Renewable ENERGY INSTALLER

THE BUSINESS OF MICROGENERATION

SOLAR THERMAL SOLAR PV BIOMASS HEAT PUMPS WIND HYDRO November 2015

Solar fights back

– SEUK shows there is life after FiTs

A View to a Kill

My Bond-themed choice of headline this month may well coincide with the cinematic release of the spy's latest outing in *Spectre*, but it is for more prescient reasons I use such fatalist language. It could quite as easily have been *Licence to Kill* or *Live and Let Die* in light of the government's attempts to dismantle the solar industry.

As I write these notes, just days after the Feed-in Tariff consultation period formally closed, we are shortly to discover what fate will befall the PV sector once DECC issues its response. This will be swiftly followed by late November's Comprehensive Spending Review, which should decide the destiny of the RHI.

Many possible outcomes to the consultation have been mooted from a 4p/kWh residential tariff conceived by way of appeasement, late legal challenges stalling the introduction of cuts, to an all out withdrawal of subsidy by the New Year. Whatever comes to pass, we can be certain of a complete paradigm shift in the way we sell renewables, soon to be bereft of their profit-making motif.

Most commentators predict a rapid collapse in domestic PV deployment during 2016 well in excess of 50 percent. Commercial will be less affected, but affected all the same, whilst redundancies have already begun in earnest.

It was pleasing therefore to see the industry present a confident and united front at Solar Energy UK last month. Feelings amongst visitors were understandably mixed, but most were enthusiastic at the prospective end of Treasury-driven interference or politicking once subsidies are gone. The seminars were full of alternative ways to make money in the installation market and new techniques for selling.

International manufacturers gave a useful pan-European perspective where similar changes have already been enacted and national markets have successfully transitioned away from subsidy. For a full show review please turn to page 7.

Contents

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"Installers must make a fundamental shift away from simply saying that PV will make their customers a profit" Jerry Hamilton, Rexel p9

HHIC propose MCS alternative

The Heating and Hotwater Industry Council (HHIC) is developing a Renewable Installer Accreditation Scheme as an affordable alternative to MCS.

The initiative is to be based on Competent Persons Scheme framework with Trustmark delivering the consumer protection element, ensuring that a quality service to provided to end users.

According to the scheme's partner organisations, which include BEAMA and Worcester, Bosch, an alternative is needed to MCS accreditation which is bureaucratic and expensive to installers.

They add that an open market would not only give installers greater choice in gaining accreditation, which thus far has been limited to MCS to enable end users to access FiT and RHI subsidies, but could encourage MCS to make the requisite changes to the way it operates.

"As far as MCS is concerned, we have almost forgotten who the customer is. The government thinks it's the homeowner, but our number one customer is different – it is the supply chain and installers who are the decision makers," said Neil Schofield, Worcester, Bosch's head of governmental and external affairs.

"MCS has got in the way of business by being onerous. We need a scheme that protects customers but MCS has been hard work. We need to shake up the argument and ask if there is a better way of doing this."

Isaac Occhipinti, head of external affairs at HHIC, added: "This idea came about from conversations with our members. We want people to feedback their thoughts to us.

"Competition is always good for the market but, if as a minimum it persuades MCS to make changes, then we think it is a good idea."

Further details of the scheme are available at: **http://www.eua.org.uk/**

Top prize: L-R Mark Antrobus (BPEC Trustee), Watson Carlill (BPEC Trustee), Stephanie Moore and Emily Gait (Pump Aid), George Thomson (BPEC Trustee)

Pump Aid scoops Charity Life Award

£41,525 has been given in charitable donations by BPEC at its fourth annual Charity Life Award.

The successful projects aim to use plumbing skills to enhance the lives of those less fortunate in the UK and abroad.

Over 100 members of the plumbing and heating industries gathered at Derbyshire County Cricket Club on Friday 16 October to see three awards made by the BPEC charity, with a further three receiving money from the BPEC legacy fund.

Emily Gait and Stephanie Moore from Pump Aid were presented with a cheque for £15,000 to build 10 new elephant water pumps across rural communities in Malawi, whilst Township plumber trainer programme in South Africa was given £9,100 to train local people in basic plumbing skills.

£8,550 was awarded to Friends of Sawbridgeworth Neurological Centres to purchase two specialised shower chairs to give residents a comfortable and dignified means of using bathroom facilities.

BPEC chairman, Frank Glover, said: "2015 has been another brilliant Life Award event; the panel of Trustees have been truly inspired by the submissions that have been received this year.

"The Life Award continues to have an inspirational effect on everyone connected with the projects and is changing perspectives and attitudes in a really positive way. The experience the plumbers gain by being involved in the projects is immeasurable and helps to develop their skills to operate in today's competitive marketplace."

The closing date for applications for the 2016 BPEC Life Award in June 30 2016. To find out more about submitting entries visit: **www.bpec.org.uk/the-bpec-charity**

Events

Greenbuild Expo
10-11 Nov Manchester Central
http://www.greenbuildexpo.co.uk

Solar UK Conference 20GW by 2020
12 Nov BRE Headquarters, Watford
http://www.solar-uk-conference.co.uk/2015/index.php

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

Woodsure goes public

The Woodsure quality assurance scheme has been launched to the public to protect homeowners and businesses from burning poor quality woodfuel.

Woodsure estimates that a quarter of all woodfuel used by UK consumers fails to meet quality standards at a time when demand is increasing by 5,000 tonnes a week.

Certified by HETAS, Woodsure certification aims to show users that they are using suppliers and products they can trust. Over 200 woodfuel suppliers are currently Woodsure certified and meet international and European standards.

"Without quality woodfuel, biomass as a carbon neutral energy source simple doesn't work," said Andrew Harvey, Woodsure director.

"Poor quality fuel is the source of inefficiency and environmental issues. Woodsure will play a key role in meeting carbon reduction targets."

Helen Bentley Fox, Woodsure manager, added: "The launch is part of a wider campaign to get people to think about where their woodfuel comes from. We want consumers to look for the Woodsure logo on the products they buy and always buy it from a trusted Woodsure certified supplier."

REA seeks policy clarity following Hinkley nuclear deal

The Renewable Energy Association is asking the government to clarify its energy strategy following an agreement between the UK and Chinese governments to build a nuclear reactor at Hinkley Point in Somerset

The multi-billion pound deal, signed during Chinese president Xi Jinping's state visit to the UK last month, comes at a time of turmoil in the renewables industry driven by proposed changes to key subsidies.

The REA say they are struggling to see the larger joined up vision of a national energy strategy when the taxpayer is being asked to pay a strike price of £92.50/MW to support Hinkley for the next 35 years, at a time when spending on renewables is being cut.

Dr Nina Skorupska, chief executive of the REA, said: "The REA welcomes the government's continued commitment to low carbon energy production, but urges them to reveal the overall energy strategy. The industry and the public are concerned and unclear about the future of renewables, many of which are roaring towards the point in which they need no subsidy at all.

"The REA is interested to understand the government's vision for decentralised energy production in the UK, which allows communities, homeowners and businesses to directly take a stake in their energy future."

EU to exceed carbon reduction targets, says EEA

The European Union is on track towards beating its 2020 greenhouse gas emissions reduction target, according to a report published by the European Environment Agency.

The 'Trends and projections in Europe 2015' report indicates that greenhouse gas emissions in Europe decreased by 23 percent between 1990 and 2014 – three percent more than the level mandated for by EU legislation.

The EU is already working towards its 2030 goal of cutting emissions by 40 percent, which is the EU's contribution towards the new global climate change negotiations in Paris next month.

EU commissioner for climate action and energy, Miguel Arias Canete, said: "These results speak for themselves: Europe succeeded in cutting emissions by 23 percent while the economy grew by 46 percent over the same period.

"This is a strong signal ahead of the Paris climate conference that Europe stands by its commitments and that our climate and energy policies work."

UK trails Europe in PV WEEE compliance

Following the inclusion of PV modules in national Waste Electrical and Electronic Equipment (WEEE) legislation in February 2014, the UK and Netherlands currently lag behind other European nations in legal compliance

WEEE law regulates the waste management of PV modules and allied electrical equipment including inverters at the end of their lifecycle. However, the number of PV manufacturers and importers in Italy and France meeting WEEE standards is estimated at 80 percent, compared to just 10-50 percent in the UK and Holland.

Waste management scheme PV CYCLE has expressed concern that nearly two years since the introduction of new laws, large parts of the market are still not meeting their legal and business obligations. In 2014 alone, 2.7GW of capacity installed across Europe is believed to be non-compliant.

"Non-compliant companies burden both competitors as well as customers with additional costs," said Jan Clyncke, managing director of PV CYCLE.

"A level playing field is hence key to PV companies in the EU. But most importantly, failure to comply with national WEEE obligations is ultimately a criminal offence."

Triple whammy: Importers and manufacturers of PV products which are non WEEE compliant risk fines, prosecution and negative publicity, says PV CYCLE

Photocredit © PV CYCLE

SEUK review

From 13-15 October, Solar Energy UK 2015 defied expectations as thousands of visitors descended on Birmingham's NEC for the show's sixth annual outing

With over 200 exhibitors on the showfloor, installers and other PV professionals arrived eager for information as businesses attempt to plot a course through the 87 percent Feed-in Tariff reductions looming on the horizon, but still subject to consultation at the time of going to print.

Large visitor numbers appeared to contradict early fears that the life had gone out of the PV market, amid high profile exits from Mark Group, Climate Energy and Southern Solar.

The show will return next year as part of Clean Energy Live 2016.

REI spoke to a selection of exhibitors to gauge feeling from global suppliers and manufacturers.

Daniel Roca, senior business developer, Panasonic:
"Volumes may well go down in the UK, but we want to play the long game. Installers will need to make adjustments to their sales pitches and we will continue evolving our product portfolio.

"Obviously some in the audience are a little depressed, but installers are installing lots at the moment in the rush to beat the deadline. Most visitors here are proactive and looking for solutions such as storage and what else can be earned."

Luc Grare, senior VP sales and marketing, REC:
"Last year was a little more busy, which isn't surprising considering the FiTs announcement. The UK market could drop by 50 percent, and many people here are concerned.

"We saw exactly the same happen in Germany, and as long as providers are involved in residential, commercial and large scale utility then they will recover.

"The UK still needs to build 2.5-2.8GW to meet 2020 targets, and we have the Paris climate change conference around the corner so I cannot see all support for PV ending."

Peter van Berkel, general manager EMEA, Enphase
"We have a tough period ahead of us in the UK but we as a company are not just here for the next 12 months.

"Without the FiT, the focus will be on self-consumption, which is exactly where we have our play as an energy solutions management provider. This is the silver lining of a dark cloud but doesn't take away that the market will be smaller next year.

"The characteristics of the new marketplace suit Enphase and the focus on batteries and storage. But storage is just a component of a wider energy management system and we believe our solution is what the market is needing."

New opportunities: Energy storage applications featured highly this year with its own section of the floorplan and dedicated seminar theatre

Popular demand: The Solar Business Theatre drew the largest crowds as visitors ask what's next for UK solar?

In attendance: 3,413 unique visitors came through the doors, beating all previous show figures

DAIKIN

The natural fit: all-in-one

Welcome to the new Daikin Altherma Monobloc

The new Daikin Altherma Monobloc air-to-water heat pump is a natural fit for your business. Now lighter, smaller, with less wiring and only water connections to the outdoor unit, it promises fuss-free installation – whether you're taking your first steps in renewables or already an expert.

Your customers will love it too, because it's the most compact all-in-one heat pump – perfect for homes where space is tight – yet super-efficient and constantly reliable, with a user-friendly controller and an optional back up heater for total peace of mind.

Easy to sell, fit, set-up and service, it's the heat pump you've been waiting for – all-in-one.

Find out more on www.daikin.co.uk

Life after FiTs

PV installers willing to diversify into complimentary products have no need to fear possible cuts to the Feed-in Tariff, was the message at SEUK from **Jerry Hamilton**, director of renewables and energy solutions at Rexel

Speaking to a large audience during a panel debate, Jerry said that installers facing a fall in demand for PV in 2016 should take more interest in their customers' overall energy consumption, to profit from the changing business landscape.

Both storage and smart controls were areas potentially lucrative to PV installers prepared to upskill and embrace emerging technologies, he concluded.

"We are in a position to help people use less energy and reduce costs, and we must make the most of this. Installers must make the fundamental shift away from simply saying that PV is going to make customers a profit.

"All the homes you've fitted PV in and not fitted a smart meter is a missed opportunity. If you can't engage with an App on a smartphone, it is a missed opportunity. If you do not embrace these gadgets, someone else will and you've missed an opportunity."

He added: "The cost of batteries will drop by as much as 80 percent in the next five years according to one manufacturer, and we as an industry must start fitting them now to get the costs down.

"We are likely to have peak demand problems with electricity generation in the near future making storage the absolute solution.

"So don't miss the opportunities to train and fit storage before the boom to get ahead of the curve."

Branching out: PV installers diversifying into storage or smart controls will survive next year's fall in PV demand, should Feed-in Tariff cuts go ahead, argues Rexel's Jerry Hamilton

Solar Power Portal Awards winners

Solar Power Portal has announced the winners of its annual awards, held on Tuesday 13 October at The Vox, Birmingham NEC

The awards were hosted by environmental author and radio presenter Leo Johnson, brother of London Mayor Boris. The winners were as follows:

Best community benefit
Joju Solar and Low Carbon Hub

PV Tech award for best international use of solar
Backwoods Solar
Highly commended: Gran Solar

Best rooftop project 250kW+
SBC Renewables

Best rooftop project <250kW, sponsored by Schneider Electric:
Advanced Renewable Power
Highly commended: Joju Solar

Best use of solar in a CSR project
BUPA

Clean Energy News award for best integrated renewables system
Solar Kingdom

Best ground-mount project over 5MW
Solstice Renewables

Best solar finance innovation
Big60Million

Best industry innovation
SolarEdge

Installation company of the year, sponsored by Rexel Energy Solutions
Solarsense
Highly commended: Joju Solar

Apprentice of the year
Victoria Omobuwajo, Repowering London

Solar Power Portal outstanding achievement award
Jeremy Leggett

Energy related Products (ErP) Directive (2009/125/EC)

A reminder from MCS that the Energy related Products Directive (ErP) came into force on September 26 2015, and affects all heating and hot water products with a heating output <400kW

The ErP is comprised of two Directives: Ecodesign and Energy Labelling. Ecodesign sets a minimum energy performance and environment criteria for energy related products, and Energy Labelling requires that products display a label showing the product's efficiency band (between A+++ to G). Energy labels are also required for a complete installed system. Heat pump installers are responsible for providing the package label that will display performance data when installing a package of heat pump, temperature control and solar device. The European Commission has produced an online Energy Label generator that can be found online at http://eepf-energylabelgenerator.eu/.

In preparation for the new rules, MCS has updated the scheme heat pump standards: MIS 3005, MCS 007 and MCS 021 to align with ErP. The new requirements stipulate that any heating and hot water products placed on the market from September 26 2015 must be ErP compliant. However, MCS has stipulated that any MCS heat pump product commissioned on or after March 26 2016 must be ErP compliant, allowing a six month grace period for any non ErP compliant heat pump products to be installed and commissioned.

It is important to note that, whilst non ErP compliant heat pumps may be sold, provided they were placed on the market before September 26 2015, non ErP compliant heat pumps installed after March 26 2016 will not be eligible for MCS Certification or the Renewable Heat Incentive (RHI) support.

Some heat pump manufacturers are providing ErP guidance and training to installers that use their products, so if you are unsure about what you will need to do when ErP comes into force, manufacturers may be able to provide this additional guidance.

If a heat pump is MCS Certified before September 26, MCS Contractors are allowed to use the SPF value from the HEG (MCS 021 V2.0) up until March 25 2016. From 26th March 2016, MCS Contractors will be required to comply with MIS 3005 Issue 4.3, calculating product specific SPFs using either the Seasonal Co-efficient of Performance (SCOP) for electrically driven heat pumps and Seasonal Prime Energy Ratio (SPER) for gas absorption heat pumps.

If a customer is looking at investing in a heat pump or in the process of getting a heat pump installed that is currently on the MCS website, then make sure it will be installed and commissioned before March 25 2016 as any product that does not meet the new MCS standards will be removed on March 26 2016 and they would no longer be able to claim the RHI.

Pollard's Patter

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

It's been difficult to detect a note of optimism in the world of renewables after the recent and anticipated announcements. There will certainly be some challenging times ahead. However, I was fascinated to read some comments made by representatives of the National Grid which were published recently. One of the statements which caught my eye stated that '…energy from the Sun was expected to be one of the most cost-effective ways to power homes within 18 months.'

This is a BIG statement in every sense especially when coupled with the follow-up comment that 'Grid parity is the average cost of generation on the network and solar could be there in 18 to 24 months…' If government is looking to judge on the efficacy of the Feed-in Tariff scheme then it need look no further. This situation has become possible because of the economies of scale driven by uptake. In addition, we have reached the situation where there is an army of advocates for PV in our cities, towns and villages. We have householders who are happy to share their experiences and satisfaction with their systems. We have actual performance figures in real everyday situations. Of course this applies equally to renewable heating systems and the RHI but we are much earlier in the cycle.

It seems to me that any measures which allow hard-working families to protect themselves from rising energy costs and build in resilience would be something to be encouraged with enthusiasm and commitment.

"It's time to come together and spread the message that heat pumps hold the key to an energy-secure UK" Phil Hurley, NIBE p23

Two minutes with . . .

Who are you?
Jill Oldham, managing director of Hero Renewables

What do you do?
I run the best renewable energy company in the country. We specialise in heat pumps, biomass and solar.

Where are you?
I'm standing outside our brand new head office in Middlewich, Cheshire. We have just opened our fabulous new showroom where we welcome the general public to visit us to learn about our renewable technologies.

How's business at the moment?
Business is booming, word of mouth has become a major part of our business strategy, derived from our excellent customer service and professional installations up and down the country.

How could business be better?
The answer is obvious; the government needs to stop holding back on the renewable energy industry and start educating the UK instead of putting financial factors first. It's their job to reduce the UK's carbon footprint and protect the future for our children, at the moment they are failing us.

Who do you admire in renewables?
I admire my own team as they have such fantastic knowledge and their passion for renewables is second to none.

What's the best business advice you've ever received?
Always plan ahead, if you fail to plan you plan to fail. Listen to your clients, without them you do not have a business – this is the reason why customers return to Hero Renewables.

Q&A

Raj Sidhu

GoodWe

REI: What have you got planned for 2016?
RS: We are very excited about next year; the Year of Energy Storage as we like to refer to 2016 within the business. GoodWe has recently announced a strategic partnership with BYD, one of the world's largest suppliers of rechargeable batteries. This, in conjunction with our retrofit inverter unit GW2500, will transform the domestic market in the UK. In layman's terms, it means that every single one of the 600,000 houses in the UK that has solar panels can store the energy they generate in a cost-effective way and without having to replace their existing inverters.

What is top of your wishlist from the government?
Well, unsurprisingly, we would like them to re-think their strategy and delay the adoption of the recently announced DECC recommendations on the FiT cuts. However, everyone knows in the industry that FiT incentives have an expiry date, so the market will consolidate and evolve again with installers moving to commercial PV installations, whilst offering energy storage to their domestic customers.

How is your company cutting its carbon footprint?
At GoodWe, we are very proud of our green credentials. Our state of the art manufacturing facility and R&D centre in Suzhou, China has a roof-mounted 20kW PV system used mainly for testing purposes. We also recycle all waste and in the rare occasion where a faulty inverter is identified and returned by a customer, we recycle over 70 percent of its components, returning all the non-conforming components back to our suppliers.

Raj Sidhu is managing director of GoodWe UK

TECH TALKING

Will heat pump numbers meet 2030 predictions?

Heat pump specialist **Bob Long** examines the likelihood of reaching the milestone target of nearly seven million heat pumps in the UK by 2030

When the solar industry received a kick-start by way of the Feed-in Tariff, the prospect of profiting from renewable technology captured widespread attention. Market response to the high value subsidy was vibrant and rapid growth occurred.

Seeing the dynamic success of many companies in the solar market, many of us hoped the heat pump market would have been a similar success. It is difficult to understand why the heat pump industry did not receive sufficient support to create a similar result.

Unlike wind turbines or PV, the heat pump is one of the few predictable sources of renewable energy, and therefore should be valued on a much higher level than other unpredictable and intermittent renewable sources.

In 2012, I placed a lot of faith in the content of two reports that I came across. One was compiled by Acuity Consulting, a copy of which can easily be found online by searching the phrase '6.8 million heat pumps by 2030'. Another forecast published by the National Grid appeared online at the same time telling a similar story, and quoting a similar number of heat pumps to be installed by 2030.

It all makes interesting reading, but it also seems clear that we are currently not reaching the anticipated figures, by a long way. In last month's issue we looked at reasons for slow growth of the heat pump market and concluded that low SPFs and low RHI payments are the main obstacles – or are they?

If we believe the 6.8 million heat pump forecast from two credible sources, installations would need to total no less than 450,000 units per year to hit the target by 2030.

The enormity of the numbers raises yet another concern, and possibly the single most tangible reason for holding back the growth rate of our industry. Can we actually generate enough power here in the UK to support these numbers?

To give this issue some perspective, assume a heat pump of 12kW thermal output, apply a performance factor of 3:1 and assume the input energy would be close to 4kW. This figure, multiplied by the total number of heat pumps accruing at 450,000 per year, equals the extra energy required.

Although this collective total load is based upon all heat pump units running simultaneously, the probability is extremely high. Similarities in weather patterns across national regions will increase the coincidence of units running simultaneously. The total energy required to power 450,000 heat pumps would be 1.8GW. Electrical demand, increasing by 1.8GW each year for the next 15 years, will total 27GW by 2030.

This would mean increasing our current energy production capacity by at least 27GW, before 2030 arrives. Our current average energy usage for UK varies around 35/45GW, and peaks occasionally at around 50GW. The anticipated number of heat pumps will almost double the amount of electrical energy used in the UK today.

So, if the RHI payment could be increased in value, will our electrical grid be able to keep up with the higher demand from more installations?

The low level of support has disappointed many, particularly when heat pump technology has a unique place within the scope of renewables.

Common sense would suggest there should be greater rewards for predictable energy than unpredictable.

In the low carbon world we want to create, the heat pump is the only economical electrically powered heating system, and must eventually become the preferred option. The question is when?

Changes to government schemes in the renewables sector

Gordon Moran, writing for the European Energy Centre (EEC), explores alternative avenues available in light of changes to renewable energy schemes by the UK government

There has been a great deal of press recently about changes to levels of support for renewable energy with early closure of some subsidy programmes and reductions in others. Whilst this has meant reductions in support for certain schemes and types of technology, the effect has been varied across the renewable sector as a whole.

The main changes will be an early closure in the subsidy for onshore wind farms, reduction in level of support for solar PV installations and removing guaranteed levels of support for biomass. Whilst these proposals are now government policy, legal challenges may well alter these plans. In addition to this, the devolved parliament, assemblies and local governments across the UK have decision making abilities that can affect renewables policy on a regional level. For example, the Scottish Parliament has pledged to honour solar panel contracts' 'grandfather' clause, providing support that may not be available from the UK government in future. Such actions may pave the way for the Welsh or Northern Irish assemblies or local government throughout the UK to introduce their own schemes, opening up new avenues of funding.

Community energy initiatives and the renewable heat incentive schemes also still remain in place alongside energy efficiency measures such as the Affordable Warmth Obligation. Other technologies with significant growth potential are also receiving consistent levels of government support with subsidies remaining for offshore wind, and wave and tidal power continuing to receive investment.

To learn more about renewable energy and energy efficiency through learning courses visit: **www.EUenergycentre.org**

Talking point

Liz MacFarlane, Zenex Solar, takes stock of the atmosphere at last month's Solar Energy UK exhibition

The Zenex exhibition stand is always a vibrant feature of Solar Energy UK, but this year we attended with trepidation given the uncertainty created by DECC announcing their consultation around potential FiT cuts.

I guess by the time this article is published we will know the results, and if the government has listened to industry lobbying. Whatever the news, it's irrelevant to the 1,000-or-so former employees of Mark Group who were made redundant in mid-October because of the ensuing loss of confidence in the UK market. No wonder the energy secretary chose not to accept her invitation to attend SEUK or to give airtime to the solar installer who was in the audience during her stint on Question Time.

As the world shook its head at the way the UK government is trouncing our renewables market, I realised I needn't have been nervous about exhibiting at SEUK. The expo was buzzing with entrepreneurial spirit and even a few new market entrants. Battery storage was high on the agenda and business leaders were planning their route in to 2016, through an expected quiet first-part of the year and then onwards in to a more stable, if much smaller PV market. Diversification seems to be the name of the game.

Our parent company Segen have agreed several relationships for diverse UK supply next year. We are working with key PV and battery storage manufacturers, including Tesla StorEdge Powerwall, to form a core part of our continuing UK business and expansion in to other worldwide markets.

Female installer calls for more women in heating

HETAS approved installer Jane van Dijk has a gained such a great sense of achievement and job satisfaction through training to become a qualified installer, she feels the benefits for females working in the male-dominated heating industry should be more widely known

Jane, the company Director of Bury St Edmunds-based retailer Opulence, became a fully qualified installer in 2006. Prior to gaining her qualification, Jane sold fires and fireplaces then decided to become a HETAS qualified installer as the demand for wood burning stoves grew.

It should be widely known that women can forge a great career in the heating industry

She says: "I sat my exam with SureFire at their Peak District offices and completed a H003 refresher course at Specflue in Sudbury, Suffolk. I've found having the HETAS accreditation to be invaluable. Now, when I am advising customers about an installation I know exactly what is involved. I was surprised at how few women there are who are installers and feel it should be widely known that women can forge a great career in the heating industry as there are plenty of opportunities for them. Although you don't necessarily get preferential support because you're a female, I think it definitely helps you to stand out if you doing a good job."

Opulence Stoves were first established in 2004 and specialise in the supply and installation of stoves.

Jane adds: "We provide a supply only service or the complete service with stove installation including building work. With the complete service you can expect to receive a free home survey, which I usually carry out, to assess whether you will need to make any alterations and what size and type of stove you will require. These are important factors which need to be considered before you select a stove. Following this, our HETAS qualified installers will then install the stove you select; thus, providing the complete service from start to finish."

At present Jane has four teams of installers installing multifuel and wood burning stoves throughout East Anglia, concentrating on Bury St Edmunds, Cambridge, Newmarket, Diss, Beccles and all outlying areas in between. Apart from the general running of the business, Jane likes to carry out home surveys to give advice on stove size, flue requirements and building work that may be required to install a stove.

"Our main aim as HETAS registered wood burner stove installers is to provide top quality service which puts safety first and gives each customer a personalised and professional service," says Jane.

The moment when the customer sees their vision become reality is something quite special

"I love meeting the customers and surveying their house as each house is different and comes with its own requirements. We sell a mixture of traditional, contemporary and tall cylindrical stoves which are becoming more popular. It is interesting for me to see how each region appears to have its own preference for a style of stove as each house is different and comes with its own requirements depending on whether it's a modern home or a more traditional cottage. There is no such thing as a typical customer, it seems everyone wants to fit a wood burning stove and fortunately we can help as we have options for all budgets. I love seeing an installation through from start to finish. The moment when the customer sees their vision become reality is something quite special."

For more information on becoming a HETAS qualified installer, contact HETAS on 01684 278170 or visit hetas.co.uk

CURRENT AFFAIRS

Bill Wright, head of energy solutions at The Electrical Contractors' Association, finds a glimmer of hope from the Treasury amid deep spending cuts on renewables

George Orwell's term 'doublespeak' – where you say one thing and mean the opposite – appears have been adopted by the government. On the one hand Amber Rudd has announced plans to cut all subsidies available for renewables and on the other the Treasury is looking to create an enhanced role for ESOS.

At the start of October, Ms Rudd announced major cuts to FiTs and claimed that by doing so she is encouraging the industry to stand on its own two feet.

Sadly that isn't the case. Incentives are still crucial in getting consumers to invest in microgeneration technology and cutting them looks likely to kill the domestic market for new solar PV. The commercial market won't be so affected but it will depend on firms having enlightened attitudes to the technology and being able to look beyond the cost of the initial investment. Even more worryingly, the sudden, drastic cuts proposed to FiTs will mean there will be serious job losses, and the investment the government has made in training and building an infrastructure for this industry will disappear.

But all is not entirely lost. A consultation published by the Treasury at the start of October proposed reforming the Business Energy Efficiency Tax, and suggested that all the various data reporting regulations were consolidated into one area. Better yet, it plans to put ESOS at the heart of any new incentives on energy efficiency, which is good news as it has suffered as a stand-alone programme and will benefit from being part of a wider energy efficiency initiative.

Mounting muck-ups

Steve Pester, BRE, exposes ongoing poor practice in mounting PV panels

With the government's final decision on changes to support mechanisms for solar not yet announced, I am inclined to steer clear of crystal ball gazing (however tempting). To use a heating analogy, let's just hope for a slight turning down of the thermostat rather than a scrapping of the whole heating system.

So, I will take refuge in a techie subject, and a different kind of solar support. On our travels over the past couple of years, providing quality inspections and fault-finding services, we have seen quite a number of roof-mounted PV installations that have panels incorrectly mounted. The usual problems are:

- Unevenness in the alignment of panels
- Incorrect positioning of mounting clamps
- Clamp screws with incorrect or random torque settings
- Mounting rails too short or too long
- Panels too close to roof edges
- Tiles lifted by roof hooks
- Insufficient roof hooks for the calculated wind loading
- Split rafters through ignoring screw diameter / timber thickness rules, or misaligned screws

Then there are design decisions that have been left to chance, for example:

- No wind loading calculations, so the number of roof hooks required is just guesswork
- No effective assessment of roof structures

With the FiT rush that is now under way, it is easy to let installation quality slip in favour of maximising installed capacity. But with the solar industry still fighting to be taken seriously by the powers that be, it is essential to be seen as a capable and highly professional sector. Let's keep a focus on quality – and avoid return trips to site!

Sailing in the wind

Pairing remote monitoring with automatic lubrication is a powerful combination for operators of smaller wind farms, explains **Tim Veal**, lubrication systems business manager for SKF

Although sophisticated lubrication systems for wind turbines have typically been associated with larger turbines – 1.5MW and above – they are increasingly found on smaller turbines, helping to extend operating life and reduce maintenance costs.

The need to reduce overall operating costs can potentially be an important factor in purchasing decisions, especially in the light of the planned withdrawal of the Renewables Obligation for onshore wind energy in 2016. It should also be noted that manual lubrication costs can account for up to 10 percent of the total servicing bill. These factors can make the specification of an automatic lubrication system, either on a new turbine or as a retrofit, an increasingly attractive option.

A larger wind turbine will typically have up to five lubrication systems, covering pitch bearings and gears, yaw bearings and gears, main bearings, gearboxes and generators. Each of these systems will be subject to different stresses and will therefore have different lubrication requirements.

Manual lubrication can be costly, time consuming, and prone to errors and safety issues

The same stresses and demands are placed on turbines used in industrial, commercial and larger scale, multi-home residential installations. Unlike high MW systems where automatic lubrication systems are normally fitted as standard, smaller and older turbines generally depend on regular manual lubrication. This can be costly, time consuming, and prone to errors and safety issues, with lubrication points often being hard to access, requiring the turbine to be taken off-grid while work is carried out.

Automatic lubrication systems eliminate these problems, by delivering precisely metered doses of lubricants only when and where they are needed.

The basic type of automated lubrication device is a single point gas-driven or electro-mechanical lubricator. Although this offers a simple, easy to change solution, its life is normally limited to around twelve months.

A more effective option is a single-line system, combining a refillable reservoir, pump and metering valves, feeding multiple lubrication points through a network of pipes. Lubricants are applied in pre-determined volumes and time intervals by each valve. A refinement of this system is continuous lubrication, with lubricant being progressively applied to all lubrication points while the main pump is running. Each arrangement has the advantage of being simple to install and setup, with only occasional manual intervention to refill the reservoir as part of a normal maintenance routine.

The devices described above are total loss lubrication systems. An alternative is to install a circulating oil unit where lubricant is fed back through the return line into the oil reservoir for reuse, after it passes through each lubrication point.

Whichever lubrication system is chosen, there is now the option to add remote monitoring and diagnostics technology. This can be linked to wider turbine monitoring systems, providing a comprehensive picture in real time of actual operating conditions, while allowing service engineers to use trend data to adjust the frequency and volume with which lubricants are applied.

While such a system can be operated by wind farm technicians, it can also be managed by experts in remote diagnostics centres. Fitting such a system to an already damaged turbine helped one UK wind farm operator delay the replacement of a gearbox by a full year, simply by monitoring the damage pattern and predicting wear rates. This postponed maintenance until it was actually needed, extending operating life and reducing costs.

Blades of glory: With operating costs an increasingly important consideration for wind developers facing the withdrawal of ROCS, automatic lubrication is a sound way to lower overheads, says Tim Veal of SKF

Automatic lubrication is being adopted as standard by many turbine manufacturers as it can lead to significant improvements in operational reliability and efficiency. Being relatively low cost, it can provide a quick return on investment by increasing the availability of each turbine, extending maintenance intervals and preventing unforeseen mechanical failure.

Automatic lubrication is being adopted as standard by many turbine manufacturers

Get ready for growth

Approximately 60 percent of businesses expect their need for highly skilled staff to grow exponentially in the coming years. **Nancy Jonsson**, commercial director for domestic heating and renewables at Daikin UK, considers innovative approaches to the skills shortage in renewables such as using member loyalty schemes to encourage professional development

To actively encourage and support the ongoing growth of the renewable heating sector, crucial knowledge and understanding of the individuals who work within it is needed, including what they want and need to grow their own businesses.

Therefore, before opening the Daikin UK national training centre in Woking, Surrey, Daikin UK undertook research into the UK installer profile, to better understand the desire for training and the best channels of communication between manufacturers and installers.

KEY findings

With respondents aged from 18 to over 50, the results showed that a majority of installers currently working with renewable heating technologies such as heat pumps, are less than 40 years old.

When considering what they would value most from a manufacturer, free or discounted training was the most frequent wish list item. Following this, discounts or cash back on purchases as well as help to become an accredited installer were all in demand. Finally, personal rewards such as branded merchandise as well as specific business advantages like extended warranties were also highly rated.

When considering the best channels of communication, an age/technology divide was expected. However, this was not the case. The smartphone was found to be the preferred communication device by more than 94 percent of installers regardless of age, showing that installers need mobile friendly technology to allow them to do business both on site and in out-of-office hours.

In many sectors such as hospitality and retail, member loyalty schemes are well accepted – rewarding customers for their purchases with branded merchandise or points to spend in store.

A recent report by Technology Advice identified that over 80 per cent of people are more likely to purchase if they are offered a loyalty programme. Further findings found that 59 per cent of people would prefer to join a scheme that is supported by a smartphone app.

With this kind of research, renewables manufacturers are better able to better understand what their customers are looking for in terms of training, rewards and tools.

Unlocking potential

Based around these findings, Daikin UK created The KEY Installer scheme, a comprehensive appealing loyalty programme for both experienced heat pump installers and those looking to enter the renewables market.

As a stair-casing scheme with three tiers, members are eligible for free product training, discounts towards MCS accreditation whilst being rewarded for their continued loyalty and custom. For example, KEY Partners are the highest member level and are offered preferential business rewards; five year parts and labour householder warranty and exclusive marketing hospitality opportunities such as access to the Daikin technology centre.

Closing the gap: Nancy Jonsson, Daikin UK, says the company's new installer loyalty scheme will go a long way in tackling the skills shortage in renewable heating

Drawing on the research surrounding the best communication channels between installers and manufacturers, and the desire for mobile apps, the free KEY Installer smartphone app was launched alongside the scheme, providing a barcode scanner for on-the-go warranty registrations. This not only delivers an easy way to complete warranty registrations on site, the app also means installers are rewarded for purchases via merchants.

Daikin KEY is just one example of an innovative approach in which manufacturers are supporting installers and tackling an industry-wide skills shortage issue. Forward thinking renewables manufacturers that continue to aid the growth of installer companies by offering a platform to develop their business will consequently help to grow the renewable heating sector in the UK and ultimately help meet European Union carbon emission reduction goals.

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- LED lamp replacement
- Wireless internet thermostats and heating controllers
- Wireless thermostatic radiator valves
- Voltage optimisation
- Heat recovery units
- Power diverters

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- Air Source Heat pumps
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- Voltage optimisation
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Maximising heat pump performance

Jason Hobson, managing director of Gledhill, discusses the importance of specifying the correct cylinder to maximise heat pump performance

As householders look for long-term solutions to rising energy costs, many in the industry hoped that the RHI scheme would give the renewables market a much-needed boost.

While there is no conclusive evidence that the RHI has led to a rise in new accreditations, recent Ofgem figures do indicate that the use of heat pumps in retrofit installations is becoming increasingly popular.

Air and ground source heat pumps combined accounted for 35 per cent of new accreditations earlier this year. Growth looks set to continue as consumers benefit from minimum performance standards and EU energy efficiency labelling as a result of the Energy-related Products (ErP) Directive which came into force this September.

As heat pumps grow in popularity and scrutiny over their performance intensifies, it is more important than ever for installers to not only choose a cylinder that meets the needs of the customer's property and lifestyle, but also one specifically designed to maximise energy efficiency and financial returns.

Thermal store Vs unvented

The first consideration for any installation must be to decide whether it calls for a thermal store to provide both heating and hot water or an unvented cylinder for hot water only. Either way, selecting a cylinder specifically designed for use with heat pumps is essential to underpin performance, energy efficiency and safety.

If only hot water is required, an unvented cylinder such as Gledhill's StainlessLite HP range is the ideal choice. Utilising well-established unvented hot water cylinder technology, it has been designed specifically for use with heat pump applications and incorporates a multi-pass coil heat exchanger manufactured from corrugated stainless steel tube providing low pressure drop, high heat exchange and the capability to maximise the lower temperatures supplied by a heat pump.

When fitted with an integral immersion heater and thermostat, the StainlessLite HP raises the stored water temperature to the 600C required to pasteurise the cylinder, in line with guidance from the Hot Water Association (HWA), thereby avoiding the risk of Legionella. The thermostat brings the immersion heater on at a temperature just below the heat pump maximum and switches it off at between 60-650C, maximising the direct energy extracted by the heat pump and ensuring it is safe to use at the tap.

For installations providing both heating and hot water, thermal store options such as Gledhill's Torrent Eco HP provide a safe and efficient means of capturing the heat and energy generated from any combination of heat pumps, solar panels, biomass boilers and wood burning stoves. The energy generated by the heat pump is fed directly into the store for use when needed, providing on-demand heating and hot water generated via mains cold water passing through the highly efficient plate heat exchanger. The thermal store then acts as a buffer, allowing the heat pump to run longer without cycling, enhancing the financial and carbon reduction benefits.

Optimum installation

In addition to selecting the most appropriate cylinder for use with a heat pump, installers must also be careful to design, specify and install the entire system to best practice standards as this is also critical to maximising its performance.

Installers can have a big part to play in making heat pump technology even more popular among homeowners, allowing them to reap the benefits of significant energy and cost savings.

Right choice: Opting for the correct cylinder type for a heat pump system is critical to underpinning its high performance, stresses manufacturer Gledhill

Raising the game for the long term

The UK has been challenged with installing 6.8 million domestic heat pumps by 2030 – in line with binding carbon reduction targets set out by the EU. Against this backdrop, **Phil Hurley**, managing director at NIBE, looks at the role of the heat pump industry in turning targets into reality

As an EU member state, the UK is tasked with reducing CO2 emissions by 20 percent (compared to 1990 levels) by 2020 – as well as generating 12 percent of all heating from renewable sources. At a practical level, this means boosting domestic heat pump installations to 6.8 million by 2030. As it stands, we are currently only sourcing around 2 percent of our heating from renewables – and as of July 2015, there were approximately 23,000 RHI-registered domestic heat pumps in UK homes. While this points to a significant discrepancy between what we're aiming for and where we are now, we mustn't forget that the UK heat pump market has come a long way in recent years – and, with the right support behind it, it will continue to flourish as targets approach. So what do we need to do to take heat pump adoption to the next level and propel the technology into the mainstream?

From subsidy to standalone success

Until now, financial schemes like the RHI have been the main catalyst behind heat pump uptake. The next crucial challenge for the whole industry is to build a market fit for the future – one that can ultimately thrive entirely on its own merit and without subsidy support. There are two main steps in the journey to achieving this – and these are the joint responsibility of heat pump installers and manufacturers alike.

Communication

It may sound obvious, but potential customers need to hear about the long-term economic, environmental and logistical benefits of investing in heat pumps from the experts. The role of installers in this communication process is absolutely central. Often the first point of contact for consumers investing in a new heating system, they are in the best position to impart trusted advice and expertise about cost-effective, energy-efficient alternatives to traditional fossil fuel-based options. As heat pumps are still a relatively unknown entity to many consumers, they are unlikely to invest without this guidance.

Training

Having a fully trained workforce in place to competently meet the rising demand for heat pump installations is also vital. As with any technology, heat pumps must be correctly specified, designed, installed and maintained to ensure optimum performance and meet customer expectations. Poor installations lead to poor performance – and are ultimately damaging to the reputation of heat pumps and their capabilities. In the same vein, there is no better way to communicate what heat pumps can do than by showing a properly fitted technology in action. With this in mind, investing in installer training should be a top priority for both manufacturers and installers themselves.

Looking ahead

The wheels are already in motion for the national rollout of domestic heat pumps – but if we are to meet 2020 targets and go on to achieve 6.8 million installations by 2030, it is pivotal that the industry doesn't lose momentum at this stage. Now is the time for manufacturers, installers and other industry stakeholders to come together and spread the message that heat pumps – and renewable heat in general – hold the key to an energy-secure UK.

Target hitting: The key to reaching 6.8m domestic heat pumps by 2030 is better communication of their benefits to end users and rigorous installation training, argues Phil Hurley of NIBE

UK gets first solar powered theme park

GreenWood Forest Park in Y Felinheli, North Wales, has become the first renewably powered theme park in the UK

A £150,000 ground-mounted solar array will provide more than 80 percent of the park's energy needs. The 576 panel 150kW system will save the park over £1m in energy costs over a 25 year period and save 1,700 tonnes of carbon emissions.

The launch of the system coincides with the opening of a new £900,000 water ride next Spring, which will have its power needs met by solar PV.

School parties will be able to learn about how solar energy is powering the park, in addition to the 146,000 annual visitors who pass through its gates.

The project was managed by Perfect Sense Energy, alongside partners Gwynedd Renewables and Pioneer Contracting.

Stephen Bristow, owner and MD of GreenWood Forest Park, said: "Many theme parks use huge amounts of electricity and could be doing a good deal more to address the issue of carbon reduction. I am extremely proud of our investment in the new solar array.

"GreenWood Forest Park has always taken the view that fun should not come with a heavy environmental price tag. We have previously built a medieval-style Great Hall using Welsh oak grown within 80 miles of the park and we have used recycled slate products for car parks and paths.

"We have also always managed to run our business using less than one unit of electricity per visitor per year."

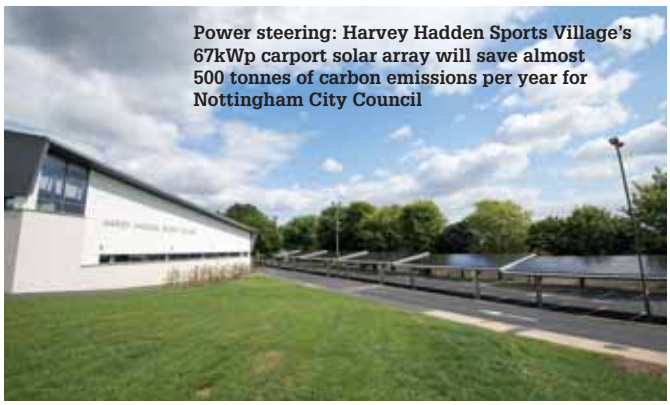
Fun in the sun: GreenWood Forest Park in North Wales is now meeting 80 percent of its energy needs from solar energy, including a new £900k water ride

Nottingham City Council installs first local authority PV car port

Solar Cloth Company and EvoEnergy have successfully partnered to provide the UK's first commercial local authority installation of a solar panel carport to Nottingham City Council

Located at the Harvey Hadden Sports Village, a 67kWp PV system now sits above 40 of the leisure centre's parking spaces. The 448 panel array will produce 50MWh/year, saving 493 tonnes of carbon emissions annually.

The carport was constructed between June and July this year and is part of Nottingham City Council's wider efforts to reduce the carbon footprint of the city.



Power steering: Harvey Hadden Sports Village's 67kWp carport solar array will save almost 500 tonnes of carbon emissions per year for Nottingham City Council

The Harvey Hadden Sports Village £16m redevelopment includes a 50m pool which opened in September, aided by a £1.94m grant from Sport England's Iconic Facilities Fund.

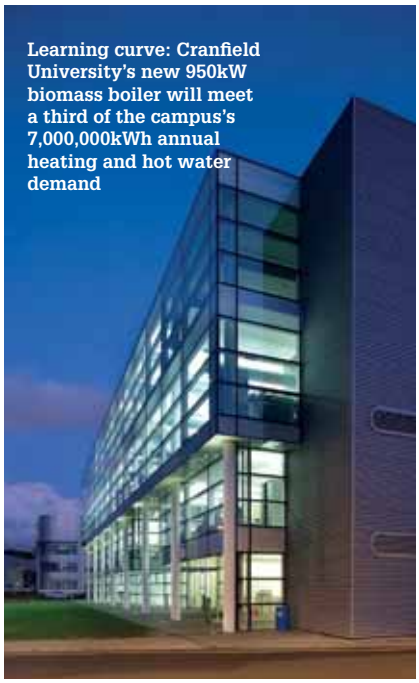
Councillor Allan Clark, Nottingham City Council, said: "Once again Nottingham City Council is leading the local authority green energy agenda. Almost 15 percent of the energy used in the city comes from low carbon and zero carbon sources making Nottingham the most energy self-sufficient city in the UK. Over the next 18 months our solar panel programme will significantly build on this."

Michael Salisbury, projects director at EvoEnergy, said: "We have worked with Nottingham City Council on a range of different projects in the past and this latest has been one of the most exciting as we've been able to play a key part in the development of Harvey Hadden, which has been eagerly awaited in Nottingham.

"Working in partnership with Solar Cloth Company on this installation, it's been a great example of how a combination of experience, innovation and cutting edge technology can achieve great things."

Cranfield University switches to sustainable heat

Cranfield University, Bedfordshire, is future-proofing its energy supplies with the installation of a biomass system from Flogas Renewables



Learning curve: Cranfield University's new 950kW biomass boiler will meet a third of the campus's 7,000,000kWh annual heating and hot water demand

The new 950kW biomass system supports a gas-fired 1.4MW CHP system, together providing space heating and hot water for 34 campus buildings.

With a combined floor area of 66,000m², and a high annual heat demand of 6-7,000,000kWh, a high performance system was needed which could be fitted seamlessly within the existing district heating setup.

The biomass system is situated in the University's main boiler house and interconnected to a steel framed wood chip fuel store, with a capacity of 135m³ for 27 tonnes of woodchips.

Cranfield University's energy and environment manager, Gareth Ellis, said: "Cranfield is dedicated to the research and development of environmental technology, so it was important for us to practice what we preach by installing our own renewable heating technology to power our learning facilities.

"We specifically opted for a biomass system because it's sustainable, effective and will ultimately help us protect against future market volatility. As well as meeting a third of our entire district heating demand, the boiler is set to save us up to 500 tonnes of CO2 each year – reducing our carbon footprint by around five percent."

Head of Flogas Renewables, Greg Hilton, added: "Cranfield University is an excellent example of how biomass can be successfully integrated into an existing district heating network. As well as providing students and staff with a reliable and renewable heat source, the biomass system provides an economical, efficient solution for the university – one that will help it boost its sustainability credentials and ultimately provide long-term energy security."

Welsh Water completes PV project

Dulas has completed work on Welsh Water's largest PV project as part of the utility firm's commitment to reduce carbon emissions by a quarter

Almost 8,000 PV panels have been installed on derelict land at the Five Fords Wastewater Treatment Works near Wrexham, which serves over 90,000 households. Expected annual generation is 1,830MWh with predicted carbon cuts of 1,084 tonnes per annum.

Aiming high: Welsh Water's 8,000 panel system at Five Fords Wastewater Treatment Works forms a central part of its bid to cut carbon emissions by 25 percent

The second phase of the project will see Welsh Water install a further 2,000 panels by March 2016, which will generate 0.5MW of energy. The sewage treatment site had already benefitted from a £23m investment to install anaerobic digesters in 2012.

Alistair Marsden, commercial director at Dulas, said: "Dulas have worked with Welsh Water for over eight years to deliver numerous renewable energy projects and the Five Fords installation follows hydro power projects installed by Dulas across their water treatment network in Wales.

"The Five Fords site has huge potential to reduce its carbon emissions and is a great example of how large organisations can make the most of poor quality land to implement energy saving systems and generate electricity using renewable sources."

Mike Pedley, Welsh Water's head of energy, said: "Our plans to generate our own energy at Five Fords has allowed us to move one step closer to achieving our ambitious energy reduction targets. The process of treating and transporting drinking water and waste water is extremely energy intensive which is why we set ourselves this challenge to reduce our carbon footprint."

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 Aug 15
Solar PV	2459	29
Biomass	368	05
Air source heat pump	783	09
Ground source heat pump	605	05
Solar thermal	848	04
Small Wind	70	0
Total	2497	54

Number of MCS registered installations per technology

Technology type	Cumulative number	Installed Aug 15
Solar PV	745484	11003
Biomass	14239	119
Air source heat pump	39508	431
Ground source heat pump	10726	132
Solar thermal	7946	50
Small Wind	4887	01
Total	822790	11736

(Figures supplied by Gemserv)

Generation tariffs for Solar PV

Tariff band	FiT rate (p/kWh)
<4kW	12.47
>4-10kW	11.3
>10-50kW	11.3
>50-150kW	9.63
>150-250kW	9.21
>250kW-500kW	5.94
Standalone	4.28
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
Sept 15	8517	616
Total	607135	13095

Green Deal supply chain*

Month	Assessor organisations	Providers	Installers
Sept 15	-27	01	-76
Total	337	180	2011

***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–Sept 15)	% of total
ASHP	18422	44
GSHP	6081	14
Biomass	10646	25
Solar thermal	7140	17
TOTAL	42289	100

(Source: DECC)

HEAT PUMPS

What: Hebrides holiday home installs heat pump technology

How: NIBE F1245 GSHP

Result: Cost-effective, low maintenance heating system

A remote holiday home on the Isle of Skye has been fitted with a renewable heating system from NIBE.

The Skye Window House boasts impressive coastal views, but is completely off-grid. Owner Torsten Mansson was challenged to find a reliable way to provide hot water for the three bed, two bathroom property, and approached NIVE VIP installer Lochaber Renewables for advice.

Graham Moss, director at Lochaber Renewables, specified, designed and fitted a NIBE F1245 GSHP and exhaust air package. This is made up of an 8kW GSHP, and indoor unit with integrated 180L hot water storage cylinder with built in controls, a 100L buffer tank and a NIBE FLM exhaust air module.

"The Skye Window House has been built to a very high efficiency spec with extensive insulation and underfloor heating throughout," said Graham Moss.

"I knew its fabric made the house ideal for a NIBE F1245 GSHP. The addition of the NIBE FLM exhaust air module means guests benefit from a consistent supply of fresh air, while the house stays warm in all weather conditions."

Torsten added: "Before the installation, I'd done a lot of research into renewable heating technologies and providers – and it was NIBE's expertise and track record which stood out. I'm half Swedish, so I knew the company has a long heritage of products that stand up to extreme conditions, and that's exactly what we need in a place where the outside temperature can fluctuate between bitterly cold and very warm.

"From a logistical point of view, the system is far lower maintenance and cost-effective to run than other off-grid alternatives like oil."

Skye's the limit: A NIBE GSHP system now provides guests at the Skye Window House with efficient, readily available hot water and heating

BIOMASS

What: Swindon hotel undergoes extensive renovation

How: OkoFEN wood pellet boiler

Result: 3.5 year payback

When David Matton bought the Stones Hotel in Swindon in late 2012, he decided to embark on an extensive renovation programme. He wanted the project completing to the highest standards and to reflect his belief in sustainability.

David was already aware of the benefits of biomass having installed a boiler in his home, so was quick to agree to Adapt Energy's recommendation of an OkoFEN wood pellet system to meet the hotel's heating and hot water needs and replace its ageing LPG system.

New order: The Stones Hotel, Swindon, has swapped LPG for a more sustainable wood pellet system

The OkoFEN boiler was supplied by Organic Energy and is anticipated to pay for itself within just three and a half years, from RHI income.

The hotel's general manager, Michael Barnes, said: "Whilst planning permission for the building that would house the system took longer than anticipated, and with the challenge of linking the new system to our water supply which is via a bore hole, all in all the move to renewable energy has been a positive one for the hotel.

"We pride ourselves on delivering a quality service and a reliable supply of hot water is integral to that. Simply, the system that the team inherited was too old to guarantee efficiency whereas what we have now is a state of the art model that even emails us when it starts to run low on its fuel pellets."

Dan Slattery, of Adapt Energy, added: "It is great to see The Stones Hotel enjoy a new lease of life and reassuring to know that it now has a fit for purpose heating and water system that ticks boxes on both a financial and environmental level."

SOLAR PV

What: First installation of new Romag BIPV product

How: Intecto integrated PV roof tile

Result: PV technology with minimal visual impact

The first installation of Romag's new Intecto integrated PV roof tile has recently been completed in a new housing development in the North East of England.

The Intecto PV tiles were specifically designed and manufactured to match the conventional terracotta rooftiles used by Gentoo Homes, at its development at Beechbrooke, South Shields.

The new PV tiles are fitted simply and securely onto wood roofing battens using traditional roofing practices, and sit flush with the conventional interlocking tiles.

Romag believes that solar roof tiles provide the same weatherproofing and protection measures provided by traditional rooftiles, but with the added benefit of power generation.

At Gentoo's Beechbrooke development, specific sections of the roof area incorporate Intecto PV tiles, but the system can be used to provide a whole roof PV solution if required.

Barry Walker, managing director of Gentoo Homes, said: "We are always striving to be innovative and deliver higher environmental standards across our developments.

"Our customers have been asking whether solar can be incorporated into our housing designs as they recognise the value of renewable energy and the financial benefits the technology can deliver."

He added: "We are therefore delighted to be the first to install Romag's innovative Intecto system in the UK. It clearly demonstrates that the aesthetics of solar are improving and I'm confident that our customers will be amazed by this new system."

Ground breaking: Gentoo Homes has become the first housing developer to install Romag's new Intecto PV roof tiles

SOLAR PV & STORAGE

What: Remote holiday property swaps unreliable power supply for renewables

How: 1kW solar array and gel batteries

Result: 24hr uninterrupted power supply

Camas Salach is a remote property on the shores of Loch Sunart owned by the Wilson family trust. Accessible either by sea or a long, potholed track, it consists of two small holiday cottages where occupancy can be high in the summer with long breaks over the winter.

With no grid connection, cooking, refrigeration and most of the heating had been supplied by gas and a series of unreliable hand start generators.

Alternative Energy, a distributor for Energy Solutions Off Grid Solutions, was called in to assess the situation. Hydro power was considered but required a large amount of infrastructure on site, so a range of power, monitoring and control products were recommended including a new generator and gel batteries.

A Victron Multi Plus inverter provides power and automatic generator starting, and a second AC output is utilised for water heating to cut down on gas usage. A 1kW solar array and Victron MPPT DC charge controller provides small loads and keeps the batteries topped up over the winter.

Maggie Wilson, from the Wilson Trust, said: "We are so pleased with the work done to set up electricity for our two cottages. The project was completed within the estimated timescale and we are confident we'll be able to operate this system.

"Alternative Energy really listened to our hoped-for outcomes, and gave excellent advice on possible combinations of generator and green energy, explaining the various advantages and costs."

Bright idea: Camas Salach has ditched old fashioned hand start generators for a new PV array with battery storage

Who: Graeme Shield, development engineer, Romag

What: Based in Consett, County Durham, Romag manufactures Building Integrated Photovoltaics (BIPV) and speciality glass products

Northern soul: Based in County Durham, Romag is one of a select number of British PV manufacturers specialising in BIPV

Through the looking glass

Monday

After the usual start-of-week review of emails and future diary commitments, Monday normally begins by assessing and reviewing the latest customer BIPV requirements, which are usually relayed from architects to our sales team.

As the main point of contact for new BIPV projects and products, the process usually begins by considering initial design concepts and using these to develop autocad drawings of proposed BIPV solutions for manufacture at our premises.

The architect provides the specification for what is required and we link this to technical factors associated with the integration of the PV cell into the required building component.

As well as traditional size, shape, tint and colour considerations, we also need to take in U values, solar factor, type of glass laminate required, levels of transparency and power generation needs – as well as fixings to enable the PV glass panels to be incorporated seamlessly into a new building.

We could be handling requests for BIPV systems for a number of different architectural projects with different lead times at any one time, so keeping all projects moving forward on schedule is a real priority.

Tuesday

Every Tuesday morning, we will hold a product development review, headed by our technical director.

By their nature, almost all BIPV requests are bespoke and require individual design and manufacturing solutions to suit a particular project. However, in recent months we have introduced a 'standardised' range of roof integrated PV tiles under the Intecto brand. These incorporate the PV cell within the tile, so that it forms part of the roof and follows the line of the roof tile course.

The response to the product has been very good, but we operate a process of continuous development to respond to any technical issues raised on site, developing new colour matches and identifying new fixing, sealing and flashing solutions.

During the course of the day I will spend some time trialling new Intecto fixing brackets on a special mock roof section installed in our development centre. From these tests we will develop the first prototype products that will be submitted for formal approval to the appropriate IEC and BRE standards.

Wednesday

Today I spend most of the day with our glass production teams to ensure the smooth transition from design to manufacture of some new BIPV glass panels that will be used as curved louvres and canopies in a prestigious new office block in London.

Initial trial samples have been accepted by the client and we are now moving into a full production run.

Thursday

Most of our BIPV systems are supplied to clients on site for installation by specialist contractors. However, we also provide installation training for some of our specialist products and today we have representatives from a renewables installation company in Jersey coming to our base in Consett for a special structured session on how our roof integrated products are installed.

In the afternoon I take the opportunity to visit a local site where a national housebuilder is installing Intecto tiling systems for the first time. Getting practical installer feedback from live rooftop projects is really important for our ongoing product development programme.

Friday

Friday tends to be a mainly desk-based day when I can catch up with administrative work, ensure that all design drawings are up to date and confirm Bills of Materials (BoMs) for our various PV products and BIPV systems as part internal budget controls and checks.

Time at my desk also enables me to follow up on technical enquiries and provide support to any installation teams out on site who require further advice or guidance.

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