury's Supermarkets Ltd Lugano Kapembwa, energy and environment manager, News UK Stuart Read, procurement category manager, Bernard Matthews Claire Yeates, director, Waterscan
12:50-13:20	**Sponsored Session Delivered by Business Stream-Preparing for Competition** Fred Jefferiss, commercial finance controller, House of Fraser Craig McKinlay, head of business development, Business Stream
13:30-14:00	**Case Study: Approaches water and waste water management** Sarah Mukherjee, director of environment, Water UK
15:00-16:00	**Supplier Leadership Panel: Water for today, tomorrow and beyond April 2017** Johanna Dow, CEO, Business Stream Rupert Kruger, head of business services, Thames Water Nick Grant, CEO, Severn Trent Services Claire Yeates, director, Waterscan
16:30-17:30	**ALL VISITORS WELCOME: Business Stream Drinks Reception– Fortune favours the bold: When does being bold in business deliver success?** Hosted by: Johanna Dow, CEO, Business Stream

Wednesday 15 September

10:15	**Chair's Welcome** Karma Ockenden, editor, *The Water Report*
10:25-10:30	**Introduction** James Cardwell-Moore, director of sales and marketing, Business Stream
10:30-11:30	**Understanding corporate water risk and resilience, regulation and compliance** Trevor Bishop, deputy director, water, land and biodiversity, Environment Agency Carlo Galli, technical and strategy advisor, water resources corporate operations, Nestlé Dr Ashok Chapagain, science director, Water Footprint Network
11:45-12:15	**Water stewardship at Nestlé: Moving from "Improve" to "Engage"** Carlo Galli, technical and strategy advisor, water resources corporate operations, Nestlé
12:30– 13:00	**Lunch for MEUC members and invited guests, hosted and welcomed by Business Stream**
13:00-14:00	**MEUC Water Market Policy Group on the 2017 retail market: margins, entry, metering and readiness** Stuart Read, procurement category manager, Bernard Matthews Craig McKinlay, head of business development, Business Stream Neil Pendle, managing director, Waterscan Andrew Wilson, business process transformation manager, Enterprise Inns Ken McRae, COO, Gemserv Jonathan Clarke, customer service director, Anglian Water Business
14:10-14:30	**AquaMark: Fully grant-funded national water benchmarking project helping commercial water users reduce consumption by 30%** Sian McCart, head of corporate affairs, ADSM
14:40– 15:10	**KEYNOTE: Water-The local/global crisis of the 21st Century?** Fred Pearce, author, *When the Rivers Run Dry*

This is a draft programme. All content is subject to change

Propelair goes on show

Propelair, the UK designer and manufacturer of the 1.5 litre flush toilet, is to exhibit at the event

Visitors to stand G22 at NEC Birmingham on 15-16 September will see how Propelair has reinvented the toilet to deliver one of the most water-efficient, economical and hygienic systems available.

The Propelair high-performance toilet uses a patented displaced-air technology to produce a powerful, reliable flush. It uses just 1.5 litres of water compared with the nine-litre UK average, reducing water consumption by about 84%. As less energy is used for water and waste processing, the toilet's carbon footprint is reduced by an average 80%. Propelair also delivers significant hygiene benefits, reducing the spread of aerosolised germs by 95%. Easily installed onto existing drainage systems, it is perfect for retrofits as well as new developments.

The Water Event is the UK's most highly sought after water event in the UK. The water conference discusses topics including water facts and figures, water resource, how to save water, water efficiency, water resources, water facts, water filters and water suppliers.

"Water use and conservation is a huge issue and our corporate customers recognise our role in addressing it," said Garry Moore, CEO of Propelair. "The water industry itself has signalled that resources will only get more intense due to factors including abstraction licence changes, climate change and population growth." te

propelair.com

Eco obsolete technology

Sometimes just because something is old doesn't mean it is inefficient, ***Jonathan Wilkins****, marketing director of European Automation, explains*

There's a reason why things like vinyl records, books and vintage cars are still around, despite more modern – and some would argue better – alternatives being available. It's not just because retro is cool, it's because they still have something to offer. It's the same reason why manufacturers around the world still use Eco Obsolete Technology (EOT) instead of switching to the latest upgrades.

EOT is the name given to obsolete products that are energy efficient and can therefore still be used in industrial environments.

Just as the vinyl music format is appreciated for its sound quality, books for their history and vintage cars for their sense of power, obsolete industrial automation components are still widely used because they remain relevant.

Efficiency myths

Despite what you might think, obsolete doesn't mean energy inefficient – it just means that the original equipment manufacturer has stopped making the product. Obsolescence doesn't mean the device no longer works, but it might mean it is more difficult to source. The good news is it is not impossible to find. In fact, there's a whole world of EOT out there that can help companies become more energy efficient, without spending millions on system upgrades.

International standards such as ISO 50001 and programmes like the Ecodesign Directive and the Energy Savings Opportunity Scheme have meant more and more dated technology has fallen by the wayside because it doesn't match up to efficiency standards. Take the incandescent light bulb for instance – there are now 39 countries that have either banned its use altogether or are in the process of phasing it out.

However, despite new waves of energy efficiency standards and sanctions for industry coming into effect, some obsolete technology has proven to be irreplaceable. The time of EOT is now and its role in industry couldn't be more important.

> *There's a whole world of EOT out there that can help companies become more energy efficient, without spending millions on system upgrades*

For industries that rely on obsolete parts, such as pharmaceuticals and nuclear, EOT plays a particularly prominent role in keeping automated processes running without costly and time consuming efficiency overhauls.

The delicate nature of both pharmaceutical manufacturing and nuclear means the two sectors are notoriously longwinded when the time comes for a system upgrade or part replacement. Whereas in other industries, new or replacement parts can be sourced and fitted with relative ease, it's not as simple in more highly regulated sectors. Industrial automation equipment can be subject to stringent guidelines, which means there's no such thing as a quick fix.

Widespread tech

Because more people are becoming aware 'older' doesn't necessarily mean 'less energy efficient', the use of EOT has become more widespread.

Indeed, it's not just highly regulated industries that are benefiting from EOT. While you're reading this, all around the world, energy audits are being conducted. If you listen very carefully, you might just hear the sound of a lead assessor pointing out a motor that has been over specified for the job it is doing.

Not everyone knows this, but just by choosing the right size and capacity of a motor you can make significant electricity consumption savings without using a control mechanism such as an inverter. However, this doesn't mean you have to hunt for a compatible brand new motor that will retrofit to your system; sourcing efficient obsolete parts is just as easy.

So, if you're looking for an obsolete motor, drive, PLC or HMI that can save on your energy bills, talk to retro specialist such as European Automation. And remember, we also like discussing vinyl records and retro cars. te

euautomation.com

A higher power

The VACON 100 range of AC variable speed drives has been extended to include models rated up to 800 kW

The extension to the VACON 100 range means that users can now benefit from the combination of features offered by these drives in almost all industrial and commercial applications, even the most demanding.

The new higher power additions to the VACON 100 range are available as IP00 modules for mounting within control panels and in enclosed versions with a choice of IP21 or IP54 ingress protection ratings. All versions feature compact construction and all are available with power ratings up to 630kW on 400V supplies, 800kW on 690V supplies. Even higher powers can be achieved by operating the drives in parallel.

Like all VACON 100 drives, the new models have been designed with ease of use and ease of integration in mind. They offer advanced commissioning tools for rapid straightforward set up whatever the application, and powerful diagnostics with a plain-text help system. They also feature, as standard, integrated support for ModBus TCP, Ethernet I/P and Profinet IO connectivity. Plug-in option cards are available to provide support for other popular communication and fieldbus standards.

Other key features include enhanced safety with Safe Torque Off in line with uncontrolled stop category 0 of EN 60204-1, Safe Stop 1 in line with controlled stop

category 1 of EN 60204-1, and ATEX-certified motor over-temperature protection. These functions are achieved without the need for additional external components, which reduces costs, panel space requirements and wiring time.

VACON 100 drives, including the new high power versions, use film capacitors rather than the usual electrolytic types in the critical DC link section. This means that the drives are more reliable, more energy efficient and have longer working lives. It also eliminates the need for time-consuming and inconvenient capacitor reforming, even if the drives are in storage or out of service for long periods.

Drives in the VACON 100 family are suitable in a wide range of constant torque and constant power applications such as pumps, fans and conveyors. In these applications, energy efficiency and productivity gains mean that, in almost every case, the savings made will quickly repay the cost of the drive and its installation. te

vacon.co.uk

Extensive motors, drives and controls guide

A selection of bespoke motor and drive packages aimed at specific industries and applications is launched in ABB's new 116-page drives and controls, motors and mechanical power transmission guide. As one of the only companies manufacturing both variable-speed drives (VSDs) and low voltage AC motors, ABB is able to offer customers designed, tested and approved matched pairs.

These include SynRM packages for industry, water and machinery as well as those designed for applications such as cooling towers, deck winches and ATEX compliant use in hazardous areas. There is also a selection of IE2 and VSD packages that comply with the new European Minimum Energy Performance Standard (EU MEPS) introduced on January 1 2015.

Packages can extend beyond matching a motor and a drive. Automation packages with drives containing IEC61131 programming can be paired with PLCs, HMIs and motion controllers and servo systems. Other components, most of which are featured within the guide, form part of a drive train including switches and fusegear, bearings, couplings and gearboxes.

As well as many new products, the guide features tools such as an Energy Toolkit App that estimates energy, CO_2 and money savings based on inputting a customer's existing motor and drive arrangement. The App produces an instant mini-report containing details of a matched ABB motor-drive package, and locates a customer's nearest authorised value provider (AVP).

Meanwhile, the Drivebase App allows customers to register their drive and receive six months' warranty, then read product manuals, find ABB contact details and receive service recommendations and quick troubleshooting through fault code analysis.

As well as introducing a wide selection of new products, the guide contains detailed information and specifications for the full range of ABB drives and controls, motors and mechanical power transmission products all in one place. te

For a free printed copy of the guide email energy@gb.abb.com or to download a PDF of the guide go to abb.co.uk/energy

Integrated air solution

Hydrovane, part of the Gardner Denver Group, has launched its new Air Solution combining a rotary vane compressor with a range of ancillary equipment including an air receiver, dryer and in-line filtration in a fully integrated package.

Historically, customers investing in a new compressed air system may have selected each of these component parts separately, a process which can add both cost and time to the overall installation.

With packaged models available from 4kW to 22kW, the Air Solution offers an easily integrated alternative and enables customers to realise significant savings by choosing a single source supplier for all aspects of a compressed air system.

Air Solution is supplied as a factory built package for ease of installation or as a kit for assembly on site. It features a fully enclosed, silenced compressor with three equipment options to provide the ideal air solution. These range

from a compressor with an integrated air receiver to a fully connected and ready to run system with air receiver, refrigerant dryer and in-line filtration.

Air Solution is also available with a regulated-speed compressor option that continually adapts to meet air demands to maximise energy efficiency.

Hydrovane has also developed an open frame, fixed speed compressor series from 1.1kW to 4kW featuring an air receiver, membrane dryer technology and in-line filtration. Supplied in a horizontal format, this offers an ideal alternative when a fully enclosed unit is not required.

All products in the range feature a host of design improvements that deliver high energy efficiency and performance including automatic start/stop, low noise levels, ultra dry air and "oil free" filtration down to 0.01 micron.

Andy Webb, Hydrovane product manager at Gardner Denver, said: "Building on the success of existing Hydrovane 1.1kW to 4kW compressor packages, the new Air Solution was designed as a factory built package, with easy configuration and fast and simple installation, in a range of sizes to suit many industrial compressed air applications.

"In addition, the new products offer improved energy efficiency and reduced downtime."

hydrovaneproducts.com

The PIRfect switch

Danlers has announced the release of a new improved ceiling flush mounted PIR occupancy switch (CEFLPIR).

This energy saving control has improvements that include a new moulding design for use in a greater variety of environments and a more flexible cable to make installation even easier.

New digital technologies ensure improvements to detection and timer accuracy. This UK manufactured control comes with a five-year warranty.

Danlers is showcasing its latest range at the Energy Event, 15 and 16 September, Birmingham NEC. Stand no: A42-B41.

danlers.co.uk

Ventilation heat recovery all year round

Weger Air Solutions UK's RFM range of ventilation heat recovery units with integral heat pumps offers designers a solution to an age old problem.

There are six sizes in the range with air flow rates of 0.25m³/s to 1.11m³/s. Each unit consists of supply and exhaust air fans, a plate recuperator for air to air heat recovery and a heat pump refrigeration system, using a scroll hermetic compressor (R410A) with evaporator and condenser coils.

The incoming fresh air is either heated or cooled, according to the season, using the heat pump refrigeration circuit installed inside the unit.

This means the units are able to provide heating, cooling and ventilation with energy recovery on a standalone basis, independent from a centralised system.

The units are designed to be compact and suitable for ceiling void installation. Careful consideration has been given to maintenance for all internal components.

Designed for 'plug and play' operation, the units are packaged with microprocessor control for fully automatic management of room temperature with a remote display for setting the set point temperature.

The range of accessories includes electric heater batteries, compact bag filters, inverter driven fan motors, dampers and actuators.

weger-air.co.uk

Cofely wins FM contract with Harrow Council

Cofely has been awarded a five-year contract by Harrow Council to deliver a range of facilities and energy efficiency services.

The partnership will see Cofely deliver mechanical and electrical maintenance, building fabric, cleaning and a range of security services across the council's 162 building portfolio.

It will also include energy efficiency services in support of the council's carbon reduction strategy and initiatives to tackle fuel poverty.

In total, 420 employees will transfer to Cofely under TUPE arrangements.

The new contract brings together a number of smaller contracts previously managed by different council departments into a single outsourced delivery. This will deliver greater consistency and efficiency of services, lifecycle visibility and projected financial savings in the order of 20%.

cofely-gdfsuez.co.uk

Tinytag data loggers: energy efficiency monitoring for Esos and more

Tinytag data loggers support energy efficiency applications by accurately monitoring power usage, CO_2, temperature and RH locally or throughout a building, says Gemini Data Loggers.

This will help identify where steps can be taken to improve energy efficiency, maximise cost savings and ensure the occupants' wellbeing.

The range includes the Energy Logger, a portable, non-invasive device for monitoring single and three phase power usage: this can be useful for monitoring energy consumption in line with ESOS, ISO 50001, and other energy management requirements. Temperature, relative humidity and CO_2 loggers help validate whether heating and ventilation systems are working correctly, monitor the performance of building materials (eg insulation), and record conditions to comply with health and safety regulations.

The Tinytag Radio System is an effective solution in sites with multiple monitoring points or those needing remote data access. Data is gathered automatically using wireless communications and sent via a receiver for viewing on a PC, across a LAN, or remotely across the internet. Loggers in the range monitor temperature, RH, count, low voltage and current, and include discreet units for indoor monitoring in areas such as offices, and weatherproof units for use outdoors and in industrial areas.

Recorded data is viewed in Tinytag Explorer Software, an easy to use Windows program. Data is presented initially in graphs and tables which can easily be printed, copied and pasted, or exported into other software packages

Gemini Data Loggers manufactures the Tinytag range in the UK. The firm will be exhibiting at the Energy Event, NEC, 15 and 16 September, at Stand B51.

tinytag.info

Quieter, more efficient vacuum pump in town

Atlas Copco says its GHS 350-900 VSD+ range of highly efficient vacuum pumps delivers average energy savings of 50% and claims best in class noise levels and oil retention.

The GHS 350-900 VSD+ range, generating nominal displacement of up to 900m^3/h, incorporates state-of-the-art VSD technology that enables vacuum generation requirements to be matched to the demands of your process. Coupled with an innovative motor design and inlet control valve, the firm claims its range sets new standards for energy efficiency in rough vacuum pumps, leading to a dramatic reduction in total cost of ownership.

When benchmarked against oil-sealed and dry vane vacuum pumps, the GHS VSD+ pump delivers a 50% reduction in noise levels, down to a whispering level of 51 dB(A). The plug-and-play design allows quick and easy installation, saving time and space. The footprint is one of the smallest on the market – no larger than a standard pallet.

The complete GHS VSD+ range is equipped with Atlas Copco's Elektronikon monitoring system and SMARTlink data monitoring. Elektronikon can integrate with your plant management system and control other vacuum pumps, helping with energy savings.

The range conforms with ISO 50001 and 14001 standards, while environmental impact is reduced as a result of impeccable oil retention at all operating pressures – from ultimate pressure to atmospheric pressure.

atlascopco.com/vacuum

Air handling units need no add-ons

Fläkt Woods' Recooler HP is designed as an integral component to Fläkt Woods' range of air handling units. Recooler HP incorporates a reversible heat pump and a recovery wheel to provide a host of benefits, including quick and easy installation, high efficiencies and all-year-round energy recovery.

Using a DC inverter scroll compressor, the Recooler HP can achieve a coefficient of performance of up to 6.5, as well as full control of output from 10% to 100%. This enables the air handling unit to deliver the exact temperature required and maintain end user comfort levels more effectively than traditional fixed speed systems. In addition, the inverter drive allows the unit to work at part load, ensuring the perfect balance between reliability and efficient heating and cooling.

The innovative integral recovery wheel offers a maximised level of energy recovery, with efficiencies over 83%. Plus, with the capability to operate at lower temperatures and still recover energy in winter mode, the unit ensures reduced heat loss during colder weather and less maintenance for defrosting.

David Black at Fläkt Woods explains: "Recooler HP has been designed to seamlessly integrate with an air handling unit, allowing installation on site, without the need for groundwork or additional preparation.

"Crucially, we wanted to design a compact 'all in one' product that ensures quick and simple installation, as well as high efficiencies that will ultimately reduce end user energy bills.

For even further efficiency, the Recooler HP is supplied with a sophisticated adaptive control unit, loaded with intuitive software developed to maintain the ideal operating map. This manages two expansion valves for full control of cooling and heating modes, as well as refrigerant charge.

flaktwoods.co.uk

Jacopa ups tempo for wastewater treatment

Wastewater treatment solution expert Jacopa has detailed the successful deployment of two advanced Copa CB750 submerged aerated flotation (SAF) systems at the Tempo wastewater treatment works in Northern Ireland as part of a major upgrade.

Northern Ireland Water commissioned the £750,000 project, which serves the remote village of Tempo in county Fermanagh, to bring the works into line with Northern Ireland Environment Agency (NIEA) standards.

The improvements involve replacing ageing mechanical process equipment that has reached the end of its service life with a more energy-efficient treatment process.

The improved facility will increase the plant's treatment capacity to 1260PE to accommodate population growth through to 2036, and will bring many environmental benefits including improvements to the water quality in local rivers and tributaries that flow into Lough Erne.

Key to the contract was a Northern Ireland Water requirement that main contractor Enisca must ensure the plant could continue providing treatment while the upgrade takes place. The two Jacopa SAF units and settling tank were commissioned to guarantee on-going treatment while a new CAS biological treatment system, pump station and other enhancements including instrumentation, automation, telemetry and control systems are installed.

The SAF units had to be able to provide treatment for the existing 921PE daily flow, to meet a 95 percentile consent requirement of 20mg/l BOD and 30mg/l suspended solids (SS).

The compact, mobile SAF units are available for hire in any situation that requires a reliable and robust treatment process. They were developed as a temporary biological wastewater treatment solution, but are so efficient that in several locations they have been adopted as a standard treatment choice.

The units are intended for sites that treat less than 2000PE per day, and are hailed as a robust solution that also encompasses treatment of BOD and ammonia.

The works at Tempo are due to be completed shortly, and the SAF units will be decommissioned and ready for future projects. The units' usefulness is such that the hire fleet has grown to service Northern Ireland Water and Irish Water.

jacopa.com

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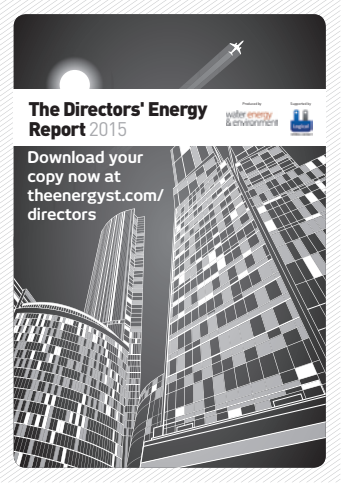

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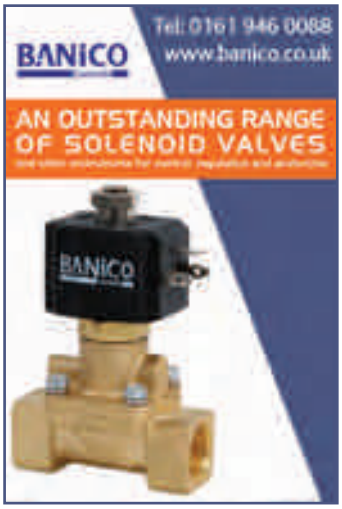

TEMPERATURE SENSOR

VEHICLES

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Kerry J Mashford

National Energy Foundation's chief executive on building houses, a love of dancing and having a heightened sense of smell

Who would you least like to share a lift with? Why?
Anyone with halitosis or BO – I have a very sensitive sense of smell!

You're God for the day. What's the first thing you do?
That's a difficult one – firstly, lower the sea level or raise land in areas in immediate danger from rising sea level and render weapons of mass destruction ineffective. That will give us a bit more time. Then give everyone a compelling vision of a better future that is realistically attainable.

If you could travel back in time to a period in history, what would it be and why?
I'd much prefer to travel forwards so we can see how some of the decisions we are making today will play out and therefore avoid unintended consequences.

Who or what are you enjoying listening to?
The sounds of summer – I love them – both natural and man-made – they lift my spirit. I'm not a winter person. As for music, anything that reflects my mood – or makes me want to dance.

What unsolved mystery would you like the answers to?
If there were no mysteries, life would be so boring. Mysteries are food for the mind. I relish the fact that there are mysteries far more than wishing them solved – but I would like to know what happened to the motorcycling gear I left in America when I returned to the UK after a scholarship, intending to return only a few months later.

What would you take to a desert island and why?
Music – for entertainment, relaxation and to dance to; a guitar – to renew a very rusty skill; pencil, paper and ideally an old fashioned drafting machine (a drawing board to anyone under about 45!) – to design.

What's your favourite film or book and why?
Slinky Malinki Catflaps – a rhyming story of the escapades of a black cat – it reminds me or my sons at an age of innocence and I can hear them chuckling when I think of it.

If you could perpetuate a myth about yourself, what would it be?
That I'm at least 7kg lighter than I am.

What would your super power be and why?
Boundless energy – I always run out of energy before I run out of ideas.

What would you do with a million pounds?
I'd need much more than that but I would invest in creating a new manufacturing enterprise for mass customised housing that delivers homes of exceptional design with the energy performance predicted. Why shouldn't we have these aspirations in housing when all other consumer products do? I'd also provide ongoing support for the Energy Envoys programme (see explanation later) and probably build a(nother) new home for myself. Finally, I'd like to buy my godson his own pub as he and his partner are making such a fantastic job of running the White Horse at Kings Sutton in Oxfordshire.

What's your greatest extravagance?
Building houses – I think my husband and I are addicted.

If you were blessed with any talent, what would your dream job be and why?
I would have loved to be a dancer and, although it was said that I once had the potential, access to tuition and facilities were beyond the financial reach of a working class family living in a small town in Lincolnshire. But now I can dance for pleasure and still have the job I now love.

What is the best piece of advice you've ever been given?
That no one else knows you as well as you know yourself and the best advice you can get is by imagining yourself fast forwarded 10-20 years and then giving your current self advice.

What irritates you the most in life?
NIMBYs with no vision.

What should the energy users be doing to help itself in the current climate?
Measuring, monitoring, benchmarking, building the financial and carbon case for improving the energy performance of the buildings they own or occupy and then investing. That will help them use less, generate more and improve energy security individually and collectively.

What's the best thing – work wise – that you did recently?
It's difficult to choose – can I have two?
1) Throw my support behind the Energiesprong UK initiative as I think it has the potential to create a transformation in construction and refurbishment, eliminate fuel poverty and contribute to community cohesion. It will also enable construction to mature into a collaborative, competitive and efficient industry that its customers deserve.
2) Launch the Energy Envoys programme to enable Duke of Edinburgh Awards candidates to undertake the volunteering element of their award helping their local communities improve the energy efficiency of their homes and community buildings. The programme will be open to DofE candidates from this September and we are all very excited at NEF to see how much impact these volunteers can have with our help.

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