Issue 2 | February 2024

Renewable ENERGY INSTALLER & SPECIFIER

Incorporating
MOVING INTO **RENEWABLES**

ENERGY EFFICIENCY & RETROFIT

INDUSTRY VOICES
APPRENTICESHIPS & THE SKILLS GAP
INSTALLER INSIGHT
SEG: IS IT WORKING?
CONSUMER COMMUNICATIONS

HEAT PUMPS **SOLAR** **STORAGE** **EV** **LOW CARBON HOME**

Grab a virtual coffee

and come and join our community

PRE-DATING even the Feed in Tariff (FIT) scheme, the first issue of REI magazine was published back in 2008 and rapidly became the leading publication for all things renewable.

After a digital-only hiatus, you asked, and we listened, and have brought back our popular magazine in print and digital formats to complement our thriving digital communities.

With our ongoing commitment to cover the renewable energy sector for our community of installers, specifiers, engineers, manufacturers, and suppliers, we are delighted to introduce two new faces who have joined the growing REI team.

Jess Riches – "Join the REI community for installers"

HI there! I'm Jess and I'm the new Community Content Lead at REI.

I come from a background of writing about technology and big environmental issues, so renewable installing is new to me – but I'm excited to get stuck in! I also write movies, so maybe we'll see heat pumps appearing on big screens soon...

My job at REI is to ensure that you, the installers, are getting the content you want and need from us. We want you to let us know about the issues, articles and news you're interested in. If we're going to reach our net zero future and meet the ambitious decarbonisation targets, installers are an integral part of the journey, and, with the industry evolving faster than ever, it's never been more important for us to hear from the people at the forefront.

With that in mind, I want to invite you to get involved in the REI community online, and to give you my direct email so that you can contact me with your thoughts.

Together, we can find solutions and shape the direction of this industry.

A couple of ways that you can get involved with the REI community:

– Sign up to our newsletter (use the QR code or link on page 3) to hear about our new series of virtual coffee breaks where you can drop in, speak to other installers, and let us know what you'd like us to cover in the magazine online – we're aiming to do these around once a month.

– Send an email directly to me – **jessica@renewableenergyinstaller.co.uk** – letting me know what you're interested in, frustrated about or excited for in the world of renewable installing – and we can catch up from there!

Thanks, and I look forward to speaking to lots of you as we move into an exciting new era of renewables, in the UK and beyond.

Linda Ram – "Let's get a virtual coffee"

HI! I'm another new addition to the REI team as we go full steam ahead, or should I say as we 'charge ahead', in further growing our content and support for the renewable energy agenda this year.

We're continuing to build on the amazing foundations that have been laid over more than 15 years of unrivalled coverage in the domestic installer sector.

As part of my role, I'm looking to go beyond the headlines to uncover the real issues, challenges and success stories in renewable energy. While my colleague, Jess, is the voice of the installer community, my specific focus is on those leading, influencing and supplying the sector.

If you're a manufacturer, trade body, supplier, energy provider or training institution and you've got some news, case studies, product releases, or a hot topic you'd like us to investigate, then I want to hear from you.

I'll also be bringing you all the latest news on legislation and its impact on our industry and our net zero goals.

I'm building my list of 'go-to' people in this industry so let's get a virtual coffee booked in so we can say hi – drop me an email at linda@renewableenergyinstaller.co.uk.

We'll also be at several of the main industry events this year, so make sure you look out for us.

A bit about me (in case you're interested!) – I'm a fully qualified journalist, having trained in the newsroom a few (too many!) years ago. I've written for a number of publications and industries over the years, including in PR and communications, as well as news.

In recent years, my client base and news list has included increasing numbers of stories about climate and renewable energy, so I'm excited to get stuck in even further as part of the REI team as the UK strives towards its net zero goal.

I look forward to meeting you all.

ON THE COVER

21 A retrofit journey

How Stuart Dyer's home retrofit experience turned him from Midsummer customer to advisor.

Image shows a Midsummer Wholesale installation of Solfit in-roof integrated solar panels ©WittWoo Photography

FEATURES

NEWS ANALYSIS

Renewable
ENERGY INSTALLER & SPECIFIER

CONTENTS

FEBRUARY 2024

INNOVATIONS

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Have your say and join in the conversation!

A MASSIVE thank you to all those who contributed to, subscribed to, read and fed back on our October relaunch issue of REI magazine. While clearly requested, we were still delighted to hear how well received it was and appreciate the many of you who took the time to let us know what you found useful, thought-provoking, challenging or insightful within its pages.

And here we are with the second issue of REI 2.0 with more of the content you have asked for. In this issue we continue the sector conversation with a focus on heat pumps, sector training, energy efficiency and retrofitting.

With voices from all sides, we seek to understand the challenges and obstacles, consider the progress made and dig deep into suggested solutions.

You'll read about those who are seeking to make a difference and those who are frustrated by the lack of a clear path and the obstacles along the way.

Take a look at domestic decarbonisation through the eyes of the consumer and hear thoughts on how we can better support their journey

We highlight brilliant industry initiatives and innovations that are tackling the challenges head on – and beating them!

And we share the thoughts of those in the sector. There will be voices you agree with and those you don't, but isn't dialogue the only path to agreement and progress?

We'd love to hear your thoughts, and I am pleased to take this opportunity to introduce two new team members who hope to be hearing from you soon!

As the sector continues to evolve it is essential that we maintain a constant and constructive conversation between all those involved in overcoming the obstacles to domestic decarbonisation.

Whether you are a manufacturer or supplier to the sector, an industry body, legislator or one of our growing community of specifiers, engineers and installers we are keen to hear your voice.

Get in touch with Linda or Jess or drop me a line to tell us what is on your mind. Our next issues will focus on sector legislation, solar and storage, installer tools and support and we will continue to hear from installers and consumers in our industry interviews.

Join in the conversation!

More UK homeowners invest in low carbon heating than ever before

THE latest figures from MCS, the UK's standards body for low carbon heating and energy, show that the UK is turning to renewable heating to warm their homes.

The number of MCS-registered ASHP installations grew to a record 36,799 in 2023, exceeding the number for 2022, which was previously the highest year-end figure. This makes 2023 the most successful year ever for heat pump installations and means that more than 200,000 have been installed since MCS records began in 2008.

On 23 October, the grant level for air source and ground source heat pumps increased from £5,000 to £7,500, with an additional £1.5 billion funding announced on the 18 December. This government support marked a big step forward for the Boiler Upgrade Scheme (BUS) reflecting how government policy drives the nation's ability to reach the UK's net zero targets.

The latest increase in the BUS brings the grant amount for England and Wales in line with Scotland, which has consistently led the four nations in terms of heat pump uptake in the UK. This is a major government signal, marking a commitment to low carbon heating and doubling down on its investment in heat pumps. The change reflects the policy changes needed to reach the UK's net zero targets.

Recent statistics on the uptake of BUS vouchers, published by the Department of Energy Security and Net Zero (DESNZ) show that a record number of people have applied for the grant to install heat pumps. Since the BUS opened for applications in May 2022 until the end of October, the scheme averaged 331 voucher applications a week. In the weeks following the uplift in grant value, applications increased to 1,172 applications per week. The additional allocated funding of £1.5 billion means that more homeowners across England and Wales can install low carbon heating with help from the Boiler Upgrade Scheme.

Consumer confidence

Following the grant uplift, government statistics were released, along with newly published independent research, dispelling myths around heat pump noise. The research concluded that only a small number of survey participants even notice the sound from a nearby heat pump. This same review also found that complaints about heat pump noise are extremely rare.

According to the figures from the MCS Helpdesk, there were fewer than 10 complaints relating to heat pump noise received in 2023. This is despite MCS recording almost 37,000 certified heat pump installations for the year.

MCS is supporting Ofgem with the administration of the Boiler Upgrade Scheme by operating a customer contact programme, under which, every consumer installing a heat pump with a BUS grant is contacted directly.

Consumers are asked a series of questions to confirm where and when their heat pump was installed, and by which certified contractor. They are also asked whether they are satisfied with the installation, whether they received a handover pack, and how the process of receiving the grant amount worked.

Findings are shared with Ofgem to support their fraud and compliance regimes around the scheme. Ofgem and MCS compliance investigations are operated to manage any issues with installations. The scheme is strictly managed to ensure not only that grant values are only distributed appropriately, but also that consumers are happy with their heat pump systems.

David Banner, Helpdesk Team Lead at MCS, said: "The BUS grant increase and additional funding will make it easier and more affordable for the average UK consumer to transition to low carbon heating, which is vital if we are to reach our national decarbonisation goals."

"The research DESNZ has published aligns with our own findings that more people now have the confidence and ability to invest in low carbon heating and this is an important step forward towards net zero. The number of heat pumps going into buildings in the UK continues to increase year on year with no sign of slowing."

Following the publication of DESNZ findings, MCS published a consultation on MCS 020, the Planning Standard for Permitted Development Installations of Air Source Heat Pumps. The proposed changes to the standard include altering the sound assessment methodology to make it easier to install heat pumps without planning permission. The consultation closed at the end of January.

Industry support delivers UK's first Low Carbon Heating Technician Apprentices

DERBY College welcomes the UK's first Low Carbon Heating Technician Apprentices (LCHTA) with Vaillant supporting the inaugural cohort.

Helping address the need to attract many more apprentices into this growing field, Vaillant is investing in supporting 10 full time, employed apprentices throughout their 3-year course.

Partnering with Derby College, where the students will be based, Vaillant has ensured that, for the first time, apprentices are able to take advantage of training focussed on low carbon technology. Previous sector-specific apprenticeships have focused on traditional gas heating systems, with students required to complete additional learning to install equipment such as heat pumps.

The new apprentices will eventually graduate as Level 3 Low Carbon Heating Technicians having covered the latest heat pump and other low carbon technology. Along with a broader view of working in the heating industry and how to conduct themselves in customers' homes, to enable them to deliver an excellent customer experience, the course also includes additional qualifications and skills, such as plumbing, bricklaying, plastering, electrics and customer service, to ensure they are fully equipped for every job.

In addition, they will benefit from experience gained from working across the Vaillant business thanks to the on-the-job training with qualified heating engineers built into their second and third years.

Encouraging signs of increased demand

The 10 successful applicants for this first intake were selected from more than 60 candidates from the Derbyshire and East Midlands area with each applicant having impressed during interviews and assessment days held at the college and at Vaillant's UK headquarters in Belper, Derbyshire. Although the first cohort includes younger installers, aged 16-19, the new LCHTA is open to those of all ages.

Mark Wilkins, Training and Technologies Director at Vaillant comments: "Investing in young people and encouraging new entrants to the industry is paramount for the future of low carbon technologies. I was delighted to see such a huge interest in the Low Carbon Heating Technician Apprenticeship, and we have been overwhelmed with the amount of passion and drive that all applicants displayed.

"It is also encouraging to see a diverse group of applicants – we are seeing a shift in the industry, historically being male dominated, so it is exciting to be part of these changes, building the future workforce".

Carol Dixon, Director of Employer Partnerships at Derby College Group, added: "We are thrilled to be working with Vaillant to roll out the first Low Carbon Heating Technician Apprenticeship at Derby College Group. A great deal of work has gone into getting the course ready for this first cohort and we are delighted to be able to set these apprentices well on the way to a fulfilling career."

The course is recognised by the Institute for Apprenticeships and Technical Education (IfATE) and was developed by MCS (Microgeneration Certification Scheme) with support from employers across the low carbon heating sector including MCS certified contractors. It also forms part of the Green Apprenticeships holding the Kings Standard, launched to celebrate the coronation of His Majesty King Charles III.

Ian Rippin, CEO of MCS said: "I'm delighted to see the enthusiasm for our Low Carbon Heating Technician Apprenticeship and that Vaillant has worked closely with their local college to enable access onto the course."

ACCELERATING HEAT PUMP DEPLOYMENT: delivering wallet-friendly sustainable heating

AS is reported in our analysis on page 14, 2023 saw the number of heat pumps installed across the UK increase 25% on the previous year, rising to a record high of almost 40,000, and bringing the total number of certified heat pumps installed across the country to more than 200,000.

However, progress needs to be much faster. According to the Climate Change Committee, the UK is not on track to hit the 2028 target of 600,000 annual installations and to do so would require a ten-fold increase in installations.

The increase in the BUS funding has triggered a significant increase in grant applications but the high upfront cost of making the switch to a heat pump is only one of the obstacles to widespread adoption.

With the UK having one of the highest electricity-to-gas price ratios in Europe, at 3.97, the running costs are a considerable deterrent to switching from gas-fired heating. A new report from the Heat Pump Association (HPA) considers a range of options to tackle this key challenge in the acceleration of heat pumps for domestic heating.

The industry body's latest research highlights a significant contributor to the high electricity prices – the distortive impact of Environmental and Social Obligations on the domestic heating market – often referred to by government as "policy costs" and known commonly as "levies", domestic electricity consumers bear around 85% of these levies, which means a typical heat pump consumer pays £170 more than an equivalent gas boiler consumer in levy costs per annum.

With the Government having committed to 'rebalancing' by the end of 2023/4, the HPA is calling for a temporary Domestic Heat Pump Tariff Discount to be introduced quickly as an interim measure to bridge the gap until the wider electricity market reform is completed.

Wallet-friendly sustainable heating

Commenting on the release, HPA CEO, Charlotte Lee said: "Our research provides a roadmap to address the current distortion in the domestic heating market, which is undoubtedly hindering heat pump deployment. Reducing the price of electricity relative to gas is the sector's number one policy ask.

"Action must be taken to change the energy price signals so that the lowest carbon heat is the lowest cost heat, which in turn will accelerate the deployment of heat pumps and support the government's decarbonisation goals."

Additionally, Craig Dolan, HPA Chair, noted: "The proposed Domestic Heat Pump Tariff Discount strategically bridges the gap between the current situation and the more complex, wider electricity market reform arrangements which, whilst necessary, will take considerable time. The introduction of a Heat Pump Tariff Discount will make heat pumps a more compelling financial proposition to consumers and will drive a significant shift towards a greener and more efficient heating landscape."

The proposed discount will reduce the price of electricity used for domestic heating or hot water produced by hydronic heat pumps to an amount equivalent to exempting that proportion of electricity from levies. Starting at 5p/kWh from 2024-2026 then rising to 6p/kWh, the discount is estimated to require a maximum of £533m of discounted costs over three years.

Jozefien Vanbecelaere, head of EU affairs at the European Heat Pump Association said: "Every consumer wants bang for their buck, and to get it on a heat pump the price of electricity should be no more than twice the price of gas. Reducing taxes and levies on the electricity bill and supporting consumers in the switch to electrification is long overdue.

"Governments across Europe need to act today so households and businesses can move to clean and sustainable heating at a wallet-friendly cost."

James Dyson, Senior Researcher at E3G said: "Reducing heat pump running costs is crucial to make clean heat affordable, desirable, and accessible for all UK households. A targeted exemption on levies for clean heating does just this, making heat pumps as affordable to run as a gas boiler. It also has a relatively low price tag for the government, meaning this approach represents great value to accelerate the transition to net zero."

Free training course launches to unlock retrofit career paths

CONTRACTORS can now access a free course from a leading UK retrofit knowledge and skills provider to kick-start their career in retrofit.

The new online course, Retrofit 101, has been curated and designed by The Retrofit Academy to provide the essential information for anyone wanting to understand what domestic retrofit involves and its vital role in driving energy efficiency and reducing carbon emissions.

Covering the principles, best practice and why it is so important, the course aims to enhance understanding and to unlock the potential for contractors to progress into further qualifications as they develop their retrofit career.

A rapidly-growing sector

With increasing policy support, funding for home and building decarbonisation continues to increase. The resultant growth in demand for high quality retrofit delivered at scale can only be met through rapid development of a skilled workforce.

With this in mind, The Retrofit Academy has launched the new course to deliver to a far greater number of people an understanding of the process of retrofit, why it is needed in domestic settings and how to advise around retrofitting as well as highlighting career opportunities.

The new course joins a raft of leading accredited courses developed and delivered by The Retrofit Academy since 2016, equipping learners to take on PAS 2035 roles such as Retrofit Coordinator, Assessor and Advisor. Having already enrolled over 4,000 retrofit professionals and 7,000 learners, the new course aims to encourage many more to consider earning their qualifications and capitalising on the raft of career opportunities that are emerging.

A launch pad

David Pierpoint, CEO and founder of The Retrofit Academy, commented: "We have been developing and delivering accredited retrofit training courses since 2016, and have unlocked careers for thousands of individuals already.

"To create the workforce needed to decarbonise all homes in the UK, however, we must go further. With that in mind, we've developed our free, introductory course with the aim of sharing our wealth of retrofit knowledge with as many people as possible, which we hope will make the world of retrofit even more attractive to a broader talent pool.

"Whether an individual is eager to unlock a new career in the built environment, or a company is looking to upskill its team in energy efficiency considerations, Retrofit 101 provides a fundamental starting point to launch into the sector. From here, there is the opportunity to take on more of the leading qualifications from The Retrofit Academy and take on the thousands of roles opening up to deliver large-scale, high quality retrofit across the UK."

The smart route to upskilling – could your business benefit?

INTRODUCING a new 19+ programme, training provider Logic4training is calling employers to solve the skills shortage by taking on an apprentice. With over 20 years' experience training plumbers, heating engineers and electricians, the company is well-placed to support the next generation of building services installers.

Scheduled for launch this summer at its Northolt centre, the first apprenticeships will be in Gas Engineering and Smart Metering.

An affordable way to nurture new talent, Logic4training apprenticeships offer year-round provision so apprentices can start at a time to suit the employer, as well as small class sizes to deliver the best possible training experience.

Logic4training will offer a block-release model, with the in-centre training time and content tailored, where possible, to the needs of a business.

Course trainers are ex-industry and the training will be completed in 1–2 week segments so that the apprentice returns to the workplace with skills that can be utilised straight away.

Mutually beneficial

Mark Krull, Director for Logic4training, said: "We are excited to launch our new apprenticeship programme. Apprenticeships offer a great opportunity for both the apprentice and the employer – a mutually beneficial arrangement which allows businesses to cost-effectively upskill someone to meet their specific needs, while the trainee 'earns while they learn'.

"Statistically, an apprentice is far more likely to stay with an employer after training is complete.

"As experienced training providers to existing installers, we understand the demands of working in the trades and have designed our apprenticeships accordingly by providing flexible start times, support with recruitment and options for employers with a number of apprentices, for example.

"We also offer all the add-on courses required for a future-proof business, such as heat pump training."

Megan Killen, Head of Apprenticeships at Logic4training, added: "Apprenticeships are a tried, tested and affordable model for bringing in new talent. Larger organisations pay into the Apprenticeship Levy, which covers the price of training and smaller businesses pay just 5% towards this cost.

"Apprentices must be paid a minimum wage, but, at the end of the process, you have someone fully qualified and well-versed in the culture of your organisation. We look after the training element and support both the learner and their employer throughout.

Mark concluded: "Overall, the building services sector is experiencing a massive skills shortage. A recent report suggested we need a 78% increase in plumbing and heating apprentices to meet demand for low carbon heating upgrades.

"Hopefully we can encourage employers to contribute to this uplift."

Installers encouraged to commit to new low carbon heating apprenticeship

LAST year saw a marked increase in the number of certified heat pump installations registered in the UK to a record 35,000 for the year.

There was also a 57% increase in applications to the Boiler Upgrade Scheme (BUS) following an uplift in the grant from £5,000 to £7,500.

And, as well as the BUS being further boosted with another injection of cash, 2023 also revealed the low carbon technology plans for new build homes as part of the Future Homes Standard consultation.

Despite these positive moves, there is a long way to go to the government's ambitious target of installing 600,000 heat pumps annually by 2028.

Boost to the skills puzzle

Another big piece of the puzzle is skills. If heat pumps are to be rolled out in those numbers, then tens of thousands of technicians, with the right training and knowledge, will be needed. Analysis by the Heat Pump Association suggests a minimum of 50,200 installers will be required by 2030.

This ambition has been boosted by the introduction of the first ever national apprenticeship standard focused solely on low carbon heating.

The ground-breaking industry-led low carbon heating apprenticeship was developed through collaboration between the MCS (Microgeneration Certification Scheme), IfATE (the Institute for Apprenticeships and Technical Education) and a trailblazer group of heat pump installers.

It has been allocated a generous funding band of £22,000 per apprentice, which training providers can draw down over three years – this compares to a £21,000 four-year draw down for a plumbing and heating apprenticeship.

While it is a big step, the establishment of the standard is only the beginning of the journey. There is now a great deal of work to be done to ensure it is developed effectively with the right qualifications and course materials, and widely taken up by training providers, employers and, of course, apprentices.

By industry, for industry

MCS has appointed two new sector skills managers, Steve Knight and Martyn Raine, who bear some of the responsibility for driving the apprenticeship forward, and they are appealing to the installer community to help.

Steve Knight has a background working for large energy companies, running training centres and assessments.

He said: "Just getting to this point is enormous. The fact we've got this trailblazer group together and have created something that is exclusively low carbon, stepping away altogether from fossil fuel-based sources of heat, I think is massive for the industry.

"We particularly want to make sure this scheme delivers value for contractors, while driving up standards and quality. That really starts with training.

"This has to be employer-led, by industry, for industry. We've committed to supporting the roll out, helping to train the trainers and working with employers to deliver the highest standard of low carbon heating technicians possible.

"There's also the wider communication work to take place, to get the message out there that this exists as a genuine alternative to fossil fuel. We know from our study on Gen Z that there are whole swathes of young people coming through now who see what's on the horizon, climate wise, and they want to contribute towards change.

"So, we need to get into schools earlier, way before students reach apprenticeship age."

A shrinking workforce

Up until now, efforts to increase the number of low carbon heating installers have relied on traditional heating and plumbing engineers taking bolt-on short courses in renewables, and this remains a vital pathway to achieving the number of heat pump installers needed.

But, at the same time, it is accepted that this existing workforce of traditional heating and plumbing engineers is shrinking.

Martyn Raine, who has a background on the tools as a heating and plumbing engineer, said: "The existing workforce is getting older and, probably, shrinking. The apprenticeship will hopefully help fill the void of people leaving the sector, but there's work to be done in bringing new people in.

"The challenge now is engaging with the

training providers, the college networks, the employers. We will use our data to see where heat pump installations are taking place and target those areas specifically, but we also want to hear from any employers who might be interested in taking an apprentice on. That will be essential in demonstrating demand to training providers."

Graduates completing the Low Carbon Heating Technician Apprenticeship will be fully versed in supporting homeowners on how to heat and decarbonise their homes using a variety of heat sources including ground and air source heat pumps and solar thermal collectors.

A number of providers have so far signed up to offer the apprenticeship, which is expected to start welcoming students more widely from September 2024.

One of those is North Yorkshire-based HybridTec whose Managing Director, Sophie Gilmore, said: "We are delighted to be working in partnership with MCS on the delivery of the LCHT Apprenticeship. Currently we are a large provider for Gas Engineering Operative Level 3 and see how the market is changing month on month.

"The vast majority of businesses working with Hybrid are engaging with green heating technology and are positive around the need to upskill in renewable energy to diversify their employment opportunities.

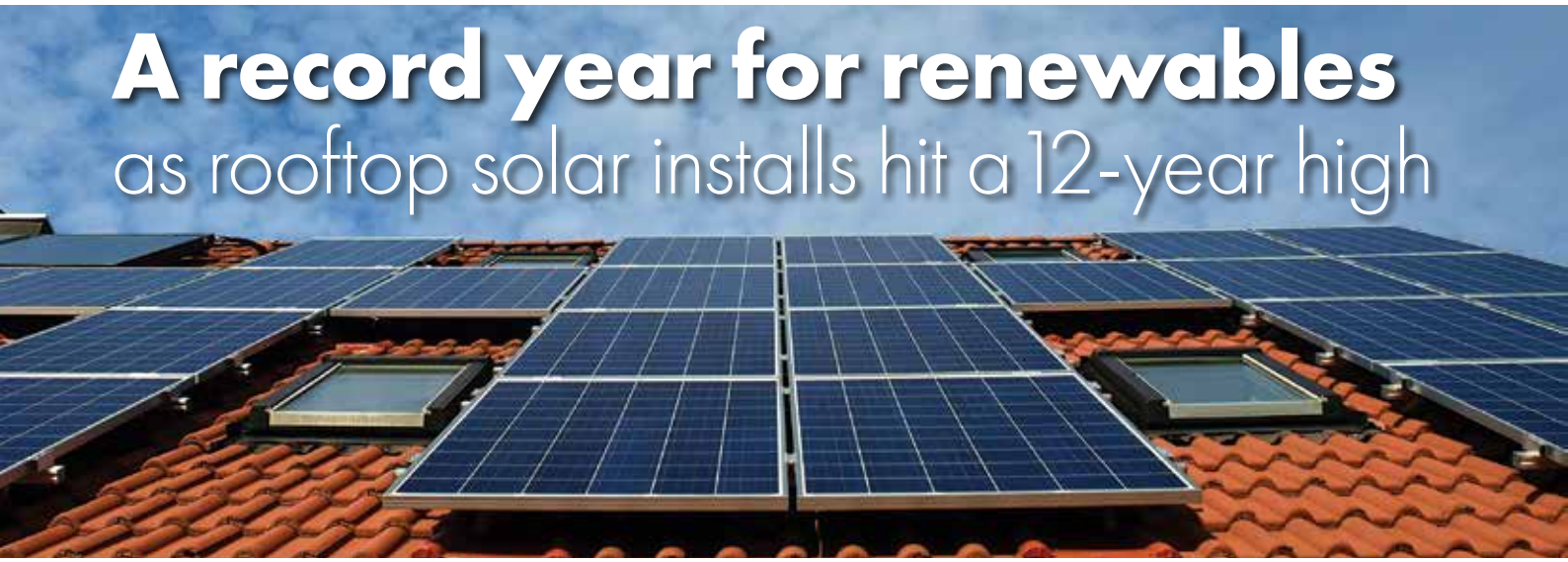
"Hybrid has been involved in national government initiatives such as Green Skills Bootcamps and, during 2023, we have upskilled over 2000 heating engineers in ASHP, solar thermal and underfloor heating.

"Due to the demand from the business community, we have a planned LCHT apprenticeship for March 2024."

What do you think? We'd love to get your views on whether you think the Low Carbon Heating Apprenticeship is a good idea and whether there are any barriers to installers taking this on in their own businesses.

Please get in touch with us by emailing: ***linda@renewableenergyinstaller.co.uk.***

A record year for renewables as rooftop solar installs hit a 12-year high



2023 delivered a record year for the sector with industry data showing a post-subsidy record of smaller-scale PV installs as well as record number of heat pump installations.

Figures from industry standards body MCS revealed that a new post-subsidy annual record of 189,236 smaller-scale (50 kilowatts or less) solar photovoltaic installations was set in 2023.

The figure was close to the all-time MCS record of 203,129 registered PV installations in 2011, which came at the height of the Feed-in-Tariff scheme as people rushed to take advantage of the level of subsidy before it was cut.

In 2012, the FiT subsidy for solar was cut by half, from 43.3p per kWh to just 21p per kWh. This reduced returns from around 7% to 4% – almost doubling the payback period for households.

Installations fell by nearly 90% following the reduction, according to Department of Energy and Climate Change figures, and the scheme closed completely to new applicants in April 2019.

Commenting on the 2023 figures, Chris Hewett, Chief Executive of Solar Energy UK, said: "Setting a post-subsidy record of almost 190,000 smaller-scale solar PV installations, and approaching the all-time record, is truly a moment to celebrate.

"The solar industry is on a roll, particularly as we start to conclude work on the government-industry Solar Taskforce, whose roadmap for delivering 70GW of capacity is due to be published in a couple of months.

"It is also very gratifying to see such growth in the deployment of heat pumps and battery energy storage systems, which partner so well with rooftop solar energy systems by maximising the savings and decarbonisation that they offer," he added.

The number of heat pumps installed across the UK rose to a record high of almost 40,000. An increase of 25% on the previous year, according to the data, it brings the total number of certified heat pumps installed across the country to more than 200,000.

MCS said there was a late surge in demand for heat pumps after the Government increased the grants available through its boiler upgrade scheme from £5,000 for an air source heat pump to £7,500 in October 2023. Applications for the grant increased by 50% after the introduction of the higher rate, it said.

A Department for Energy Security and Net Zero (DESNZ) spokesperson commented: "We are making the switch to heat pumps more affordable, reducing the burden on hardworking families.

"That's why we increased the Boiler Upgrade Scheme grant by 50% to £7,500 – making it one of the most generous schemes in Europe.

"Our approach is working, and this has seen an initial 57% increase in applications."

Going for numbers

However, the value of the BUS for ground source is 'just far too low' says Bean Beanland, director for growth at the Heat Pump Federation, who described the Government's clear support for air source as 'a conscious decision to go for numbers rather than the highest efficiency' saying: "This has been compounded now that the BUS levels for air and ground are the same."

Last year, the number of GSHP installations fell from 3,420 to 2,469, while solar-thermal installations nearly halved, falling from 615 to 311. However, the surge in installs of ASHPs resulted in an overall increase of low carbon heating technologies of 20% year-on-year.

Additional policies needed

David Cowdrey, director of external affairs at the MCS Foundation, said: "It is very encouraging to see the growth in all renewable energy, and particularly heat pumps.

"More households than ever are opting for these carbon-free and highly efficient heating systems that are zero emissions at point of use."

However, to meet the government's target of 600,000 by 2028, heat pump installations would have to increase by more than ten-fold over the next four years leading David to call for additional government policies, on top of the higher grants, to achieve "the exponential growth" that is "required now".

"Such policies," he argued, "should include reducing electricity costs to encourage heat pump uptake while tackling fuel poverty."

He called on the Government to move social and environmental tariffs from energy bills into general taxation in order to reduce electricity costs and make running heat pumps substantially cheaper than a gas boiler.

Why a move away from **fabric first** is "a step in the wrong direction"

PAUL Spence, Technical Manager for heatly, calls for caution when it comes to promoting the idea that heat pumps should be installed regardless of a property's energy efficiency credentials.

Following the Nesta report, 'Insulation impact: how much do UK houses really need?', which suggests that the fabric first approach, i.e. making homes as energy efficient as possible, is not an essential part of the UK's current stage in the heat pump roll out, I urge installers and heat pump customers to not take this as a cue to view energy efficiency upgrades as less important.

Nesta's report focuses on carbon reduction, and you can't argue with the fact that ripping out fossil fuel heating and replacing it with cleaner, greener heat pumps will reduce the UK's carbon footprint.

The reality is that, for most people, comfort and the cost-of-living feature far higher on their agenda than cutting carbon. Let's be clear, I am a big fan of heat pumps – as an installer and now as Technical Manager for heatly. I can't endorse, however, the idea that we should move improvement of the UK's woefully damp and draughty housing stock lower down the list in favour of banging in heat pumps as quickly as possible. This approach could serve to dent the reputation of heat pumps and ignores the consumers on gas that simply aren't in a position to make the switch.

As an installer, and through my Facebook Group Heat Pumps U.K., I see first-hand the problems that arise when heat pumps are installed in very inefficient homes. One of the main problems is over-specification, which leads to higher costs and future problems. If heat loss is high, the size of the heat pump required to keep a building warm, increases. The bigger the heat pump, the more expensive it is. If, in the future the homeowner makes energy efficiency upgrades, the heat pump and ancillaries (pipes, circulators, pumps etc.) can end up being over-specified, leading to systems that use too much power and are difficult to control.

In Nesta's report it states: "While better insulation is always beneficial with any kind of heating system, it is not an essential prerequisite for getting a heat pump. The key factors affecting a heat pump's efficiency are system design and adequately sized radiators. While insulation plays an important role in reducing heat demand and can in some cases make heat pumps operate more efficiently, it is not the key factor in heat pump efficiency. Instead, having a well-designed heating system, with correctly sized heat emitters which enable a lower flow temperature, is the most important factor behind a heat pump's efficiency."

This is all true, but if the energy efficiency of the house changes, as is most likely the case in poorly insulated properties, the original design will no longer be suitable.

Crucially, without a 'fabric first' approach, energy bills will be prohibitive. One of the arguments I've seen to counter this is raising gas prices and reducing the cost of electricity. While everyone wants the latter to happen, it should not be at the expense of gas customers. 26 million homes are currently on natural gas, many of which are not in a position to switch to a heat pump; it seems unfair that they should be penalised for something beyond their control.

Happy customers in warm homes

This type of policy masks poor housing and poor heat pump installation with economics. We should be striving for a future where COP 4+ is the norm, which can't be achieved without a whole house approach.

While Nesta's report doesn't suggest doing away with energy efficiency upgrades, I would just be cautious of the message that could be misconstrued by some readers. Where possible, 'fabric first' should always be the way to go. If carbon reduction by means of a swift switch to heat pumps is the only goal, homeowners and landlords will need far larger subsidies than the ones currently available, and the industry must be prepared for greater numbers of dissatisfied customers.

For the low carbon sector to thrive, quality is key – happy customers in warm homes that cost less to run. I'm excited to be working with heatly because it will make a big contribution to this goal; improving heat pump specification and installation accuracy, simplifying the associated processes for installers, and making the benefits of heat pumps and supporting energy efficiency upgrades easier to understand for consumers.

What are your thoughts on the challenge of balancing the drive to electrify domestic heating with the drive to improve energy efficiency? – send them to:

margaret@renewableenergyinstaller.co.uk

In conversation with: Jo Alsop from The Heating Hub

JO Alsop, Founder of The Heating Hub, speaks with REI about the importance of empowering consumers with cost-led education, so they can go into conversations with installers better informed.

Q The Heating Hub has existed in various guises for over a decade now. How has the organisation changed and grown over that time?

"We started life as a local heating company initially repairing boilers and later expanding into renewables and wood-burning stoves. I used to blog about boilers and heating on our website and, over time, we attracted a national audience. When we sold the installation business, I carved out the website from the sale to launch a new standalone advice service.

"The business today provides 1-2-1 help for households at every step, with the ultimate destination of fitting a renewable energy system and providing referrals onto a network of technically assessed installers. Households are wasting thousands of pounds on products they don't need and nearly always underperform, due to low levels of know-how, and we wanted to correct this.

"Three years in, we took our next step and merged with tech start-up, Warmur. Warmur is using software to help people understand the combined benefits of heat pumps, solar, batteries and time-of-use tariffs and fit optimised products. They are also using the same tech to help local installers advise their customers on combinations of products and compete with national operators. It was a natural fit, as our joint mission is to help households make better buying decisions and help great local companies compete."

Q What is your biggest motivator when it comes to your business?

"I am massively motivated to stop poor buying decisions. I know that households are wasting precious budget on products they don't need or do little to improve their situation – such as by lowering their fuel bills and/or reducing their carbon footprint – simply because they don't have access to independent and expert advice.

"Budgets are tight, and what we spend must have the biggest impact if we are to decarbonise our homes quickly. It will ultimately be households that pick up the bill for moving from gas to renewables and improving their insulation, so they need help to avoid wasting their money."

Q Communicating with consumers is central for you. What do you recommend to installers when it comes to communicating clearly, with the right information?

"We find consumers at all different stages of their understanding – from grappling with their heating programmers to chartered engineers that understand the physics of their heating systems, and everyone in-between. Adapting your starting point for advice is important, as is appreciating where customers are on their journey.

"Installers are so tight for time, however, that it's hard and, in many ways, unfair to expect them to advise consumers on what they should do across multiple measures. Renewables installers need customers who understand their options and know a heat pump is right for them today.

"Many installers are now charging a fee for surveying, to sift out customers that are less serious or have not considered all their options. This is the right thing to do for the installer, but it ultimately doesn't help households progress their understanding or make a plan.

"This is where our business works for both parties. We make life much easier for installers, and smoother for homeowners, by taking the time to triage customer needs before an installer has even set foot inside a property, and then route them back to great local businesses when they're ready to take the next step."

Q What are consumers looking for at the moment?

"Evidence of climate change is all around us and this has driven up interest in green technologies. Many consumers want help to go greener, but don't know where to start.

"The cost-of-living crisis has also forced households to focus on their energy bills in a way they haven't had to before. Consumers are interested in technologies that can reduce their energy demand and save them money. Heat pumps and solar PV panels are a great combination and do save households money on their energy bills, but no-one is joining the dots on combined technologies, which is where Warmur's software comes in.

"We've certainly seen a culture war play out in the press around heat pumps and 'hydrogen-ready' boilers, with both technologies weaponised by political groups and the gas industry in an attempt to frustrate and delay heat pump take up. It's certainly working, as boilers continue to sell in inflated numbers and heat pumps sit firmly within the innovator/early adopter stages.

"But there are green shoots; an increase in the BUS grant has been successful in tipping the balance for many households towards a heat pump and big players, including Octopus and Aira, are pumping vast sums of money into their heat pump businesses. Whilst low-cost competition is not always welcomed by sole traders and small businesses, it does show there is confidence in the market and that will drive consumer demand for all installers."

Q What do you think are the biggest barriers for consumers and how can installers help overcome these?

"Confidence is the biggest barrier. Households want to take action, but they don't know which thing to do first and then which to do next. Beyond confidence, there are a multitude of drop-off points where potential heat pump customers can lose their nerve during the research phase.

"Many potential customers will be put off by uninformed opinions of existing gas engineers with a vested interest in discouraging switching. More still will start googling heat pumps and quickly convince themselves (erroneously) that their property needs tens of thousands spent on insulation before it could be ready to have a heat pump installed. Even for those who get past this point, confusion about fuses or flat roofs or outdated concerns about noise mean that all but the most committed innovators will be put off before even picking up the phone to an installer.

"A local installer or small business cannot possibly overcome all of these barriers alone, but they can try to target customer types that have fewer barriers. We are still in the innovator/early adopter phase of the take up cycle for heat pumps, which are those customers who are willing to take on a technology even when they don't know anyone else that has one. Understanding who is an innovator/early adopter will help installers know whether they're likely to buy. For example, do they have an EV and/or some solar panels already? If yes, they are likely good candidates for more household electrification."

Q How do you find and work with installers – your 'heroes'?

"All of our installers are technically assessed before they come onto the network and then we get to know them through the jobs they do with us. We aren't looking for high volumes of installers, rather a core group of high quality installers. Most have gone through training and understand hydronics and weather and load compensation as a minimum and have been designing gas heating systems to run optimally."

"We're always keen to hear from renewables installers who want to do the best possible job for the consumer. Homeowners have plenty of options if they're motivated solely by lowest price. Our installers are typically offering a high quality product and standard of installation, which sets them apart."

Q What are the major benefits or challenges when it comes to being a woman in the sector?

"I haven't experienced any major challenges. The odd Twitter bashing aside, I find the heating sector a brilliant and highly supportive place to work. I am, everyday, inspired by the high standards of those installers on our network and the innovative work going on across the industry to expedite the energy transition.

"0.5% of registered gas installers are women, which must be one of the worst work-based gender imbalances of any sector. Yet 21% of women would consider a career in trades according to some research by Powered Now.

"At the school leaver level, the number of women entering the trade is increasing, and that is very positive, but it's also a long pipeline.

We need more career-change women if we are to redress the balance anytime soon, but that means going back to college, a drop in salary and finding an apprenticeship for on-the-job training.

"At the moment, there is no fast track, supported training route for re-training as a heat pump installer. Women need to brace for a period of low pay and going to great lengths to find some work experience. My advice is to ignore gas training and focus initially on plumbing. 'Plumbing Craft' courses are typically 8-10 weeks and teach the basics of plumbing, heating and pipework. Heat pump installers will also need to access training on hydronics, heating controls and heat pump products (e.g. by attending manufacturer training courses). Peer-to-peer support via Facebook groups is also a good source of knowledge."

Q What are your thoughts on government strategies for achieving net zero?

"Government policy is woefully lacklustre and has been for more than a decade. Policies that were successfully insulating homes up until 2012 and plans to phase out gas boilers for new builds in 2016 were scrapped under the Conservative government and have not yet been reinstated.

Gas boilers will now be banned from 2025 in new builds and the Great British Insulation Scheme doesn't make up for a decade of lost momentum retrofitting homes. The increase in the BUS grant to £7.5k and, more recently, the total funding pot to nearly £2 billion is welcome, but we still lag behind many comparable European countries."

Q What is the vision for the industry, and your company within that?

"Despite on/off government policy around renewables, businesses can see the size of the market. The last 12 months has seen Octopus really ramp up its operations and there are other big operators getting into position, for example Aira and British Gas.

"With Warmur, we are working on helping independent installers respond to this by bringing them well-informed customers and powerful operational tools to compete with national operators."

2023 a record-breaking year for MCS and small-scale renewables

2023 has been a record-breaking year for small-scale renewables. MCS data shows that 2023 has surpassed every previous year on record for certified installations of low carbon energy and heating across the UK.

We recently caught up with MCS CEO, Ian Rippin, as he reflected on the successes of the past year, while sharing his company's role in UK renewables for the future.

A year to remember

It goes without saying that 2023 was a year of substantial growth, innovation, and transformation across the renewables landscape. MCS had an incredibly busy year, and our data confirms the fantastic progress we've made in giving people confidence in home-grown energy.

Our 2023 figures show that MCS has now certified over 1.7 million installations across the UK in our history, with over 220,500 installations registered in 2023 alone. This reflects the growing number of UK homeowners who are turning to renewable energy to heat and power their homes.

In October, we were proud to certify our 4,000th contractor. More than 1,800 new contractors have become certified in 2023 so far, marking a 70% growth in our contractor base since the end of 2022. In fact, more contractors have joined the scheme in 2023 than in the previous six years combined!

We are extremely proud of this milestone achievement; it is incredibly encouraging to see our certified contractor base continuing to grow at pace as it reflects the demand for more skilled, competent installers to deliver low carbon energy and heating technology for UK consumers.

Solar PV is powering on

Solar PV continues to be the most popular renewable technology amongst UK homeowners. More than 189,000 certified solar PV installations were installed across the country in 2023. This exceeds the 138,000 total in 2022 by one third! Our solar PV contractor base has also experienced substantial growth this year. At the end of 2022, MCS had fewer than 2,000 solar PV contractors – today, we have over 3,300.

The growth in solar PV mirrors the growing demand amongst homeowners to generate their own home-grown electricity, reducing energy bills, claiming energy independence, and decreasing their carbon footprint.

In August, we welcomed TÜV Rheinland (China) Ltd, a new product certification body for solar panel products, to the MCS Scheme. TÜV Rheinland's expertise in the fields of solar energy and power electronics will play a critical role in strengthening the UK supply chain for solar panel products.

Heat pumps are heating up

2023 has seen a significant rise in the popularity of heat pumps. In the past year, 35,000 certified heat pump installations have been registered across the UK, making 2023 a record year for the technology. This figure brought the UK to over 200,000 certified heat pump installations in total since 2008!

Even with this growth, there is still a long way to go if we're to reach government ambitions of 600,000 heat pump installations a year by 2028. It's critical that we have a dedicated pathway to develop an army of renewable heating installers with certifiable skills who know how to design and fit low carbon heating systems to the highest possible standard.

Earlier this year, we launched the UK's first Low Carbon Heating Technician apprenticeship. The apprenticeship is the first dedicated training provision for heat pump engineers in the UK. The apprenticeship received praise from a group of independent experts assembled by the Department for Education who selected it as one of six apprenticeships to display the King's Coronation Emblem in recognition of its sustainability goals and efforts to create a dedicated pipeline of talent into the green workforce.

In October last year, we saw some key changes made to the Boiler Upgrade Scheme (BUS). The grant value for heat pumps was increased to £7,500, opening up the possibility of owning a heat pump to thousands more homeowners. Since the increase of the grant value, average weekly applications for BUS vouchers soared from

331 to 1,172, reflecting the impact of supportive government policy on deploying important low carbon technology.

The grant increase will make it easier and more affordable for the average UK consumer to transition to low carbon heating, which is a vital step forward in our pursuit to meet the government ambition to install 600,000 heat pumps annually by 2028.

Battery storage is breaking records

To really realise the benefit of generating solar energy at home, more homeowners are installing batteries alongside their PV systems. A year on from introducing our Battery Storage installation standard, we're already seen remarkable growth in the number of contractors and installations for this new tech type.

2023 was a record-breaking year for battery storage, with the technology becoming the third most popular technology type to be installed amongst our certified contractor base. At the end of 2022, there were 50 contractors certified to install battery storage – towards the end of 2023 there were over 850 and growing. Installations have also seen a similar growth, with 4,400 of the 4,700 certified batteries being installed in 2023.

In the recently published consultation on the 2025 Future Homes Standard, the Government has proposed all new build homes utilising solar and battery storage should only be fitted with battery systems compliant with MCS standards to ensure quality and safety.

Considering 2024

In 2024 our goals remain no less ambitious. In 2023, we ran a six-week consultation on our plans to redevelop the MCS scheme. We sought views from contractors, consumers, manufacturers, and independent experts on how we should shape the future of MCS.

We are excited to see the new Scheme come into effect on 1 April 2024, and look forward to the reset of the Scheme's consumer protections to give people the confidence that they need to engage with small-scale renewables.

Visit the MCS Scheme Redevelopment page on our website to find out about the outcomes for the new Scheme.

We also look forward to enrolling the first intake of students onto the Low Carbon Heating Technician apprenticeship in September 2024. We recently created the Growth and Development Group to support with the promotion, development, and administration of the apprenticeship. I am very excited to see the great work the group will do in 2024 to ensure that the apprenticeship is of the highest quality.

You can read more about the Growth & Development group on the MCS website. The future of small-scale renewable installations is becoming increasingly important to reach the UK's net zero targets. In 2024, we expect to see more and more UK homeowners transition to renewable energy to heat and power their homes. MCS is proud to be giving people confidence in home-grown energy and is excited to continue our crucial role in the decarbonisation of the UK's homes.

For near-real-time updates on installations, register for free now to use the MCS Data Dashboard and track trends and opportunities in the uptake of small-scale renewables across the UK.

Testing times:

battery efficiency and reliability

ROB Barker, Director of Power Quality Expert Ltd, considers the critical need for reliable and efficient batteries in today's increasingly electrified world and the role for battery testers in delivering this.

With the push for electrification becoming a cornerstone of progress, batteries are key to facilitating the transition to the use of sustainable energy sources. Adoption of electric vehicles, integration of renewable energy technology, and increasing deployment of energy storage systems all underscore the pivotal role of batteries in the low carbon world and the critical need for reliable and efficient energy storage.

A key tool in maintaining this reliability and efficiency is effective monitoring of battery condition. Battery testers provide valuable insight into battery health and performance, enabling proactive maintenance and helping to prevent unexpected and costly failures as well as ensuring seamless system operation.

Battery testers measure various parameters to assess the state of a battery, including AC/DC voltage, current, and impedance. By conducting regular tests, operators can identify issues such as capacity degradation, internal resistance changes and other factors that could lead to failures. A proactive approach allows for timely interventions, such as repairing or replacing deteriorating batteries, before overall system performance is compromised.

Alternating and direct current

Measuring current is crucial to assess the battery's ability to deliver power and identify any problems with current flow. To keep battery cells in a good condition, it is essential to maintain the required charging current and voltage parameters in accordance with their technical specifications.

Direct and alternating voltage

Another essential function of a tester is the measurement of both direct and alternating voltage. This is important for monitoring voltage stability and matching battery voltage to the requirements of powered devices. A suitable tester will evaluate whether battery voltage is stable and in line with the requirements of the device it powers.

Internal impedance

Measuring the internal impedance allows the current condition and performance of the battery to be evaluated. It is an important indicator because it reflects three main components: resistance, reactance and battery efficiency. A battery ages as it goes through repeated charging and discharging cycles that can, over time, change the internal impedance or increase the internal resistance as the battery materials degrade.

The battery may also be subject to mechanical impacts caused by events such as vibrations, impacts or bumps that can damage the battery's internal structures and ultimately affect its impedance. This type of damage can lead to an increase in internal resistance and a change in the efficiency characteristics of the battery.

Frequent operation of the battery under high load, either as a result of heavy discharge or intensive charging, also raises the internal resistance of the battery. This may result in an increase in the pulsed voltage and a decrease in the stability of the battery's operation.

Measuring and evaluating the internal impedance value of the battery will help you accurately assess its condition. If internal impedance indicates potential problems, appropriate corrective measures can be taken or the battery or the cell can be replaced with a new one, preventing possible future problems and failures.

Pulsed voltage

Pulsed voltage is another important parameter monitored during battery testing that can provide valuable information about the condition of the battery and may indicate abnormalities.

One major problem pulsed voltage can indicate is damaged cells which can result in unstable battery operation and have a negative effect on performance. Pulsed voltage measurements enable rapid detection of such abnormalities so that corrective actions can be taken before the damage develops and affects the durability of the battery.

Unstable voltage may also indicate incorrect battery charging. This results in excessive use of the battery, which may shorten its durability and reduce capacity.

It's worth noting that proper battery charging is crucial to maintaining optimal battery performance, so accurate monitoring of pulsed voltage is extremely important, giving full control over the condition of the batteries, which translates into longer lifespan and trouble-free operation.

The use of a battery tester such as the Sonel BT-120 with its function of measuring pulsed voltage up to 5V enables any abnormalities to be identified and tracked so that appropriate steps can be taken to repair and optimise the battery.

Pulsed voltage is an especially important factor when monitoring batteries in emergency power systems, where reliability and readiness for instant commencement of work is crucial. Regular monitoring with the battery tester facilitates maintenance of the emergency power systems in standby mode, minimising the risk of downtime.

Summary

An appropriate battery tester such as the Sonel BT-120, that enables AC/DC current and voltage, internal impedance and pulsed voltage measurement is an irreplaceable tool for operators that expect their own power sources to be reliable.

As the world continues its push for greater electrification, the reliability and efficiency of batteries become critical success factors and the role of battery testers cannot be overstated. By investing in proactive testing and maintenance strategies, we can avoid costly failures and ensure the longevity of these critical energy storage devices.

Solar Taskforce:
tackling the solar skills challenge

THE start of 2024 will bring with it the anticipated conclusion of the Solar Taskforce and its findings on what actions are needed to meet the UK's ambition of 70GW solar deployment by 2035.

The taskforce brought together key players from government, industry, regulatory bodies and other relevant organisations to look at how the fivefold increase in solar PV can be achieved.

After being established early in 2023 and first meeting in May, the taskforce was given until February this year to conclude its work.

Its main objectives are to help develop a strategic step-by-step roadmap to achieving the 2035 goal, to identify what measures are needed to unlock deployment and putting structures in place to ensure investment in UK supply chains, jobs, skills, innovation and infrastructure.

Four issue-specific subgroups were created to focus specifically on the grid, skills, rooftop and the supply chain.

And, as the taskforce approached its conclusion, we spoke to chair of the skills subgroup, Mark Wakeford, of renewable energy solutions provider, EvoEnergy, about the sort of actions that might be proposed in forwarding the skills agenda.

Mark has a long and illustrious background in construction and has focused on renewables for many years. He's represented the industry on several organisations, bodies and councils over the years and was happy to step up when asked to join the Solar Taskforce – despite the high workload involved.

There's no denying the extent of the skills challenge when it comes to solar deployment, with estimates suggesting some 60,000 people will be needed throughout the supply chain, although the taskforce is waiting on the results of a detailed survey on this.

The scale of the solar skills challenge

Mark said: "The problem with skills is it's a long process and we've only got 12 years to get 70 gigawatts up and running. We've got to find enough people to do it and make sure they're qualified. Most of the businesses in the sector are relatively young, and there's a lot of family-owned or small businesses designing, installing and then maintaining solar installations and these are much more difficult to get into and to persuade them to double their turnover and do all these other things we need them to do so.

"We've got quite a lot of challenges and we're looking at everything we need to do to overcome them.

"The indications are we need around 60,000 people spread throughout the entire value chain. We know, for example, that planning is a major problem. We're trying to get solar farms through the planning process when there simply aren't enough planners in local authorities to deal with it."

Fortunately, planning isn't an issue for domestic installations, but this is also suffering from a shortage of skilled workers.

Improving pathways into solar careers

If the 70GW target is to be achieved, it's vital that all pathways into solar careers are improved, whether that's a school leaver entering the workplace for the first time, an electrician looking to branch out, a roofing company, or anyone else wanting to work with home renewable energy solutions.

"We need to target every pathway if we're going to find 60,000 people, and we're at almost full employment and competing with every other sector. We're looking at every area, including the Department for Education, the Department for Work and Pensions, schools advisors, charities. We also want to reach those who might be overlooked for jobs. We've got the opportunity here to provide proper, well-paid work to everybody across society.

"At the same time, we've got to gradually raise the professionalism within the sector. Providing a good foundation course, for example, that someone can take before moving on to an apprenticeship might be a good way of attracting people in, while delivering secure and robust installations."

"We want to be offering careers, not just jobs."

"The industry needs that quality because the last thing we can afford is to do everything twice. We've got limited resources and if something isn't installed right the first time and they have to go back, that impacts the ability of the industry to deliver what we need to install to achieve 70GW, so it's in everyone's interests to get the quality on site right."

As part of its work, the taskforce has set up a trailblazer group working with the Institute for Apprenticeships and Technical Education (IfATE) to look at apprenticeships for the solar sector; to assess what's already out there and determine whether a new course is needed, or if existing courses might be adapted to meet the needs of employers.

Regional skills hubs

Mark is also a governor at a further education (FE) college and would like to see the FE sector playing a bigger role in solar recruitment.

"I'm hoping that one of the recommendations we'll be making is to have some regional skills hubs within the FE sector to act as regional centres for employers, and to coordinate courses across providers within a particular region. That way we're not spreading the need for lecturers too thinly and people can be confident in the courses that are running."

A fantastic opportunity for installers

"What all of this represents is a fantastic opportunity for installers, and that's the bit I keep coming back to. We're talking about achieving a five-fold increase in outputs so the opportunity to invest in your installer business and see growth over the next decade is fantastic.

"The Labour Party has come up with a similar target and would be proposing 45 to 50GW by 2030. Again, it's a massive ask and would also have to come from across all the categories of PV we have. So, for the rooftops and the installer community, there is this fantastic opportunity going forward."

Helping installers scale up

"The bit I think people sometimes underestimate is the challenge of actually scaling a business to do two, three or four times the turnover. I know, from experience, that most companies go bust when there's too much work going on rather than too little.

"And so, one of the one of the key things which I think applies across the whole sector, whether you're a very large business or a very small business, is making sure your boards of directors, the people running those companies, have the skills required to grow.

"There are all sorts of things that a business needs to do to step up the workload, including improved governance, processes and knowledge. There might be a sole owner/director, and there'll be many who are happy to stay at that level, but we need the whole industry to grow if we are to achieve the solar target.

"So, one of the things we'll be promoting is a qualification for directors to be able to accommodate that scale-up safely. We see this as effectively an apprenticeship for directors to learn the skills they need to grow their businesses, alongside a support network with other people facing similar challenges and issues."

Achieving the 70GW target

We couldn't let the interview end without asking the million dollar question as to whether the 70GW target is achievable.

Mark replied emphatically: "Absolutely! I wouldn't be personally putting all this work into it if I didn't think it was achievable. Of course, there are challenges, but we've got a really good team looking at all of them."

"The biggest role for the installer is to be trustworthy and have high standards."
– George Clarke

BRANDED 'one of the biggest climate challenges facing our generation', the spotlight is very much on retrofitting this year and how the industry can be scaled to the point that it can deliver the required sustainable upgrades to more than 27 million UK homes.

Billions of pounds are being invested by the government in the form of various decarbonisation grants, but major challenges remain in terms of skills, standards, cost and long-term policy.

Next month will, therefore, see the introduction of the first ever National Retrofit Conference which will take place alongside Futurebuild at ExCeL London from March 5 to 7. The event is being curated by The Retrofit Academy, with key partners including the National Home Decarbonisation Group and the National Retrofit Hub.

In its event promotion, Futurebuild described this as being a 'watershed moment' in tackling retrofitting, which it sees as one of the biggest climate challenges facing our generation and therefore warranting its own conference within a conference, rather than a seminar presence only.

It was also a hot topic at the October Solar and Storage Show, where we were able to spend some time talking to well-known architect, TV presenter, campaigner and educator, George Clarke.

You might recognise him from programmes such as George Clarke's Amazing Spaces, Restoration Man, Old House New Home and Build a New Life in the Country but, when he's not on TV, George is busy advocating for high standards and consumer protection in the home improvement industry.

For a number of years, George has been a brand ambassador for HIES – the consumer protection organisation covering the installation

of renewable energy and home energy efficiency products.

He is working with HIES to 'ensure that consumers are respected, protected and educated on their home improvement journey'.

The whole issue of consumer protection was high on the agenda at the Solar and Storage Show as being absolutely integral to the success of the renewable energy transition.

Regardless of wider industry and political challenges, the transition ultimately relies on buy in from the individual homeowner (in the absence of political mandates).

The retrofit challenge

George said: "Generally we are doing great on the journey to renewable, but the biggest challenge I see is the retrofit market. It's something I am constantly pushing for, campaigning on and talking about. It's not easy at all, especially amid the cost-of-living crisis when people are struggling.

"Buildings also need to be fabric first. There's no point investing in green tech if a house doesn't have decent insulation, draft exclusion, double glazed windows and so on."

Education and trust

"Education is the most important thing ever. Once people are educated and aware, it's about having trust in the industry. I'm thinking about who do I talk to, who do I trust from a consumer point of view? That choice could be difficult and confusing.

"I knew I wanted to be an architect from quite a young age. I liked getting to know products and analysing my parents' council house. I remember really well when my parents wanted to get double glazing, probably in the mid to late 1980s. A guy came round, and he was totally charming and had the gift of the gab.

"He said he would call his boss to try and get a bigger discount – he probably didn't even call him – and when he came back there was another £500 knocked off. I urged my dad not to go ahead, I didn't trust him at all."

The role of the installer

We asked George how the installer fits into the equation and what part they can play in terms of the consumer experience.

He replied: "The biggest role for the installer is to be trustworthy and have high standards. You've got to care about your client. I've been in the building industry since I was a kid, and you can tell the contractors who really care. I was a building contractor, and we would always tell customers, if there's an issue, we will put it right, or help to, and that they should always just call us, no matter what.

"That was always our mantra. If there was a problem, we would either take responsibility, or try to help if it was related to product or something else.

"And that leads to more work too. One of the biggest reasons people will get work done on their home is through recommendation from family and friends. If you go to someone's house and they've had their windows done and they tell you the person who installed them is brilliant, you'll ask for their details straightaway. It's unbelievably important.

"Being a member of a consumer code like HIES is one of the ways installers can demonstrate that they care and want to build trust and respect high standards."

That personal recommendation was also found to be one of the main influencing factors over whether someone was willing to adopt low carbon heating in their home, in the UK Energy Research Centre's latest domestic heat survey.

Exploring attitudes towards low carbon heating technologies, a key finding of the survey was that 'having as little as one friend using a low carbon heating system significantly increases a person's willingness to adopt it themselves'. It is felt, therefore, that any increase in uptake of domestic renewable energy solutions might 'facilitate a snowball effect, multiplying public engagement and support'.

So, there's definitely food for thought for installers in terms of the importance of those individual relationships with customers and how their positive experiences can be leveraged to attract more work, perhaps through the medium of case studies and testimonials, as well the word of mouth that will happen naturally.

George concluded: "I am genuinely passionate about consumer protection. Especially with new tech, people want to know they are not being ripped off and that they are getting a high-quality product that is properly installed."

REI's Linda Ram with George Clarke at S&S Live

A RETROFIT JOURNEY
from customer to advisor

WE talk with Stuart Dyer, who has spent the last four years deep retrofitting his home, to hear about his experience and how it, ultimately, led to his current role within the sector.

An engineer by profession, Stuart's career followed a different direction to his self-professed energy geek passions which, for a long time, were consigned to 'hobby' status.

Stuart's fascination with energy blossomed alongside a career which included 'lots of 3D printing, material selection and other fun things'.

Until, that is, a few years ago, when Stuart stumbled across the vibrant Cambridge retrofit scene. With great groups set up to support those making the move to low carbon living, Stuart found plenty to feed his growing geek habit. Eco home tours of retrofitted and passive houses, and lectures organised in hired halls to bring together householders and installers, fed a hunger for the possibilities of retrofit.

With a head full of accumulated understanding, Stuart's own retrofit journey began around five or six years ago with a purchase of a 1930s property and designs on changing it 'a reasonable amount'.

Following this journey, the inevitable happened. Toward the end of 2023, Stuart left behind the world of machine learning for a more sustainable path as he joined Midsummer Energy making his passion for all things sustainable his profession.

"In my previous career we did some great things in developing new materials, but the joy went out of it as some of it was too oil company based. I went with my instincts and moved to something that's a lot more sustainable.

"I guess that makes me a climate quitter!"

Stuart takes up the retrofit story: "I put some plans together. My architect surveyed the house and drew up plans in 2018, and found the right builder to help make them a reality. The work itself has taken around a year and a bit to do.

"As an engineer myself, it was great to be involved from the start and my aim was to improve the energy efficiency as much as possible and deliver maximum air tightness.

We wanted to go for Passive House EnerPHit standard, with the AECB Standard as a fall back, so our architect built a PHPP base model and then was able to model different added insulation thicknesses and materials. This was useful later as we could also try out materials with lower embodied carbon, using PH Ribbon.

"It took three or four years from initial design, through me changing and evolving the ideas. We then approached five different builders.

"Three talked to us and, of the three, one never followed up – two did, but one pulled out just before the price was to be submitted – so it is tricky finding the right builder for retrofit.

"We started with outside work in June 2022, moved out into a house nearby, around August/September when the work broke through into the house, then moved back in in May 2023."

The project

"One key advantage we had was room for external wall insulation, with quite an overhang under the eaves, so we were able to fit 150 millimetres of external wall insulation.

"We ended up with two different types. The first was PIR – Kingspan Kooltherm – with a better U value, which can leave the joints visible, so the builder prefers to add a layer of EPS, which is very easy to work with.

"We debated replacing the suspended timber floors with highly insulated concrete and underfloor heating, but in the end decided to rip all the floors up to insulate underneath. We triple glazed the whole house and added an air source heat pump.

"Interestingly, as soon as you reduce energy loss and the energy use for heat, you become far more aware of the energy used for hot water, so we added a Showersave wastewater heat recovery system too.

"The heat pump we fitted is a Samsung HTQ and the architect recommended adding Homely to optimise the system which we did. It basically controls the system, to run it in the most efficient way and keep flow temperatures as low as possible.

"Now, through my work with Midsummer, I'm trialling some different set ups. One is to run the heat pump on cheap night tariffs. It preheats the house on the 7.5p per kWh tariff to take it above our desired comfort temperature. One of Homely's features is that it learns how the house heats and cools down, so it knows what temperature it needs to reach on the cheap tariff to achieve our desired 20 degrees for the evening.

"The other experiment we're doing is developing the system to take PV production into account.

"We have twenty-one 405W solar panels on the roof. I fitted an Eddi solar power diverter, but since Octopus changed their pricing, it makes more sense to export excess generation and get paid 15p per unit than it does to divert it to the DHW. We also have an EV, so the Zappi Charger can also soak up excess.

"One of our key objectives was to achieve the best possible airtightness so we also installed a Zehnder MVHR system which delivered an unexpected benefit. I'm not a great fan of built-in wardrobes, but my wife is, and she was delighted when they turned out to be a great way to hide the MVHR ducts!"

Q So, did you achieve the ultimate eco house?

"Well, we certainly got close.

We haven't quite achieved the airtightness we were hoping to. Below 3 is what we needed for the MVHR and we are at 2.11, which is excellent, but as the build progressed we couldn't fit the roof we'd planned on which had a knock on effect.

"The resulting delay meant that we couldn't do the airtightness testing we planned to do at first, second fix etc. As a result, we didn't get as airtight


Front before


Front after

as we would have liked.

"As I've mentioned, Cambridge is a fantastic place to live for support with retrofit. A neighbour built himself a ground source heat pump, as you do, and also built a fan that fits in the window and locates leaks for the builders to fill in as you go along. That helped us to achieve such a good result.

"The domestic hot water went into the loft along with the MVHR, so we moved all the insulation from floor level to roof level taking out the poor existing ceiling insulation that was there and using it between the floorboards – great for acoustic properties and better than throwing it away.

"We used around 200mm of glass fibre and PIR insulation in between and under the rafters, and then OSB boards under that. We covered it with airtightness tape and paint and taped quite a lot of the joints. We also used a lot of Passive Purple (an airtight, liquid, vapour-controlled membrane) in the roof, and still had to go around a number of times to find the holes. All the roof members move with wind pressure, opening up joints that have had AT paint.

"The airtightness barrier was designed to run in the roof (on the warm side of the roof insulation); there is no insulation or AT barrier in the bedroom ceilings. But we also have an airtight loft hatch – belt and braces. With the loft hatch closed, the air tightness improves to 1.77, if you include the Loft space in the volume.

"Achieving this has been hard work. Airtightness is clearly one of the biggest challenges in retrofit. In a perfect world we'd be almost perfectly airtight, a passive house, but it was hard to get down to that level."

Q How about storage?

"I didn't fit a battery, partly due to space and partly because we switched our dying diesel for an EV which effectively gives me a 60kWh battery sat on the drive – although bi-directional charging isn't yet readily available.

"With battery technology moving so quickly I decided to wait on that one."

Q It's a fast-moving sector, did anything change during the process?

"With my background in materials, I was keen to use as many eco materials as possible. In practice it wasn't always feasible due to cost, practicality or difficulty of acquisition. Interestingly, things like lead replacement materials are well advertised, but it can be a struggle to acquire them.

"When we dug up the garage floor to insulate underneath it, we looked at foamed glass insulation, but the cost quoted was a ridiculous £14k compared to a couple of hundred pounds for PIR.

"Similarly, I would have really liked to have used fibre insulation for the external wall insulation but, with 150 millimetres, I couldn't quite achieve the desired U-values. We did use glass fibre insulation between the roof rafters, and timber fibre insulation under the suspended timber floors – I had to argue that one with the architect!

"With ongoing work going into creating a circular economy so that expanded polystyrene and waste plastics can be reused/upcycled I am hopeful that, by the time someone's pulling the house apart, reuse may be possible."

Q What about summer?

"We've done a couple of things to allow for the heat of summer which may well be unnecessary. The Fakro rooflights have got see-through external blinds that cut out 85% of in-coming solar radiation, but, in any case, passive house guidance suggests keeping external windows below 20% of floor area.

"We can also run the air source heat pump backwards to cool the house and the underfloor heating, but we haven't needed that yet.

"What frustrates me slightly about overheating is that there are some very simple changes we could make to modern homes, at almost next to no cost, to stop them overheating, but we still design houses like greenhouses which is basically a failure of building design.

"If you bring the eves out slightly further, as we did, for example, with our Sun Room, then when the sun's high the sunlight doesn't get into the house, avoiding overheating."

Q How does it feel to live there?

"Our house varies so little in terms of temperature. It's great. It's amazing how clean and fresh the air is. The one thing I find strange is the silence of the heat pump."

Data gathering

"Now the retrofit is completed, we can help guide others. There is a lot of research going on in Cambridge and I've signed up with Parity Projects, who are building a model to provide performance guarantees for insulation and other energy efficiency improvements.

"They've fitted flow sensors to measure all of the domestic hot water and the heating.

"They also fitted CT clamps to the heat pump, six temperature sensors around the house and a weather station at the bottom of the garden to develop a greater understanding and enable better modelling.

"I am also hoping we can be a case study for the Cambridge Open Eco Homes https://cambridgecarbonfootprint.org/open-eco-homes-case-studies/, so we can spread the word.

"I am often asked about the financial perspective but, for me, it is more about comfort than it is about financial return.

"Even so, there will be quite a lot of savings and we've got rid of our gas supply, which I'm delighted about as I dislike fossil fuels intensely."

Q Did costs work out as you'd expected?

"We were slightly over-budget, but that was more down to me deciding to add extra elements along the way. My perspective was, if you're going to invest in something, then why not invest in your house?

"People decorate their houses, or fit new kitchens, because they want to live in a nice house with no expectation of a return on investment.

"That's my motivation – a lifestyle choice with no frustration about wasted energy – we hope to live here for at least the next 20-30 years.


Back before


Back after

Q You clearly have a huge passion for the project

"A lot of deep retrofits are done by engineers or geeky people who enjoy the project. I'd often find the builder and enjoy getting into the nitty gritty, working out all the options and deciding between us, with some good input from the architect, on a more cost-effective approach or one that performs better."

Q But with this type of experience relatively limited, it was a challenge to find someone with that knowledge, understanding and enthusiasm?

"I think that was the trickiest thing – finding a builder with experience of such things as airtightness. For new builds, there are those who are experienced in passive house design but it's not easy to create a passive house through retrofit.

"When you're renovating an existing house, sometimes you don't know what you're dealing with until you've got a hole in the ground, or you've lifted the floorboards."

Q Hindsight is a wonderful thing, but is there anything that you would do differently when you look back?

"That's a good question and you always learn from these projects.

"The main things were the airtightness and the roof of the Sun Room extension which was probably my biggest learn in the experience.

"The new roof system that we wanted is on display in the National Retrofit Centre and looked a great solution. I just assumed it would be straightforward to source which was a bit naïve.

"It was also hard to get agreement on the design details and that could have created warranty issues so, very late in construction, we swapped from the planned steel roof to a membrane which then rendered some of the roof design details unnecessary

"The delay disrupted the airtightness process so, in hindsight, I should have considered a few more options for the roof.

"Final decisions on the MVHR pipe runs also came through quite late, which meant that, in certain places, we have boxing that could have been avoided by using web joists to run the ducts through.

"I'll get it right next time," Stuart says with a smile in his voice.

"There's always more but the question is, how far do you go? At some point you have to just get it done. My family only have so much patience…"

Q What about schemes or grants?

"The Boiler Upgrade Scheme was certainly welcome for the heat pump, and it was the heat pump that first led to my path crossing with Midsummer which amuses me looking back because as I say, I've only started working with them in the last couple of months.

"As an engineer who loves getting into the details, I was checking the sizing of the heat pump and radiators and came across their Heatpunk software, which is free, and I could put my plans into that, fairly easily work out the heat loss of the property and say, hang on, these guys are telling me I need the 14kW heat pump, but I know I can quite happily have an 8kW one.

"Even when I was just looking around the Internet for details on heat pumps, I'd end up at Midsummer's website. So, it seems it I was destined to end up working with them!

Q You clearly have a huge amount of knowledge yourself from your own background but what about your average consumer – where do they find information?

"I guess I do have an advantage as an engineer so I could double check things with Midsummer's software for example.

"But that doesn't mean that other people can do that. There are a lot of resources available, but you might need a level of technical understanding to get into the details. In the perfect world we could turn to any builder, and they would know all this stuff but, unfortunately, it's not like that yet.

"There is still a lot of work to do – it is an industry wide issue and, having gone through the experience, it is great to see that Midsummer is part of the solution.

"We regularly have installers come on site for training by those whose products we sell. The knowledge is out there, and we need to get it into the hands of the installers so they can support the homeowner.

"At Midsummer we make sure we have a very knowledgeable team so they can explain all the technical details and help advise on product selection."

Q What is your role at Midsummer?

"I'm head of the sustainable heating team. Midsummer has predominantly been solar but, over the last three years, we have seen substantial growth in interest on the heating side and more PV installers moving into renewable heat.

"As a result, Midsummer is growing very rapidly, and I am here to assist with this growth on the heating side."

Q What will be the tipping point to accelerate the uptake of renewables?

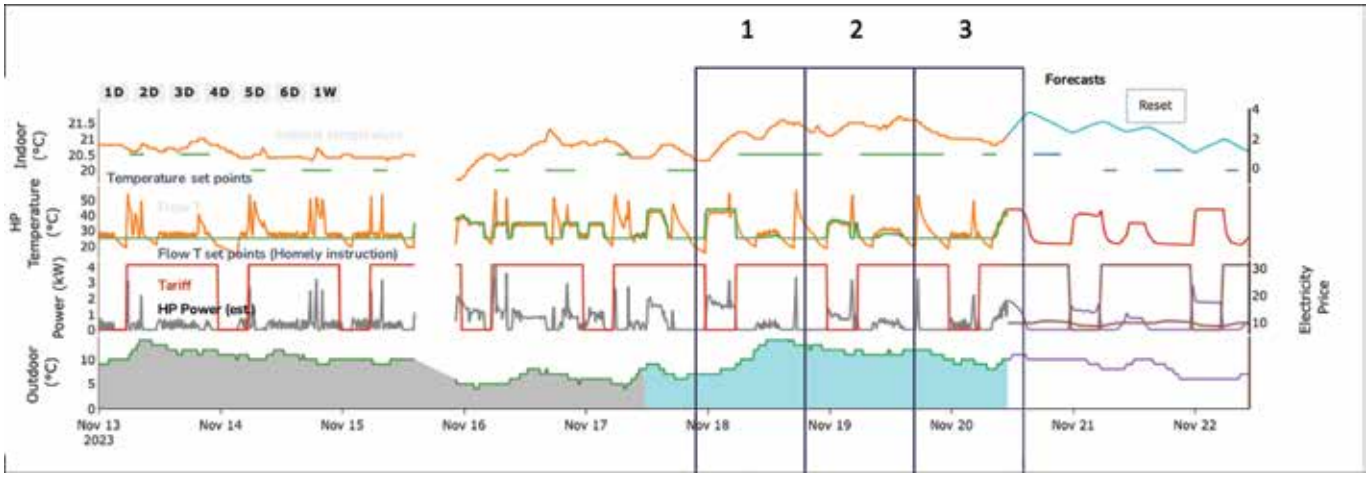
"It will take a while but, as heat pump COPs steadily rise with a better installer base, people will realise the myths are just that. As people realise that properly specified heat pumps systems are cheaper to run, then gas will naturally fall away."

Q You talk with enthusiasm about your desire to live in a comfortable home yet the drive for renewables has been more about doing the right thing, have we lost the message that it is a life improvement?

"Totally. If you look at any technology update, you've got the early adopters who do it because they're interested. Then you have those who feel it is a good thing to do. Then the laggards who don't want to change anything.

"I believe we're starting to transition from the geeks to those who will do it because it's the right thing to do from both a cost and environmental basis but moving to that mass adoption will still need government help.

"For me personally – it has been the best decision I could have taken."



Why the transition to EVs will stall without a properly trained workforce

AN accessible workforce of technicians qualified to work on electric vehicles (EVs) is as important to EV adoption as the availability of charging networks.

This was one of the main points raised during a presentation from the Institute of Motor Industry (IMI) at the last Solar and Storage Show.

The professional body for automotive says the industry is facing a significant shortfall in the number of qualified EV technicians needed and is campaigning to both attract new people into the sector and make it easier for internal combustion engine (ICE) vehicle technicians to retrain.

The latest IMI figures reveal only 20% of the UK aftermarket population is qualified to work, at some level, on electric vehicles, with just over 45,300 certified to the government-endorsed IMI TechSafe™ standard.

And the qualification rate is slowing, with a 36% year-on-year decline between 2022 and 2023. The IMI predicts the sector will need 107,000 EV-trained technicians by 2030, rising to 126,000 by 2032 and to 185,000 by 2035.

It says that, if current trends persist, there could be a shortfall in the number of people qualified to officially recognised standards of some 13,000 by 2032.

Several reasons were put forward to explain the shortfall and the declining uptake of EV certification.

Government delays to the ICE vehicle ban

In September last year, the Government delayed the ban on the manufacture of ICE vehicles by five years to 2035.

While this is not expected to delay the direction of travel for manufacturers, it does serve to further impact consumer buying confidence.

Delivering the presentation, IMI chief executive officer, Steve Nash, said: "We were doing well on the qualification front, but the government announcement took the impetus away. Yet the product plan of pretty much every manufacturer is electric."

Manufacturers are still working towards the zero emission vehicle (ZEV) mandate which states 50% of vehicles they produce must be electric by 2028, rising to 80% by 2030. This will naturally reduce the production of fossil fuel cars over the next decade anyway.

"All the Government has done is give customers another five years to make up their minds, which isn't particularly helpful. There's something like 30,000 independent operators out there and getting them to adopt the skills they need to work with electric vehicles is much more of a challenge," Steve added.

Lack of consumer confidence

The government delay, misinformation, and a lack of charging infrastructure are impacting consumer confidence, and this is reflected in the willingness of independent garages to adopt the skills they need to work with electric vehicles.

Steve commented: "Mixed messages only serve to stultify the commitment to training that is fundamental to safe roads and economic stability. People won't buy a car they think they can't fix or insure. People also have a misconception about how long a battery might last. That's why manufacturers are putting eight year warranties on the batteries alone.

"We also need to get more charging points and better ranges, but we are seeing advances. The rapid development of tech means many of the traditional objections to electrified vehicles are being taken away.

"But we need a competitive service network and that relies on smaller garages as well as the dealerships."

Reluctance to invest in skills

Another challenge to overcome is a lack of willingness and/or resources from the independent garages to invest in the training, particularly when workloads are already high.

Steve elaborated: "The general vehicle population is older now than it's ever been, so the independent garages are stuck with lots of work and a shortage of people – 24,000 vacancies – so they can't afford to be sending people on training courses.

"If an automotive employer and their workforce can't see the immediate ROI of EV training because of a lack of consumer buying confidence, the already critical skills gap will only widen.

"Independent garages will also be nervous about committing to training given that it may be some time before they see significant quantities of electrified vehicles coming through.

"It would help if the Government put some money behind helping people to get trained. We are in discussion with the Government about how they can support us, especially among the independent garages who now think they have 12 years before they need to worry about this."

Training for EV

There are various training avenues to explore, including the IMI TechSafe qualifications which are endorsed by OZEV. These cover qualifications for a range of job types with high-voltage vehicles.

The Hybrid and Electric Vehicle Repair Alliance Ltd (HEVRA) also supports training through its partnership with the RMI Academy of Automotive Skills.

The member scheme was founded in 2017 and vets garages for the right tools and qualifications to be able to service and repair electric and hybrid vehicles. It provides practical and technical support to help businesses through the EV training process. Customers can search on the HEVRA website for approved garages in their area.

The scheme currently has more than 320 members but is expecting significant growth this year. To join, technicians must hold a Level 3 qualification.

Craig Scragg, HEVRA technical services manager, said: "I agree with the IMI, there is a shortage of EV technicians, and we are going to need more, but there is still reluctance among some independent garage owners out there. It's often a general mindset about the concept of electric vehicles, but if a business is to survive for the long term, it's going to have to look at getting on board with it.

"We've done some figures, and we think we'll need another 200 members just for cars coming into the independent market this year.

"We'll support anyone who wants to start offering EV repair and maintenance services, including pointing them to training, putting things in place in the garage, technical support and promoting the fact they now offer EVs. People think there's a huge cost involved, but you can start smaller and grow the service in a more manageable way."

The view from independent garages

Kev Taylor, owner of Top Notch Vehicle Repairs in Tamworth, has been servicing vehicles since 1992 and is currently pitched in the yet-to-be-convinced camp.

"I just don't see that electric is going to take off completely and I definitely won't be spending any money on training to work on EVs," he said. "We do some work on hybrid vehicles, but we don't touch the batteries, I think that should be a dealership job.

"We should be getting rid of diesel, but I think it will be hydrogen that catches on. And we have a long way to go before there are no fuel engines out there for us to work on.

"I'd also expect people buying electric vehicles to change them every few years when their warranties run out, before they need to worry about having to replace the batteries."

Firmly in the EV camp is Matt Cleevely, who set up a specialist EV arm of his family's long-standing mechanics business in 2018 after completing his Level 4 training.

Cheltenham-based Cleevely Motors has been trading since 1962, and it was down to Matt's interest in renewable technology, and a desire to protect the company for the future, that he decided to go down the electric route.

'Workload has rocketed'

Matt bought his first electric vehicle and later set up Cleevely EV to provide services for EV owners, by EV owners. Growth has been rapid, with electric and hybrid now accounting for around 40% of the business, which services and repairs around 20 to 25 vehicles every day overall.

Matt said: "We had the aim of being the best independent specialist in the Gloucestershire area for EVs, but the workload rocketed, and we were soon attracting customers from across the country. We went from a small business with four or five employees, to a group of three companies and 19 members of staff, including nine Level 4 EV technicians."

Expansion included setting up a mobile business to service demand from drivers up and down the country, designing in-house repairs to specific vehicle issues and supplying EV parts.

"We have gone the extra mile to fill a hole in the aftercare market in terms of service, specialist knowledge, parts and repairs," Matt said.

He now gives talks at other independent garages to provide help and advice on how to make the move into EVs.

"There is a fear of change, and a lot of scaremongering from the mass media. But you can't stick your head in the sand; electric vehicles are here to stay and there is money to be made. Already there are not enough technicians in the dealerships. And, despite what the tool manufacturers might tell you, it is possible to start working on EVs with a modest number of tools. The training isn't cost prohibitive either."

What do you think? We'd love to get your views on this topic. Please email: **linda@renewableenergyinstaller.co.uk.**

Heat Geek's Adam Chapman:

"buckle up for the ride!"

AS the founder of online learning platform Heat Geek – the go-to resource for both end users and installers, Adam Chapman is at the forefront of the industry. We asked him about his path to date, and his thoughts on the big things coming for the future of heat pumps.

Q Talk us through the development of the business from those hopeful beginnings

My journey as a business owner in the heating industry began at 23, right after completing my apprenticeship. Now, reflecting at 38, I definitely started with a burning desire to demonstrate my value and establish myself as the top choice to every individual customer. This is something I still feel today, although the customers are different.

However, there was a problem. Being asked difficult questions from consumers, yet not seeing any comprehensive, accessible or consumable resources, especially being dyslexic, meant I couldn't answer them. I could see that there was a HUGE void for a final investigative resource in this industry! Knowing efficiency and climate matters were only going to increase in both importance and urgency I always thought it was absolutely MENTAL that a Heat Geek type of resource didn't already exist! I saw it as a place for complex and useful information that could save consumers money, and increase the value of an engineer willing to upskill, expressed in an easily consumable and entertaining way. Consumable and entertaining were particularly important to me, as someone with dyslexia.

I've been part of the forums, the community and knowledge sharing, for 15 years since the official launch of the Heat Geek blog, and then the YouTube channel in 2016 (after an attempt at a not-for-profit knowledge sharing platform/ association called EcoTechnicians).

I always like to stay malleable as a business and shape the solution to the users' needs, rather than pin everything in one offer, or fitting a square peg in a round hole. So training, then an MCS umbrella, then digital tooling seemed obvious as each customer need became apparent.

Q What have been the main milestones?

I will always remember pouring my heart and soul into the training and, on launch day, not actually knowing if anyone would purchase it. I had taken on three staff for what was, essentially, a blog and a YouTube channel with 2,000 subscribers, making 30p a month. Sending the pre-sale purchase page live even though I hadn't even fully finished the course, and having these new employees sat around the table with me, all with huge anticipation, while I desperately utilised the social media network that I'd worked tirelessly to create over the previous eight years, is a moment I'll never forget. Then bang: the first sale, the second, the third to 10th, all within a few minutes! I grabbed my wallet and sent a new staff member straight down the off-licence a few doors down! We bloody did it!

I always knew that once we had people taking the course, we were high and dry, because the information in there was, and still is, an absolute gold mine. I'm very proud of how far ahead of the curve I was at the time. I don't have quite the same lead anymore, as I have to focus on the business so much more now that I simply don't have the time, but there's no doubt that we lead the conversation, in my mind at least – and many others, too.

Since then, it's been milestone after milestone, to be honest! It all stems from that most important one, though.

Q Where does your drive come from?

As an undiagnosed dyslexic/ADHD child, I always had a huge curiosity about how things worked. Not being able to express that in a written way meant my hand was always up in science, yet I was penalised due to not being able to write a thesis. This meant I left school with sweet nothing. This is something you'll hear me bang on about a lot, but it really underpins a lot of Heat Geek's core values: illustrations and imagery, no big walls of text, simple language etc.

ADHD comes with another superpower, though. Hyper-focus. I have the ability (and curse) to spend days fixated on a problem until I've fixed it. It's like an insatiable appetite to solve a puzzle. Many engineers have this dyslexic/ADHD trait that also makes out-of-the box thinking extremely easy and natural for them, yet many have no idea that they may have these conditions. If this sounds familiar to anyone reading, I urge you to get

tested or read up on it! You may have been raised being told you are much less capable than you really are, but, in reality, you are one of the people that can innovate and change the world! School was just not set up for us, and it's really very sad.

Q How have you gone about driving up energy efficiency in the industry?

One word: education. Education for installers, but also videos and resources for them to send to customers. Customers will spend more on solutions, they just need informing and educating on what the value is. It's a double-pronged attack that means the installers make more, the customers save more over time, and more carbon is saved!

Q What makes Heat Geek special?

Three things:

1 We are a support network, not (just) a course. Unlike other training where you turn up for three days and leave, never to speak again, our course is simply an entry into the wider community, and a way of ensuring we all speak the same language. The real value happens on site, when you get stuck. You have a whole army of other heat geeks waiting to help you and answer questions, because they want their brand upheld.

2 Our main difference is the questioning. Although you have unlimited attempts, we require a 100% pass mark, and the questions are designed to make sure you absolutely understand the subject. Our certification isn't just an 'attendance course', we want it to actually stand for something. This is something that's missing from training in our industry these days, unfortunately.

3 It's all online! Plumbers have been connecting pipework for centuries. Installers already know how to join pipe up, and a heat pump is typically a sealed box with two connections! The important part is the system that's connected to the box, not the box itself, and that heating design theory is all stuff that can be done online. There is no 'I only learn with hands-on' approach, you can't size pipework or a pump with your hands. You need a calculator! This means the engineer doesn't have to lose days' wages or spend money burning diesel driving miles away to upskill. It also means, importantly, that they can learn in their own pace. Show me a class of 30 people who learn an in-depth subject in three days, and I'll show you 15 people who didn't understand it and 15 people who didn't need to be there three days. And those numbers will change for each day too. Our online approach allows tailored learning.

Q With all of the experience and industry knowledge you have now, where do you feel your focus is best directed to get results?

1. Digital tooling and finance.

It's no secret that the savings from a heat pump can pay for the install if it's installed properly – more on that shortly. We're building that bridge and an assurance for the lender that it's going to be installed properly due to our platform, network, and code of conduct, meaning we will be able to get great rates.

2. Helping to reduce the workload.

We're moving to heat pumps, whether gas engineers want to or not. It's an arduous, painful, and paperwork-heavy job which, as I mentioned earlier, installers probably aren't well suited to. These installers should be focused on the bit they should be doing, which is earning money installing, not unnecessary calculations and paperwork. Don't get me wrong, they should understand how and why to do the calculations, but that doesn't mean they should be doing the immense repetitive stuff revolving a heat pump installation.

Q What is happening with demand?

A few things have driven up demand. Heat pump controls, refrigerants and system design training have all driven up heat pump efficiencies, meaning more people 'believe' they work. The main bottleneck has always been installers, and demand has always been hindered by lack of supply. Installers now have much more access to information online, in whatever format that gives them the comfort they need to take the perceived risk.

Q How would you encourage more installers to enter the sector or to upskill from traditional tech?

There's a huge benefit to getting in early. Get in any industry during rapid growth phase and your company will be scaled up rapidly with it! It's a huge opportunity for you to build a high value business to sell later and have a retirement fund that's larger than your house! Staying in boilers will do the opposite of that. With that you can earn more money, and/or achieve a better life/work balance (something we could all do with, I'm sure).

Q Any thoughts on recent government announcements and net zero strategies?

I feel like they finally get it. We've been screaming out for improved training alongside things like subsidies for 15 years now. There's more to be implemented yet, but I feel like they are on board. It's been a bloody long and frustrating journey watching them slowly come over, and I wish they'd have listened to the boots on the ground earlier, but, from their perspective, how do they know who's right? And I think everyone in this trade thinks they're right, even the ones who are wrong.

Q What is needed to drive energy efficiency and uptake?

More installers. Customers need them, and installers need competent staff to grow their businesses! This is something we're looking at helping with.

Q How do you think we can overcome industry challenges?

Apprenticeships. We can overcome this with a digital solution. Watch this space!

Q What are your thoughts on the industry future?

Perhaps the same as the above [more installers and apprenticeships], but let's assume those two key aspects are sorted.

1. System efficiency – we now guarantee our quoted heat pump system efficiencies and average a SCOP of 4.2 and counting.

2. Tariffs – See our recent collaboration with OVO energy and Heat Pump Plus which only charges 15p/kWh of electricity.

Finance will be the unlock for this thing to go absolutely insane. Two words – buckle up!

Introducing SpeedFlash®

the launch product that is revolutionising solar installations on slate roofs.

SPEEDFLASH®, the latest product launch from Genius Roof Solutions, streamlines solar installations on slate roofs with a quick, 'no-drill through slate' method that preserves roof integrity and improves both speed and ease of installation.

Genius Roof Solutions is a family-run business driven by innovation, whose founder, Jimmy Hall, has introduced revolutionary products inspired by real-world challenges.

"SpeedFlash has our engineers hooked! This revolutionary piece of kit has been a game changer on our installations, halving the amount of time required to install the mounting kit while retaining the roof's integrity better than ever.
SpeedFlash eliminates the need to remove any slates, and the installation tool protects the surrounding roof covering to allow for damage-free grinding. Using a hassle-free hook to secure it in place, SpeedFlash minimises slate disturbance while ensuring incredible durability and is compatible with countless manufacturers. This innovative new design exhibits everything Genius Roofing Solutions are known for; superb quality, exceptional durability and dedication to better the solar industry. SpeedFlash really is Genius."

GLEN FLANAGAN OF EE RENEWABLES

The forerunner – SolarFlash

Jimmy's quest for simpler, time-saving solutions has led to the design of products that have become indispensable. SolarFlash, the forerunner to the new launch, was the result of chance remark by an installer who highlighted the need for a flashing solution for solar PV installations.

Jimmy is a roofer with over 50 years' experience and the comment got him thinking. Roofs were not designed with solar in mind, so a solution was needed to bridge the gap between the desire to install solar pv panels and the need to maintain a roof's integrity.

The only methods available at that time were either hanger bolts (drilling through the roofing material) or lead – neither compatible with maintaining roof integrity. With the lead touching both the bracket and the roofing material, any movement of the bracket is not independent of the roofing material and drilling exposes the roof to cracking, risk of moisture, moss growth and leaks so Jimmy sought a new solution.

After a few weeks in his workshop, and a few sleepless nights, he came up with a concept that enables the installer to maintain roof integrity.

The product, SolarFlash®, is a plastic flashing solution which ensures the weather tightness of the roof when refitting slates or tiles around a panel mounting bracket affixed to the rafter.

Over the past 12 years, the SolarFlash® method has become considered by installers as 'the right way' to install solar pv on slate roofs. Although it can take longer than short cut methods, competent installers and roofers opt for SolarFlash® to avoid the risk of call backs or damage to their customer's roof, as well as to their own reputation.

Increasing numbers of installers proudly share their work on social media platforms and, when new installers and homeowners ask for advice, the SolarFlash® is almost always recommended. Despite this, slate roofs remain notorious for being tricky and time consuming with some companies opting to avoid solar installs on slate roofs altogether.

With continuous improvement a key company objective, Genius Roof Solutions tasked themselves with further alleviating slate roof challenges by developing an updated and quicker version of the SolarFlash® and the SpeedFlash was born.

SpeedFlash® – waterproof flashing for slates

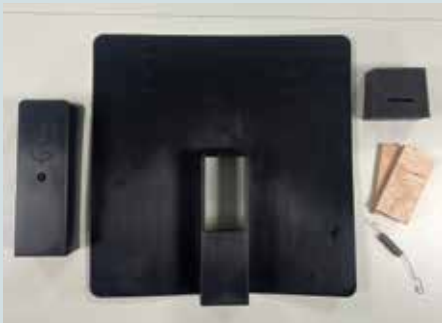
Another inspired Jimmy Hall design, the SpeedFlash® builds on the hugely successful SolarFlash®, but, unlike its predecessor, does not require the removal of any slates. This significantly reduces both the installation time and the need for roofing experience.

It retains all the benefits of the SolarFlash® with no requirement for drilling, avoidance of load bearing and preventing water ingress, but significantly speeds up installation.

Initial feedback and demonstrations demonstrate that the SpeedFlash® installation method is approximately 60% faster, on retrofit slate roofs, than the SolarFlash®.

Each SpeedFlash® kit includes:

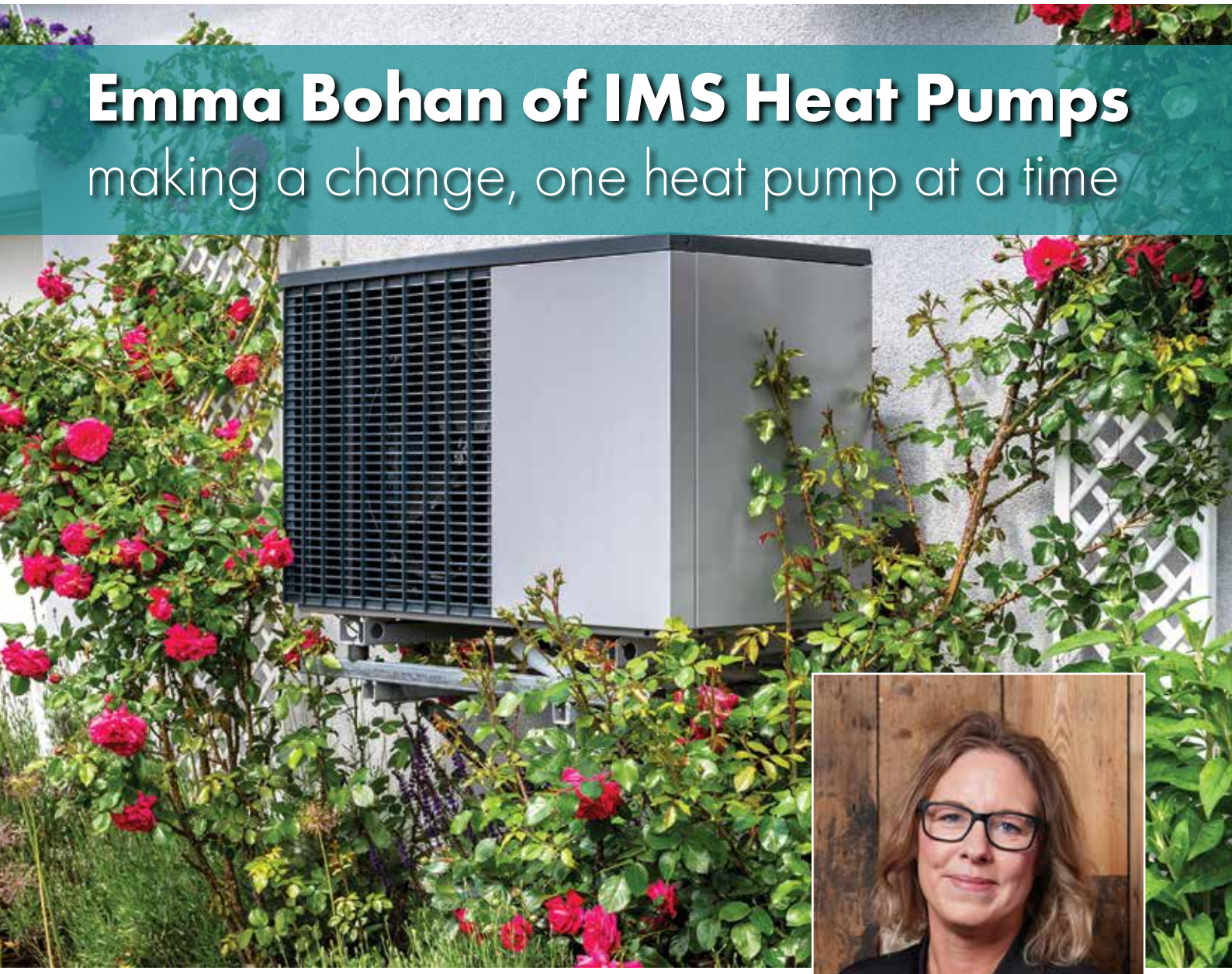
- 1 SpeedFlash® Base and Cap
- 2 x Shims (packings)
- 1x Foam insert
- 1 x Spring support
- A galvanised steel tool is used to protect the slates on the second course.



The SpeedFlash® streamlines solar installations on slate roofs with a quick, 'no drill through slate' method that preserves roof integrity. Ideal for 18" plus slates, it minimises the need for slate removal. Not recommended for 4" headlap composite slates.

Emma Bohan of IMS Heat Pumps

making a change, one heat pump at a time



EMMA Bohan first came across heat pumps in Sheffield in 2001, when she was working for a business development consultancy specialising in environmentally friendly technologies. Through this, she met Alan Donald and his colleagues, and advised them as they formed a company which eventually become IMS Heating Solutions Ltd. After a few years as a Business Operations Manager and then Managing Director for another heat pump Company, Emma joined IMS Heat Pumps in 2019. She's now MD of the company, one of the leading installers of ground source and air source heat pumps in Scotland, the North and the Midlands.

We spoke to Emma about her mission to make a change, one heat pump at a time, and to get her honest views about an industry she is passionate about.

Q The heat pump targets are pretty huge. How can the sector meet these?

My motto is 'One heat pump at a time'. That's all we can focus on; do that one, do it right. Make sure that that client's happy, they'll tell somebody else and so on. That's how we'll get to one hundred at a time, two hundred at a time.

There's so much more that should be being done by our government and others. It just frustrates me, the lack of interest. They're giving grants for heat pumps, but still not raising awareness, and then stand up in Parliament or are quoted on the BBC saying things that are not true.

I often laugh and say, Boris 'word salad-ed' out '600,000 heat pumps'. Where did that come from? (It came from the ECC who are, at least, trying to get the Government to do the right thing.)

But I did some quick calculations because I like numbers.

At the end of the Domestic RHI, in 2022, there were 1,400 MCS registered heat pump installers. Those 1,400 registered over 8,000 heat pumps in the March of 2022.

There were big warnings to business owners about 'gaming the system' and 'wholesale fraud', because that's what they were expecting, but, unless they are covering that up, that hasn't happened. But let's just say, for argument's sake, 1,000 of those recorded heat pumps were [somehow fraudulent]. You've still got 7,500 heat pumps installed by 1,400 installers [in a month]. So, that's 90,000 heat pumps in a year – almost a sixth of the government target. We're not actually doing anything like that – I think we did 30,000 last year. But that's what we could do.

There are now 1800, 1900 MCS installers, so people are joining the party. The current installer base could do 100,000 a year, if the awareness was around. But it's not. So, we need higher awareness and better funding.

Q What has gone wrong?

[When] heat pumps fell out of Boris's mouth, and the 'green agenda' was his key message, that meant awareness was massive. That was when we had the RHI, a much better funding regime. Yes, you had to pay for it up front, but you got £11-12,000 back on your air source and £35-36,000 on your ground source, if you were maxing out the grant. You also had the Green Homes Grant Voucher Scheme which meant you got £5-10,000 off your bill up front, and you could still claim any difference back from the RHR.

In 2019 it was a smaller market, but we felt the change coming. David Attenborough had become a national treasure, with his Planet Earth series, and everybody was waking up, Just Stop Oil and other climate change activists were protesting about everything, and Greta Thunberg was on the scene. It felt like there was a distinct move. And there was a lot of policy stuff coming out again, post the Green Homes Grant: taking the gas boiler off the wall, Future Homes Standards, heating bills, heat and building strategy, grants. So much stuff was being talked about and written about, you just felt something was going to happen. 2020 was huge in terms of the awareness, and then it all just fell off.

When people knew about the schemes and the funding available, so many heat pumps were sold and installed, it was insane.

Q How can that mass awareness be built?

People are looking at the gas guys and going, "Why don't you want to get into heat pumps?", and the gas guy's going, "Because we can't see the market."

There needs to be a public information campaign. We had one about getting your TV digital-ready, we were blasted with it: "You'll die because you'll not be able to get Eastenders if you're not digital ready." We saw the same with the Millennium Bug, AIDs. It can be done.

On LinkedIn someone was talking about when they were bringing in town gas, they had roadshows showing people what a cooker looked like with gas coming out of it. We haven't had any of that. There's nothing to counteract what people have read in the 'Torygraph' or the Daily Mail, which is the same as what Paul in pub has told them [about Heat Pumps]: 'They don't work, they're too expensive, you'll be freezing, and it's all about net zero and that weirdo, Greta Thunberg'.

There are a lot of people in this country like that. It means nothing to them, and we haven't got a plan to appeal to them; we haven't got plans to talk to them.

There's a whole bunch of stuff that needs a simplified message for the consumer to engage with but, specifically, it needs to come from the Government, or a trusted voice.

What we need is a clear path, without the bombs being thrown at us, we need the highway lit up. And we need to see it for the next five years. And people will strategize on that, businesses will transition from gas to heat pumps. Because, if you build the awareness, the client starts asking the plumber, "I want a heat pump, what do you say?" The plumber starts getting on board because the messaging is saying it's a positive thing to do, and you make a bit more money doing it. And if you don't do it, you're going to be a fossil fuel yourself, you'd be a dinosaur. But if you're coming into this market [for the first time], you don't want to be fixing steam trains, you want to be installing fast electric super trains. It's the same kind of thing.

As a nation, we have always pulled our socks up to deliver what we need. Think what you want about COVID, but it proved it: the action that happened, the partnerships that were formed, the things that were delivered, and the fast action from different industries to get things done. Because the Government was saying "It's a priority, it's an emergency, it needs to happen." We kind of need that war effort feeling behind it, giving it our 100% backing. And if you build it, they will come.

Q What is most exciting about the industry?

It does feel buzzing. The industry was always quite small, and it's still very friendly. Nobody is competition, really, as there's enough of work to go around. And it's exciting to see new things happen, you know, the Airas of the world, and the Octopus, the EDFs, and all of these coming into the industry. It's exciting seeing what they're going to do because they are marketing it and they've got budget so, if they're marketing it, it's good for everybody else. They're saying, "get on board" and the trickle down for that is that we will pick up more work.

Q Can you talk about being a woman in the sector? "

It's interesting. My husband bought me Mishal Husain's book recently [The Skills: From First Job to Dream Job – What Every Woman Needs to Know] and it starts off by talking about competence and confidence. What I'm really feeling is imposter syndrome. The thing about the construction industry is that it is male dominated, but there are a lot of cool women doing some cool stuff.

It's a construction industry-wide challenge. The fact that only 2% of women are in construction is just diabolical. There are only 2% of women on the tools, and I'd take one tomorrow [if they applied for a job], but I've only ever seen four CVs [from women]. Three of them were not in our area, and one got over-offered to stay where she was. But that's in eight years of working in heat pumps.

The women in the industry tend to be in my position. I'm not a plumber, I'm not a sparky, I'm not a brickie, I've not come out of that industry. I'm a businesswoman who wants to do a good job. The majority of the women in my position tend to not have an engineering background. But, out in the big world, it's all about your technical prowess, that's their language. However, there are brilliant women out there who do know their stuff. And the guys in the industry that I've come across have always been very supportive, very helpful, and they do really talk to you on an equal level.

But we [women] are banding together, there are a lot more of us now. It's going to be interesting to see how the industry – construction and heating, plumbing, heat pumps – react. It's all wave after wave after #MeToo, it's another round of women's rights and equality. And the fact is, the construction industry needs to wake up and look at how it advertises itself as a career path for women.

Q What would you say to those considering moving into the industry?

I spend a significant amount of time rolling my eyes at the fact that they [the Government] have made university the de facto educational route or choice for everybody. They've done the construction and related trades and massive disservice over the last three generations by taking people who would have ordinarily gone into trade and making them go and get a 2:1 in marketing, or whatever, that's given them debt and no real career prospects. But because of that, we might now see a shift towards trades. I've got 22- and 23-year-olds earning £30,000 a year; there's good money to be earned here.

We are here to stay. If you are looking for a job for life, you can't go wrong by choosing a career in heat pumps, whether that's an office job, project coordinator, finance. With the green economy and the green skill set, it's the same jobs but just in a different sector. But you've got to have an interest in learning about the technology as well, because it's not [one size fits all].

Our motto is that everybody has to be able to have at least a minimum level of conversation about the products that we sell. If someone calls up and says, "I just wanted to know, what's the difference between air source and ground source?", everybody in the business should be able to answer that, and about related industries: solar, PV, batteries, groundwork, heat networks.

There are so many things happening, there are definitely worse industries to be a part of!

The role of the Smart Export Guarantee: four years on

INTRODUCED in January 2020 in an attempt to boost the domestic solar PV market following the abolition of the government's Feed-in-Tariffs nine months earlier, the Smart Export Guarantee (SEG) is about to enter its fourth year. It lets small-scale generators (i.e. individual households) get paid for the renewable energy they export to the grid. This applies to electricity generated from wind, hydro, anaerobic digestion and micro combined heat and power, as well as solar PV. But is the SEG still relevant today?

This was one of the topics up for debate during the recent Solar & Storage Show held at the NEC in Birmingham. The issue was explored by Brian Horne of the Energy Saving Trust, Jordan Dilworth of The REA and Solar Energy UK's Chris Hewett.

Smart Export Guarantee latest stats

Ofgem has now issued three annual reports looking at SEG; the latest of which was published at the end of September and covered the period April 1, 2022, to March 31, 2023.

It said there had been 92,946 installations during that period that were registered to a SEG tariff, up significantly from 34,020 the year before. This refers to any installations that have been registered, reported export or received a SEG payment at any point during the SEG year. Due to the way the figures are recorded, it also means that if someone switches tariffs during the year, they will be double counted.

According to data analysis by the Energy Saving Trust, 250,000 new renewable energy installations were completed in a similar time frame, which would suggest that despite the significant rise, the majority of domestic installations are still not receiving a SEG.

A total of 39 tariffs were offered by the 14 SEG licensees, up from 35 the previous year and 21 in the first year.

The majority of the tariffs (24) were unbundled – as in available to any eligible installation – and 15 were bundled, which means they were reliant on other conditions being met, such as buying electricity from that particular provider.

The average tariff received by small-scale electricity generators has fluctuated from 4.34p/kWh in year one, to 12.15p in year two, to 8.77p/kWh in year three.

The role of SEG today

While SEG initially had a role to play in filling a hole that was left by the feed-in tariffs, its purpose today is less clear, particularly given that more

than half of those who are generating electricity on a small scale (up to and including 50kw in size) are not receiving it.

Some possible reasons for this were explored during the panel discussion, including the increase in battery storage, the range of flexible schemes and tariffs available anyway, how much energy suppliers understand and appreciate the value of the SEG, and difficulties around getting SEG in social housing.

Battery storage and the SEG

Where people have battery energy storage systems as part of their renewable installations, SEG isn't as straightforward. Energy suppliers don't have to pay for grid electricity that has been stored in a battery (known as brown electricity), although some choose to.

Others may only pay for the green energy that has been generated and might ask for this to be separated out, which could be problematic.

SEG in social housing

Another issue which was raised from the audience was the difficulty in getting smart export guarantees set up in social housing.

Chris Clark of EMTEC Energy asked: "Could SEG not be working because of the way it's set up? For example, it's almost impossible for local authorities to access SEG because they own the asset but the tenant controls it. Many millions are being wasted because of this. I've spent three years trying to resolve this…..maybe getting access to SEG would lead to more installs by social landlords."

Brian Horne confirmed that two thirds of the installs not using SEG are in social housing. He said it's unclear as to how this can be resolved as it's not at the top of people's agendas, but unlinking the tariff from the asset somehow could be a solution to explore.

Energy suppliers

Under the Smart Export Guarantee, all licensed energy companies with 150,000 or more customers must provide at least one SEG tariff that is open to everyone, while smaller suppliers can choose to on a voluntary basis.

There are no parameters other than the tariff must be greater than zero at all times. It means some suppliers might offer just one tariff on a low rate.

Commitment to the scheme from suppliers was also questioned.

The Ofgem report showed Octopus had the broadest range of tariffs available and the highest number of registrations, accounting for 67% of the total SEG installations.

MCS certification

Currently, the technology and installer used by households must be certified by MCS or equivalent to qualify for a SEG tariff.

Panellists were asked whether they thought this could be a reason why a minority of installations are registered with SEG, but none felt this was the case.

MCS has seen record numbers of batteries being installed alongside solar PV each month since it introduced the battery storage standard and started measuring installs. This could also suggest that people are more invested in decarbonising their homes and becoming fully energy independent, than relying on being able to sell energy to the grid.

Commenting on this aspect, MCS CEO, Ian Rippin, said: "We now live in a post-subsidy world where home solar energy users can save money without having to rely on incentives. Installing an efficient, competently installed, certified system is an affordable way to take control of your energy, reduce your bills, and decrease your carbon footprint. With the enormous growth in battery storage systems we've seen in recent years and the advancements in home energy solutions like EV chargers empowering homeowners to use the energy they generate at home in more and more ways, there's never been a better time to invest in your net zero future."

After the discussion, the panellists summed up their views:

Brian Horne, technical knowledge lead at Energy Saving Trust

"The Smart Export Guarantee may have provided some additional incentives to support continuing domestic PV installations following the end of the feed-in tariff in April 2019.

"However, the increase in electricity prices seen in the past two years, alongside the increased availability of battery storage and multiple flexible or variable tariff options, mean that the current SEG regulations are no longer relevant, despite the fact that many of these new tariffs are classified as SEG tariffs.

"The SEG has had no impact on any renewable generation technology, other than solar PV, which limits it further."

Chris Hewett, Solar Energy UK chief executive

"It is pretty clear that change is needed to the Smart Export Guarantee. Although it is fair that the main benefit of rooftop solar comes from cutting bills, rather than from exporting power to the grid, rates from some energy suppliers are absurdly low.

"But more needs to change than the rates available: the customer and installer experience leaves a lot to be desired. There are inconsistencies in suppliers' approaches to grid connection paperwork, the rules governing installations above 50 kilowatts are confusing and there is plenty of room for improvement in customer service, too. This all results in a messy experience for solar buyers, so we think standardising the application process could be the answer," he added.

Jordan Dilworth, policy analyst for power and flexibility at the REA

"Since the energy crisis, the SEG does not feature as strongly in the consumer case for installing solar panels due to consumers being primarily motivated to cut the cost of energy bills by installing a renewable generation system.

"However, the SEG still represents a valuable route to market in the long term. Reforms to the SEG, such as longer contracts and increased parity between the wholesale price of energy and value of exporting energy back to the grid, could improve the consumer case for domestic renewable generation, thereby increasing the deployment of rooftop solar deployment."

Perfect Sense Energy: sustainability is at the forefront of what we do

MANCHESTER-based Perfect Sense Energy was founded in 2010. The commercial solar company has a strong desire to make a difference, and provides businesses with ethical renewable energy. Claudia Weeks, writing for Renewable Energy Installer, spoke with Managing Director Gary Brandwood, to learn more about the development of the business and plans for the future.

Renewable energy solutions

"Since its formation in 2010, Perfect Sense Energy has developed a strong reputation in the industry using extensive experience to assess, identify, design and deliver energy-saving and renewable energy solutions," Gary began. "We built very solid foundations by forming a highly experienced team. The last four years have been both tumultuous and challenging, whilst also allowing us to scale and achieve exceptional growth.

"Originally it was just me for a good few years, then we hired Charlotte Reynolds, at the start of 2015, who is now our Head of Business Support. Ryan Thomas (originally an apprentice now Technical Manager) followed with Ian Marr joining in 2017 and now Head of Sales.

"As with all small businesses, everyone mucked in to get the jobs done. We have now grown to 28 staff within the Perfect Sense Energy team and 40 in the group, which includes the electrical contracting and scaffolding teams.

"We bought our first premises in 2017 which were oversized at the time for the seven employees. However, that was when our growth really kicked off and, in 2023, we acquired our new HQ business centre to accommodate our group staff of over 40 employees!

"The last three years have seen turnover increase by 200% each year with staff numbers roughly doubling each year as well. We have gone from a £1m turnover company in 2019/20 to a £9m turnover company now. Buying our new £900k HQ and installing our first 1MW rooftop are the two stand-out milestones for me."

The CIS Tower in Manchester

The CIS Tower in Manchester was formerly one of the country's tallest buildings. It remained as built for over 40 years until maintenance issues on the service tower meant an extensive renovation was required. The work carried out included covering three sides of the skyscraper's exterior in solar panels.

For many years, the CIS Tower was Europe's largest vertical solar array. The electricity generated contributes to powering the building's 25 floors where over 4,000 people work, and numerous restaurants are found. 5,000 solar panels covered 3,200 square meters with a total output of 391kW, generating 180,000kWh of electricity.

Gary explains why the CIS Tower is so significant to Perfect Energy: "The CIS solar installation sparked my interest in Solar PV. I worked at Co-op Insurance HQ around the time the tower had its solar installed. At that time, it was the largest vertically mounted PV system in Europe and was opened by the Prime Minister at the time, Tony Blair.

"Shortly after this, a financial crash came in 2008/09 and I was made redundant along with approx. 3000 others from the Co-Op. Taking the opportunity to change career direction, I turned my focus to climate change and making a positive difference. I am profoundly grateful to those pioneers who chose to pursue the sustainability path at the Cooperative Group before it was fashionable as they influenced me to dedicate my career to renewable energy."

The need for rapid workforce growth

With the need for rapid growth in the installer workforce, Claudia asked Gary for his thoughts on how we can encourage new installers to enter the sector or to upskill from traditional tech. "This a conversation we have had with our friends at Solis Inverters, Green Economy and Pro-Manchester recently," Gary shared. "And something we have spoken about with our peers on the Net Zero Future Leaders Programme, which was kindly sponsored by MCS.

"Visibility and access are needed; there is a huge skill and experience gap currently and the bottom line is that, without more boots on the ground, we will fall short of renewables targets.

"There needs to be deeper collaboration between education establishments and renewable installation businesses. The pathways and routes to skill acquisition need to be clearer and shouted about more – they can still be quite murky at times. Renewable roles currently get bundled with general electrical routes to market but should really stand on their own."

Sustainability at the forefront

Gary explained more about the company's growth: "Perfect Sense Energy offers a range of solutions, such as LED, EV chargers, smart controls, infrared heating, and battery storage that are tailored to the client's needs and sit alongside their solar system.

"Solar is our focus but when we started out over 70% of our work was LED lighting upgrade projects which was the lowest hanging fruit for many at the time. Over time this has phased down and now over 90% of our revenue is related to solar installation and maintenance contracts."

Perfect Sense Energy offers sustainable solutions to businesses and organisations. "We work in partnership with a lot of great organisations to support them and their clients on their solar journey. We also get a lot of business from existing customer referrals; it helps that solar is highly visible and businesses like to shout about the environmentally positive changes they have made.

"We pride ourselves on giving the best advice for the client; if the system is not right for them, or a better option exists, we will always share that information. We also operate very ethically with a robust supply chain and audit process, and we practice what we preach with our own commitments to net zero. Naturally, sustainability is at the forefront of what we do, and underpins every decision we make.

Government strategy

Asked for his thoughts on recent government announcements and net zero strategies, Gary replied: "The changes to planning and DNO backlogs are good – they should help larger projects move quicker. DEFRA support has been good, and it is nice to have some support and incentivisation for solar uptake in the agricultural sector.

"However, it is, quite frankly, criminal to issue new oil and gas extraction licences, despite acknowledging the harm to the environment and the damage it will do to the achievement of 2030 and 2050 targets. They are going against their own advice and, in some cases, are also in violation of local planning policies. Hopefully, we will see a change of government this year who will do better – as they couldn't possibly be worse, in my opinion!

"Government backing is always a concern in this industry. The waxing and waning of policy and support at the national level is particularly challenging.

"I would like to say that we are blessed in Greater Manchester to be in the most forward-thinking region for sustainability and renewables. It is a significant positive for us that our local region is a flag ship – due in no small part to the hugely collaborative organisations that exist here."

Greenwashing

With businesses eager to impress with their green credentials, Gary highlights his concerns over the increase in 'greenwashing': "There are organisations that seek to tick boxes and avoid doing the real work of carbon reduction by disguising their action with greenwashing. For me, the only solution is for government to stop pandering to offenders and penalise them aggressively for actively misleading people.

"At the same time, we must be careful to not discourage organisations from starting their journey and taking positive steps by berating them for not getting it right along the way. We should encourage, collaborate, and support all businesses to do the right thing in their own way."

Making a positive change

Gary is clearly passionate about his role and the lasting impact that his business will have so what is it that he most enjoys about working in the renewable energy sector: "Delivering long-lasting benefit for people, prosperity and the planet must be high up there," he enthuses.

"There is also a feel-good factor – coming to work every day and making a positive change for future generations is really empowering. Not to mention the brilliant people in the renewable energy/sustainability space!"

Perfect Sense Energy has been recognised for its impressive contribution to the industry and has already won several awards as Gary explained: "We have already won several solar install awards, and we are again nominated for installer of the year in 2024.

"For us, we know we do an excellent job for our clients but the external validation of that is both great for us to hear but also for our clients too. Their fantastic schemes are the reason we win these awards. It also gives new clients reassurance that we are a safe pair of hands in a sector that has had issues with inferior quality installs in the past with a risk of the same problem resurfacing.

And the best piece of advice Gary has been given in this industry? "Consistently do the right thing and success will follow!"

Nothing is off the table when riding the solar coaster!

The future looks bright for Perfect Sense Energy and Gary is clearly looking forward to it: "Nothing is off the table when riding the solar coaster! We are looking to continue to grow, improve and become more transparent, ethical, and sustainable in everything we do.

"Misconception and lack of understanding around renewables is still quite high, so more education is needed at all levels of businesses – we are here to help.

"We believe purpose-led businesses like ours can pave the way and lead the charge that is needed now to battle climate change. We intend to be there guiding, supporting, and delivering solutions for a long time to come. We have space at Oakland House to keep growing for the next 5 years at least!"

REI wishes Gary and the team at Perfect Sense Energy all the best for an exciting 2024 and looks forward to catching up again in the future to hear all about their progress and developments.

Are you an installer? Share your story with our Community Content Lead, Jessica Riches: **jessica@renewableenergyinstaller.co.uk**

Think local:
connect with your community to meet new customers

AS awareness and urgency around climate change continue to accelerate, interest in renewable energy solutions for homes is higher than ever. With many believing the Government isn't doing enough to combat the climate crisis, local environmental and activist groups are gaining momentum as they fill the gap.

Those who join these organisations and attend their events are actively seeking ways to live more sustainably for the good of the planet, and many report enjoying the feeling of knowing their neighbours and their community.

Being a part of these groups is a brilliant, organic way to make connections over a shared interest that could turn into future business. This presents a prime opportunity for installers to establish and grow their businesses by reaching potential customers who are already motivated to decarbonise their homes.

Remember that it's not about making an immediate sale, but building relationships that could be beneficial over time.

Some groups to connect with:

- Local chapters of national groups like PPPastry and PPPint, Big Solar Co-op and Sharenergy, Low Carbon Homes and Retrofit Action Week
- Community boards and neighbourhood associations
- Parent/teacher organisations at schools
- Local governments and committees focused on climate action

PPPasty and PPPint: PPPick up the benefits of local events

We spoke with Adam Bastock, founder of Small99, the company responsible for organising the People, Planet, Pint and People, Planet, Pastry events up and down the country, to give you some idea of what to expect from attending one of these local groups.

Q What inspired you to start putting on the PPP events?

Essentially, I'd been to a number of workshops and talks during COP26 in Glasgow (where I live) but the conversation was always one directional – talking at the stage or hearing from the stage.

All of these events had amazing, interesting people in the room – from small businesses to big corporates and everyone in between – but no-one was really being given the chance to actually *talk* to each other and, potentially, collaborate.

So, I booked a table in a pub and put together an Eventbrite listing, and we had 30 people turn up to chat at that first event with a variety of backgrounds and experiences. There was clearly something there. From there, we launched our first event 6 months later (COVID restrictions) and, in 18 months, grew to over 90 locations.

Q What happens at these meetups?

It's so hard to track the impact of the meetups – the very nature of it being so open to anyone and firmly not a workshop means we sometimes struggle to get an idea of what's going on in local events. But I'm happy with that chaotic nature of it.

The biggest thing we see is people being able to meet and chat to people they wouldn't usually be in the same room as. We get landlords, councillors, installers, sustainability consultants all together who then start hearing the other side of the story they wouldn't usually.

One of our meetings near Cirencester particularly stands out as several members of the council there had been along, and it gave them

fresh insights allowing a big roof top solar project locally to get the go ahead.

We run around 50 events a month, so these serendipitous interactions are what keep me going – you just never know what conversation is going on behind the scenes.

As someone once said: "A public transport enthusiast, a local councillor and an XR member walk into a bar. It's not a joke, it's a typical evening at People, Planet, Pint."

Q Any tips for installers who might be interested in attending their local event?

Definitely head along to one – the first pint is free thanks to Krystal web hosting, so there's really nothing to lose. We always host in pubs and venues which are accessible and easy to find (and leave) so you can drop in and out at any time around other life commitments.

It's about partnership and collaboration, so go with an open mind and you'll be rewarded with conversations and potential work which you don't usually find at a sales-first networking event!

Building trust: communication

How to communicate effectively with consumers and build trust in renewables – and your own business

WITH conversation around energy at an all-time high in the media and among the public, it sometimes feels like there's more confusion and mistrust than ever. To those of us in the industry, the benefits of the switch to renewables seem clear. But from the consumer's perspective, it's often not that simple.

As government schemes and initiatives change, prices fluctuate, and companies offer different options and promises, it's no wonder that the average consumer doesn't know where to start when it comes to making the green switch and finds the process far more complicated than it needs to be.

As the professionals working directly with customers in their homes, installers are expected to be able to educate and inform. But in the face of so many unknowns and so much contradictory information, how can installers offer reassurance, build trust and good relationships with customers?

We've put together some tips:

Financial transparency that balances information and sales

One of the primary concerns for consumers contemplating the switch to renewable energy is the financial aspect – both in the immediate term and over time. From the first quote, they'll be asking questions like: How much will it cost up front? How much will I spend or save in an average month? How can I keep track of it? And how will all of that evolve in years to come?

Discussions around cost can be the easiest way to lose potential customers, as a lack of clear facts and guarantees lead to an increased worry that they could be being scammed in some way, and that the installer's intention is simply to make money from them rather than to provide the best, personalised service.

- Share calculators that are available online, with verifiable data
- Suggest easy-to-use B2C services and tools that allow consumers to track their cost savings over time
- Share links to Government schemes and other incentives

This could mean pre-emptively acknowledging your awareness of the issues relating to understanding the financial implications, costs and potential savings when it comes to transitioning to renewables. Transparency is key here, and it could be as simple as preparing a standard email or information sheet that you share with potential customers when giving them a quote, including links to help them feel more like the financial data you share is, in some way, verifiable.

While it might seem like the focus of many of these conversations is on the pricing and costs of the work and systems, it's also important to reiterate potential savings and benefits. Ensure that customers have ample information on the impact the work could have on their house prices, which can be gathered from Estate Agents in your local area, and remind them that they could even make money selling energy back to the grid under the Smart Export Guarantee.

Here are some examples of the tools you could link to that help illustrate personalised costs and savings for various renewable solutions:

- Solar Energy Calculator – created by the Energy Saving Trust – https://energysavingtrust.org.uk/tool/solar-energy-calculator/
- Heat Pump Installation Cost Calculator – created by NESTA using public MCS data – https://www.nesta.org.uk/project-updates/a-calculator-to-estimate-the-cost-of-a-heat-pump/
- Heat Pump Running Cost Calculator – created by Great Home – https://great-home.co.uk/air-source-heat-pump-running-costs-calculator/

Customers are more likely to feel confident in the financial decisions when it comes to the running and management of their new renewable systems if they can keep track of cost and savings in real time, likely using an app on their phones. With a growing number of these tools and services available, it's a good time to get acquainted and be able to include installation of these along with the system.

It's vital to be a consultant and make professional suggestions, and to have a preferred product that you're confident in both using and recommending. However, giving consumers access to information that helps them feel independently informed in the decisions they're making can also be a great way to build security and trust.

Certifications, accreditations and programmes to build trust

A common issue that consumers report is that they simply don't know which installers to trust. They seek reassurance beyond words, and it's reasonable of them to expect tangible evidence of expertise and reliability. In these cases, the first thing that many consumers will look for is a certification or qualification that goes some way towards proving your expertise and adherence to industry standards. MCS reports that 70% of consumers are more likely to trust a company that displays the MCS certification.

When you choose which accreditation or certification is right for your business and take part in the training, these act as endorsements for your organisation. Make sure that your customers and new leads are aware of the training you've done,

and what it means for your skills and expertise.

- Display the badge or certificate on your website and in any customer communications
- Link to the affiliated organisation, and explain what the certification required, explaining in more detail in consultations
- Communicate how your accreditation relates to current government regulations

There are valid arguments about both the changing requirements in the renewable industry and the concerns around the paperwork and commitments that come with different certifications, but the brutal truth is that these arguments and concerns aren't relevant to consumers. If those of us working in the sector are struggling to keep up with the latest regulations and requirements, think how those simply looking to decarbonise their homes must feel. Government-approved certifications might be lacking, but they are often the only things that can reassure homeowners when it comes to gauging who they can trust. To this end, you should aim to stay up-to-date with the latest government proposals and requirements in the sector, and be able to speak to how the solutions you're recommending are compliant.

If you believe that these certifications can't keep up with the industry or aren't relevant to the way you work, there are other ways that you can show your commitment to learning in this ever-evolving sector, and the new technologies and methodologies emerging frequently. Highlight your commitment to staying updated by participating in training sessions, workshops, and industry conferences, or partnering with recognised environmental organisations or local community groups. This ongoing investment in knowledge reinforces your credibility and reputation, and goes a long way in reassuring consumers.

Engaging in benefits beyond finance – climate and community

While financial savings are a key motivator in home decarbonisation, many consumers are driven by a more profound connection to environmental sustainability, community welfare, and the planet at large. A recent report by YouGov indicates that 61% of people in the UK are willing to pay more for products and services from companies committed to positive environmental and social impact. Showing that you're aware and passionate about the positive climate implications of your work as a renewable energy installer could be the difference between getting a customer or losing them to someone else with more green credentials and awareness. Furthermore, if a potential customer isn't sure about decarbonisation, reminding them of the environmental benefits could be what convinces them to go ahead.

Installers often underplay the critical role they play in the decarbonisation goals set by the UK Government and globally, and in turn, the vital need for these goals as a part of a global movement to avert climate disaster. Remember that our industry is an important one, and you are the heart of it.

Local impact is a huge part of creating an effective global movement, and many community groups exist to cultivate this. Some customers are highly motivated by being a part of something tangible, where they can see the direct results of the investment, work and time they've contributed. Many people feel like personal changes are so insignificant when it comes to making a positive climate impact that they are meaningless, and may abandon plans to make the switch to renewable out of apathy. But by tapping into regional initiatives that tie individual or household actions into wider progress, installers are able to remind people that they are part of something bigger.

Here are some ways that you can ensure you're able to connect with consumers in an authentic way when it comes to their environmental motivations:

- Be aware of local, global and national climate goals, targets and initiatives to be able to talk about these thoughtfully, and to connect each individual case to the wider movement – whether it's the annual COP climate talks between the United Nations Framework Convention on Climate Change and global leaders, the Paris Agreement and Kyoto Protocol for emission reduction, or the global push towards net zero by 2050
- Include sustainability statistics in your quotes to potential customers, for example potential carbon savings of their green switch each year, but also over a lifetime
- Regularly attend and connect customers to local environmental groups so they can feel a part of the wider impact in their community and see how many people are investing in this change
- Incorporate case studies of successful local installations, with real data from your previous customers so that people considering the switch can see change in action

One last thing… personalising your approach

Different types of consumers have different priorities when it comes to their intentions for and reasons behind decarbonising their homes. When you first start engaging them, it's important to ask them what is most important to them as they approach the transition.

Here are some questions to consider when meeting new homeowners:

- Do they have independent financing, or are they doing the work utilising grants and loans?
- How knowledgeable do they seem about the process and the solutions available to them, or the environmental impact?
- Are they driven by cost savings or house price increases due to energy efficiency over time, or are they more motivated by environmental and community concerns?
- Where did you meet them? Were they referred by a previous customer, did you meet at a community event, did they find you via search or social media?

Their answers to these questions and what that reveals about their situation and motivation will help you know where your energy is best spent in your early conversations. For example, a knowledgeable consumer is likely to appreciate the effort and dedication that goes into obtaining and maintaining certifications, while someone dependent on government grants is likely to be more focused on the costs and benefits, and someone you met at a community event might be more interested in you emphasising the positive impact specific solutions can have on the environment or the local area.

Armed with these specific strategies, renewable energy installers can effectively communicate the benefits of sustainable choices to consumers, building vital trust and reassurance that can lead to long-term relationships. Effective communication with consumers means considering the context and then thoughtfully sharing the most relevant information, whether that's incorporating financial data, accredited knowledge and expertise, or an authentic understanding of the environmental impact of the switch to renewables.

As the renewable energy sector continues to grow, installers are at the forefront of the change, and there's never been more of an opportunity to focus on clear and compelling insights that can support consumers into this new sustainable era.

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Teaching sustainability is crucial for fostering sustainable minds

THE inclusion of sustainability lessons in the curriculum is a crucial step towards creating a more sustainable future. In 2022, the UK Government and the devolved governments, published its policy paper outlining a strategy for the education and children's services systems to play its role in positively responding to climate change. So, what are the benefits of shaping young minds for the environment?

Here, Vijay Madlani, CEO of greentech innovator Katrick Technologies, argues that sustainability in the curriculum is a key factor to fostering sustainable minds.

As the world grapples with the urgent need for sustainable solutions to combat environmental challenges, the inclusion of sustainability lessons in the UK curriculum is a crucial step. It can empower students with knowledge and nurture skills and attitudes that inspire environmental awareness, active citizenship, and practical problem solving.

Today's youth are demonstrating an inspiring eagerness to learn and a heightened consciousness about sustainability, as evidenced by a recent study by the UK Government. The report reveals that around 80 per cent of young people aged between eight to fifteen are not only willing but also eager to take proactive steps to help the environment.

This surge in interest among the youth is indicative of a generation that is deeply committed to safeguarding the planet's future. They're not just passive observers; they are actively seeking knowledge, solutions, and ways to reduce their ecological footprint.

The United Nations' (UN) fourth sustainable development goal (SDG) — Quality Education – affirms the notion that education stands as one of the most potent and verified means for sustainable development. Providing inclusive and high-quality education for everyone remains a priority goal. Success relies on countries investing in their education systems at a high level.

It underscores the progress made in achieving universal primary education since 2000, with increased enrolment rates and reduced numbers of children out of school. The goal focuses on the value of education, recognising it as a tool for sustainable development.

A vital role in advancing sustainable development.

Therefore, the incorporation of sustainability education into the curriculum is a strategic investment in our collective future. It empowers students with a comprehensive understanding of environmental issues, encouraging them to become informed and responsible citizens and equips them with the skills required to address complex sustainability challenges.

Sustainability education serves as a catalyst for developing environmental consciousness among students. It exposes them to critical concepts related to climate change, biodiversity conservation, resource management, and the interconnectedness of ecosystems.

Learning about the consequences of unsustainable practices instils a sense of responsibility towards future generations meaning that students are more likely to make eco-conscious choices in their daily lives. They can become advocates for sustainable living, influencing their families and communities and taking an active role in shaping policies and practices. This ripple effect creates a more environmentally responsible society, reducing carbon footprints and promoting sustainability.

Sustainability education also fosters active citizenship. It encourages students to engage in real-world environmental issues, becoming active participants in local and global sustainability initiatives. By understanding the interplay between policies, industries, and the environment, students are better equipped to advocate for positive change.

Cultivating practical problem-solving skills

These skills are not limited to environmental issues; they transcend disciplines and prepare students for a wide range of careers. Whether in science, technology, business, or government, individuals with a background in sustainability education possess a valuable skill set that can drive innovation and positive change.

Sustainability education directly contributes to SDG 4 (quality education) by ensuring that all students receive education that promotes lifelong learning opportunities. It also advances SDG 13 (climate action) by raising awareness and inspiring action on climate change – central to achieving a sustainable future.

An inspiring partnership

In 2021, Katrick Technologies collaborated with Glasgow City Council and STEM Glasgow on a community engagement project which involved students from seven schools to submit their designs for its patented wind panels. The aim of the design competition was to introduce young minds to real life renewable technology.

The Katrick team also gave presentations to the schools to educate about their innovative green energy technologies and how young people can themselves get involved in careers in renewable energy.

With education and community outreach being a large part of Katrick Technologies' culture, one of its main goals is to actively involve institutions and the community in their work, hoping to inspire others, of all ages, to consider careers in renewable power and the environment.

When students are exposed to sustainability concepts in school, they are more likely to pursue careers in fields such as renewable energy, green technology, and environmental engineering. Through hands-on experiences, students gain a deeper appreciation for nature and a heightened awareness of the environmental challenges we face.

The future of sustainable technology depends on a workforce that is not only skilled but also deeply committed to sustainability. By supporting sustainability education, we invest in the education and training of the next generation of innovators, ensuring that they are equipped to create the sustainable solutions our world urgently needs.

Navigating the challenges of decarbonising heat: a homeowner's journey

IN early 2023, Helena Farstad and her family moved to their dream home: a listed farmhouse in picturesque East Anglia. Helena is a chartered management accountant and business consultant who has worked in environmental sustainability since 2010. Here, Helena shares the story of her attempts to decarbonise their home, and the wider struggles the 1.5million off-gas-grid dwellers face when they attempt to move towards sustainable living.

A new start

Our family of six (including our two Australian shepherds) moved to East Anglia just as the daffodils were blooming at their most beautiful. We came from Zone 2 in North London, where our lovely community was literally surrounded by A-roads, and the light pollution meant our children had never seen a night sky filled with stars. What a wonder it was to exchange ambulance sirens for tawny owl calls, and concrete pavements for gravel lanes. However, moving into a centuries-old farmhouse that desperately needed insulation, quickly revealed the challenges we would face in maintaining the low carbon life that we had lived in London. The issue of decarbonising heat is already a national challenge, but it suddenly became a private challenge for us.

While extraordinary progress has been made to reduce the emissions from producing electricity, thanks to investment in renewable wind and solar and the closure of coal-fired power stations, the UK still lacks a decisive plan on how to decarbonise heat. This is critical, as heat is essential, whether for keeping our homes warm, ensuring hot water, or operating whatever is left of our domestic industry.

Facing the realities of kerosene

Like many of the 1.5million off-gas-grid dwellings in this country, a large oil tanker periodically pulls up outside our front door to fill up our domestic heating oil tank with kerosene. This logistical spectacle was new to me. I was completely unprepared for the

physical reaction I felt from the sight and the smell of the oil pouring into our tank. Kerosene is very polluting and, with a carbon footprint of approximately 2.5kg CO2e per litre, an average household can emit as much as 6.35t CO2e per year (assuming annual heating oil consumption of approx. 2,500 litres/dwelling) – or more than three times an individual's carbon budget if we are to meet the Paris agreement. Kerosene is also highly toxic, to the extent that the World Health Organisation has recommended a stop to it being used as a household fuel.

Regardless of one's position on global warming and climate change as a result of greenhouse gas emissions, we know that burning oil, gas or wood is harmful for our health. It has been proven to result in respiratory issues, particularly impacting children. Seeing the oil tanker pull up made me question: how is it that we have advanced in so many areas, yet we are dependent on the most crude and harmful form of fuel to accommodate the most basic things in life? It makes me wonder how we accept this, and why there is not more vocal demands for our government to get a move on.

The search for an alternative

After experiencing such discomfort about being dependent on oil, I instantly started looking into alternatives. I did not think that decarbonising our home would be an impossible quest. The first step was to get several heating consultations, as well as planning permission – a requirement as our property is a listed building.

There did not seem to be a shortage of companies to approach. The four companies that we engaged and got quotes from seemed all very professional, and genuinely interested in the transition to cleaner energy. This did not seem to be just because they worked for a renewable energy company, but because they agree that, where possible, it's the right thing to do. Notably, all of the reps were males in their early 30s eager to make a career in the green economy.

Heat pumps, ground source and HVO

First, we considered changing our heating system from oil to an air source heat pump. However, we quickly learned that it would cost us north of £40,000. That figure did not include the insulation or UK power upgrades needed. Considering that the running costs may be higher with a heat pump due to the electricity required to run the pumps frequently, this already seemed unfeasible.

We did consider utilising the government incentives for air source heat pump installation, recently increased to £7,500 per installation. However, the current regulation dictates a certain level of temperature (21 degrees in main living areas and 18 degrees in bedrooms), which often also calls for an essential upgrade of radiators. This was the case for us, as we'd have to rip out all our well-functioning radiators and send them to a scrap yard. Not only is this wasteful, but it adds another £10k to the bill, thus cancelling out any incentive available.

During this process, we learned that ground source was even more expensive and much more disruptive, so it also didn't feel like a good option for us. We were back to the drawing board. It started to dawn on me that moving away from combustion would be difficult after all.

The next step was to look into less polluting heating oil alternatives like HVO. I made numerous phone calls to various heating oil distributors, until it became clear to me this potential path is closed to domestic users. There just isn't enough of the stuff, and whatever is there is deemed "too expensive" for domestic use, so it's not even marketed to that audience. We were at a dead end again.

A temporary solution: solar PV

In the interim, we have decided to invest in and install ground mount solar PV. This allows us to explore the possibility of heating at least part of our home using standalone electric heaters, as heating water required significantly less fuel. We may explore installing solar thermal in the future. This is not ideal and certainly no solution for everyone. But for us, thanks to the fact we have a bit of land, it is an imperfect workaround. This approach will still cost a significant amount of money however, it will allow us to stay within a reasonable carbon budget.

Urgent action for a sustainable future

So, what now? Off-gas-grid UK households like ours, based on average usage assumption of approx. 2,500litres of heating oil/ pa, could account for more than 12% of the emissions from heating all UK homes, despite representing only around 6% of homes.

That part of the housing stock could, as a result, generate just shy of 10 million tonnes of CO_2e every year – around 2% of the total UK emissions. It's a big problem, and a big market. Yet, instead of coming up with answers to solve this acute heating issue, the Government has decided to pull back on the 2026 commitment of phasing out oil boilers. The government's actions have taken the pressure off themselves, but they have also taken the incentive away from industry to come up with workable, affordable solutions.

While we impatiently wait for a strategy where the Government supports the 1.5million off-grid homeowners to decarbonise their heat, I have written to our MP and will continue to campaign for a policy and regulatory environment that is science-based and aligned with the Paris Agreement.

To see real impact, the responsibility to decarbonise must be taken away from individuals and allocated to the Government so it can drive the right behaviour via incentives and punitive measures for industry. Delaying policies that will accelerate the decarbonisation of the economy is, in my opinion, not the right approach. I hope business and the wider community agrees with me on this point and will voice their concerns to their respective MPs, and also to Andrew Bowie MP, the Minister for Nuclear and Networks who seems to be the responsible minister for these issues.

The practicalities we've come up against in our own transition have led me to query exactly how our government is planning to decarbonise heat in the highly polluting domestic off-grid market, let alone the UK economy at large – and if there is a plan at all. As our situation shows, it can be almost impossible for even the best intentioned of homeowners to find a practical, affordable solution to home decarbonisation. But it shouldn't be our problem to solve.

What are your thoughts on the best route for Helena to take to achieve the home decarbonisation she desires? Please share them with Jessica:

jessica@renewableenergyinstaller.co.uk

IN CONVERSATION
with the Heat Pump Association

REI speaks with Charlotte Lee who joined the Heat Pump Association in April 2023 as its first Chief Executive. Having spent the previous 10 years at NAPIT, a UKAS accredited Certification Body for installers in the Building Services and Fabric sectors, culminating in leading their external affairs function, Charlotte has a wealth of knowledge in the practicalities and policy that surround the retrofitting of the UK housing stock, specifically relating to heat pumps. Charlotte has a strong understanding of the vital role of the installer and the importance of consumer demand and industry collaboration in affecting change.

Q What is the purpose of your organisation?

The Heat Pump Association provides a dedicated voice for the UK heat pump sector. Our primary goal is to facilitate the widespread deployment of heat pump technology throughout the UK, to reduce emissions from home heating which account for nearly one-third of the country's carbon emissions, in support of achieving the UK Government's net zero by 2050 target.

Q Who is the membership of the organisation?

Our membership comprises a diverse range of stakeholders, including manufacturers of heat pumps and their component parts, installers, training and awarding organisations, certification bodies, energy suppliers and professionals involved in the heat pump industry. We welcome any organisation who is involved in the study, design, manufacture, supply, installation or use of heat pumps and have various membership levels to suit differing interests.

Q How many members do you have?

As of our latest count, we have 77 member organisations actively contributing to the Association's initiatives and working collectively towards a greener and more sustainable future. We represent any organisation with an interest in heat pumps and, within our membership, represent heat pump manufacturers which provide over 85% of the heat pumps in the UK.

Q What are the objectives of your organisation?

Key objectives include:

Policy & analysis: publish informed, well-constructed, evidence-based policy advice to support the Government's thinking to enhance heat pump market growth within the UK.

Quality, safety, standards and training: engage with proposed technical updates, facilitate discussions on any technical clarifications needed to bring clarity to the sector and provide an industry stance on changes needed for training and technical standards/guidance.

Membership: grow the membership to represent all aspects of the heat pump supply chain to enable effective positioning.

Sales data: facilitate the collation of reputable monthly UK heat pump sales data to share with members and stakeholders.

Effective communications: both internal communication to members to share knowledge and external communication to position the HPA as an authoritative respected industry voice.

Speak with one voice: provide a united industry voice, working with key stakeholders to align policy proposals, calls for action and be representative of the complete heat pump supply chain.

Q Why should our community join?

Joining the Heat Pump Association provides numerous benefits, including:

Advocacy and policy: stand behind informed, well-constructed, evidence-based policy advice to support heat pump market growth with the UK. Lobbying and advocating for favourable government policies, incentives, and regulations that promote the adoption and deployment of heat pumps in the UK, including incentives for consumers and businesses to switch to heat pump technology.

Shape the future of the heat pump sector: HPA members directly influence the HPA's strategic policy and heat pump policy through consultation responses, working groups and surveys.

Updates and analysis: HPA members get access to the latest policy developments, and unique

market updates and analysis created to suit members demands.

Business development: benefit from strategies and innovative ideas to expand the market for heat pumps including consumer awareness campaigns, industry collaborations and efforts to increase adoption rates.

Quality, training and standards: through establishing training standards and feeding into certification, HPA members get to input into improving the quality and safety of heat pump installations whilst benefiting from sharing best practice amongst our members and the wider industry.

Networking and collaboration: attend networking opportunities, knowledge sharing and collaboration among members with relevant stakeholders, such as policy officials, energy utilities and distributors, certification schemes and training providers to foster a support landscape for heat pump deployment.

Q What are the current challenges facing your members and the broader sector?

The HPA recognises the pivotal role heat pumps will play in achieving decarbonised heat but acknowledges challenges hindering widespread adoption. These include:

Cost of living concerns: consumers are grappling with energy crisis-driven inflation and interest rate hikes, are hesitant to embrace heat pumps. Being able to demonstrate competitive running costs compared to gas boilers is vital which is why we are calling for levies of electricity bills to be removed to reduce the price of electricity.

Political uncertainty: evolving political discourse, especially pre-election, introduces uncertainty. Recent policy adjustments have impacted market confidence, emphasising the need for consistent progress towards net zero despite political shifts.

Myths and misinformation: misleading media content perpetuates myths, hindering consumer acceptance. Industry efforts, including enhanced training and collaborative initiatives we hope will aim to dispel misconceptions and restore confidence.

Despite challenges, the HPA remains optimistic about the industry's future. Ongoing research and policy advocacy underscores the commitment to overcoming obstacles and contributing to broader decarbonisation goals

Q What are your main current activities?

Currently we are focused on promoting our recently published 'Unlocking Widescale Heat Pump Deployment in the UK' report. This report provides a comprehensive roadmap and clear collection of policy recommendations for accelerating the adoption of heat pumps in the UK. As the UK Government considers how to meet its legally binding net zero emissions target by 2050, it is clear there is a critical need for highly efficient and sustainable solutions in the heating sector. Heat pumps are emerging as the cornerstone of this transition, offering extremely efficient, low carbon alternatives to classic heating systems for both residential and commercial applications.

Key highlights of the report:

Comprehensive analysis: The report offers a thorough examination of the current state of the heat pump industry in the UK, outlining existing barriers, opportunities, and the economic benefits of mass adoption.

Policy recommendations: It provides a clear set of well-researched policy recommendations aimed at creating an environment conducive to widespread heat pump deployment. These recommendations are backed by extensive research and the expertise of HPA's well-versed membership.

Alongside this, the HPA's working groups continue to work hard to improve industry standards, guidance and policy around technical, training, commercial and marketing issues.

We are also undertaking research to inform discussions around the best approach to rebalancing levies on domestic electricity and gas bills in a way that reduces the price of electricity relative to gas.

Q What would you most like to see changed to accelerate growth in the adoption of low carbon technologies?

We have worked collaboratively with members to compile a list of our key policy recommendations for unlocking the deployment of heat pumps in the UK. This includes recommendations around reducing upfront and running costs, enhancing the installer workforce, increasing consumer confidence, supporting the development of heat networks and improving and investing in innovation and market drivers. The full list of recommendations can be read on our website.

If I was to be pushed on my top three asks, they would be:

- Reduce the price of electricity relative to gas.
- Publish the technical consultations on the Future Homes and Building Standards and commit to a 2025 implementation.
- Support the installer base by proving enhanced incentives to train to become a qualified heat pump installer, including compensating for the opportunity cost of undertaking the training, as well as introducing a requirement for all heating engineers to have low temperature heating training.

A Day in the Life...

Name: Leah Robson
Organisation: Your Energy Your Way
Job title: Managing Director
Location in the UK: Surrey

IN this edition of our popular feature, in which people from many different roles talk us through their typical day, we are delighted to welcome Leah Robson, Managing Director at Your Energy Your Way to share a typical day in her life enabling customers to transition through her work in the renewables industry.

Your company/business in one line

Your Energy Your Way enables the transition to low carbon energy, through integrated renewable solutions delivered by a diverse workforce.

My alarm goes off at

06:30am

The first thing I do each day is

Make my kids a good breakfast. They are definitely too old to have their Mum cook them breakfast by now, but it's my little attempt to make them eat healthily before they go to college/school.

I prepare for the day ahead by

Trying to exercise in the mornings. I either do a Joe Wicks workout or cycle to work on the good days. On the rest I just jump in the car and take the lazy route.

I can't leave the house without

Lunch. Our office is on an industrial estate and, nice as it would be to eat bacon sandwiches from the café every day, it's probably not a good idea. We have a bacon sandwich morning on Fridays, but normally I take in some leftovers to heat up in the microwave for lunch.

My typical day

Always involves a lot of email. Our customers are a well-informed bunch and spend a lot of time researching renewables before they even come to us. So, with every customer there are a lot of questions to answer, normally by email.

I might also do a site survey to scope out a project and more chance to chat with customers about what they are after in their renewables purchase. Some of the biggest customer service challenges are around the assumptions a customer makes that you don't even know about. We've learnt to ask a lot of questions ourselves, to make sure they really know what they're buying and what it can do. For example, lots of customers just assume that if you have a battery system with your PV, it will automatically keep your house running during a power cut. As we know, this can be done, but it's not the default for all battery systems.

Then there are the more managerial things; are we making enough sales? Enough money? Do we have any recruitment going on? Are all the staff getting on okay? As anyone who runs their own business will know – the list is endless.

My most memorable work moment

Installing solar panels that form the roof of a large building in Cassiobury Park in Watford. The building is a really eye-catching, architect's design – all glass and corten panels. The solar creates a large roof that is all that is visible of the building as you walk across the park. It was a tricky job and brought an enormous amount of satisfaction once it was finished, to know that you'd installed something that was attractive and practically useful was great.

The worst part of my job

The fact that everything seems always to fall back on us as the installer. Manufacturer builds a faulty unit, distributor ships the wrong part, courier damages something, no matter whether we make any mistakes ourselves too, it's always our responsibility to reassure the client and convince them that we will get it fixed as soon as possible. And deal with the flack if that doesn't happen.

The best part of my job

Seeing the five trainees that we have in the team grow and learn and enjoy working with us. We have a heating apprentice, an electrical apprentice and three general renewables trainees. They are all super enthusiastic about doing a practical job that is also good for the environment and really make it all worthwhile.

I relax after work by

More work. Or watching TV, if I can chuck the kids off the PlayStation.

On my bedside table is

An enormous pile of about 15 books that I have started and fully intend, one day, to finish.

The last thing I do each day is

Try and read one of the above 15 books.

I'm normally in bed by

10:30pm.

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