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The Great Wall of China

Despite this being the first issue of REI under my stewardship following the recent departure of Lu Rahman, it feels as if I am writing about an issue almost as old as the renewables industry itself.

The main story hogging the headlines is, of course, the announcement that the European Commission will be applying large anti-dumping tariffs on imported Chinese solar panels, wafers and cells.

Having split industry opinion between those supportive of protecting home grown manufacturing, and others fearful of the looming spectre of large global price rises, the continuing tariffs row exposes a more deep-seated issue.

There's no question that lower PV prices drive consumer demand, but the alleged below cost selling of panels by Chinese manufacturers in Europe is anti-competitive and therefore damaging to the long-term interests of an industry which must eventually break free of all subsidy to become truly sustainable.

The price rise of PV which can now be expected in the UK may be unpalatable, but the argument is persuasive that, in a post Feed-in Tariff world, which must be the ultimate goal, solar installations should not be subsidised by the Chinese or anyone else.

At the time of writing, the latest statistics from DECC show a healthy return of domestic solar installations to a rate of almost 2,400 a week – a level not seen for over six months. The trajectory has now been set as the industry's selling strategy continues to shift away from its focus on income and financial returns, to the more compelling argument of insulating ourselves from ever-rising fossil fuel prices.

Finally, I would like to invite readers to send in their views with the best letters to be published in the next issue of REI. paul@andpublishing.co.uk

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CEEC, Future
Renewable Energy



Andy Boroughs,
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“Mistakes have been made in the implementation of the degression regime” Erich Scherer, BDO p27

EU confirms China anti-dumping tariffs

The EU has formally imposed provisional anti-dumping tariffs of 11.8 per cent on Chinese solar panels imported since 06 June.

European trade commissioner Karel de Gucht has also confirmed that duties will rise to 47.6 per cent on 06 August and apply until a final decision is made in December following the conclusion of the European Commission’s investigation into unfair trading practices by Chinese firms.

Although designed to protect European PV manufacturers from the alleged below-cost selling of panels by Chinese manufacturers, the decision has been met with condemnation by The Solar Trade Association (STA) and was made despite intense lobbying by EU nations including the UK.

With over an 80 per cent share of the market, many in the UK solar sector fear that by making Chinese panels more expensive, global wholesale panel prices will be driven upwards making PV less attractive to consumers.

Paul Barwell, ceo, STA, said: “Any form of duties is not good news. Allowing the industry a two-month reprieve at 11 per cent duties, without catches, might allow the industry some breathing space. However, European delivery lead times are up to ten weeks, and will also be subject to the availability of stock.”

Industry welcomes rise in commercial RHI rates

Installers have broadly welcomed the government’s proposals to increase tariffs for most technologies under the non-domestic RHI.

At the end of May, the Department of Energy and Climate Change (DECC) proposed increasing tariffs for solar thermal, ground source heat pumps and large biomass installations, whilst payments for small and medium-sized biomass installations would either be frozen or decrease by five per cent under the RHI’s new degression mechanism announced in March.

A consultation on the proposed changes was open until 28 June, with DECC now expected to confirm details for the scheme. If approved, new tariffs would come into force during 2014/15.

Biomass equipment suppliers Organic Energy and Viessmann both supported the changes despite the prospect of payments decreasing for some installations of this technology.

Andy Boroughs, managing director of Organic Energy, said: “It would have been good to see increases across the board, rather than excluding the small and medium biomass tariffs, but it is understandable given that the RHPP was almost doubled for these technologies last month.”

“It will be the RHPP which will really help drive growth in renewable heating systems, making them an affordable option and opening up the market, with the RHI a bonus on top for customers installing green heat.”

Christian Engelke, technical director at Viessmann, added: “The announcement by the government is positive, and we hope a sign that the ailing renewable market is seeing some new life.

“Although the installed capacity under the commercial RHI has been improving, the vast majority of renewable installations installed under the scheme have been biomass technology.

“The latest proposal will provide a greater incentive for considering other types of renewable technology.”

Technology	Reviewed tariff (proposed 2014/15)
Small biomass <200kW	No change
Medium biomass 200kW-1MW	5 per cent decrease
Large biomass 1MW +	2.0
Small GSHPs <100kW	7.2 – 8.2
Large GSHPs 100kW +	7.2 – 8.2
Solar thermal <200kW	10 – 11.3

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Exhibition Dates:

South-West	Midlands	North-East	Scotland	South-East
10 September	12 September	17 September	19 September	24 September

Vaillant invests £1m in Scottish training hub

Vaillant Group has expanded its centre of excellence network into Scotland by investing £1m in its newly-opened facility in North Lanarkshire.

Opened on May 28, but operational since March, Vaillant's 10,000 sq ft Scottish Centre of Excellence at Eurocentral, on the M8 motorway between Glasgow and Edinburgh, will act as an information and education hub for heating installers north of the border.

Vaillant Group ceo, Dr Carsten Voigländer, said the company, which operates both Vaillant and Glow-worm brands, is actively looking to reach out to Scottish installers who were previously forced to travel to the company's nearest training centre at Elland, Leeds.

"Today's ceremony is a reflection of the significant investment by Vaillant Group to establish a permanent physical presence in Scotland and defines our commitment to this important market."

Jim Moore, the company's managing director for the UK and Western Europe, added: "As a country, Scotland has been underrepresented by heating manufacturers for too long. This Centre of Excellence stands to benefit a significant number of people, from the thousands of installers who now have convenient access to high quality training, to the tens of thousands of households who, through their installers, now have access to best information, advice and technologies available."

Vaillant also announced the launch of a dedicated Renewables Technologies Division to improve its after-sales package by providing a technical support team to installers.

As part of a seven figure investment, 10 MCS accredited renewable technology engineers with bespoke vehicles will be on hand to provide nationwide technical assistance with specification, commissioning and maintenance to Vaillant's installer partners in the field.

The desire to invest in such a team came partly as a result of increasing demand for renewable products, but also the company's wish to develop a reputation with installers beyond a simple supplier of products, but as a source of expertise.

Jim Moore added: "I felt that the concept of confidence was so necessary that we needed to have people with skills in these emerging technologies. It was also very much a commercial decision."

"One thing we can't get away from is that 'It's got our name on it' and we need to stand up to that responsibility. We don't want to be known as an air con, boiler or heat pump manufacturer, but as an energy solution partner.

"Many installers will be looking for reassurance and on-site advice during first commissioning or hoping to pick up some best practices to help them grow – having a resource like this will allow us to fulfil all those requirements."



Border force: Jim Moore, Vaillant Group's UK and Western Europe managing director, says that Scotland was underrepresented by heating manufacturers prior to Vaillant's £1m investment in a new centre of excellence

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- GREEN DEAL THEATRE
- HANDS-ON HEAT PUMPS
- POLICY THEATRE
- RHI THEATRE
- RENEWABLES DEMOS
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North-West 26 September Also with Bitesize Briefings in Northern Ireland, North Scotland, South Wales & East Anglia

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- COMMERCIAL THEATRE
- ENERGY EFFICIENCY DEMOS
- GREEN DEAL THEATRE
- HANDS-ON HEAT PUMPS
- POLICY THEATRE
- RHI THEATRE
- RENEWABLES DEMOS
- ...AND MUCH MORE!

Events

The Solar Future: UK 2013
16 July Westminster Hall, London
<http://www.thesolarfuture.co.uk/>

The Energy Efficiency Exhibitions
10 September, South West
12 September, Midlands
17 September, North East
19 September, Scotland
24 September, South East
26 September, North West
www.energyefficiencyexhibitions.co.uk

The Renewables Event
10-11 September NEC, Birmingham
www.therenewablesevent.com

The Energy Event
10-11 September NEC, Birmingham
www.theenergyevent.com/

Solar Energy UK
8-10 October NEC, Birmingham
<http://uk.solarenergyevents.com>

Energy Solutions
9-10 October London Olympia
www.energysolutionsexpo.co.uk

The UK solar market – 2013 and beyond

Want to know how you can make sure you have the right products to offer your customers? Then the Solar Energy UK 2013 exhibition might be the place for you.

The event, held at the NEC, Birmingham between 8-10 October, will showcase 200 leading companies such as Trina Solar, Yingli, SMA Solar, Rexel Energy Supplies, Clenergy, Power-One, Wagner Solar, Fronius, Lark Energy, juwi Renewable Energy, Emerson Control Techniques, Enphase Energy and many more, keen to do business with UK installers and distributors.

New to 2013's show will be Distributed Energy UK - a new platform for all key stakeholders to engage in finding practical solutions for a decentralised and more competitive energy future. This is also the place where installers can find all the new products for renewable heat, microgeneration and the smart grid.

Visitors will find a wide range of demonstrations and briefings in the Practical PV and Large-Scale feature areas and the open Technology Theatre where industry professionals can hear all about the latest research and developments in solar components, system design and price-yield optimisation. The Solar Business Hall will present half-day seminars focusing on commercial and large-scale PV, project finance, RHI and solar thermal, off-grid and decentralisation, solar and energy reduction for the public realm, BIPV and whole house solutions – plus much more.

For more information and the full exhibitor list visit: <http://uk.solarenergyevents.com>



Solfex opens new training centre

SOLFEX energy systems, part of the Travis Perkins PLC group of companies, has announced the opening of a new renewables training and innovation centre in Preston, Lancashire.

The new centre is available to provide both customers and internal Travis Perkins PLC and associated group companies' staff with up-to-date training on the latest renewables products SOLFEX energy systems has to offer.

Training in technologies including solar thermal, PV, underfloor heating and air-to-water heat pumps, is provided in a fully equipped seminar room covering everything from design and specification of the system through to MCS compliant heat loss calculations.

A live installation area is used for the second days' training covering all aspects from unit installation to commissioning and fault finding in a live system.

National heat pump division sales and technical manager, Chris Higgs, said: "The opening of the training and innovation centre is extremely important not only for us, but the industry as a whole.



Train and gain: SOLFEX's new training centre offers courses in solar thermal, PV, underfloor heating and air-to-water heat pumps

"Much more emphasis and value needs to be placed on ensuring that installers are equipped with the manufacturers' specific skills required to correctly specify and install air source heat pumps. Our heat pump area of the centre is fully Samsung EHS endorsed and comprises two individual working areas and a fully equipped seminar room and live installation area."

It's showtime

Save your customers energy & money this winter by booking your place at the award-winning Energy Efficiency Exhibitions, says organiser **Dan Caesar**

As the weather worsens and energy bills rise, energy efficiency is now a necessity.

After another winter of lower temperatures and higher bills, energy efficiency is no longer a 'nice to have' for your clients, but a financial necessity. By visiting the Energy Efficiency Exhibitions, the only shows on this increasingly important subject, your business and your customers can profit from implementing energy saving solutions from September onwards.

So, whether you're keeping an eye on energy monitoring, insulating against future costs through a fabric first approach, or optimising output of high efficiency heating systems, the award-winning Energy Efficiency Exhibitions has all the answers. With hundreds of thousands of pounds worth of advice on offer, it is an invaluable visitor experience and as tickets are subsidised by an exceptional list of exhibitors, your business won't have to pay a penny to profit.

What's more with the unique format of the Energy Efficiency Exhibitions, whether you are in Edinburgh or Exeter, Manchester or the Midlands, these exhibitions access all areas of the UK:



Go west: The Energy Efficiency Exhibitions, formerly The Renewables Roadshow, will kick off at Exeter's Westpoint Arena on 10 September

South-West	Westpoint Arena, Exeter	10th September
Midlands	Ricoh Arena, Coventry	12th September
North-East	Metro Arena, Newcastle	17th September
Scotland	Highland Centre, Edinburgh	19th September
South-East	Sandown Park, Surrey	24th September
North-West	Event City, Manchester	26th September



Repeat performance: The Commercial and Green Deal Theatres will be returning to this year's shows with the addition of RHI & Policy Theatres

Event Director, Dan Caesar, had this to say: "Over the next few years, our industry has a once in a lifetime opportunity to offer our customers significant financial savings thanks to energy efficient & renewable technologies. As well as the high quality of this year's exhibition, we invest more than any other organiser in our educational programme of attractions, demonstrations & presentations, so we can promise visitors a very profitable day."

This year's visitor attractions include four theatres filled with presentations – the Commercial & Green Deal Theatres will be returning and they will be supplemented with the RHI & Policy Theatres. Plus, this year the Energy Efficiency Exhibitions will include an increased number of demos, hosted in the Energy Efficiency & Renewables Demo-Stations and there will be a new interactive visitor attraction entitled, Hands-on Heat Pumps.

To register for your FREE tickets, visit www.EnergyEfficiencyExhibitions.co.uk

Home advantage

How good an opportunity is the extended RHPP for private homeowners, social landlords and the market as a whole? REI asks **Tom Vosper**, Climate Consulting

How can homeowners benefit?

The Renewable Heat Premium Payment (RHPP) scheme has been extended for private householders (with the premium payments available being doubled from May 2013) and two more rounds have been added to the RHPP scheme for social landlords. Both these extensions were absolutely necessary to prevent the domestic renewable heating market from grinding to a halt (prior to the introduction of the domestic RHI). It is intended that private properties receiving RHPP vouchers would still be eligible for the RHI (albeit at a proportionally lower rate). Therefore there is less reason for the market to delay until the scheme launches.

I say less reason rather than no reason simply because, until the final tariffs are published in the summer, there is still a huge question mark over the financial returns to householders. Both the tariff levels and durations suggested during the domestic consultation were much lower than we would like to see announced in the summer, and with this in mind many home-owners won't be willing to put their hard earned pennies into it until the final pieces of the jigsaw fall into place.

What about the social housing sector?

In the social housing market, the levels of grant support are much higher per system than for private householders (see table) but there is greater uncertainty over the eligibility of systems for the RHI tariffs when they arrive. The government has said that they "are

considering whether social landlords should be eligible for support through the RHI" and are likely to announce their decision this summer. Interestingly this is after the next round of social landlord RHPP applications so social landlords who apply in this round are doing so with no assurance that they will receive any support beyond the immediate grant.

So is the RHPP for social landlords a good opportunity for them or not?

That depends on your perspective. Looking at it from a purely financial perspective, maybe not. The registered social landlord (RSL) will need to pay around 50 per cent of the total capital but gets no return (the bill savings go to the tenants). Indeed, they may need to pay for on-going maintenance as well. So in that context they are paying to install it, paying to maintain it and getting no income at all – it doesn't sound great!

But if the RSL has organisational objectives to reduce tenants' bills, reduce the carbon footprint of its stock and is intending to provide these systems anyway, the RHPP simply becomes a helping hand. The RHPP grant means RSLs can meet some of these wider objectives and with a fairly substantial subsidy.

Finally, is the RHPP a good thing for the market as a whole?

Well, in that it is providing some temporary support to a very slow market, yes – it's a good thing and absolutely necessary. But it is



Special measures: Tom Vosper, Climate Consulting, says the RHPP is absolutely necessary until the longer term future of the domestic renewable heating market is secured by the RHI

only temporary and the longer term success of the domestic renewable heating market has much more to do with what kind of domestic tariff system we end up with. As I've already said, we need to see better tariff rates and/or tariff duration within the domestic RHI when it arrives next spring, than were proposed within the consultation. Beyond that, I would really like to see a sensible mechanism for moving tariffs up as well as down on a clear timetable. This will ensure sufficient uptake is supported without having long delays for major tariff reviews, and should avoid what we saw with 50 per cent FIT cuts overnight.

Technology	New private household RHPP voucher value (from May 2013)	Maximum grant for Social Landlord's RHPP Phase Two Extension 2013/14
ASHPs	£1,300	£4,400
GSHPs	£2,300	£7,900
Biomass	£2,000	£6,100
Solar	£600	£2,000
Eligible for RHI tariff when it launches?	Yes – but at a reduced rate so that systems are not "over compensated"	It is currently under consideration whether social landlords will be eligible for the RHI



The heat is on

In its regular column this month, MCS invites **Saima Khan**, DECC, to give readers an update on the RHPP.

Heat is the single biggest reason we use energy in our society. Over 70 per cent of heating in UK homes, businesses and industry is produced by burning fossil fuels. To add to this, around a third of the UK's carbon emissions come from the energy used to produce heat. A number of ambitious targets have been set to reduce emissions.

On 02 May, the Department of Energy and Climate Change (DECC) launched two new competitions for registered providers of social housing, to bid for funds to install renewable heating technologies in their housing stock.

1. A 'Fast-Track' competition aimed at social landlords that have projects already in the pipeline; and
2. A 'Reach-Out' competition aimed at those social landlords who had previously thought the RHPP competition was not for them, or who need to find out more before committing and require support with applications.

The Department is midway through a number of half day events to provide Social Landlords support with their applications.

Installers are very welcome to attend although we would strongly encourage you to bring along any interested Social Landlords.

Date	Location
Tuesday 09 July	Exeter
Thursday 11 July	Gateshead

You can register for the remaining events online by visiting: <http://bit.ly/11spwfs>
To read more about the RHPP Social Landlord Competitions, visit: <http://bit.ly/18y1l1W>

More money for Renewable Heating Kit

As part of DECC's desire to further support the growing market for domestic renewable heat, using new data available on installation costs and industry feedback, a decision has been made to increase the voucher levels for each of the four eligible technologies.

The Department believe this increase represents a good deal for consumers and a fair balance across the technologies.

Some of the rules under eligibility for the scheme have also changed. Applicants will need to undertake a Green Deal Assessment before submitting a claim to the Energy Saving Trust. A Green Deal Assessment will give consumers an understanding of how to improve the energy efficiency of their home and the types of improvements they could make to do it. It is important to note that the Green Deal Assessment Paperwork will only be required once the claim has been submitted.

Read more about the increase in voucher levels here: <http://bit.ly/RENUVD>

To find out more about the renewable heat incentive (RHI) scheme for commercial organisations, and updates on progress towards an RHI for home owners, please visit the RHI web pages at: <http://bit.ly/11amLDL>

Such is the frequency of announcements concerning renewable technology I have started to wonder whether the term 'renewable' relates to those of us involved rather than the technologies we promote!

We keep up-to-date with a torrent of information coming from Europe, the government, accreditation bodies and 'experts' from all sources. The latest news being the EU challenge to alleged dumping of PV panels by manufacturers in China. As I write, the European Commission has not long announced that it's bringing in an 11.8 per cent levy from 6 June. This will be increased to an average of 47.6 per cent on 6 August if Chinese companies fail to re-establish "fair pricing". An investigation by the Commission estimated a fair sale price would be 88 per cent higher than at present.

Many rightly object that this action would threaten far more jobs in the installation industry than would be saved in European PV manufacture. Whilst the protection of local manufacturing is admirable, there are seldom any winners when confrontational tariffs are employed.

However, we are told there is brighter news on the horizon with an announcement expected in the 'summer' regarding the proposed tariffs for the long-awaited domestic RHI scheme. Although some say the scheme might never happen, I've been told by those in the know that good news is upon us. Let's hope we can all keep 'renewing' ourselves until the wind inevitably turns in our favour.



Talking Ten to the Dozen

Leading renewable experts reveal their opinions

Is the government right to link the RHPP with Green Deal?



David Hall, national sales manager, Grant UK

"A Green Deal survey will highlight areas in the home where improvements can be made. This, when actioned, will make the property more energy efficient and less costly to heat. It is therefore a sensible approach to take before making an investment in a renewable heating technology."



Neil Schofield, head of government and external affairs, Worcester, Bosch Group

"We support the RHPP and the Green Deal but they can hardly be classed as successes at the moment. In their own right these initiatives are complicated and unfriendly to installers - to bring the two together would sound the death knell to both."



Mike Hefford, head of renewable technologies, Remeha Commercial

"Undertaking a Green Deal assessment before applying for an RHPP grant should encourage more detailed research into renewable technologies, helping homeowners choose the most appropriate solution for their particular home. There is a cost implication, but this is covered by the welcome increase in voucher levels."



Richard Walkden, managing director, Eartheat

"The sceptic in me might say the linking of the green deal with the RHPP is a cynical political move to use the success of the RHPP to prop up the disaster that is the Green Deal."



Liz MacFarlane, managing director, Q-Gen Heat Pumps

"Using the RHPP to link the Green Deal will raise Green Deal awareness. However, it will just form another hurdle for heat pump installers who should already be following MIS3005 to ensure the heat pump application is adequate and suitable."



Chris Davis, business development manager, Dimplex Renewables

"We support ensuring that renewable heat installations are preceded by the installation of necessary energy efficiency measures. However, the requirement of Green Deal Assessments for RHPP funding may be counter-productive as they could lead to additional costs or confuse customers with alternative proposals for non-renewable heat systems."



Graham Evans, A2W business development manager, Air Conditioning Team, Panasonic

"We welcome any government scheme that encourages the industry to participate in Green Deal. With the financial incentives for air source heat pumps increasing to £1,300 as part of the RHPP, we hope that householders will be able to take advantage of this great opportunity to switch to renewable energy."



Andy Boroughs, managing director, Organic Energy

"This policy is a potential barrier to growth in our industry. By making a Green Deal Report a requirement of an RHPP, the consumer is being asked to jump through yet another hoop to access support to embrace green heating technology."



Richard Harden, sales director - building services, Wilo UK

"Combining RHPP with Green Deal assessments will enable householders to get a full assessment of the energy efficiency measures they may need. Whilst pumps are not approved measures under Green Deal, it's clear incorporating one that saves a householder up to £100 a year on his electricity bill will be an attractive addition."



Mark Derbyshire, commercial director, Vaillant

"Having the Green Deal assessment linked to RHPP is a good thing in our view. Carbon savings and microgeneration go hand in hand, saving on homeowners' energy usage and bills. This announcement wasn't unexpected as the proposal to link Green Deal with RHI already exists and we feel that logical too."



Two minutes with . . .

Who are you?

Mark Tudor, sales director for Uponor UK.

What do you do?

I formulate the Uponor UK sales strategy and, more importantly, ensure that we deliver on it.

Where are you?

We're based in Lutterworth, Leicestershire.

How's business at the moment?

It's challenging and competitive but there are lots of opportunities for value-added solutions.

How could it be better?

There could be more private and public funding available. The public sector is under severe restrictions in terms of cost savings, and capital works projects for example, hospitals and schools. The impression is that investors within the private sector aren't releasing funds quickly enough.

Who do you admire in renewables?

We admire any organisation that really focuses and drives renewables and a sustainable agenda. We're always looking to learn from their example.

What's the best business advice you've received?

The bitterness of poor quality and poor service far outlasts the sweetness of a cheap price.

How are you going green?

Uponor as a group has a very strong, transparent and measurable green agenda which applies throughout all our manufacturing processes. We take sustainability very seriously and have a team of people across the business dedicated to driving it. Sustainability continues to be at the heart of our business and we feel that's the way it should be.

Q&A

Graham Hacon

3sun Group



REI: What have you got planned for the rest of the year?

We have experienced a period of rapid growth and an increase in demand for 3sun Group products and services across the UK and Europe in recent months which has resulted in the creation of 100 new jobs. We will continue to increase our manpower within our technical teams by recruiting highly experienced personnel for UK and international projects. The Group will continue its support of apprenticeships and skills development with the launch of 3sun Academy, a regional centre of excellence for training and competence assessment.

REI: What do you see as the growth area in renewables?

The UK renewables market generates massive investment and employment opportunities. It remains a key growth sector for the nation's economy. We have seen significant growth in the European offshore wind market in recent years, and driven by the recent improvement in cost-effectiveness of wind and solar technology, we predict that it will continue to thrive.

REI: How is your company cutting its carbon footprint?

We are constantly looking for ways to cut our carbon footprint, 3sun Group recruit locally to cut the number of staff travelling to work and polluting the air with car fumes. We have also implemented a video conference system as a form of communication between the Great Yarmouth, Aberdeen, Oban and Denmark bases, reducing the need for air travel to get to internal meetings.

Graham Hacon is 3sun Group's managing director

Hidden agenda

There's no room for vested interests as the debate continues on the UK's future energy mix, argues **Steve Pester**, BRE



Wise words: Steve Pester, BRE, says more work is needed to have an informed debate over energy in the UK, free from personal interests

As always, there are so many things going on across all of the renewables technologies that it can be hard to keep up. However, some of the same old chestnuts seem to be perpetually recycled in the general news. For example, I opened a local paper whilst on a trip to Derbyshire today and read an article which I can only describe as 'a lot of tosh' about how wind turbines are no good because 'they are subsidised and 'don't turn when there's no wind', etc. The writer was then quick to attempt to polarise the argument by immediately expounding the virtues of nuclear power as the only viable alternative. Whilst I'm not a great fan of nuclear, I do think it is mischievous to pretend we have to opt for one technology over another. The agenda for some appears not to be to solve the problems of future energy shortages, security of supply or climate change, but rather to make us understand that their hobby horse is the only sensible interpretation of 'the facts'.

My conclusion to this is that there is still a huge job to do informing the debate and explaining the benefits and limitations of renewables to the public. Aside from often being the client, the public has influence over planning decisions and even policy through the things they say to politicians at election time. I'll leave it as an open question: How do we raise the level of debate in the public arena beyond the sound bites peddled by the vested interests and the NIMBYs?

On a more positive note, I aim in this column to keep readers up-to-date on news from the BRE National Solar Centre. We will be starting outdoor side-by-side testing of PV modules before next spring. The idea is to help installers, investors and end users make informed choices and perhaps even stoke up a little competition on performance and reliability.

Talking point

Liz MacFarlane, Zenex Solar, talks Green Deal, RHPPs and solar duties



Front page: Liz MacFarlane, Zenex Solar, bemoans the effect on consumer confidence of generating more negative headlines in the PV sector

Another month goes by and more bad news for installers. We start with the news from DECC that the RHPP has been linked to Green Deal. Fantastic . . . for Green Deal. It will increase the number of surveys and most likely the number of installs under the scheme. However, for the heat pump industry it's another hurdle to jump. In short, an already highly regulated and technical sale has just been made more difficult.

Another big story this month is the announcement that the import duty on Chinese solar panels will potentially be an average 47.6 per cent, after an initial period of 11.8 per cent that ends on 06 August. Although I have heard some positive stories from installers about this decision, the majority of the industry is opposed to any duty. Let's forget the potential tit for tat between China and Europe that will start from this. As renewable installers let's focus on how this affects us, in a word, badly. As I mentioned in my last column, the potential number of job losses is astronomical. However, most worryingly, we have another headline for the national press. As every installer knows, with each negative headline the sales funnel is flushed. This means another spike in marketing costs to get the sales of solar PV going again.

In addition, somewhat linked to this, there is going to be a huge shortage of panels in the UK over the coming months. Most manufacturers have already reached and sent European capacity. Fortunately, Zenex has managed to secure 9MW of panels during this period.

And finally, something more upbeat. Q-Gen Renewable Heat, (my heat pump installation company) was awarded "Highly Commended Installer of the Year" at the National Heat Pump Awards last month. A great accolade for the company and the team. Well done guys.

Calculating costs

Heat pump trouble shooter **Bob Long** turns his attention to accurately quantifying system output and running costs



Renewable energy systems delivering their energy in the form of hot water are becoming increasingly more attractive as the cost of fossil fuels steadily rises.

Such systems generally represent significant financial investment, and the decision to install one or more of the available technologies should not be taken lightly.

Having made your choice, and installed a system, it is important that both the installer and the owner can quantify how much renewable energy the device is actually delivering.

Energy is generally measured in kW, and quantified in kW/hours.

For example, the size of an electric heater will be described in kW, and is easy to quantify, as each heating element or 'bar' generally represents 1kW.

By example, a very basic 3kW electric heater is likely to show three-bars visibly a bright orange colour, and is known to emit 3kW of energy.

This represents unquestionable value-for-money, as each electrical-resistance element consumes one kWh of electricity energy and, in return, delivers one kWh of thermal energy to its immediate surroundings.

Heat pumps are perhaps the most difficult of renewable energy devices to quantify

Renewable energy devices are, generally, less visual and therefore the output is not so easy to quantify. Installers and owners need to know the answers to these questions:-

- How do I know that my investment in renewable energy is profitable?
- How do I know I made the right choice?

How do I know if something goes wrong?
That fact is - you probably don't!

Heat pumps are perhaps the most difficult of renewable energy devices to quantify, and made even more difficult with domestic electrical billing being quarterly, and retrospective.

A poorly performing heat pump system, or a system that has developed a fault, can cause excessively high electrical charges, and will often not be noticed until the bill arrives.

Quantifying actual running costs

Thermal energy can, of course, be accurately calculated, but with significantly more complexity than a simple electric radiator. To calculate the output of a renewable energy device, the parameters, listed below must be measured.

Flow rate of water in and out of the device in litres per second

Temperature differential of the water in and out of the renewable energy device
Specific heat of the water, or water/

antifreeze mix

By measuring these values accurately, it is possible to calculate the amount of energy present in the water flow, and quantify the result in kW.

Most users of renewable energy equipment will not have access to apparatus capable of measuring, and therefore will probably never know how effective their investment is.

Renewable energy system information module

Through advanced technology, we now have devices to collect, process, and calculate all of the above values, and display the result digitally in a LCD screen.

These devices will display the current real-time kW of renewable energy being produced and a totalizer of the kWh of energy produced within a determined period. All parameter values are available individually, which makes these units the most versatile and powerful diagnostic tool available. Clearly an essential system component.



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Bring me sunshine

The increased efficiency of tracking systems is significantly enhancing the potential of solar power generation technology. With actuators and hubs to carefully control movement, solar systems can follow the sun and extract the maximum level of energy from every ray, says **Phil Burge**, country communication manager, SKF

Power generated from solar technology is becoming increasingly competitive with that of conventional fossil fuels and new investments are supporting further development and improvements to boost ROI in solar energy. As a result, the designers and engineers behind solar technology components are working to enhance the functionality and durability of solar collecting capabilities and reduce the operation and maintenance costs of the motion control systems.

One of the major success stories in recent times has been the advanced development of solar tracking technology, which can increase the power output of solar panels by up to 40 per cent. Tracking achieves this enhanced performance because it ensures that each panel is correctly aligned to within 0.1 of a degree at all times.

To maximise solar tracking, you must minimise backlash - a drive system with too much backlash will rock back and forth beyond the required tolerance, gathering little energy or, in some situations, none at all. Robust electromechanical actuators are required here to deliver an increased level of reliability and drive protection and these are now available in a form designed specifically for solar tracking systems.

For example, the SKF Solar Linear Actuator increases accuracy and efficiency in tracking the sun and cuts the maintenance costs demanded by alternative solutions. This actuator can be used with PV, concentrating PV or concentrating solar power systems. The actuators are virtually maintenance-free, requiring no downtime for part changes or re-lubrication, thereby reducing maintenance costs.

One of the major success stories in recent times has been the advanced development of solar tracking technology

These actuators are complemented by a range of solar hubs, which enable efficient azimuth movement, and these components are now available in a lubrication-free form that requires no downtime for part changes. They are also equipped for harsh environments and extended service life, helping energy companies to reduce operational costs. In the SKF Solar Hub, sealing has been optimised compared with existing market standard solutions to provide minimal grease loss during operation, which not only reduces the need for re-lubrication, but also minimises environmental impact. Optimal grease has been



Sunny money: According to SKF, its Solar Linear Actuator is virtually maintenance-free, reducing downtime and costs

selected for this slow-moving application, enabling improvements in performance, while the complete design is protected in a sealed housing, rated with an ingress protection level of IP 65, for reliable performance even in extreme conditions.

Advanced electromechanical technology offers improvements over today's maintenance-intensive solutions and delivers high performance, accuracy and efficiency in tracking the sun's position throughout the day. Accompanied by increasingly efficient systems in the wind energy industry, actuators and hubs for solar tracking technology are thus boosting the credibility and the output of renewable energy. Like the sun itself, solar power generations systems are increasingly able to generate high levels of power throughout the day, reducing our CO2 emissions and increasing our capacity to provide clean energy on a global scale.

Solar tracking technology is boosting the credibility and the output of renewable energy

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Yielding results

Hannes Schneider, technical sales engineer at Solar Frontier Europe, examines whether CIS thin film modules may be the answer to offering high energy yields, even under challenging conditions



Beyond compare: Hannes Schneider, Solar Frontier, backs CIS thin film modules to outperform other panel types in sub-optimal light conditions

PV plants on partially shaded roofs, with suboptimal layout or non-optimal tilt angles are deemed low yielders. Regions with lower irradiation values and a high portion of indirect or diffuse light are seen in the same dim light. Thin-film modules made of copper, indium and selenium (abbreviated to CIS) can show their mettle even under these conditions, however, and contradict this view.

While the ideal roof for a PV installation in the UK is south-facing with a conventional roof pitch of 30 to 40 degrees, many roofs in reality have an east-west orientation and are partially or temporarily affected by shade caused by chimneys, trees or neighbouring houses. Fog, clouds or pollution are also factors which can minimise the energy yield of PV installations.

Crystalline silicon modules, in particular, quickly reach their limit under such challenging conditions resulting in a comparatively low energy harvest. By contrast, thin film modules deploying a PV layer formed from copper, indium and selenium offer a rewarding alternative.

Low-light performance

A decisive advantage of the CIS thin film modules produced by Solar Frontier is their good low-

light performance which allows generating a maximum energy harvest even at times of low irradiation such as in the early morning or late evening hours as well as in autumn and winter. This also applies to diffuse light conditions usually caused by fog or heavy cloud. Compared to other module technologies, CIS modules can use a broader light spectrum which allows them to continue generating electricity under conditions in which amorphous or crystalline silicon modules have long stopped producing energy.

The performance of Solar Frontier's CIS modules in cloudy or rainy weather, for example, was the determining factor for a 41.4 kWp installation on a barn roof near Blandford, Dorset. Installed in March 2011 in a farm environment, the ammonia resistance of the Solar Frontier modules was a helpful additional feature. Installed by the Save Energy Group, the system achieved very strong yields even during the first two months of operation despite a fault in the local grid that limited the system's peak performance and the wettest April in England since records began.

Shadow tolerance

CIS modules are also less affected by shade than crystalline modules. While shadows or

partial covering by dirt or leaves on silicon module installations may stop the energy generation by the affected panel and thus the entire string, CIS modules still generate electricity under the same conditions. The reason for this is the different cell structure of the two module technologies. Crystalline silicon modules usually consist of square cells, whereas Solar Frontier's CIS modules comprise very narrow CIS cells stretching along the entire length of the module. This allows the CIS module to produce energy even if it is partially covered by shade.

The technological advancements in the CIS thin film sector create new opportunities to build profitable PV installations on roofs in sub-ideal conditions. By ensuring a maximum energy yield at times of low irradiation, CIS modules are particularly well suited for the UK weather as well as for roofs affected by partial shading. As a consequence, roofs with east-west orientation, partial or temporary shading or regions with low light conditions are now able to play a significant role in growing the share of PV energy in the future energy mix.



Twilight saga: According to Solar Frontier, high yielding CIS thin film modules are well suited to UK weather, roofs affected by partial shading and low light conditions

Beating the bills

Cylinder specialist Gledhill has responded to the growing demand for multi-source heating systems with the Torrent GreenHeat thermal store, managing director **Jason Hobson** explains

With the UK facing further increases in heating costs, families in more than four million off-gas grid homes face the biggest challenge in balancing their budgets.

But many off-grid homeowners are still nervous about abandoning fossil fuels – especially if they have an oil or LPG fired boiler which may be expensive to run but still does the job.

Integrating heat sources

Examination of the issue by Gledhill has prompted the introduction of the Torrent GreenHeat thermal store which enables householders and installers to easily integrate solar thermal, wood burning stove boilers, biomass boilers and heat pumps to provide both heating and hot water. More importantly it allows the homeowner to retain an LPG or oil-fired boiler but will use it only as a back-up, prioritising the use of renewable energy resources to provide heating and hot water to cut the cost of keeping warm.

In March shock headlines predicted that energy bills are set to jump by as much as £200 over the next year as a result of continuing gas shortages. At the same time the all-party parliamentary group (APPG) reported that a typical off-gas grid family faces fuel bills up to 120 per cent higher than a mains gas user, and some 32 per cent are classed as being in fuel poverty.

OFT research in 2011 showed the average cost of heating a typical UK three bedroom house was around 50 per cent higher with heating oil and 100 per cent higher with LPG than with mains gas. UK average heating costs for both heating oil and LPG continue to rise with LPG consistently the most expensive and heating oil the most volatile.

Lower running costs

The report continued: “Microgeneration

technologies represent an increasingly viable alternative. With its lower running costs and green credentials, microgeneration is potentially an attractive longer term alternative for consumers off the gas grid who are facing rising and volatile energy costs.”

The report examined various renewable energy sources – solar thermal, wood burners and wood chip boilers, ground and air source heat pumps, and PV and wind turbine electricity generation.

But it noted that solar thermal is ‘not generally used for space heating’. That reflects the lack of joined-up thinking on making it easier to integrate all of the energy sources in a domestic system.

So the case for wider use of thermal stores or similar devices to integrate energy sources has never been stronger. Many of the solar thermal systems and log burners on the market are still just used for hot water, missing an opportunity when they could also be contributing to heating.

The case for wider use of thermal stores or similar devices to integrate energy sources has never been stronger

Added advantages

It’s also a fact that an uncontrolled heat source such as a wood burning stove boiler or a biomass boiler ideally requires an open vented thermal store which has the added



Pick 'n' Mix: Gledhill says its Torrent GreenHeat thermal store provides more options than any other cylinder when combining multiple heat sources

advantage of removing the need for discharge pipework - negating the requirement for G3.

Using an open-vented thermal store such as Gledhill’s Torrent GreenHeat provides more options than any other store or cylinder to use the widest range of renewable energy sources to deliver safe, cost effective and environmentally friendly domestic heating and hot water.

With the range of renewable energy options now available and the price of gas and oil continuing to rise, householders and installers need more choice in how a home is heated. The industry needs to deliver that choice and flexibility.

Meeting in the middle

Mark Elliott, chief operating officer at renewable energy monitoring business, Energeno, explains how landlords and homeowners can make the most of their power.

The term 'energy optimisation' can often be misunderstood; however, put simply, it is the meeting place of using less electrical power overall while making the most of home-generated power.

An increasing number of households are installing renewable energy technologies, such as solar panels; however this is only half of the story. The full benefits of such measures will only be realised if they are supported by wider efforts to encourage people to be more energy efficient. Installations are often out of sight, out of mind, so encouraging the behavioural change needed to achieve the true benefits of solar power can be challenging.

Using less electrical power

There are a number of key behavioural changes which need to be made in the UK psyche if we are to start to see a stabilisation or reduction in overall power usage. This is where installers can start to add real value to customers, providing advice and tips which help homeowners save money and deliver return on their investment.

Starting simply, it is important to make sure items such as lights, televisions or computers are switched off when not in use, rather than leaving them on standby. When looking to purchase new appliances, it is important to go for the most energy efficient – the A+++ standard.

Knowledge is power

In addition, energy monitoring can improve both the financial and environmental performance of a building. There are a number of monitoring technologies available, the best of which will fit conveniently and cleanly into the living space, providing visibility of both energy being used and carbon emissions being produced.

With an understanding of the 'typical' electricity use of the home, it is possible to shift from using high energy consuming items like washing machines at peak power cost times, to using them when power is 'free' because the renewable installation is generating at full capacity. Typically, Wattson Solar Plus users make an average saving of almost 20 per cent a year just by understanding their energy use.

Maximising solar installations

In the case of solar, systems should be monitored to ensure they are functioning at optimal performance levels. Seasonal variations can affect performance and it may be that, now we are in summer, the winter detritus needs to be cleaned off the panels. There are also smaller adjustments which can be made to manage issues such as shadows or shading.

Tools such as Wattson Professional allow installers to offer a value-added service, whatever type of inverter or panel is in place.

Making the most of solar power

In addition, contrary to popular belief about peak pricing, the most efficient time in which to use power when you have a solar PV system is during the day. Put simply, use energy when the sun is shining and generating the most power. Tools like Optiplug can help to manage this effectively, automatically switching on the washing machine or tumble dryer when the installation is generating surplus power.

Optimisation for installers

Energy optimisation is for everyone – not just the new build or passive houses. Everyone can take steps to reduce their electricity bills and those with solar PV have even more options when it comes to saving energy and reducing bills. Ultimately, installers need to make use of the right equipment and software so that they can provide home and business owners with something tangible to measure the return on their solar investment.



Peak practice: Using energy monitoring systems can lower energy bills by shifting consumption away from peak price times, says Energeno chief operating officer Mark Elliott

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Power trip

Rob Gardiner, managing director of Econic, reports on the part heat pumps can play in meeting the UK's future energy needs

There is plenty to be positive about but one thing is clear – we do need government backing and reliable investment programmes if the GSHP sector is to really take off and fly and not lose significant skills and capacity.

It is clear that given plans for the third nuclear power station at Heysham have been put on hold and a number of other nuclear projects lie in the balance, the capacity for future large scale (home grown) UK electricity generation is uncertain.

Nuclear provides some of the answers to the looming deficit in electricity supply in the UK. It also provides electricity with a low CO2 tag attached.

Heat pumps provide an answer in helping to reduce the strain on the UK power grid network

It is very unlikely that renewable power generation will single-handedly be able to provide the necessary scale of generation the UK requires within any reasonable timescale.

But it can play a very significant part and heat pumps also provide an answer in helping to reduce the strain on the UK

power grid network.

Heat pumps are powered by electricity. Apart from the ability to heat and cool simultaneously and to provide unrivalled efficiencies, heat pump systems can and do operate essentially at 'off-peak' periods.

They do this by heating and cooling thermal stores either at night or very early morning.

The stored heat or coolth is then used throughout the day to provide heating and cooling to a building.

Under the current SAP Appendix Q, the CO2 rating of heating plant such as GSHPs driven by electricity is poor (compared to gas-fired boilers, biomass boilers and gas fired CHP).

Due to the large proportion of coal fired power stations, electricity generation is deemed to be a high producer of CO2.

Electricity generation by burning fossil fuels is also inefficient so this does not help the cause.

But heat pumps are the perfect renewable technology where either grid electricity is produced by nuclear or where electricity required is generated by contribution from on site renewables.

The main concern is that if the RHI is not implemented correctly, timescales are unreliable and the scheme is not user-friendly for designers, installers and the end user, the

industry will dwindle and there will be a huge opportunity missed.

There has been significant investment made by businesses in the heat pump sector in preparation for the delivery of business generated by the RHI.

Continued uncertainty and unreliability of the implementation of the RHI, tariffs and lack of clear guidance means that losing this investment is a very real and present danger.

There is a genuine concern within the sector that if RHI support doesn't take hold this will happen and it would be massively damaging.

There is also a good argument for combining FIT led PV to offset the power required to run heat pumps – making the two systems working in conjunction CO2 neutral.

This is a reasonable argument in the case of on site or microgeneration. However, the amount of power required is normally relatively large and so providing sufficient PV or wind turbines to power a heat pump outright is not normally possible.

If RHI support doesn't take hold it would be massively damaging



Rob Gardiner, md of Econic, says there is a strong argument for combining FIT led PV to offset the power required to run heat pumps, making them carbon neutral

Equally, the argument for running heat pumps off peak is a good one. If generating on site power specifically for a heat pump, power generation would be during daylight hours and you lose the advantage of the off peak operation.

With diminishing investment and in particular uncertainty on where the shortfall in power generation is going to come from, the off peak operation of heat pumps is a very good starting point for the future of power security.

Working together

The combination of a heat pump and underfloor heating is the perfect partnership, says **Nu-Heat**

There is little point going to the effort and expense of installing a heat pump if the associated space heating system does not allow it to work efficiently – the CoP of the heat pump will be low and energy bills will be high – hardly the way to encourage homeowners to invest in renewables.

Which is why the combination of a heat pump and underfloor heating (UFH) is best as the UFH system can be designed to run on the low flow temperatures that allow the heat pump to operate most efficiently and achieve a high CoP.

System design

Because the most important element of the design is the heat loss calculations used to determine the size of heat pump needed for the property and the amount of heat required to keep it warm, sophisticated computer modelling programmes such as Nu-Heat's 'Predictor' software are used to run a simulation of performance over an average year, based on local monthly weather data and the changing seasons. The programme uses daily temperature cycles for the simulations so it includes cold nights and warm days allowing it to produce realistic forecasts.

The company taking responsibility for the system design and any performance figures quoted should provide the installer with schematic drawings showing all mechanical pipework, valves and electrical connections, as well as installation manuals for the heat pump, and a similar set of documents showing how the UFH should be fitted in the floor construction and then integrated with the heat pump.

Design of the UFH system is also reliant on factors such as the floor construction, floor coverings and control system. Because different floor constructions have different heat profiles, with some heating up slowly but retaining the heat well and others heating up and cooling down relatively quickly, the skill



Money talks: Heat pumps will run most efficiently, and therefore cheapest, when connected to underfloor heating, according to Nu-Heat

of the designer is, in part, in understanding performance characteristics and advising MCS installers on the most suitable option for the individual project whilst taking into account the particular requirements of the heat pump. Integration of the different technologies is not something that is widely available but it is worth seeking out a supplier that offers these expertise, as there will be a single point of contact and one source of responsibility for both technologies.

System control

There are two methods of control for heat pump/UFH systems: zoned control and open flow; both work with the heat pump in weather compensating mode.

An open flow system uses the flow valves on the UFH manifold to balance the system. A heat curve is chosen as part of the design process, and will indicate how the flow temperature should vary according to the outdoor temperature. When the correct flow

temperature has been achieved the UFH flow rates can be balanced.

Zone control uses thermostats for 'fine tuning' and to give the customer control – which should avoid the need for the installer to return to the system to make small adjustments.

MCS compliance

As you know, in order for a heat pump system to be eligible for government financial support, it must be installed or signed off by an installer with MCS accreditation. To ensure that all systems purchased meet the relevant criteria some companies, including Nu-Heat, offer a commissioning service to installers new to heat pumps where it is needed. This offers reassurance to all parties that the heat pump has been fitted to the highest standard and that there should be no need for extensive callouts or technical support – a win-win situation for supplier, installer and homeowner.

Quality assured

Paul Clark, managing director of Rural Energy, explains why the time is right to introduce an accreditation scheme for commercial biomass installers

The simple fact is that today anyone can set up as a biomass installer, take a boiler, install it and claim government subsidies without any checks or balances over whether it has been installed properly or is being operated properly and safely.

It's not good for the safety of the public and it certainly could cause problems as the biomass sector develops.

The creation of a national accreditation scheme to ensure the manufacture and installation of commercial boilers meet vigorous safety standards would help the industry grow.

HETAS is the official body recognised by government to approve biomass and solid fuel domestic heating appliances, fuels and services - including the registration of competent installers and servicing businesses for the domestic sector.

HETAS has put proposals forward to the Department of Energy and Climate Change (DECC) calling for the creation of a similar commercial scheme – and I think this is a logical and much needed step.

For domestic biomass installations below 45 kWh the Micro-Generation Certification Scheme (MCS) effectively regulates the industry - but the lack of any regulation for commercial scale projects is becoming a major issue.

Regarding the design and manufacture of products over 45kW, there are currently no requirements in place to ensure the product operates efficiently or safely. The incoming RHI emission cap will drive the efficiency up by

eliminating products that do not meet the limits, but new installers will still be able to install the product in an unsafe or inefficient manner, without a buffer tank for example.

For domestic biomass below 45 kWh the MCS effectively regulates the industry and commercial scale projects need a similar structure.

The safety issues are serious as commercial boilers are being used today in hospitals, schools, offices and factories.

The public has the right to know that they have been correctly manufactured and installed to stringent safety standards – and that they are also being operated safely and correctly.

In the gas sector there is Gas Safe, which used to be called Corgi. You have to be registered before you can go anywhere near an installation.

The importance of competence has also been recognised when it comes to domestic biomass, so why no movement on commercial systems?

At Rural Energy, we have introduced our own scheme to vet, check and develop our partner installers who work with our boilers. People have to know what they are doing and we are committed to utilising our own experiences and helping our partner network benefit from this.

We welcome new entrants to the market but we want to see a healthy, thriving and growing biomass sector, and this means maintaining quality every step of the way.

Grand national: Rural Energy would like to see its own quality assurance scheme for installers rolled out nationally to cover the entire commercial biomass sector, says managing director Paul Clark



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HETAS: Supporting the industry

In the latest of its regular columns, **HETAS** focuses on why it is campaigning for changes to the European Commission's proposed heat appliance labelling legislation

Much of the UK's legislation is now determined at European level, and HETAS plays a crucial role in advising and lobbying in Europe on behalf of the solid fuel and biomass industry. Currently, the European Commission is working on legislation to label heat producing appliances with an energy label, similar to those on fridges and freezers.

HETAS aims to ensure that European legislation meets UK industry requirements whilst encouraging safety and quality, and at the same time not adversely affecting our industry or installers. However, sometimes we have very little time to comment on proposed legislation, with only eight working days to respond to the latest Ecodesign proposals issued in May. An initial study of the document left us shocked with the lack of understanding the proposals had towards our industry and we felt they would be damaging.

Working together with the Stove Industry Alliance, HETAS was able to provide DEFRA with a comprehensive list of issues with the proposed document and also circulated a detailed industry analysis to the European Commission's desk officers and the relevant government departments throughout Europe. Although HETAS supports the principle behind Ecodesign and Ecolabelling, we raised several points which are specific to the UK solid fuel and biomass industry.

The current Ecodesign

proposals restrict energy labelling to only one or two energy classes, with such a firm split between the different bands that would make it almost impossible for technologies to gain a higher band. This would remove any incentive for manufacturers to further develop their products and aim for higher efficiency levels. Another problem is that the working document does not differentiate adequately between different fuels, whereas gas, oil, solid fuel and biomass appliances operate with significantly different combustion techniques.

Consumers need to be able to identify the best appliances from the data on the energy label, and HETAS has proposed that each technology should have at least five bands between the worst performing and best performing products. That way consumers will be able to make a meaningful choice based on energy efficiency ratings.

HETAS has also raised concerns that the proposed labelling system could encourage the use of higher carbon emitting products. For example, using the UK's Standard Approvals Process (SAP) carbon rating of electricity and wood logs, a natural draught wood burning room heater operating at 70 per cent efficiency will emit just 0.027 kgCO₂/kW heat output, but will only achieve a C energy label. Whereas a 300 per cent efficient heat-pump will achieve the highest A+++ label yet emit 0.172 kgCO₂/kW heat output. Even though the heat-pump emits over 6.5 times more CO₂ than the wood burning room

heater, it could gain an unfair market advantage through the proposed labelling scheme.

In its current form the Ecodesign proposal could be counterproductive in terms of environmental legislation. The limitations on banding contained within the working document could severely damage the prospects of Ecodesign achieving its carbon reduction goals - which is why HETAS is campaigning for clearer and more distinct energy ratings to enable consumers, installers and specifiers to make an informed choice.



Backward step: Robert Burke, HETAS, says European proposals for the energy labelling of heat producing appliances could be counterproductive in environmental terms

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The advertisement features a collection of electrical testing tools including a large digital multimeter, several smaller handheld testers, and a pair of orange-handled pliers. The tools are arranged in a cluster, with the multimeter in the foreground and other tools behind it. The background is white, and the text is in a clean, sans-serif font.

Bump or Bomb?

Erich Scherer, assistant director of renewable energy finance at BDO, comments as degression hits the RHI unexpectedly early



Finding fault: The recently announced five per cent reduction in the RHI for medium biomass was the result of a defective degression mechanism, says Erich Scherer, BDO

Apart from the occasional spelling mistake (no, the first vowel is not an “i”), degression is now well understood as a tool for the reduction of subsidy tariffs over time. The introduction of a budget-related degression framework for the Renewable Heat Incentive earlier this year did not cause shock waves. After all, by April 2013 the RHI had spent £7.6 million out of its £70 million budget; for 2013-14 the budget is £251 million, so surely no need to worry about degression anytime soon?

Against this background, DECC’s announcement at the beginning of June that the tariff for medium biomass heat installations (200-1,000 kW) will be degressed by 5 per cent effective July will have come as an unexpected and unwelcome surprise.

5 per cent degression in one of the nine tariffs as such is not the end of the RHI. But degression is assessed quarterly in the RHI, so the big question is what will happen next. Should we interpret it as a sign for further problems ahead? Is this an example of government malice or mistakes?

Fortunately, it looks like it’s the latter. The RHI is a strategic priority for the government’s renewables policy: the UK continues to be subject to the 2020 legally-binding renewables target, and the government can’t meet it without the RHI. The government needs the RHI to work.

Also, elsewhere in the RHI

there are positive developments: DECC just published a consultation document confirming its intention to roughly double the RHI tariffs available for some under-deploying technologies, such as ground source heat pumps.

Indeed, it could be interpreted as a sign of DECC’s own unease with this degression that in the same consultation document the government is starting a review of the degression mechanism, only weeks after its introduction.

In my view three mistakes have been made in the implementation of the degression regime.

Firstly, the degression triggers have been set for each individual tariff. Given that the RHI budget applies to the RHI as a whole, this creates the unnecessary risk that one tariff which overperforms against its budget is degressed while the RHI as a whole is under-spending.

Secondly, in setting the degression budgets, DECC used outdated deployment forecasts produced when the RHI was initially introduced. These expected biomass heat to deliver about half of the RHI deployment when it’s actually delivered 99 per cent; as a result, the budgets for the biomass tariffs are overly tight and those for other technologies overly generous.

Finally, DECC appears to use unrealistically cautious assumptions in its degression methodology, in particular heat load assumptions in excess of 3,700 peak load hours when real-world usage seems about

half that. The higher the assumed heat load, the higher the expected subsidy spend, the sooner DECC concludes that a degression trigger has been hit. This may well mean that DECC was simply wrong in concluding that the trigger point for degression had been reached.

These three factors merged into a perfect storm, triggering degression for medium biomass while there is currently no conceivable danger of breaching the £251 million budget.

The main issue now seems one of timing. DECC’s consultation document merely

announced an “indication of approach to any adjustment of budget management arrangements” in autumn 2013. It’s reasonable to expect at least some of the above issues getting fixed, but if DECC takes its time and lets the automatic degression system run rampant meanwhile, we might end up with an example of “operation successful; patient dead”.

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Grand designs

Sinclair Meadows, Tyneside, has become the UK's first carbon negative social housing development by combining a communal biomass boiler and a 85kW PV array with modern design principles

The vision

Sinclair Meadows, located in South Tyneside, North East England is a social housing development comprising 21 homes including three-bedroom houses and two-bedroom apartments. When the development was unveiled in September last year, it became the first carbon negative social housing street in the UK, producing more energy than it uses.

These pioneering homes were developed by Four Housing Group in partnership with South Tyneside Council, environmental charity Groundwork South Tyneside and Newcastle, Galliford Try Partnerships North and Fitz Architects, with funding from the Homes and Communities Agency (HCA).

One of the key aims of the scheme was to provide the local community with affordable housing that would generate energy savings and help to improve fuel poverty. Each dwelling is 75 per cent more sealed from drafts than a standard house, meaning heating should only be required for around eight weeks per year.

Achieving carbon negativity

Sinclair Meadows surpasses the government's 2013 definition of carbon zero by 60 per cent and exceeds Level 6 of the Code for Sustainable Homes, which is a national standard for the sustainable design and construction of new homes. The development has the ability to wipe out the carbon footprint created during its construction within 2.8 years and the houses generate more electricity than they use from the largest array of solar panels on a domestic dwelling in the UK. A total of 38.22 tonnes of carbon dioxide (CO₂) per year will be offset by the photovoltaic technology alone.

The high output 300kWp PV panels installed on the roofs and facades generate a total of 85kW of power and the annual designed power output of the installation exceeds 72,250 kWh a year. Approximately 50 per cent is used by the dwellings, while the remaining energy is exported to



Quality street: Sinclair Meadows, Tyneside, has become the first carbon negative social housing development in the UK by incorporating a commercial-sized PV array

the national grid. One of the key design principles is that all habitable rooms are south facing and houses are huddled together, reducing the number of north facing elevations to maximise natural light and solar gain.

A number of energy saving design initiatives have been incorporated to foster a more sustainable community, including rainwater harvesting, which stores

rainwater in underground storage tanks for use in the toilets and for gardening. Each dwelling uses approximately 70 per cent less mains water due to this system.

In addition, the heating and hot water is provided by a communal large-scale biomass boiler using recycled timber fuel pellets. Heat recovery systems are also installed above the kitchen and bathrooms in order to minimise heat loss, repurposing what has already been released into the environment.

The future of social housing

The project sets a standard of what is achievable through sustainable design and construction and a number of research projects are currently in progress to provide valuable data to the industry.

There is a need to understand how micro-renewable technologies perform and the data monitoring that Four Housing Group has commissioned using Technology Strategy Board funding will establish a benchmark which can be used by the industry. The buildings will be remotely monitored to evaluate their technical performance, how residents use the technologies, how improvements can be made and what support is required to enable tenants to reduce energy usage and fuel costs.

- 21 homes
- 2.8 years to payback carbon footprint of construction
- 85kW PV array
- 38.22 tonnes of CO₂ offset a year
- 72,250 kWh total PV output

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Gaining ground

Simon Lomax, managing director of Kensa Engineering and chairman of the Ground Source Heat Pump Association, outlines the commercial opportunities that await for installing ground source heat pumps

The government's latest Heat Strategy supports the significant deployment of heat pumps, and the Committee for Climate Change's Fourth Annual Budget projects 6.8m installations by 2030. In addition, on most respected pathways to achieve the 2050 carbon reduction targets, the electrification of heat, benefitting from an increasingly clean grid, is a central requirement. Clearly, there are emerging market opportunities for heat pumps, particularly as they can be used both for straightforward heating only applications and complex installations that provide heating and cooling.

Indeed, this ability to perform both functions can permit interesting and innovative design refinements to ensure far higher system efficiencies, often combined with lower capital costs. For example, the temperature of the ground can be increased whenever it is re-charged by the cooling system which means less extensive ground arrays and lower installation costs.

That said, the sheer versatility of ground source heat pumps, and the huge range of possible uses, has probably contributed to some reluctance amongst installers to embrace the technology; their lack of specific knowledge contributes towards an inevitable hesitancy not least because installers have never previously needed to understand the influence of ground conditions on any heating system design. Without doubt, the industry needs to recognize the anticipated demand and create novel supply chain partnerships which combine expertise to deliver high quality systems.

In some cases, more technically-minded heat pump manufacturers, like Kensa, are prepared to get intimately involved with projects, contributing towards the system design and introducing ground array designers and drilling contractors to complement the M+E installer. Moving forward, there is likely to be greater collaboration as mainstream installers seek to enter the market. No doubt, greater competition will drive down prices which should increase the likelihood that the technology not only features

in new build developments but also in existing properties to displace fossil fuel boilers.

To drive uptake, the government has launched Phase One of the Renewable Heat Incentive which covers commercial, industrial and residential district heating installations and seeks to provide a generous subsidy offering an average 12 per cent rate of return. Sadly, the initial ground source heat pump tariffs were far too low, being based upon flawed data. Thankfully, DECC has listened to concerns raised by the Ground Source Heat Pump Association, and others, and has just published a consultation proposing to increase the tariffs significantly. Once implemented, and Parliamentary and State Aid approval is required, all systems installed after January 21 2013 will be eligible for the higher tariffs likely to average around 7.2 – 8.2 pence per kilowatt hour. Clearly, the government is trying to stimulate the uptake of ground source heat pumps as the technology is well-liked by the scientists and engineers who are thankfully beginning to dominate DECC's thinking.

Hidden within the consultation document are some interesting figures which details the expected RHI spend by both technology type and installation size in order to deliver the planned trajectory towards the 2020 renewable energy targets. For small biomass boilers, up to 200kW in size, the anticipated spend was £14.8m, significantly lower than the £28.9m spend for the much narrower sub-100kW small GSHP category. The current inability to deliver this favoured outcome has triggered the early tariff review and raises the prospect of a very promising future for installers looking to enter the commercial market. Whilst the more complicated installations can require considerable expertise, the more common applications are remarkably straightforward. Installers simply need to hold hands and play nicely with the many sector specialists who are looking to take the technology mainstream.



Ground force: Simon Lomax, Kensa's managing director, says the company's award-winning Shoebox is ideal for new build apartments and qualifies for the RHI Phase 1 when specified as a district heating system



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Real APPeal

ThermaSolutions discuss the opportunities in smartphone technology for renewable energy installers

The smartphone market is growing every day with mobile data transfer increasing 40 fold between 2007 and 2010. The explosion of tabs, pads and smartphones has seen apps enhancing workplace productivity, reducing costs, adding growth, as well as raising brand awareness.

There are over 30,000 plumbing and heating engineers in the UK, three quarters of which work in businesses consisting of one to four employees. Most of these tradesmen are frequently 'on the move' with little or no practical access to trusted system design productivity tools.

Why bother with the mobile app market?

What is severely lacking out there in the domestic sector is the fundamental knowledge of being able to specify the correct system design, while fully complying with all the regulations. We've seen the current economy placing real strain on these micro businesses. This has inevitably led to corners being cut. For many, the purchasing of industry standards and approved codes of practice alone are cost prohibitive as well as an impracticable source of reference, especially when you're in a customer's property.

Leading brands need to reach out to the tradesman more, and this can be done in one of three ways: by being entertaining, solving a common problem or simplifying their lives in some way. Saving time as well as providing reassurance that all the design principles are compliant provides the installer with a personal touch that few technologies can offer. An example is SolarCalc; a solar thermal productivity design tool recently devised by ThermaSolutions providing the installer with everything they need to specify and carry out an installation in less than a minute.

A quarter of all businesses that use mobile apps see a rise in their transactions of between 10 and 19 per cent

Content rich technology

A benchmark survey revealed that a quarter of all businesses that use mobile apps see a rise in their transactions of between 10 and 19 per cent.

Optimising your site alone for mobile viewing could in some cases increase sales by up to 19 per cent.



Time team: ThermaSolutions says that using its SolarCalc app can save solar thermal installers time whilst ensuring that design principles are fully compliant

As you're working within your current framework, very few changes are needed. Connecting with the tradesman in a mobile environment not only provides a springboard of opportunities, but could also collectively help small businesses emerge as stronger, more focussed, flexible and successful companies. That's good for everyone. We also need more utilities supplied to the trade in the form of content rich technology. An app is a perfect platform for this and can provide an effective tactical step forward to increase workplace productivity.

App innovation

Historically, recessions have been a period of accelerated innovation. Companies which react by investing in innovation, rather than simply taking a series of tactical steps are likely to emerge more powerful. Innovation does not mean adding yet another pointless component to your existing range. It means truly meeting the consumer needs with a relevant product or service.

Whichever route your business chooses to go, if you haven't already started looking seriously at making the most of mobile, now's the time to do it.

Companies which react by investing in innovation are likely to emerge more powerful

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Running up the meter

As the UK looks to catch up with other countries on smart meter rollout, **John Peters**, md of Engage Consulting, asks what lessons can be learned from other programmes

The recent announcement by DECC that the UK smart metering rollout will start a year later than expected, in 2015, is a welcome move that will benefit all parties involved in the programme. By giving industry more time to solve the complex technical and business issues around the programme, the new date will help ensure that, in the long run, the UK benefits from a better smart metering environment.

Smart meters have been widely used in North America, continental Europe and further afield. As the UK energy industry and regulators wrestle with the challenges of our own smart meter programme, looking at the experience of suppliers overseas highlights some of the issues the UK rollout must overcome.

Consumer engagement

Headlines in US newspapers about communities rejecting smart meters, or even being arrested for interfering with an installation, highlight the risks of failing to engage with consumers effectively. Many overseas smart meter rollouts are being treated by the industry as a network issue. In contrast to this model, the UK is adopting a supplier-led, customer-focused model with consumer engagement at its core.

The mandatory introduction of new meters alongside time-of-use charging in an early network-led rollout in California led to a customer outcry about meter accuracy when customers accustomed to flat-rate tariffs, saw dramatic increases in their bills. The backlash was so severe that the supplier was forced to introduce an opt-out programme in November 2011.

Similar issues plagued a rollout in the state of Victoria in Australia. The state government intervened in the rollout when smart meters were introduced alongside time-of-use charging. Government intervention led to the provision of an opt-out for customers wishing to stay on flat-rate tariffs.

Opting out?

The UK government's business case for smart metering is based upon 97 per cent penetration of the market and the working assumption is that most UK consumers will take a smart meter. Here, customers are opted-in to the programme by default, but may choose not to have a meter installed.

In continental Europe, the business case developed by national governments and regulators for smart metering is shaped by local infrastructure, political and cultural factors. For example, in Germany, regulators are mandating a customer-driven adoption programme where customers must make the choice to opt in to the smart metering programme.

Equipment standards

Unlike many overseas energy markets, a feature of the UK energy market is supplier competition which has been in place since the late 1990s and which adds complexity to the interactions between market participants. To ensure interoperability and facilitate change of supply, the UK is taking a more centralised approach to the smart meter rollout than other territories, and has defined a set of standards for smart meter systems.

The DECC Smart Meter Equipment Technical Specifications (SMETS) sets a baseline with which all smart metering



Fine print: The UK smart meter rollout will include a provision for consumers to opt out following poorly received mandatory schemes elsewhere, says John Peters, md of Engage Consulting

equipment must comply and should ensure interoperability and communications between meters from different vendors.

Demand management and microgeneration services may still be in their infancy in the UK, but Canada's Toronto Hydro' peaksaverPLUS programme, which has reduced consumption by 33.8 megawatts across 52,000 customers, illustrates the possibilities, for both consumers and suppliers, of a smart meter enabled Smart Grid.

The smart meter rollout is just the first stage in transforming the UK's energy system and, judging by what has happened in overseas markets, this will open the door to innovative new services and products – there are exciting times for energy supply ahead.

Figure it out

Generation tariffs for non PV technologies

Technology	Band (kW)	Tariffs (p/kWh)
Hydro	≤15	21.65
	>15-≤100	20.21
	>100-≤500	15.98
	>500-≤2000	12.48
	>2000-≤5000	3.23
Wind	≤1.5	21.65
	>1.5-≤15	21.65
	>15-≤100	21.65
	>100-≤500	18.04
	>500-≤1500	9.79
	>1500-≤5000	4.15

(Source: OFGEM)

Number of MCS registered installers per technology

Technology type	Cumulative number	Registered May 13
Solar PV	3321	41
Biomass	256	06
Air source heat pump	859	21
Ground source heat pump	724	12
Solar thermal	1108	17
Small Wind	134	02
Total	3865	118

Number of MCS registered installations per technology

Technology type	Cumulative number	Installed May 13
Solar PV	431635	8095
Biomass	2609	89
Air source heat pump	13594	293
Ground source heat pump	4179	39
Solar thermal	4123	103
Small Wind	3949	24
Total	471475	8791

(Figures supplied by Gemserv)

Generation tariffs for Solar PV

Tariff band	FiT rate (p/kWh)
<4kW	14.90
>4-10kW	13.50
>10-50kW	12.57
>50-100kW	11.1
>100-150kW	11.1
>150-250kW	10.62
>250kW-5MW	6.85
Standalone	6.85
Export Tariff	4.64

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 spring 2014 and will apply to all eligible installations installed since July 2009

Number of Green Deal assessments

Month	Assessments
January	74
February	1729
March	7491
April	9522
May	Not available at time of print
Total	18816

(Source: DECC)

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	0.59 per litre	2530 litres	£1,493
Wood pellets	4800 per tonne	94	24300	245 per tonne	5 tonnes	£1,225
Natural gas	1 per kWh	90	25300	0.048 per kWh	25300 kWh	£1,214
LPG	6.6 per litre	90	25300	0.47 per litre	3833 litres	£1,802
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	0.59 per litre	759 litres	£448
*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. Fuel costs taken from Nottingham Energy Partnership.

RHI non-domestic rates

Tariff name	Eligible technology	Eligible sizes	Tariff rate (pence/kWh)	Tariff duration	Reviewed tariff (proposed for 2014/15)
Small biomass	Solid biomass: Municipal solid waste (inc CHP)	Less than 200 kWth	Tier 1: 8.6 Tier 2: 2.2	20	No change
Medium biomass	Solid biomass: Municipal solid waste (inc CHP)	200 kWth and above, less than 100 kWth	Tier 1: 5.0 Tier 2: 2.1	20	No change
Large biomass	Solid biomass: Municipal solid waste (inc CHP)	1000 kWth and above	1	20	2.0
Small ground source	Ground source heat pumps, water-source heat pumps, deep geothermal	Less than 100 kWth	4.8	20	7.2-8.2
Large ground source	Ground source heat pumps, water-source heat pumps, deep geothermal	100 kWth and above	3.5	20	7.2-8.2
Solar thermal	Solar thermal	Less than 200 kWth	9.2	20	10-11.3
Biomethane	Biomethane injection and biogas combustion, except from landfill	Biomethane all scales, biogas combustion less than 200 kWth	7.3	20	No change

(Source: OFGEM)

Green Deal Cashback Scheme example rate

Energy Saving Measure	Cashback level
Loft insulation	£100
Cavity wall insulation	£250
Solid wall insulation	£650
Draught proofing	£50
Heating controls	£70
Condensing oil boiler	£310
Condensing gas boiler	£270
Double/triple glazing	£20 per m ² (up to £320)

A full list and further details can be found online at: <http://bit.ly/RKmr50>

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Knowledge: Case studies

ENERGY EFFICIENCY

What: Architectural technologist creates thermally efficient dream home

How: Sylvactis wood fibre insulation plus PV and a wood pellet boiler

Result: EPC rating B

An award winning Aberdeenshire architectural technologist has decided to use his skills to create a low carbon home for his young family.

Ian MacDonald has chosen to trial an eco friendly Actis wood fibre insulation, Sylvactis along with a multi foil insulation – Triso Super 10+.

“I wanted a product that was environmentally friendly, provided excellent thermal and acoustic properties but was also easy to install,” he said.

“Sylvactis seemed to tick these boxes. It’s the first time I’ve used it so I’m testing the water. It’s good to work with, easy to fit, holds itself in place between timbers and compresses well for the smaller gaps.

“We are looking at a minimum B energy efficiency with the SAP calculations to date, but this will now be greatly improved with the inclusion of triple glazing and finalisation of the insulation spec.”

The detached five bedroom 300sq m timber frame house will have a number of other eco features too – striking the balance between thermal efficiency and a tight build budget. These include triple glazed windows, solar



Aberdeenshire architect Ian MacDonald has used wood fibre insulation, triple glazed windows, solar panels and wood pellet boiler to create a low carbon home for his family

panels, a back boiler on the stove and wood pellet boiler.

Ian is adopting a hands on approach where possible – which includes installing the Sylvactis himself and working with local builders and craftsmen.

He added: “After years of designing for clients it’s wonderful to be building a house for the family and myself. The main aim is to provide a comfortable home that our young family can grow into, that is energy efficient and sympathetic to its surroundings and that from a professional point of view I can be proud of.”

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SOLAR PV

What: Shropshire farm lowers carbon emissions

How: 99.9 kWp PV system and TRITEC mounting system

Result: Carbon savings of 43.2 tonnes CO₂/year

Wilfred Maddocks dairy farm, based in Newport, Shropshire, opted for solar PV when constructing a new dairy complex, in order to protect itself from rising energy prices.

Wilfred Maddocks took advantage of mounting technology from TRITEC in order to reduce installation time and minimise future maintenance work.

Installed by The Green Electrician, the farm selected TRI-STAND for an array predicted to deliver 79,440 kWh of clean electricity every year, achieving an annual saving of 43.2 tonnes of

CO₂. The installation has been projected to pay for itself in nine years.

"The whole installation process was very smooth at the Wilfred Maddocks dairy unit, with the TRITEC technology helping to ensure a hassle-free project," said Rupert Higgin, managing director of The Green Electrician Group.

"The client was very impressed by both the appearance of the solar installation and how well it has been able to deliver clean energy."

Steve Griffiths, sales and marketing director at TRITEC UK, added: "Agriculture is a growing area for small-scale generation of solar power.

"Farmers are in a unique position to turn their farm buildings into mini power stations, capturing renewable energy from the sun. For Wilfred Maddocks, the decision to invest in solar power has been a highly successful one, protecting the farm against future energy price rises and making a positive impact on the planet."



Dairy products: Maddocks Farm's milking complex in Shropshire is now producing nearly 80,000 kWh of clean energy a year using PV and a TRI-STAND mounting system

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My working week



Who: Phil McVan, managing director, Urban Wind

What: Urban Wind offer wind technology solutions from planning through to sourcing finance and installation. The company acquired Myriad Wind earlier this year

Joined forces: Phil McVan, managing director of Urban Wind, is impressed with the new team coming together following the merging and acquisition of organisations including Myriad Wind

Mergers and acquisitions

Monday

A running start to the week, that begins with a staff meeting at our North West operation in Preston. It's a chance to take stock and to discuss how the integration process of bringing staff from newly merged organisations together is progressing.

We're creating a committed specialist team, adding knowledge and expertise built up over the years, to the successful business ethos of Urban Wind's parent company Edison Energy.

It's been exciting to see the new team come together and really take on the challenges we've set post acquisition.

Tuesday

A meeting with representatives from a major UK business in the hospitality sector, which is encouraging all round. They're interested in our proposition to install wind turbines on its sites all across the country.

We believe it all fits perfectly with their renewable energy aims. Our proposition is, we believe, unique, particularly in the B2B sectors and through our land lease business model, offering them very significant business benefits, zero risk and the generation of additional revenues over a 20-year period.

Wednesday

An update meeting at our head office in Glasgow. I can report that Urban Wind is on course to have 60 turbine projects into the planning process as of the end of June 2013. Building work is also about to start on the first project of the new, combined business in Scotland. It's a rural site and we're bang on target for the completed delivery of the turbine.

We're also now looking at thousands of sites across the UK, with hundreds of heads of terms for land leases issued. Things are moving quickly and in the right direction.

There is also encouraging news about the reaction of institutional investors keen to look at the "baskets" of wind turbines that we will be offering them as a key part of our business model. Again we are providing some strong figures, which are being well-received by those who make the decisions.

Thursday

Another day, another meeting. This time it's with one of the biggest land agents in the country. We give them a rundown of our operation and the land lease model and in particular, how it can provide additional

revenue streams for rural businesses. Again the feedback seems positive.

Back in the office and a telephone call to the UK offices of Northern Power. It is the American company that supplies all our wind turbines. Its products were developed with NASA technology and engineering input. They boast more than 2.5 million run hours with 98 per cent availability.

We discuss orders and production and the possibility of coming together, later in the year, for a series of information roadshows to highlight the technology.

Friday

Admin in the morning and a chance to catch up on any outstanding issues before a much anticipated weekend cycling in the Lake District and a chance to recharge the batteries!

It's a major industry exhibition and conference next week, an opportunity to look at all the latest trends and developments in the renewable sector and to do some important networking. Travel plans are finalised and there's a quick meeting with the team to discuss what we hope to bring back from the event.

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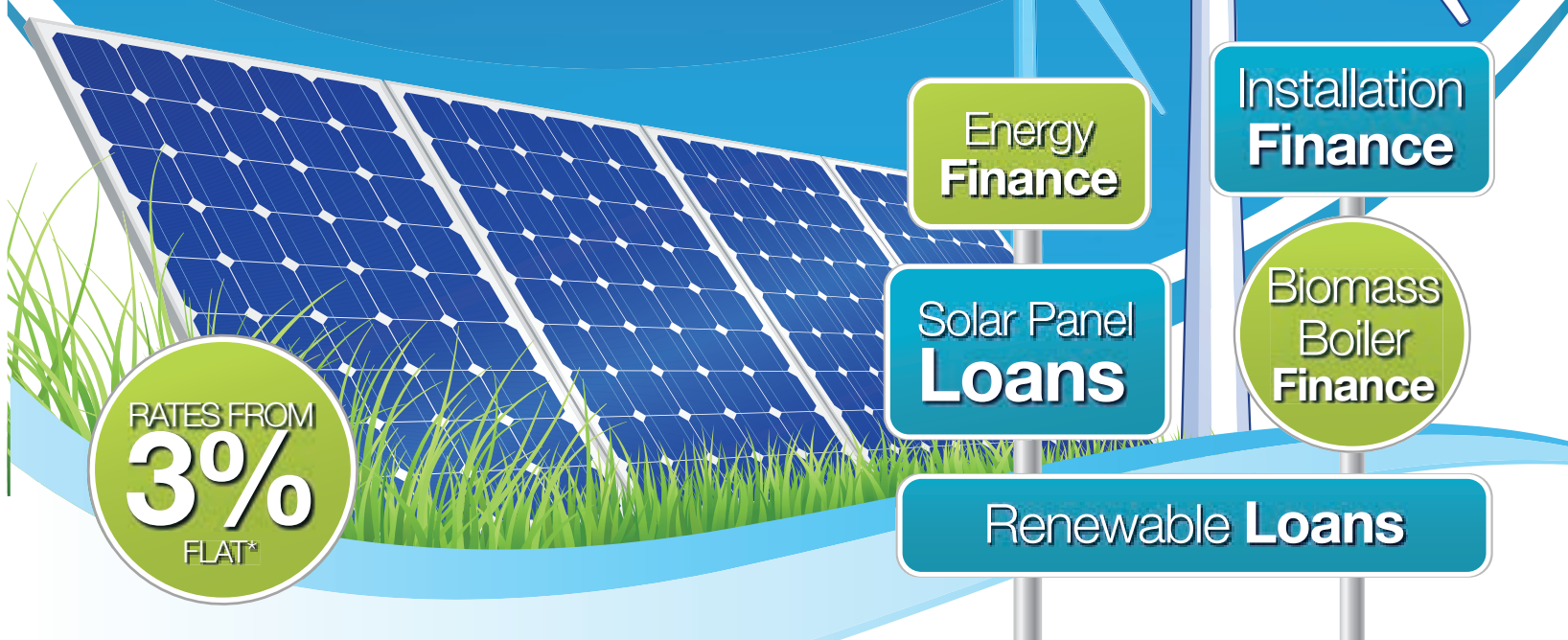
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