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"The Business Strategy Conference - what a great event"

Andy Buchan, Future Renewable Energy

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News

Editor's comment

Looking ahead

Last month the REI team produced its first conference. And for a fledgling event, the reaction from those in the room was highly positive. Taking place at the British Museum in London, A Profitable Future in Renewables Business Strategy Conference, left attendees with no doubt as to how to make this happen. Presentations from DECC, industry experts, the shadow climate change minister, Jonathon Porritt and even a personally recorded message from Greg Bark for the event, combined to make this an event like no other. It was a pleasure to be part of it.

There is no denying that the last year has provided challenges for the renewables sector. Changes in the Feed-in Tariff, the delay to the domestic Renewable Heat Incentive and the underwhelming onset of the Green Deal have caused concern, eroded confidence and resulted in worrying times for many of you out there. The positive news is that as we enter 2013, and Green Deal finance becomes available, the energy efficiency market should take off – add to this Greg Barker's announcement that in January there will be a £2.9 million communications and marketing campaign to support the Green Deal roll out, and things start to look increasingly positive. Of course, we also have the domestic RHI to keep our fingers crossed about.

As was evident at the REI conference, there is no end to the wealth of knowledge and expertise in this industry. This can only be a good thing. It is now up to the industry to get the message across to the householder, the community group and the business. With the range of technologies, incentives and your expertise to help them make an informed choice, there's a strong chance that 2013 could be a very prosperous year indeed.

'Another consideration is that the payment of RHI is dependent on uptake of heat by the end-users" Neel Mehta,TLT, p12

REI conference receives industry support

The first REI conference, sponsored by Enphase and MCS, has received outstanding positive comments from industry experts affirming its place as a meeting point for policy makers, government figures and industry experts to inform and share best practice with the installer community. Taking place at the British Museum, London, the event attracted a first class line up of both speakers and attendees which included Luciana Berger, shadow climate change minister and a specially recorded video message from Greg Barker, climate change minister.

Andy Buchan, future Renewable Energy, said: "What a great event the Business Strategy Conference turned out to be. Every seminar was packed with information. The shadow minister who kicked off with the first keynote speech certainly whetted the appetite for the day with how the opposition see our government tackling our energy requirements for the future."

Ian Stares, PTS Plumbing, presented on what's happening to the market. Recognising the hard time installers have experienced of late, Stares highlighted the fact that marketing tactics had to change and whilst the PV market will remain, the industry needed to embrace renewable heat and energy efficiency. He asked whether we have implemented policies back to front – should it have been Green Deal, RHI, FiTs?

Said Stares: "It was a great pleasure to be asked to speak at the Renewable Energy Installer conference. Renewable Energy will only increase and provide a significant addition to the UK's future energy mix. However, the UK will need competent installers who require good advice and information. The Renewable Energy Installer conference is an ideal forum for gaining that knowledge. This year's conference included senior figures from government who are forming policy as well as industry professionals who understand the market needs. Only proper joined up collaboration between government and industry will deliver the required results and the Renewable Energy Installer conference is in a good position to provide a platform for this to happen".

Buchan also praised the conference programme. "The running order dovetailed well, with speakers within their sessions expressing alternative views as well as putting a different spin on how they see renewables becoming a more mainstream energy supply for the UK. "

Lu Rahman, editor, Renewable Energy Installer said: "The quality of both speakers and presentations was high and unrivalled by any other conference programme in the marketplace. Having DECC's Alasdair Grainger, Dan Monzani and Fiona Mettam in the room was invaluable. We also had experts such as Howard Johns, Ian Stares and Erich Scherer, to name but a few, offering incisive comment and advice to the audience on how the industry needs to proceed to ensure maximum success. According to Erich Scherer, BDO, the commercial RHI is 'the best kept secret in the country.' We very much look forward to next year's event where we can build on the success of this one."

Thought for the day: According to Andy Buchan, Future Renewable Energy, Luciana Berger, shadow climate change minister first keynote speech whetted the appetite for the day with how the opposition see our government tackling our energy requirements for the future

To round off proceedings, Jonathon Porritt enlightened the audience with comment based on his years of work in sustainable development.

According to Andy Buchan: "The final keynote speaker, Sir Jonathon Porritt was amazing, a speech full of passion and everything he said made so much sense – the best speaker I have had the privilege to listen to, and I've heard quite a few!"

Ecobuild looking to the future for renewables

With the spotlight firmly on renewable energy and microgeneration, there has never been such an important time to get up to speed on the latest legislation, training and technologies.

Ecobuild (5th – 7th March, ExCeL London), the world's largest event for sustainable design, construction and the built environment, will showcase the latest innovations from leading companies across solar, bioenergy, combined heat & power (CHP), building integrated photovoltaics (BIPV), heat pumps and small scale wind technology.

Brand new for 2013, 'The Green Deal Terrace' will provide a programme of seminars and a comprehensive advice clinic to help visitors understand the ramifications from the government's showcase policy and how they can benefit.

Practical Installer is back in association with Plumb Center, also with a major focus on helping installers make the most of the Green Deal. Live demonstrations are set to provide all installers with the knowledge to take advantage of the growing demand for micro-renewable technologies.

Ecobuild's popular Solar Hub, sponsored by Rexel, returns with a brand new focus on the future of energy. Visitors will hear all the latest thinking, get practical guidance and advice from leading industry experts. Also returning for 2013 is Renewable Heat Focus to help de-mystify and highlight the opportunities available through the coalition's Renewable Heat Incentive scheme (RHI).

Three times as good: Ecobuild 2013 will feature a new Green Deal Terrace as well as the Solar Hub and Practical Installer zone

More reasons to visit Ecobuild 2013:

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- Talk to technical experts and advice on maintenance and installation

To register for your free ticket, visit **www.ecobuild.co.uk.**

Renewable Resources contributes to renewable growth

According to Department of Energy and Climate Change (DECC) statistics, Renewable Resources (Energy Solutions) accounted for 38 per cent of the total commercial solar PV installed capacity in the UK between May and July 2012. This achievement, says the company, reinforces its position as the largest UK solar PV installer, and follows the company's recent win of the Solar UK 2012 Award in the category Large Installation of the Year. The awardwinning 6.9 MW project for the supermarket chain Sainsbury's was completed by Renewable Resources in March 2012.

"We are excited to see the latest DECC FiT statistics – a proof of the UK's receptiveness to the benefits of solar which we have also experienced," said Paul Gribben, chief executive, Renewable Resources. "We are proud to be on the forefront of the UK renewable energy sector and to contribute to the growth of the UK market while significantly reducing its negative environmental impact."

'As a new business it is hard to predict exactly how things will fair"
Finian Parrick, Zero Carbon Future, p14

Enphase Energy launches in the UK

Enphase Energy, designer and producer of microinverter systems for the solar industry, has entered the UK market. Following the success of its Milan and Lyon openings in 2011, the new Milton Keynes office is an exciting development for the company. The firm has appointed Paul Nightingale to lead the UK office. With 2.2 million units now sold, Enphase says it is known for innovative products, a focus on quality and an appreciation of the market's need for energy and cost saving. Its Microinverter has a 20 year guarantee and, says Enphase, offers significant improvements in terms of efficiency, safety and reliability. The technology has been designed to increase energy production, simplify design and installation, improve system uptime, reduce fire safety risk and provide a platform for intelligent energy management.

New move: Paul Nightingale, Enphase Energy who is heading up the UK arm of the company, based in Milton Keynes

Money matters: Tony Darbyshire, Engensa the company is offering SolarLoans

Engensa launches solar financing

Engensa has announced an expanding range of solar financing options for UK home and business owners to combat energy bill hikes. With SolarLoan, millions of home and business owners, says Engensa, can install solar panels with no upfront cost to slash energy bills and add value to their homes.

Adding a 15-year payback option to Engensa's SolarLoan unsecured consumer loans, the company now offers two options for those who want to invest in solar without paying a penny upfront.

"Even homeowners on the cheapest energy tariffs from traditional energy companies will be guaranteed to save money by going solar with SolarLoan," said Toby Darbyshire, ceo Engensa. "Solar offers homeowners the most affordable form of home energy available, regardless of subsidies like the Feed in Tariff."

SolarLoan benefits include zero upfront payment for homeowners - homeowners have a solar electric system fitted at their home for free; money can be earned from day one - even while paying off the SolarLoan most families will see very attractive benefits from Feed-in Tariff payments and energy bill savings.

Solfex boost online presence

Solfex Energy Systems is aiming to enhance customer interaction with the launch of a revamped website, new online web portal and sales shop. The move comes about as the company continues to look at ways to enhance its interaction with installers and merchant groups. This latest development from Solfex includes a revamped website, enhanced web portal of information for installers / merchants and online sales shop.

The revamped website went live following the launch of a number of new technologies within the Solfex product range. Products can be purchased online and the new dedicated installer web portal also has a range of other features designed to assist installers - product information downloads, test certifications, training details coupled with account and product delivery information and stock inventory.

The full range of Solfex PV products are available for purchase online. For installers seeking bespoke kits, a new design tool will be added to allow kits to be tailored to suit installer requirements in a matter of minutes. All products will be available from stock with overnight delivery on the customer's account, says Solfex. The company's full range of solar thermal products will also be available for purchase online.

Managing director, Stuart Cooper, said: "In a rapidly changing renewables environment we will not only offer our customers the highest quality products at the best possible prices but with the revamp of the website, the additional technologies offered and the online purchasing platform and portal we will also offer access to buy these products at the customers convenience.

"We also intend to make the experience of accessing the web portal easy for our customers to ensure it provides them with a range of useful information that assists them on a day to day basis. All of these innovations will sit alongside the exceptional, personalised service installers have come to expect of Solfex over the past six years."

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Letting off steam

With the window for supplying feedback on DECC's domestic RHI consultation now closed, **Paul Stephen** went along to a stakeholder event in Manchester to see which parts of the proposals are causing installers the most concern

Thumbs down: DECC has excluded biomass bivalent systems from the domestic RHI over fears that consumers will switch back to traditional fossil fuel heating after the payment period elapses

Here are five areas of the plans which caused most discussion and will give DECC officials much to think about before the final policy is presented in March.

Q: Why will heat usage be deemed and not metered as it is in the non-domestic scheme?

DECC says: We felt that the relative cost of installing a meter was prohibitive for the domestic customer. We estimate a cost of £1,000 based on evidence we have gathered through the RHPP. This may be proportionate in the non-domestic scheme but not for homeowners. Setting appropriate deemed heat usage levels will also discourage people from overproducing heat and wasting it.

Why have biomass bivalent systems been barred from the RHI?

DECC says: The rules regarding bivalent systems were made to minimise fossil fuel usage. Biomass bivalent systems will not be allowed because of the projected rises in fuel costs. This could mean that after the seven years of payments have ended, customers simply switch straight back to fossil fuel heating. Heat pump systems will be allowed, so long as they are metered, as will solar thermal. This should be seen as a boiler replacement scheme so we do not want to reward unnecessary use of fossil fuels. All legacy applications must be metered.

Will thermodynamic panels be included?

DECC says: Technologies supported by the RHI must be MCS accredited. MCS has recently suspended thermodynamics from the list and is looking at what standards this technology should meet – whether it is solar or heat pump. Thermodynamics will not be eligible for the RHI until it is MCS certified. Exhaust air source heat pumps will not be included either as they are not currently defined as renewable in European legislation.

How were the proposed tariff levels set?

DECC says : The tariff levels are set to compensate the householder for upgrading to renewable heating and meet barrier costs such as building work. Tariffs therefore need to cover operating costs, the difference in costs between fossil fuels and renewable heat, plus 7.5 per cent financing costs. 17.3p/kWh was set as the ceiling limit based on the cost of offshore wind. We do not want to be more generous to technologies which will be more marginal in meeting the UK's renewables targets than wind, which will contribute far more.

DECC's prediction model shows that solar thermal uptake will be minimal. Should this technology be more adequately supported?

DECC says : We are working with the STA to look at different models for payment. Under the current model (17.3p/kWh), deployment is likely to be low due to the lengthy payback period. Solar thermal presented a major headache to us as it is so difficult to compare with fossil fuels and, unlike other renewable technologies, is limited to supplying hot water only. We realise that support is low but we must also stick to our principle of a 17.3p/kWh tariff ceiling. There could be a case for treating this technology separately from the rest of the Renewable Heat Incentive.

All questions answered by Jakob Andresen (technologies and customer journeys specialist) and Lucy Longstaff (domestic RHI policy lead)

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Assets management

Hugh Taylor, director at Applied Sustainable Energy outlines the process, the pros and the cons of developing land as a renewable asset

Applied Sustainable Energy (ASE) installs utility scale solar projects for engineering, procurement and construction companies (EPCs). As more renewable developments emerge in the UK, many installers want to know how they might fit into a project of this scale and what are the pros and cons of entering this area of the market?

There are three stages to the process of renewable land development. The first is in gaining permissions, which is usually done by a developer. Permissions required are landowner permissions such as an 'option to lease', grid connection permissions from the Distribution Network Operator (DNO) and finally planning permissions. In most cases a typical developer is likely to be an experienced rural practice chartered surveyor, who will have knowledge of rural housing development, telecoms infrastructure and a range of renewables including solar and wind.

It is possible for an installer with the right level of experience to perform the development role but the financial risks are very high. This stage of the development carries the highest risk; it is likely to cost tens of thousands to secure each of the permissions and if any are rejected, you may be left with nothing.

The second stage is in securing the funding. This can be done privately through a special purpose vehicle (SPV), or the alternative is to sell the permissioned site to an EPC who can access funding. Finding investors who are attracted by the returns of Renewable Obligation Certifcates (ROCs) or Feed-in Tariffs (FiTs) may appear relatively straightforward, but be warned that at this scale investors also require competitive Power Purchase Agreements (PPAs) which are secured through the grid; a process requiring specialist experience and knowledge.

The third and final stage is managed by the EPC who will carry out the design, procurement and installation for the project. It is essential for an EPC to manage these types of schemes because everything in the build has to be 100 per cent bankable, meaning the output of the system must be 100 per cent guaranteed for the duration of the lease contract and secured by liquidated damages in the EPC contract.

Taylor's advice to installers is to seek to tie your business into schemes like this once the project is secure, avoiding taking on the high risks of the earlier stages of the process. Networking and building relationships with developers and EPCs will help position you as an installation partner.

"Unless you have the financial ability to withstand the risks involved at the development stage, installers are better placed to stick to the installation and DC side of the electrics; the AC side being a specialised service at this scale." Taylor adds,

It is possible for an installer with the right level of experience to perform the development role but the financial risks are very high

"At ASE we form partnerships with all the players in the chain from the developer to the EPC, adding value and extracting value at every stage. We operate exclusively at the utility and commercial scales, which means we have experience and expertise to bring to the table, placing us in the position of nominated installers when the project gets the green light."

Development matters: Hugh Taylor outlines the process involved in the development of land for renewable assets

For installers, the advantages of working with renewable developments are clear; large-scale projects deliver healthy revenue over a sustained period of time. However, the installer's role is limited in most cases to the end of the chain and for the smaller installer, taking on a project of this scale may be a huge distraction from core business.

So, what are the opportunities for installers who are presented with a commercial or utility scale opportunity but don't have the capacity to develop it. Taylor presents two options: "If you find a suitable site then the option is to form a partnership with a developer and build a level of trust which incorporates your business into the long-term project. Alternatively, if you are looking at utility or commercial scale schemes you may want to bring the project to a commercial installation company, such as Applied Sustainable Energy, with whom you can form a partnership and shared revenue arrangement."

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Deep heat

Commercial lawyer **Neel Mehta** from national law firm TLT outlines practical considerations that installers should be aware of when installing heating projects using the Renewable Heat Incentive scheme

With Phase 1 of the Renewable Heat Incentive (RHI) open for applications, installers of non-domestic renewable heat systems should be considering whether they can benefit from funding under the scheme. The technologies that qualify for RHI are biomass boilers, solar thermal and ground source heat pumps.

In the market there is funding available, both equity and debt funding, to cover the capital costs of installation provided that the installation is owned by the person who wants to claim RHI. Currently a number of funders are looking at models where the funder would control an Energy Service Company (ESCo), which owns the installation and recover the RHI paid in relation to the heat taken up by the end user. In such a model the funders do insist on a number of pre-conditions such as performance warranties, design and supply warranties and delay damages, which will be passed on to installers. However, the existing infrastructure may not be able to integrate properly with the new boiler. Installers should consider whether there is a need to upgrade or replace the existing infrastructure, for example pipes, valves etc, ensuring that they have properly surveyed and priced this risk.

Weigh it up: According to Neel Mehta, TLT, installers of non-domestic renewable heat systems should consider the opportunities and challenges presented by the RHI

Installers should also consider the form of performance guarantees required by end-users and ESCos. Such guarantees range from uncapped to capped liabilities not exceeding 15 per cent of the installation costs. Installers may also be required to sign up to fitness of purpose obligations in the installation contracts. The installer should consider if such a risk is insured under their existing policies.

Another consideration is that the payment of RHI is dependent on uptake of heat by the end-users

Another consideration is that the payment of RHI is dependant on uptake of heat by the end-users. If there are defects in installation caused by the installer which lead to loss of heat to the end-user, the installer may be responsible for loss of RHI as well as indirect losses suffered by the ESCo and the end-users. As such, installers should consider limiting their liability for indirect losses.

Consider access rights

Furthermore, installers are advised to consider whether the ESCo has adequate access rights to allow the installer to carry out its obligations. These frequently take form of a lease or a licence. If the property in question is charged by a lender, such licence or lease will require consent from the lender. Certain technologies also require very specific feed sources to operate effectively. Supply agreements need to be in place with feed suppliers to ensure that the necessary feed source is readily available at an acceptable price for the life of the project. ESCos may require installers to act as agents to manage these feed arrangements.

Repair and maintenance

It is frequently a condition of funding that the installer who installs the heating technology is also required to provide repair and maintenance services. Installers should consider carefully the services and the extent of their liability under any such agreements. A particular concern will be exposure to unlimited liability for loss of revenue and RHI payments. As an alternative to providing repair and maintenance (R&M) services, ESCos may require installers to enter into interface agreements with repower and maintenance contractors which sets out mechanics of how R&M Contractors may be compensated for making good defects which are the installers responsibility.

To conclude, installers of non-domestic renewable heat systems are advised to consider the opportunities and challenges presented by RHI, as there are many factors that need to be taken into account.

Certain technologies also require very specific feed sources to operate effectively

News

Renewable Solutions - Building for the Future

Renewable Solutions are proud to announce their move to a new Headquarters Building on Wirral.

"This is the result of 10-months of design and build work", says Mike Lowes, MD. "Having spent some 4-years in rented property we were keen to invest in a new freehold site where we could design offices to a high specification that provided a great working environment for our staff, and best represented our brand"

The building, on the shores of the River Mersey in Bromborough, incorporates nearly 3,000 square foot of Grade 'A' office space and a 6500 square foot warehouse. "We redesigned the original scheme to include floor to ceiling glass facades, glass partitioning and a high level of insulation. The build is now rated to BREAM excellent standards".

"We have a whole raft of Renewable technologies supplying the building. These include Solar PV, Solar Thermal, Biomass Heating, Heat Recovery, GridBuddy™ battery storage, LED lighting and full under-floor heating throughout. Although the building is designed primarily as an office environment, we can now demonstrate an extensive range of renewables to our domestic and commercial clients.

As well as seeing how multiple technologies can be designed and integrated to work with each other, clients can experience them in 'live' conditions".

The Company commissioned a leading interior design team to create the internal spaces, which are contemporary and minimal; an ideal canvas to showcase a range of striking installation images.

The Company now has dedicated offices for its Commercial BDM's, Assessors, IT and Design staff, Installations and Marketing staff, together with a Boardroom that can comfortably seat 20-people.

The Company has invested heavily in IT infrastructure, with state-of-the-art main and terminal servers, wireless 4G communications hub and VoIP enabled digital phone system.

"Delivering a building of this size and quality without external funding has proved a real challenge, especially in the current climate that the industry finds itself in. That we have managed to realise this is a credit to the hard work of our staff, who help us to drive the business forwards from strength to strength, both here and abroad.

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Supporting role

Finian Parrick, owner of a renewables warehouse, urges installers to be ready to support customers through the RHI process

Finian Parrick, a qualified heating engineer with MCS accreditation and over 12 years experience in the renewables industry, has recently launched a national renewables warehouse called Zero Carbon Future (ZCF), and since opening in October, he has been urging installers to better acquaint themselves with the RHI process.

Parrick comments: "Generally customers look to the installer for advice and support and anyone undertaking a project where the customer is applying for the RHI needs to understand that there are boxes to be ticked if the application is to be successful."

Figures circulated earlier this year by Ofgem confirmed that a total of only 88 Renewable Heat Incentive projects have been awarded since the schemes introduction in November 2011.

Says Parrick: "The figure should be much, much higher but this can be improved upon. Granted, it is a tough process, but installers need to make sure they gain a good understanding of what is involved to ensure any applications put forward are successful – this is of paramount importance if we are to future proof the reputation of the renewables industry.

"Installers need to be aware that meters must be fitted to British Standards and be installed in the correct position in relation to other elements of the plant, and, if the paperwork is not completely sorted out then the application can be returned."

Zero Carbon Future offers a free design service for both new build and retrofit applications and installers are provided with comprehensive technical drawings, detailed installation manuals and easy-to-follow user guides.

'Support' is one of the key philosophies behind Zero Carbon Future and installers can benefit from technical support from the company's informed and experienced team. Queries can be answered by talking to an experienced Trade Team Support Advisor via webcam or over the telephone, or, if the preferred method is in person, then a site visit can be arranged.

Up close and personal

In order to make the most of the opportunities offered by renewable energy, some installers may wish to better acquaint themselves with the system before recommending it to their customers and ZCF has devised introductory courses on biomass boilers and solar thermal technology to allow installers a greater understanding of the product and its benefits to the end user.

Parrick, supported by ZCF's experienced renewable heating engineers, leads the two-day introductory courses held at the company's bespoke training facility in Exeter and attendees will learn about woodchip and pellet fuel stores, plan room options, fuel delivery, buffer tank sizing, heating system design and heating controls, and more.

The company, located in Exeter, Devon, currently supplies fully accredited MCS biomass boilers and solar thermal systems, including all ancillary parts and components, but will be adding underfloor heating and solar PV to their product portfolio in 2013.

Double expertise: Up close and personal with biomass and solar thermal technology at ZCF's bespoke training centre

With 5,000 MCS registered companies in the UK, Zero Carbon Future should have a positive role to play in keeping installers well stocked, stress free and well advised and according to Finian, the 'soft' launch of the renewables company to installers in Devon has been well received.

"As a new business it is hard to predict exactly how things will fair but if the first few months are anything to go by, and to all intents and purposes we hadn't even officially launched, then we are very optimistic for the future and hope our reputation will keep going from strength to strength."

Zero Carbon Future currently employs seven members of staff with Jo Snell, formerly of Nu-Heat Underfloor & Renewables, the latest recruit to join the expanding team.

Ready steady go: Zero Carbon Future Stock getting ready to leave

Parrick comments: "Jo is a very welcome addition to the team and we are looking forward to sharing her six years experience working in the sector with installers and we cannot wait for her to put her mark on Zero Carbon Future – she has some very interesting ideas that we are sure will be well received by installers."

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Paul Gribben, chief executive and founder of Renewable Resources (Energy Solutions) – the company behind 38 per cent of the large commercial solar PV installations in the UK between May and July 2012 - sheds light on the current status and future prospects of the UK commercial solar PV sector

According to the Department of Energy and Climate Change (DECC), the UK solar industry grew exponentially over the last three years with the total installed capacity boosting from 65MW in 2010 to 1.3GW in September 2012. This development has significantly exceeded government expectations as well as budget plans and resulted in the Feed-in Tariff (FiT) cuts for both residential and commercial markets. The tighter tariffs provoked ongoing discussions about the end of the UK solar sector and other gloomy forecasts, whereas in reality much of this upheaval is the consequence of the energy revolution and an outstanding spread of solar PV systems across the country.

Despite the reduced FiT rates, solar PV technology remains a strong investment for commercial customers in the UK for a number of reasons

Still a good investment

Despite the reduced FiT rates, solar PV technology remains a strong investment for commercial customers in the UK for a number of reasons.

Firstly, the cost of installations dropped dramatically in the past two years, bringing the price down by 50 per cent for large installations (50 kW and above). In addition, DECC predicts a further decrease by 10-30 per cent by the end of 2012, with ongoing price drops of 5-25 per cent per year in 2013-2014 and smaller but consistent reductions in 2015 and beyond. These price reductions are a result of the market maturation as well as increased demand, advances in manufacturing techniques and growing competition in the UK marketplace. Additionally, installation companies are gathering experience and reducing the average time needed for installations, thus contributing to further cost savings. To install a typical 50 kW system for a flat roof now takes less than three days.

At the same time, the cost of electricity has increased and will continue rising in the future. DECC forecasts that the price of electricity in the UK will go up by 33 per cent in real terms by 2020 and there will be an increase of 43 per cent in commercial tariffs. With solar PV, there is no need to buy electricity from the grid allowing immediate savings on energy costs and protection from future rises. For example, a 50 kW solar PV installation with an average price of £85,000 will generate over £200,000 savings on the electricity bill within 25 years. In addition, the current FiT will provide £150,000 return over 20 years, making the investment even more appealing. At Renewable Resources we estimate a 10-12 per cent return on investment annually for our commercial customers. This is a robust yield for any business looking for a less expensive and greener energy source.

Pressure on

Finally, the sustainability trend and an increasing focus on diminishing carbon footprint put additional pressure on commercial ventures to minimise their negative environmental impact. A 50 kW solar PV system can offset up to 20 tonnes of carbon dioxide per year, helping a company to reinforce its green credentials while retaining like-minded customers and suppliers.

With the introduction of the new FiT scheme, the industry gained the long desired stability necessary for business planning and decision-making. Nowadays, solar PV is an ideal tool to reduce carbon footprint and electricity costs and provide energy security, while also ensuring strong financial returns. With this in mind, we have no doubt solar PV has a very bright future ahead in the UK commercial sector.

Bright future: Paul Gribben, Renewable Resources, says that despite the reduced FiT, solar PV remains a strong investment for commercial customers in the UK

At Renewable Resources we estimate a 10-12 per cent return on investment annually for our commercial customers

Domestic RHI consultation

The domestic RHI aims to support households in their movement away from fossil fuels for heating and to contribute to the UK's target on renewable energy deployment by 2020. The government recognises the demand within the renewable heating industry for this incentive and, by introducing an incentive for domestic consumers, hopes to drive uptake of renewable heat technologies as well as support supply chain development. They also aim to improve the efficiency and performance of renewable heat technologies through efficient metering. The consultation outlined a number of areas that could influence, or be beneficial to, MCS installers.

As part of the proposals, to be eligible for the domestic RHI customers must use an MCS certificated installer and an MCS certificated product. This is a great boost for MCS installers certificated for the eligible renewable heat technologies. It is proposed to work in a similar way to the Feed-in Tariff, in which the consumer must supply a valid MCS certificate when applying for the domestic RHI.

Leading on from this, payments for the domestic RHI are proposed to work on a deemed basis (based on a calculation of the expected heat usage for the property). MCS certificated installers will be responsible for providing and checking the calculations for deemed heat usage. It is these figures that will be used to determine how much an individual customer is paid.

The government is keen to raise the performance of renewable heat technologies with the introduction of metering. One proposal for this would be to check one installation per installer. This may then include the installer receiving industry recognition for installations which meet the required standard. It is hoped this will increase the number of installations as the consumer gains more confidence in the technology and the installer. Although the consultation has now closed, the document is still available on the DECC website (www.decc.gov.uk) if you would like to review the other incentive proposals being put forward as part of this consultation.

The results of the consultation are due to be published in early 2013, with the domestic scheme expected to be introduced from summer 2013.

MCS

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Renewable ENERGY INSTALLER THE BUSINESS OF MICROGENERATION

Pollard's Patter

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

As we move closer to Green Deal reality, and the potential of the domestic RHI scheme starting, I am speaking at a number of events on the increasing demands of certification and accreditation. I read that government was going to introduce revalidation for all doctors every five years. Well, now they're in good company with heating installers. Our Plumb Center training partners, Sevenoaks Energy Academy, has made it its business to provide the best value for their trainees, but even they admit figures are climbing rapidly. To start from scratch and work through the necessary competency qualifications to fit gas boilers, three renewable technologies and be Gas Safe, MCS and Green Deal registered would cost over £20,000. There are also annual charges to maintain accreditations, and as standards change new criteria must be met at more cost.

We are told by government that recovery is reliant on the success of SME businesses, and none more so than in our sector. So how are small businesses expected to cope with such onerous costs in order to keep trading?

Plumb Center aims to make this process as easy as possible, by opening UK training centres and working with our partners to achieve best value. We are subject to the same pressures and demands. We need a rational look at the integration of standards and their costs, while maintaining professional standards and safety.

Opinion

Two minutes with . . .

Who are you?
Joseph Clarke, technical manager at Fronius UK

What do you do?
We are a subsidiary of Fronius International which has been designing and manufacturing PV inverters in Austria for 20 years.

Where are you?
Our office is based in Milton Keynes.

How's business at the moment?
With the turbulence of the Feed-in Tariff changes this year, we have seen huge fluctuations in demand. 2013 is a period for installers to re-aim their focuses on the larger systems whereas before it was on domestic installations.

How could it be better?
I think that the market still needs more education for everyone to understand the returns which can be sought from PV and that for these returns to be consistent you need to invest in quality products which will stand the test of time.

Who do you admire in renewables?
People who can look past the current market demands, years into the future, and develop sustainable solutions for households such as our hydrogen fuel cell. This will really make it a reality to be grid independent.

What's the best business advice you have received?
Invest in the Future. Fronius puts a large amount of its turnover straight back into research and development to provide innovative solutions whilst maintaining its role as quality leader. This year we have released the first central inverter which can be fully installed, operated and maintained by the installer.

How are you going green?
Our factory in Sattledt has one of the largest PV systems in Austria which provides most of the power demand of this inverter production site. We have also won an award for running the logistics vehicles with hydrogen technology, the hydrogen itself being sourced using power from our PV array.

Backwards and forwards

2012 has been an action-packed year, especially for PV. We had the ups and downs of Feed-in Tariffs (FiTs), which started in late 2011. Although confidence took several knocks, things now appear to be stabilising and many in the industry think that as well as the inevitable slow-down and squeezed margins, the overall effect also has some positive aspects. For example, some of the companies who entered the market for quick profits, but with little technical knowledge or experience of the sector, have now departed as rapidly as they arrived, leaving space for those who are in it for the long haul to refocus on building an industry committed to quality and customer service.

Fast and furious: Steve Pester, BRE, highlights the sction-packed year renewables has undergone

There has been the buzz of Green Deal and its associated cash-back incentives across the industry - a new paradigm in support mechanisms - mostly aimed at energy efficiency measures, but theoretically also available for renewables projects. One thing is sure - a lot of time and money has been spent in the private sector gearing up for the take up in 2013 and beyond. Then there is the Renewable Heat Incentive (RHI) – another world first - and the associated Renewable Heat Premium Payment (RHPP) cash-for-monitoring offer. BRE is helping DECC with the installation of around 1200 sets of monitoring equipment on heat pumps on dwellings. The aim is to improve the understanding of system design and installation factors which affect the overall annual performance (seasonal performance factor). This information will then be used to inform policy such as the domestic RHI and Green Deal.

Let us hope that all these efforts prove to be big drivers for the fledgling renewables sector. Either way, it seems fair to say that the UK is trying out some innovative policies, and industry is jumping through hoops to make it all work.

Predictions for next year? Hopefully, we will see a large increase in the numbers of low carbon heat technologies being fitted, hand-in-hand with sensible energy efficiency measures. It would be great to see better integration of system controls for multiple technologies (the new MCS heat pump installer standard actually requires integrated controls for systems with auxiliary heat sources). We will have a National Solar Centre, which will be a repository of robust information on all things solar, DC isolators will no longer catch fire and - ever the optimist - building-integrated PV will start to become better understood in the construction industry!

Have a good Christmas & happy renewable year.

Opinion

"When REI offered me the chance to write a regular column, I jumped at the chance" Liz MacFarlane, Zenex, p23

Talking Ten to the Dozen

Leading renewable experts reveal their opinions

What will be the most exciting development in renewables in 2013?

Michael Priestnall, Polysolar

"Exciting innovations hitting the mainstream in 2013 will include low-cost transparent PV glazing replacing regular glass and more BIPV in general. I think we'll also see widespread use of add-on low-cost electronic devices to time-shift solar electricity because they give end-users increased return-on-investment and grid independence."

Bruce Boucher, Bruce Boucher Consulting

"What would be exciting in 2013 is for the government to be more effective with all the various incentives which appear to be elusive or difficult to administrate therefore increasing renewables uptake. Add an improving workforce to deliver the more complex products effectively."

Liz MacFarlane, Zenex Solar

"The industry has anticipated the RHI for the last four years, and many have not survived the wait, so this is an obvious and unique development. The Green Deal is also a great step forward for energy efficiency. However, most exciting for me is a new era in PV as we shift away from the volatility of late and move towards a more stable market."

Peter Creasy, Applied Sustainable Energy

"We anticipate growth in the market representing high-energy users. The financial case for renewables at this scale will be strong in 2013 as FiTs stabilise and energy costs increase. Installers can work together at this scale; domestic installers forging partnership arrangements with those of us in the commercial sector."

Matt Hindle, The Anaerobic Digestion and Biogas Association

"From an AD perspective, one of the most significant developments of 2013 could be the expansion of the RHI to support heat generation above 200kWth. This could open the door for new and existing projects that use heat in innovative ways, and increase the sustainability of energy generation from biogas."

Dean Walton, Alumet

"At Alumet we see Building Integrated Photovoltaics (BIPV) making a big breakthrough in 2013. Most new buildings feature a south facing wall so instead of cladding the wall with a rainscreen system, it makes perfect sense to clad the wall with BIPV to power the building and also provide an additional income stream through the Feed-in Tariff."

Bruce Allen, HETAS

"I think we would all like to see a good Renewable Heat Incentive for the domestic sector. It's great to see biomass included in the consultation, but we're also hoping for more recognition of the contribution that wood burning stoves can make to renewable heat."

Neil Turner, Wood Energy

"I hope readers have a relaxing Christmas but even more, I hope that the Christmas tree will make them think about the possibility of biomass in 2013 as a low carbon alternative to traditional oil or gas boilers. May their New Year resolution be to install a biomass boiler and make the most of the government's gift of the Renewable Heat Incentive!"

Ian Stares, PTS Plumbing Trade Supplies

"The introduction of the Green Deal for the domestic market will certainly be important in 2013 but the successful implementation of the RHI is vital. This is the only route to future exciting developments in the renewables heating market and a significant change in the mind set of homeowners."

Julian Martin, ICE Renewables

"2013 will see an increase in planning applications as well as the construction and sale of small and medium sized wind turbines as people seek to take advantage of the Feed-in Tariff before it is reduced in 2014. There will never be a better time to start a wind project and get the best Feed-in Tariff rate."

Talking point

The first is a regular series, **Liz MacFarlane**, Zenex and Q-Gen offers her perspective on the industry

When REI offered me the chance to write a regular column, I jumped at the chance. Based in Yorkshire, I spend my days running Q-Gen and Zenex and my evenings running around after my kids, helping them with their homework.

My job places me somewhere near the middle of the supply chain meaning that I often hear opinion from both ends of the spectrum and I thought this might be a useful opportunity to share my findings.

The best way to get a feel for the industry, is speaking to people in the know at industry events. And despite the difficulties of 2012, the Renewables Roadshow once again did a great job promoting renewables nationally to a diverse group of installers, pulling in 5,197 visitors. Solar Power UK racked up a similarly impressive 4,500 visitors.

This leads me to believe that slowly but surely, there is an optimistic air filtering though, although clarity is needed in certain areas. PV for example, still needs to overcome the Feed-in Tariff fiasco and the public's misconception that this technology is not worth investing in. It's actually within the reach of more people than it has ever been. While some installers seem to have written off the domestic PV market, there are others still making a real success of this area.

Finally, let's hope that following DECC's Green Deal 'soft launch' and announcement of a £125 million cash back scheme, we start to see a positive take up of this landmark scheme. What we need is a concerted effort and strong marketing (more on this from me next month) to ensure the consumer can make informed energy choices. So, it's not just my kids that need to get their homework right – it's especially important for the renewables world if we're to pass on the message of their benefit to the homeowner.

Talk time: Liz MacFarlane shares her industry knowledge with REI

Q&A

Matthieu Giraudon

Fernox

REI: What have you got planned for 2013?
MG: To change the UK perception of renewable energy. There is a tendency for it to be seen as unreliable in terms of performance outputs, and not as appropriate to a colder, less sunny country. This is inaccurate and correctly sized and properly installed, solar thermal systems or heat pumps work efficiently. The challenge is to get this message across.

REI: What do you see as the growth areas in renewables?
MG: Fernox is involved in the supply of best- in -class heat transfer fluids for solar thermal and heat pumps and the promotion of renewable technologies generally. Therefore, any progress in the early adoption and take up rates of these renewable technologies would be welcomed. We see the introduction of both the Green Deal and the second part of RHI also playing an important role.

REI: How is your company cutting its carbon footprint?
MG: We started to measure the carbon footprint for our core products from the sourcing of the raw materials to the disposal of the finished products. Following an audit, we have been granted certification from the Carbon Trust. Under the terms of this, we are obliged to improve the carbon footprint of these products on an ongoing basis, so we are working on reducing our carbon footprint as routine.

Matthieu Giraudon is European renewables product manager at Fernox

Breath of fresh air

Following utility price increase announcements, Evance's **Kevin Parslow** offers an alternative to energy cost uncertainty. It's common sense for homeowners, farmers and schools to invest in a small wind turbine, he says

Four of the 'big six' UK energy firms - British Gas, npower, SSE and Scottish Power - have all announced further hikes in electricity costs – of up to 9.1 per cent. These increases will hit millions of households across the UK before the winter, and experience sadly shows that this won't be the last such energy price rise. Looking at costs over the last few years, energy inflation over the last five years has been running at an annual average of 8.6 per cent. If this continues we will be paying 21p per kWh in five years, rising to some 72p per kWh unit in 20 years time.

Most of us feel we are at the mercy of utility company pricing, with little choice but to dig deeper into our pockets. Swapping providers or securing a fixed priced deal will only provide a temporary respite.

Is there an alternative? I believe there is. While utility providers won't comment on future energy price movements, the small wind turbine approach offers fixed electricity prices for two decades.

For those with some land and an average annual wind speed of 6 metres per second, then an investment of around £26,000 to install a small wind turbine, plus all running costs, means just 14p per kWh today and .... 14p per kWh for 20 years! Locking down electricity costs, gaining some energy security, and getting a better return on investment than currently available from a bank or building society, has got to be a winning combination.

The cost of electricity for a high consumption UK home currently costs £714 a year. In just five years this could rise to £1,071 a year – that's £90 every single month. A small wind turbine would generate more electricity than this house needs. These cost increases are going to be more extreme for larger electricity users such as farms and schools.

Uncertainty about rising fuel costs is leading not just to customer dissatisfaction but increased fuel poverty. Not surprisingly, those who can will continue to look for alternatives. What's clear is that small wind is available now as a realistic alternative for many consumers who feel that energy prices are slipping beyond their control.

Where do we go from here?

Mariana Hall, vice-president of Phono Solar Europe, asks what the future looks like for PV and renewable energy

Forward facing: Mariana Hall, Phono Solar Europe, looks at what's ahead for PV in the renewables mix

There is no doubt that recent events in our industry have caused serious consideration among manufacturers and installers. Regrettable and inevitable Feed-in Tariff (FiT) cuts have, perhaps too soon, pushed our industry into new, unknown territory. Uncertainty continues to grow as the industry asks whether UK households will embrace PV when the motive of profit is lessened.

Where do we go from here? What do we need to look to, as an industry, to bring us out of uncertainty? At Phono Solar we're convinced that innovation and diversification are essential for our future.

A viable renewable energy solution has always necessitated a number of technologies that co-exist together. It would be naive to suggest that PV in and of itself holds the answer to the world's energy needs. Given that the future of energy involves complementary technologies, are we, as manufacturers, ready to embrace diversification? Moreover, are we ready to lead through bold and creative PV solutions?

At Phono Solar we've made various steps to try and accomplish these two aims. In 2007, our wind division began manufacturing micro-turbines, which we now distribute to Europe, the Middle East, and the USA. Phono Wind turbines form part of on-grid, off-grid, and smart micro-grid systems that we put in place around the globe.

Innovation will also be a necessity for survival and profitability in today's uncertain climate. The recent unveiling of the Phono Solar Enercube demonstrates that storage is an area we're focusing on. Even with the Green Deal on the horizon in the UK, assuming the FITs continue to drop throughout Europe; the clearest challenges in storage are not efficiency, but affordability and profitability.

Of course, there is also our new AC Solution that we are developing with Enphase Energy for residential and commercial solar projects. This will not only reduce installation costs but will improve energy production. We're always looking to do more – whether it's inventive testing methods or new financing schemes around Europe, we hope that new technology will play its part in convincing both customers and governments of the feasibility of our solution.

Cold remedy

With heating bills continuing to head only one way, heat pump manufacturer NIBE Energy Systems says the UK has much to gain by following the Swedish example. **Paul Stephen** joined representatives of the company on a visit to its HQ in Markaryd, southern Sweden

As a nation, we lag a long way behind our Swedish counterparts when it comes to heat pumps. Demand on these shores, stimulated by the RHI, is only just emerging for a technology widely utilised in Scandinavia since its invention in Denmark in the early 1970s.

Progress has been swift since the Swedes first began to dump oil-fired boilers in response to the 1973 global oil crisis with over 90 per cent of all Swedish new-builds now incorporating heat pump technology.

In a country where few houses or commercial premises have access to natural gas, and demand for heating is high during the harsh Swedish winters, legislators have also set ambitious carbon reduction targets of 49 per cent by 2020.

NIBE's fortunes have mirrored the Nordic region's embrace of renewable technologies with the company growing exponentially since its beginnings as a boiler manufacturer in 1952. In 2011, NIBE Energy System's parent company recorded sales of £760m across all its divisions whilst future growth targets have been set at a rate of 20 per cent a year.

Business area manager, Kjell Ekermo, acknowledges that achieving this will be no easy feat amid difficult economic conditions and competition from Chinese rival firms.

"Demand has gone down in all European markets so it could be tricky to achieve this growth both organically and through acquisitions," he said. "We have to be very efficient as we face enormous competition from low cost manufacturers in Asia.

Growing up: Founded 60 years ago in Markaryd, Sweden, NIBE now calls itself Europe's market leader in air-to-water heat pumps

"But, we are market leaders in Europe in air-to-water heat pumps and believe in investing in R & D and innovation to achieve our target."

The UK arm of the company, based in Chesterfield, currently offers air source, ground source and exhaust air heat pumps (EAHP). The latter will not be eligible for the domestic RHI but it is a technology which remains largely unknown on this side of the North Sea.

Well-suited to the high insulation standards of Swedish buildings, an EAHP harnesses the warm air expelled by a building's ventilation system in wet rooms such as kitchens and bathrooms. This heat is then used to generate hot water for space heating or domestic hot water.

NIBE argues that as EAHPs are both practical and affordable in the extreme temperatures of Scandinavian winters, they would be ideally placed working in the UK's milder climate.

Pointing to a four property project completed by Wakefield District Housing, Adam Pearson, technical services manager at NIBE, says the EAHP installations have slashed each household's annual electricity consumption by at least 18 per cent, also cutting carbon emissions and improving air quality.

"When it comes to replacing traditional electric heating, exhaust air heat pump systems can cut electricity consumption, and reduce costs for residents. With projects such as this that incorporate high levels of insulation, they deliver controlled ventilation and a supply of fresh, clean, dry air - essential for a healthy building and residents," he added.

In NIBE's other technological developments, the company is currently rolling out nibeuplink.com, an online platform for managing and monitoring the performance of its F1345 GSHP.

Smart choice: Daniel Gartside, reports that his NIBE F470 exhaust air heat pump has cut his annual electricity bill to £950 whilst meeting heating and hot water needs

Top it off

Nu Heat outlines its involvement in supplying integrated renewable solutions for Edward Woods Estate, West London

Twelve new apartments being built on the 24th floor of a group of 1960s tower blocks near Shepherds Bush, West London have high-flying green credentials with heat and hot water provided by air source heat pumps and solar thermal panels. The integrated systems were designed and supplied by Nu-Heat and installed by Nu-Heat-registered installer, RenuHeat.

The Edward Woods Estate comprises three 75 metre tall tower blocks, Poynter House, Norland House and Stebbing House, built in 1967 with a total of 528 apartments between them.

The tower blocks originally had 23 floors but through the use of lightweight steel frames the four new apartments are being built on the roof of each tower block, exploiting the available space around the service core. The apartments are approximately 100m² with two bedrooms, including one ensuite. The heating system for each apartment is via a single fan 7kW Hitachi Yutaki-M air source heat pump (ASHP) located on the roof, and integrated with underfloor heating for optimum efficiency. The Yutaki-M can achieve an output of 8.2kW at typical UK design temperatures of -3°C outside temperature and +45°C heating flow temperature. The single fan unit has a CoP of 4.43 (at A7/W45) and a typical seasonal performance factor of between 2.5 and 3.5.

Edward Woods Estate was the first project to incorporate Nu-Heat's new hot water cylinder

The hot water is supplemented by the solar thermal, comprising a single solar thermal panel per apartment. The single solar thermal panel at 2.52m² is the larger of the two panels in Nu-Heat's range, with approximately 15 per cent more output than the smaller panel. Where a household uses about 100 litres of hot water daily at 50°C this panel should produce an average of half of the annual demand, with 90 per cent of the demand met in July and 10 per cent in December.

Edward Woods Estate was the first project to incorporate Nu-Heat's new hot water cylinder, the Energymaster HP 255S. This has been developed specifically for use with the Yutaki-M ASHP and solar thermal. The stainless steel hot water cylinder has additional volume at the bottom of the cylinder that contains a solar coil. The cylinder sits on top of Nu-Heat's Bufferbox 100, a cuboid 100L buffer tank that is structured to be able to bear the weight of a DHW cylinder. This means that the two components only have a single footprint between them, saving space. Additionally, Bufferbox 100 is lightweight and compact enough to be moved easily around site by two people

Installing the ASHP, solar thermal and HP 255S was straightforward but the site presented a few challenges to installation company RenuHeat. "The hardest part was going up and down in the lifts with all the tools and materials, especially when moving between the three tower blocks," said Steve Bradford of RenuHeat. "The lifts only went to the 23rd floor so we had to climb up to the new floor!" The installers utilised a shopping trolley to help them move parts around site.

The refurbishment programme for the Edward Woods Estate has been implemented to help regenerate the estate and improve life for the residents, and includes the installation of nine-metre high wind turbines on the roof, solar panels on the south-facing facades and insulated cladding to keep the heat in. These measures will deliver reductions in energy consumption, a reduction in bills for the tenants of up to 72 per cent, and improvements to CO_2 emissions. It is hoped the sale of the apartments will help to fund the refurbishment of the older building.

Premier event: Edward Woods Estate was the first project to incorporate Nu-Heat's new hot water cylinder, the Energymaster HP 255S

Back to the future

2012 has been a turbulent year for the renewables sector but a quick glance at the many challenges successfully overcome by installers paints a far rosier picture for 2013. **Paul Stephen** asks what the next 12 months have in store for our industry

This time last year saw the industry gripped by the government's attempts to push through reductions to the Feed-in Tariff (FiT) in a saga that rumbled on for many many months. Installers expressed disappointment at the decision to cut incentives to homeowners and the general manner in which the government enforced it. But, despite concerns that PV has lost some of its appeal, the coming year should at least see some stability return to the market as the long-term future of the scheme is now known.

Looking up: REC's Luc Grare says the next 12 months will be positive for the PV industry

Luc Grare, REC, predicts a positive outlook for PV as homeowners are compensated for the reduction in FiT income by installation costs which look set to tumble.

"We expect an increase in cost pressures causing the global price of solar modules to come down significantly. This will ultimately be a good thing by making solar accessible to a much wider market.

"At REC, we remain confident that solar energy is one of the key solutions to the world's electricity demand and has a bright future ahead."

Positive position: Sam Waxman, Waxman Energy, feels there is much to look forward to in 2013

Sam Waxman, joint md of Waxman Energy, agrees that falling costs will ensure that the returns from PV remain attractive to homeowners who will also see the added benefit of cost savings due to rising fuel bills.

"The Feed-in Tariff may have reduced considerably, but so has the cost of installing PV. As energy prices go up, shaving money off bills is becoming even more essential to both the commercial and domestic markets.

He adds: "By spring 2013, the domestic market will start to pick up because there is a great opportunity to take advantage of the savings on offer from suppliers and installers."

Safe and sound: Kevin Parslow, Evance, points out the fuel security of opting for renewables

Kevin Parslow, ceo of Evance, has similar optimism for the small wind turbine sector and says: "FiT reductions were a disappointing development. However, we're finding that as the public becomes increasingly unhappy with continually rising energy costs, our customers still appreciate small wind's ability to offer fixed electricity prices for 20 years."

One upside of the contracting PV installation rates experienced throughout 2012 is the diversification of installers who have chosen to embrace other green technologies such as heat pumps and biomass. 2013 looks on course to become the year when renewable heating technologies came to the fore so long as the introduction of the domestic RHI remains on track.

Pumped up: Liz MacFarlane, Zenex Solar, expects strong sales in heat pumps and other heating technology in 2013 following the expected roll out of the domestic RHI

"I expect the year ahead to be another busy one but without the peaks and troughs of 2013," says **Liz MacFarlane,** Zenex Solar. "Many of our customers have diversified well adding wind, solar thermal and heat pumps to their portfolios.

"The domestic RHI is the big story for 2013 as the first heat generation incentive scheme of its kind worldwide. All in all, we have another exciting year ahead with a wider spectrum of technologies to help combat increasing utility bills."

Of course, the other principle legislative

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development of 2012 is the Green Deal which is set to find its feet from the end of January 2013, when funding becomes available to homeowners wishing to make their homes more energy efficient.

Launched to a muted fanfare in October, it has the potential to transform 14 million households whilst enabling occupiers to reduce electricity consumption and consider microgeneration.

Neil Schofield of Worcester Bosch describes the Green Deal as a revolution which will give the industry a much-needed boost. He is also keen to stress that despite the fresh opportunities on offer, it will create new set of challenges for installers too.

Revved up: Installers are on the cusp of a revolution, says Neil Schofield, Worcester Bosch

"We stand on the cusp of a revolution," he says. "However, success is far from assured because if it is to work, the Green Deal requires a change of mindset on the part of the British consumer.

"The concept of linking repayments to energy savings and the loan staying with the property is alien to the average British homeowner. But, if we are to genuinely improve the energy efficiency of UK homes, installers must get involved."

Uponor's **Neil Young** thinks that energy efficiency is set to become the industry buzzword and predicts a healthy demand for Green Deal.

On the money: Neil Young, Uponor, says savings offered to homeowners by the Green Deal will lead to healthy demand

"We believe the demand for more energy efficient systems is set to continue with both cost and environmental factors also likely to grow in popularity. Systems that are easy to install, run at lower temperatures and avoid wasting energy, such as underfloor heating, will continue to win favour," he says.

Growing up: Organic Energy's Andy Boroughs expects rapid growth across the renewable energy sector

Like Young and Schofield, Organic Energy's **Andy Boroughs** anticipates a prosperous New Year for installers following the introductions of the Green Deal and domestic RHI. With the big six energy companies introducing steep price hikes this winter, there seems little danger of renewable energy slipping off the agenda for the foreseeable future.

"I would expect to see continued rapid growth across the renewable energy sector on a national and global scale," says Boroughs. "This coming of age for renewables will occur with or without incentives as sustainability moves up the corporate agenda, alarm bells ring over the UK's falling energy capacity and, of course – taxpayers continue to face unacceptable price hikes for their gas and electricity."

Safety first

While the majority of PV installers already recognise the importance of testing to recognised standards, **Phil Old** of Seaward Solar hopes 2013 will see greater efforts made to ensure all installations comply with MCS requirements.

He says: "In the interests of the integrity of the industry and the performance of installed systems, we hope for a better understanding of the importance of meeting standards.

"The introduction of improved enforcement measures will help to ensure a safe and stable PV industry for all involved, and that PV will continue to be a viable alternative energy source in the UK."

Playing safe: Phil Old, Seaward Solar, says greater compliance with MCS requirements is vital

Paul Nightingale, Enphase, says: "For the solar industry, microinverters are set to have the most dramatic impact during 2013. They are certainly one of the most exciting developments in terms of both cost and efficiency savings.

"As IMS recently reported, microinverters saw 180 per cent growth during 2011 and continue to be the fastest growing segment of the PV inverter market."

Small talk: Paul Nightingale, predicts strong growth for microinverters

Hot stuff

Hot shot: According to heat pump specialist Garry Broadbent, thermal energy storage is set to be big news next year

Heating and heat pump specialist **Garry Broadbent** is tipping thermal energy storage to be the key technological development of 2013 which will enable the wider application of renewable heating systems.

"An example of the benefits of thermal energy storage would be for heat pumps to run at night on a lower cost electricity tariff and supply thermal energy during day at a lower cost," he says. These thermal storage systems will be made using phase change materials (PCM) and will be around a quarter of the size of conventional water tanks. Therefore, this new PCM thermal storage technology will potentially widen the application of heat pumps and other forms of renewable heating by reducing costs."

Times past

What a year 2012 has been. The ups and downs of the Feed-in Tariff have continued to cause comment in the industry as has the delay of the domestic Renewable Heat Incentive and the incredibly soft launch of the Green Deal. **Lu Rahman** looks at what this last twelve months brought to the world of renewables

2012 has been a year of mixed reviews and fortunes. For many, the sector is very different to what it was a year ago when the majority PV companies were experiencing the busiest months on record for installations. Renewable energy is a crucial element of the UK's energy mix going forward. However, with the Feed-in Tariff cuts and delays to the domestic Renewable Heat Incentive, it has seemed at times as though the industry has been under fire from government policy.

As the New Year kicked in, Click Green's **Save-Our-Solar campaign** continued to attract industry support - over 500 messages from consumers and suppliers opposed to the government's plans to bring forward the Feed-in Tariff cuts. In response, Greg Barker claimed the cuts would create up to 10,000 new jobs.

At the same time, **Ardenham Energy** hit its 1,000 installation with the Mortimer Energy Initiative where over 20 households joined up to reap the rewards brought about by solar PV.

As we headed into spring time and towards the all-important Ecobuild, ITV aired '**The Cost of Going Greener',** which caused much response within the industry. **Cathy Debenham,** YouGen, highlighted the fact that the Feed-in Tariff information was out of date and **Zara Glew,** Environmental Energies commented: "The show was very negative. When you look at how much money the large energy companies make from rising bills, it's nowhere near the profits of renewable energy installers."

Not yet in place, the industry began talking about the **Green Deal. Garry Worthington,** Climate Energy, spoke about the range of benefits the scheme would bring whilst **Neil Schofield**, Worcester, Bosch Group revealed his concerns that commission-based assessors might be temped to mis-sell Green Deal finance packages.

As we headed towards summer, REI reported on the drop in PV installation figures. The industry continued to push the benefits of solar PV. **Paul Barwell,** STA, said: "Despite the ups and downs for the solar industry in recent months we want to get the message across to the householder that solar is a good investment at current tariff rates."

As STA members began to report drops in orders, Barwell added: "Cutting the tariffs in half may look drastic but the public needs to understand this is not a problem for them because the costs of solar have fallen so fact. Solar is a great investment and spring is a great time to invest."

Whilst the UK was becoming increasingly turned on to the merits of renewable energy,

REI reported that across the water, Ireland was struggling with the concept of embracing such technologies. According to an article in the **Irish Times**, a number of installers were bemoaning the lack of progress made in Eire's renewable energy sector, compared with the UK.

The Feed-in Tariff saga continued to rumble on. As the consultation period closed, industry figures were still keen to have their voice heard. **Lee Summers**, Spitfire Wholesale, commented: "One thing which flies in the face of the clarity DECC is trying to achieve is contingency – which scares the hell out of my board. Some fear that what has happened in the last few months will happen again. We could see the issues of December 2012 running in cycle in perpetuity."

Meanwhile, some PV good news ran in the magazine as **Plug into the Sun** teamed up with the Eden Project's **Solarfair**, the first employee-owned renewables project.

It would be fair to say the biggest news at the time was the announcement that the domestic Renewable Heat Incentive (RHI) was to be put back to the summer of 2013. **Stuart Elmes**, STA's Solar Working Group, said: "While we were expecting some delays to the RHI, a whole year is very disappointing for our solar thermal members. DECC has put a lot more energy into supporting renewable electricity then renewable heat . . ."

Bruce Allen, HETAS agreed that the situation was far from satisfactory. He

Knowledge: End of Year review

said: "The delay in implementing the RHI for domestic applications is frustrating for everyone in the industry. There are many installers and manufacturers who have already invested in training and product development in anticipation of the RHI. Whilst we support the government in developing a viable RHI, the uncertainty is undoubtedly making it difficult for businesses to plan ahead and make decisions in the future."

As the UK splashed about in the water created by one of the wettest summers on record, REI assessed industry reaction to an August start for revamped FiTs. With the confirmation of a decrease from 21p/kWh to 16p/kWh and the news that the scheme would change from 25 to 20 years, came a raft of comments. **Jonathan Bates**, Photon Energy said: "The new rates will provide a good return proving that solar is still good for business. This latest announcement should make the situation more stable and it is now up to the industry to react and change the perception that the FiT scheme has ended."

Harry Shepherd-Cross, Ardenham Energy, admitted that the changes were "less toxic than feared" and that "the increase to the export tariff is a sensible move as it brings it in line with the wholesale market at no cost to the FiT budget."

Away from the PV debate, REI teamed up with **Sustainable Venture Intelligence** to produce a comprehensive appraisal of the current state of the UK market and the opportunities for growth within it and REI's **Paul Stephen** chatted to the STA's new chairman, **Alan Aldridge** who maintained that STA membership remained the most effective way for installers to have their voices heard on a national scale.

In the autumn, REI went monthly and formed a partnership with the MCS, the only magazine in the market place with this support. The MCS also began the first of its regular columns for the magazine, keeping readers informed of legislation and developments to this scheme.

In the news we had the announcement of the FiT tariffs for all non PV technologies. **Tony Staniforth**, sales development director at Kingspan Renewables, said: "Despite cuts we're confident about the future of small-scale wind. Now the market has been given clarity about long term tariffs we can focus on driving growth."

We also learned of the demise of solar firm **Ploughcroft**, one of many companies to be hit by the events in the PV sector.

With the launch of the Green Deal just around the corner, there was much industry talk of this coming flagship scheme. and **a**t the same time, the REI team geared itself up for the Oil & Renewable Energy Show and its inaugural venture into the world of conferences at the British Museum in November with the **Profitable Future in Renewables Business Strategy Conference.** Speakers included Sir **Jonathon Porritt**, DECC's **Alasdair Grainger**, Southern Solar's **Howard Johns** and PWC's **Paul Thompson**.

The November issue reported on the Green Deal cash-back plan. With the scheme being launched in October, it is fairly safe to say that the industry was underwhelmed by the government's ever so soft launch. **Garry Worthington**, Climate Energy, led the criticisms on the cash-back scheme by calling for a nationwide marketing campaign, needed to prevent a sharp fall in uptake once the cash-back offers ends, He expressed concern that this doesn't go far enough to encourage long term participation in the scheme.

So, with the Business Strategy Conference behind us, an event which **Luciana Berger,** shadow climate change minister said, "couldn't be any timelier," the REI team is looking forward to 2013. We are in the midst of a challenging and exciting time for renewables. No doubt, the coming year will be as fast and furious as the one we are leaving behind and let's hope that with the Green Deal taking hold in January and the domestic RHI kicking in next summer, we start to see sustained growth and prosperity in the sector.

Sun sets on solar firm

Under fire former owner of Ploughcroft Building Services, **Chris Hopkins**, speaks exclusively to Paul Stephen following his decision to call time on his beleaguered solar PV firm

Chris Hopkins has hit back at claims of dishonesty and mismanagement following the transfer of the company's assets to a new company – Ploughcroft Ltd – headed by himself.

Only days after having his business credentials recognised by scooping The Yorkshire and Humber Award for Entrepreneur of the Year by the Institute of Directors, Hopkins confirmed on September 26th that his company had been placed in administration following rumours of mounting debts.

Despite a statement released by Mr Hopkins laying the blame for the company's high profile demise on Feed-in Tariff cuts and poor weather conditions, mounting accusations of mismanagement and unethical business practices came to the fore with internet users posting anonymously that Hopkins had cynically pulled the plug in an effort to avoid paying significant debts.

One message board user described the move as a 'classic pheonix job' with another begging the question 'How can anyone trust him in business again?'.

Matters have been made worse by the revelation that Dragons' Den investors Deborah Meaden and Theo Paphitis sold back their shares in the company to Mr Hopkins in May adding fuel to the fire that the firm was being steered in the wrong direction under his leadership.

I've not been able to pay all the money owed to everybody which is why the company was placed into administration

"I understand the sceptical nature of people," says Hopkins. "But before people say anything they should understand what I've done for the industry. I've not been able to pay all the money owed to everybody which is why the company was placed into administration. I am very sorry about that and this is a difficult position to be in.

"Some of the spiteful comments I've read are ill-founded. After appearing on Dragons' Den every PV company in the country benefitted massively so its quite sad to see some of what's been said. They have forgotten what I've tried to do."

Hopkins admitted to Renewable Energy Installer that the firm had been in trouble for some time with redundancies beginning in March and efforts to diversify away from the volatile PV market being made in vain.

Although good for the industry as a whole, Hopkins also pointed to his TV appearance on Dragons' Den as a contributory factor to the ultimate failure of his former company. He said: "The last months have put me in this position. I invested my own money and profits into wind turbines. I put tens of thousands of pounds into electric vehicle charging training when others in the industry were cutting and running. when Ploughcroft had the Dragons' Den factor I had to ramp the company up quickly to cope with demand. Now its like someone has turned off the tap and I've not been able to downsize quickly enough.

"I wouldn't blame it on the dragons because I feel it benefitted the whole industry. I won't be growing the monster I did before though, so can Ploughcroft ever be the same size again? – no."

Despite having the finger of suspicion pointed at him and questions asked surrounding his motives, Hopkins says he will plough on with Ploughcroft in its new guise and will not leave his former customers in the lurch. He adds: "I know the only way forward for a solar company to survive is to be very small. I now have a team of two guys plus two in the office and I will be back on the tools.

"I've set up a helpline and all work previously done by Ploughcroft is covered by insurance and fully underwritten. Plus, I am still on the end of the phone and happy to speak to people.

Despite having the finger of suspicion pointed at him and questions asked surrounding his motives, Hopkins says he will plough on with Ploughcroft in its new guise

"Ploughcroft are givers not takers. What has happened is unfortunate but I will get on with things."

Splitting image: Chris Hopkins and Deborah Meaden. He has since parted company with this dragon investor

Field day

Thanks to a 60kW boiler using low cost fuel, three farm cottages are benefitting from heat and the Exeter farmer owner is looking at reduced bills

Bridford livestock farmer John Roberts and his son Jonathan start their day at 6am – tending to livestock and looking after their working farm – so when Roberts discovered how simple it would be to heat their recently-renovated cottages using only the sustainable supply of wood from their land, he had a burning desire to find out more.

Just two months on and Roberts has a 60 kW biomass boiler that burns everything from logs and bushes to woodchip and pellets, and provides more than enough heat for all of the cottages. Not only does it provide all of his heating requirements, but also it costs nothing for the fuel and they receive an attractive financial return from the government's commercial Renewable Heat Incentive (RHI), generating an exceptional 50 per cent return on investment per year.

"It's ideal for a farm like ours, where we have our own endless supply of wood," said Roberts. "It means we're fully in control of our own fuel supply, and don't have to worry about the future costs, which have been continually rising over recent years. What's more, the RHI means that we get a healthy rewarded for 'going green.'"

Nice and easy: John Roberts discovered how simple it would be to heat recently-renovated cottages using only the sustainable supply of wood from the land

Twice as good: Thanks to biomass heating, John Roberts is experiencing reduced fuel bills and warm holiday cottages

The biomass boiler, which was installed by Exeter-based SunGift Energy, provides both heat and hot water for the cottages and the live/work unit they rent out on their family farm. Before beginning the work SunGift, which is situated at Matford Business Park, did a detailed survey of Robert's site, designed a bespoke system, and then spent three days installing the 60 kW Eco Angus boiler and 3000 litre heat store.

"The thing that most impresses me is how simple my boiler is to use and how easily it fits in with my farming schedule. I simply fill it with logs once every two days and that's it – job done. It also proves that choosing the sustainable energy option makes both practical and financial sense, particularly for anyone with a working farm that has available woodland and hedges like we have. "

Roberts began researching the idea of a biomass boiler about nine months ago, and did much of his own research first, so that he had a good understanding of his requirements. He then got quotes from a number of renewable energy installers, but chose Exeter-based SunGift because 'they were local and gave a good aftersales support scheme'. SunGift specified an Eco Angus boiler because it is environmentally friendly, makes financial sense, and is simple to operate.

"There are a lot of companies out there," added Roberts, "but very few with the technical knowledge that I was looking for. When you're making such a big decision, you have to be sure that you're employing a team of experts, and that's exactly what SunGift demonstrated to me. I'd recommend the switch to biomass to all landowners that are in a similar position to me."

Under the RHI, farmers and landowners receive 7.6p for every unit of renewable heat their biomass boiler generates if the boiler is under 200 kW, 4.7p for boilers between 200 kW and 1,000 kW, and 2.6p for those above 1,000 kW.

The Roberts' boiler has a payback period of just two years, generating more than £7,000 per year in fuel cost savings and RHI payments, which are index linked and guaranteed for the next 20 years.

Choice words

Kevin Potter, business development manager (DHW Systems), Hamworthy Heating look at choosing the right solar thermal system to maximise return

Regulatory and recommended requirements for the application of eco-friendly technologies in buildings, as well as increased public demand for better environmental performance, have contributed to a significant increase in the adoption of solar thermal water heating in commercial building design and renovation.

Warm words:Kevin Potter, (DHW Systems), Hamworthy Heating, discusses the need to choose the right solar thermal system

Solar system benefits

The benefits of a solar system are undoubted with reduced energy bills and carbon reduction, however the challenge for many when considering sustainable energy sources, like solar thermal is how to maximise the return and achieve a realistic cost benefit justification. There are many options available for deploying solar thermal energy to benefit all types of commercial buildings, from schools and hotels to factories and office blocks. The final solution should be based on factors such as the existing heating and hot water system, total storage requirements and profiling of hot water demand, plus the end-user's objectives.

The work completed at the outset of a project is vital to ensure the right choice is made to maximise return on investment while at the same time meet environmental objectives. We have looked at the how solar thermal energy is commonly used in commercial solutions and believe there are a number of ways in which solar can be deployed most effectively.

To use solar for the generation of domestic hot water (DHW), the most common approach is to use cylinders (calorifiers) with twin coils; one coil is used to transfer the solar energy into the stored water, and the other to provide auxiliary heat input from another source, such as a condensing boiler.

Another way of using solar energy is for a pre-heat system into existing hot water generation plant. A calorifier, or multiple calorifiers depending on the DHW system demand and size of solar collector field, can extract the heat from the solar collectors and transfer it into the stored water. The cold feed supply to the DHW system is fed via this pre-heat storage process.

Innovative choice

A final, and more innovative choice for hot water generation, integrates solar into a direct gas-fired water heater, retaining all the benefits associated with separating hot water generation from the space heating system. This option enables the water heater to be installed closer to the point of use, minimising distribution system heat losses, and maximising the solar contribution to hot water.

For customers considering solar energy, carrying out an initial site survey is important to identify the specific project requirements and existing factors on site to ensure the optimum solar solution is selected. For example, is it a flat or sloping roof, which way is the roof facing and is a complete solar package required? This may include vertical or horizontal mounting flat plate solar collectors; on-roof or A-frame collector installation kits; solar transfer station; Powerstock single or twin coil calorifiers and storage tanks. Or maybe a solar water heater with integrated solar controls, would better suit the application particularly when space is limited or boilers are not part of the solution.

At Hamworthy Heating, we complete solar energy calculations alongside a sizing and performance report for customers. This helps identify any relevant needs of the project to provide the optimum solar solution.

Commercially, solar thermal solutions offer an opportunity to reduce carbon dioxide emissions and contribute to meeting renewable energy commitments made by the government, while also providing a means of reducing overall energy costs. Taking the time to investigate the appropriate solution for a project will help you to achieve the desired results from harnessing this renewable and flexible technology.

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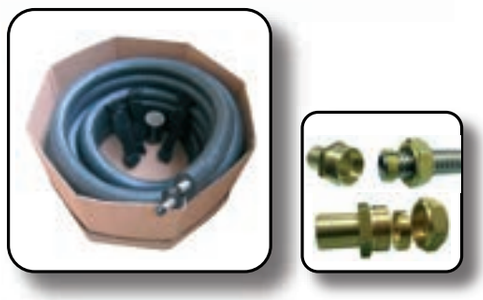

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Taking it easy

SEG Commercial, part of the Save Energy Group, has introduced what it says is a breakthrough in the integration of solar photovoltaic panel systems - the EasyRoof installation system. This is designed to offer a shift in the way solar energy will be incorporated in the UK both for new build, commercial and domestic installations, as well as for retrofits

Suitable for homes, commercial buildings and apartment blocks, with tile or slate covered pitched roofs, the EasyRoof solar panel installation system is designed to provide the lowest possible profile on the market - with panels protruding no further than a traditional Velux window.

For architects and developers looking to include renewable energy, the EasyRoof system aims to result in an attractive reduction of material and labour costs at a time when keeping build budgets tight is paramount. Replacing elements of the conventional roof covering it claims to achieve savings of approximately 30sqm on a typical 4kWp solar PV system. Instead of paying for labour twice by tiling and then adding a conventional solar PV rail system – there is only the one step to this frame installation.

SEG commercial director, Mike Davies, explains: "We have experienced a genuine interest from architects and developers who are extremely encouraged by what this technology will mean for the integration of renewable energy within the spectrum of new builds, extensions and retrofits. We would encourage interested parties to join us at some of our sites to see the product in situ."

We have experienced a genuine interest from architects and developers who are extremely encouraged by what this technology will mean for the integration of renewable energy within the spectrum of new builds, extensions and retrofits

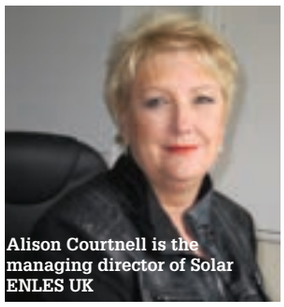
Plus points: The EasyRoof system is designed to offer a range of solutions for PV installations including performance, visual appeal and a good price

Senior installer for SEG Commercial, Vaughan East, says: "Installation is incorporated straight onto the roof battens, during the initial roof construction - or during the re-roofing process, using a unique frame work manufactured from strong and lasting uPVC material."

SEG Commercial adds that is has gone one step further in enhancing the appeal of solar photovoltaic panels, combining EasyRoof with its CIS Thin Film technology which they introduced to the UK this year as both installer and distributor. The company says the panel is free from lead and cadmium and meets European RoHS compliance.

Renewable energy installers of some ten years, SEG Commercial says it will manage the entire renewable installation. Mike Davies says: "We organise precise coordination with site management so that the solar PV system fits seamlessly within the build project. As a company we only work with products that innovate, and enable us to move renewable energy forward in the UK. EasyRoof has been extensively tested to ensure excellent roof sealing and optimal PV panel ventilation, and offers reliable, safe and fast installation with easy design integration during the planning phase. We believe the combination of EasyRoof and CIS thin film panel technology provides leading energy generation- with high visual appeal and performance, at a highly competitive cost."

What's in store?


Alison Courtnell is the managing director of Solar ENLES UK

The dip in the PV market is well documented. **Alison Courtnel**l, manging director, Solar Enles looks at energy storage and asks, is it the saviour of solar?

It's not surprising that installers are facing challenging times and consumer confidence in solar PV is diminishing. In July 2012, figures from DECC revealed that the average weekly number of domestic solar installations had halved following the first of several cuts to the government's feed-in tariff (FiT) scheme which took effect in April.

Further reports tell us that the domestic market has shrunk by 80 per cent following last August's FiT cut. With the rate having dropped further for systems smaller than 4kWp to 15.44p/kWh on November 1, the UK's solar industry needs to adapt to the changing economics and look for alternative incentives to persuade discerning customers that solar PV remains a sound investment.

PV still attractive

The fact remains that, despite a significant decline in FiTs, solar PV still offers an attractive return on investment as the price of solar systems has dropped. The continued rise in energy prices may persuade some consumers to consider solar PV, but many ask: 'What happens when the sun stops shining?' As the days become shorter and the winter months draw closer, we see the inevitable rise in domestic fuel bills. So can solar PV really provide a viable alternative to our fossil-fuel generated electricity?

What if installers could persuade customers to think differently about renewable energy? Rather than viewing solar PV systems purely as a means of generating income through FiT payments, why not look at them as a way of achieving greater independence from rising energy prices?

That's all very well but if a solar PV system isn't generating enough electricity to meet household demands, then customers will still need to rely on the grid to keep the central heating, lighting and electrical appliances working when the sun stops shining.

Energy storage

The availability of affordable energy storage products for domestic solar PV systems enables consumers to use electricity generated throughout the day during times of peak demand – typically in the early mornings or evenings.

Up until recently, electricity from domestic solar PV systems could only be used while it was being generated or get exported back to the grid. With the launch of the UK's first retrofit green energy storage system, by Solar Enles, domestic users will be able to meet up to 75 per cent of their electrical energy needs from their existing solar PV system.

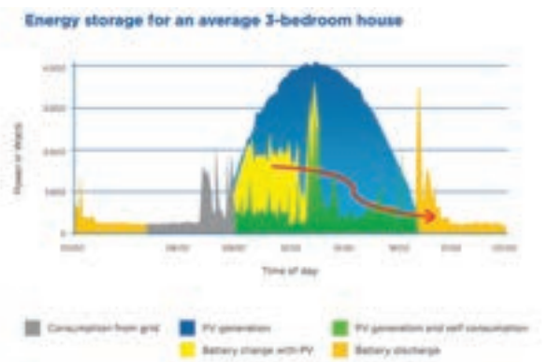
The energy storage system, SunBat, provides a much smarter and more economical way for households to manage their green electricity and consume more of the energy they generate for themselves.

The illustration below shows how energy use could change following the installation of an energy storage system such as SunBat. The graph uses actual measurements from a 4kWp solar PV system installed in a three-bedroom house. The area in blue shows the power output from the solar modules over the course of a typical sunny day. The green activity shows periods of electricity consumption while the solar modules are generating power. During the early part of the day the solar power is also charging the batteries, shown in yellow.

During the later part of the day appliances switch to using SunBat's battery power as the power generated by the PV system starts to decline (shown in orange).

Depending on how heavily it's used, the energy storage system's batteries will lose their power and the appliances will need to switch to using grid power (shown in grey).

Solar PV energy can be used in the evenings, through the night and possibly in the morning depending on the level of energy consumption.



Source: SolarENLES

Solar boost

The introduction of energy storage systems is a huge step forward for solar power in the UK. The first generation of solar customers in this country sought to take advantage of the Government's feed-in tariffs, but the second generation must learn to be less dependent on them. The cost savings made possible by systems such as SunBat, together with the significant drop in the cost of solar PV and the steady rise in the cost of grid electricity, makes solar an attractive proposition. As solar PV gradually makes its way towards grid parity, perhaps the time has come for installers struggling in the current economic climate to change tactics. Switching from trying to sell falling Feed-in Tariffs to promoting the benefits of energy efficiency and self-consumption of stored energy may just give the UK's solar PV industry a much needed boost.

Measure by measure

Georgina Orr, Kiwa Gastec, takes a look at heat metering and the RHI and says, get it right the first time

Anyone interested in the Renewable Heat Incentive (RHI) and involved in, or affected by, the making of RHI applications, needs to know about heat metering. It's not quite as straightforward as people assume... in fact it's one of the main stumbling blocks in the RHI application process, and may explain why the RHI has been lower than expected. To claim the RHI, heat meters must be installed and carefully positioned to measure the renewable heat generated and delivered.

Heat meters can be costly and sensitive. Install them incorrectly and they will provide nothing except inaccurate and meaningless numbers, but getting it right requires real attention to detail and it is important that several key factors are considered:

To claim the RHI, heat meters must be installed and carefully positioned to measure the renewable heat generated and delivered

Which heat meter?

All heat meters must be Measuring Instruments Directive (MID) Class 2 or better and certificates of conformity must be provided by the applicant during the application process. Complex sites all require an independent metering report (visit **http://www.rhiapply.co.uk to access** help with this) and during this process the provenance of the meters need to be verified.

Meter size

Fit the right size meter for the application in which it is being installed. Heat meters are sized according to pipe size and flow rate and should be correctly matched to the installation. Smaller meters are of course cheaper, but if they are undersized they become an obstruction, preventing proper operation of the system.

Correct installation

Meters must be fitted the right way round. This may sound trivial, but even competent and well briefed engineers can put them in backwards. Check the arrow on the back, the arrow must point in the direction of flow unless stated otherwise by the manufacturer.

Temperature sensors

The temperature sensors working in partnership with the meter must be a calibrated pair, installed carefully, and in the correct pipes. Getting this right is critical, as these sensors provide the temperature difference which in turn calculates the heat measurement for the meter.

Heat meter positioning

Heat meters and associated components must not be installed too close to high temperature objects and stores. Heat can be transmitted through pipe work from storage vessels such as buffer tanks and low loss headers. This heat transfer can have a pronounced effect on the temperature sensors and give inaccurate readings, especially if it means the return temperature is warmer than it otherwise would be. This automatically reduces the temperature difference and potentially reduces the amount of RHI funding received by the site.

Pipework considerations

Straight sections of pipe are important in the installation of heat meters to remove turbulence and ensure linear flow through the flow meter. Air can also be very problematic, heat meters should not sit in pipework where air may collect.

A measured approach: Georgina Orr, Kiwa Gastec, discusses the importance of getting heat metering right

Our heat metering course is invaluable to installers of renewables systems. The RHI is here to stay, so installers need to know how to help their customers receive their RHI payment.

Meters must be fitted the right way round. This may sound trivial, but even competent and well briefed engineers can put them in backwards

Wonder web

Services4Contractors has launched a web directory, Courses4Contractors, which is designed to change the way in which installer training is bought and sold in the UK. **Nicola Scott** explains

Many industries have benefited from price comparison and customer review websites and now it's time for the installer training world to get a shake-up of its own. Courses4Contractors is a one-stop-shop for contractors to compare training and assessment providers in one easy-to-use website. Contractors have the option to register on the site for free and make use of helpful features such as the 'Certificate Expiry Reminder' feature which will let them know when their assessments are due and it will provide a list of assessments running in their area. Users can also leave feedback upon completion of their course to rate their experience, building up valuable information for their industry colleagues.

Double whammy: Courses4Contractors is a new web service built with the installer in mind whilst offering a marketing tool for training centre

Cut through confusion

Specifically designed for the trades, the new directory aims to cut through all the confusion of the current training industry and give training candidates all the information they need to make an informed choice.

Courses4Contractors allows contractors to source all of their training and assessment needs to meet industry requirements in: gas; renewables; the Green Deal; electrical; plumbing & heating; oil; refrigeration & air conditioning; construction; health & safety; management skills and driving skills.

Registration is free and the directory will also allow contractors to compare courses and training providers to find the right training and assessments in the right locations to meet their specific requirements, saving them time and money.

Courses4Contractors also has a range of special offers not normally available online and is we believe, the only online training directory to specialise in contractor- type training and assessment.

Registration is free and the directory will also allow contractors to compare courses and training providers to find the right training and assessments in the right locations to meet the specific requirements

A marketing tool

Courses4Contractors was built with the contractor in mind but has become an essential marketing tool for training centres themselves.

Increasing numbers of training providers are listing their courses on Courses4Contractors.co.uk each day giving a wide choice of installer courses available on the web. For training providers wishing to join the Courses4Contractors community, the company has a special introductory offer which will allow you to list your training and assessment dates for the next 12 months.

Subscription benefits

A range of marketing activities are included in the first year's subscription. This aims to increase promotion of your training centre; reach new customers and increase your sales; promote special offers; sell last minute places on your courses to boost your profit margins and display feedback from your satisfied customers.

Meanwhile Servics4Contractors will promoting your training centre and courses through: social media; search engine optimisation; Pay per Click advertising; viral marketing; PR and advertising in industry publications and through the use of a dedicated sales team.

What a difference a day makes

EcoSkies Training has launched what it says is the UK's first installer course for thermodynamic solar panels. This technology, which generates heat day and night by combining solar and heat pump technologies, is already popular with homeowners looking to lower their energy bills

Brett Pearson, EcoSkies' business development manager, said: "Thermodynamic solar panel systems offer a significant innovation in the UK renewables industry and have already been a massive hit with installers that are looking for ways to replace the revenue they lost from solar PV. We have been inundated with enquiries for this course as well as our standard solar thermal courses following the very positive domestic Renewable Heat Incentive payment rates that have been proposed. We advise anyone looking to diversify or add to their portfolio to consider training on the thermodynamics course."

Round the clock: EcoSkies is now offering thermodynamic solar panel training, a technology that works day and night

According to Pearson, there is currently no other training offering that he is aware of providing the level of expertise EcoSkies is demonstrating with this course.

"Once completed, the installer will fully understand the technology behind the system, get hands-on with the kit, and understand the technology-specific design, installation, and commissioning aspects of these systems. Installers who are not already solar thermal competent should consider attending the standard solar thermal systems course too," Pearson adds.

Training is rolling out to a variety of locations throughout the UK and although installers will need to get an F-Gas engineer commission the system, the vast majority of work, once understood, can be carried out by any solar thermal installer already qualified to a standard recognised by MCS.

Other EcoSkies courses include: Advanced PV for G59, Solar PV for Roofers, Small-scale Wind Turbines, Solar PV Sales, RHI Basics & Sales as well as a range of courses that focus on helping installers and renewable energy companies get ready for Green Deal.

Look north

Thanks to **Schiedel Chimney Systems**, HETAS-approved accreditation is now available for northern biomas installers

Schiedel Chimney Systems has launched what it says is the only centre to offer HETAS-approved biomass boiler installation courses in the North. One of only nine in the UK it will provide important accredited training for the industry across the North of England and Scotland.

The government's Renewable Heat Incentive (RHI) and the Green Deal are said to be a key reason for the growth in this sector. However, with this increase comes an increased need for trained and qualified technicians to install and service this renewable energy source. The courses are designed for installers whether for commercial premises and office buildings, schools and nurseries, or residential property.

The HETAS accredited training centre, which is based in Washington just south of Newcastle-upon-Tyne offers courses supporting all parts of the solid fuel and biomass appliance trade from an introduction to solid fuel right through to installation and maintenance. The facilities have been fitted out with ETA biomass equipment supplied by Northumberland-based company re:heat and installed by Hexham based JPWestall, providing the perfect resources for the courses which include a mix of theoretical and practical assessment.

Learning zone: Andrew Cosgrove, Acos Renewable Energy, who has completed the inaugural pre opening course

The specialist biomass boiler courses include; an introductory half day feeder course; biomass Building Regulations and standards course (H005BR) and the biomass installer course (assessed and certified) (H005).

Figure it out

Generation tariffs for non PV technologies

Technology	Band (kW)	Final tariffs (p/kWh)	Community energy tariff
Hydro	≤15	21.0	21.0
	>15-≤100	19.6	19.6
	>100-≤500	15.5	15.5
	>500-≤2000	12.1	12.1
	>2000-≤5000	4.48	4.48
Wind	≤1.5	21.0	21.0
	>1.5-≤15	21.0	21.0
	>15-≤100	21.0	21.0
	>100-≤500	17.5	17.5
	>500-≤1500	9.5	9.5
	>1500-≤5000	4.48	4.48
AD	≤250	14.7	14.7
	>250-≤500	13.6	13.6
	>500-≤5000	8.96	8.96
Micro CHP	≤2	12.5	12.5

(Source: DECC)

Number of MCS registered installations per technology

Technology type	Cumulative number of MCS registered installations	Last month available*
Solar PV	385182	10308
Biomass	1720	104
Air source heat pump	9544	461
Exhaust air source heat pump	273	0
Ground source heat pump	3311	168
Micro Hydro	65	0
Micro CHP	533	13
Solar thermal	3331	138
Small Wind	3159	183
Total	415810	11783

(Figures supplied by Gemserv) * October 2012

Generation tariffs for Solar PV

Tariff band	FiT rate (p/kWh)
<4kW	15.44
>4-10kW	13.99
>10-50kW	13.03
>50-100kW	11.5
>100-150kW	11.5
>150-250kW	11.0
>250kW-5MW	7.1
Standalone	7.1
Export Tarriff	4.5

Proposed tariff ranges for the domestic RHI

Technology	Proposed tariff rate (p/kWh)
ASHP	6.9-11.5
Biomass boilers	5.2-8.7
GSHP	12.5-17.3
Solar thermal	17.3

Domestic RHI is expected to be introduced in summer 2013 and will apply to all elligible installations installed since July 2009

RHPP grants

All houses

Solar thermal - £300 – cash voucher valid for three months

Houses not heated by gas from the grid

Biomass boiler - £950 – valid for six months
Air source heat pump - £850 – valid for five months
Ground source or water source heat pump - £1250 – valid for six months
(Source: Energy Saving Trust)
Eligibility criteria can be found online by visiting: **http://bit.ly/RENUVD**
No voucher is valid beyond March 31 2013

Cost comparison of heating fuels

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	0.60 per litre	2530 litres	£1,518
Wood chips	3500 per tonne	90	25300	100 per tonne	7 tonnes	£723
Wood pellets	4800 per tonne	94	24300	200 per tonne	5 tonnes	£1,016
Natural gas	1 per kWh	90	25300	0.048 per kWh	25300 kWh	£1,214
LPG	6.6 per litre	90	25300	0.5 per litre	3833 litres	£1,917
Electricity	1 per kWh	100	23000	0.145 per kWh	23000 kWh	£3,335
*Air source heat pump	1 per kWh	290	7931	0.145 per kWh	7931kWh	£1,150
*Ground source heat pump	1 per kWh	360	6389	0.145 per kWh	6389kWh	£926
Dual mode system 1						
Oil boiler (30% of heat load)	10 per litre	90	7590	0.6 per litre	759 litres	£455
*Air source heat pump (70% of heat load)	1 per kWh	290	5552	0.145 per kWh	5552 kWh	£805
Dual mode system 2						
Gas boiler (30% of heat load)	1 per kWh	90	7590	0.048 per kWh	7590 kWh	£364
*Air source heat pump (70% of heat load)	1 per kWh	290	5552	0.145 per kWh	5552 kWh	£805

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

RHI non-domestic rates

Tariff name	Eligible technology	Eligible sizes	Tariff rate (pence/kWh)	Tariff duration	Current installed capacity (MW)
Small biomass	Solid biomass: Municipal solid waste (inc CHP)	Less than 200 kWth	Tier 1: 8.3 Tier 2: 2.1	20	
Medium biomass	Solid biomass: Municipal solid waste (inc CHP)	200 kWth and above, less than 100 kWth	Tier 1: 5.1 Tier 2: 2.1	20	
Large biomass	Solid biomass: Municipal solid waste (inc CHP)	1000 kWth and above	1	20	141.40 (all sizes of biomass)
Small ground source	Ground source heat pumps, water-source heat pumps, deep geothermal	Less than 100 kWth	4.7	20	
Large ground source	Ground source heat pumps, water-source heat pumps, deep geothermal	100 kWth and above	3.4	20	0.73 (all sizes of heat pumps)
Solar thermal	Solar thermal	Less than 200 kWth	8.9	20	0.37
Biomethane	Biomethane injection and biogas combustion, except from landfill	Biomethane all scales, biogas combustion less than 200 kWth	7.1	20	0

(Source: OFGEM)

Carbon emissions of heating fuels

Fuel source	Carbon dioxide emitted (KgCO2)	Carbon emitted (Kg)
LPG	5486.66	1496.36
Oil (Kero)	6306.97	1720.08
Gas	4691.90	1279.61
Wood Pellets	996.65	271.81
Grid electricity	12065.80	3290.67
Air source heat pump	4160.60	1134.71
Ground source heat pump	3175.40	866.02

Based on 23,000kWh needed to meet household's heating and hot water needs per annum. Conversion factors obtained from The Carbon Trust

What data would you like to see on this page?

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Knowledge: Case studies

SOLAR PV

What: Bespoke mounting system created for 22.75kW PV system at London's O2

How: Tritec's Tristand insertion system

Result: Almost 100 panels installed above the dome-shaped 02

PV inverters and a mounting system supplied by Tritec Energy are playing their part in reducing energy consumption and the carbon footprint of London's newest tourist attraction.

'Up at The O2' in Greenwich enables visitors to walk over The O2 and admire the views from the top of this iconic building. To help minimise the energy and environmental costs of the project, the contractor requested tenders for a roof-top PV power installation.

The contract was awarded to Middlesex-based Rayotec. "Because The O2 is far from a typical roof shape, this was a bespoke project requiring extensive upfront design," said Alex Lenihan, senior project engineer at Rayotec.

"Initially there was some discussion about having a fully integrated and seamless installation, but the cost was thought prohibitive. However, even though we moved away from this plan, aesthetics remained a high priority.

"We hadn't used this particular configuration before but upon scrutiny it looked seamless – there were no gaps between the panels – and the system would also allow the contractor to flash right up to the frames."

Using the Tri-Stand insertion system, the modules are held in place by their own weight and friction. The total size of installation was approximately 22.75kW spread over two flat roof entrance lobbies on the south and north side of the dome structure. Although not specifically providing power to illuminate Up at The O2, the concept behind the installation was to offset the additional electricity consumption from the grid that would have occurred without the project.

In financial terms, the offset costs equate to around £1200 per year for the south installation and £1020 for the north. The Arena also expects to save a further £2800 a year from the Feed-in Tariffs, which can be factored into the payback period.

Sky's the limit: The O2's PV array is expected to offset 10,400 kg of CO2 emissions per year at the London venue

HEAT PUMPS

What: Barn conversion moves away from oil heating

How: A Danfoss ground source heat pump

Result: A £956 annual saving on bills

A barn conversion in Millmeece near Stafford is now benefiting from a sustainable form of heating through a ground source heat pump from Danfoss.

Previously on oil and off the gas grid, the Cawdell family was subject to large fluctuations in oil prices. They also found that their boiler could not supply adequate hot water for a family of four resulting in them supplementing it with electric fan heaters, which added further to their energy costs.

Mr and Mrs Cawdell therefore began to look for a more economical and efficient heating system. They had carried out research into biomass boilers, but did not want to buy wood pellets, particularly after their experiences of oil and its rising prices. They contacted local Danfoss-approved installer Purple Energy, who recommended a Danfoss DHP-H Opti Pro heat pump as their heating solution.

Family affair: The Cawdells are nearly £1,000 better off a year after switching from oil heating to a ground source heat pump

James Cawdell said: "We were really pleased with the installation. It only took a week for both the trenching to be carried out and the heat pump system to be fitted. The heat pump is out of the way, all tucked up neat and tidy in the garage, so we don't even know it's there."

What has most impressed the Cawdells is their energy savings. Before the heat pump was installed they were spending up to £2,000 per year on oil and £750 on electric. Now their bills total £1,044, a £956 saving. The installation was approximately £15,000, providing them with a 15 year pack back time, or quicker if taking advantage of government grants, such as the RHPP, RHI or Green Deal.

The Opti Pro's intelligent control system uses speed controlled circulation pumps to adjust its performance to the prevailing weather conditions. This should ensure that the minimum amount of electricity is required to run the pump and also means that property owners can simply 'set and forget' the controls, as the heat pump automatically maintains the required internal temperature in the most energy efficient way.

Who: Paul Clark, managing director of Rural Energy

What: Rural Energy, based in Melton Mowbray, Leicestershire, specialises in biomass technology and is part of the Myriad CEG Group. Rural Energy is celebrating its 10th anniversary in the sector.

In the fast lane: Rural Energy's managing director Paul Clark says that new developments in biomass technology continue to come thick and fast

Celebrating birthdays, passing milestones and keeping ahead of the game

Monday

Into the office and, after a cup of coffee and a check through the emails, I get the week off to a flying start.

First thing on this week's agenda is to check arrangements for my trip to Austria later in the month for a meeting with one of our suppliers. Biomass boiler manufacturer Herz has proved a valuable supply partner for us and it is a relationship that continues to go from strength to strength.

I also spend time working on the rough draft of a presentation I'll be giving for a Myriad CEG roadshow which is aimed at rural businesses.

Tuesday

I spend time planning for an event to celebrate our 10th birthday – we're looking for it to be a big thank you to a staff of almost 40 and our clients.

I've been here for most of those ten years and it is great to look back and see how we've developed from those early days installing small biomass boilers in farms and country estates.

Today our clients include local authorities, health providers, education authorities and the National Trust. Our boilers are heating and providing power for schools, hospitals, offices, hotels and stately homes across the UK and we're nearing our landmark 500th system.

Wednesday

First job is to review the latest design drawings for a unique fuel delivery system we have developed which cuts construction and groundworks costs significantly.

I hear people say that because biomass technology is not new that there aren't really any new developments. This isn't true, there are new products and ideas coming out all the time, it's getting really really interesting.

Thursday

I catch up on paperwork and also have meetings with our sales teams that operate out on the ground. It's a good positive day all round, with news of potential leads in Scotland and the North of England.

I really do think we are at the start of something big for biomass technology and as more and more businesses and organisations see its potential, the technology will truly step out of the shadow of solar and wind power.

Friday

The pace of the week shows no signs of flagging. The itinerary for the trip to Austria has now been finalised. We take another look at the presentation with a run-through and some last minute changes to graphics.

Then it's on to meet with another potential client who is looking at multiple renewable technologies. That's one of the beauties of being part of Myriad CEG – we can draw on the expertise that exists in PV, wind and heat pump technology to develop a renewable energy strategy that really works for individual clients and organisations.

This rural-based company is looking at biomass to heat its offices and main building on the estate and is also talking about a wind turbine on its land.

Hopefully they go away knowing that we can provide the renewable energy solution that works for them, harnessing the technology they need.


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