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The Renewables Roadshow returns September 2015

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At the time of writing, several of Europe's top footballing nations are still in the running for global recognition and world dominance at this year's FIFA World Cup - although alas not England thanks to our predictably early elimination.

Contrasts can certainly be drawn between events in Brazil, and the atmosphere I detected at Intersolar in Munich during early June. For whilst it remains to be seen if Germany or France can once again add to their combined haul of World Cup trophies, Intersolar Europe has unquestionably managed to retain its crown as the world's premier exhibition for the solar industry, despite strong challenges from elsewhere.

Since last year's show, Europe has been knocked from its perch by the economic powerhouse of China as the globe's largest regional PV installation market. Indeed several of the manufacturers I spoke to were hastily increasing their resource base in China, as Europe and North America continue to fall behind in crude volume.

So why is a European show still the place to be seen? As one visitor put it to me, many of Europe's easier roofs have already been taken by the first wave of PV installations. That means industry is increasingly looking at more difficult scenarios and problem areas as we move beyond 'the low hanging fruit'.

And so, whatever the outcome of the World Cup, the eyes of the world will remain fixed on the established European solar markets due to the level of innovation we can expect over the coming years.

Excitingly, the UK is poised to emerge as the largest single market in this mix as we hurtle towards 3GW of new capacity this calendar year.

So whatever you do and wherever you go, summer is here and we can at least look forward to winning one title in 2014. Enjoy it.

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"Intersolar is still the must attend show in the international calendar" Markus schaeffer, Voltec Solar p12

Events

NAPIT Expo
09 July The Rum Warehouse, Liverpool
http://www.napitexpo.co.uk/

The Renewables Event
16-17 September NEC, Birmingham
http://www.therenewablesevent.com/

Energy Efficiency & Renewables Awards
26 September, Kensington Roof Gardens
heatingandrenewablesroadshow.co.uk/awards/

Nextgen 2014
08-09 October Stoneleigh Park, Warwickshire
http://ebec.nextgenexpo.co.uk/

Solar Energy UK 2014
14-16 October NEC, Birmingham
http://uk.solarenergyevents.com/

Ecobuild 2015
03-05 March 2015 ExCel, London
www.ecobuild.co.uk

Heating & Renewables Roadshows
10 September 2015 Ricoh Arena, Coventry
15 September 2015 Westpoint Arena, Exeter
17 September 2015 FIVE, Farnborough
22 September 2015 RHC, Edinburgh
24 September 2015 Event City, Manchester
http://www.heatingandrenewablesroadshow.co.uk/index.php

Plumb Center seeks CO campaign backing

Plumb Center has put the fight against carbon monoxide poisoning firmly back on the agenda by calling for a change in the law.

With 40 people dying needlessly each year in England and Wales and over 4,000 people being hospitalised through accidental CO poisoning, Plumb Center is appealing to government to make CO alarms mandatory when a carbon burning appliance is installed.

This is already the case in Scotland and Northern Ireland but with only 15 percent of all UK homes having CO alarms fitted; this campaign could save countless lives.

To help beat this silent killer, you can pledge your support to an online petition at: **http://epetitions.direct.gov.uk/petitions/64486%22**

SBS report surge in MCS interest

SBS, part of Travis Perkins Group, has heralded a wave of interest from installers signing up for MCS accreditation as April's launch of the domestic RHI continues to stimulate the market.

According to managing director Paul Joyner, SBS partner NICEIC has experienced a 37 percent rise in MCS applications whilst Solfex and other brand suppliers report a significant increase in interest from installers gathering information needed to deliver the required services.

PPL Training has seen a 68 percent increase in solar thermal course bookings from 2013 Q4 to 2014 Q1 and a 77 percent rise in heat pump course bookings over the same time period.

"I believe that the uptake of MCS accreditations can be largely attributed to the domestic introduction of the RHI," said Joyner.

"The industry is recognising that this is a great opportunity for installers to maximise their income by adapting their business to cover all aspects of each RHI project – the assessment, the retrofitting of the building fabric, and the installation of the heat pump, biomass, or solar thermal technology.

Right direction: A 37 percent rise in MCS applications at certification partner NICEIC shows that SBS's high expectations for the domestic RHI were well-placed, says managing direct Paul Joyner

"It is the responsibility of industry players, such as the Travis Perkins Group, to continue providing solutions to aid expectations that the RHI will do for the renewable heating sector what the Feed-in Tariff did for solar PV."

The roadshows return

A&D Publishing, publishers of REI, is delighted to announce further details for next year's Heating & Renewables Roadshow

Whilst retaining its unique regional format, including the addition of one new venue, the Renewable Roadshow has been expanded to include the allied marketplace of heating.

"The unique format has demonstrated beyond doubt that trade professionals, whether they are speficiers, contractors or installers, want a high quality show that travels to them," said A&D Publishing general manager Scott Masheder.

"We will continue to deliver the highest quality of visitors to our exhibitors, after all without quality, quantity is meaningless. So whether it's your first, second, third or even fourth roadshow, being on board guarantees a great return on investment."

For more information and to download a media pack, please visit **http://www.heatingandrenewablesroadshow.co.uk/**

Dates & venues*

10 September 2015 Ricoh Arena, Coventry
15 September 2015 Westpoint Arena, Exeter
17 September 2015 FIVE, Farnborough
22 September 2015 RHC, Edinburgh
24 September 2015 Event City, Manchester

*subject to change

Zero carbon homes policy 'in tatters', says SEA

The industry has reacted with dismay at the recent decision, announced in June's Queen's speech, to water down previous intentions for energy requirements of new homes from 2016

The announcement confirmed a significant scaling back of the original intention that all new homes built from 2016 onwards would be 'zero carbon'. Instead the government has now confirmed that only a 44 percent reduction in CO2 emissions will be required, and that this will only apply to 30 percent of new homes built.

Builders will now be able to mitigate carbon emissions offsite through offsetting schemes rather than directly onsite by installing insulation and renewable energy.

Dave Sowden, chief executive of the Sustainable Energy Association said: "This latest announcement leaves the zero carbon homes policy in tatters. It seems the government is content to settle in 2016 at a level of ambition the previous government set out to achieve by 2013.

"At times when household energy bills are right at the top of consumer concerns, this policy will mean higher energy bills are locked in for decades to come, and create a need for a future generation to retrofit those homes if we are ever to decarbonise the housing stock permanently.

"This marks another nail in the coffin of investor confidence for the energy-related parts of the construction industry's supply chain."

The Renewable Energy Association added: "The diluted Zero Carbon Homes policy is a missed opportunity for new homes to have lower energy bills thanks to energy efficiency and on-site renewable energy technologies. Instead, the Government is focusing on a complicated carbon offset scheme called Allowable Solutions, with costs rather than benefits passed on to homeowners."

Missed chance: The government has passed up a golden opportunity to reduce household fuel bills and drive up the deployment of green energy by rolling back its Zero Carbon Homes policy, says the SEA and REA

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Windhager increases biomass training dates

Windhager UK has announced new training dates for its HETAS certified courses as demand for biomass installations continues to increase

Two to three courses are now set to run every month throughout 2014 at Windhager's HQ and dedicated biomass training centre at Marshfield, Gloucestershire.

The company's 500m² facility is equipped with demonstration boilers to provide hands on learning for heating engineers at all levels to obtain HETAS qualifications. The HETAS courses can be used towards registration on a range of HETAS schemes including Competent Persons registration (CPS) and MCS.

The biomass training course H005DE is a direct entry course available to existing oil and gas installers wishing to gain the necessary skills to install biomass boiler appliances.

The five day course is appropriate for the installation of log, pellet and chip appliances up to 100kW and is designed to provide installers with the knowledge to carry out feasibility studies, and advise clients on fuel types, storage design, system design and installation specification.

Train and gain: Windhager UK has extended the availability of HETAS training courses at its dedicated biomass training centre

Industry must bridge ASHP knowledge gap

There is an increasingly strong appetite from the building and engineering sectors to learn about air source heat pumps as an energy efficient alternative to gas boilers, a conference has heard

The recent conference, provided by Cavara Training and supported by Climaveneta, ReThink Energy and Cavendish Engineers, held at the Institute of Directors, London, demonstrated that the lack of knowledge is holding back the technology's widespread deployment.

Italian speaker Giuseppe Medeghini, from ReThink Energy, felt that the UK is considerably behind the rest of Europe in terms of its approach to ASHPs. In Italy, energy prices are considerably more, forcing business owners and property companies to look at ways in which they can reduce energy without upsetting their tenants. He added that ironically, the climate in the UK is more suited to the applications of ASHPs than in Milan.

The Q&A session saw some discussion about the importance of education in the industry, on the subject of alternative technologies, and how the future of engineering design needs to incorporate out-of-the-box proven low energy solutions.

Andrea Bertelle, communications manager at Italian ASHP manufacturer Climaveneta, commented on the challenges in making the UK more aware of air source heat pumps. She said: "The UK market can be seen as quite conservative in its approach to design and often prefers the traditional chiller and boiler experience, as has been in London.

"The UK promotes the use of CHP instead of electricity driven heat pumps. As the national grid becomes more efficient, integra heat pump solutions are becoming carbon efficient and, therefore, appealing."

Due to the conference's high attendance, Cavara Training says it is planning another date this autumn.

For further information, email **info@cavaratraining.net**

Northern star

In May The Department of Energy and Climate Change (DECC) reviewed the financial incentives for large-scale, ground-mounted solar farm schemes. **Hugh Taylor**, director of EnergyMyWay's specialist large-scale renewables arm Energy Assets sets out what the new proposals mean for landowners and farmers in Scotland and the North

The proposals

The government's proposals set in train a likely cap on the size of solar farms from April 2015. Solar installations under 5MW (typically under 30 acres) will continue to be funded under the Renewables Obligation (RO) framework and the Feed-in Tariff (FIT).

However, solar farm projects over 5MW will be funded through **Contracts for Difference** (CfD). This scheme will now require developers to bid at auction for DECC's financial incentives. Under CfD solar farm developers will be bidding against other more mature renewables technologies, most significantly onshore wind power, that is cheaper to deploy and can afford lower revenues.

The first of these auctions is not expected to open until October 2014 at the earliest. Until that time the viability, demand and rental values of solar schemes over 5MW in 2015 and beyond can only be guessed at.

The implications

The southern part of the UK has seen a boom in solar projects since 2010 due to the fact that it gets more sunlight and as a result offers higher photovoltaic yields (greater MWh generated per MW per year) and therefore higher revenues. The North, meanwhile, has only recently seen high levels of solar developer activity as grid capacity has become saturated in the South and the lower solar farm build costs have enabled projects to thrive on the lower revenues the North offers.

The renewables industry had braced itself for cuts to the incentives for generating electricity under the RO framework. Such cuts would have made sites with lower photovoltaic yield potential, such as in the North, unattractive to developers. The proposed 5MW cap, however, is now unlikely to have any impact on the geographic distribution of solar projects up to 5MW. Instead, we expect to see the solar industry's surge for this size of project in the North sustained, as developers capitalise on the North's remaining grid capacity.

Some of the other likely impacts for landowners in the North as a result of the DECC review include:

- **Fewer MW mean less acres per site.** A 5MW solar farm covers roughly 30 acres. The previous effective ceiling was 50MW or 250 acres. The cap will, therefore, have a large impact on the area that a landowner is likely to lease to a developer – and thus reduce the rent that any single solar farm might deliver.

- **Fewer MW means lower per-acre ground rents.** The economies of scale achieved by larger sites have brought with them inflated revenues per acre. The limit to 5MW will increase the per-MW cost of gaining planning permission, building, connecting to the grid and maintaining solar farms, and as such ground rents are likely to suffer.

- **Smaller solar farms mean more solar farms.** The good news for landowners is that there will be a greater number of solar farms built under the proposed cap, but most will be smaller. Consequently, a larger number of landowners will benefit from the predictable long-term revenues that solar farms offer, albeit at smaller scales than previously.

- **If you have an over 5MW scheme in progress.** For those whose grid operator has confirmed that the capacity is secured and generation can be connected before April 2015, a commissioned system should still be achievable and hence landowner income should be at the pre-April 2015 rates. If your developer already has a validated grid application for your site in with the grid operator, then assuming you do secure the required grid capacity, you may just still be in with a shout!

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Financial times

Following recent changes to consumer credit regulations, installers are required to submit an online application if they wish to continue offering finance. This needn't be a daunting process, argues **Andy Wallace**, managing partner, Consumer Credit Solutions

When the Office of Fair Trading (OFT) closed its doors on 31 March, the Financial Conduct Authority (FCA) took over responsibility for consumer credit regulation and compliance. At the same time consumer credit licences also expired and installers have had to apply for interim permission to continue offering finance. The old licensing scheme has been replaced and over the next two years the FCA will be processing thousands of applications from companies seeking full authorisation.

Installers who wish to continue offering finance should have already received an invitation to apply along with a date period during which they must submit their online application. It's expected to take up to six months for applications to be approved once received by the FCA.

Some of the anxiety is being fuelled by a fear of the unknown and a time-consuming application process

The introduction of the FCA as an industry regulator, along with its new rules and regulations has caused concern among some installers. I have been speaking to many leading businesses in the sector and believe that some of the anxiety is being fuelled by a fear of the unknown and a time-consuming application process. Installers are unsure about what compliance will mean for their businesses, as to whether it will be a drain on resources and, of course, what penalties there will be for getting it wrong. It's my personal belief that if you have a business that puts the interests of the customer first and plays by the rules then you should have little to fear from the FCA.

As part of the authorisation application process, companies have to provide a business plan, cash flow forecasts, profit and loss forecasts, as well as information about specific credit products and promotional materials. Companies also need to conduct a 'treating customers fairly' audit, introduce complaints handling procedures and maintain training records for sales staff.

I know smaller installers in particular are concerned about the amount of work involved, but the benefits of being able to offer credit, in my opinion, far outweigh the negatives.

Letter of the law: Along as installers play by the rules when offering consumer finance, they have nothing to fear from the FCA's application process, says Andy Wallace, managing partner of Consumer Credit Solutions

David Smith, finance director of Edison House Ltd, agrees with me and said: "We see the changeover to the FCA as a positive. It puts the onus on businesses to have robust processes in place and to ensure the customer is always treated fairly. By putting the necessary processes in place, I believe it actually sets our business apart."

Availability of finance for consumers has been a real game changer for the renewables sector. In the early days of solar customers typically used their savings to invest in panels, with the understanding that an attractive Feed-in Tariff would generate an income. It's fair to say, that all of this low hanging fruit has gone to a large extent. It's become virtually a business imperative for installers to be able to offer customers competitive, monthly finance options to help facilitate purchases. It gives people the ability to invest in renewable energy products that would otherwise not have the opportunity.

David Smith also believes offering credit is important for the sector and added: "It's become an integral part of our business, and given us access to parts of the market that we otherwise wouldn't have had. Not all householders have the necessary funds, so having a high street lending partner is essential."

It's become a business imperative for installers to be able to offer customers competitive, monthly finance options

Making Part L simple to achieve

The revised 2013 Building Regulations came into force on 06 April 2014. **Lee Jackson**, head of technical services at SBS, advises how the right support can make these standards simple to achieve

Plain speaking: Travis Perkins and SBS is providing a comprehensive design service to help installers navigate recent revisions to Part L Building Regulations

The Part L 2013 documentation requires new-build homes to generate six percent less CO_2 across the build mix when compared with 2010, whilst non-domestic new-builds will need to reduce CO_2 emissions by nine per cent.

With each new change in Building Regulations, there are plenty of myths created around how restrictive and difficult to achieve they are. However, with the right technical advice and fabric first principles, it is possible to simply build to the new regulations with standard masonry construction to a total wall thickness of 300mm, with very little new equipment.

Over the last two years, the Travis Perkins Group and SBS has invested in a number of tools to help house-builders cost-effectively achieve the level required by the new regulations. The key element is the specified technical drawings for brick and block construction.

To ensure optimum whole-house performance, each drawing is specified using a fabric first approach. Should the builder want to incorporate renewable technologies, there is a simple menu of options to make the building as efficient as possible, and to cater for specific customer and site requirements.

For example, option 1 takes a fabric first approach, with an overall wall thickness of 300mm, comprising of either 100mm full fill or 50mm partial fill cavity and excluding any renewable technologies. Options are provided for both aggregate and aerated blocks. To ensure this approach achieves the regulations it specifies a flue gas heat recovery boiler, mechanical ventilation and an air tightness rating of $3.0m^3/(m^2/yr)$.

If the build includes renewables there are a further four options, all based on the same 'fabric first' construction details. For example, option 5 replaces the boiler and mechanical ventilation from option 1 with an air source heat pump and a requirement to build to an air tightness rating of $5.0m^3/(m^2/y)$.

The construction drawings provide a simple route map for architects and house-builders to work as cost-effectively and efficiently as possible. Each individual product has been specified and positioned to minimise thermal bridging and maximise the contribution of the fabric under SAP2012. The house-builders who have already incorporated them within their own designs have saved money both for themselves - typically around £3,000 per house - and for their customers, through lower running costs.

The drawing options are provided using either aerated or aggregate blocks, and insulation options for both 'part fill' and 'full fill; cavities. The ability for house-builders to switch from aerated to aggregate blocks has provided a real benefit in regions with shortages of aerated blocks.

The construction drawings, made available through SBS, form part of a complete end-to-end solution that has been put in place to support contractors faced with Part L Regulations. The Travis Perkins Group is the only player in the market with leading merchants in each product sector, providing housebuilders with the best technology on offer, backed by access to training and mentoring for a whole-house solution.

Intersolar review

From June 4-6, 44,000 visitors flocked to Messe München to see 1,100 exhibitors at this year's **Intersolar Europe**. REI spoke to visitors and exhibitors alike, to see why it undisputedly remains the World's largest show for the solar industry

Markus Schaeffer, senior vice president, Voltec Solar (visitor)
Intersolar is still the must attend show in the international calendar. For me, although not exhibiting this time, it is the perfect platform to meet everyone in a short amount of time.

One of my reasons for attending is to broaden my base of distributors in the UK. We are already represented but we'd like to see our name out there and more visible, so I've been talking to several interested parties.

We saw 2MW of Voltec panels installed in the UK in 2013. My aim is to at least triple this in 2014, which we would make it over 10 percent of our global volume. My view is that the UK will become the largest PV installation market in Europe in 2014. The popular estimate is for 2.5GW to be installed in 2014, but some say 4 GW.

Mark Abrams, director/product management, Enphase (visitor)
We have many of our distribution partners here so Intersolar is a tremendously productive show to be at. Enphase has just launched its fourth generation microinverter system in Europe so it's important for us to introduce this to our partners.

I've noticed a lot more discussion this year about self-consumption, which is good news for us as microinverters fit so naturally and are better suited to East-West PV arrays, which align better with typical residential electricity use. And, with many of the easier roofs now taken in Europe, microinverter technology can open up more difficult roofs, so I'm optimistic for solar in Europe.

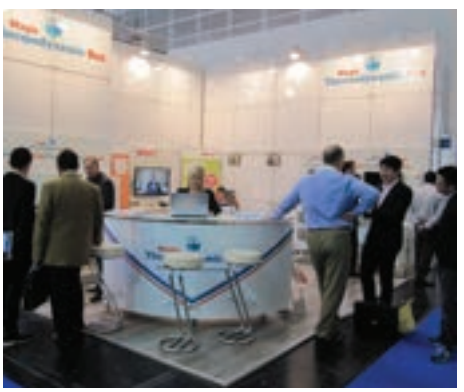
Daniel Huber, UK country manager, SolarEdge Technologies (exhibitor)
We have had a very good show and we as a company are growing and increasing our market share. Intersolar is very important to us but the North America and China markets are also evolving.

Last year visitors were mainly interested in existing products, now they are more interested in the future. People are talking more about storage and self consumption which is the logical concept. This year we have introduced battery packs and monitoring solutions which are the first step in changing consumer behaviour to minimise electricity costs. These have been very well received.

Jodi Huggett, business development director, 4eco (exhibitor)
Self-consumption is massive this year which is great news for us, and our immerSUN PV hot water controller. This is our second year here and we have seen an increased number of enquiries from large European manufacturers who we can form partnerships with. From being at this show our European exports could grow into double figures as a percentage of our overall business.

Coming here makes the world a much smaller place. It gives us an understanding of global conditions, and ultimately saves money by not marketing in countries where self consumption isn't popular. So Intersolar is great for fact-finding – not only finding out who wants the immerSUN, but who doesn't.

Liz MacFarlane, sales director, Zenex Solar (visitor)
My trip to Intersolar this year was targeted and specific. I focussed on our existing partnerships and was pleased with their innovations. JA Solar are leading the way with their SolarEdge embedded solution. Zenex will be first distributor in the UK to have their embedded module which will revolutionise the domestic market, bringing one of the world's most bankable modules together with a leading optimisation solution at a workable price. LG are close behind with their own panel/embedded micro-inverter solution. I was also thrilled with the moves into battery storage made by some of our manufacturing partners. This will further develop our energy storage portfolio as we move through 2015.



Alistair Smit, managing director, Magic Thermodynamic Box Company (exhibitor)
The Magic Thermodynamic Box Company exhibited at Intersolar, the world's biggest renewable energy exhibition, to show our innovative energy saving products - The Little Magic Thermodynamic Box and The Central Heating Management System. We have been educating the market on how they can save hot water usage as well as reducing the common problems associated with central heating systems, whilst lowering fuel usage by up to 30 percent. The show proved to be an enormous success.

DECC calls for installers to get on board with Green Deal

This Spring **DECC** has announced several changes to schemes as part of its improved offer to householders, through the Green Deal and the domestic RHI. Both of these schemes offer installers a fantastic opportunity to develop and grow

The domestic RHI was launched on 9 April this year, and is a government financial incentive scheme that provides payments to encourage the installation of renewable heating technologies in homes.

Details of how the scheme works and a 'Quickguide for installers' can be found on Ofgem's website at **www.ofgem.gov.uk/domestic-rhi**

Crucially, in order to benefit from offering your customers the RHI, you must be a member of MCS (or equivalent).

Installers should also be aware that to help enable participants to comply with biomass sustainability criteria, DECC is introducing a Biomass Suppliers List (BSL) for the RHI.

The BSL was launched to applications from producers and traders of woodfuel and Short Rotation Coppice on 30 April 2014. Producers and traders who wish to access the growing domestic and non-domestic RHI market are urged to apply as soon as possible.

The BSL will provide an easy way to check online which traders are selling fuel that meets the sustainability criteria. The list will be made available to consumers once a sufficient proportion of traders have registered. DECC expect this to be later this Spring. This will give biomass producers and traders the time they need to prepare for the mandatory implementation of the criteria in Autumn 2014, and allow participants to start sourcing from the BSL well ahead of the criteria coming into force.

To qualify for the financial incentive scheme, and because renewable heating systems work best in a well-insulated home, applicants (except for self-builders) will need a Green Deal Assessment and ensure where practical their loft and cavity walls are properly insulated. This represents an excellent opportunity for installers to offer their consumers the whole consumer journey.

Green Deal represents an excellent opportunity for installers to offer their consumers the whole consumer journey

Another option for homeowners wishing to make energy efficiency improvements to their home is the Green Deal Home Improvement Fund (GDHIF), which launched on the 01 May. GDHIF is designed to complement the Green Deal, which aims to help people understand the energy-saving improvements they can make to their home.

The scheme covers a range of 13 energy efficiency improvements that include solid wall insulation, new heating systems and glazing. The GDHIF allows the householder to choose, one or both of the two core offers available and may also be eligible to claim up to £7,600 as a package.

Under the GDHIF, householders have a choice of two core offers:

- Core Offer 1 - Up to £6,000 for installing solid wall insulation;
- Core Offer 2 - Up to £1,000 for installing two measures;

Householders will be able to claim both elements should their property be suitable.

In addition customers will be able to claim

- GDAR refund of up to £100 for their Green Deal Assessment Report, if funding for measures is taken up
- Homebuyer's bonus of up to £500 if they have moved home in the 12 months prior to application.

Installers, Providers and Assessors will be able to grow their customer bases and offer the customer a complete package. In addition Installers will now be able to work collaboratively with Providers and Assessors already in the market, to expand their business.

The scheme is now open to approved Green Deal Installers as well as Providers to register. More information about the scheme can be found at **schemeenquiries@gdcashback.gov.uk**

Awards update

The judging panel is now poised to adjudicate this year's **Energy Efficiency & Renewables Awards**

With the nominations period now closed, the response from the industry has been overwhelming with hundreds of entries received in a host of categories including Solar PV Installer, Green Innovation and The Contribution Award.

REI editor Paul Stephen will be joined by Dave Sowden (SEA), Virginia Graham (REAL), Bill Wright (ECA) and Robert Burke (HETAS) to run the rule over entries later this month.

Shortlisted entries will be announced at the end of July prior to the ceremony taking place on Friday 26 September at The Kensington Roof Gardens.

Anybody wishing to attend should register their interest by emailing **Sandra@andpublishing.co.uk**

Back by popular demand

Returning for the fifth year to the NEC in Birmingham on 14-16 October 2014, **Solar Energy UK (SEUK)** now boasts a number of exciting additions to this year's show

Over 2400 unique visitors descended on Hall 3 of the NEC last year to meet more than 180 exhibitors featuring the latest products and technology for the residential, commercial and utility-scale sectors.

The 2014 exhibition will include a new 'Installer Central' feature area where electricians, plumbers and roofers thinking of including solar in their services can join daily practical demonstrations on integrating technologies in PV, solar thermal and distributed energy.

Returning by popular demand is the Large-Scale Feature Area sponsored by Belectric. Visitors can participate in discussions focusing on site planning, ground mount, industrial roof-top, land-use and biodiversity.

Organisers will be opening up the Solar Business Seminar Hall creating a 'theatre style' experience for visitors to attend during the three-day exhibition. Free entry will allow all visitors direct access to sessions focusing on developments in finance and investment as well as associated risks for developers, asset managers, EPCs, councils, policy-makers and export businesses.

SEUK will be launching a new co-located exhibition in recognition of the increasing diversity of companies committed to the generation, transmission and storage of solar energy in the UK. Next Energy UK will showcase break-through technology covering a range of low carbon sectors including:

- renewable heat
- energy storage
- solar thermal
- heat pumps
- smart grids & transmission
- micro-generation
- Electric Vehicle (EV) infrastructure
- energy management
- energy efficiency

2013 also saw the successful launch of the Solar Power Portal Awards on the first evening of SEUK. This prestigious ceremony sponsored by Natural Sparx (powered by Rexel Energy Solutions) will take place for the second year running at the Hilton NEC Metropole, Birmingham on 14 October 2014. The winner of the new category for 'Installer of the Year' will be celebrated at the event hosted by television presenter Kate Humble.

Entry to SEUK and Next Energy UK is free. Register now: **uk.solarenergyevents.com/register2014**

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Helping hand

The wait is over - the RHI has finally arrived and customers are now looking to apply for the incentive; what does this mean for the installers? And how can they ensure they are meeting the requirements for the DRHI? **MCS** has listed some information below to help you and your customers

Customers will be relying on their MCS certificate to be correct when applying for the RHI and therefore, the installer must ensure the certificate is filled out appropriately. For example, installers need to make sure that if they select 'no' for metering on the compliance certificate that they make the same selection on the MCS database - any differences between the two would render the customers RHI application being rejected.

Installers are only permitted to retrospectively create certificates for installations that they carried out whilst certified by MCS. If you are approached by a customer who does not have a certificate and their installer (provided they were MCS certified at the time) has ceased trading, please refer them to the MCS helpdesk.

MCS recently updated the Installation Database (MID) making the questions more technology specific, and adding an additional compliance certificate for the heat based technologies. However, these changes will not be compulsory for legacy installations. Therefore for heat pumps, the SPF will automatically be deemed to be 2.5 for legacy installations. However customers will have the option to commission MCS certified installers to recalculate this figure. Installers will need to use the OFGEM SPF calculator which can be found at **https://www.ofgem.gov.uk/publications-and-updates/heat-pump-spf-calculation-template**

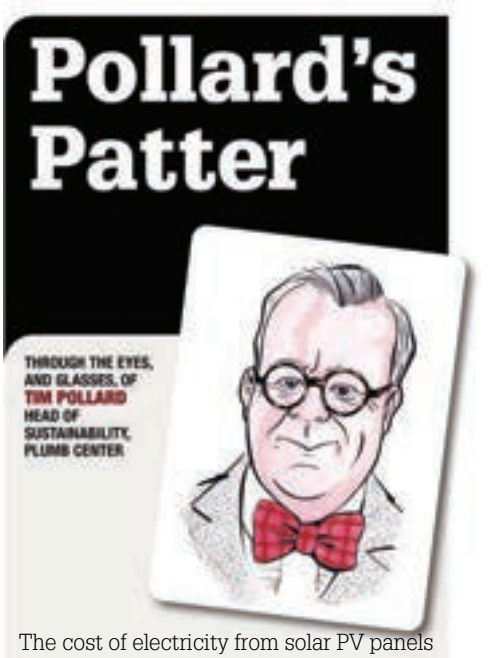
The DRHI rules state that all customers (except those who own a self-build home) must have had a Green Deal assessment to qualify for the RHI. The Ofgem website provides further information on the classifications of self-build and new build homes. **https://www.ofgem.gov.uk/key-term-explained/eligible-new-build**

Installers may have heard of the Biomass Suppliers List (BSL), and the Biomass Sustainability rules will be introduced in autumn 2014. Customers will need to ensure that any biomass fuel they use after autumn is listed on the BSL. Please visit **http://www.gov.uk/register-biomass-supplier** for more information.

Installations all need to be meter ready, and it is important for all installers to read the MCS Domestic RHI Metering Guidance Document, found on the MCS website.

More detailed information about the Domestic RHI and the application process can be found on the Ofgem site (**www.ofgem.gov.uk**)

Opinion



The cost of electricity from solar PV panels has reached parity with grid electricity in Germany, Italy, and Spain, according to consulting firm Eclareon. There are some who think that this will be the signal for a massive surge in demand and huge market growth. It is at this point that we should take a closer look at the definition of grid parity.

"The moment at which the present value of the long term net earnings (considering revenues, savings, cost and depreciation) of a PV system is equal to the long-term cost of receiving traditionally produced and supplied power over the grid."

The key phrase for me in this definition is 'long term' and that the process still requires customers to invest relatively high capital amounts against a long term return. This proposition has been a particularly hard sell to date, since we singularly fail to react to long term propositions in the use of disposable incomes.

The issue becomes interesting when considering how government might then begin to look at renewables as the most appropriate investment. For example, it has been reported that the planned subsidies for the new nuclear power station at Hinkley Point in Somerset could reach £17 bn.

This is why investing in a renewable future not only makes great environmental sense but it makes great economic sense too.

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CURRENT AFFAIRS

By guest columnist **Bill Wright**, head of energy solutions, Electrical Contractors' Association

Just when you thought things in the energy efficiency world were improving the government announces something which sets everything back a few steps. The latest setback is the 'Zero Carbon Homes' announced in the Queen's Speech in parliament. Despite all the time and effort put into the definition and benefits of the Zero Carbon Home initiative the government has announced a substantial weakening of the regulations. House builders will now be able to offset a large part of the energy efficiency and renewable energy requirements of a new house by paying a 'carbon offset tax' which would be used to purchase a carbon reduction action away from the development. This will increase the energy usage in the new house and cost the occupants more in energy costs, which will be a substantial amount over the lifetime of the building, but the government sees it reducing the cost of a new house. Given the relatively low cost of energy efficiency work and renewable energy installations compared to the ever increasing market cost of new homes, this seems an absurd argument and ultimately will add to the profits of house builders.

Lessons learned on-site

With the new push towards PV installations on commercial roofs, **Steve Pester**, BRE, runs through tips for best practice garnered via BRE's own 32kWp system, and its numerous inspections of others

If you are an installer who is just dipping your toe into the commercial roofs market, or thinking about it, here are a few on-site issues that can happen in real life:

- FiT deadlines – as in the domestic market, these cause huge dashes to get systems commissioned before the degression date. Extra checks on workmanship are needed if working to tight deadlines.
- Out-of-hours work may be required to hit the deadline, but it may also be required in order to avoid noise and disruption to the building occupants.
- 'Flat' roofs are not usually flat! They have a drop-off for drainage and are often uneven; you may need to allow for this in the mounting design.
- You absolutely must have someone who is competent to do correct wind loading calculations for you. A new version of the well-known BRE Digest 489 has been published, which gives guidance on this issue.
- You must also use a professional to assess the roof type and strength before deciding on the method of restraint. If you are using ballast, double-check that the materials delivered are to specification (e.g. BS EN 1339 for slabs).
- Obviously, you must have a good, clear method statement before starting work, covering all aspects of the installation. For example, how will the personnel be safe when working at height?
- If you need permanent guard rails, have these been allowed for in the shading assessment?
- Plan the safe movement of materials meticulously. If you intend to crane the materials onto the roof, think about what will happen in windy conditions. Are there any nearby occupied buildings?

An information paper with fuller details of these and other issues will shortly be available on the National Solar Centre website and a new code of practice will shortly be available from the IET.

Switching from oil and gas to renewables

Since the launch of the domestic RHI, HETAS has seen a noticeable increase in demand for biomass training and MCS registration, reports **Robert Burke**

25 percent of accreditations for the RHI so far have been biomass, with solar and heat pumps also popular. There is no doubt that the RHI scheme is particularly beneficial for households off the gas grid and in rural areas, which have the space for biomass, solar panels or heat pumps.

Rural off grid properties tend to be older, larger properties which are perhaps not so energy efficient and are generally heated by oil, LPG or electricity. Because fossil fuels like heating oil are more expensive and have a higher carbon content, the domestic RHI enables householders to reduce their heating bills by installing a renewable technology.

There are around four million off-gas homes in the UK, which are evenly split between rural and urban areas. The vast majority of these will be eligible for RHI payments. Biomass is one of the major growth areas for heating systems, and many major oil and gas boiler manufacturers have already diversified into biomass systems. For existing oil and gas installers biomass represents an ideal growth opportunity, as many of them will already have the pre-requisites to add biomass installations to the services they can offer customers.

Courses like the HETAS Direct Entry biomass training course are ideal for existing gas and oil installers and others who wish to attain the skills necessary to install biomass boiler appliances. Candidates who successfully complete this course can register with HETAS for a limited scope registration for the installation of log, chip and pellet biomass boilers, pellet stoves and associated equipment. The course can also be used as part of the criteria for approval with HETAS as a Microgeneration Certification Installer for biomass.

The domestic RHI has been designed to be easily accessible for consumers, with a Green Deal assessment a pre-requisite. Over 100,000 households have already had Green Deal assessments, with the potential to apply for RHI payments. Qualifying installations by an MCS approved installer with an RHI approved product are eligible for 20 years of funding paid over a seven year period.

With oil no longer an easy choice especially for new build in rural areas, renewables are increasingly appealing for specifiers, developers and installers alike. The boost in demand for biomass training is reflected in a 34 percent increase in the number of candidates attending HETAS training courses in the last 12 months compared to the previous year. HETAS is the only competent person scheme specialising in solid fuel and biomass, offering a wide range of courses from an introduction to solid fuel through to the more advanced stove and biomass installer training and chimney system training.

To find out more about the RHI, biomass training and MCS registration visit the HETAS website which is packed with information for householders, specifiers, installers and service engineers at **www.hetas.co.uk.**

Biomass is one of the major growth areas for heating systems

TECH TALKING

System efficiency and cost control

New designs and higher levels of sophistication continue to enter the heat pump market, but cheap heating is likely to be your customer's only consideration, says heat pump specialist **Bob Long**

Assuming the customer's expectations are practically achievable with the technology, all that is required for a successful outcome is a well installed system.

Understandably, with any piece of mechanical/electrical equipment, faults can occur from time to time, but in the case of a heat pump, the result of a fault situation can be very costly.

In previous articles I have discussed the value of fitting an energy meter, but MCS currently only demands installation of an energy meter for domestic users under certain circumstances.

Occurrences that reduce efficiency are not limited to air source heat pumps, and ground source systems can also be affected by numerous potential issues which lower economic performance.

The cause (and remedy) of most problems is best left to the technician, but identifying a problems' existence is paramount to protection against excessively high running costs.

Many heat pump installations are fitted with bivalent support and failure of the heat pump can often go undetected, because bivalent support will usually provide the required degree of heating. bivalent energy is usually supplied from a more expensive energy source, such as electrical resistance heaters.

An electrically powered resistance heating source (immersion heater) can consume energy more than three times faster than the heat pump itself.

The RHI is designed to give financial support to assist in ownership of a heat pump system. This support is certain to attract customers from lower income brackets, who are keen to reduce energy bills.

Heat pump technology can, and does, reduce energy bills significantly, particularly for those in off-gas areas, but there is also the danger of unexpectedly large electricity bills, which could have disastrous consequences.

For the financially comfortable, a large electric bill is extremely annoying, but for a household on the edge of fuel poverty, the result could be a step too close to financial ruin.

There are a number possible faults that can affect the performance of a heat pump, and the number of potential faults generally rises with the degree of system sophistication and complexity.

High electrical consumption can often result from a malfunction of the bivalent energy source embedded inside the heat pump, or the immersion heater, fitted to domestic hot water cylinders, and used for pasteurisation of domestic hot water.

The addition of bivalent energy to the heating system, and the pasteurisation process, are automatically controlled events and there is no visual indication of either of these processes in operation, and no visual indication when these processes operate for protracted time periods under a fault condition.

Subsequently, the system can potentially consume large quantities of expensive electrical energy, without knowledge of the bill payer.

There have also been instances where pasteurisation heaters have been energised, failed to reach their target temperature, and again resulted in excessive, prolonged energy usage.

I am not suggesting that these situations occur all the time, or with every heat pump system, but evidence and possibility is enough for concern.

Heat pump technology is here to stay and this is reinforced by one simple fact, that it is the most efficient way of using electrical energy to heat the home.

It is essential that any fundamental problems arising from experience need to be dealt with quickly and effectively. If not, the industry could struggle to maintain credibility.

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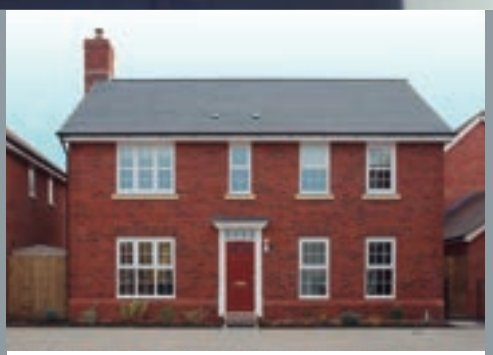

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Two minutes with . . .

Who are you?
Phil Hurley, managing director at NIBE Energy Systems

What do you do?
As one of Europe's leading manufacturers in the renewable heating sector, NIBE specialises in high-tech energy-saving solutions including air source, ground source and exhaust air heat pumps, biomass boilers, solar thermal packages and whole-house ventilation. We also offer comprehensive installer training courses.

Where are you?
Chesterfield, North East Derbyshire.

How's business at the moment?
Very good. We recently launched our new F2040 air source heat pump range, as well as the Pellux 100 biomass boiler, and sales are increasing month by month. Bolstered by the introduction of the domestic RHI, the renewables industry is definitely regaining the buzz it had a few years ago.

How could business be better?
The government's recent decision (as announced in the Queen's speech) to significantly scale back its 2016 Zero Carbon Homes pledge came as a blow to the industry. It will have a knock-on effect on the deployment of renewable technologies in new homes.

What's the best business advice you've ever received?
On my first day in sales, I was told to always wear a suit and tie, never to wear white socks, and that we have two ears and one mouth for a reason – so always listen to the customer's needs.

How are you going green?
Our offices are fitted with a NIBE 16kW F2040 air source heat pump and a NIBE VVM320 indoor module, which meet the heating, cooling and hot water requirements of the whole building. I've also installed a NIBE F1145 ground source heat pump and NIBE solar thermal panels at my own house.

Q&A

DARREN McMAHON

Viessman

What have you got planned for the rest of 2014?
2014 is an important year for Viessmann as we celebrate 25 years in the UK. We have a number of events planned later in the year to mark this, including a visit to the UK from Viessmann president, Professor Dr Martin Viessmann. As a company we are consistently looking to broaden our communication channels with installers and offer them great support with how to use our products.

What do you see as the growth area for renewables?
The biggest growth area for renewables is undoubtedly in biomass and heat pumps. Incentives like the domestic RHI are a great way to get people to explore alternative heating options, which may previously have been seen as too expensive or disruptive to install. When payback times cross the magic 'under 10 years' barrier, the products start to be viewed as a serious, cost-effective and environmentally friendly alternative to the regular condensing boiler.

How is your company cutting its carbon footprint?
Sustainability is at the heart of all Viessmann's activity. Effizienz Plus is an initiative we devised to prove, using our own headquarters in Allendorf, Germany, that tomorrow's targets in respect of global warming can be achieved today with technology that is already on the market.

Darren is marketing manager at Viessmann

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Support group

Jabir Sola, managing director at Green Utilities, explains how his company is looking to reach out to installers throughout the rest of 2014 and beyond

1) What is Green Utilities and its Green Network?

Green Utilities has been developed through experience gained in designing, buying and installing renewable technologies. We have developed from a small company back in 2010 and we currently now have a network across the UK that can cater to all needs.

Our company is focused on creating a truly green and ethical approach; as well as being a forward thinking company that works with domestic, commercial and utility scale projects.

Our expertise lies in solar PV, solar thermal, wind, ground and air source heat pumps and biomass. We also work with energy saving products such as LED lighting and small 4-6 KWth heating solutions.

We truly believe that if the last century was all about oil, the next century will be about green utilities, meaning energy sources using renewable technologies. We are going to be at the forefront of energy in the UK, Europe and beyond.

2) How does membership of the Green Network benefit installers?

For a small nominal fee, our network provides an IT platform, financial support, marketing and ultimately allows it's installers to increase sales. We are so confident in our system that we have a 30 day rollover contract meaning no long term tie ins.

Green Utilities caters for all renewable technologies and has a whole system approach that allows the end customer to benefit from the FIT and RHI. We truly believe the future is not about one individual product range such as solar PV, it's more on how several products interconnect to give the end user a 'complete solution'.

3) Can you give an example of an installer who has joined and benefitted?

We had an installer who joined us from the South West region who had a team of two; with our help and guidance, he now has a team of 10 plus. He is more confident in bidding for larger more complex contacts and feels he has the full support and direction from our team. This is crucial in the forever changing climate of renewables.

We have also created a 'go to' area where installers can gain knowledge in our Green Member Zone. Education is key, not just for the installer but the end customer as they feel more confident in working with our approved network.

We have had installers who only had their focus set on one particular technology, being part of our network has given them the confidence and expertise to push for other renewable solutions.

4) What plans do you have for the future?

Our approach is simple, we want the end users to come to Green Utilities as we have an educational approach in buying the right solutions for their homes or businesses. We don't simply push a brand or technology. We think for the end user.

Currently we are working on our 'Red to Green' campaign, which is working with businesses to help them reduce their gas and electricity costs. In the future we will open this to the domestic consumers as well.

We are about to launch our own products such as voltage optimisation and far infrared heating panels, which falls in to our energy saving ethos.

Our ultimate aim is to become a full scale energy company.

Joining the dots: For a small nominal fee, our network provides IT, financial and marketing support to installers, says Green Utilities' managing director Jabir Sola

We truly believe that if the last century was all about oil, the next century will be about green utilities

Trials and tribulations

Kevin & Andrew Knapp, directors and founders of Ecolution, reflect on 15 turbulent years in the sector since the company's inception

Our vision when we started our business in 1999 was for renewable energy to become a Building Regulation. Both of us, as founders of Cel-F Solar Systems (now Ecolution), have a background in the construction industry, and had previously seen that industry shaped on a number of occasions by new building regulations, including items that we now take for granted such as double glazing, cavity wall insulation, roof insulation and so on.

There were several events which formed and shaped the renewable industry and our business:

- The Merton Rule (2003) which set a precedent for mandating businesses to produce a percentage of their energy consumption from on site renewable sources.

- Clear Skies Renewable Energy Grant (2004) had capital grants up to 50 percent but was turned off overnight in the South East and South West, causing a great deal of disruption.

This was our first experience of the 'carrot' effect and the way it can be turned on or off, so we quickly realised we could not base our business on this type of incentive policy.

- DTI funding (2004/2005) allowed our business to grow. This enabled us at that time to close our M & E business in 2005 which up to that point had funded Cel-F Solar Systems.

- Low Carbon Building Programme (2006) turned into a bit of a farce with the prices within the scheme remaining substantially higher than where the market moved to.

- Code for Sustainable Homes (2006/2007) helped us attract substantial investment into a fledgling industry from the Bank of Scotland in 2007 (pre-bank crash). This again allowed us to develop the business, re-brand to Ecolution and bring in senior personnel to help grow and shape the business.

- The bank crash of 2008 and the subsequent decline of the construction industry was a substantial challenge which meant we very quickly had to turn the business from investment stage to profit stage.

With continuous ongoing revisions of the Code for Sustainable Homes, Building Regulations (Part L) and BREEAM, our vision for the business and the success of it became firmly entwined with government legislation, not government incentives. This allowed us in 2010 to buy out the Bank of Scotland investment at a substantial discount.

Smart option: Ecolution has gone from strength to strength in 15 years of existence by leaning its business model away from reliance on financial incentives, says co-founder and director Kevin Knapp

- The Feed-in Tariff (2010) we decided to indirectly participate in via the distribution of products to this sector. FiT peaked quite dramatically, due to government's intervention, and whilst the subsequent overhaul of the FiT was totally necessary, the application and the way this was dealt with lead the industry to a 'boom and bust' scenario.

In our short business life, the tariff reduction was the third time we had experienced government intervention to the detriment of the industry, based on an incentive scheme.

The FiT is now established and working properly, Zero Carbon Homes are only two years away, the Merton Rule is here to stay (at least until Zero Carbon Homes comes in), the price of PV systems is very competitive against grid electricity, and with many other pieces of legislation such as Zero Carbon Buildings also in place, our chances of meeting the UK's future renewable energy targets look very promising.

Sky's the limit

David Taylor, business development manager at UFW, stresses the importance of solar for businesses and consumers alike, and how advances in technology are making PV even more efficient

Climate change is a very serious issue, and the way that energy is sourced and used is a hot topic for political, economic and environmental discussion. Energy prices are soaring, and the pressure on everyone to invest in 'going green' is greater than ever.

Alternative energy solutions haven't always been well received, but following one of the worst winters on record – which saw the UK blighted by horrific floods, unpredictable weather patterns and damaged crops – there has been a definite shift in the attitude towards the use of renewable energy and its growing popularity.

Solar works on a number of levels and is already proving to be a real game changer

Sold on solar: With installation costs continuing to fall, and ROIs remaining high, PV continues to be a firm favourite with businesses and homeowners alike, says UFW's David Taylor

Following one of the worst winters on record there has been a definite shift in attitudes towards the use of renewable energy

This increasing concern for the wellbeing of our planet prompted one of the most robust responses from the Department of Energy and Climate Change (DECC) recently when climate change minister Greg Barker announced the launch of the UK's first dedicated Solar Strategy.

A policy designed to utilise the roof tops of homes and businesses across the country for the collection of solar energy, it is hoped that the strategy will create jobs, as well as provide low-cost, green energy for many.

And with the average cost of a solar installation on the decrease, the government guaranteed sale price of excess electricity and claims that solar can return a higher yield than some pensions, it is clear that the UK is looking to the sky for its future energy generation.

Solar energy is an important renewables solution, providing a new way for businesses and consumers to generate energy using nature's most valuable resource. Solar PV systems are fast becoming the first choice for consumers and businesses looking to reduce their energy bills.

The financial benefits speak for themselves, and keeping the cost of energy bills at a sustainable level is vital. Solar works on a number of levels and is already proving to be a real game changer; they make no noise, produce no waste and create no pollution.

And with increased interest and subsequent investment in this renewable resource, the industry has responded to make solar as cost effective and efficient as possible – designing SOLAR PV software that allows installers to design the best possible system given the size, location and use of a property.

PV systems can pay for themselves in as little as seven years, and can provide the property with free electricity for the life of the system. The latest technological advances provide enough insight to be able to make recommendations with regards the best solar PV system available based on a series of technical calculations including average sun exposure and forecast or current energy usage.

Installers will be able to produce 3D models to demonstrate to the end user exactly what the return on investment is, and why the recommendation for the system, including the number of panels, is being made – making the process far quicker, and the overall experience for the home or business owner much more professional.

With the financial as well as the environmental benefits that solar power brings, it is a resource that, very fittingly, has made our future a whole lot brighter.

It is clear that the UK is looking to the sky for its future energy generation

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Staying in control

Jodi Huggett, director of 4Eco – immerSUN, explains how microgen energy controllers offer an untapped resource for installers looking to maximise added value

With more than 2,500 PV systems now being installed in the UK every week, more people than ever are experiencing the benefits of the renewables revolution – including installers.

Thanks to recent sweeteners like the RHI tariff for heat and FIT for solar PV there's arguably never been a better time for consumers to go green, allowing installers to reap the rewards of a growing industry.

However self-generating energy is only the first step. Increasingly, home and business owners are looking to go one further and 'self-consume' their energy, further benefitting the environment and their wallets.

Microgen PV controllers allow them to do just that, and offer installers a new way to maximise their own returns in a competitive market, while still offering punters the best deal.

Take the immerSUN for example – the microgen controller we developed at 4Eco. It allows up to 100 per cent of self-generated energy to be used within a home or business, compared to just 30 per cent, on average, without.

It does this by is addressing the inconvenient truth that affects all owners of PV – the fact that the peak daytime hours when panels generate the most energy are, more often than not, the times when power consumption is at its lowest.

As every installer knows, that excess self-generated power would usually be exported back to the grid, at which point the FIT comes into its own. However, PV owners then often find themselves having to buy back electricity from the grid in the evenings at a higher rate per kilowatt hour (kWh) in order to heat their houses or hot water tanks.

Better then, surely, to give them the option to divert that excess power straight into their own heating systems at peak times as the immerSUN does.

By diverting supply to immersion, space or underfloor heating, the immerSUN saves its owners 10 pence for every kilowatt hour generated – that's a realistic reduction in household energy bills of £250 per year. Based on an RRP of £600 when fitted, that means it pays for itself in less than three years.

It requires virtually no electricity to run, works with almost any type of microgeneration system and comes with an easy-to-use LCD display that allows automated programme settings to be customised, using timers according to each individual's lifestyle.

All these consumer benefits that microgen controllers bring will, in turn, benefit the installers who supply them, particularly in an industry where reputation matters.

Happy customers recommend, and those recommendations usually lead to more business in future.

The majority of microgen controllers are easy to install for someone with a good knowledge of electrics and renewables. However, to say that all makes of PV controllers are comparable is like saying the Internet is comparable to a carrier pigeon. Performance, possible cost-savings and usability differ dramatically, as does the way that each model manages the inevitable voltage fluctuations that come from self-generation.

Summing up: Microgen PV controllers enable system owners to use up to 100 percent of the electricity they product, as opposed to 30 percent without, says Jodi Huggett, immerSUN 4Eco's director

At 4Eco, we've invested significantly in research and development to help drive forward sustainable technologies safely, as take up of solar PV continues to pick up.

The immerSUN offers installers a realistic profit margin of up to 40 percent per unit, or more when offered to customers as an essential part of their PV installation. It is perhaps no surprise, then, that microgen controllers are fast become a byword for 'added value' within the industry.

Advantage immerSUN: 4Eco's immerSUN offers installers a 40 percent profit margin and is simple to install

Biomass Vs the bank account

In the commercial sector, green advocates are also savvy business people, who understand that, thanks to the Renewable Heat Incentive (RHI) and Feed in Tariffs (FiTs), choosing renewables offers a considerable return on investment. This message also works for the domestic market, argues **Simon Holden** from Euroheat

Installers looking to convince their customers should be explaining the monetary gains of related technologies to attract end users. Switching from fossil fuels offers some seriously impressive returns, making it the right thing to do for your pocket as well as the planet.

Wood heat has been a popular choice under the non domestic RHI. Figures released by the Renewable Energy Association (REA) show that biomass accounted for over 90 per cent of energy generation under the commercial arm of the scheme between 2010 and 2012. The 700+ companies across the UK wood heat supply chain support approximately 13,500 jobs and recent changes to the commercial scheme, including a doubled tariff for large-scale biomass projects to 2.0p/kWh for installations greater than 1MWth, will sustain interest in biomass for businesses.

For the domestic market, the journey is just beginning and to make renewables work, end users have to clearly understand the benefits – to the environment, and their pockets. Explaining the money they can save and even make is a powerful message and in the short term, more powerful than saving the planet. With low interest rates and a general distrust in banks, many people are looking for new places to put their cash; the RHI is an investment opportunity with returns far better than any savings account.

With low interest rates and a general distrust in banks, many people are looking for new places to put their cash

Money matters: According to Euroheat's calculations, a £35,000 investment in a 45kW biomass system would deliver a guaranteed return of £57,000 over seven years under the RHI, compared to a lowly £1,500 return in a deposit account

Explaining the RHI

The RHI is normally explained in terms of tariffs, which is OK; biomass earns 12.2p/kWh, great – but does this actually mean much to the average homeowner? A better approach is to look at returns in real terms. If you want to appeal to someone who's really got their head screwed on financially, talking about biomass purely as an investment brings up some impressive figures that should make most eligible homeowners sit up and take notice of this technology.

We've compared the RHI to a seven year fixed rate deposit account and worked out that the return on biomass could be over 64 percent compared with just 3.5 percent for your average deposit account. Sounds to- good-to-be-true? It's really not. If you invest £35,000 in a 45kW biomass system, payback will be achieved in just over four years with a guaranteed, tax free government return of over £57,500 during the seven years of the scheme. If switching from expensive oil fuel savings could be considerable, exact figures fluctuate but when added to the pot biomass looks even more attractive. The seven year fixed rate deposit account would make just £1,500, a paltry figure in comparison.

If your customers have had trouble seeing the benefits of biomass then these enticing financial benefits should provide food for thought. Granted, you need some cash to get going in the first place but with payback in a very short timeframe and the potential returns so attractive, when presented in this way, wood heating could appeal to homes that may not have even considered its benefits. Biomass Vs the bank account? I know which I'd choose.

Switching from fossil fuels offers some seriously impressive returns, making it the right thing to do for your pocket as well as the planet

Rural Energy scoops top accolade

Biomass specialist Rural Energy has won a top honour at the British Renewable Energy Awards.

The Leicestershire-based company was named 'Installer of the Year' in the ceremony which took place at The Savoy, London, in June.

It was nominated for the award after delivering large projects with the NHS, National Trust and Ministry of Defence.

Speaking after the event, Rural Energy's managing director Paul Clark, said: "It is fantastic that the work of Rural Energy has been recognised by the renewable energy sector.

"This award is a great testament to the hard work, dedication and expertise of our team and its superb record of delivery.

"Rural Energy continues to go from strength to strength as more and more organisations recognise the many benefits of modern biomass technology."

L – R James Beard REA, Paul Clark, Virginia Graham (chief executive of the REAL)

Baptism of fire

Simon Boorer, md of Optimum Heating, introduces the latest biomass boiler manufacturer to start making large inroads into the UK market - KWB

Who are KWB biomass boilers? You'll be forgiven for not having heard of this major Austrian biomass boiler manufacturer who, to date, has not had a significant presence in the UK.

But, behind the scenes, it has quietly been installing 100 - 600kW sized installations throughout the UK for the past 10 years. Having entered the UK market in 2003 and distributed via a national energy company, KWB's progress was hindered by its national sales partner's unwillingness to work within the small to medium boiler sector. As a result, sales remained low despite KWB's successful record within the rest of Europe.

As a result, it was amicably agreed by all partners that KWB's UK structure would be changed to enable small and mid-range models to become available throughout the UK to installers, in addition to spares, technical advice and training.

Over the past two years, after a great deal of investment and hard work, four regional partners have been established in the UK to turn this strategy into a reality. KWB can now boast nationwide coverage offering installers free live appliance training, assistance with installation and commissioning issues, technical advice and spares in stock.

The four regional partners covering the UK are:

- Optimum Heating (Southern England)
- Ashwell Biomass (Midlands and Wales)
- IXUS (Northern England)
- Original Heating (Scotland and Wales)

One of the first questions asked by installers is 'How much are your boilers?'. My answer is always the same – these are the Mercedes or BMW of the biomass market with a life expectancy in excess of 25 years. In actual field trials (as opposed to laboratory conditions), KWB boilers have proven to be the most efficient of all Austrian manufacturers. In fact, KWB now has a 20 percent share of the biomass market in Germany – the largest single market in Europe.

With over 60,000 KWB appliances now operating throughout Europe, the company's aim is to ensure a strong focus on its customer specific needs and providing a support service which is always available, flexible and close to them at all times.

All boilers have a three year parts and labour warranty, with options for an extension to six years. This ties in very nicely with the seven year payment period of the domestic RHI, and all warranties are backed with 24 hour cover locally by the four regional partners.

The rule for fuel

Peter Spurway, technical support engineer at Strebel, discusses RHI Emissions Certificates and explains what the new biomass sustainability requirements mean for applicants

Air Quality

In September 2013, the RHI biomass air quality emission limits were published following a two year consultation - a much needed step to take in terms of both domestic and non-domestic RHI product selection by eliminating those not meeting the emissions limits of 30 g/GJ1 for particulate matter (PM) and 150 g/GJ for nitrous oxide (NOx).

Initially, the amount of Emissions Certificates (EC's) available were in small numbers as all manufacturers hurriedly contacted test houses across the continent to ensure their respective boiler ranges met the new emissions limits.

In March 2014, a dedicated website listing products covered by RHI EC's was made available at rhieclist.org.uk. This is an essential tool for any biomass installer due the requirement for an Applicance EC for both domestic and non-domestic RHI installations up to 20MWth.

Not all initial non-domestic RHI applicants were required to meet the air quality requirements which were put in place last September; but other RHI criteria will soon affect both new and existing RHI claimants.

Fuel Sustainability

Currently undergoing consultation, biomass fuel sustainability criteria for the RHI will dictate that, from Autumn 2014, whether domestic or non-domestic, biomass installations must demonstrate either through reporting or sourcing from an approved supplier, that their biomass fuel meets either a lifecycle greenhouse gas (GHG) emissions target of 34.8g CO2 equivalent per MJ of heat, or a minimum 60 percent GHG emission saving relative to EU fossil fuel heat average.

What must be remembered by planners, installers, manufacturers and of course RHI claimants is that once in place, the sustainability criteria will apply to all RHI installations - including those accredited before the criteria come into force.

In advance of the criteria coming in to place, DECC has strongly encouraged participants who wish to self-supply their own woodfuel, to do so by sourcing fuel from the same estate as the installation to register on the Biomass Suppliers List (BSL) as a self-supplier - without undertaking an assessment against the sustainability criteria if the boiler is less than 1MW capacity. Self-suppliers are strongly recommended to provide some evidence of their ability to self-supply, such as a Forestry Commission approved management plan.

A welcome note for self-supplying participants who cannot meet all of their fuel requirements from their own woodland is that they will be able to top up with fuel purchased from a BSL supplier. Like the Emissions Certificate list HETAS has developed, the BSL will be run by Gemserv, partnering with HETAS and their Woodsure fuel standard scheme.

As appliance manufacturers, Strebel are supportive of fuel quality schemes such as ENPlus and Woodsure; because using the right quality fuel ensures that our equipment can operate reliably and any problems can be readily diagnosed.

Stepping stones for the biomass market; the Air Quality and Fuel Sustainability criteria go a long way to developing a regulated and improved market for products available for use in the UK. Having waited so long for the domestic RHI to launch, the take up has so far been slow. But with more and more installers and manufacturers ensuring necessary MCS Approvals are in place and criteria now reflecting only the cleanest burning and most sustainable fuel is being used; I'm sure I'm not alone at looking forward to the near-future with optimism, and the changes being made for the benefit of the environment and UK biomass market.

Autumn watch: Peter Spurway, technical support engineer at Strebel, reminds installers that from autumn 2014, all RHI biomass applications must demonstrate that fuel meets strict sustainability and emissions criteria

Air Quality and Fuel Sustainability criteria go a long way to developing a regulated and improved market for biomass products

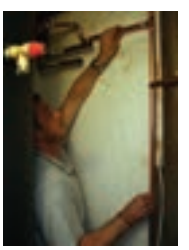
Easy as 1,2,3

Dimplex Renewables accredited installer, **Finn Geotherm**, demonstrates how to install an air source heat pump system in 11 steps – and what makes A-Class so easy to install for MCS approved installers

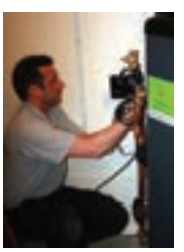
1. **Survey and calculations**
Work with your manufacturer of choice who can support with the necessary property survey and heat loss calculations. This will ensure that the new heat pump system is sized correctly to meet the required heating load as required by MIS3005.

2. **Remove existing boiler system**
Remove the existing boiler, radiators if necessary and primary pipe work. This will inevitably depend on the existing boiler or previous heat pump which is being replaced.

3. **Install new pipework**
Careful planning is essential and runs should be minimised where possible to minimise heat loss through pipework. Pipes should be insulated too.



4. **Install cylinder and control valves**
The Dimplex range of EC-Eau Smart heat pump cylinders come with pre-formed pipework complete with bleed valve which ensures connection is quick and simple. System packages are also available which include all the necessary valves and components.



5. **Site heat pump**
Make sure the heat pump has a steady base on which to sit and is sheltered from strong winds, rain water, leaves and other debris. Consider noise impact on neighbouring properties too; MCS020 Planning Standard has strict criteria to calculate the noise impact of any air source heat pump installation.

6. **Connect external pipework**
With most heat pumps an F-Gas registered installer would be required here, but the monobloc construction of A-Class provides a sealed refrigeration circuit so it can be installed by heating engineers with no need for an annual F-Gas inspection.

7. **Install new radiators**
Many heat pump systems will include the installation of new radiators to offer improved comfort or help to improve the efficiency of the system. Fan assisted radiators like Dimplex SmartRad operate at lower temperatures with a lower water content and can optimise the performance of a heat pump.

8. **Wiring connections**
Dimplex A-Class comes with pre-wired thermostats, immersions, sensors, pumps and valves to take the hassle out of wiring. This keeps the main bulk of the control wiring in the house and means there is no need to run extra cables to the heat pump.

9. **Commissioning**
Once the system is connected, commissioning can be undertaken and the system put to work. At this stage it is also recommended to flush the system with a pump set to remove debris, as well as filling the system with water and de-aerating to ensure optimum performance.

10. **Programme the controller**
The A-Class controller comes pre-configured or can be manually programmed through a specific installer mode - leaving homeowners with a simple but sophisticated heating control. This is also an opportunity to offer basic training on the heat pump system and make sure customers are aware of how they can maximise efficiency of a low temperature heating system.

11. **Documentation**
The final step is completion and handover of all paperwork to the customer, including the necessary MCS certification to ensure eligibility for the Renewable Heat Incentive. A-Class now includes a standard three-year warranty for added peace of mind.

To meter or not to meter

Mark Krull, director at Logic4training, discusses the air source heat pump's popularity and what types of applications require a heat meter

Of all the renewable technologies, air source heat pumps (ASHPs) are one of the most straightforward when it comes to space, installation and maintenance, providing homeowners with a real cost-effective alternative to LPG, oil or direct electric. They're also the most popular, representing 41 percent of all domestic RHI applications made between the 09-30 April. Solar thermal stands at 24 percent, biomass 22 percent and ground source heat pumps at 14 percent.

Depending on the fuel being replaced, an ASHP could save between £150 (replacing oil) and £530 (replacing electric economy 7 storage heating) per year. In addition, the RHI will provide payments for renewable heat generated for a period of seven years, with tariffs being set at 7.3p/kWhth.

When installing an ASHP a key consideration is that the payback period of each unit is hugely dependant on the efficiency and quality of the system. Installers should familiarise themselves with the MCS emitter guide, which illustrates the relationship between heat pump efficiency and water flow temperature using a star-rating system. Heat pumps must be used as space heating systems to qualify for the RHI, not just hot water.

For the complete 'Heat Emitter Guide for Domestic Heat Pumps' visit: **www.microgenerationcertification.org** and search for MIS 3005 Supplementary Information 2 – Heat Emitter Guide.

What systems need metering?

Under the RHI, installers must understand when a meter should be fitted. Ofgem has produced the 'Essential Guide to Metering', which holds key information for homeowners and installers about metering for tariff payments.

Two renewable heating systems installed alongside one another, i.e:

- Two different types of renewable space-heating system (e.g biomass and a heat pump) installed in the same property. This applies regardless of whether they were installed at the same or a different time.
- Two of the same types of eligible space-heating system (e.g two ASHPs) commissioned at different times.

However, if two of the same renewable heating systems are commissioned at the same time (e.g two ASHPs), they will be considered as one heating system and so will not require metering. Metering is not required for solar thermal hot water under the domestic RHI.

Where heat pumps are concerned, a meter also needs to be fitted where the heating system combines a heat pump with a fossil fuel system (back-up system). Whether it is fuelled by gas or oil, it will need a meter to take into account the non-renewable portion.

Meters are also a requirement if the property is being occupied for less than half the year - fewer than 183 days per year. This is because it won't be using as much heat as a permanently occupied dwelling, so it will not be possible to use the estimated annual heat use figure from the EPC to work out RHI payments. Guidance may change over time as more knowledge and experience is built up in regards to installing and using heat meters.

New ASHP only course

As ASHPs are shaping up to be a popular choice, we are running an ASHP-only courses, ideal for installers unlikely to come into contact with the types of properties suitable for the ground source variety. The new *Logic Certification QCF Level 3 qualification in the Installation and Maintenance of Air Source Heat Pumps,* is designed to save engineers valuable time and money by allowing them to specialise in just one heat pump technology.

Rule book: With ASHPs contributing over 40 percent of all domestic RHI applications, installers must have a better understanding of the circumstances in which a meter is required, says Logic4training's Mark Krull

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renewable energy

The hybrid solution

Hybrid heat pumps could be the key to kick-starting a UK revolution in greener heat in properties heated by gas. Installers should seize this new opportunity in renewable heating, says **Nancy Jonsson**, product manager, heating and renewables, Daikin UK

Domestic hybrid heating systems present a particularly exciting market opportunity. They are ideal for boiler replacement in on-gas properties, so are suitable for a much bigger market than other renewable solutions that only offer running cost savings in off-gas properties or highly efficient, modern homes. This, coupled with their eligibility for domestic Renewable Heat Incentive (dRHI) payments, means taking the decision to be certified in installing hybrid systems could prove lucrative for installers across the UK.

The Daikin Altherma hybrid heat pump system, for example, combines a gas condensing combi boiler and an air-to-water heat pump, in one small, compact appliance. It is up to 35 percent more efficient in heating than the most efficient gas condensing boilers and is suitable for homes with a heat load of 12kW- 20kW. The combi boiler provides instantaneous domestic hot water, with flow rates of 13 l/min (dT 35°C).

The heat pump and boiler work uniquely in series and there are two settings for heating: ecological or economical. In ecological mode, the user can minimise carbon emission rates. In the economical setting, the smart controller continually monitors energy prices (electricity and gas), heat pump efficiency and heat load, to select the most economical operating conditions. Only on the coldest days does the boiler take over space heating entirely.

In fact, over an entire year, up to 70 percent of the energy required for space heating is provided by the heat pump, either on its own, or in combination with the condensing boiler in hybrid mode. In this mode, heating water is pre-heated by the more efficient heat pump, reducing the energy consumed by the boiler.

The compact indoor unit is designed to fit in the same space as a conventional wall-hung boiler and as the system can operate at water flow temperatures of up to 80°C, it can be connected directly to existing pipework and radiators. The indoor heat pump hydrobox is simply mounted onto a wall bracket and then the gas boiler is lifted onto the front and fixed to it. This split refrigerant system includes an outdoor unit that can be installed up to 20m away.

All the connections to the Daikin Altherma hybrid heat pump are easily accessible, making it quick to commission and easy to maintain. In fact, the gas boiler can be commissioned before the outdoor heat pump unit, so it is ideal for urgent jobs.

Daikin UK offers a comprehensive support package for installers, with hybrid training and specialist advice throughout the design, installation and commissioning process. To install a Daikin Altherma hybrid heat pump system, installers also need to be Gas Safe registered and F-gas qualified.

If the householder wants to apply for dRHI payments, their system must be fitted with meters. They will also need to choose an installer certified by the Microgeneration Certification Scheme (MCS) and select MCS accredited products, such as the Daikin Altherma hybrid system.

For homeowners using gas or LPG boilers coming to the end of their working life, a hybrid system, including a new boiler, will deliver the lower running costs associated with renewable heating and provide the opportunity to take advantage of dRHI payments. For installers willing to invest in training and accreditation, these systems are an excellent way to introduce new customers to renewable energy technologies, especially where the system is packaged with a familiar gas combi boiler.

Winning combination: Hybrid systems are an excellent way to introduce customers to renewable energy whilst retaining the familiarity of a fossil fuel boiler, says Nancy Jonsson of Daikin UK

Growth fund

Darren Riva, head of green finance at Siemens Financial Services, introduces the company's Energy Efficiency Financing (EEF) scheme which aims make the generation of green energy more affordable for UK businesses

In recent years, many organisations have delayed their planned investment into renewable energy generation over concerns about tying up their precious capital funds, which might be needed for more tactical working capital requirements. Bank lending – the main traditional source of finance, especially for SMEs – continues to contract. According to the latest Bank of England Trends in Lending report, the annual rate of growth in the stock of lending to UK businesses remained negative in the three months to February and lending to large businesses in particular has been negative since 2009.

The EEF scheme is designed to provide finance for a wide range of energy efficient and renewables equipment, particularly biomass boilers and solar photovoltaic installations for businesses and organisations in all sectors across the UK. Tailored monthly payments are then arranged over an agreed financing period so that the expected energy savings/earnings offset the cost of financing the equipment, effectively making the investment zero net cost or even cash positive from day one. With the removal of budget constraints, equipment suppliers can focus on providing a technology solution that is best suited to their customers' needs and business circumstances. Furthermore, recognised suppliers of the scheme are able to incorporate financing into their overall sales proposition, making the acquisition process a convenient, one-stop shop experience for their customers which ultimately helps suppliers secure and close deals faster.

Prior to finance being approved, Carbon Trust Implementation Services conducts an independent energy savings/earnings assessment to validate that the expected income from the Feed-in Tariff (FIT), Renewable Heat Incentive or Renewable Obligation Certificate, in conjunction with other benefits e.g whether the reduction in fuel costs will match or exceed the equipment finance payments. This independent audit gives customers the assurance that the projected monetary benefits predicted by their equipment suppliers can be truly realised.

EEF case study

Established in 1994, Pro Enviro is a multi-disciplinary consultancy providing renewable energy generation technology to organisations across the UK. It works with a wide array of businesses, ranging from industrial sites, to large commercial developments, to logistics and distribution centres. Based in Rugby, Pro Enviro was one of the first recognised renewables suppliers of the Energy Efficiency Financing (EEF) scheme.

Davoud Davies, senior project manager of Pro Enviro, said: "The EEF scheme has been enormously helpful in enabling our customers realise capital-intensive projects. It gives organisations the opportunity to acquire the required equipment and start making savings on day one even if they lack initial capital. The uncertain economic climate has made businesses wary of committing to the cost of green investments without having the certainty of getting a quick return. With EEF, our customers have the confidence that projected savings are going to match or exceed the monthly equipment finance payments. As an independent energy savings assessment will be conducted by the Carbon Trust to verify our predicted savings on projects, businesses can take extra comfort in knowing that savings are realistic and achievable.

"We have gained new business because of our ability to provide technology expertise and financing at the same time, hence saving customers the troubles of having to source finance elsewhere. The affordability and simplicity of EEF really make it a no-brainer for businesses to go green."

Financial affairs: With bank lending still lower than pre-recession rates, Siemens offers a dedicated loan package at zero net cost to businesses wanting to embrace renewable energy, says head of green finance Darren Riva

With the removal of budget constraints, equipment suppliers can focus on providing a technology solution that is best suited to their customers' needs

Fabric First

When it comes to installing air source heat pumps, heat retention measures should be addressed. Otherwise, instead of being a sensible money saver, the heat loss could cause higher fuel bills, explains **Tim Pollard**, head of sustainability at Plumb and Parts Center.

With the introduction of the RHI to the domestic sector, renewable heating is only going to grow in popularity.

The incentives associated with the RHI have already proved to be popular with the commercial sector, as non-residential businesses have been able to benefit from generating and using renewable energy to heat their buildings.

Return on investment

The RHI has a number of advantages as, not only does it encourage a greener, more sustainable way to heat a building, it also offers some attractive figures in terms of recovered costs.

Owners of domestic and commercial properties alike are always trying to find ways to keep energy costs low – even better if there is the chance to get a return on investment.

One of the most popular domestic installations is likely to be an air source heat pump. These are cheaper than a ground source heat pump and are generally considered to be less disruptive to install.

But first, as an installer, you need to determine the performance requirements for the heating system you plan to fit.

Heat pumps heat water to a lower temperature than traditional boilers so they work at their best when they are installed in a well-insulated building.

Whilst it is generally acknowledged that insulation can improve performance, there is still a significant number of buildings in the UK with less than the recommended level of insulation. In a domestic space, insulation is generally fitted to walls, loft spaces and ground floors in order to maximise heat efficiency, create an even temperature in the home and it will also help prevent heat escaping. It also works in the reverse, as in the summer months, insulation can also reduce the amount of heat building up inside the house during the hot spells.

The best environment

There are a few further steps you can take to make sure you are installing your air source heat pump in the best possible environment.

Get close to the cylinder - In order to reduce any transferred heat losses from the pipework locate the pump as close to the DHW (Domestic Hot Water) cylinder as possible. By not doing so the temperature in the cylinder is not maximised. If the heat pump is producing 55 ºC it could lose one or two degrees of heat by the time it gets as far as the cylinder.

Check existing radiator size - Most heating systems use radiators and they would have been sized accordingly at the time of installation.

Capital idea: Money invested in upgrading insulation will save money on the overall cost of a heat pump system, argues Plumb Center's head of sustainability Tim Pollard

But don't assume that is still correct. Heat pumps work at different temperatures to boilers so the radiators will need to be re-sized. If the surface area of a radiator isn't increased, when it needs to be, the flow temperature will have to be increased, which in turn will reduce efficiency. So don't ignore the existing radiators.

What about double glazing? In a typical property, mid-terrace or semi-detached, double glazing could save the homeowner around £100 a year on their energy bills.

Handy calculation tools

The MCS guide is a handy tool, as are SAP (Standard Assessment Procedure) reports. They provide the building fabric data needed to calculate the total heat loss. This will give you the confidence to deliver the right system for the customer.

Installers can impress customers by being proactive and instigating a survey on the property's current heat loss measures. Any money spent on upgrading insulation can save money on the capital cost of a heat pump system, so make sure your customers can make the most of their installation – and their investment.

Letting off steam

With the common belief being that the payback is more lucrative for heat pumps and biomass boilers, the introduction of the domestic RHI is expected to do little to support the solar thermal market. **Ian Stares**, product director for renewables at PTS discusses the virtues of this technology and questions the lack of enthusiasm amongst both installers, and homeowners

Following the much-awaited arrival of the RHI, the industry and installers alike are preparing for a boost in enquiries regarding a range of renewable heating technologies. However, it is clear that the incentives are geared towards specific products – in particular heat pumps and biomass - more than others. This will potentially result in products, which do offer great potential in terms of payment, being left of the shelf. Solar thermal is shaped up to be one of these products.

Entry level product

In my experience, solar thermal has offered a strong foundation for those looking to enter the renewables market or begin to make energy savings. The main reason for this is because solar thermal can often be installed without a complete overhaul of the current heating system or changes to the existing boiler. As a simple 'add on' to a system, the initial investment is minimised and the installation is completed in a relatively short space of time.

Another benefit is that solar thermal could be seen as a non-intrusive product. A solar hot water cylinder is usually required which can take up marginal space when compared to the normal hot water cylinder. However, a common challenge we hear from homeowners is that the panels can negatively impact the exterior aesthetics of a property. I don't believe visibility on the roof has been a major factor preventing solar PV from becoming mainstream though. Arguably, the panels can also be viewed as an outward symbol of a homeowner taking responsibility for the environment and trying to make energy savings.

Proven ease of installation is also seeing many more installers get on board with solar thermal

Impressive results

Naturally, the payback period for solar thermal depends on the amount of panels installed, but it remains an effective addition for producing hot water requirements which will fulfil the needs of the average family home. On a typical UK home, there is the potential to provide 65 per cent of annual hot water requirements. Solar hot water can also be achieved, even in the middle of winter when the sun is shining on a cold day.

There are a variety of panels to meet a range of requirements. Flat plate panels tend to be slightly more robust than the evacuated tube type, and as the name suggests, have a solid flat front, although evacuated tubes nowadays go through a rigorous quality tests to ensure robustness. This type can be installed in new build situations or also retrofit. Evacuated tubes are generally thought to be more efficient, especially in the Spring and Autumn, than the equivalent sized flat panel. They also weigh less and can be easily installed with some manufacturers' units constructed in situ on the roof. This proven ease of installation is also seeing many more installers get on board with solar thermal.

Mainstream technology

Ultimately, solar thermal heating has been around now for some years and is a well-known technology which installers are confident to specify and install. My message to the industry is to take solar thermal heating more seriously, and not always look solely at the numbers but instead the many other positives that this technology presents. The domestic RHI launch and the opening of OFGEM funding presents huge opportunities across the industry and solar thermal shouldn't be sat on the sideline.

Unsung hero: Installers should be more confident when offering solar thermal to customers due to its unrivalled ability to 'bolt on' to existing heating systems, explains Ian Stares, PTS

Keeping the faith

Stephen Knight, commercial director at Navitron, discusses the domestic RHI and why installers should stick with solar thermal when faced with negative perceptions about viability compared to other renewable heat technologies

The domestic RHI has been live for over three months now, and a major concern is that, because the scheme was delayed several times over the past four years, many homeowners who had initially been waiting for the launch before installing solar thermal have lost confidence in and forgotten about renewable heating or, in some cases, installed solar PV to claim Feed-in Tariff income instead.

Technologies such as heat pumps and biomass systems were never viewed with the 'one or the other' mindset possessed by homeowners as with panels – and now, those who might have purchased solar thermal have either spent the money they had set aside for renewables on PV or may no longer have additional roof space.

Despite the RHI being in effect since April, many installers are describing solar thermal as a hard sell due to the difficulty of reaching homeowners that have never thought about hot water panels as an option, especially with tariff rates for other renewable heating technologies being more attractive.

Top technology: It's important for installers to continue pushing the sometimes overlooked money-saving and money-making benefits of solar thermal, argues Navitron's Stephen Knight

Although this new audience may have a perception that panels aren't as much of a viable or financially-sound investment compared to the other options, installers must not give up on solar thermal.

The payback time may be a bit longer and rates of return less ideal when compared to other domestic RHI technologies, but those aren't the only considerations customers should be factoring in when deciding whether solar thermal is right for them.

Cost compared to return

On average, solar thermal systems cost between £3,000 and £5,000 – thousands less than other technologies covered under the domestic RHI.

When speaking with customers who want to 'go green' without breaking the bank, pointing out the cost difference of solar thermal compared to other domestic RHI technologies (£2,000-£14,000) is key, as is quoting the estimated total return on investment over a system's lifetime.

An unobtrusive technology

When it comes to general day-to-day operation, solar thermal panels are practically out of sight once installed. They also don't take up space within or outside of a house except for the roof, making them the perfect option for homeowners with limited outdoor space.

The installation process is also quick and easy and, when it comes to planning permission, solar thermal panels are almost always considered a permitted development.

Low maintenance

There is virtually no maintenance required once the panels are installed, except for the occasional check to ensure the system is doing what it is designed to do.

Other technologies covered under the domestic RHI require yearly maintenance checks and more frequent professional checks than solar thermal. These options also require a fair bit more day-to-day care than solar thermal, with filter changes and weekly cleaning necessary to ensure the longevity of these systems.

When looking at the performance of the domestic RHI to date, it's important to keep faith and remember that the scheme is still in its infancy. The Feed-In Tariff only truly exploded in popularity when it was announced that rates would be cut and potential incentive earnings would be lowered, showing that campaigns like the domestic RHI take time for people to digest and understand.

Raising the roof

South west transportation company **Gregory Distribution** has boosted its green credentials following the completion of a 250 kWp solar PV system by SunGift Energy

The system is installed on the roof of Gregory Distribution's temperature-controlled and ambient distribution centre in Cullompton, Devon, and will not only generate an estimated return on investment of 19.3 percent, but also reduce the company's carbon emissions by 116 tonnes per year.

"Reducing our environmental impact is extremely important to us," said Paul Jefferson, operations director at Gregory Distribution.

"But the decision to install solar panels was predominantly a financial one and the figures had to stack up. SunGift's figures showed that we'll pay back the price of the system in just over five years, followed by another 15 years of Feed-in Tariff payments, which presented a very strong case for going ahead."

Gregory Distribution's chilled and frozen warehousing operates 24 hours a day and a significant proportion of the electricity generated by the solar PV panels will be used on site, rather than being fed back into the national grid.

"This allows us to make maximum use of the energy that is generated," added Paul. "It means that we get the maximum financial benefit and – as we're producing our own electricity – we also reduce our reliance on our regular energy supplier."

Before starting the work, SunGift sent out a surveyor to assess the site and look at every possible option for Gregory Distribution. The design team then discussed the options in detail and designed a bespoke system that included 1,000 BenQ Solar Green Triplex Panels.

Gareth Walton, SunGift Energy's business development manager, said: "Many distribution businesses are looking for ways to reduce their energy costs and become less reliant on their energy suppliers, and solar PV is the ideal solution, particularly as most have ample roof space on their warehouses to install the panels on. What's more, as system costs have come down dramatically in the past few years and Feed-in Tariff rates have remained strong, five year payback periods are not uncommon. With a further 15 years of payments to look forward to and free electricity, distribution businesses really can make the most of the technology."

The solar PV system at Gregory Distribution that SunGift Energy carried out for Gregory Distribution included all preparation work, setting up safety rails on the roof, installing the solar PV panels and inverters, and carrying out all associated electrical works and commissioning.

"SunGift did an outstanding job," added Paul Jefferson. "Their attention to detail was excellent, and the disruption to our day-to-day business was kept to an absolute minimum. We're looking forward to seeing how the system performs over the next 12 months."

At a glance

System size	250 kW
Annual electricity generation	219,277 kWh
Annual FIT generation income (Year 1)	£23,287.22
Annual FIT generation income (Year 20)	£39,932.41
Annual electricity bill savings	£18,767.92
Annual FIT export tariff income	£1,017.45
Payback period	5.19 years
Annual ROI	19.3%
20 year profit	£905,559.73
Annual carbon savings	116 tonnes

Numbers game: Gregory Distribution's 250kW PV system will pay back in less than five years with an ROI of almost 20 percent

A force for good

Six **Remeha Gilles** biomass boilers have been installed at Brize Norton - the Royal Air Force's largest station

The Remeha biomass heating systems, which range from the specially-made 35kW system up to the 290kW system, are delivering an annual emissions saving of 309 tonnes as part of an ongoing replacement project to convert the existing oil boilers at RAF Brize Norton, Oxon, to biomass and slash carbon emissions.

Overseeing the project is Dave Hart, project leader at Team Q, the building and maintenance branch of the engineering services group Turner & Company.

"The biomass installations are all running smoothly and constantly with no need for gas or oil back-up," said Mr Hart.

"We have installed a total output of 775kW of biomass with an approximate consumption of 289 tonnes of pellets per year, replacing the old oil boilers which had a consumption of approximately 145,000 litres of oil. This in turn gives us a total annual emissions saving of 309 tonnes."

The first biomass installations at the station were in Building 305, the emergency response centre. This building alone would previously have emitted annual carbon emissions amounting to around 113.2 tonnes with the original oil-fired boilers in place. Since installing two Remeha Gilles 75kW biomass boilers, the RAF will effectively reduce this figure to zero.

Since its official opening in 1937, RAF Brize Norton has played an important role in providing support and relief wherever it is most needed. Now the celebrated station is leading the way on the environmental stage by taking action to reduce harmful carbon emissions by such a significant amount.

Air strike: The RAF has slashed its annual emissions by over 300 tonnes having installed 775kW of biomass capacity at its largest base Brize Norton

The right prescription

A project by **East Cheshire NHS Trust** to transform its energy infrastructure across two hospitals aims to shrink its carbon footprint by approximately 30 percent, while delivering guaranteed cost savings of £2.5 million over 15 years

The Trust has appointed ENER-G to undertake the project, utilising the Carbon and Energy Fund framework, funding, process and contract.

There will be no initial capital outlay by the Trust and the technology will pay for itself over a 15-year contract period via energy, environmental and operational savings, guaranteed by ENER-G.

The centrepiece of the energy savings scheme will be a 530kWe ENER-G combined heat and power (CHP) system, to be installed in an existing plant room at Macclesfield District General Hospital.

The energy improvements are projected to deliver carbon dioxide emissions savings of 2,049 tonnes per year, equivalent to the environmental benefit of removing 683 cars from the road or the carbon dioxide that would be offset by 1,680 acres of forest.

Robert Few, head of estates operations for East Cheshire NHS Trust, said: "By generating our own energy supply on-site at Macclesfield District General Hospital - via CHP - we will dramatically reduce our dependence on higher cost power sourced from the grid, while boosting our environmental performance. The modern new energy infrastructure will be paid for via the cost savings we make, with any surplus savings retained by the trust."

Alan Barlow, managing director of ENER-G Combined Power Ltd, said: "We are delighted to work with East Cheshire NHS Trust to help them reduce their carbon footprint and save money on energy. As specialists in CHP, we are developing a bespoke system for Macclesfield District General Hospital that will achieve more than double the efficiency of their existing energy supplies. We are experienced in delivering complex energy management projects in the healthcare sector, having partnered with more than 50 hospitals."

Full speed ahead

Maserati and Ferrari dealer, **Charles Hurst**, has unveiled the UK's first biomass heating and cooling system

The £322,000 investment by Charles Hurst Group with BS Holdings is part of the Group's overall commitment to reducing their carbon footprint.

By installing the biomass heating and cooling system in the Maserati and Ferrari showroom on Boucher Road, Belfast, Charles Hurst reports a saving of 41 tonnes of carbon in the first year of use and the Group has further plans to install biomass systems in their offices, showrooms and workshops across Northern Ireland.

Colin McNab, operations director, Charles Hurst Group said: "As an organisation we made a commitment to reduce our impact on the environment, but this system from BS Holdings also makes commercial sense.

"No other car retailer in Northern Ireland can boast such substantial savings and when you combine this with the lighting and heating control changes we've made across the Boucher Road complex between 2010 and 2013, you can clearly see that going green and investing in BS Holdings innovative heating and cooling plant makes economic sense."

Investment by Charles Hurst in a carbon reduction program across the Group is already paying dividends and the use of biomass systems has not only provided them with twenty years of free fuel under the RHI, but also compliments the industry's strive towards ever greener engines and hybrid vehicles.

Brian Hood, BS Holdings, said: "At BS Holdings we have invested significantly in research and development to develop a heating and chilling plant that is completely fuelled by renewable energy sources.

"It's great to see companies like Charles Hurst embrace renewable energy and we look forward to helping them and other businesses in both the public and private sector increase their use of renewable energy, cut costs and increase efficiency levels."

Pole position: Belfast-based Maserati and Ferrari dealer, Charles Hurst, has become the UK's first organisation to install a biomass-powered heating and cooling system

Check out challenge

A **shopping village** based in Bishop's Frome, Worcestershire, has made the switch to biomass, lowering its energy and fuel costs

The Hop Pocket Shopping Village was previously reliant on four oil-fired burners, totalling 130kW at considerable expense to the owners.

Through consultation with Euroheat and local renewables installation firm, Energy Efficient Centre, it was decided that an HDG compact 200 wood chip boiler would be the perfect replacement option. The new biomass system is set to save the owners approximately £10,400 in fuel per year and earn somewhere in the region of £22,488 in RHI payments. The carbon savings will be 77 tonnes per year.

The HDG Compact 200 features automatic ignition, self-cleaning systems and a large ash container. Built in Germany, the boiler system is designed to last at least 20 years.

The owners of The Hop Pocket say they are extremely pleased with their new biomass system and have since installed solar PV to further enhance their credentials as a green business.

Matthew Pudge, son of the owners Janet and John, said: "Thanks to our renewable technologies, we have reduced the amount of electricity used from the grid and our reliance on oil has almost been eliminated. Running costs are down significantly and we are getting good payments from the various incentives. I expect to pay off the capital expenditure of the biomass and solar PV in less than ten years."

Cashing up: The Hop Pocket Shopping Village in Worcestershire has recently installed solar PV having already banked a five figure annual energy bill saving via biomass

Top marks for Milton Abbey

Pupils and teachers at an independent school in Dorset have taken an innovative approach to reducing their energy consumption and carbon footprint

Milton Abbey School will install a range of measures, including a biomass boiler, water harvesting technology and air source heat pumps to save 3.3 million kWh of energy, reducing the school's carbon footprint by 1,000 tonnes. The measures, to be implemented by EIC – part of Utilitywise plc - follow an in-depth audit of the school's energy use, and should provide an annual saving of £330,000 on the school's energy bill. Underpinning the project is a finance package sourced by EIC.

Julian Litchfield, bursar at Milton Abbey School, said: "The EIC team were refreshing in their approach and explored a number of options to reduce our energy costs and utility consumption. Things have progressed smoothly and together we've developed a co-branded logo with the tag line 'Mission for Energy Efficiency' that was launched at the Friends of Milton Abbey School Summer Fete on 7 June. We are enjoying working alongside EIC and the benefits have been varied, from cost savings and efficiency gains to practical links to our students' education."

Being energy efficient is vital for schools and education providers to keep costs to a minimum

The Energy Solutions team at EIC were brought in by Milton Abbey School to advise on ways to reduce the school's energy consumption. Through ongoing discussions with the bursar the remit of the project has grown to involve a wide range of activities from a simple and effective pool cover to support with energy and oil tendering. The impact on students has not gone unmissed either and the project will provide numerous opportunities for pupil involvement from classroom based activities to learning more about a career in the energy sector.

Richard Tandy, energy solutions manager at EIC, said: "Our team is excited to be working in partnership with the headmaster, bursar, staff and pupils at Milton Abbey. The school has committed to making the scheme a success and together with our Energy Solutions team has actively engaged with internal stakeholders to instill buy-in, implement behavioural change and maximise efficiency gains. With energy prices expected to rise, being energy efficient is vital for schools and education providers to keep costs to a minimum."

The measures should provide an annual saving of £330,000 on the school's energy bill

Further energy saving at Milton Abbey School is planned with Philips, installing LED solutions across the school's estate including classrooms, offices, corridors, student accommodation and common rooms. The new lighting will provide students with an environment conducive to study and learning whilst also complementing the visual appearance of the buildings.

Jeremy Palmer, business development manager, education, Philips said: "Rising energy prices and the need to reduce CO2 are high on the agenda for many schools, colleges and universities, with lights accounting for around 20-25 percent of an education estate's costs. We are working closely with EIC to identify areas where LED lighting can help Milton Abbey reduce their energy bills and on-going maintenance costs, freeing up funding for other resources and school activities."

Figure it out

Generation tariffs for non PV technologies

Technology	Band (kW)	Tariffs (p/kWh)
Hydro	≤15	20.57
	>15-≤100	19.20
	>100-≤500	15.18
	>500-≤2000	11.86
	>2000-≤5000	3.23
Wind	≤1.5	17.32
	>1.5-≤15	17.32
	>15-≤100	17.32
	>100-≤500	14.43
	>500-≤1500	7.83
	>1500-≤5000	3.32

(Source: OFGEM)

Number of MCS registered installers per technology

Technology type	Cumulative number	Registered April 14
Solar PV	2825	18
Biomass	319	09
Air source heat pump	888	10
Ground source heat pump	734	07
Solar thermal	1020	10
Small Wind	107	01
Total	3393	61

Number of MCS registered installations per technology

Technology type	Cumulative number	Installed Apr 14
Solar PV	543217	7537
Biomass	5259	133
Air source heat pump	28244	348
Ground source heat pump	8094	47
Solar thermal	6401	83
Small Wind	4682	06
Total	595897	8154

(Figures supplied by Gemserv)

Generation tariffs for Solar PV

Tariff band	FiT rate (p/kWh)
<4kW	14.38
>4-10kW	13.03
>10-50kW	12.13
>50-150kW	10.34
>150-250kW	09.89
>250kW-500kW	6.38
Standalone	6.38
Export Tariff	4.77

Domestic RHI tariffs

Technology	Tariff rate (p/kWh)
ASHP	7.3
Biomass boilers	12.2
GSHP	18.8
Solar thermal	19.2

Tariffs apply to all eligible installations installed since 15 July 2009

Green Deal

Month	Assessments	Live GD Plans
May 14	23811	194
Total	234050	1372

Green Deal supply chain

Month	Assessor organisations	Providers	Installers
May 14	-4	08	18
Total	369	151	2619

(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	0.55 per litre	2530 litres	£1,392
Wood pellets	4800 per tonne	94	24300	235 per tonne	5 tonnes	£1,175
Natural gas	1 per kWh	90	25300	0.042 per kWh	25300 kWh	£1,062
LPG	6.6 per litre	90	25300	0.43 per litre	3833 litres	£1,648
Electricity	1 per kWh	100	23000	0.16 per kWh	23000 kWh	£3,680
*Air source heat pump	1 per kWh	290	7931	0.16 per kWh	7931kWh	£1,269
*Ground source heat pump	1 per kWh	360	6389	0.16 per kWh	6389kWh	£1022
Dual mode system 1						
Oil boiler (30% of heat load)	10 per litre	90	7590	0.55 per litre	759 litres	£417
*Air source heat pump (70% of heat load)	1 per kWh	290	5552	0.16 per kWh	5552 kWh	£888
Dual mode system 2						
Gas boiler (30% of heat load)	1 per kWh	90	7590	0.042 per kWh	7590 kWh	£319
*Air source heat pump (70% of heat load)	1 per kWh	290	5552	0.16 per kWh	5552 kWh	£888

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.

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: 8.4 Tier 2: 2.2	20
Medium biomass	Solid biomass: Municipal solid waste (inc CHP)	200 kWth and above, less than 100 kWth	Tier 1: 5.1 Tier 2: 2.2	20
Large biomass	Solid biomass: Municipal solid waste (inc CHP)	1000 kWth and above	2.0	20
Small ground source	Ground source heat pumps, water-source heat pumps, deep geothermal	Less than 100 kWth	Tier 1: 8.7 Tier 2: 2.6	20
Large ground source	Ground source heat pumps, water-source heat pumps, deep geothermal	100 kWth and above	Tier 1: 8.7 Tier 2: 2.6	20
Solar thermal	Solar thermal	Less than 200 kWth	10	20
A2W heat pumps	ASHPs	All	2.5	20

(Source: OFGEM)

Green Deal cashback levels

Technology	Cashback value (£)
Solid wall insulation	£4000
Cavity wall insulation	£250
Loft insulation	£150
Condensing gas boiler	£270
Condensing oil boiler	£310
Double glazing	£650
Heating controls	£100

A full list and further details can be found onine at http://bit.ly/PPlkXv

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BIOMASS

What: Exmoor hotel opts for wood-fuelled heating

How: 75kW Strebel Taurus ST75 boiler

Result: 30 percent cut in fuel bills

Heddons Gate hotel sits neatly tucked away near the village of Martinhoe; on almost the very Western edge of Exmoor National Park.

Pat and Mark Cowell took over the hotel in July of last year and since then have worked tirelessly with local contractors to bring the hotel away from the 1970's decor and transformed it in to a more modernised hotel.

The couple appointed Exmoor Heating to refurbish the bathroom suites, renew the water tanks and install a wood fuelled heating solution. Due to Exmoor Heating owner Matthew Wakeham's good previous experiences with Strebel, a Strebel Taurus ST75 boiler was selected to do the job.

A partition was built in a converted garage and a boiler room took shape in the form of an LA-PS/M buffer vessel and the biomass boiler. The other part of the garage was converted in to a fuel store with slanted flooring and a 6m auger feed.

The boiler is fuelled by locally-sourced wooden pellets, and alongside several new wood burning stoves, will ensure the hotel is heated efficiently and economically.

It is estimated the fuel cost per annum will be reduced by around 30 percent in comparison to the old oil boiler; and the 75kW installation is registered with OFGEM to receive the non-domestic RHI tariff for small biomass.

Hot stuff: A Strebel Taurus ST75 boiler sited in a converted garage now heats Heddons Gate Hotel in Exmoor

Feedback from the hotel's owners Mark and Pat has been encouraging. Mark said: "We are really pleased with our new wood-fuelled installation; the boiler and fuel store sits nicely adjacent to our main building and it achieves our aims to save on fuel cost and reduce our carbon footprint."

HEAT PUMPS

What: Holiday cottages receive green makeover

How: 2 x Danfoss DHP-L Opti Pro GSHPs

Result: Reduced energy bills

The cottages' developers approached Reina Group, based in Folkestone, Kent, a Danfoss-approved installer, which recommended two Danfoss DHP-L Opti Pro heat pump systems with a 400 litre cylinder and 120 litre buffer vessel. Each four bedroom property has two boreholes of around 100 metres in depth drilled onto the beach as the source of energy for the heat pumps. The two beach houses, which are built on a steel frame clad with cedar, were fitted with heat pumps of 8kW output.

Reina Group fitted underfloor heating throughout the properties and integrated a mechanical heat ventilation recovery system, saving energy by reducing heating requirements.

Dan Large at the Reina Group said: "It is unusual that bore holes are drilled into a beach, but it worked out really well on this project and the owners can now enjoy the benefits of this cleaner, greener energy, without having to rely on fossil fuels."

Chris Dale, director at Danfoss, said: "Heat pumps are becoming increasingly common for holiday cottages, as it means they are warm and comfortable but offer reduced running costs for the owners. The DHP-L Opti Pro is a very popular ground source heat pump as it offers a high level of energy efficiency."

Life's a beach: Heat from bore holes drilled under a beach in Kent now warms these two eco-friendly holiday homes

PV TESTING

What: Lightsource Renewable Energy equips engineers with PV testing kits

How: Seaward Solarlink kits

Result: Solar farms operate at maximum performance levels

Lightsource Renewable Energy has equipped its engineering maintenance teams with Seaward Solarlink PV test kits to enable them to fault check and verify the ongoing power generation efficiency of its 600MWp UK solar portfolio.

In total Lightsource owns and operates nearly 200 solar farms and large-scale roof mounted solar installations, as well as around 130 smaller scale assets on schools and other properties.

Detailed electrical supply information is provided for each solar site, down to individual solar PV string level, to provide the monitoring team with an early indication of any faults, under performance or other potential problems at the installation.

If any problems are identified, the company's operation & maintenance team can then be alerted to enable an on-site assessment to be made and any corrective action taken, with the Seaward Solarlink PV test kit said to be an essential tool in identifying the fault and making the necessary repairs.

Wireless Solarlink connectivity between the PV150 and the Solar Survey 200R meter enables real-time irradiance to be displayed and measured at the same time as electrical testing is being undertaken. This means that irradiance, module and ambient temperature is designed to be recorded simultaneously within the PV150 as the electrical tests are conducted.

Richard Ellis, Lightsource O&M regional manager for Central Region, said: "The test kit has become an essential part of our on-site tool kit, with the multifunction PV150 unit eliminating the need for engineers to carry separate meters for different tasks.

"The ability to take one combined measurement instead of many separate ones greatly improves operator efficiency and accuracy, helping to identify any faults within DC Strings and getting them back on stream quickly and safely - which is the key requirement of our maintenance work."

HEAT PUMPS

What: Pre-war bungalow embraces 21st century technology

How: 11kW NIBE F1145 GSHP

Result: A more energy efficient property

An 80 year old bungalow in Somerset has been fitted with a NIBE ground source heat pump in a bid to enhance energy efficiency, deliver savings on fuel and provide a comfortable, reliable heating and hot water source for the property.

The installation at the 2,300 sq ft bungalow was part of a major restoration project that saw owners Shaun and Judith Davey completely gut the property and start afresh. As part of this process, NIBE VIP Installers RES (Devon) Ltd installed a 11kW NIBE F1145 ground source heat pump, which allows them to harness renewable energy from their own back garden to meet the high heating and hot water needs of the four-bed, four-bathroom property.

"With 1.25 acres of land, it made perfect sense for us to make the most of our natural surroundings," said Shaun.

"Being an old, draughty property, this meant a great deal of heat was being lost through poor insulation. Therefore, we placed huge emphasis on making it as airtight as possible. Only then could we look forward to replacing our inefficient electric storage heaters with a highly efficient renewable heating system.

"Our NIBE heat pump is keeping the house at a lovely, constant temperature and we've not even used two thirds of its capacity yet – so we couldn't be happier. What's more, as well as qualifying for £2,300 of RHPP vouchers towards the cost of the system, we'll also be eligible for ongoing payments via the domestic RHI.

"We're so happy with our heat pump we're even considering greening up our electricity supply with solar PV panels in the near future."

Future proof: A draughty 1930s-built Somerset bungalow has been given a complete makeover including the use of a NIBE GSHP

Who: Dave Redhead, commercial PV electrician and surveyor at Solarlec

What: Solarlec is an award-winning national solar PV installer with its head office in Burnley, Lancs

Homeward bound: Despite the long hours of travelling, installing PV is an incredibly rewarding job, says Solarlec's Dave Redhead

Here, there and everywhere

Monday
Early starts are the norm for us as we like to be on-site for 8am, wherever we are in the country that day. The last six months have been busy ones for us on the commercial side, every job is different and can last anything from one day up to a number of weeks depending on the scale of the project, we've installed systems up to 200kW in size.

Tuesday
This week, I'll be away from home for two nights in Cornwall, which comes with the territory. The job starts tomorrow but I'll be on site the day before to check it out and plan for the following day's install.

I've never seen so much of the UK and that's one of the massive perks of the job – this one takes us to the stunning cliff tops near Looe Bay which I might never have got round to seeing otherwise.

Wednesday
Large scale commercial jobs like this one are common place, especially in the South West, it's an area that's grown massively in the three years I've been with the company.

The job this week involves fitting systems between 10kW and 50kW across a number of caravan sites and holiday parks in the area, but commercial jobs can be vast and varied. I've worked on poultry farms, schools, NHS health centres, factories, hairdressers and engineering plants to name a few.

A lot of electricians prefer the domestic side of the job but I find the commercial side far more interesting.

Thursday
Once the job here is done, we're back on the road up to our headquarters in Burnley, Lancashire. We have offices in Carlisle and Exeter too, which helps us to deliver that personal and professional level of service our domestic and commercial customers rely on.

On the way, I catch up with my twin brother, Darryl, over the phone. He works at Solarlec too, on the sales side. Apart from a two-year period after selling our electricals firm we've worked together for the past 20 years and it's all we know. We grew up with the same friends, playing the same sports so it was natural for us to gravitate towards a similar career path.

We found ourselves at Solarlec after Darryl bumped into Nick Keighley, one of the directors here, when he was at a crossroads in his career and was offered an opportunity in the emerging renewables market.

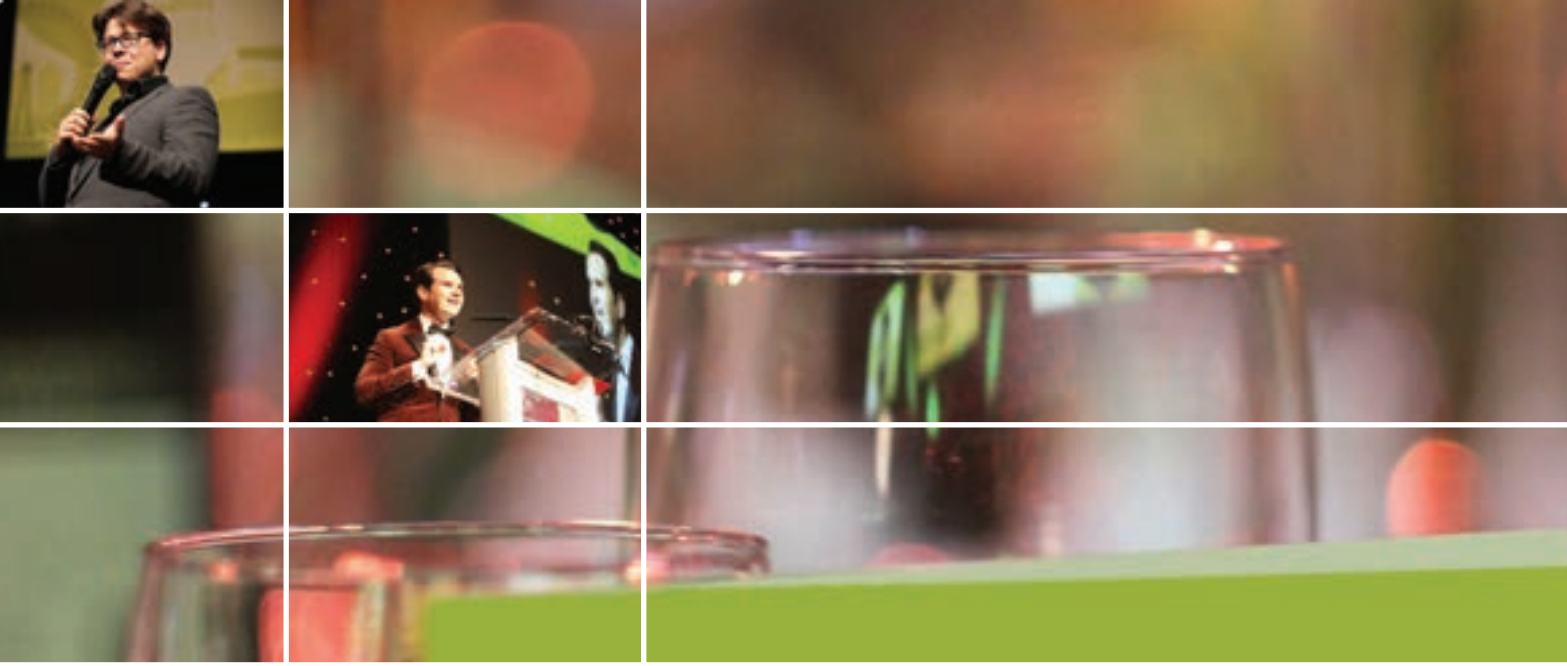
That was three years ago, and we haven't looked back.

Friday
After a couple of days away, it's back to the office to file paperwork, certification and documentation for this week's jobs. I try to get to the office once a day, but it's not always possible when we're on commercial jobs far from home.

From our perspective here at Solarlec, things are busier than ever. Green energy is definitely here to stay, so it's great to be involved and I'm fortunate enough to be working with a company that shares my enthusiasm for hard work and doing things properly.

Next week we're in Dumfries in Scotland fitting a PV system on a pig farm, so I finish off the week by planning for that job.

No two days are the same in this job, but if you're willing to do the hard yards and long hours it can be so rewarding, both financially and from a job satisfaction point of view.



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www.heatingandrenewablesroadshow.co.uk/awards/

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