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## Industry leaders forecast the year ahead

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# Glad tidings we bring

As the season traditionally associated with goodwill and charity to all people, it seems most appropriate that DECC ends the calendar year with a number of policy announcements aimed squarely at embedding the benefits of renewable energy more deeply within the echelons of society.

Having long faced accusations from detractors that the regime of RHI and FiTs is fundamentally a regressive one, lining only the pockets of wealthy homeowners with the means to meet the high capital cost of renewables, DECC has been busy looking at ways to increase accessibility to other demographics.

The priority and methodology given to 'democratisating' green energy might be open to debate, but waiving social landlords' requirement for a Green Deal Assessment will almost certainly boost applications from an underrepresented part of the market well-placed to deliver carbon reductions at scale.

DECC has also responded to the burgeoning popularity of community-owned installations and its £10m Urban Community Energy Fund, announced by Ed Davey in November, will allow groups to apply for grants up to £20,000 or loans of £130,000 to get projects off the ground.

On a separate note, 2015 will be a remarkable year (see industry predictions p30-31) not least for the return of the Heating & Renewables Roadshow. Now owned by the publishers of REI, the floorplan is rapidly approaching capacity with a small number of stands remaining available to potential exhibitors.

Further announcements will be made in the New Year on the show's content programme, plus how to enter the accompanying awards, although details of four new categories can be found by turning overleaf to page 4.

Last but not least, I'd like to thank our valued readers and advertisers for your continued support throughout 2014. All here at Team REI wish you a very happy Christmas and a joyous New Year.

# Contents






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**"Ecobuild understands that taking a day off the job is a significant investment to installers" Alison Jackson, UBM p8**

## Events

**The Green Building Roadshow ecoSHOWCASE**
02 Dec 2015 UWE, Bristol
10 Feb 2015 Salford City Stadium
**http://www.ecoshowcase.co.uk/register/**

**Ecobuild**
03-05 Mar 2015 London ExCel
**www.ecobuild.co.uk**

**ISH**
10-14 March 2015 Messe Frankfurt
**http://ish.messefrankfurt.com/**

**Sustainability Live**
21-23 April 2015 Birmingham NEC
**http://www.sustainabilitylive.com/**

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

**Solar Energy UK**
13-15 October 2015 NEC, Birmingham
**http://uk.solarenergyevents.com/**

# DECC policy is driving down bills

Household energy bills are £90 lower than otherwise as a result of government energy policies, the Department of Energy & Climate Change has calculated.

An average household dual fuel bill is currently £1369, which it says compares favourably to £1459 if green energy policies such as the Feed-in Tariff did not exist.

The variance does include the £50 discount passed onto consumers in December 2013, however, when the government reallocated the cost of some schemes such as ECO from household bills and onto general taxation.

DECC estimates that bills in 2020 will still be over £90 less than a business-as-usual scenario as a result of higher renewable energy deployment and efforts to tackle poorly insulated homes.

Energy secretary Ed Davey said: "We have the best energy security in Europe – and to stay that way we need to deal with a legacy of underinvestment and build a clean, secure energy system based on home grown supplies. I'm determined that while we tackle these challenges, consumers don't pay a penny more than they have to for the energy they use.

"We're making homes warmer and cheaper to run, giving particular help to the most vulnerable people and avoiding the predicted energy crunch, meaning we can drive down bills and support investment in the economy with more secure energy supplies and more stable bills."

# Heating & Renewables Awards are back

The Heating & Renewable Awards will return in 2015 bigger than ever before.

Following September's successful ceremony at The Kensington Roof Gardens, all 13 categories have been retained, plus four which are brand new to 2015 (listed below).

Previously known as The Energy Efficiency & Renewables Awards, the awards will also be returning to its regular venue – The Ricoh Arena, Coventry – on the evening of Thursday 10 September.

A black tie event, hospitality and high quality entertainment will be available plus the opportunity to continue the day's networking following The Heating & Renewables Roadshow's Midlands exhibition.

Please hold the date for one of the industry's most important calendar events and join us as we celebrate innovation and best practice.

**Awards categories:**

- The Contribution Award
- Commercial Project
- Residential New Build Project
- Residential Retrofit Project
- Heating & Renewables Innovation
- Biomass Installer
- High Efficiency Boiler Installer
- Solar PV Installer
- Solar Thermal Installer
- ASHP Installer
- GSHP Installer
- Commercial Installer
- Heating & Renewables Installer
- Apprentice of the Year **(NEW)**
- Oil Installer **(NEW)**
- Community Heating Project of the Year **(NEW)**
- Training Initiative of the Year **(NEW)**

More information including how to enter and sponsorship opportunities will be available in the New Year at: **www.heatingandrenewablesroadshow.co.uk/awards/**

# Installers fall foul of Ofgem heat sensor ruling

A growing number of installers and RHI applicants have hit out at Ofgem's decision in October to bar heat meters with strap-on sensors from the non-domestic RHI

Following a consultation in the summer, the scheme administrator ruled that heat meters with externally mounted heat sensors would no longer be eligible under the requirements of RHI regulations.

Although Ofgem has questioned the ability of these devices to provide accurate measurements, one disappointed rural business owner has spoken out against the organisation's conduct, having seen his own application fall foul of the decision.

Paul Jones, of Westover Farm in North Devon, has slammed Ofgem for its apparent shift in stance having reportedly accredited installations using the very same meters as late as last spring. He adds that a letter written to him by Trading Standards confirms that the sensors meet all requirements of the EC Measuring Instrument Directive – a standard set for the RHI.

Paul complains that: "Ofgem claims to have first become aware of issues in September 2013 yet did not carry out a consultation until July 2014 publishing the outcome in October 2014. During this time it failed to take any action to prevent more of the sensors being fitted and therefore more installers and investors are being dragged into this saga."

Paul had contacted by over 20 investors and installers wishing to take a class action for Judicial review of Ofgem's decision as well as the DECC decision to use an EC Directive for the RHI scheme that the UK does not subscribe to. Funding however has proved problematic.

"We're all SME's and charities, so we simply can't afford to go down the legal route. Justice it seems is for those who can afford it.

"My own application ran into trouble in February 2014 yet I know for a fact that two installations with the same equipment, put in by the same installer, were accepted into the scheme as late as May. Ofgem has been hugely inconsistent," he added.

"It failed to tell many installers and investors how to remedy the issue and actually strung them along by saying that Ofgem was commissioning tests."

**Legal route: Devon business owner Paul Jones has contacted other aggrieved RHI applicants to potentially launch a class action for Judicial review of Ofgem's recent ruling on heat meters with externally mounted heat sensors**

Paul's concern is that installers will ultimately suffer as consumers look for legal redress as a result of non-eligibility, or reduced ROIs if they are forced to reapply for the RHI on a degressed tariff.

Ofgem has made clear that they are looking at how to address the problem of the many installations that have been accepted onto the scheme with the sensors. It has not ruled out taking retrospective action.

Paul said: "To be a credible regulator Ofgem must be seen to be acting fairly. If two customers have the same system installed in the same timescale with the same certification, Ofgem must ensure they have the same outcome. Ofgem then can either penalise those already on the scheme or come up with a way of giving parity to those who had applications submitted before the consultation. Anything else is unfair. Failure to do so puts uncertainty into all these government schemes."

According to Paul, six MPs are taking up the fight on behalf of their constituents and in Scotland MSPs have called Ofgem to Holyrood in December to explain its actions.

"In accepting hundreds of these sensors on to the scheme, Ofgem has by custom and practice effectively indicated to the industry that these sensors are fit for the scheme. To retrospectively hurt applicants is a perverse and unjust decision.

"We asked for independent mediation, a practice promoted by government. Unfortunately Ofgem have rejected this."

In a statement given to REI, Ofgem said: "Following a public consultation, and an independent report from the National Measurement Office (NMO), Ofgem has not received evidence which satisfies us that meters with externally-mounted (or strap-on) temperature sensors would meet the requirements for the non domestic RHI scheme. They will not therefore be considered eligible unless we receive evidence which demonstrates they do meet the requirements as identified in our response document. This is part of Ofgem's robust accreditation and audit processes put in place to ensure we meet the scheme's objectives and protect the public purse."

# Get practical at Ecobuild 2015

Plumb Center's Practical Installer is returning for Ecobuild 2015 at London's ExCeL from 3-5 March. Head of sustainability, **Tim Pollard** explains to REI what installers can expect

As **REI** readers will know, renewable technologies are the future of the heating and plumbing industry. While many installers are embracing new technologies, they still have a way to go to make them into a viable business.

In 2015 Practical Installer will feature a business clinic, live demonstrations of the latest technologies from the top brands, as well as tips from Plumb Center's renewables and energy-efficiency experts.


**Crowd-pleaser: In addition to product demonstrations, Practical Installer at Ecobuild 2015 will offer a business clinic to aid installers looking to grow their businesses**

### Grow your business

Practical Installer will be acting as Ecobuild's business hub, giving renewable installers, old and new, tips and tricks on how to use renewables to make their business successful.

Installers visiting Ecobuild this year should take a look at Practical Installer's 'business clinic'. The clinic will feature one-to-one sessions, promoting opportunities across biomass and heat pump markets.

Visitors will get tailored, practical business advice and be shown how Plumb Center's dedicated specialist, renewables team can help their business grow by helping them get lucrative leads in the market as well as supporting them through the design, quotation and installation process.

There will also be the opportunity to see Plumb Center's computer aided design (CAD) service, which will be a great help to installers planning for a renewables project.

The service provides a detailed digital representation for installers working on air source heat pump, biomass boiler and underfloor heating projects. By providing our CAD designers with the relevant information, installers will be able to get heat loss calculations, sizing, heating installation drawings, full underfloor layout drawings and a schedule of materials.

### Training

There is no such thing as too much training – attendees will be able to get information and support on all the latest MCS accredited training courses offered by Plumb Center that they can take to expand their already growing renewables business, as well as taking advantage of the Renewable Heat Incentive (RHI).

Installers can rest assured that help won't end at Ecobuild. With a UK-wide network of renewable training centres, a dedicated hotline from Easy MCS and 21 specialist branches – there's always a time and a place for installers to expand their skillset.

Practical Installer lives up to its name, and installers will be able to get hands-on with the latest in renewable technologies – to see how they work, and how they can fit them into their business.

### The best of the best

In all industries the best brands become synonymous with quality, and the renewables industry is no different. To help installers get the best out of the best technologies Practical Installer will feature demonstrations from the biggest and brightest renewable suppliers in the market.

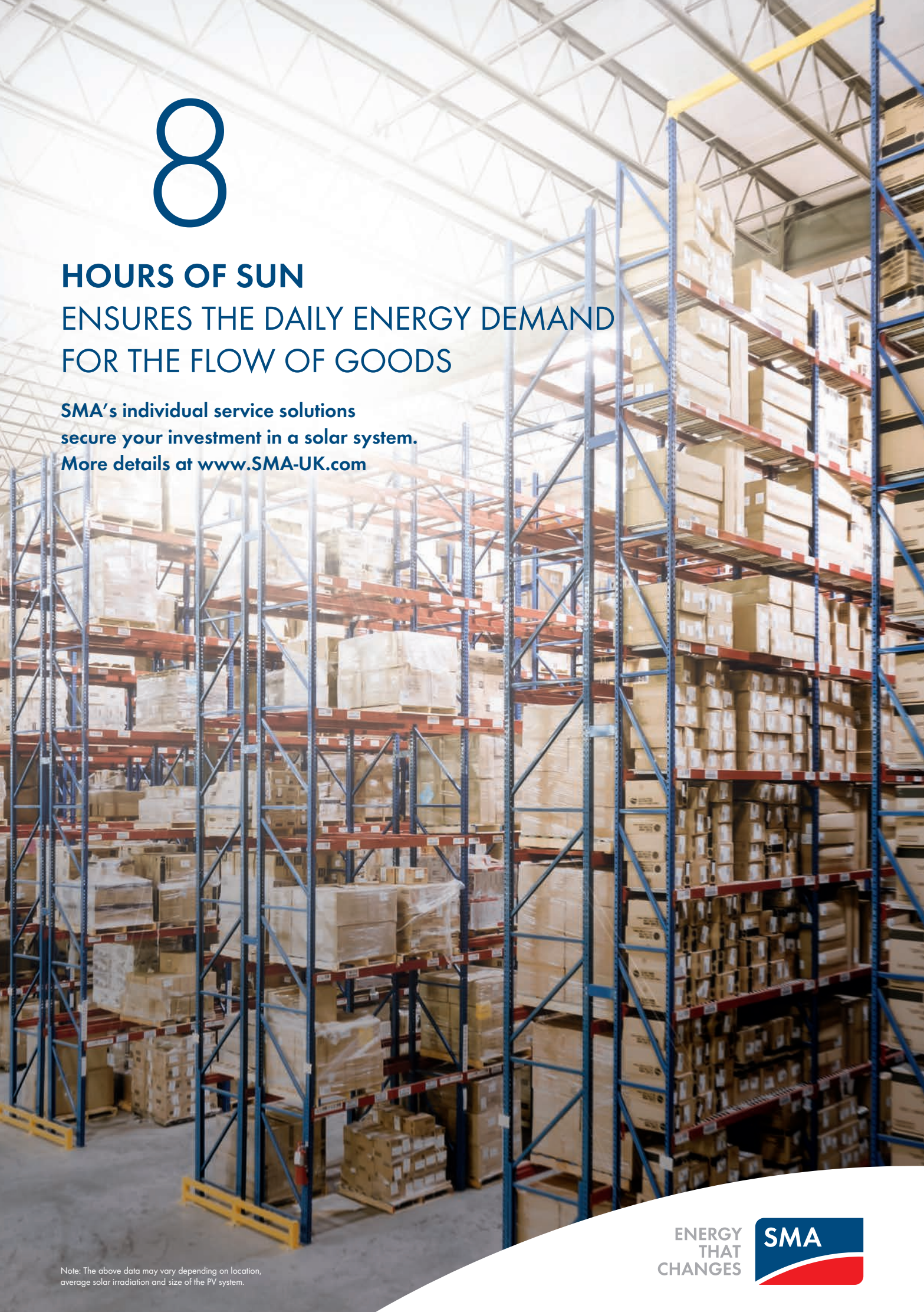
Mitsubishi Electric, Dimplex, Grant, Trianco, Honeywell, Fernox, Wilo and Heatrae Sadia have all been confirmed so far – with more due to be announced soon. Installers will be able to see top products in action such as the Mitsubishi Ecodan air source heat pump and the Grant Vecta Biomass boiler.

### You'd be mad to miss it

Even if you're a dab hand in renewable technology, as with most growing industries, there's always more to gain from further training and business help.

Renewables are the future of the heating industry and Plumb Center wants to help people get on top of it. Practical Installer is unmissable for any installer in the industry.

**Installers can register for Ecobuild 2015 by visiting the website www.ecobuild.co.uk.**



# 8

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ENERGY THAT CHANGES

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# Meet the experts

**Alison Jackson**, group director of sustainability & construction, gives REI a detailed look at plans for installers at Ecobuild 2015 (March 03-05 London ExCel)

**Q: What will be the key changes at Ecobuild 2015?**

For installers wanting to break into renewables and energy-efficient heating, the biggest change for 2015 is Ecobuild's new business-clinic approach. All the latest renewable solutions will of course be on display from over 125 exhibitors, however, this year, installers of all levels will also get the chance to meet the energy sector's 'Dragons Den' business experts who can who can help them grow their business and profit.

Experts from both MCS and Plumb Center are amongst those already signed up and will be calling for installers to raise their specific questions and book a slot with them ahead of the show.

Ecobuild will also be split into two areas this year; Energy, and Sustainable Design and Construction. Accounting for a whopping fifty percent of the show floor this year, the Energy area will be very clearly marked out and easy for installers to work their way round.

**Q: What in particular is on offer for installers?**

Re-invented to put profit in the pockets of every installer, whether just setting up, surviving or thriving in the renewables market, Plumb Center's Practical Installer will include a 'business clinic' for the very first time, promoting opportunities across the biomass and heat pump markets.

Installers will get to see products in action from leading manufacturers including: Mitsubishi Electric, Dimplex, Grant, Trianco, Honeywell, Fernox, Wilo and Heatrae Sadia.

**Q: What is the business rationale for installers sacrificing a day's income to attend?**

Ecobuild understands that taking a day off the job is a significant investment to installers and this is why we are working tirelessly to deliver both the technological innovation and business skills installers need to be equipped with in order to compete in this space.

As in any industry, if you've been working with a particular partner or supplier for a number of years, you will have built up a trusted relationship and feel you are clued up on their latest solutions and are getting the best deal possible. What I want to put out there about Ecobuild, is it gives installers the chance not only to look with fresh eyes at their existing partnerships and new solutions they might not be aware of, but also to check out the latest innovations flooding onto the market from the industry's top suppliers conveniently housed under roof.

Spring is also a critical time for installers to get up to speed on the latest training and technologies ahead of the winter and Ecobuild is perfectly timed to provide this.

All of this will be covered in March under one roof in just three days – the business case to attend couldn't be stronger!

**Q: What does the seminar programme offer this year?**

The Green Energy Zone is back for 2015. Sponsored by Innasol, seminars will cover the specification and delivery of low and zero carbon energy technologies to homes and other buildings. It also looks at energy supply at the commercial level.

Solar City, sponsored by SMA also returns next year and is set to cover the business case for PV on domestic and commercial buildings and at industrial scale.

**Q: What are you expecting in terms of exhibitor/visitor stats?**

In terms of overall attendees we drew over 44,000 in 2014 and expect this to increase again for 2015. Exhibitor numbers are projected to be over 700 of which over 125 will be showcasing solutions and services for the energy market.


**Business case: With the industry's top suppliers all under one roof, the commercial imperative remains strong for installers to attend Ecobuild 2015**


**Record number: Organisers are expecting Ecobuild 2015 to surpass last year's attendance of 44,000**

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# Divide and conquer

The Solar Trade Association and the Renewable Energy Association are to end their affiliation as of 1 January 2015 and go their separate ways. REI talks to the CEO of the Solar Trade Association, **Paul Barwell**, to find out more

**Q: What achievements are you most proud of from your affiliation with REA?**
The Solar Trade Association is immensely proud of everything the STA and the REA have achieved together over the last three and a half years.

Our biggest achievement together has to be helping the domestic solar industry through the very challenging period of changes to the FiT back in 2011. I am very proud to say that we have now got that market back into stable growth again – but it wasn't easy and needs a constant watching brief!

**Q: Why has the STA and the REA split having enjoyed such a successful partnership?**
The contract between the STA and the REA was up for renewal at the end of December 2014, and it was a choice between integrating the two organisations – a more formal partnership arrangement – or becoming two separate organisations. The financial costs of further integration were significant. In the end, the STA's board of directors decided that in order to make sure solar has as strong a voice as possible, and maximise our resources, it made sense to go separate ways.

**Q: What remain the key priorities and strategic objectives of the STA?**
Our strategic objective is to get solar PV to zero subsidy across all submarkets – domestic, commercial and large-scale – by the start of the next decade. That is the goal – the glittering prize at the end of the tunnel, for both the industry and the government.

*Our biggest achievement together has to be helping the domestic solar industry through the very challenging period of changes*

**United we stand: Paul Barwell, CEO of the STA, insists that his organisation's split from the REA will not spell the end of their close working relationship**

**Q: In what ways will STA continue to work with REA?**
There are a number of cross-cutting issues where the STA and REA will continue to work together – the grid, the integration of renewables into new build houses and community ownership of renewable developments. As we go about our work representing solar PV and thermal there are many instances when our needs are best served by joining forces with other associations and we will continue to do so.

**Q: Solar Independence Day was recently awarded best communication campaign at the Solar Power Portal awards. Why do you think it was so successful?**
We are a membership organisation and this is what we do best – it was driven by a number of very active member companies.

Solar Independence Day was a success because of the way that it allowed local residents to come and see for themselves what solar farms can do for rural areas, farmers and biodiversity. There is no better way of raising awareness than inviting people to come and see with their own eyes!

Further to the success of Solar Independence Day 2014, we have decided to make this an annual open day event and widen it out to domestic and big rooftop solar too. Save the date – Friday 3 and Saturday 4 July 2015!

**Q: What does STA have planned for 2015?**
Next year is going to see a shifting political landscape thanks to the election and the new government, so we will need to respond to that. On the agenda for 2015 is a push to expand and remove the barriers to the commercial rooftop sector, defending and expanding growth in large-scale solar, ongoing work on solar thermal and on new build homes – not to mention the review of the FiT.

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# Tripartite agreement

On October 01 2014, a Tripartite Agreement between DECC, the MCS Administrator (Gemserv) and the MCS Service Company (MCSSCo) was signed.

The signing of this important agreement should not be under estimated as it signifies the commitment of all the stakeholders in the microgeneration industry to move the Scheme forward with the establishment of MCS as a legal entity.

The effort put in at this early stage demonstrates the desire to ensure that MCS continues to build on the good work of its predominantly volunteer stakeholders and ensure that consumers are at the heart of all the scheme stands for.

The Tripartite Agreement can be found on the MCS website should you wish to read it; the key points to note are:

1. A clear path is now established for the MCS Service Company to be developed into its enduring legal entity structure;
2. Four key projects to support and maintain the robustness of the scheme, while supporting consumers who take the positive steps in trusting the products and installation services MCS's certified companies and products provide, will be progressed and implemented;
3. Novation of MCS Licence Agreement across to the MCS Service Company from DECC;
4. Greater clarity of the Scheme's purposes and objectives; and
5. Clear timetables with key actions to be delivered to progress this work.

The four key projects that MCS is now in a position to progress over the rest of this and the following financial years are summarised below:

- Audit and Verification by MCS: involves undertaking further auditing and inspection of sites to ensure that every part of the journey provides appropriate confidence and trust.
- Certification Body Requirements: to ensure increased consistency and a robust approach certification processes and procedures.
- Alternative Dispute Resolution: to develop and consult on an arbitration framework to help provide a simple cost effective way to resolve disputes that cannot be resolved during the certification complaints process. This should improve protection for consumers and installers alike.
- Insurance Backed Warranty and Guarantee: an insurance backed warranty and guarantee for installations registered under the Scheme. This will add further protection for consumers should their installation company go into administration or the systems not deliver as anticipated.

Gideon Richards, the MCS Steering Group Chair and Interim CEO welcomed the signing of the Tripartite Agreement: "The signing of this agreement, while taking longer than anticipated, is a significant and positive milestone for the organisation and provides a strong bedrock for taking MCS on to its end goal of becoming the full scheme owner.

"As we move forward with the legal entity, MCS must work hard to maintain the confidence of its stakeholders. We believe the interim agreement moves this a long way forward and being able to deliver on the key projects will only strengthen the trust in the scheme."

# Pollard's Patter


We hit a major milestone on 29 September 2014 with over 10,000 accreditations for the domestic RHI in less than six months of the scheme being opened. As ever there are some interesting findings behind the headline figures. Geographically, the south west of England leads the way in numbers of accreditations, perhaps not too surprising in view of the percentage of off gas grid properties.

However, one rather surprising statistic is the fact that 25 percent of the responding householders were replacing gas fired devices with renewable heating systems. Since it is generally acknowledged that gas remains the most economic fuel for space heating, are we seeing a new view emerging? There will undoubtedly be some people who simply want to have the latest technology, the so-called 'early adopters'; but I think that they will be relatively small in numbers. Perhaps these people are taking a longer term view and the decision that they are making on their heating appliance is probably going to have implications for 15 years (or more)?

Another telling comparison is the difference in uptake of technologies from before the launch of the RHI against the demand post scheme launch. Biomass is the most popular choice for post launch applicants and this certainly reflects our experience. Of course, small scale biomass completely dominates the uptake in the non domestic RHI scheme. This demand has also accelerated the introduction of some interesting new products which will probably stimulate the market even more.

# Making the RHI an industry led scheme

**Robert Burke**, HETAS, looks at what changes we can expect concerning the domestic RHI in 2015 as the scheme begins to mature

2015 looks set to be a year of change and progress for the renewables and biomass heating industry. After several years of waiting, the industry was finally rewarded for it's patience with the introduction of the domestic Renewable Heat Incentive (RHI) last year. By the end of September 10,000 RHI applications had been accredited, with just under half of those for biomass installations. Companies who invested in MCS registration also started to see the benefits, both in terms of products supplied and installations.

With the support of the government, the launch of the scheme can be viewed as a success. The launch was carefully managed and the number of applications increased gradually from a slow start, which meant that product suppliers, installers, training centres and certification bodies like HETAS were able to meet that demand.

*It seems likely that RHI will move towards becoming an industry led and managed scheme*

Now that the scheme has become more established, it seems likely that it will move towards becoming an industry led and managed scheme. This was always the intention, and discussions are already taking place between key industry bodies and the government as to how best to manage this. There will be changes to MCS in also amendments to the RHI legislation in order to make the transition a smooth one.

*The launch of the scheme can be viewed as a success*

What will it mean for installers, suppliers, training centres, certification bodies and most importantly consumers? Well actually it probably won't have a major effect on the way that things operate now. It will give industry the opportunity to futher develop and improve the scheme, and also to add things like insurance backed warranties which aren't currently required. The competence requirements may also be strengthened in order to make the scheme more robust.

Proposed changes to the scheme also include making it simpler for social landlords to implement energy efficiency measures. From spring social landlords will no longer have to undergo a Green Deal energy efficiency assessment to be eligible for RHI payments. Instead, if social landlords already possess Energy Performance Certificates less than two years old for their properties they can renounce the Green Deal Assessment and continue receiving payments. This should address the fact that only a small percentage of applicants for the domestic RHI have been social landlords.

Households in off grid areas have the most to gain from RHI by switching from oil to renewables, and analysis of the scheme shows that oil is the most common fuel being replaced by renewable technologies. Heating engineers and installers who work in rural or semi rural areas can add biomass to their existing skills through the HETAS HD005 direct entry course which has recently been revised. With a mix of theory and practical study, the course enables heating engineers to upskill and deliver professional advice to consumers for the installation of biomass heating systems up to 45kW.

For more details on the RHI, MCS certification and training please visit the HETAS website **www.hetas.co.uk.**

HETAS

CURRENT AFFAIRS

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

Once again, the threat of power shortages is dominating the news agenda. A combination of an exceptionally cold winter, further power station outages and very high demand could lead to a spate of local blackouts.

In an ideal world, we would build more power stations and become more energy efficient as a way of reducing this threat, but a more realistic long-term solution is to use more renewable energy systems. However, in order for this idea to work we need to resolve the lack of compatibility between local power systems and the centralised National Grid.

What's the solution? The simple answer is to develop both large and small scale electricity storage with the capacity for small systems to run 'off grid'. There have been a number of attempts to do this on a large scale, with one classic example being the Dinorwig Power Station – or 'Electric Mountain'. This system involves water being pumped at night to the top lake and then released through water turbines, and all six units when synchronised can move from 0 MW to a load of 1800 MW in around 16 seconds – very useful in the event of a blackout.

On a smaller scale, we need to develop an economic system for householders to store excess renewable energy that is generated during the day for use overnight, at peak periods or in blackouts. There is an auction scheme for large consumers to install peak control equipment, so why not have similar competition for manufacturers of domestic storage systems?

# Life on earth

**Steve Pester**, BRE National Solar Centre, turns his attention to proposed technical changes to guidance for PV earth connections

The Philae Lander may have solar panels on board, but luckily, it does not fall within the scope of the draft best practice guide: IET *Code of Practice for Grid-connected Solar Photovoltaic (PV) Systems** (CoP, for short). The CoP mentions bonding to *earth* quite a lot but completely ignores bonding to comets.

That may be for the future, but one of the interesting technical changes to guidance for earthlings is that all PV array frames should now be electrically connected to earth. This is a departure from previous advice, which suggested that in many cases it was safer not to earth the frame since it would then take a double fault in the DC wiring to cause an electric shock to someone touching the frame.

However, things have moved on. Many modern string inverters now have some clever fault detection circuits built in e.g. earth leakage monitors, and for these to function, the frame must be connected to earth.

Seems simple enough so far: all conductive frames must be connected to earth. Where the complication comes in is in deciding on the *type* of earth connection. Extraneous conductive parts must have equipotential bonding and exposed conductive parts must have a safety earth. If a lightning risk assessment suggests earthing is required, a suitable conductor must be provided; but if none of the above conditions is true, a 'functional' earth must be fitted – this will allow the earth leakage monitors to function.

Any alarms triggered by the monitoring circuits must be of a type that cannot be missed (e.g. big flashing light or SMS) and must continue to operate until the system is switched off or the fault is cleared.

*Can be pre-ordered on the IET web site: **www.theiet.org/solar-pv**

# Opinion

**"2015 promises to be a lucrative year for renewable installers"**
**Simon Holden, Euroheat p30**

*Two minutes with . . .*

**Who are you?**
Shirley Hill, director of Fair Energy

**What do you do?**
Established in 1999 Fair Energy design, install and commission Fröling biomass boiler systems, Heliotherm heat pumps and its own label Solaris solar thermal panels, in homes and businesses across the South West.

**Where are you?**
We've recently expanded and moved our company headquarters to Sowton Industrial Estate in Exeter, Devon.

**How's business at the moment?**
Going strong! We're now offering Heliotherm heat pumps and the large-scale commercial Froling boiler range. We're also very busy building containerised energy plants.

**How could business be better?**
What would help is more promotional support on a national and local government level to educate the general public to understand that investing in a low carbon, renewable heating system makes very good sense.

**Who do you admire in renewables?**
Alfredo Moser – he created the 'Moser lamp' in 2002 when he came up with a way of illuminating his house during the day without electricity – using nothing more than plastic bottles filled with water and a tiny bit of bleach. It's such a simple method but goes straight to the heart of what renewable energy is all about.

**What's the best business advice you've ever received?**
Not all business is good business!

**How are you going green?**
We've recently moved from a managed office to our own premises and are in the process of installing a biomass energy plant to heat the building which is currently powered by mains electricity. We run a fleet of low emission vehicles and use upcycled furniture, including a table made from an old solar thermal panel.

# Q&A

## John Holloway

TSG

**REI: What have you got planned for 2015?**
**JH:** Our immediate aim is to promote the RHI to our customers and provide support and guidance through the RHI process. This will lead to an increase in the volume of renewable technology installations, which continues to remain at the forefront of our business plan. We are a forward thinking company and we are planning to expand on the range of technologies that we can install and maintain. This will be achieved through the upskilling of our engineers.

**What do you see as the growth area in renewables?**
As public awareness increases we are predicting a growth in the replacement of oil boilers and direct electric heating systems, which are coming towards the end of their life cycle. Furthermore, we believe that more consumers will take advantage of the RHI as awareness is increasing. Within the commercial sector we see customers taking advantage of Enhanced Capital Allowance to assist in the reduction of renewable installation costs.

**How is your company cutting its carbon footprint?**
Transport has been a big focus for us for several years. Our vehicle fleet is regularly reviewed and we have reduced Co2 emissions. We are currently trialling electric vehicles to analyse the benefits this could bring to the business. We also use vehicle tracking software to further reduce fuel consumption. We have installed Solar thermal and PV at our office and we are in the process of installing LED lighting with movement sensors to reduce our carbon footprint further.

John Holloway is TSG's renewables director

TECH TALKING

# Getting into hot water

Heat pump specialist **Bob Long** revisits the topic of domestic hot water production from heat pump systems and the potential for high energy costs

Ideally, domestic hot water should be produced and maintained at temperatures in excess of 55°C, simply because at this temperature harmful pathogens such as Legionella cannot survive.

When deriving domestic hot water from a heat pump powered system, economics always have a major role to play, but the temperature required to produce and store DHW above the deemed safe threshold generally take a heat pump into an uneconomical operational range. However, domestic hot water can still be useful at lower temperatures of say 45/50°C, but regular DHW production at lower temperatures will require an energy-hungry pasteurisation cycle to ensure the DHW is safe and hygienic.

The cost per kW of energy is generally the deciding factor when choosing a suitable heating system, and the production cost of DHW needs to be carefully considered.

I recently came across some data available via this link: **www.narecde.co.uk/category/blog**

The data is derived from a standard air source heat pump, by a leading brand manufacturer, and has been monitored for performance by a test laboratory, specifically during production of DHW.

It can be seen from the published data that a COP significantly below 2:1 is evidenced across two slightly different technologies (conventional ASHP and solar assisted heat pump).

Detailed in a bar graph, it is interesting to note that an MCS accredited ASHP could not achieve a COP greater than 1.4:1 when dedicated to DHW production. The testing was carried out in September, where average daily conditions were good (winter efficiency can be much worse).

**Cost of production:** Electrical energy tariffs vary but 12p per kWh is probably a fairly average figure to provide a rough cost comparison.

At an electrical tariff of 12p/kWh the cost of the energy to produce DHW via a heat pump, operating at a COP of 1.4:1 would be 8.57p/kWh, and degrading to over 10p/kWh as weather conditions deteriorate through the winter period.

Under certain adverse conditions, the COP of an ASHP can reach negative figures of 0.9:1 and below, where the cost of running the heat pump can in fact be more expensive than a simple immersion-type heater.

It can be seen from the test results that a standard ASHP, specifically for the production of DHW, is unlikely to offer a more economical solution than natural gas, LPG, or even oil.

**Continuous high temperature operation:** I occasionally come across retrofit heat pump systems where existing panel radiators have been retained and a heat pump replacing a fossil-fuelled boiler is running at elevated water temperatures to deliver the required amount of energy. It therefore comes as no surprise when the owners of such installations complain about high running costs. Such practices promoting poor heat pump results should be avoided at all costs.

In consideration of the above facts, retrofit systems, dependant upon water circulating temperatures of around 50°C and higher must be avoided due to a fundamental inability to provide an affordable heating solution!

For a heat pump system to produce attractive and affordable operating costs, the DHW production cost must be supported by averaging against a generally economical heating design, and employing circulating water temperatures of 45°C, or even lower.

Fan coil units and underfloor heating matrixes can operate quite successfully at water temperatures as low as 35°C and produce tremendous economical results.

# Has Britain got talent?

Hiring the best candidate is often fraught with difficulty. **Liz MacFarlane**, Zenex Solar, offers some pointers for getting it right

I sense a creak in the UK solar industry's human resource infrastructure. The gap may have been there for a while but it's only now, as the industry takes a confident stride forward that it's becoming really apparent.

Zenex's team is mainly self-grown in that most have developed from other companies within our group. Several have been under our roof for over 10-years and have diversified and learnt the solar industry from the bottom up. However, I do have to recruit externally sometimes and although you'd never know it to look at team now, we have had our fingers burnt in the past.

Recently, I've been asked how we've found such a strong team. I have some industry colleagues who are really struggling to find high calibre candidates. One contact asked me if I recruited 'on personality' to which I replied that it's more about searching out competencies.

I've been able to fall back on my previous experience of the Pharma industry to make sure that I've found the right people and I've learnt that a candidate's glowing track record in sales figures and smashed targets can really just be a smoke screen.

The most vital part of any recruitment process is to identify the objectives of the role, to recognise the key competencies needed to achieve them and then to unashamedly search for someone with those competencies. Warn them before the interview that they need to bring examples of how they've used influencing skills to get a result, or to demonstrate what drive for results looks like to them, or to show when their technical prowess has solved a problem

We have lots of great talent in our industry but we are growing so quickly that maybe we need to start bringing some in from other proven industries.

So the next time you're recruiting and your candidate tells you they sold £1m of solar in 2011, don't be afraid to ask them "Is that all? And, who didn't?"

# Opportunity knocks following Scottish referendum

**Gordon Moran**, writing for the European Energy Centre, looks at the prospects that greater devolution across the UK may bring to microgeneration renewables

Significant factors which can create uncertainty in business include the amount of available capital for projects, regulatory changes and political changes. The result of the Scottish independence referendum could potentially have affected all three of these factors in the event of a 'Yes' vote.

However, such changes may not necessarily have been negative. If Scotland had become an independent nation it would have meant that, in effect, a single market would have become two. Separate legislatures would have meant for greater divergence in terms of regulation and tax rates for businesses operating in microgeneration renewables.

As it turns out, similar opportunities may present themselves with the 'devo-max' option now proposed after the 'No' vote, not just in Scotland but potentially for all businesses across the United Kingdom. The relatively close poll results led to promises of further devolution of powers to the Scottish government and in turn to the other nations and regions of the UK. The form that 'devo-max' will take is not yet known, though there is still great potential scope for additional funding for microgeneration renewables in Scotland. For the UK as a whole, greater tax levying and legislative powers may well result in greater funding available for microgeneration renewables on a regional basis as well as creating additional demand for different specifications of technologies based on regionally specific planning regulations.

Changes in legislative and political scenarios can shake up any industry; however the renewable energy sector may encounter even more opportunities through such uncertainties. Pleasant surprises such as added competitiveness may well be in store for those who are able to embrace these changes to their advantage.

# Green jobs at risk in West-country, warns Regen SW

**Regen SW** has published a report which calls on government to show greater support for Green Deal and other energy efficiency schemes, to secure green jobs

The report – The South West Retrofit Market Study' warns that 16,000 jobs and £1.1bn of economic benefits in the region are at risk without significant changes to government policy.

**Specific calls to action include:**

- Increased support for Green Deal to improve householder uptake
- A filling of the gap in market support between Green Deal and ECO
- Targeted business support for 1,200 specialist retrofit companies in the South West

Lee Richard of Regen SW says: "Government policy is putting jobs at risk. Both the Green Deal and Energy Company Obligation have been beset with budget cuts and bureaucracy.

"Local businesses have flourished when local authorities have taken the initiative with schemes such as 'Warm up Bristol', run by Bristol City Council, 'Cosy Devon', run by a consortium of Devon Councils, and the Energy@Home Partnership, run by Bath and North East Somerset Council."

He added: "Our research shows that, with 600,000 homes in the South West requiring some form of energy efficiency refurbishment, 2,200 homes per week will need to be treated per week for the next five years. That's a significant undertaking and an opportunity not only to secure existing jobs but also increase the size of the market in the South West."

A summary of the report is available at: **http://goo.gl/S1kYBV**

# Tried and tested

**Phill Jackson**, marketing & business development director, introduces 126-year-old Pegler Yorkshire Group as the plumbing and heating manufacturer of choice for the 21st century renewable energy installer


**Wide array: Doncaster-based Pegler Yorkshire boasts a portfolio of 14,000 products made at its four manufacturing sites**

**Q: Can you give a brief overview of the company?**

In the world of plumbing and heating, Pegler Yorkshire is now part of the worldwide Aalberts Industries Group, and has been leading the way in the specialist fields of fittings, taps and valves since 1888.

The company has invested heavily in its manufacturing facilities and is proud to still manufacturer at its two facilities within the UK.

It boasts a portfolio of over 14,000 products and has a dedicated philosophy whereby its R&D team are continually designing products that are more energy efficient and play an essential part within a more eco-friendly system.

The company now employs over 1200 and supplies its products to customers in over 110 countries.

**Q: What does Pegler's product portfolio look like?**

Pegler Yorkshire has adopted a Connect and Control philosophy that encompasses its entire portfolio of products.

Its Connect product solutions combine innovative design, speed of installation and faultless functionality that result in systems that reduce installation time and minimise installation cost.

The Control product range enables the effective balancing of precision flow control with energy efficiency and comfort. Its Control products are designed to ensure that installation is easy, efficient and economical to operate plus they help meet stringent building performance criteria.

In terms of renewables, Pegler Yorkshire has a range of compatible products such as its Meibes Heat Interface Units. These work in conjunction with a variety of renewable heat sources such as solar, ground source, biomass or conventional fuel and facilitate the use of centralised systems for space and water heating. Their design ensures a balanced system that delivers consistent performance and efficiency, irrespective of variation in hot water demands.

**Q: How does Pegler differ from other manufacturers?**

Pegler Yorkshire is in an enviable position as the only UK manufacturer able to impartially advise its customers on the best plumbing solution for their specific application. As a long established manufacturer of end feed, solder ring, compression, push-fit and press-fit solutions, the company is ideally placed to cover all jointing processes for the heating and plumbing industry. Its advice is therefore application led rather than product led.

**Q: How does Pegler work with installers?**

Pegler Yorkshire has a range of tools to support installers through its online interactive workshop, which allows installers to view training modules at their leisure, or via its e-learning section that offers CPD certified modules. Contractors can also visit the company's innovation centre at its Doncaster offices for live demonstrations of products and processes that offer technical insight and best practice.

The company also offers onsite training and certification for use of its products with access to a technical support line and full spares programme.

**Q: What does the future hold for Pegler?**

Energy saving, water saving and time saving are the driving forces behind current product development with an emphasis being placed on delivering products that not only address these issues but also maximise opportunities credited by the government such as directives, incentives and legislation change.

*Our installer advice is application led rather than product led*

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# Clubbing together

**Reza Shaybani**, chairman of the British Photovoltaic Association, urges readers from the PV sector to join the organisation's growing and increasingly diverse membership

**Talking shop: In addition to its political crusading, the BPVA offers multiple commercial advantages to its members, argues its chairman Reza Shaybani**

**Q: Has 2014 been a successful year for BPVA?**

2014 has certainly been another successful and rewarding year for the BPVA. The number of members increased dramatically and, most pleasingly, we saw members from outside of the solar industry including construction companies, investors, commercial roof developers and owners and even councils joining.

**Q: Why should REI readers consider joining BPVA?**

Well our record in the past five years is a very good indication of our achievements. From day one we said we are a strong political organisation, but equally a strong commercial organisation. I am delighted to say that we have delivered in both fronts.

On the political level, we have worked closely with DECC ministers and officials to find a mutually acceptable solution ensuring a sustainable future for the industry. It is very easy to sit on the fence and criticise whatever government say or do. We didn't do that and instead formed a close relationship which allowed us to voice our concerns about important issues in board rooms and not court rooms. Our Executive Committee members who represent various membership categories were involved in all our discussions with DECC and in the formation of the Solar Strategy.

On the commercial level, our networking activities have enabled our members to do a lot of business. We are told by members and non-members alike that our conferences and exhibitions have been the best in that respect and most informative.

**Q: What do you count as BPVA's greatest achievements to date?**

There are many but if I was to choose a few which immediately spring to mind, I would say bringing together the best companies and organisations from the UK and across the globe under a single banner, creating many export opportunities for members to work in the new and emerging markets and finally inward investment in to the UK economy.

I would also add that the BPVA has managed to keep a sensible position in representing large scale as well as domestic and commercial rooftop segments. When we talk to politicians, we always remind them about all of the benefits of solar including energy security, job creation, contribution to the economy, cutting carbon emissions and so on.

**Q: What does BPVA have planned for 2015?**

We see that many of our members are getting ready to start the race for putting solar on rooftops. We have a number of projects to support that growth, starting with the Powering Knowledge conference in February 2015, Ecobuild in early March 2015 and then our conference Solar in Building Design & Construction in early April 2015.

Also the development of Rated Solar Installer platform is now complete where finally as an industry we can give the customers the opportunity to connect directly with us through an independent rating programme. We are busy writing our manifesto right now which will outline the industry's position up to 2020 when we feel we will reach cost competiveness. We will be working with the government after the General Election in May making sure subsidies are sensibly reduced by 2020. We will also be launching our campaign Powering Britain which will demonstrate how solar energy can be a major contributor to the energy mix by 2020. These are all very exciting projects which our team and members will deliver.

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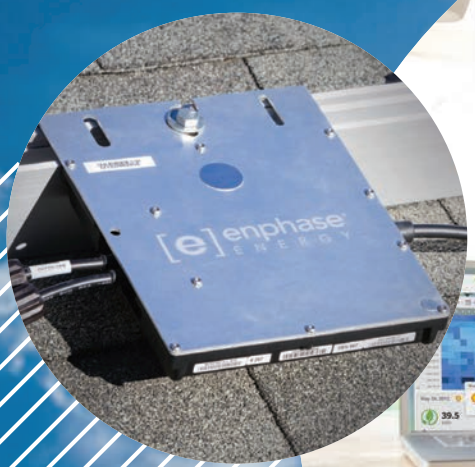


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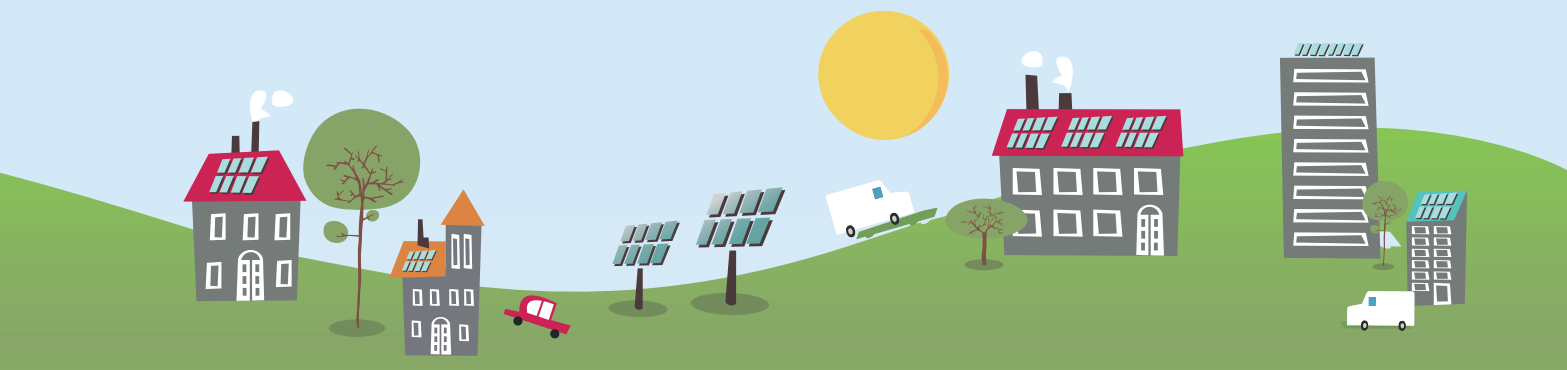

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# Rush hour

Yorkshire Heat Pumps owner, **Michael Wright**, looks at why the growing success of RHI and an anticipated reduction in tariffs has led to a surge in demand for renewable technology – but a lack of installers

**Capacity crunch: Tariff reductions and increasing public awareness of the RHI are likely to overstretch the limited number of qualified installers, says Michael Wright, Yorkshire Heat Pumps**

September saw Ofgem announce that domestic RHI accreditations had reached the 10,000 mark – just six months since the domestic scheme launched and great news for those who will benefit from the generous RHI tariff.

With uptake set to grow as awareness of the scheme increases – partly due to word-of-mouth recommendations and partly due to quarterly RHI payments beginning to land in people's bank accounts – there is every likelihood the threshold will soon be reached which will trigger domestic RHI tariff reductions.

*There is a sudden rush from businesses to install before the tariffs decrease further*

The non-domestic scheme saw a 10 percent tariff reduction on October 1 – with a further 20 percent drop expected on January 1. This has led to a sudden rush from businesses to install before the tariffs decrease further. And where non-domestic leads the way, domestic usually follows.

We saw a sudden surge of non-domestic customers racing to get their installations completed ahead of the October degression and the same pattern is being repeated as January approaches.

This is great news, but back-to-back installations leave no margin for error which is challenging when there may be other contractors working on or around an installation. It all needs choreographing meticulously and nobody can overrun.

As a small business, we sub-contract installations to a hand-picked group of highly qualified and accredited installers and are currently working at capacity. It's not just installers who are in short supply, specialist system designers and non-domestic RHI application consultants are all in equal demand too.

The industry is craving MCS accredited providers and those providers need more suitably qualified and accredited installers, not just to help the government hit its long term carbon targets but to meet the real demand for renewables that already exists on our doorsteps.

*The industry is craving MCS accredited providers and those providers need more suitably qualified and accredited installers*

We've had a number of calls recently from homeowners wanting technical support, repairs or routine servicing of their heat pumps or boilers. They've not been able to get the after-sales support they need from their original installer, which suggests even some of the really big players in the market are under pressure.

With the government set to inject an additional £100 million into the Green Deal Home Improvement Fund presently, a recruitment drive for quality installers would be the next logical step. We need them and we need them fast!

# Now or never

With much of the industry's current focus on the domestic RHI, **Simon Holden**, co-founder of Euroheat, provides an overview of its older non domestic counterpart; its history and future

The non domestic RHI has been good for renewable technology, particularly the wood burning kind, with biomass accounting for approximately 95 percent of installations. Following a slow start; just a few hundred applicants in the first months, most of which were historic; interest has accelerated at a steady pace, with twice the number of applicants (over 2,500) accredited in the last tax year than the first 18 months of the scheme.


**Last orders: Installers should urge commercial customers to benefit from the non domestic RHI now and before its impending closure, warns Euroheat's Simon Holden**

**2011 – 2013**

After nearly two years in operation, in September 2013, the first tranche of changes to the RHI were implemented, with biomass applications having to submit an RHI emission certificate, or valid environmental permit with their application. Other changes included allowing heat to be used for processes other than in a building, in certain circumstances, and accredited installations to be moved providing the new location met the necessary requirements.

By December 2013, increased support was announced for renewable CHP, large biomass boilers (over 1MW), deep geothermal, ground source heat pumps, solar thermal and biogas combustion. New technologies eligible for the non-domestic RHI included air-water heat pumps plus commercial and industrial energy from waste.

**2014**

Last May, December 2013's policy changes were implemented and government announced a new sustainability criteria for biomass. From spring 2015, fuels must meet sustainability criteria in order to receive RHI payments. This applies to all existing and new participants.

The simplest way to meet the criteria is to use fuel bought through the Biomass Suppliers' List. For installations below 1MW and where fuels are used from a client's land, or their own waste wood, they can register on the list as a self-supplier.

**The future**

At the start, the non domestic RHI was given a lifespan of four years, so now, in its third, it is fair to assume that the scheme is in the process of winding down. In July, tariffs were reduced by five percent, the first of a predicted series of reductions. Thanks to inflation, however, this five percent is negligible with the 8.8 pence per kWh for biomass going down to just 8.4. From an investment point of view, it's a now or never situation – tariffs will go down over the coming months, so if your customers have been thinking about 'going green', pushing them towards making a decision soon will ensure they get good returns.

A 999kW boiler for example (the upper end before tipping over in the reduced tariff rates of 1MW), will currently earn its owner over £1,500,000 throughout the RHI and at the other end of the scale, the smallest 50kW boiler will provide a return of nearly £135,000. Attractive figures made even more attractive by fuel savings and fuel security.

While the RHI's end is undoubtedly nigh, this shouldn't mean the end of the renewables market. Hopefully, the scheme will have helped end users to see the benefits of fossil fuel alternatives, with or without RHI payments. And apart from the obvious environmental impact of oil and gas, their cost and instability in terms of supply, it should be enough for the UK to continue on its path towards a greener future.

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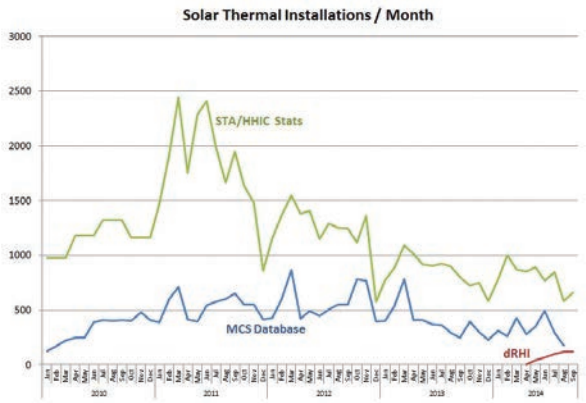
# Slow burner or non starter?

**Stuart Elmes**, CEO and founder of Viridian Solar and chairman of the MCS Solar Thermal Working Group, analyses the muted impact the launch of the domestic RHI has had on solar thermal sales

By the end of October there were over 12,000 heating systems accredited under the domestic RHI. Of these more than 3,000 are solar thermal installations.

The headline figures, however, include the total of 'new' and 'legacy' applicants. To understand what level of demand the domestic RHI is actually stimulating you need to look at the monthly figures published by DECC.

These show that the total 'new' installations registered to the end of September across all technologies is 2,300, with 450 of these being solar thermal.




**Domestic RHI take up is well below MCS registrations and still represents only a sixth of industry figures, says Viridian Solar's Stuart Elmes**

To put these figures in context the Feed-in Tariff registered 8,400 new solar PV installations in the sub-4kWp (domestic) bracket during its first two quarters. While there are good reasons to expect that the domestic RHI will not follow the same path as the FiT, the take-up for solar thermal is starting to cause some concern in the industry.

### Where now?

While a higher tariff would always be welcome, there are a number of things that could be done to improve take-up. Here's my wish list:

- Break the link with the Green Deal Assessment – solar works just as well whether the loft is insulated or not. Either drop this requirement or allow the installer to check the house has insulation.
- Change the rules to encourage solar thermal in combination with heat pumps or biomass by allowing solar to feed into a thermal store.
- Open RHI to all new homes the same as for the FiT. Zero Carbon Homes is not going to deliver low carbon heating.
- Market the scheme to the consumer. DECC has been active in promoting the scheme to industry, but there's been little aimed at the public. Perhaps some of the massive MCS surplus could be spent on this.

Solar thermal now produces good financial returns (see shortlink: **http://virid.in/1wzd2nU)**, and although the RHI is growing quickly, this is from a very low base and more could be done to make the scheme more accessible.

## 5 reasons solar thermal's popularity won't explode like PV under FiT

**1) The Feed-in Tariff**

When the FiT was launched it was the only show in town. Now people have the wider choice of FiT, RHI and Green Deal.

**2) Installation complexity**

With the exception of solar thermal, the RHI technologies replace an existing heating system rather than being an add-on. People will be more cautious about installing a new technology when the impact of it not working is a cold house.

**3) Off-grid target market**

The RHI tariff levels were intended to stimulate demand in the 20 percent of homes off the gas grid. While the returns are better when heating with oil or electricity, solar can also be good when replacing gas for larger households with higher hot water use.

**4) World first**

The UK followed other European countries to launch FiT. Businesses could see a rapid take off in those markets and were primed and ready for the scheme launch. By contrast the domestic RHI is a world first. There's no equivalent to look at to predict uptake.

**5) The FiT (again)**

The way the government managed the FiT has led to the widespread belief that once a renewable energy scheme is successful it will be ruthlessly hacked out. The many false starts for the RHI also didn't help. Installation companies weren't even willing to spend time thinking about it until they were absolutely sure the RHI was nailed on.

# A question of time

Industry leaders share their hopes, dreams and predictions for the sector throughout 2015

The major news of 2014 was undoubtedly the long-awaited launch of the domestic RHI. As the level of demand the scheme was anticipated to create has largely failed to materialise, many commentators point to 2015 as the year when its impact begins to be felt.

Mark Krull, director at **Logic4training,** says: "The domestic RHI is already proving to be a big driver in building services engineers taking the necessary steps to add the installation of renewable heat technologies to the skill-set. What's key to the RHI's success, however, is that in addition to historic RHI claimants, government and industry convinces a wider audience to choose renewable options for their home – without these new RHI customers the industry will fall flat."

**Mark Krull, director at Logic4training**

On the commercial side, and in terms of the RHI's non domestic strand, Simon Holden, co-founder of **Euroheat**, says: "As the domestic RHI gathers pace, the non domestic version is in the process of winding down. We predict a busy time for commercial installers as end users rush to take advantage of the scheme before it comes to an end. All in all, whether working in the domestic or commercial sector, 2015 promises to be a lucrative year for renewable installers."

**Mike Blakeley, The Wood Heating Company**

Biomass has so far staked its claim to the largest single share of domestic RHI applications, a statistic expected to stay the same in 2015. Mike Blakeley, managing director of **The Wood Heating Company,** stresses the prominence wood fuels will take once new sustainability criteria is introduced in a few month's time.

"Biomass has become the most popular renewable energy source for producing heat in the UK and I expect to see its share of the market to continue growing in 2015, as more and more people realise the financial opportunities that exist through the RHI," he says.

"Also next year fuel will be under the spotlight with government plans to introduce new sustainability criteria for installations using biomass fuels under the non-domestic RHI. From spring, fuels must meet the sustainability criteria to continue to receive RHI payments. We're encouraging all fuel suppliers we work with to make sure they're on the Biomass Suppliers List to ensure no payment issues ensue for our customers."

Thomas Farquhar, sales manager, **Qualitick,** points to decreasing levels of spare generating capacity on the National Grid as a major motivational factor in 2015 amongst consumers choosing to go green.

"My prediction for 2015 is that further scrutiny will be placed on reducing energy bills, we will see further focus on energy efficiency and switching to renewables at a domestic level as both the current and new administration maintain their focus on reducing our dependence on imported fossil fuels whilst meeting our legally binding carbon commitments. With the added worry of blackouts now on the horizon, focus is turning once again to our small island's energy mix."

Jennifer Blears, marketing co-ordinator at **Natural Generation,** would like to see wind carve out a larger role in the UK's energy portfolio over the coming months.

She says: "Our wishlist for 2015 would include more support for onshore wind in the UK energy mix to use our geographical advantage to give us greater energy independence. I also hope for continuing advances in PV and wind energy storage systems to provide a cost effective domestic and commercial solutions and to continue the increase in the public understanding of renewable heating to move us off our fossil fuel dependency."

2015 is also set to be landmark year for solar PV as the commercial rooftop market picks up speed due to shifting government emphasis in the solar strategy.

Jordan Mawbey, marketing manager at Nottingham-based **EvoEnergy,** says: "As we see it, the 'headline' news for the industry next year will be that demand for solar generally continues to rise. The surprise for some might be the fact that this growth will come mainly from commercial rather than domestic installs.

"Growth will most likely come from a mixture of smaller self-funded and larger investor-funded projects for SMEs as high energy costs and environmental targets play their part.

"Meanwhile, demand for ground mounted systems was falling even before the

news that the government's support for ROCs was being removed, so this looks set to carry on its downward trend."

Andrew Fawcett, business development manager, **Edmundson Electrical**, says: "In 2015, I expect the domestic rooftop market to grow with relatively stable pricing. The main new opportunity is going to be the commercial rooftop – not just large rooftops, but small ones too as companies either see the financial opportunity in both FiTs where applicable and the offset of carbon, or want to show off their green credentials.

"Commercial landlords too will start to invest in rooftop solar in all building sizes as tenants will more readily choose greener buildings for lease, where there is a choice. Also, energy storage will make further inroads in 2015."

## Infinity and beyond

Tim Pollard, head of sustainability, **Plumb and Parts Center,** says the next 12 months will see the industry lessen its reliance on financial incentives to drive demand.

"We are very likely to see degression in some of the RHI tariffs which some will say is bad news. I disagree because degression for me means firstly the RHI is doing its job; secondly, the market is growing and lastly, we are moving towards what has to be our end goal of a truly sustainable market, in every sense."

## Dynamic duo

Alex Basile, marketing director, **Magic Thermodynamic Box**, predicts a bumper year for thermodynamic technologies should it achieve its much-coveted MCS accreditation.

He says: "In 2015 Thermodynamics which we manufacture here in the UK will be MCS approved which will increase the amount of businesses selling the products to residential homeowners. Both products 'The Little Magic Thermodynamic Box' and 'The Central Heating Management System' are becoming more popular due to market awareness. An example of this was our product 'The Little Magic Thermodynamic Box' being featured on Channel 4's Grand Designs in October 2014."

## Ground wars

Simon Lomax, managing director at **Kensa Heat Pumps**, is hopeful that fluctuating levels of public support for large scale solar and wind can translate to increased demand for GSHPs.

"The only certainty is that 2015 will be another uncertain year especially as future policies will be inevitably impacted by the election result. What appears certain, however, is floundering political sentiment towards large scale wind and solar PV installations so the hope is more immediate support will be made available for ground source heat pumps, the least obtrusive renewable technology. Public subsidy is entirely appropriate as the substantial legacy – the ground array infrastructure – will remain functional for decades to come. 2015 may be the year when policy makers finally realise that the rush towards biomass and air source heat pumps can only have short-term benefits."

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# Throwing a curveball

**Ecolution** has designed and installed an innovative arcing PV array on the roof of Cambridge University's new sports centre

Curving on two axis, resulting in complex shading patterns, the 78.75kWp system is estimated to offset 37,409kg in CO2 emissions.

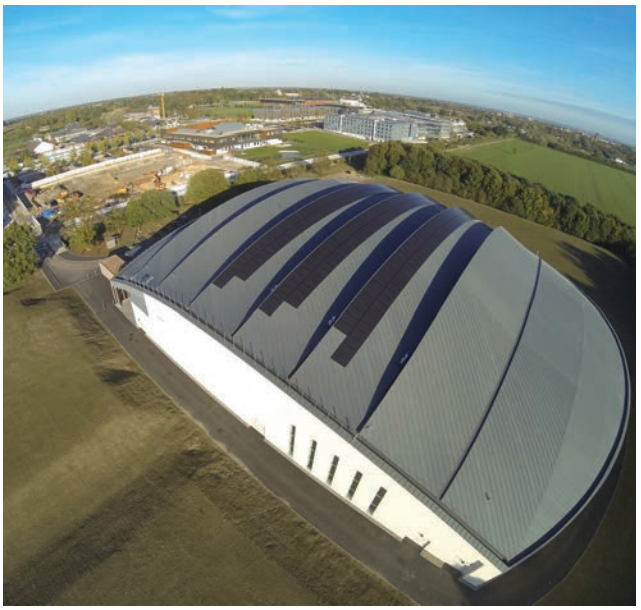
To overcome the problems of shading and differing light levels, Ecolution used 200 SOLON SOLraise modules embedded with SolarEdge optimisers.

Paul Squire, Ecolution's designer on the project, said: "This was an extremely complex design, and accuracy has been essential throughout – from the individually optimised modules to the building's BMS connection. It has been a challenging installation as the roof has very sharp falls, plus the specialist zinc covering needed protecting during installation.

"The CO2 offset targets were challenging and much time was spent designing and demonstrating the system to achieve the BREEAM Very Good standard."

Chris Bratherton, group sales manager at Ecolution, added: "The installation on the sports centre's curved Rheinzink standing seam roof was complex as the roof falls in multiple directions, which gave each module installed a unique orientation and pitch – with a conventional system this would affect performance and yield."

The PV system is designed to generate 71.8MWh of electricity annually, making a significant contribution to Cambridge University's sustainability goals and commitment to a low carbon future.



**University challenge: Ecolution's design expertise were called into action by the significant shading problems posed by the curved roof of Cambridge University's new sports centre**

# Indian summer at Edinburgh Zoo

**Mitsubishi** Electric's Ecodan ASHP units have been deployed to heat a swimming pool with a difference, at Edinburgh Zoo

**Home from home: One-horned Indian rhinos Samir and Bertus are benefiting from the introduction and warmth of Ecodan ASHPs at Edinburgh Zoo**

The Zoo's two one-horned Indian rhinos, Samir and Bertus, can now enjoy comfortable temperatures in their enclosure's pool whilst also lowering their carbon footprint.

The pool is approximately 4m x 4m and around half a meter deep. Project installer Lothian Gas calculated a required total heat load of 30kW in order to maintain a water temperature of 28-30 degrees Celsius.

Having replaced older and less efficient gas boilers, the four 8.5kW Ecodan units are predicted to cut running costs and carbon emissions by 30 percent. The cascade system will also qualify to receive £4,000 per annum under the non-domestic RHI.

The Ecodan units work with a 'tube and tube' heat exchanger specially designed to work and maintain the lower temperatures needed for efficient operation of the heat pumps.

A Grundfos pump has been installed between the Ecodan units and the tube in tube system to circulate water around the network and ensure the heat exchanger doesn't diminish the response time of the heat pumps.

The system was fully commissioned in early November and Mitsubishi Electric has facilitated the inclusion of SD card monitoring, to allow for full energy monitoring.

# Perfect remedy

Two NUOS 250i floor standing heat pump water heaters from **Ariston** are providing hot water to Heston Blumenthal's new restaurant at Heathrow Airport's Terminal 2

The project at The Perfectionists' Café was managed and overseen by consulting firm BSE 3D as part of Heathrow's £2.5bn refurbishment of Terminal 2 – officially opened by the Queen last June.

The airport's strict energy efficiency requirements stipulated that Terminal 2 needed to be 10 percent more efficient than other terminals. The design brief also stated that domestic hot water for the restaurant had to be sourced from the most energy efficient means possible.

The NUOS units were fitted on a mezzanine plant deck, with ducting running from the unit down into the ceiling of the kitchen. With a CoP of 2.8, the NUOS units are designed to raise the water temperature to 55ºC.

Philip Todd, director of BSE 3D, said: "We've worked on a lot of domestic and commercial heating projects, so were well aware of the options available to us for providing the restaurant with domestic hot water. Ideally, we wanted a method of recovering the unwanted heat in the kitchen and providing domestic hot water in the most efficient way. The NUOS units integrate an air source heat pump for generating the domestic hot water. Therefore we ducted away the hot air within the kitchen to the units, utilised the unwanted heat energy and returned it back into the kitchen cooler than before."

He added: "NUOS fell well inside budget requirements and offered manageable re-heating times. Plus, it was much better than looking at a purely electric option – given as there is no gas on the Heathrow site, for obvious reasons!"


**Image credit: Sim Canetty-Clarke**
**Silver service: Two NUOS 250i heat pumps are fulfilling strict new energy efficiency criteria within Heathrow's Terminal 2, at Heston Blumenthal's restaurant**

# British Red Cross embraces solar

The **British Red Cross** has installed solar PV on five of its properties, as a key part of its carbon reduction programme

**Aiding & abetting: Over 300 Voltec Solar PV panels now adorn the roofs of five British Red Cross buildings, reducing emissions and generating a long term income for the charity**

Having already installed panels on three of its buildings, the charity decided to extend their use to two larger properties in Enfield and Mitcham, Greater London.

A total of 315 Voltec Solar 250Wp panels provided by Wagner Renewables were installed by SquareDeal Ltd. They are expected to generate 63,279kWh of electricity per annum, meeting all the electricity needs of both buildings, saving 28 tonnes of carbon emissions each year.

Richard Dickens, the British Red Cross's environmental and carbon reduction officer, said: "It was very important to us that we selected the best panels in terms of performance, warranty and ease of installation while still being highly competitively priced and Voltec Solar fitted the bill.

"We were impressed by their 20 year product warranty, various accreditations including ISO 9001, ISO 14001 and Occupational Health and Safety Management 18001 and the fact that their company clearly takes quality assurance very seriously. This is a long term investment for the charity and as such long term satisfactory performance from the panels is essential."

Markus Schaefer, co-founder of Voltec Solar, added: "We are thrilled and proud about the fact that a UK leading charity, the British Red Cross, chose Voltec Solar PV panels for their renewable energy projects in the London area. For Voltec Solar this is another great step forward in our presence in Great Britain and we look forward to working with the British Red Cross on further projects."

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# Reach for the sky

**SBC Renewables** (formerly The Solar Building Company) has designed and led the process for developing the largest single span roof PV site in the UK

The array on Marks & Spencer's Distribution Centre at Castle Donington, Leicestershire, will have an installed capacity of 6.068MWp. Construction has started with completion scheduled for early 2015.

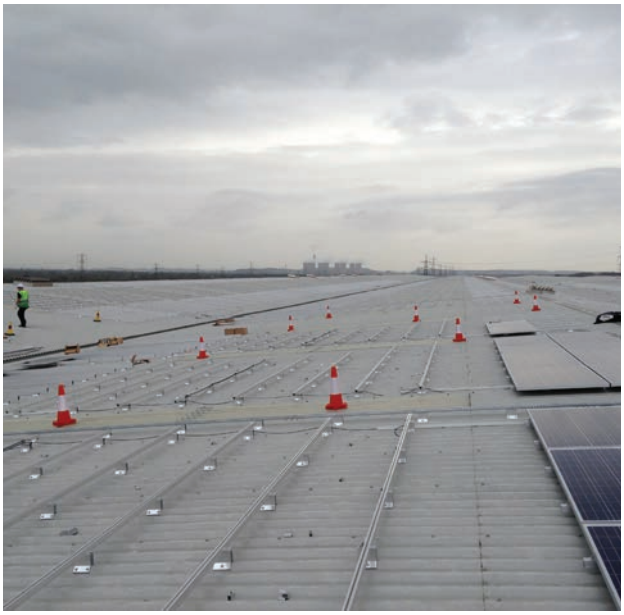
A key feature of the project involves the installation of a special SBC engineered frame onto the 900,000 sq ft (8,370 sq m – 20 acres) roof. Challenges include bridging areas where service loadings would normally have limited solar panel deployment.

Aside from the skylight areas and maintenance walkways, virtually all the roof surface will be covered with solar panels. The panels chosen for the project are ET Solar 250W poly (24,320 in total) along with 90 Kaco 50kW string inverters and four Kaco 18kW inverters.

All the generated power will be used by the fully automated distribution centre, further promoting the building's green credentials.

"We chose The Solar Building Company as they offered us the best combination of power, price, and certainty of project execution," said Hugo Adams, director of property at M&S.

Richard Haywood, CIO of SBC Renewables, added: "We are proud to be part of M&S's industry leading Plan A sustainability programme. It is very exciting to be developing a single roof-mounted solar park – something one would normally associate with a ground-based site."

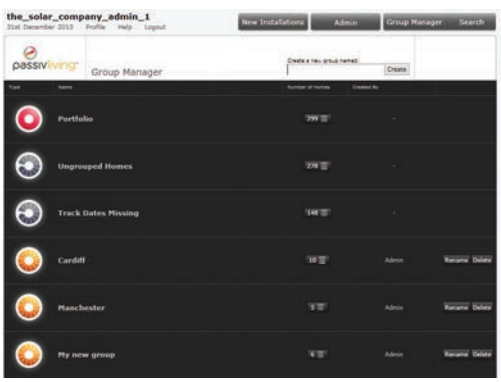


**Sky's the limit: The 24,000 PV panels which will shortly cover the roof of Marks & Spencer's Castle Donington distribution centre will form the UK's largest single span PV roof array**

# Mass market

Smart technology provider **PassivSystems** has been awarded the contract with Freetricity to provide monitoring services for a free solar rollout in 10,000 council and housing association homes across Southern England

The contract is part of an ongoing PV programme being installed by Freetricity which is funded by large scale investors. Participating homeowners and residents will have use of the free electricity, helping them reduce energy bills. Investors will derive a return via the Feed-in Tariff.




**Information bank: PassivSystem's monitoring platform will capture generation data and report faults on 10,000 residential PV installations in the council and social housing sector**

PassivSystems will deliver monitoring services to optimise the amount of energy generated by the portfolio. Its PassivPro platform will remotely capture generation data and provide alerts of any intermittent faults. PassivSystems will also provide technology to simplify the process of submitting quartlerly FiT data reports, which are required to process FiT payments.

Colin Calder, ceo and founder of PassivSystems, said: "We are delighted to be partnering with Freetricity for this large-scale roll-out of solar PV rooftop systems. At PassivSystems we are passionate about providing end consumers access to cost-effective, clean energy, and so being involved in this free solar PV roll-out completely satisfies our moral objectives. Through the provision of our PassivPro product, we aim to not only increase the amount of solar energy being generated for end consumers in the UK, but also the amount of return on investment for the investor in question.

"This contract will also be beneficial for PassivSystems as it will provide on-going revenues for us from the monitoring of the 10,000 systems in question. We are constantly seeking to make partnerships with companies like Freetricity who share our commercial and ethical criteria, and so look forward to a mutually beneficial partnership going forward as well as making similar partnerships in the future."

# Solar on tap

**Church End Brewery** in Nuneaton is raising a glass to the successful installation of a new solar PV system which will dramatically cut its production costs

Installed by TGE Group, the solar installation is expected to generate 12MWh a year giving the business a saving on energy use of over £1000 a year, a 15 percent return on investment with a 20 year income from the Feed-in Tariff.

Recognised for its range of beers including the 2014 Great British Beer Festival Champion 'Fallen Angel' and medal-winning 'What The Foxes Hat', it was principally the rising energy costs that spurred the 20-year old brewery to look at renewable options.

Stewart Elliott of Church End Brewery, said: "The cost of energy has increased dramatically over the last few years and is now one of our greatest business expenses. By simply making better use of our available roof space we can now generate our own electricity and make some considerable savings."

Stephen Davies, director of TGE Group, added: "Church End Brewery is an ideal candidate for solar PV, where previously unused roof space is now being utilised to generate 'free power' for use on site. The system will help reduce the brewery's bills and provide an income from the Feed-in Tariff that's paid to those who generate their own power."


**Drink to that: Solar PV is due to net the Church End Brewery a four figure annual energy bill saving plus 15 percent ROI**

# Hot property

Two luxury holiday apartments on the West coast of Scotland are now benefiting from the installation of a **NIBE** F2040 air source heat pump

Set within the 300 acre grounds of the Isle of Eriska Hotel, the one bedroom Hilltop Reserve apartments are completely off grid. While space heating and hot water for the rest of the hotel comes from a large biomass system, piping this uphill and 600m away was not a viable option.

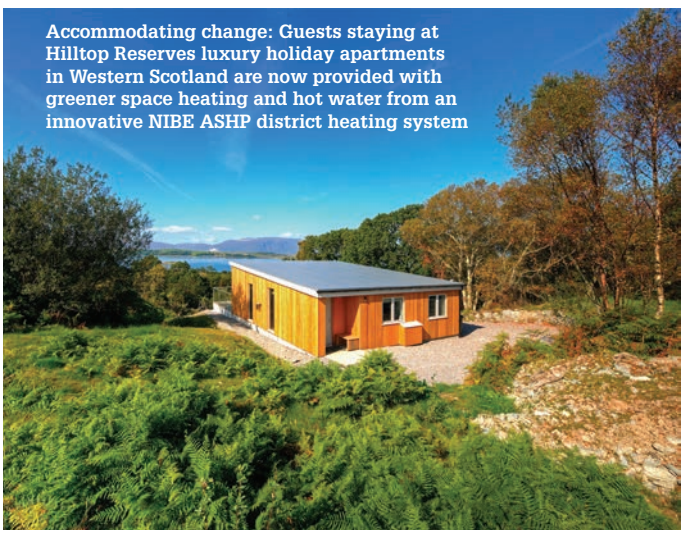
Each of the apartments, with hot tubs, will be permanently occupied on a time-share basis so have high annual heating and hot water demand.

The system is set to keep the lodges at a constant temperature of 21°C during daylight hours and 15°C at night, with hot water available on demand.

Barry Ferguson, director at Ferguson Energy, specified, designed, sized and installed the system which consists of a 16kW F2040 ASHP, a 500L VPB hot water cylinder, a UKV 200 buffer tank and SMO 20 intelligent controls.

He said: "As the lodges are very well-insulated and fitted with water-based underfloor heating throughout, we advised that they would be ideally suited to a NIBE F2040 ASHP. Having worked with NIBE products before, we were able to specifically recommend the F2040 as the best system to meet the project's needs – both in terms of performance and capital cost.

"We sited the ASHP unit outside a separate, purpose-built plant room. This means the whole system is set apart from the lodges themselves – something we achieved by running insulated piping between the plant room and the properties. By opting for a 16kW F2040 model – which not only has enough capacity to serve the existing two lodges, but could also easily accommodate two more in the future – we've created a versatile, small-scale district heating system that fits in with plans to grow the development."



**Accommodating change: Guests staying at Hilltop Reserves luxury holiday apartments in Western Scotland are now provided with greener space heating and hot water from an innovative NIBE ASHP district heating system**

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## HYDRO

**What:** National Trust reaches milestone in renewables programme

**How:** 100kW hydro turbine in Snowdonia

**Result:** A step closer to 2020 clean energy commitment

The National Trust has switched on a hydro turbine at Hafod y Porth in Snowdonia, the third project of the £5.5m pilot phase of its Renewable Energy Investment Programme.

The charity is working with researchers at Bangor University to calculate the carbon footprint of the installation, and expect it to balance its energy investment in less than a year of operation.

The hydro scheme has a capacity of just under 100kW and cost £550,000, resulting in a payback period of six years. All the generated electricity will be sold via the National Grid to clean energy supplier Good Energy.

Money raised from the project will be ploughed back into funding conservation projects in Snowdonia.

Keith Jones, National Trust environmental practices advisor, said: "We do get a lot of unpredictably wet weather in Snowdonia. This can be great when the hydro is in, but it's not ideal for construction. Pre-fabricating components off-site removed a lot of these risks, and reduced our carbon footprint."

Trystan Edwards, general manager of Snowdonia and Llŷn, said: "At a time of climatic change, it is an incredible privilege to be the caretaker for such a significant place. There is a need to diversify, and renewable energy that works in harmony with its setting helps us to do that so we can protect this treasured land into the future."

If the pilot phase is successful, the Trust expects to fund a further 43 renewable energy projects to meet its target of producing 50 percent of the charity's energy requirement from renewable sources by 2020.

**First of many: The National Trust's Hafod y Porth hydro project forms part of the charity's Renewable Energy Investment Programme pilot phase**

## SOLAR PV

**What:** Buffalo farm turns to solar energy

**How:** 10kW PV system installed by Norcroft Energy

**Result:** Significant energy bill savings

Norcroft Energy has recently completed a 10kW installation on a family-run buffalo farm near Barnsley.

Snowden Hill has been producing and selling buffalo meat since 2009. Burgers and sausages are sold at local farmers markets, festivals and agricultural shows.

Rob Battye, farmer at Snowden Hill, said: "The main reason we decided to turn to solar PV was to save money on our electricity bills. Since we started retailing the water buffalo meat and running a 3-phase cold store 24/7, the amount of electricity used has risen considerably along with price increases.

"We got two quotes for the work and whilst the quotes were very similar, we decided to go with Philip from Norcroft Energy as we have used him before for other electrical work and he is also a local farmer's son so has a good understanding of our business. Philip worked out the size of the system we needed without overselling, and was very easy to talk to."

He added: "The engineers who carried out the work were very pleasant, got on with what they needed to do and were very tidy. Norcroft helped us fill out all the paper work and were always on the end of the phone if we needed to get in touch. We would have no hesitation in recommending Norcroft Energy."

**Cold remedy: Rob Battye, buffalo farmer at Snowden Hill, opted for PV to cut the cost of running a large cold store for meat continuously**

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## HEAT PUMP

**What:** Marine heat pump installation features pre-insulated pipework

**How:** REHAU RAUTHERMEX

**Result:** Minimal circuit heat loss

A pioneering heat pump installation, which uses the warmth from the Menai Strait to provide heating for the an 18th century mansion, has featured more than 110m of REHAU's pre-insulated pipework.

A marine source heat pump sited inside a boiler house in the grounds of Plas Newydd on Anglesey is extracting heat from the sea and raising it to 55ºC before it is distributed to the main house.

This is helping achieve a consistent internal temperature which is sufficient to preserve the fabric of the buildings and its valuable contents.

REHAU's RAUTHERMEX 110m pipework is providing the flow and return link between the boiler and the main house. RAUTHERMEX is insulated with closed cell PU foam giving it a lambda value of 0.0216W/mK.

It was specified for the project by Kimpton Energy Services which was the main contractor and designer. REHAU's technical team provided advice on the design of the pipework layout to installers GHJ Civils.

The installation at Plas Newydd is the largest of its kind in the UK and was awarded Commercial Project of the Year at the 2014 Energy Efficiency & Renewables Awards.

**Well grounded: Pre-insulated pipework from REHAU brings water heated from the Menai Strait to the 18th century mansion at Plas Newydd, Anglesey**

## BIOMASS

**What:** Monastery opts for low carbon heating

**How:** 60kW BioWIN Excel wood pellet boiler

**Result:** Additional source of income

A monastery in West Sussex has increased its green credentials by turning to a Windhager BioWIN Excel wood pellet boiler.

The 60kW BioWIN Excel boiler is situated in the plant room of The Monastery of the Holy Trinity in Crawley Down and provides heating and hot water to various properties in the complex.

The system comprises a solar thermal buffer to supplement the thermal store of the main plant room and to increase heating efficiency. Evacuated solar thermal arrays have been installed nearby on the Founders Wing roof.

A 300 litre solar thermal unvented store has ancillary heating primaries to the main plant room. When the hot water demand has been met, the solar thermal store is designed to supplement the thermal store of the main plant room, preventing unnecessary use of fuel by stopping over production of hot water.

Qualifying for non domestic RHI support, the design of the system had to negotiate limited space. Two separate eight tonne external pellet stores were supplied due to access restrictions which need to be refilled once a year.

Suction probes at the bottom of the pellet stores ensure a continuous supply of pellets via underground pipes.

Control of the heating system is managed by Windhager's Modular Energy System (MES) control solution.

**Wooden delivery: The Monastery of the Holy Trinity in Crawley Down, West Sussex, contacted installers A Greener Alternative to install a 60kW Windhager BioWIN Excel biomass boiler**

# Figure it out

## Generation tariffs for non PV technologies

| Technology | Band (kW) | Tariffs (p/kWh) |
|---|---|---|
| Hydro | ≤15 | 19.01 |
| | >15-≤100 | 17.75 |
| | >100-≤500 | 14.03 |
| | >500-≤2000 | 10.96 |
| | >2000-≤5000 | 2.99 |
| Wind | ≤1.5 | 16.00 |
| | >1.5-≤15 | 16.00 |
| | >15-≤100 | 16.00 |
| | >100-≤500 | 13.34 |
| | >500-≤1500 | 7.24 |
| | >1500-≤5000 | 3.07 |

(Source: OFGEM)

## Number of MCS registered installers per technology

| Technology type | Cumulative number | Registered Aug 14 |
|---|---|---|
| Solar PV | 2660 | 37 |
| Biomass | 339 | 05 |
| Air source heat pump | 877 | 15 |
| Ground source heat pump | 714 | 09 |
| Solar thermal | 978 | 14 |
| Small Wind | 99 | 0 |
| Total | 3156 | 91 |

## Number of MCS registered installations per technology

| Technology type | Cumulative number | Installed Aug 14 |
|---|---|---|
| Solar PV | 579529 | 9871 |
| Biomass | 6586 | 418 |
| Air source heat pump | 30624 | 331 |
| Ground source heat pump | 8816 | 80 |
| Solar thermal | 6873 | 74 |
| Small Wind | 4717 | 08 |
| Total | 637145 | 10782 |

**(Figures supplied by Gemserv)**

## Generation tariffs for Solar PV

| Tariff band | FiT rate (p/kWh) | FiT rates from Jan 01 2015 (p/kWh) |
|---|---|---|
| <4kW | 14.38 | 13.88 |
| >4-10kW | 13.03 | 12.57 |
| >10-50kW | 12.13 | 11.71 |
| >50-150kW | 10.34 | 10.34 |
| >150-250kW | 9.89 | 9.89 |
| >250kW-500kW | 6.38 | 6.38 |
| Standalone | 6.38 | 6.38 |
| Export Tariff | 4.77 | 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 |
|---|---|---|
| Oct 14 | 33191 | 658 |
| Total | 389703 | 3239 |

## Green Deal supply chain

| Month | Assessor organisations | Providers | Installers |
|---|---|---|---|
| Oct 14 | 13 | 12 | -80 |
| Total | 404 | 174 | 2649 |

(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 | 0.54 per litre | 2530 litres | £1,366 |
| 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 | 0.41 per litre | 3833 litres | £1,572 |
| 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 | 0.54 per litre | 759 litres | £410 |
| *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: 7.6<br>Tier 2: 2.0 | 20 |
| Medium biomass | Solid biomass: Municipal solid waste (inc CHP) | 200 kWth and above, less than 100 kWth | Tier 1: 5.1<br>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<br>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<br>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)

# Domestic RHI deployment

| Technology | Accreditations (since April 14) | % of total |
|---|---|---|
| ASHP | 4954 | 37 |
| GSHP | 2050 | 15 |
| Biomass | 3062 | 23 |
| Solar thermal | 3261 | 24 |
| TOTAL | 13327 | 100 |

(Source: DECC)

**What data would you like to see on this page?**

email:

paul@andpublishing.co.uk

# My working week

**Who:** Mike Blakeley, managing director, The Wood Heating Company

**What:** The Wood Heating Company is a biomass boiler installation company working across the North East, with a biomass heritage stretching back 30 years

**New blood: With over 30 years in the business, The Wood Heating Company's Mike Blakeley likes nothing better than passing on his expertise to the next generation of installers**

## Northern star

**Monday**
The day begins early – I prefer to clear any e-mails and voicemail messages before making a start to the day. I'm on site at 8am with our commissioning engineer to discuss a project which involves the installation of KWB's latest boiler – the new Multifire II. KWB boilers are very easy to commission and setup. For a boiler that's so advanced it's great to be able to get it up and running with so little hassle.

**Tuesday**
Today I need to prepare some estimates for sites I visited at the end of last week. I tend to get the more 'interesting' projects to deal with – our estimating team will generally handle the more straightforward projects themselves. We've got a few such interesting projects to work on at the moment – so some interesting calculations to be done on, for example, the domestic hot water requirements for a large cheese business and an equestrian centre which wants its vast stabling and arenas kept just above freezing – but no more than that.

**Wednesday**
After an early trawl through my inbox and a chat with a couple of our engineers before they head off to start on a new site, I prepare for a training session with a group of new installers. Having spent more than 30 years amassing knowledge and experience of biomass systems, it's rewarding to pass some of this onto the next generation of installers. Today's group are a mixed bag – some with no experience and others who been through different boiler suppliers' training courses – but everyone is keen and willing to learn, making my job a lot easier. Our installation partner support engineer does the introductory session, before I get involved when we start looking into the more technical details. Teaching new installers is a really satisfying part of my job and will enable them to offer a high standard of service to their customers. This is critically important to us, as these installers will be installing boilers supplied to them through our sister company IXUS Energy.

**Thursday**
With a glut of recent orders to work through, today is meant to be dedicated to getting up to date with design work on some of our new projects. Ideally this would be done without interruption, but in a busy office there is no such thing as an uninterrupted day! We design every project from scratch in-house, so a great deal of time and effort goes into every design we do. Today will be a long day….

**Friday**
Today we're hosting a customer open day in our training centre to let potential customers come and see our range of log, pellet and chip boilers at work. We like to send potential clients to see one of our existing customers' projects so they can find out how well we perform, as well as our boilers, but for those who just want to understand a bit more about the technical implications of a biomass installation then these days provide a great opportunity for them to come and pick our brains. We are now running a series of events like this to increase awareness of biomass generally and give those who are interested an opportunity to come and see us in an informal atmosphere. Hopefully these people go away better informed and better able to decide whether biomass is right for them, their clients, or their business.

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