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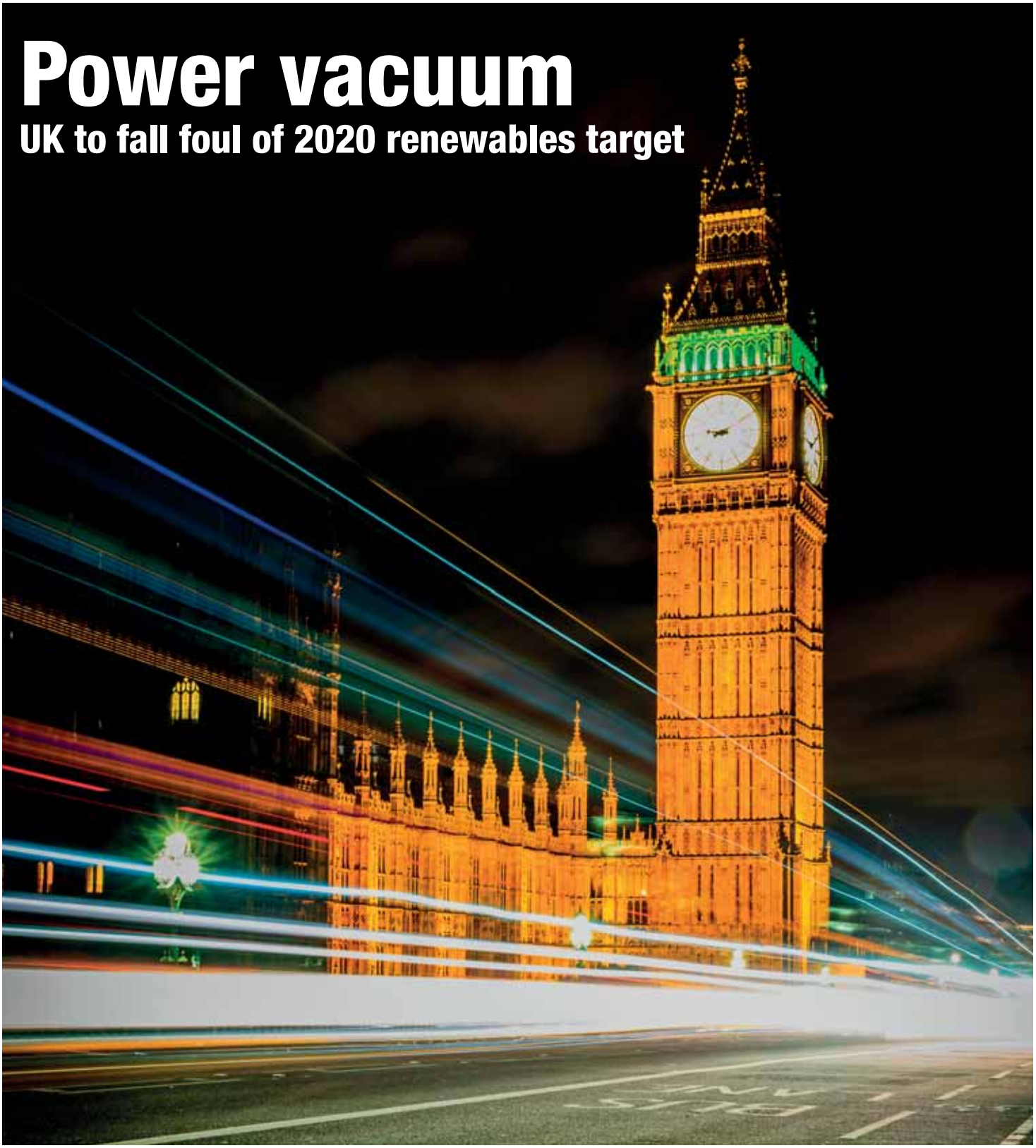
SOLAR THERMAL SOLAR PV BIOMASS HEAT PUMPS WIND HYDRO Dec/Jan 2016

Power vacuum

UK to fall foul of 2020 renewables target



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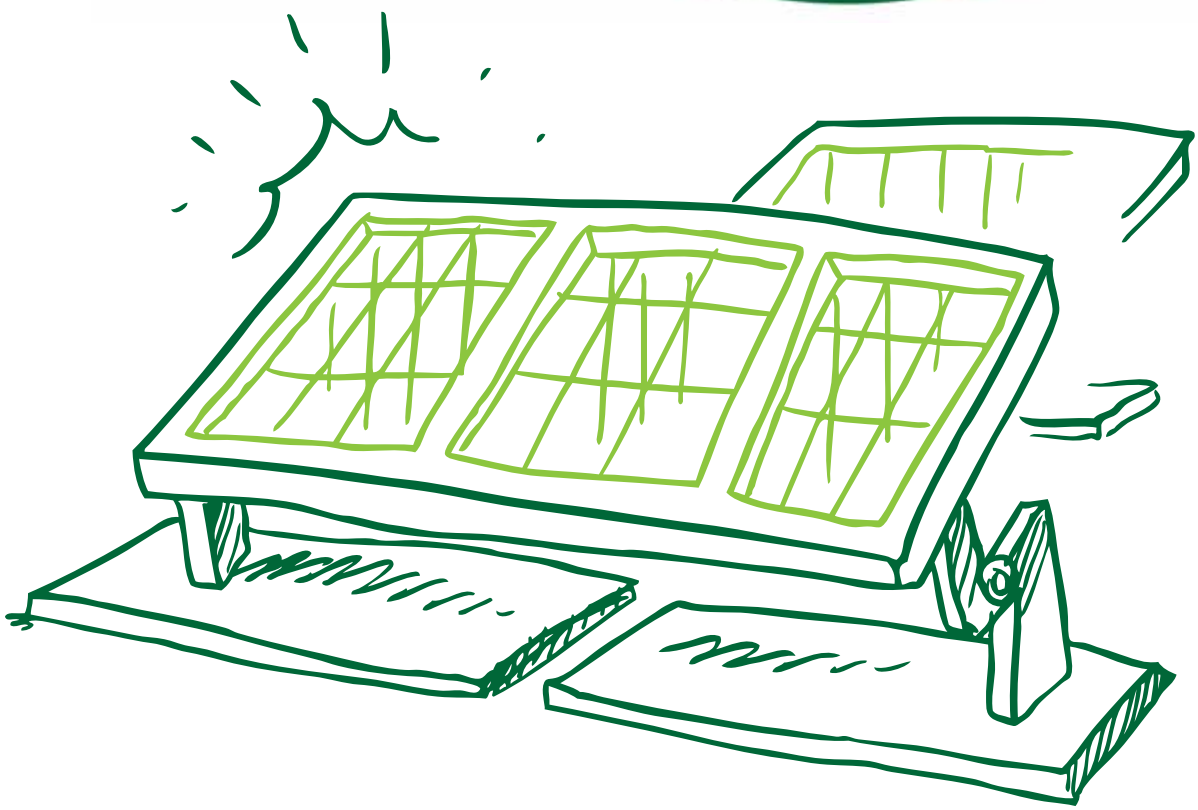

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The final curtain

As I put this last issue of 2015 to bed, and a New Year now beckons for us all, it would seem a propitious moment to also mark the conclusion of my time as editor.

Having proudly served this sector since January 2012, it is a wrench to leave behind what I know, but, alas, fresh journalistic challenges await me elsewhere.

Four years is a long time where renewables is concerned. I recall that when I wrote my first articles as a fresh-faced staff writer, domestic PV was at its zenith as homeowners bagged themselves 43p/kWh, Green Deal had yet to be inflicted upon us, and Amber Rudd was still a relatively innocuous backbencher. In that time we have also seen just under 700,000 renewable installations registered on the MCS database.

It hasn't all been plain sailing, of course, as constant policy upheaval has hindered sustained growth and investment in the sector, and successive governments have failed miserably in providing a solid bedrock on which the industry can thrive.

The litany of subsidy withdrawals endured of late now pose the single biggest challenge to readers as the entire supply chain reluctantly hauls itself into the post-subsidy era, years ahead of schedule.

But, from my vantage point commentating on this sector, I can say with full confidence that there is absolutely no shortage of the talent, innovation and business acumen required to prevail in the testing new business climate, and convince customers to still go green.

Of course no editor can work properly without a first class team behind them and I must thank the administration, circulation, production and sales teams I have had the great pleasure to work with. My gratitude also goes to a superb team of regular contributors, who have done so much to enhance REI's reputation as the industry's leading magazine.

I leave REI in good hands as we enter this brave, new era and editorial enquiries should now be directed to new editor Stuart Qualtrough (**stuart@andpublishing.co.uk**).

Contents

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"DECC are panicking, faced with the inevitable consequences of the renewables cull"
Dale Vince, Ecotricity p6

Entries open for BPEC Charity Awards 2016

BPEC has begun its search for next year's recipients of the Life Award, Support Fund and Sport Award.

The Life Award offers grants of up to £15,000 to plumbing projects which improve the lives of others in the UK and abroad.

The Support Fund and Sport Award provide grants every quarter of up to £2,500 to raise skills and encourage sporting excellence across the plumbing industry.

Over £100,000 has been given out to support a diverse range of projects since the first Life Awards ceremony in 2012.

BPEC chairman, Frank Glover, said: "The submissions we have received over the past three years have been fantastic with real life-changing effects. The plumbing industry has demonstrated real skill and dedication."

The closing date for Life Award applications is June 30 2016. To apply or for more information visit:
www.bpec.org.uk/the-bpec-charity/

First rate: BPEC chairman, Frank Glover, pays tribute to the high calibre of previous Life Award entries

Solar is nation's favourite energy source

Solar PV has retained top spot in the public's attitudes to energy sources, according to the latest opinion poll from DECC.

With an 80 percent approval rating, solar is ranked above every other renewable and conventional energy technology by the regular opinion poll, conducted every 3-6 months.

Leonie Greene, head of external affairs at the Solar Trade Association, said: "These very high levels of public support for solar show yet again that this sunshine technology is the nation's favourite source of energy.

"No other technology empowers consumers and communities to take charge of their energy bill and act on climate change like solar power. By cutting support for solar the government is taking power away from people, organisations and communities all over the UK – and they don't like it one bit."

Magic Thermodynamic Box Company make history

Essex-based The Magic Thermodynamic Box Company has announced that it is the first company in the UK to gain MCS certification for a solar assisted heat pump (sometimes referred to as a thermodynamic product).

Having worked with the relevant MCS technical working group for almost two years to create new standards for solar assisted heat pumps, its Magic Thermodynamic Box retrofit product is now listed in this category.

With claims that the product can save homeowners up to 80 percent on the cost of domestic hot water production, the company is hoping to make a big impact on the renewable energy marketplace.

The Little Magic Thermodynamic Box gained MCS certification after several weeks of testing at BRE's independent research centre in Watford, recently visited by prime minister David Cameron.

The product is distributed to 15 countries across the globe and has been featured on Channel 4's Grand Designs.

Events

Energy Now Expo
10-11 Feb Telford International Centre
http://www.energynowexpo.co.uk

Ecobuild 2016
08-10 Mar London, ExCel
http://ecobuild.co.uk

All Energy
04-05 May Glasgow, SECC
http://www.all-energy.co.uk/

Intersolar
22-24 June Messe Munich
https://www.intersolar.de/cn/home.html

The Renewables Event
13-14 Sept NEC, Birmingham
http://www.therenewablesevent.com/

Clean Energy Live
04-06 Oct NEC, Birmingham
http://uk.solarenergyevents.com/

Installers seek more work finds Glow-worm

Finding more work, upselling on installations and training in renewables are the key priorities for installers, according to a survey conducted by Glow-worm.

35 percent of installers also wanted to increase the number of people they employ, however this attitude was far more prevalent in 25-34 year olds (56 percent), compared to older respondents (26 percent). Lack of work and knowledge were given as the main reasons barring business growth.

People power: 35 percent of Glow-worm's installer respondents want to increase the number of people they employ

There were mixed views on work/life balance with 39 percent saying they wanted more work, and 33 percent saying they wanted more free time.

Neil Bunning, commercial director at Glow-worm, said: "This report has helped us to gain a clear picture of the landscape for installers and highlighted just how ambitious installers are, albeit many feel they are unable to follow through with their aspirations.

"We have been listening to installers and want to help them address these issues. This is why we have refined our product range but at the same time enhanced the range of services and support tools available to installers to help them grow their business in whatever form that takes."

UK downgraded to AAB World Energy Trilemma status

Britain has lost its AAA rating in the World Energy Council's annual ranking of energy and climate policies.

The 2015 Energy Trilemma Index shows that only two out of 130 countries are achieving a full score – Switzerland and Sweden. The UK remains in the top ten but has lost its A grading for energy equity.

The Trilemma Index measures how each nation is balancing the three dimensions of the energy trilemma – energy security, environmental sustainability and affordability.

Countries on the negative watch list have increased from four to six, and include South Africa and the USA, due to ageing infrastructure and issues surrounding energy security.

The report is being sent to all parties attending COP21 in Paris this month and will form the basis of ministerial dialogue at the World Energy Congress being held in Istanbul in October 2016.

Jon MacNaughton, executive chair of the World Energy Trilemma study, said: "For countries to move up in the rankings and remain ahead of the pack, they must adopt prudent, forward-looking energy policies to meet decarbonisation goals and maintain competitiveness. This report provides a map for the long road from Paris to help policymakers and businesses chart a sustainable course."

Francois Austin, global energy practice leader at project partner Oliver Wyman, said: "This report highlights that governments must set in place clear market frameworks and consistent energy goals to create the conditions to support energy investments and innovation."

Downward trend: The UK has lost its AAA perfect rating in 2015's World Energy Trilemma report, and slips to fourth place

Leaked letter: UK to miss renewables target

Energy secretary **Amber Rudd** is facing damaging accusations that she misled the public, following a letter leaked to The Ecologist predicting the UK's impending failure to meet legally-binding renewable targets

The letter, penned by Ms Rudd and sent to the treasury chief secretary and foreign and transport secretaries on October 29, sensationally reveals an alarming disparity between DECC's internal forecasting and its public statements.

DECC's own calculations predict a shortfall of 20 TWh (3.5 percent of total UK energy production) against the UK's target to generate 15 percent of its energy from green sources by 2020. The letter concedes that, in public, DECC maintains the contrary view that the UK is very much on track to reach required levels of renewable generation by the end of the decade.

The UK runs the risk of facing legal action from both home and abroad, plus large fines imposed by The European Court of Justice, should the target it is legally mandated to meet not be achieved.

The energy secretary has attracted additional criticism for the letter's suggestion that renewable energy generated by other EU countries operating in excess of their targets could be purchased by the UK in order to overcome the production gap.

"There's no indication that all this would be cheaper than supporting renewables in the UK, which has Europe's best and most economic wind resource" said Dale Vince, Ecotricity founder.

This letter shows us the dark side of the government's incoherent energy policy in full technicolour

"Given the reason for Rudd's cuts to renewable energy support was cost, you'd think that ought to be a prominent feature of any discussion. Not only would paying other countries to build renewables for us cost more, but we'd also be exporting jobs and industry.

"It rather looks like DECC are panicking, faced with the inevitable consequences of the ideologically driven renewables cull – their plan A. Plan B appears to be either to pay the fines or to pay another country to do the job for us. Both options are short sighted and economically illiterate."

Greenpeace head of energy, Daisy Sands, added: "This letter shows us the dark side of the government's incoherent energy policy in full technicolour. This is hugely shocking. But more deplorably, it is wilfully hiding this from public scrutiny.

"Perversely, we see that the government believes investing in renewable energy projects involving buying power from abroad is more desirable than supporting home grown industries."

The Solar Trade Association is calling for strong action on renewable heat, which provides a particularly low proportion of the UK's total energy needs and makes one of the lowest contributions in Europe. This must be made an urgent priority, it adds, given the need to avoid a breach of legally-binding targets in just four years' time.

Spot the difference: The energy secretary's revelation that the UK is to miss legally-binding renewable targets is at odds with her department's public pronouncements

"There is plenty of scope to strongly ramp up renewable heat while providing a sensible framework to safeguard public investment in the British solar industry," said Leonie Greene, head of external affairs.

The plan appears to be either to pay the fines or to pay another country to do the job for us

"We are not on track to meet 2020 targets, investor confidence has been severely damaged by recent policy chaos, the world is half way to dangerous climate change – the UK does not have a minute to waste."

"The secretary of state herself said she would rather meet the target at home so why is she decimating our industry and looking for electricity from overseas?"

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ENERGY THAT CHANGES

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The Year of the Axe

You won't find it in the Chinese animal zodiac, but 2015 has certainly deserved the epithet of Year of the Axe, reports REI editor **Paul Stephen**

We exit the year following on from 12 torrid months dominated by the loss of multiple financial incentives, enacted by a new government barely six months into its five year term.

We entered 2015 on a very different note, however, with predictions centred on the performance of the **domestic RHI**. Introduced in April 2014, it's fortunes were riding high in February as it passed the 20,000 installations milestone, and heat pumps were added as an eligible technology.

March was a busy month on the tradeshow front with **Ecobuild** registering 40,000 visitors at London's ExCel, and 198,000 visitors flocking to Messe Frankfurt for this year's **ISH**, where more than 2,400 companies exhibited.

In other news, standards for **thermodynamic systems** were approved by the MCS, whilst the coalition government's final **budget** failed to set any pulses racing as renewable energy barely registered a mention.

May heralded substantial change as the Conservatives scored an outright victory at the **General Election**, to form a first Tory majority government for 18 years. With a fresh mandate in hand, prime minister David Cameron elevated **Amber Rudd** to energy secretary, replacing Ed Davey who had the misfortune to also lose his seat as the Liberal Democrats received heavy punishment from the electorate.

Tough at the top: Since her elevation to energy secretary in May, Amber Rudd has presided over a succession of disappointing subsidy cuts

Although the Conservative's pledge to relentlessly bear down on public spending made budget cuts at DECC a certainty, the scale of reduction to expenditure on low carbon energy over the coming months was less easy to foresee.

Elsewhere, REI attended **Intersolar** in Munich in June as an official media partner to see first hand the impact of new storage products, in particular Tesla's Powerwall.

The summer months saw the start to a steady stream of hard-hitting policy announcements as consultations opened to remove onshore wind and then solar under 5MW from the **Renewables Obligation**. The first was consistent with the Conservative's pre-election manifesto pledges, whilst the second was severely criticised for denting investor confidence and standing in direct contrast to previous commitments to boost the commercial rooftop market.

The next blow to the sector came from chancellor George Osborne who decreed in July that long-established plans to make new homes **carbon neutral** by 2016 were to be abandoned in an attempt to stimulate growth in construction.

In July the government also confirmed that further funding would be halted for **Green Deal**. Despite its underperformance, the decision to end this flagship scheme was roundly criticised for the absence of any alternative.

In September, **The Heating & Renewables Roadshow** wound its way across the UK whilst **The Heating & Renewables Awards**, hosted by comedian Jason Manford, celebrated the achievements and hard work of the industry with 15 highly-coveted awards.

First appearance: The most striking technological development of 2015 has been the introduction of energy storage solutions to the market

September also infamously saw the launch of an eight week consultation into proposals to cut the **Feed-in Tariff** by almost 90 percent to prevent 'projected overspend'. Facing a catastrophic drop in domestic demand for solar, the PV sector responded with dismay at the withdrawal of support for a technology so close to grid parity and becoming subsidy free.

A petition calling on the government to backtrack on the scale of cuts attracted thousands of signatures, whilst the STA unveiled a **rescue plan** for solar which cost consumers just £1 a year to fund.

The announcement's impact was quickly felt by the supply chain with Mark Group, Climate Group and Southern Solar all heading into administration.

The FiT consultation closed on October 23, and the government's formal response still unknown at the time of going to print. The **Comprehensive Spending Review** on November 25 will dictate any future spending on the RHI.

Partner organisation MCS presents its regular column for REI

MCS 012: Product Certification Scheme Requirements - Pitched Roof Installation Kits

A new version of MCS 012 (Product Certification Scheme Requirements - Pitched Roof Installation Kits - Issue 2.0) was published on November 02 2015 and will become mandatory from May 02 2016

The key update to the standard relates to the requirements on the external spread of flame when installing in-roof solar panels, and will help solar MCS contractors demonstrate that their installation complies with building regulations. All MCS contractors who are installing in line with the requirements of MIS 3001 (Solar PV) and MIS 3002 (Solar Thermal) should refer to MCS 012.

There are three routes to demonstrate compliance within the MCS and building regulations:

- A specific fire test and rating with a specified PV module;
- A test and rating that is achieved independently of a PV module; or
- An installation method that achieves a fire rating that is independent of the solar installation. The MCS contractor can use a substrate with an independent fire rating (for example a roofing membrane with AA rating) beneath a roofing kit/module combination that does not have a declared fire rating. Please note that it is important to be able to verify that the system achieves a sufficient rating as a whole.

Work is ongoing to define the module characteristics that would conserve the fire rating when substituting one type of module for another. Section A5 1.1 of MCS 012 provides interim guidance.

Please read the 'MCS 012 Fire Performance of Pitched Roof Mounted Solar' document for more details.

Document link: **http://www.microgenerationcertification.org/images/MCS_012-Fire_Performance_of_Pitched_Roof_Mounted_Solar.pdf**

Pollard's Patter

THROUGH THE EYES, AND GLASSES, OF **TIM POLLARD** HEAD OF SUSTAINABILITY, PLUMB CENTER

It seems that the whole industry is collectively holding its breath awaiting the publication of the Comprehensive Spending Review on 25 November. By the time you read this, you may already know. However, all of us involved in renewable heat systems know that if we are to achieve carbon reduction targets then we will have to affect heating in our buildings. The production of space heating and hot water accounts for an average of 80 percent of our home energy use and the overwhelming majority of us now have central heating.

Whilst the final targets are set for 2020, 2030 and 2050, we cannot wait until then to start addressing our 27 million homes. We need to convince householders of the merits of lower carbon solutions, and we need to start accelerating that process today, not tomorrow. All the evidence shows that people recognise the benefits of energy efficiency and carbon reductions, we just need to make the process of achieving these goals manageable both practically and economically.

The progress to date has been harder and slower than we would all like. We have had some encouragement over the last 18 months, particularly in the world of biomass boilers, but we need wider and quicker progress.

Many of us have made substantial investments in getting to where we are now. The logic of the low carbon heating proposition remains unshakeable and as every week goes by, the need for progress becomes more telling.

"Solar will stand on its own two feet in 2016 as a vital part of the clean energy mix"
Simon Baggaley, Enphase Energy p23

Opportunities for UK low carbon transport

Gordon Moran, writing for the European Energy Centre (EEC), evaluates the prospects for low carbon transport in the UK

As part of wider goals to help reduce levels of pollution to meet the UK's emissions targets, there have been moves in the UK to reduce pollution caused by transport.

Transport accounts for approximately 25 percent of total UK carbon emissions, with road traffic causing the largest proportion. To reduce emissions from road-based transport, the UK government has provided tax breaks to incentivise the use of electric cars and developed appropriate refuelling infrastructure to promote their use nationally. The government offers 'plug in grants' of up to £5000 for new electric cars. This scheme has been very successful at encouraging their uptake and will continue until at least February 2016.

There have also been measures introduced to increase the proportion of transport fuels sourced from biomass to help reduce emissions. Biofuel use has also been promoted for buses in conjunction with the use of biogas, sometimes from surprising sources such as distilleries and breweries.

Another promising technology is the development of the use of hydrogen as a transport fuel, which looks set to receive a great deal of attention and investment, and has a range of potential uses in road transport with hydrogen fuel cells. The development of accompanying infrastructure is also likely to encourage investment and technological innovation across the supply chain.

Low carbon transport innovation makes sound sense in terms of reducing carbon emissions, increasing energy efficiency, and promoting technological innovation and financial investment in the economy, meaning the future looks bright across a range of technologies for this area in the UK.

Talking point

Liz MacFarlane, Zenex Solar, hits out at the unsettling effect of DECC's unknown schedule for implementing changes to the Feed-in Tariff

I hope that by the time this edition of REI hits your desks, we are armed with information about what PV support, if any, the government has left to give.

One of the most appalling things about this whole situation has been the lack of clarity on timescale. I know many of you have been forced to make difficult decisions, many resulting in losses of profit and jobs, which may or may not have been too premature.

We know that DECC is within its rights to amend the Feed-in Tariff, but surely it shouldn't have dealt a card which meant that the industry has been juggling stock, human resource and finance based on one timescale when actually in reality we may have had weeks longer to take action. In the meantime, people have been forced to make rash and costly decisions based on nothing but conjecture.

Much of the industry has been making worst-case scenario plans; others, simply waiting for the announcement before deciding on a next move. Everyone seems to be toying with the idea of diversification.

We are very lucky that as part of the Segen group, we have a flexible business model which has traded successfully since long-before the FiT. We have plans in place which will help sustain that so we are here long in to the future to continue to support you. Watch out for training courses in the New Year to help diversification and to ensure that we are ready for whatever is thrown at us.

HETAS technical helpline FAQs

One of the many benefits offered to **HETAS** registrants is access to its technical helpline. Here, the helpline is introduced as a great resource for those seeking advice and knowledge from experienced professionals

The helpline is run by HETAS from its head office in Tewkesbury with additional expertise provided by HETAS' partners including the Stove Industry Alliance, Solid Fuel Association, NACE and chimney sweep associations.

At the peak of the heating season the helpline can log hundreds of calls a month, says technical officer, Stephen Shepherd. Joining HETAS three years ago to be part of the newly established technical helpline team, Stephen enjoys the variety of his role: "While our core purpose is to offer good, solid advice to HETAS registrants, we can act as a counsel to other professionals working with our industry. I quite often talk to architects and building control officers about home heating systems and plumbing issues as well as chimneys.

We are ensuring people stay safe which is an amazing goal to have in any job

"What I enjoy most is talking to likeminded engineers who share my passion for practical, hands-on work," adds Stephen who grew up in a family of builders. "From recommendations on different chimney liners to checking the fine print in Building Regulations, our installers often like to come to us as a sounding board."

Garry Sweet, 52, who was a chimney sweep for four years before taking up a technical officer role with HETAS, also enjoys the rapport he has with installers. "By helping our installers keep up to date with the latest products and regulations, we are ensuring people stay safe which is an amazing goal to have in any job. When I was working as a sweep I witnessed some bad installations which caused quite a bit of trouble for homeowners; having seen it from the root cause, I'm in a better position to help our installers maintain their high standard of work."

With 10 years' experience in a standards and regulations role for various engineering companies, Garry enjoys being the first port of call for installers as well as making sure he's abreast of the latest products. "When it comes to the biomass stoves, I actually find the modern innovations very interesting," he says.

However, it's not just installers that benefit from the HETAS helpline, as consumers will sometimes pick up the phone to the technical team if they want to confirm their installer's recommendations. "Quite often we find that consumers have their hearts set on a product they've seen on TV or in a magazine but unfortunately it just isn't right for their home. It's our job to help educate them as to the importance of having the right product and correct ventilation systems for their own safety."

HETAS' CEO Bruce Allen says the technical helpline team do a great job in keeping installers informed whilst HETAS is proud to have the support from various sectors and organisations in the industry.

"Ultimately our aim is to be recognised as the go-to resource for any domestic heating related queries so that we can continue to encourage the improvement of products and promote high standards of quality, design, safety and efficiency. We are very proud of the work we do and always willing to share our insight and expertise."

Main aim: HETAS' chief objective is to be the primary resource for domestic heat enquiries, says CEO Bruce Allen

Our aim is to be recognised as the go-to resource for any domestic heating related queries

Two minutes with . . .

Who are you?
Jim Moore, managing director, Vaillant Group, UK & Western Europe

What do you do?
I am responsible for driving growth within Vaillant Group's UK operation.

Where are you?
Our headquarters and factory are based in Belper, Derbyshire.

How's business at the moment?
Exciting times are ahead for us. The Vaillant Group has just launched a new strategy in the UK to drive growth and enable the business to respond to the needs of specific markets by our Vaillant and Glow-worm brands focused on specific markets and targeted customer support.

How could business be better?
As part of the new strategy, we have reflected on the UK renewables market, which has faced slow growth. In addition, current demand is for premium brand products. We are therefore focusing on our Vaillant renewables portfolio for the UK market. Being part of the international Vaillant brand, we are better positioned to bring new technologies and products to the UK, and there are a number of new innovations planned for next year.

What's the best business advice you've ever received?
The best business advice I can pass on is that business leadership means you are there to make decisions!

How are you going green?
We think sustainability should run throughout the entire process, not just be about the performance of our products. Our award-winning Belper plant uses less energy and water and creates less waste and carbon emissions than ever before. The plant has also been zero to landfill since 2011, and has recently installed PV on the roof.

Q&A

Silvio Spiess

Innasol

REI: What have you got planned for 2016?
SS: Innasol has seen considerable success since we created the business back in 2010. In 2016, as has been the case in previous years, our aim is to continue this steady development. We'll achieve this by maintaining and developing our world-class training facility in Essex, increasing our nationwide partner network in the UK and bringing cutting edge biomass and heat pump technology to the UK.

What is top of your wishlist from the government?
That's an easy one! It would have to be a commitment from the government to continue investing in renewable heat. At the moment, the government has pledged support for the RHI until the end of Q1 2016, but has made no announcement beyond then. As a result, the renewable heating industry is losing confidence: employers are reticent to further invest in training and infrastructure, and consumers are wary of investing in the technology as they're not sure that they will receive the agreed financial incentives.

How is your company cutting its carbon footprint?
As a renewable heating business, Innasol's carbon footprint is very low indeed. Our headquarters in Essex runs on a large pellet-fuelled biomass boiler, which is carbon neutral as biomass boilers use sustainably sourced wood as their fuel. We also use a high efficiency air source heat pump to showcase the benefits of best-in-class renewable heating technologies.

Silvio Spiess is founder of Innasol Group

TECH TALKING

Waste not want not

Heat pump specialist, **Bob Long**, calls for thermal energy recovery from wastewater to be included in the RHI

Just as I was coming to the end of writing this month's column, I learned of Amber Rudd's leaked letter indicating a 3.5 percent shortfall in meeting 2020's 15 percent renewable energy target.

I couldn't help but think of the potential impact the domestic heat pump industry could have had on these figures, and the opportunity missed through poor handling of the RHI.

If financial support for heat pump systems can be made more attractive, an increased number of installations would make a major contribution to reaching our target.

Until DECC understands the enormous contribution that can be made through heat pump technology, the subsidy will probably not increase, and we must therefore concentrate on applications that make economic sense without subsidy.

Energy from wastewater could be a viable commercial focus for heat pump installers, and also an invitation for innovators to develop new ideas to collect the energy contained in the drain water from showers, washing machines, bath tubs and wash basins.

A kW of thermal energy in any form has a monetary value, and this is true regardless of source. Gas currently seems to be the lowest cost fuel at around 5p/kWh, and electricity, at around 12p/kWh, will probably be the highest.

With energy having such a high value, it makes sense to minimise wastage, and the energy contained in waste hot water usually ends up down the drain.

Wastewater can contain significant amounts of thermal energy, and can be recovered by specially designed systems using water to water heat pumps.

A heat pump, dedicated to the production of domestic hot water (DHW), and optimised to collect energy from wastewater at temperatures of at least +15C and higher, could quite easily produce a COP of over 5:1.

Obtaining DHW at below 2.4p/kWh is an impressive figure, and should represent an attractive investment, with big savings in a variety of domestic and commercial applications.

This valuable method of energy recovery is not currently recognised by the RHI, however.

Until this happens, the economic savings must stand alone, and therefore need to be appealing enough to attract the market.

In the field of domestic heating, the RHI provides some financial assistance to heat pump users but savings are often compromised by low system efficiency.

The seasonal performance factor for any heat pump eligible for RHI payments must carry MCS certification and operate with an annualised efficiency of 2.5:1 or higher.

If we look more carefully at heat pump manufacturers' literature, we can see that higher efficiencies are achieved with lower water temperatures.

Designs dependent on higher water temperatures, such as retrofit installations using existing radiators should be avoided as they will never produce the best value for money. Often requiring circulating temperatures above 50C, the seasonal performance factor is likely to plummet below 2:1.

In defence of the standard domestic heat pump, it is primarily designed to produce large amounts of cheap hot water, and is optimised for the temperature range 35-40C.

A good quality heat pump should be capable of producing COP figures of 4:1 and above, at low water temperatures. However, the same heat pump when in DHW mode will have a much reduced efficiency, generally dropping to very low and unattractive values.

Because of the low-efficiency-at-high-temperature-scenario, it is not unusual to have a separate heating arrangement for DHW while using the main heat pump for space heating.

Savings can be made by using different resources for production of DHW, but none are likely to be more efficient than converting the energy from wastewater into DHW through an energy recovery system.

CURRENT AFFAIRS

Bill Wright, head of energy solutions at The Electrical Contractors' Association, bemoans the government's lack of direction in energy policy

Once again it's been rather bemusing month on the energy front as it appears government wants to encourage investment in energy while cutting off support for industry at the same time. Confused? You will be!

On the one hand we are facing cuts in subsidies, while on the other the government is intent on increasing the percentage of renewable energy in our supply mix.

Surely this is illogical? Instead of building new power stations would it not make more sense to improve the efforts to get people to invest in becoming more energy efficient? It must be cheaper to reduce power consumption than to build power stations. Despite this we're spending more money on keeping fossil fuelled power stations online than we are in investing in encouraging energy efficiency, or enticing people to invest in renewables.

In the short term, combining renewable energy sources with bulk energy storage must be the way to get the best out of the energy sources at our disposal. It would also go a long way to combating the risk of winter blackouts - something that has been given as much press over the summer as the comings and goings of the football transfer window.

The UK appears to be on the cusp of an energy storage revolution, and this presents a golden opportunity to invest in research to make the UK a world leader in this area. Let's grasp it before it becomes yet another opportunity we miss and our competitors take.

Brave new world

Selling 'energy independence' must be the new strategy for PV installers facing a downturn in PV-only customers, argues **Steve Pester**, BRE

By the time you read this, the government will probably have announced its final decisions on how/whether it will support solar going forward.

However, it is really starting to look as though the cavalry might be about to arrive in the form of whole-house energy solutions, at least for some in the industry. These solutions are in the form of practical energy storage and clever control products, and are arriving on the scene in droves at the moment. Some of these may be regarded as new and as yet unproven, but others have been rolled out in countries such as Germany for some time.

The key message is that no longer will it be sufficient to sell PV in isolation, as a bolt-on investment to a house. The way forward in this 'brave new world' is to sell energy independence, offering fixed energy costs for the next 25 years. Solar by itself can offer that to a limited extent, but with the addition of battery storage, the proportion of self-consumption can be radically increased.

Small scale heat storage is an even easier sell, with lots of energy diverter products for water heating now being sold to new and existing PV customers. This connection between apparently separate energy systems is really just the tip of the iceberg. Factor in the potential for systems using PV, batteries, electric cars, heat storage, heat pumps, PV-T and top-up heating systems and it becomes clear that building energy systems are starting to merge via intelligent controls, another part of the big up-sell.

A new guide on installing battery systems will be available from the National Solar Centre in the next few weeks.

Every cloud has a silver lining

With the end looking nigh for the Feed-in Tariff, it's time to switch PV customers on to self-consumption, argues 4eco co-founder, **Jo Huggett**

Much as we all might hate to admit it, government subsidies could never be the long-term solution for the solar industry. Small comfort to those now out of work or facing up to an uncertain future, I know.

Trina's UK sales manager, Richard Ruskin, summed up the industry's shock succinctly when he told the Guardian: "We want to wean ourselves off subsides as soon as possible, but you cannot just cut them by 87 per cent."

The hidden benefit of the FiT cut will be the way it refocuses the industry to promote self-sufficiency

Personally I see one positive to come out of all this - the chance for the industry to put self-sufficiency back on the agenda.

The FiT's legacy will be the way it kick-started a nation into making renewables both affordable and ubiquitous.

But where does all that clean energy go? Back to the grid in most cases, putting extra strain on the network and leaving PV owners in the maddening position of paying for their energy twice - once for the panels and then every time they buy back more expensive dirty energy in the evenings.

Until now the FiT helped us explain this paradox away - selling back to the Grid made financial sense, after all - never mind the environment. Not any longer; through necessity the industry has to bring it back.

Energy generated and consumed on site has always been the cleanest form of energy - now it's the cheapest too. It's never been more important for installers to remind customers of this fact and help them to self-consume as much as possible.

Homeowners may no longer earn as much from PV, however they can spend less by reducing their reliance on the Grid, simply by self-consuming more. Depending on the PV system, weather conditions and other aspects of the property, a home or business owner can generate and self-consume up to 100 percent of their energy needs. Lest we forget, after all, the fundamental, environmental benefit of solar.

Once it takes hold, this idea of self-consumption prompts customers to take stock of their everyday energy behaviour and cut out unnecessary energy use: does the dishwasher really need to be used twice-a-day; could clothes be dried on the washing line rather than in the tumble dryer?

The hidden benefit of the FiT cut will be the way it refocuses the industry to promote self-sufficiency, both through lifestyle changes and technology.

In this new renewable landscape, eco-gadgets which help increase self-consumption will step out of the shade of solar subsidies and become a no-brainer for anyone selling or buying PV.

Sophisticated devices can divert surplus energy to heating or hot water systems during daylight hours when panels are at their most productive, and app technology means owners can monitor and control their levels of self-consumption through their mobile or tablet.

Positive thinking: Cuts to the Feed-in Tariff will incentivise future PV owners to increase self-consumption via power diverters as exporting becomes less attractive, says 4eco's Jo Huggett

When the export tariff is near-to-nothing, every extra watt kept inside the home means money saved for future owners of PV. And while governments grapple with climate targets in Paris, our industry can help those hundreds of thousands of existing PV owners to go even greener by offering retrofits of the technology that will help them live cheaper, cleaner lives.

When the export tariff is near-to-nothing, every extra watt kept inside the home means money saved

Level playing field

Stephen Knight, commercial director at Navitron, discusses the prospects for solar thermal, advocating the withdrawal of 'distorting' tariffs

There's no question about it, the entire renewables industry has been in a constant state of uncertainty since the Feed-in Tariff was implemented in 2010 – but even more so this year thanks to drastic changes to government-run incentives overall.

In a span of just three months following the General Election, we saw two government-run renewable incentives disappear, as funding for both the Green Deal and Green Deal Home Improvement Fund was completely cut. In that same time, talk of drastically cutting and possibly closing the FiT also began.

Despite this, technologies like solar PV, air source heat pumps and biomass have continued to thrive, leaving other technologies, particularly solar thermal, struggling to compete.

One and a half years into the domestic RHI, and solar thermal is seriously underperforming against other technologies covered by the scheme by some margin. According to Ofgem figures, from September 2015 solar thermal has attracted 3,300 less accredited installations than biomass, and 11,200 less than ASHPs.

But why has solar thermal performed so poorly compared to other technologies?

RHI delays

The negative effects of government incentives on solar thermal started way before the dRHI's launch in 2014.

When the dRHI was announced in 2010, a large drop in solar thermal sales hit because anyone considering installing a system decided to wait until more details were revealed. A four year delay in implementation caused further reductions in sales which, when combined with the introduction of FiT, moved consumer focus firmly to PV. By the time the dRHI came into effect, consumers had either lost interest in solar thermal, spent the money they had set aside for renewables, or no longer had roof space to spare.

Lower tariff rates

Since the launch of the FiT, renewables companies have seen a continuous industry-wide decline in solar thermal sales. Many thought this would change when the dRHI came into effect, which many firms were relying on to give a much-needed boost to solar thermal. It didn't though, because dRHI payments are barely an incentive compared to solar PV – with which it competes for investment and roof space.

Another contributing factor to low solar thermal uptake is that biomass and heat pump payments are much more generous than the tariffs set for solar thermal, leading those considering renewable heating to steer away from hot water panels.

Incentives = drop in efficiency

Prior to the advent of incentive schemes, the industry was selling unsubsidised, high-efficiency products, like solar thermal and ground source heat pumps. However, this changed in 2010 with the introduction of the FiT and then the RHI. Despite solar thermal being up to 70 percent more efficient in collecting heat from sun rays than solar PV, and GSHPs running on less power than its above-ground counterpart, a shift to selling subsidised but less efficient technologies like PV and ASHPs occurred.

Mixed blessing: Providing support for solar thermal under the RHI has done more harm than good, says Navitron's Stephen Knight

End game

Simply put, solar thermal sales could be salvaged and saved by the RHI and other incentives being put to an end.

Schemes like the RHI and FiT have distorted the market and introduced an element of uncertainty that makes companies reluctant to invest in the long term. Removing them would create a level playing field where all technologies can compete and be sold strictly on their merits – not how much there is to be made from incentives.

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STEM recruits inspired by Germany visit

Encouraging young women into renewable energy careers has been given a boost by Sasie, explains training & administration manager, **Jill Holland**

Next generation: Schoolgirls joined Sasie on an educational trip to Germany funded by Erasmus+, designed to encourage young women to choose careers in science, technology, engineering and mathematics

Over a fortnight in late October, girls aged 16 plus were invited from schools across the country to join Sasie on a visit to Wildpoldsried, Bavaria, to experience world leading facilities and renewable technologies and infrastructure.

The trip, funded by Erasmus+, was led and delivered by Sasie and German partners Christiani GmbH, with support from School Energy Efficiency CIC. The aim of the trip was to encourage women into science, technology, engineering and mathematics (STEM) careers and university choices, with a focus on renewable energy sustainability.

Completion of the trip also gave the students a qualification, written and delivered by Sasie Training - the Level 3 Award in the Rational Use of Renewable Energy. This qualification teaches the background to renewable technology systems, plus an introduction to the renewable energy industry and the economics and politics of renewables.

Students began the trip by constructing their very own mini PV system inside a case, under the expert guidance of the solar case manufacturers Christiani. Having never worked with renewable technologies before, using tools to construct something both educational and fun showed the girls what a career in the engineering or the renewable energy sector is like, and how rewarding and satisfying it can be.

Daily trips were made to facilities and technologies in the village of Wildpoldsried, such as the construction site of a brand new 150m wind turbine, which when completed will be one of 11 turbines helping to produce over 700 percent of the village's electricity demands. A number of biogas farms just outside the village produce the gas for the village's three CHP plants; with heat distributed throughout all public buildings in Wildpoldsried (many of which are of PassivHaus standard) and a number of private residences, using a district heating scheme controlled by a Smart Grid.

Students also visited local vocational colleges and universities including Hochschule Kempten, where they were able to study and ride in a BMW i3 electric car. The group visited Sonnenbatterie GmbH where they were taught about the benefits and features of battery storage, and enjoyed a tour of the factory where they witnessed various stages of production.

Other visits included a waste combustion plant which has annual emissions less than a single cigarette, and one of Kempten's six hydroelectric power plants, where students studied how a hydroelectric plant operates and the ecological and environmental aspects surrounding it. The highlight of the daily visits was a visit to Elektro Guggenmoos GmbH, where the group was shown a multitude of innovative schemes designed to increase the efficiency and outputs of renewable energy technologies.

Thanks to James Veness of partner organisation School Energy Efficiency CIC, teaching and qualification material was supplemented with inspirational talks and interactive presentations from organisations such as 2041, 5 Gyres and Barefoot College. Students are now engaged with a variety of campaigns related to human impact on the environment, which they will take back to their school communities.

Great expectations

Industry leaders speculate on what the next 12 months may deliver for the renewables sector

2016 looks set to be one of the more difficult calendar years to pre-empt owing to the potential demise of the Feed-in Tariff and RHI. The future of both incentive schemes was unknown at the time of going to press, with the Comprehensive Spending Review and government response to its Feed-in Tariff consultation due within days of publication.

Even so, the sector is steeling itself to go to market minus the ability to dangle government subsidies in front of potential customers' eyes. Using new selling techniques, renewable technologies are expected to stand up strongly against a backdrop of threats to electricity supplies from the National Grid, and the UK's legal requirement to continue its efforts to decarbonise.

"Regardless of the level of support for the RHI going forward, at NIBE we see the New Year as a valuable opportunity for progression," said **Phil Hurley, NIBE**'s managing director.

"The UK has ambitious carbon reduction targets to meet, and the mass rollout of low-carbon heating is vital if we're to achieve them. Making renewables affordable and accessible to as many people as possible will help solve the wider issue of fuel poverty, which must be a top priority for policymakers in 2016 and beyond."

Richard Hiblen, national sales manager at **Specflue**, added: "With the UN climate meeting in Paris over the horizon, we find it difficult to comprehend the end of all support for renewables, particularly when the larger CO emitting countries are pushing for greater global commitments. Long term we believe there is a bright future for renewables, but short term balancing of books could outweigh the renewable argument and direct the focus of UK policymakers.

"With the grid struggling to meet demand it is puzzling why the technologies under threat are those that reduce reliance on the Big Six energy suppliers."

The dynamics of the domestic PV market are expected that shift dramatically in the post-subsidy marketplace with many commentators anticipating growth in storage solutions and self-consumption as exporting power to the grid becomes less financially attractive.

Jo Huggett, 4eco director, said: "If 2015 was the year of the selfie, 2016 will be the year of self-consumption. Solar is facing a big challenge next year, which will require us to completely change that way our customers think about PV.

"The industry's focus is going to switch to the money-saving benefits of keeping more self-generated energy on site."

Simon Baggaley, UK sales director, **Enphase Energy,** said: "In the long-run solar will stand on its own two feet as a vital part of the clean energy mix. We are developing and deploying a new integrated energy system that has generation, control, storage and load management built-in. It's an exciting time for the industry from a technology perspective."

Lest we forget: Policymakers will be unable to ignore renewables' contribution to tackling the perennial problem of fuel poverty, tips NIBE's Phil Hurley

New dawn: 2016 will be known as the year of self-consumption, expects Jo Huggett of 4eco

Smell of success

Johan Östlund, director at **CooperÖstlund**, is hopeful that strong momentum in the anaerobic digestion sector can be carried into 2016.

"Over the past 12 months, anaerobic digestion (AD) in the UK has continued to thrive. In fact, with more than 250 facilities now operational nationwide, powering homes and businesses using food waste, sewerage, crops or manure is quickly becoming a key part of our renewable energy mix," he said.

"2016, however, poses a number of potential hurdles for the industry. With the next round of Feed-in Tariff degressions planned for 31 March and the government's Preliminary Accreditation programme recently revoked, financial incentives for generating renewable energy are becoming a thing of the past.

"In the long-term, the AD process offers significant benefits in generating energy from industry by-products or wastes and removing the reliance on landfill. However, government support is necessary in the short to medium-term in order to gain momentum."

EvoEnergy partners with Lyreco on mega rooftop array

Workplace supplies provider Lyreco has appointed **EvoEnergy** to install a 3.8MWp solar array at its 15 acre distribution centre in Telford

Once complete, the installation will be one of the five largest rooftop arrays in the UK. It will be owned and operated by Addison Energy, which will sell electricity at a discounted rate to Lyreco via a 20 year Power Purchase Agreement.

Consisting of 13,860 Trina Solar 275W panels, the new system is expected to cut annual energy costs by over £50,000 and CO2 emissions by 1,700 tonnes per year. It will also be one of the first commercial systems to use large central inverters more commonly found at solar farms, bringing ground-mounted technology to the rooftop sector.

Lyreco, which employs 9,000 workers across 45 countries and delivers more than 230,000 packages each day, commissioned the array to help offset the environmental impact of its 55,000m² UK distribution centre.

James Clifford, national account manager at EvoEnergy, said: "Working with leading global companies Lyreco and Addison, we're looking forward to delivering one of the UK's largest rooftop solar installations, bringing together our expertise in electrical, mechanical and civil engineering."

Nick Dacey, logistics director at Lyreco, said: "This is an exciting project for Lyreco and demonstrates our ongoing commitment to our 'Eco Future' environmental strategy and its challenging targets. To be at the forefront of such cutting edge technology makes us very proud and reflects our approach to doing business and providing the very best products and services to our customers."

Hitting the roof: Lyreco's 3.8MWp PV array will cut emissions by 1,700 tonnes per annum at its 55,000m² distribution centre in Telford

Romag's BIPV chosen for Battersea Dogs Home

Romag's BIPV panels have been installed as part of a new £4.8m kennel block development at Battersea Dog & Cats Home in London, opened by HM The Queen earlier this year

The PV system was integrated into a glass laminate canopy, running the entire 145m length of the new kennel block. Main project contractor Ablaze Green Energy Solutions commissioned Romag to produce a specification for both BIPV panels and more traditional glass units.

1800mm x 1200mm BIPV panels were chosen to achieve the required electricity generation performance characteristics.

Traditional glass sections were produced as infills for sloping canopy sections where the canopy height was required to change. Dummy panels were also incorporated once the required energy generation target was achieved through the BIPV panels.

Steve Rose, director at Ablaze, said: "Romag met our requirement to use a UK based, well-established and highly regarded company for this significant investment. The entire system was initially designed with the Romag product in mind to ensure everything went smoothly together.

"A recent visit to site revealed that the system has already produced nearly 50 percent of the expected annual yield in just over four months of operation, the PV element is already proving to be highly effective."

Looking up: BIPV panels from Romag run for 145m along the new kennel block roof at London's Battersea Dog & Cats Home

Plant nursery grows with Wood Energy

Pinetops Nurseries has moved into new, purpose built facilities heated with the help of a 999kW binder wood chip boiler, supplied and installed by **Wood Energy**

Having opened in 1959, Pinetops Nurseries has established itself as a leading producer of pot lilies in the South West. Its new site at Efford, near Plymouth, has modern facilities including a 2.2ha glasshouse block.

The 999kW biomass boiler provides base heating for the facility, helping to maintain ideal growing conditions all year round. In the past the cost of heating the glass houses for the firm's autumn crop of poinsettias limited their profitability. The new boiler is expected to dramatically alter the economics of production.

Flower power: Pinetops Nurseries has chosen a 999kW Binder wood chip boiler to provide base heating for its new purpose built growing facilities

Harris Miller wins £0.5m Welsh contract

Harris Miller has continued its growth in Wales by completing the latest of its contracts worth over £0.5m, to supply Coleg Sir Gar with PV arrays at its campuses in Graig, Ammanford and Pibwrlwyd

The contract win comes after Harris Miller's completion of work at two schools for the City and County of Swansea local authority, plus the successful tendering to carry out electrical work at the £2.4m extension of Pentre r Graig primary school.

Harris Miller director, Karl Miller, said: "The project was large in nature, as after completing the initial work we were also awarded an additional contract for the Pibwrlyd campus. This allowed us to evidence our ability to simultaneously provide high quality installation work at three large project sites. In total we installed just under half a megawatt of PV in six weeks."

Green lessons: Coleg Sir Gar is reducing its carbon footprint with solar PV installed by Harris Miller as part of a £500,000 contract

£20m biomass joint venture agreed

Downing LLP has agreed terms to invest in a £20m pipeline of biomass installations with **Strand Energy**

Downing and Strand will form a joint venture - Strand Energy (Biomass) LLP - and will initially concentrate on containerised biomass heating installations above 100kW.

LLP will sell the heat to end users and claim the RHI, whilst long term maintenance of the projects will be handled by Strand Energy.

Michael Lucht, MD of Strand Energy, said: "We are happy to have the support of such a significant investment company as Downing and are looking forward to getting to work as soon as possible on installations that are good for our end users and contribute to our investment portfolio."

David Freeder, investment director at Downing LLP, said: "Biomass heat is an important part of the UK's energy mix. Despite the challenging regulatory environment, this investment agreement is a good example of how Downing is continuing to invest into energy infrastructure projects."

Money matters: Downing LLP will provide £20m capital for a joint venture with biomass installers Strand Energy, announces the former's investment director David Freeder

Figure it out

Generation tariffs for non PV technologies

Technology	Band (kW)	Tariffs (p/kWh)
Hydro	≤15	15.45
	>15-≤100	14.43
	>100-≤500	11.4
	>500-≤2000	8.91
	>2000-≤5000	2.43
Wind	≤1.5	13.73
	>1.5-≤15	13.73
	>15-≤100	13.73
	>100-≤500	10.85
	>500-≤1500	5.89
	>1500-≤5000	2.49

(Source: OFGEM)

Number of MCS registered installers per technology

Technology type	Cumulative number	Registered Oct 15
Solar PV	2428	32
Biomass	342	05
Air source heat pump	759	11
Ground source heat pump	582	07
Solar thermal	818	07
Small Wind	70	01
Total	2333	75

Number of MCS registered installations per technology

Technology type	Cumulative number	Installed Oct 15
Solar PV	784000	15901
Biomass	15015	118
Air source heat pump	41533	912
Ground source heat pump	11184	295
Solar thermal	8107	85
Small Wind	4927	04
Total	864766	17315

(Figures supplied by Gemserv)

Generation tariffs for Solar PV

Tariff band	FiT rate (p/kWh) from 01/01/16
<4kW	12.03
>4-10kW	10.90
>10-50kW	10.90
>50-150kW	9.29
>150-250kW	8.89
>250kW-500kW	5.73
Standalone	3.08
Export Tariff	4.85

*** Currently subject to consultation**

Domestic RHI tariffs

Technology	RHI rate (p/kWh)
ASHP	7.42
Biomass boilers	6.43
GSHP	19.1
Solar thermal	19.51

Green Deal*

Month	Assessments	Live GD Plans
Oct 15	7248	130
Total	614383	13225

Green Deal supply chain*

Month	Assessor organisations	Providers	Installers
Oct 15	-29	-4	-85
Total	308	176	1926

***The Green Deal Finance Company is now closed to new applications**

(Source: DECC)

Cost comparison of heating fuels (not including RHI payments)

Fuel source	kWh provided per unit of fuel	Efficiency of system (%)	Units consumed by house (kWh)	Price per unit of fuel (£)	Units consumed per annum	Cost per annum
Heating oil (kerosene)	10 per litre	90	25300	0.31 per litre	2530 litres	£784
Wood pellets	4800 per tonne	94	24300	256 per tonne	5 tonnes	£1,280
Natural gas	1 per kWh	90	25300	0.04 per kWh	25300 kWh	£1,012
LPG	6.6 per litre	90	25300	0.38 per litre	3833 litres	£1,457
Electricity	1 per kWh	100	23000	0.14 per kWh	23000 kWh	£3,220
*Air source heat pump	1 per kWh	290	7931	0.14 per kWh	7931kWh	£1,110
*Ground source heat pump	1 per kWh	360	6389	0.14 per kWh	6389kWh	£894
Dual mode system 1						
Oil boiler (30% of heat load)	10 per litre	90	7590	0.31 per litre	759 litres	£235
*Air source heat pump (70% of heat load)	1 per kWh	290	5552	0.14 per kWh	5552 kWh	£777
Dual mode system 2						
Gas boiler (30% of heat load)	1 per kWh	90	7590	0.04 per kWh	7590 kWh	£304
*Air source heat pump (70% of heat load)	1 per kWh	290	5552	0.14 per kWh	5552 kWh	£777

Based on 23,000kWh needed to meet typical household's heating and hot water needs per annum. Prices and costs are indicative only and may vary.
*Calculations based on continuous operation at maximum efficiency. Fuel costs taken from Nottingham Energy Partnership and other sources.

RHI non-domestic rates

Tariff name	Eligible technology	Eligible sizes	Tariff rate (pence/kWh)	Tariff duration
Small biomass	Solid biomass: Municipal solid waste (inc CHP)	Less than 200 kWth	Tier 1: 4.18 Tier 2: 1.11	20
Medium biomass	Solid biomass: Municipal solid waste (inc CHP)	200 kWth and above, less than 100 kWth	Tier 1: 5.18 Tier 2: 2.24	20
Large biomass	Solid biomass: Municipal solid waste (inc CHP)	1000 kWth and above	2.03	20
Small ground source	Ground source heat pumps, water-source heat pumps, deep geothermal	Less than 100 kWth	Tier 1: 8.84 Tier 2: 2.64	20
Large ground source	Ground source heat pumps, water-source heat pumps, deep geothermal	100 kWth and above	Tier 1: 8.84 Tier 2: 2.64	20
Solar thermal	Solar thermal	Less than 200 kWth	10.16	20
A2W heat pumps	ASHPs	All	2.54	20

(Source: OFGEM)

Domestic RHI deployment

Technology	Accreditations (Apr 14–Oct 15)	% of total
ASHP	18887	44
GSHP	6223	14
Biomass	10832	25
Solar thermal	7260	17
TOTAL	43202	100

(Source: DECC)

HEAT PUMPS

What: Air source replaces ground source at Northeast Eco Centre

How: 4 x 14kW Ecodan ASHPs in cascade

Result: Modern, efficient heating upgrade

When the Hebburn Eco Centre in Tyne & Wear needed to replace its 20-year-old ground source heating, its owners turned to a cascade ASHP system from Mitsubishi Electric.

Designed and built by Groundwork South Tyneside and Newcastle, the Eco Centre opened in 1996 to demonstrate renewable technologies and sustainable design. The two storey building provides tenancies for local start-up businesses in 16 offices to let.

It was built using reused bricks from a demolished factory, an aluminium roof re-smelted from old drinks cans, wood from farmed forests and woollen carpets. Electricity is generated onsite from a wind turbine and PV panels.

Oakes Energy worked with Minden Wood Consultants to specify four 14kW Ecodan ASHP units working in cascade, which would work with much of the existing infrastructure.

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.

"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 RHI, helping supplement the running costs for the next 20 years."

Looking up: The Hebburn Eco Centre, which houses local start up enterprises, turned to Ecodan ASHP technology to replace its ageing ground source system

PIPEWORK

What: 125 acre estate installs large polymer district heating network

How: 7km of RAUTHERMEX pipework

Result: Low heat losses

The newly-opened Soho Farmhouse 125 acre estate and members club in Great Tew, Oxfordshire features more than 7km of REHAU's RAUTHERMEX pre-insulated polymer pipework, in what is one of the largest polymer district heating networks in the UK.

The high performance pipe is being used to distribute heating and hot water supplies to 45 buildings around the estate including 32 luxury cabins for guests, seven bedroom farmhouse and mix of restaurants, bars, pool rooms and gyms.

Four Guntamatic PRO 249kW biomass boilers are supplemented by a 3MW LPG fired boiler acting as back up. There are also two 10,000 litre bespoke thermal stores.

Project installers Treco say it chose REHAU's RAUTHERMEX for the project because of the proven low heat losses from the pipework, which has a lambda value of 0.0216W/mK.

REHAU's business team manager for renewable energy products, Steve Richmond, said: "This is one the largest polymer only projects we've so far been involved with in the UK and it showcases many of the benefits of RAUTHERMEX on a large site with long trenches, a range of different pipe sizes and lots of insulated joints where there are spurs to the individual cabins.

"The proven low heat losses of the pipe are critical in the overall efficiency of the project and the availability of so many different pipe sizes has enabled us to work with Treco to design a scheme which has optimum efficiency."

Pipe dreams: Treco opted for REHAU RAUTHERMEX pipework due to low heat losses on one of the UK's largest district heating projects, in rural Oxfordshire

HEAT PUMPS

What: New housing development benefits from ASHPs

How: 29 x WPL15/25 from Stiebel Eltron

Result: £800 annual fuel bill savings per property

A luxury state-of-the-art housing development in Saham Toney, Norfolk, is to feature Stiebel Eltron heat pumps in each of its 29 new-build properties.

Each property at The Wildflowers is individually designed ranging in size from 200-400m². Stiebel Eltron and installer Doublequick specified the WPL 15/25 ASHP as the most suitable product for the new build homes as the compact product offered unobtrusive outdoor installation.

The components have been optimised to suit UK climatic conditions with a system COP of 4.0. The units are projected to deliver average savings of £800 per year per property compared to non-renewable heating sources.

Mark McManus, managing director of Stiebel Eltron UK, said: "This project is a perfect example of Stiebel Eltron's latest air source heat pump technology achieving exactly what it was designed to do, that is provide a highly effective, renewable heating solution tailored specifically for the UK residential market.

"We are very happy to have been referred on this project and are confident that our heat pump technology chimes in perfectly with the luxury ethos of The Wildflowers development."

Steven Double of Doublequick added: "I had no hesitation in recommending Stiebel Eltron's ASHP technology to our client, given the quality of the product and its exceptional efficiency. The compact outdoor installations we have been able to provide have ensured that we don't impact on the aesthetic appeal of The Wildflowers properties."

Luxury living: All 29 new build properties at Saham Toney, Norfolk, will include compact ASHPs from Stiebel Eltron

BIOMASS

What: Country manor hotel reduces carbon emissions

How: 180kW Windhager biomass cascade system and BioCABIN

Result: 180 tonne annual CO2 reduction

An 18th century country manor hotel located in rural Lancashire has turned to Windhager for a biomass solution.

Briars Hall Country House Hotel has 25 en-suite bedrooms and hosts weddings, conferences and other events.

To replace the existing 400kW heating system comprising several gas boilers, Biomass North East installed a purpose built Windhager BioCABIN, housing three Excel biomass boilers in cascade. The 180kW system comes complete with a 16 tonne capacity wood pellet hopper.

The Windhager BioCABIN was delivered onsite with the Excel boilers already set up inside, allowing the system to be connected within two weeks.

With a heat demand of 236,520 kWh per annum, the hotel will receive £359,510 under the commercial RHI over the next 20 years.

Mark Higham, the hotel's owner, said: "It is extremely important to us that we provide our guests with the best possible experience whilst they are staying away from home. A warm and comfortable environment all year round is essential and this is something that our new biomass system has allowed us to achieve.

"The boiler provides the hotel with constant, controllable heat and are not only reliable but also extremely affordable. We are saving an extraordinary amount of money and the positive impact on the environment is very rewarding."

Hot property: A 180kW cascade biomass system from Windhager is meeting the entire heating needs of the 25 bedroom Briars Hall Country House Hotel

Who are you?: Christopher Hill, UK sales manager for Logstor

What do you do?: Logstor is a manufacturer of pre-insulated pipe systems for district heating and cooling. Headquartered in Denmark, Logstor has subsidiaries in several European countries. The Group employs approximately 1,350 people.

In the pipeline: Danish-based Logstor is bringing Scandinavian knowhow in district heating to the UK, led by UK sales manager Christopher Hill

Turning up the heat

Monday
I am the UK-based representative for Logstor and whilst I get a huge amount of support from our head office in Denmark, my job requires me to wear a number of different hats – from client contact to technical expert!

Every Monday I start my day with a conference call with our transport department in Denmark – today I need to confirm transport and delivery accuracy for expected UK consignments. Next, it's a call to our customer service team based in Poland before confirming my meeting with a major energy company that I am meeting with later in the week.

Tuesday
I'm heading to London today for a meeting with a consortium of Danish organisations involved in district heating. It's a knowledge-sharing exercise and effective networking opportunity.

Logstor is a member of UKDEA (the UK District Energy Association) and DBDH (Denmark's leading district heating export organisation) and as well as working in an advisory capacity to aid with market planning for potential DH schemes - I am often asked to present at masterclasses to Local Authorities - promoting district heating and sharing Danish expertise and knowledge.

In the afternoon I'm meeting with an installation company to discuss district heating projects in London.

Wednesday
Still in London. I am making a presentation to a large energy company – all about Logstor's Value Propositions (which demonstrates our guarantee, encompassing everything from cost, product specification and best practice installation to transport and customer service support) - with a view to working together on a number of exciting local authority schemes across the UK.

Thursday
I'm in the office today, catching up on emails and working on a tender.

I had a call from Crown House Technologies earlier. We are working in partnership with them and RK Civils on the multi-million pound district heating scheme at Glasgow University. Logstor is the approved supplier for the project which involves installing in the region of five and a half kilometres of new pipework across the University's Gilmorehill campus. Using the latest Logstor district heating pipe work and combined heat and power technologies, the project will help the University reach its environmental target of a 20 percent reduction in carbon emissions. The current heating system is more than fifty-years-old and has reached the end of its life. The risk of regular system failures is high with the potential to disrupt teaching and research.

Friday
I travel to Logstor's HQ in Denmark on Sunday. I'm generally there once a month. The purpose of next week's trip is to attend an internal presentation for customer value management. It is an internal event and includes all Logstor subsidiaries. It's a great opportunity to meet with my colleagues from across our global network, and to discuss the number of exciting opportunities that exist for Logstor in the rapidly growing UK district heating market.

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