Issue 3 | April 2024

Renewable ENERGY INSTALLER & SPECIFIER

Incorporating
MOVING INTO **RENEWABLES**

EV CHARGING

SOLAR & STORAGE

INSTALLER VOICES
EV FUNDING UNPACKED
STORAGE FOCUS
SOLAR ROUND-UP
HYBRID: FOR OR AGAINST?

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ON THE COVER

13 Game changing storage solutions

With the latest in energy storage solutions featured throughout this focus issue, we take a detailed look at the newest addition to Ecoflow's product portfolio.

Image shows The PowerOcean Single-Phase battery storage system that prioritises safety as it offers seamless integration with other components of the power system.

Renewable ENERGY INSTALLER & SPECIFIER

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Let the voices be heard

WELCOME to our April issue.

With energy storage set for exponential growth (Insight P28) we take a look at latest developments and innovations, smart thermal storage and storage in retrofit. Our solar round up (pages 16 – 20) considers what lies ahead for solar PV. Leading voices share challenges, priorities and insights as we await the publication of the Solar Roadmap, and Solar Energy UK takes a look both back and forward on this rapid-growth solution. Grants and legislation are unpacked in our EV round-up (pages 10 & 11) and we continue diving into the detail of the ECO4 scheme (page 40).

In a constantly evolving sector, the number of significant announcements since our previous issue should not come as any surprise – yet more changes to the Boiler Upgrade Scheme, the launch of the Government initiative to raise awareness of, and challenge misconceptions around, heat pumps, the postponement of the Clean Heat Market Mechanism and numerous funding announcements for eco-friendly business upgrades, energy research and training and heat networks.

Against this backdrop, we hear the voices from the community – those installing, specifying, manufacturing, supporting, advocating, training and being trained. We speak with Envirolec, an installer committed to driving change in the energy sector, hear why installer Richard Fuell is covering his home with panels and urging 'install as much as you can', get a trainee's view of the Heat Training Grant and see the industry through the eyes of installer John Wood.

How was the certification experience for you? Similar to that of Andy Norris, Director of Heat From Air, who shares the journey, from his perspective, on page 39 of this issue? Yours may have been very different – let us know!

In our popular Q&As we find out all about the HHIC, what life is like for an independent solar consultant and how a typical day is for a heat pump engineer.

Something for everyone, we hope, but maybe your experience is very different? Get in touch or, better still, come and see us at Solar & Storage Live in London at the end of this month.

Our next issue will focus on the latest developments in sector simplification as well as legislation, heat pumps, products and training.

Newly launched product recognised in SEAI Energy Show awards

THE innovative SpeedFlash, a product that is revolutionising solar installs on slate roofs, received vital endorsement at last month's SEAI Energy Show in Dublin when it was commended as a finalist in the Best Innovative Product Award.

Manufactured by family business Genius Roof Solutions and featured as a launch product in the last issue of REI magazine, the SpeedFlash introduces an innovative, drill-free fixing method that eliminates the need to remove slates, significantly speeding up the installation whilst also preserving roof integrity.

Joanna Ashcroft, daughter of Jimmy Hall, the company founder and creator of the SpeedFlash, takes up the story: "Our family originates from Dublin, so we love visiting this fabulous city and no better reason than the SEAI show which is a must for businesses and organisations interested in saving energy or switching to clean energy solutions.

"We exhibited our new products; SpeedFlash and InterFlash, to installers, manufacturers, distributors and homeowners. The reaction and feedback, especially to our newest product – SpeedFlash – was incredible.

"The highlight of the show was receiving a Commendation in the category of Best Innovative Product. We are thrilled to see SpeedFlash recognised in this way, and look forward to its innovative method gaining rapid popularity with installers across the UK, Ireland and globally."

The SEAI Energy Show "Product of the Show Awards" have championed innovative product developments, especially those incorporating smart energy solutions, for many years.

Regarded as an excellent platform to introduce latest innovations, the products from all category finalists are on display at the dedicated "Product of the Show Awards" stand that highlights products and services of particular merit as adjudicated by the Awards' judging panel.

Genius Roof Solutions has developed a range of products, driven by the inspiration of founder Jimmy Hall, that are designed to save the professional roofer time, money and inconvenience.

Joanna adds: "Our aim is to help those in the solar industry to perform professional, permanent installations and repairs by arming installers with products that support MCS 012 compliant installations and solve today's roofing challenges."

Renewables high on the agenda at UK Construction Week London

RENEWABLE energy, sustainability and smart home technology all feature prominently at the UK's largest event for the built environment, UK Construction Week (UKCW), which makes a welcome return to London's ExCel from 7-9 May 2024.

REI is a media partner and supporter of UKCW London, an event that will be home to myriad renewable energy and eco-conscious exhibitors showcasing their products or services including the likes of:

- Fischer Future Heating - a pioneer of low-carbon electric heating
- Ford Motor Company – with a roadshow designed to demystify vehicle electrification
- GGRS Energie Ltd - making solar energy the green power choice for every UK home and business
- Q-Bot Ltd - an underfloor insulation provider reducing energy usage and CO2 emissions
- Qvantum Energy Technology Ltd - a technology dedicated to revolutionising urban heating
- Kore Insulation - an award-winning manufacturer of Expanded Polystyrene insulation solutions for both new build and retrofit projects
- InstaGroup - insulation, acoustic systems, underfloor heating, and solar installs across a range of sectors

At UKCW London, visitors can look forward to experiencing a host of new features, interactive demos, international pavilions, and a selection of prestigious speakers.

The multi award-winning show will officially be opened by architect and TV presenter, George Clarke, and will see the debut of a new Live Demo Theatre; Skills and Training Hub; a construction-specific Recruitment Zone; new C-Suite Summits; a 'Gumball Rally' which finishes at UKCW London; as well as a host of international exhibitors housed in pavilions from India, China, Turkey, Italy, Spain, Germany and France.

Registration for UKCW London is now live. To register for free, visit https://ukcw-london-2024.reg.buzz/cab-pr

Increased demand sees renewable tech installer on target for £100m turnover

FAST-growing cleantech business Green Building Renewables has expanded its nationwide network into Nottinghamshire and Lincolnshire with its eleventh acquisition.

The addition of Newark-based JL Phillips Renewable Energy Limited increases the company's turnover to £42m, keeping it on track to reach its £100m turnover target by the end of 2025.

Since 2021, Green Building Renewables has increased its turnover more than tenfold from £3m to over £40m, reflecting the rapidly increasing demand for renewable technology.

Green Building Renewables aims to be the largest installer of domestic renewable technology by 2025 with a turnover of £100million with full coverage of England targeted by the end of 2024 through its model of investing in existing local businesses.

Managing Director, Chris Delaney, said: "We're delighted to welcome Jason and his team to ours. JL Phillips is our eleventh acquisition and it demonstrates our commitment to continually investing in renewables and low carbon technology across the country as we aim to build the largest renewable installation company in the UK."

Benefits installers and customers

Jason Phillips, Managing Director of JL Phillips added: "Our team is excited about joining Green Building Renewables' nationwide network of renewable energy experts. The model that Chris and his team are building to offer local installers across the country is important. It ensures that customers get the best local service they can from installers who know their area and understand their needs."

With a sixfold increase in staff numbers in the last two years, the fast-growing business is aiming is for a further 60% increase this year. Green Building Renewables has one training hub in York with a second to open in Daventry and is recruiting for a Learning and Development Director to lead the training academy.

Chris Joubert, Merger and Acquisition Director at Green Building Renewables added: "JL Phillips is the second acquisition of the year for the company and it's only March.

"We are in active conversations with other companies, and we are confident that by the end of the year we will have complete coverage of England through our nationwide local network."

Charging network offers support to transition fossil fuel sites

CHARGING company Fastned, provider of the UK's best rated en-route charging network, is offering to work with petrol station owners to cover the costs of decommissioning and remediating their forecourts.

In exchange, Fastned will lease the land from the owners and build an ultra-rapid EV charging hub. This will help scale up the network and get more EV drivers on the road.

Removing the risk

Petrol station owners who want to use their land for any other commercial purpose usually need to safely decommission the large underground fuel tanks located on their site, and remove the contaminated soil from decades of leakage. This can make the transition to EV charging an expensive, and so risky, endeavour.

Fastned is expanding its charging network in the UK and is looking for sites for charging hubs in busy locations that make it easy for EV drivers to charge. Independent petrol station owners with sites that meet Fastned's location criteria can access Fastned's "A Clean Start" offer to help with the costs of cleaning up their sites.

With a long-term commercial lease in place, Fastned will use its in-house design and construction teams to develop the site into an ultra-rapid charging hub, with multiple 400kW chargers, as part of its growing network.

Beat the rush

With the number of EVs on UK roads predicted to grow to two million vehicles over the next two years, and EV sales up 45% in Ireland in 2023 compared to 2022, more public charging hubs will be needed, creating a surge in demand for power connections across the UK and Ireland. Fastned's offer allows independent petrol station owners to take action now to anticipate this, establishing their locations as the go-to sites for local and regional charging needs.

Tom Hurst, UK Country Manager, Fastned said: "With this offer we're putting our money where our mouth is. We're serious about ramping up the roll-out of the UK and Ireland's charging network, and we're excited to work with petrol station owners that want to be at the forefront of the EV transition.

"Collaboration is key to making EVs the new norm, so we're calling out to all independent petrol station owners that want to get ahead of the curve and make a Clean Start - if you're interested, get in touch."

Refreshed charging app will encourage EV uptake

EV charger manufacturer Andersen EV has refreshed its app to offer customers enhanced management of its home charging products, enabling them to benefit from off-peak tariffs.

The new app, with a stylish new interface, has a suite of innovative features to help users significantly reduce EV running costs. A scheduling feature delivers seamless integration with energy tariffs, enabling customers to look up tariff data and calculate, and monitor, charging session costs. At the end of a charge, clear graphics will summarise key data, including the amount of energy transferred and the exact cost.

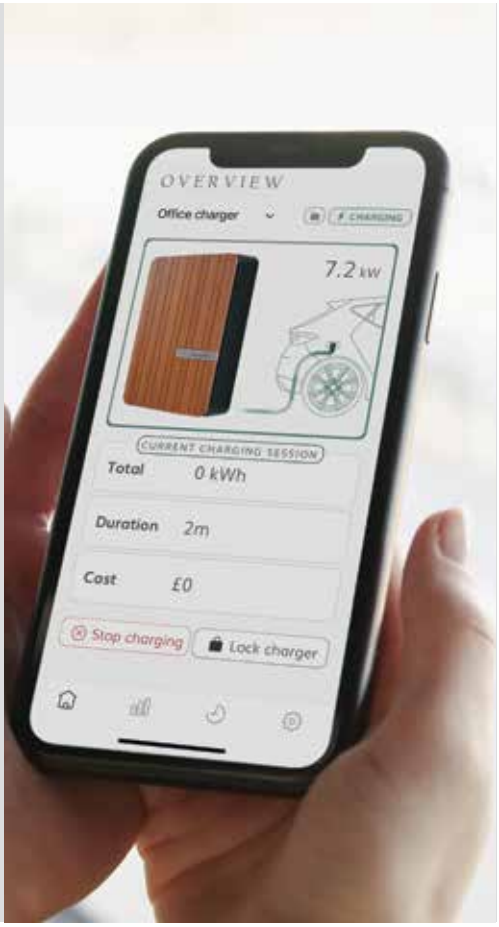
The app is also able to calculate the number of miles added in a charge session based on the car make and model as well as send notifications regarding key events, such as charge started or ended, and updates on weekly charge usage. Users will also have the ability to lock their charger remotely, deliver an instant boost and override their schedules with a 'Charge Now' function.

Users with Advanced Solar capabilities will be able to select solar-only charging and a new screen graphic will show how much solar is being generated even when the vehicle is not plugged in.

Making ownership easy

David Martell, CEO of Andersen EV, said: "We've listened to customers to ensure the new app is easier to use and delivers more of the functionality that people really need. Users can integrate the unit with solar panels for ultimate flexible charging, monitor their home and vehicle energy consumption, schedule charging activity and control the unit remotely.

"The new app makes charging simpler and more intuitive. The more we can do to make EV ownership easy, the more likely it is that people will make the switch."



UK CEO highlights solar investment issue

ANDREW Moore, UKSOL CEO, claims that British brands are missing out on solar investment thanks to insistence on tier one suppliers for investment-led tenders.

Mr Moore highlighted the challenges for British brands when he spoke at the Unlocking Net Zero Investment Summit Roundtable in the UK Parliament on March 19th. The summit marked the launch of the 3Ci Net Zero Investment Taskforce Report titled "From Challenge to Opportunity: Unlocking a UK-wide Net Zero Investment Dividend."

Chaired by Prof. Greg Clark CBE, Chair of 3Ci and Connected Places Catapult, the summit was attended by various stakeholders including MPs, Peers, and representatives from major financial institutions. The Net Zero APPG, known for its bipartisan support, aims to accelerate the transition to decarbonisation and green prosperity in the UK.

The aim of the summit was to discuss the 3Ci Task Force report findings presented by Catherine McGuinness CBE and consider how stakeholders in cities can make investment in retrofit renewables and other Net Zero initiatives more bankable and attractive to investors.

Mr Moore spoke with REI after the event and shared his comments that "Bankers' insistence on so called "Tier One" suppliers for solar projects is precluding British brands from bidding for investor-led tenders and steering procurement direct to Chinese companies instead."

Professor Yulong Ding and Chris Taylor of Vital Energi.

Pioneering collaboration will develop innovative thermal storage solutions

THERMAL energy storage is expected to emerge over the next decade as a key enabler in speeding up the electrification of heat.

Already tens of millions of pounds have been invested by the Government into the development of energy storage technologies.

In another new development, Vital Energi has signed an agreement with the University of Birmingham to collaborate on commercialising a range of innovative thermal storage solutions.

They will work together over an initial four years to continue the development of thermal storage Intellectual Property, with a view to bringing a number of products to market.

The university has assigned several IP rights, including various patents, to Vital Energi.

The company will combine its industry experience with the expertise of the university team, led by Professor Yulong Ding, Chamberlain Chair of Chemical Engineering, and the founder of Birmingham Centre for Energy Storage.

Vital Energi's technical development director, Chris Taylor, said: "We see thermal energy storage as a core component in the decarbonisation of the heating and cooling sector. Through this collaboration, we aim to bring innovative energy storage to the market and tackle some of the obstacles introduced by an evolving energy system.

"This is an exciting time for Vital and we believe we have found the perfect partners in Professor Ding and his team at the University of Birmingham, and look forward to working together to commercialise their concepts."

Professor Ding, who is known for inventing novel, commercialisable, technologies for electrical and thermal energy storage, has published over 450 technical papers and filed some 100 patent applications over the past 35 years.

He said: "Globally, thermal energy accounts for over 50% of final energy consumption and is responsible for more than 40% of energy-related carbon dioxide emissions, making it central to achieving net zero emissions. While it is the hardest-to-decarbonise sector, thermal energy storage can help us address this challenge, and I am looking forward to working with Vital Energi to make this happen."

Professor Martin Freer, director of the Birmingham Energy Institute at the University of Birmingham, added: "This partnership is really exciting as it allows a pathway for the discoveries of Professor Ding and his team to deliver impact in the development of the UK's energy system in the much-needed area of energy storage.

"The University of Birmingham's research is world leading in this area and it presents the opportunity with Vital Energi, who have been fantastic partners, to deliver world leading energy solutions."

The hybrid heat pump debate

– supporting the path to net zero or an unhelpful diversion?

POLITICALLY there is no support for hybrid heating systems. They are not included in the Heat and Building Strategy, the Future Homes Standard nor any of the current grant schemes.

And while it may be accepted that a fully electric system is the most desirable solution for home decarbonisation, there's also a feeling that hybrid heat pumps do have a role to play.

Whether as a solution where standalone heat pumps are not possible, or to ease the customer into their renewable journey, hybrid solutions do have many advocates across the industry.

The debate was reignited following a recent consultation by the Microgeneration Certification Scheme (MCS).

It was seeking feedback to a number of proposed changes which aim to clarify the circumstances in which a hybrid heat pump system would be compliant with the scheme's requirements. MCS expects that, if adopted, the changes will increase the number of heat pumps installed overall.

An MCS statement accompanying the consultation reads: "Hybrid heat pumps can have several benefits, including acting as a stepping stone to 100% heat pump solutions. Consequently, the updates proposed in this consultation are expected to increase the number of heat pumps being installed to support reaching the Government target to install 600,000 heat pumps a year by 2028."

The consultation proposes:

- Introducing a definition of a hybrid heating system
- Removing the requirement that a heat pump in a hybrid system should provide at least 100% of the calculated heat loss
- Introducing a minimum 55% peak power output contribution from the heat pump at 55°C flow temperature

Bridging the gap

Other advocates for hybrid systems include the Heating and Hotwater Industry Council (HHIC) which has previously written a white paper on hybrid heat pumps as a 'flexible route to decarbonise heat'.

The council is concerned that the Government's focus on full electrification of heat risks delaying action on the decarbonisation of domestic heating and hot water, and wants hybrid systems to be included in the Boiler Upgrade Scheme.

The paper reads: "With proper government support, hybrid heat pumps can deliver on targets and forge the path to net zero without having to wait for the 'right' technology to enter the market."

Stewart Clements, director at the HHIC, said at the time of the Boiler Upgrade Scheme: "It's important to acknowledge that transitioning directly to all-electric technology simply isn't going to be an option for many consumers. For this reason, it's vital that this level of support is extended to hybrid systems as a means of bridging the gap."

'Hybrids are the biggest opportunity for the market'

It's a view shared by co-founder of Heatable, Ben Price. Heatable is an online boiler installation company, which also installs solar PV. Ben is desperate to move into the heat pump space but says he has struggled to find a solution that is currently viable.

Ben said: "For the last 15 months or so we've been trying to find a heat pump solution which is economically viable for the mass market and desirable enough for our partners, but we're facing challenges in moving into that space.

"When someone needs to replace their boiler and is in the headspace that they want to go greener, as soon as they find out the level of cost and disruption involved, they quickly change their minds. The quickest and cheapest thing for them is a boiler replacement.

"I think hybrids are the biggest opportunity for the market by a country mile. I think we could make it work because we'd be giving the consumer the experience of a hybrid, but with the security of a boiler. This would help them get used to reducing their reliance on gas over the long term.

"If there was a grant for hybrids I reckon I could sell them every day of the week.

"If I knew today that hybrids were going on the Boiler Upgrade Scheme, for example, I'd start investing in training for our 500 installer partners right now. It would also get them used to working with heat pumps and then we'd be back into replacement territory, rather than retrofit, when people make the full switch later."

Better to 'meet some space heating needs than none'

Smart home energy management specialists at Heatio also think the Boiler Upgrade Scheme should be extended to include hybrid systems.

The company's CEO and co-founder, Simon Roberts, said: "It is, of course, preferable for the heat pump to provide 100% of the load; this should always be the goal. However, if constraints within the property or the electricity supply to the property make this unfeasible, it would be more advantageous for the heat pump to meet some of

the space heating needs rather than none at all.

"This becomes particularly critical when considering the year-round climate variations. I do not doubt that heat pumps will fulfil a greater portion of the space heating load than current calculations predict.

"Furthermore, we believe that Ofgem should consider extending the Boiler Upgrade Scheme to include hybrids. This would allow customers who have existing combi boilers and lack space heating to obtain a grant. With this grant, the heat pump would cover 100% of the space heating load, while the boiler would continue to provide hot water. Such an expansion would make heat pumps accessible to homes currently unable to accommodate a hot water storage system.

"We also recommend the incorporation of monitoring systems in any hybrid installation to accurately gauge the energy supplied by the heat pump and to inform customers on how to enhance the use of renewable energy in conjunction with solar and battery systems.

"The Heatio Flexx platform offers homeowners a hybrid system, equipped with a user-friendly dashboard at no cost. This dashboard enables users to monitor their electricity and gas consumption, identifying optimal times for heat pump use to reduce fossil fuel use and maximise energy savings."

'Ongoing need for a hybrid solutions in some homes'

Grant UK has been supplying hybrid products for over a decade and continues to see an ongoing need for a hybrid solution in some homes.

Neil Sawers, Grant UK's commercial technical manager, said: "Here at Grant UK, we strongly feel that hybrid products have an integral part to play in decarbonising home heating.

"We have supported the case for heat pump hybrid systems for many years and this is why hybrid technologies have been a part of our R&D focus, with the development of our VortexAir oil boiler/heat pump hybrid, and, more recently, the EvoLink Hybrid System Hub, which combines an Aerona^3 heat pump with an existing fossil fuel boiler.

"While heat pumps on their own are suitable for a large number of dwellings in the UK, there still remains a substantial number of properties which require a significant amount of improvements to be made to their insulation or energy efficiency, improvements which could be out of reach for the homeowner or landlord.

"It is in these cases an alternative solution may be needed and this is where hybrids have their place. By installing a hybrid, the owners of these types of properties can still install a renewable heat source but they can spread the costs of their home improvements over time."

The importance of an exit strategy

Adding a word of caution to the hybrid debate, the Heat Pump Federation's director for growth and external affairs, Bean Beanland, said: "I'm not against hybrids and I don't think our members are, but we need to lead with the concept that the heat pump is correctly sized so it can do the whole job. There's always the potential that various fuels will be banned by legislation, or that the boiler could fail before the heat pump; you don't want the consumer to be in a situation where the heat pump also needs replacing because it's undersized.

"It's really important that the consumer understands the exit strategy so they can make an informed decision.

"In terms of hybrid as a route to get people comfortable with the technology, I'm of the view that people are already used to heat pump technology – they use it to keep their food fresh."

What do you think about the hybrid solution? We'd love to hear your views. Share them with us by emailing linda@renewableenergyinstaller.co.uk.

EV charging round-up

an overview of the latest grants and law changes

MEASURES to improve EV charging infrastructure across the UK are gathering speed, with significant year-on-year increases in the number of public charge points, new funding streams and proposed rule changes to make installation easier.

There have been several announcements from Government since it published its new 'Plan for Drivers' last autumn.

In this article, we'll have a look at the current situation, what the new measures are and outline some of the main EV charging grant schemes available.

Fully electric vehicles accounted for over 16% of the new UK car market in 2023, with the number of plug-in vehicles rising to over 1.2million. Of those, 777,000 are fully battery electric.

Across the UK, more than 57,000 public charge points have now been installed, with numbers growing at least 42% year on year. That's in addition to hundreds of thousands of charge points at homes and businesses. More than 400,000 home and workplace chargers have been supported by the Government to date.

In total, the Government has so far spent £2bn supporting the transition to zero transmission vehicles.

And despite the five-year delay to the ban on the manufacture of internal combustion engine vehicles, significant investment in electric vehicles has also been pledged by manufacturers.

There is still some catching up to do with European counterparts when you consider that, in Norway, for example, 80% of new car purchases are electric.

Private sector investments include:

- Nissan's recent investment of over £3billion to develop two new electric vehicles at their Sunderland plant
- Tata's investment of over £4billion in a new 40 GWh gigafactory
- BMW's investment of £600million to build next-generation MINI EVs in Oxford
- Ford's investment of £380million in Halewood to make electric drive units
- Stellantis' £100 million investment in Ellesmere Port for EV van production

Recent EV announcements

Grants for schools

A new grant has been launched to fund up to 75% of the cost of charge points at state-funded schools, colleges, nurseries and academies to boost charging facilities for staff and visitors. The grant will now cover up to £2,500 per socket, up from the previous £350.

This could also help schools generate revenue by making their charge points available to members of the public.

Local Electric Vehicle Infrastructure (LEVI) fund

This new £381million funding pot is to help local authorities across the country install thousands of new chargers. The first capital payments totalling £14.2million have already been approved for three local authorities. Almost 100 dedicated EV officers have been recruited through this fund to support charge point procurement.

Transparency and access laws

New laws have been approved to provide EV drivers with easier and more reliable access to public charging facilities. Prices across charge points must be transparent and easy to compare, with simpler payment methods.

As the regulations roll out, providers will be required to open up their data to enable drivers to find available chargers that meet their needs, including charging speed and whether they are working and available. This will be supported by a free 24/7 helpline for drivers facing any issues accessing charging on public roads.

Legal access consultation

The Government is currently consulting on plans to speed up the installation process for charge point operators when performing street works on the highway. The consultation proposes operators should have access to permits when installing EV infrastructure, rather than having to apply for a licence, as they do currently. This would

be much quicker, taking days instead of months, and cheaper. The consultation closed on April 12.

Other available grant schemes

Workplace charging scheme

The now long-standing Workplace Charging Scheme provides eligible applicants with support towards the upfront cost of EV charge point purchase and installation. It is open to qualifying businesses, charities, small accommodation providers and public sector organisations and can meet up to 75% of the costs, up to a maximum of £350 per socket and 40 sockets per applicant.

EV infrastructure grant for staff and fleets

This helps SMEs with the cost of installing EV chargers and supporting infrastructure for their staff and fleet vehicles. Work can be for sockets they want to install now and in the future and includes things like wiring and posts. It covers 75% of the cost, up to £15,000, at up to £350 per socket and up to £500 per parking space with enabled supporting infrastructure. SMEs can get up to five grants across five different sites.

EV charge point grant for renters and flat owners

Up to £350 is available towards the cost and installation of a socket for people who own and live in a flat, or rent any residential property. They must own an eligible vehicle and have a private off-street parking space.

EV charge point grant for households with on-street parking

This provides 75% towards the cost of buying and installing a socket, also capped at £350, for charge points at residential properties where a cross-pavement charging solution is also being installed, with permission from the local council.

EV charge point and infrastructure grants for landlords

These grants are to help landlords install EV facilities at rental and leasehold properties they own. It provides 75% off the cost of buying and installing a socket, up to £350, with up to 200 grants per year available for residential properties and a further 100 for commercial properties.

It also provides funding for infrastructure for residential properties owned by landlords up to £350 per socket and up to £500 for parking space infrastructure, capped at £30,000. Up to 30 grants can be received per financial year.

Rapid charging fund

This pilot scheme closed to applicants in February so news of the successful schemes is awaited, but it seeks to accelerate industry's own investments in transport decarbonisation and boost access to a comprehensive ultra-rapid charging network.

The industry response

ChargeUK is the voice of the UK's EV charging industry and works on behalf of the companies which install and operate charge points.

It says there is more work to be done and has made a number of recommendations to Government.

A ChargeUK spokesperson told Renewable Energy Installer: "ChargeUK welcomes many of the recent Government announcements and initiatives such as the consultation on extending Section 50 licences and the delivery of more LEVI funding.

"However, there is still work to do. The public charge point network grew by nearly 50% last year but we can go further and faster still. Our report 'Accelerating the Installation of Public Charging Infrastructure' made a number or recommendations that are still to be addressed including speeding up grid connections, prioritising net zero projects, supporting a voluntary and consistent code of conduct and extending permitted development rights.

"We look forward to continuing to work with government this year to ensure the UK remains the best place in the world to drive and charge an EV."

'Ongoing commitment and innovation needed'

Michael Kenyon, strategic technical director at testing, inspection and certification business, Bureau Veritas, said: "The recent UK announcement for grant support for EV charge points is a welcomed and significant step in bolstering the charging network across the UK.

"Through incentivising the installation of these charging points, we hope it will encourage more private investment in charging infrastructure, leading to a stronger and more extensive network. The emphasis on residential charging points addresses one of the key concerns for EV owners, ensuring that charging facilities are readily available for those who may not have access to dedicated off-street parking.

"However, despite these advancements, there is still plenty of work to be done to fully maximise the potential of this industry. One of the priorities for 2024 and beyond should be the continued investing in smart charging technology and grid integration will be crucial for managing increased electricity demand and optimising the efficiency of charging infrastructure.

"Looking ahead, the UK must also prioritise the cyber security of these charge points, with growing concern of cybersecurity threats that could potentially compromise the integrity of EV charging points. Unauthorised access through unprotected network or peripheral device interfaces poses a huge risk, as does firmware-based attacks that manipulate voltage settings, potentially causing major damage. With that said, we encourage those looking to take advantage of these incentives to also take the necessary measures to protect their cybersecurity.

"Overall, whilst the UK has made significant progress in expanding its EV charging network, ongoing commitment and innovation will be necessary to build a comprehensive and future-ready infrastructure that meets the evolving needs of electric vehicle users."

'Car prices need to come down still'

Dominic Longley, director at Able Electrical Installations and The Car Charging Company, based in the West Midlands, also shared his experience of the current EV market from an installer point of view.

He said: "We roughly carry out 15 to 20 domestic charger installers per month, with commercial ranging from anywhere between five and 20. At the moment, for a smaller company like ours, we couldn't rely on just fitting chargers as the demand isn't there yet.

"Only time will tell what impact the new grant announcements will have, but I can say that we have a decent amount of enquiries already – not from schools directly, but from bigger companies looking to subcontract work out.

"In terms of the EV market in general, I would say we are still at the start of the major roll-out and the Government knocking back the start date for all cars to be electric hasn't helped. I think car prices still need to come down a lot before more people start looking at changing over to an electric car."

Atmo:
the smart heat pump controller with a difference

PLANET Devices is more than just a team of tech professionals – it is a close-knit team of passionate individuals dedicated to revolutionising the energy industry.

With an exciting product on the brink of launch, Margaret Major, Publishing Director for REI, met with George Reburn, Director, and James Davidson, Information Developer, to find out why both installers and consumers should be anticipating this solution with excitement.

The team all live and work in Plymouth, having graduated from the university there at different times. Drawn together by a mutual passion for innovation and sustainability, the team's declared mission is to provide sustainable energy equipment that not only meets the highest standards of quality and efficiency, but also empowers installers and suppliers with transparency and cost-efficient remote solutions.

"We are offering a manufacturer agnostic device to monitor and control heat pumps to maximise efficiency," James explains, with George adding: "It is scalable, takes 60 seconds to install and includes a control aspect. Our focus is on the installer, rather than the consumer. Although the consumer still has the visibility, our device empowers installers to provide a better service.

"Across a wide range of manufacturers and models, the Atmo enables you to monitor, control, schedule, analyse and optimise all your installs from the office.

"With government incentives to drive heat pump uptake, there is insufficient distinction between those who install a system that will do exactly what the customer needs, and those who just sell the heat pump with no real concern for the consumer outcome," James suggests.

"With this in mind, we've developed a simple plug-in device, that is priced competitively to enable installers to track, maintain, monitor and even control their installed heat pumps seamlessly in one integrated system.

"With the Government so focussed on numbers, it is easy to lose track of quality, and that risks consumer confidence. But there are a lot of really good installers out there doing a really good job so we wanted to find a way they can easily monitor their installs to demonstrate, and maximise, system performance."

"For anyone genuinely interested in continued optimisation of heat pump systems, that's what these devices deliver – from the one man band in a van that fits two or three heat pumps every quarter, to the larger installer, fitting thousands.

"And it doesn't just do one brand, it does all the leading brands with others being tested and added all the time. It enables engineers to see everything in one place."

In the development phase the team from Planet Devices hooked up with avid blogger and heat pump expert Graham Hendra who was very interested in what the device could offer.

We caught up with Graham to get his take, and it appears it was a marriage made in heaven. 'I'm good with spanners, not computers," Graham shares, describing himself as a 'typical engineer' – rather self-effacingly I thought, until he shares how he once bought a new laptop because his Outlook stopped working…

When he met George and discussed the controller, Graham listened to the ideas and said: "Give me a box that I power up and turn on."

"What engineers want is to dial in and see everything in one place and that's what I like about this," Graham explains. "You buy one bit of kit, you stick it on everything you install and you can see it all in one place.

"Manufacturers have their own devices, and some of them are pretty good but, as an engineer, you don't want to have to remember which device your units are on, you want one control panel."

Graham describes his relationship with Planet Devices as one where 'they test the products on me to see if I can break them – if they can get me to make them work, then any idiot can make them work!"

Having tested the device through various iterations, Graham is genuinely enthusiastic about what the Atmo offers. "It is a window into the unit for both the homeowner and the system engineer," Graham says, describing himself as 'an enthusiastic fan / prototyper'.

"As a homeowner, you just want to know your heat pump is running well," he continues. "Like driving a car. If your tyre loses pressure you want to know but you don't want your tyre pressure on your dashboard all the time.

"What the Atmos does is to make life easy for engineers. They learn one device not ten, can monitor all their systems in one place and it will flag anything that is 'out of the normal' so they can maintain system efficiency. It tells engineers what they need to know rather than what they don't."

And the last word has to go to Graham: "I want to do some remote monitoring of my heat pumps. I want a tool which is NOT brand specific, I want the same tool and same platform for everything. Thanks to Planet Devices its possible. It's so simple even I can drive it."

With the Atmo set to launch imminently we will watch with great interest.

EcoFlow Unveils PowerOcean Single-Phase:

A Game-Changer in Safe Home Energy Storage Solutions

Launching at Solar & Storage Live London 2024

ECOFLOW, a leading portable power and eco-friendly energy solutions company, proudly introduces the PowerOcean Single-Phase, a revolutionary battery storage system that prioritises safety above all else. Tailored for homeowners in the UK, the Single-Phase comes after the successful launch of the Three-Phase model across European markets last year.

Engineered with cutting-edge technology and a relentless focus on protecting homes and families, the PowerOcean Single-Phase sets a new benchmark for secure and dependable energy storage.

Outstanding Battery Safety and Reliability

Safety is paramount in the design of the PowerOcean Single-Phase. Leveraging advanced Lithium Iron Phosphate (LFP) battery technology, coupled with a meticulously crafted safety system including fire protection modules and heating pads, EcoFlow ensures that every homeowner can trust in the reliability and security of their energy storage solution. The robust and stylish IP65-certified aluminum construction offers peace of mind, even in the face of the most challenging environmental conditions.

The PowerOcean Single-Phase stands out with several notable features. First and foremost is its unparalleled safety, surpassing industry standards to ensure utmost protection for homes and families. This emphasis on safety is complemented by the battery's durability and reliability, as it's designed to withstand even the harshest weather conditions. With a robust lifecycle exceeding 6000 charge cycles and backed by a comprehensive 15-year warranty, homeowners can trust in its long-term performance.

"At EcoFlow, safety is not just a priority – it's a commitment," affirmed Craig Bilboe, Head of Business Development, UK at EcoFlow. "With the PowerOcean Single-Phase, homeowners can rest assured that their energy storage system is engineered with their safety in mind at every step."

Seamless Integration

The PowerOcean Single-Phase offers seamless integration with other components of the power system. Each battery pack comes equipped with a built-in DC-DC converter, facilitating smooth operation with the PowerOcean hybrid inverter. This integration remains efficient even with just a single 5kWh battery pack. Furthermore, PowerOcean's paralleled connection battery technology allows for effortless expansion of battery capacity up to 15kWh, ensuring adaptability to evolving energy needs without compromising safety.

In times of emergency, the PowerOcean hybrid inverter provides up to 6kW of backup power, ensuring that critical appliances remain operational during unforeseen power outages. Users also benefit from real-time monitoring and control capabilities, accessible through the intuitive EcoFlow app and Web Portal, as well as EcoFlow's PowerInsight, a 10-inch touchscreen home energy management system. This feature offers unparalleled visibility and control over power usage, solar input, and battery storage.

Easy Installation and After-Sales Service

Finally, the PowerOcean Single-Phase boasts an effortless installation process. With a simple 3-step commissioning process and a hassle-free wiring-free stack-up battery design, both homeowners and installers can easily expand and install the system without unnecessary complications.

With a dedicated app specifically for installers, - the EcoFlow Pro - the status of every device can be effortlessly monitored; PowerOcean error codes are intelligently categorised according to their emergency level, streamlining the troubleshooting process.

This means that users can rest-easy knowing the PowerOcean is backed by a comprehensive after-sales support, providing them with prompt service, maintenance, and assistance throughout the life of their product.

A Smart Investment for the Future

"We are thrilled to introduce the PowerOcean Single-Phase, a testament to our unwavering commitment to safety and innovation," added Craig Bilboe. "With the PowerOcean Single-Phase, homeowners can trust in the security and reliability of their energy storage solution, empowering them to embrace a cleaner, safer future."

In addition to the PowerOcean Single-Phase, EcoFlow will be showcasing their EcoFlow ecosystem, including their PowerHeat heat pump, PowerGlow Smart Immersion Heater, and their PowerPulse EV charger at their Solar & Storage booth, 29th - 30th April.

The PowerOcean Single-Phase will be available for purchase starting April 30, 2024. For more information, head along to Hall A5 at Solar & Storage or enquire through local installers.

Interested in working with us? Please get in touch via sales.eu@ecoflow.com

For more information, scan the QR code:

Specifications

Number of MPPTs	2
Maximum input power per MPPT	6000W
Maximum PV power	12000W
Maximum input voltage	600V DC
Rated input voltage	520V
MPPT voltage range	90-560V DC
Startup voltage	100V
Maximum input current	18A
Maximum short-circuit current	20A

How a demo **Net Zero home of the future** is helping today's installers

THE Energy Training Academy, an LCL Awards approved centre in Mid Lothian, Scotland, has enhanced the learning experience of its trainees, while helping the wider community understand the benefits of low carbon living, with the construction of a full-size Net Zero home within its centre.

Renewable Energy Installer caught up with the centre's Technical Director, Ian Edgeworth, to find out more.

Although we've only been open for a year, The Energy Training Academy team has always been ambitious. The bungalow, which includes a kitchen, living room, bathroom, loft and garage, was born out of a desire to showcase green technologies, creating an 'ideal' scenario that enhances the experience of learners on LCL Awards renewable qualifications and our adult apprenticeships which are geared to producing the future-ready heating and electrical engineers.

The centre is not just for installers, we also want to more generally demonstrate what a truly Net Zero home looks like, allowing the wider community to see first-hand the benefits of this approach.

Aspirational living

Thanks to the support of some innovative manufacturers, we have been able to pack the latest low carbon and energy efficient technologies under one-roof.

Alpha Heating, Worcester Bosch and Groupe Atlantic have supplied high efficiency gas boilers and heat pumps. These also feature in the classrooms elsewhere in the centre. Samsung has equipped the kitchen with the state-of-the-art energy-saving smart appliances and iHelios fitted infra-red heating to some of the ceilings, which can pick up heartbeats in the rooms so that the heating is only activated when and where it's needed.

Myenergi has supplied battery storage and EV charging technology and CEF donated solar panels used on the roof.

Other contributors include the Garage Conversion Company, St Andrews Timber & Building Supplies, which donated the building materials, Ideal Heating, Poly Pipe and Connex.

We've even built a rain simulator, so we can create rainy days inside, allowing visitors to see how rainwater harvesting works. Outside in the 'street' we've got solar-powered street lighting and EV charging points. This might sound a bit gimmicky, but it's impressive – and relatable. We want to inspire people into being excited about the future.

Real-world experience

Although the focus is on the future, we're not living in a fantasy. We're keen that the house is instructive, so different rooms have been set up to different standards. That way we can illustrate the retrofit journey and show people that small changes they make – with insulation for example – can make a big different to their energy bills.

For installers, the house provides a 'real'

scenario to practice practical elements of their heating and electrical training, such as a loft space to demonstrate solar panels in operation and a garage that stores batteries, a hot water cylinder and boilers. Advanced heating technologies include air source heat pumps and low temperature, high efficiency gas boilers. Supporting these systems are flue gas recovery, underfloor heating, infrared heating, electric wet central heating and electric panel heating.

The house is built against the back of the centre, so those working on the roof are completely secure with the wall of the main building right behind them. There's a crawl space, shade and sunlight simulation to create a sense of how the technology works in different light conditions and to provide a realistic experience.

Apart from practical training, we are also looking at ways to help candidates develop their soft skills, including role-play to teach them how to deal with tricky customers, risk assessments and safety scenarios, such as how to handle a reported gas leak.

We see ourselves as the vanguard of the carbon neutrality revolution, perfectly placed to deliver a 'job ready' informed and educated workforce that will be able to deliver and support the ambitious (but in no way insurmountable) net zero target in Scotland of 2045.

Community asset

Primarily, we're a training provider, but we are planning to set up an energy advice centre for the public, offering impartial guidance on renewables. There's been a lot of negative stuff in the press about air source heat pumps, so it's important that those of us who really understand the technology speak up and put the record straight.

The bungalow is also available for guided tours to show homeowners, companies and policymakers some of the options available on the market to create more sustainable buildings, as well as teaching the next generation about energy efficiency - crucial for a sustainable future.

The net zero home can, and already has, been used to engage and educate young people on the importance of energy conservation. Senior pupils from the Castlebrae Community Campus secondary school have helped with the building work and we will continue to offer work experience for students going forward.

As a community interest company, we hold a profound responsibility to the youth of Scotland, striving to serve as a beacon of educational excellence. Through collaborations with schools and further education institutions, we aim to inspire young individuals from diverse backgrounds and genders to pursue careers in renewable technology.

Passion project

I joined The Energy Training Academy after 30 years in the gas and energy sectors and a decade in related education. I am passionate about the prospect of positively impacting peoples' lives, individually and on a grander scale.

The Energy Training Academy strives to set a benchmark of training and low carbon excellence in Scotland and across the UK. We believe we are unparalleled in our offering and hope to inspire others to follow suit. Collaboration is key, and we're committed to working with like-minded organisations, such as LCL Awards, for the collective advancement towards net zero.

Exemplar for the industry

Mark Krull, Director for LCL Awards, visited The Energy Training Academy before Christmas. He was extremely impressed:

Mark said: "It's fantastic to see one of our approved centres investing in the future and demonstrating the potential of the latest renewable and energy efficiency measures. What The Energy Training Academy has achieved is amazing; they are leading the charge by creating this truly unique and invaluable resource – for trainees and also the wider community, who will be able to use the house to find out about low carbon technologies and their potential – as contributors to net zero that also reduce energy bills.

"Part of LCL Awards' responsibility in the provision of renewables training courses is to create a well-informed work force that can help educate the public and thereby build confidence in new technologies. The Energy Training Academy is making a great contribution to this aim."

Ian concluded: "It's been an amazing year, we've all worked incredibly hard to build the partnerships to get the project underway and to build the house from scratch, but it makes our training centre unique. The synergy we've developed with everyone involved and the enthusiasm the house engenders form those who visit is off the scale – it was a gift to have the opportunity and space to build such a project, but now it's completed we can see that it really is the gift that keeps on giving!"

Solar PV
where we are now and what lies ahead

ALMOST a year since its inception, we're all eagerly awaiting the final report of the Solar Taskforce – a group of key players from government and industry brought together to work out exactly how the UK can achieve a five-fold increase in solar deployment by 2035.

That final report and step-by-step roadmap to 70 GW is expected soon. We heard from some of the taskforce members at last year's Solar and Storage Show and we interviewed chair of the skills sub group, Mark Wakeford, for the last edition of Renewable Energy Installer magazine, which gave some insight as to what might be ahead.

But whatever their recommendations, momentum seems to be building again in the solar PV sector.

The UK is currently at around 1.4million installed solar systems (including residential, commercial, solar farms, ground-mounted and rooftop), with a cumulative capacity of 15.7 GW.

The number of new residential installations in the UK last year was the highest since 2011 and while planning applications for solar farms with a capacity over 1 MW have not yet reached 2015's levels, these numbers have been rising since 2017.

Also the capacity of solar farms proposed has increased over time from an average of 4 MW in 2010, to 25 MW by October 2023.

Latest figures shown in a Commons Library research report on planning for solar farms showed there were 1,589 solar farms in the UK, either operational or under/awaiting construction, with a total capacity of almost 30GW.

While things are moving in the right direction, the figures would suggest there's still some catching up to do with pre-subsidy days. Around 513,000 solar systems with a combined capacity of 11 GW were installed between 2013 and 2017, compared to 323,000 systems with a combined capacity of 1.8 GW installed between 2018 and 2022.

Around two thirds (67%) of planning applications for solar farms with a capacity over 1 MW submitted to local planning authorities in England between 2010 and October 2023 were granted planning permission, while 11% were refused and 14% were either abandoned or withdrawn by developers.

Changes to planning policy

Planning policy was amended earlier this year to support the Government's aim of achieving widespread deployment of rooftop solar on commercial and industrial land and large-scale deployment of ground-mounted solar on brownfield, industrial and low and medium grade agricultural land.

Policy for large-scale farms above 50MW, which are decided by the Secretary of State, now highlights the development of low-carbon infrastructure as a 'critical national priority'. As such, consent should 'generally be granted', the policy says.

While installing solar panels on roofs or in gardens for direct consumption has 'permitted development rights' and doesn't usually require planning permission, some of the restrictions of these rights were removed in December last year. New rights were also introduced for solar canopies on off-street car parks.

In real terms, we are seeing regular news headlines about newer and bigger solar projects coming on board all the time.

Recent announcements include a new 49.9 MW farm by Downing Renewable Developments in Norfolk, which will generate enough clean energy to supply up to 12,000 homes every year. This is one of 25 sites at different stages of development as part of a £4bn investment from Downing.

Peel Ports Group and E.ON have also revealed plans for the UK's largest roof-mounted solar energy system at the Port of Liverpool, which could eventually see the installation of as many as 63,000 solar panels – the equivalent of 18 football pitches.

Challenges remain

Of course, significant challenges and barriers remain, such as the grid, skills and the supply chain, so all eyes will be on the taskforce to see how it plans to set about tackling some of these issues, alongside Government actions already in motion.

These include, for example, plans to accelerate the building of electricity transmission infrastructure and connections to the network, and the establishment of a new publicly owned and independent 'Future System Operator'.

An industry insight

JAMIE Vaux, commercial director at Midsummer Energy, distributors of renewable energy systems,, shares his view of the current solar PV and wider renewables market.

Looking at the current state of the market for renewables I think challenges remain in the short term, but significant opportunities taking a longer view. Midsummer distributes both solar PV and heat pumps, and uptake of both are connected, with some shared issues in the market.

In the domestic retrofit market, mainstream adoption faces hurdles that I remember by a handy acronym, relating to the pace we need to tackle them with: FAST.

Finance: This is increasingly going to be key to unlocking mass uptake. The energy crisis drove huge demand, but the market for those with funds available became saturated - and for many, even with the falling equipment costs, a solar and storage system is out of reach. There is lots of innovation happening in this space, thankfully, with various models for spreading the cost already being rolled out. That will become much more prevalent (as it is in Germany, for instance). There's lots of innovation around optimising the smart home controlling assets such as solar, battery storage, a heat pump, EV charger, perhaps smart appliances and thermal storage, and how all of those interact with agile tariffs and grid services - those things affect the finances enormously too.

Access: For many homeowners considering solar as part of a wider home upgrade with the complexities mentioned above, knowing where to get advice is really difficult. Many brands are ones they won't have heard of, and impartial advice can be hard to come by. Finding installers, and knowing how to compare them can also be challenging. There are some great organisations working on this, and it's something we're working to address as well.

Skills: During the period of heightened demand, there was a shortage not only of products, but also of skilled installers able to fit them. While a large number of people have joined the solar industry in the last year, this adds pressure to the training and certification bodies, and that has been a bottleneck. It's more pronounced in the renewable heat sector at the moment. To deliver on the 70GW target for solar, or the 600,000 target for heat pumps, we need to speed up the process of attracting talent and creating a skilled installer base - but without relaxing standards on the one hand, or tying people up in red tape on the other. It's a difficult balance.

Trust: Some of the most successful organisations selling renewables in this and other markets are those where the organisation itself is known and trusted - it's uncertain territory and a long term investment. That can work against the smaller installers, and so any way of empowering homeowners with information, levelling the playing field for installers, but ensuring that nobody vulnerable is being taken advantage of would be a real step forward in the industry. Again, we're tackling that with our software. That's quite connected with access, if I'm honest, but I needed my acronym to work :)

Other opportunities

There is a great deal of installation happening under ECO4, the Energy Company Obligation scheme, and that will continue for the next couple of years.

The new build sector has been in limbo over the future homes standard and consultation. It's likely that while it may stimulate demand for heat pumps, it waters down the new build solar requirements. That's short-sighted - solar and storage are the perfect accompaniment to ASHP

for the sake of running costs for tenants. If it isn't handled at build stage (when it is far cheaper and easier) it will create a retrofit demand after the fact.

Commercial solar is booming, and I can't see that changing - options for commercial scale storage are increasing all the time too. That will continue to be a growing focus for us this year, we have expanded our commercial team and will continue to.

Will we hit the 70GW 2035 target? The sector is growing well, but needs to be doing so two to three times as quickly to get where we need to be. That means a renewed political will (and perhaps an election may yet deliver that) and engaging with solar at all levels, domestic, commercial, new build, but also the political hot potato of solar farms. They all have a role to play in getting us there. The electrification of heat shouldn't be seen as a competitor, since like the transition to EVs, more solar PV is always the answer!

Are you an installer or manufacturer? We'd love to hear about your current experience of the solar PV market, including the challenges and the opportunities. Please get in touch with us by emailing news@renewableenergyinstaller.co.uk.

Solar panel members

SOLAR Energy UK is an established trade association which represents more than 300 solar and energy storage businesses ranging from ambitious and innovative SMEs to global brands.

Through the collective strength of its members, the association is working towards the 70GW of solar by 2035 target and to build a clean energy system which benefits everyone.

It is overseen by a board of directors elected directly from the membership.

A recent election saw eight of the board seats up for grabs, which has subsequently welcomed new and re-elected members. These are:

- **Matt Black**, managing director at Innovo Renewables and chair of Solar Energy UK (re-elected)
- **Liz MacFarlane**, vice president of sales and global advisor at Segen (re-elected)
- **Alex DeSouza**, general counsel – EMEA at Lightsource bp
- **Adam Swarbrick**, head of solar and storage UK at RWE
- **Hildegarde McCarville**, chief executive of Anesco
- **Charlotte Healey**, head of solar at Statkraft
- **Gareth Phillips**, solicitor and partner at Pinsent Masons
- **Richard Cave-Bingley**, director, solar & battery at SSE Renewables

They join the five existing members of the board, Jonathan Bates of Photon Energy, Christelle Barnes from SolarEdge Technologies, Guilia Guidi from NextEnergy Group, Hannah Staab Natural Power and Thomas MacMillan from Savills.

Two more members will be co-opted onto the board in May.

Solar Energy UK chief executive, Chris Hewett, said: "It is superb to see that our members have elected a board with such a depth and breadth of

talent and experience, from distribution through major utilities to planning law. The board is also the first to have a 50/50 balance of men and women, showing how the industry is moving away from a position that has been somewhat male-dominated at the senior level."

We caught up with some of the new members to find out more about their roles and what they see as the challenges and opportunities for solar this year.

Liz MacFarlane

Vice president of sales and global board advisor, Segen Ltd. Joined in 2015 when founder Andy Pegg bought Zenex Solar Ltd, where I was co-founder and Sales Director.

Q How long have you been involved in Solar Energy UK?

Segen (and Zenex before that), have been members for many years right back to the days when it was called the Solar Trade Association.

Q Why did you decide to get involved?

I wanted to have an impact in removing barriers to entry for Solar PV, trying to create stability in the market and to make the path smoother for quality and reliable installers, who are Segen's main partners. I have three sons and at that time my family were young, and I wanted, as I still do, to create a cleaner environment for them long into the future. That is an especially important legacy to me.

Q What are you most looking forward to in this role for the coming year?

This is my second term, and I am incredibly lucky and grateful to have been re-elected. There is an increase in new installer entrants to the market, which is great news, but I want to prevent the scenario we have seen historically whereby non-qualified businesses risk damaging the reputation of the industry. The next three years will be instrumental for me and SEUK to continue to put our weight behind the Solar Roadmap to 70GW which I have been involved in designing as part of the Solar Taskforce.

I will also continue to focus on ensuring an ethical and sustainable supply chain. The Solar Stewardship Initiative forms an important part of that.

Q What do you think is the biggest challenge to achieving the 70GW of deployed solar target?

The biggest issues are planning and DNO delays. These issues are affecting all areas of the market.

Q What do you think is the priority for 2024 in advancing the net zero agenda?

I would like to see a UK, in which renewable technologies, such as solar PV, are as normal and accepted as seeing other types of infrastructure such as pylons and telegraph poles. We are quite a way from that now and unfortunately, solar is often politicised unnecessarily.

Q What would be your main message to our readers in the installer community?

I would say that the success of the UK industry really rests with you. Our installer network is the mass voice that truly reaches the end user. Seek to differentiate yourself from the cowboys and sell quality and service and stay away from products that do not enable you to do so.

Hildagarde McCarville

Anesco CEO. In position since January 2023

Q How long have you been involved in Solar Energy UK?

I have personally been involved in renewable energy for more than 15 years. Anesco as a company has been actively involved with Solar Energy UK for well over a decade. As a pioneer of solar and storage - responsible for 147 solar and battery storage plants, totalling more than 1.1GW, across the UK and Northern Europe – we have naturally built relationships with SEUK and others who share our vision for enabling and advancing a low carbon future.

Q Why did you decide to get involved?

I am a strong believer in the adage "change starts with me", and in leading through action. The path towards decarbonisation must be actively driven. It requires commitment, innovation, co-operation, perseverance, representation and a holistic approach. Such change can only happen with key players, including government and industry, working together to create a strategic roadmap. That is why I decided to join the SEUK board, which will be for a three-year term, to commit my time, experience and passion to progressing the UK's target of 70GW of solar by 2035.

Q What are you most looking forward to in this role for the coming year?

Solar has a pivotal role to play in tackling many of the major economic and societal challenges facing us today – from long term energy security to fuel poverty and decarbonisation - and against the backdrop of a deepening climate crisis, there really is no time to lose. I look forward to working alongside the Solar Energy UK team and my fellow board members to represent industry, champion the growth of solar (both rooftop and ground mounted) and accelerate the change that is needed..

Q What do you think is the biggest challenge to achieving the 70GW of deployed solar target?

The biggest challenge is grid capacity. Our current transmission and distribution systems were simply not designed to support decentralised, intermittent generators like renewables. The current lead time for a connection date is 10 years and whilst we welcome government proposals to reduce this to five years, the speed of execution of these specific reforms is critical.

Thereafter, the shift towards the electrification of heat and localised energy production (be that rooftop or ground mounted solar), against a backdrop of changing consumer needs, highlights the need for real time data management and a move from the legacy analogue system to a modern, holistic digitalised energy system. This would enable more accurate modelling, prioritisation of projects, and congestion and curtailment management.

Q What do you think is the priority for 2024 in advancing the net zero agenda?

Policy reforms which have a clear agenda to reduce lead times for both the planning process and grid infrastructure upgrades and connections. The current system blockers can only be addressed through investment in policy reform. Initiatives such as "connect or move" are critical in order to

remove zombie projects that will never be realised and are delaying viable alternatives, along with an increase in skilled resources e.g. planning inspectorates.

Q What would be your main message to our readers in the installer community?

As of January 2024, the UK's total solar capacity stood at 15.7 GW. With four-fold growth anticipated, this market provides huge opportunities for employers and employees. 70GW is the target that we must reach, but it requires collaboration, focus and effort on the part of all stakeholders, as no one party can achieve this target alone. Hence, my belief in leveraging all our collective strength and knowledge through Solar Energy UK to make this target a reality.

Charlotte Healey

Head of Solar at Statkraft since early 2023. I've been at Statkraft since 2018, joining during the acquisition of Element Power, where I worked as a project director. Before moving into solar development, I worked on onshore wind for around ten years.

Q How long have you been involved in Solar Energy UK?

Around two years

Q Why did you decide to get involved?

It's important to me that we look at the wider benefits of solar projects not just for the natural environmental but also for the wider community. Solar Energy UK is a great platform that brings developers together to work on behalf of the industry to promote clean energy.

Q What are you most looking forward to in this role for the coming year?

I want to use my position to challenge some of the misconceptions and misunderstanding about solar developments. I think people don't always realise the significant environmental benefits that solar projects can bring, alongside the obvious cheaper, clean electricity they generate. I think I can play a similar role as part of the Board. I have been developing renewable projects for nearly twenty years and understand the challenges and opportunities they bring.

Q What do you think is the biggest challenge to achieving the 70GW of deployed solar target?

Being able to connect to the grid is a challenge for all developers in the industry. The increase in costs from planning to construction is also something that we need to take into consideration..

Q What do you think is the priority for 2024 in advancing the net zero agenda?

Finding timely and appropriate grid connections can be challenging, so if we resolved this, we'd be able to build and deploy our projects quicker, generating more clean, renewable electricity.

Q What would be your main message to our readers in the installer community?

Developers and those with solar projects proposed in their neighbourhoods can be confident that they have public support, that solar farms have the potential to bring a multitude of benefits to local people and wildlife, and that their presence is improving UK energy security and helping to safeguard our planet for future generations.

Richard Cave-Bigley

Director of Solar & Battery, SSE Renewables overseeing a dedicated team of 110 energy professionals delivering a 3GW pipeline of projects. Richard joined SSE in 2017

Q How long have you been involved in Solar Energy UK?

Over the past 18 months SSE Renewables has been a member of SEUK, and more recently a sponsor member. Our team attend steering and working groups across the organisation. We also support the skills sub-committee of the Solar Taskforce and helped with the foundation of the Solar Stewardship Initiative. Richard was recently elected to the Solar Energy UK Board.

Q Why did you decide to get involved?

This is a critical time in the development of the sector given its role in providing clean and secure energy. I can also provide particular support to SEUK in building its capability in the growing battery sector given my role across both solar and battery storage at SSE Renewables.

Q What are you most looking forward to in this role for the coming year?

I am determined that as an industry we focus on safety and sustainability and ensure that our supply chains are as transparent as possible. We need to work with government, communities and all stakeholders to ensure solar and battery storage can play their part in helping the UK get to net zero.

Q What do you think is the biggest challenge to achieving the 70GW of deployed solar target?

Grid connections and securing consents. We need to ensure that the right projects are able to be delivered at the right time otherwise we will not get anywhere near the 70GW target. It's incumbent on developers like us to bring forward good solar projects. As SSE Renewables we want to keep investing £4m a day in low carbon infrastructure across the board.

Q What do you think is the priority for 2024 in advancing the net zero agenda?

On a global level clearly 2024 is a big year across the globe in terms of elections. We must keep making the case for net zero to counter the polarisation of the green agenda. I think at a local level there's a lot we need to do to win over communities that we need to build carefully considered net zero infrastructure in their neighbourhoods to tackle climate change.

Q What would be your main message to our readers in the installer community?

Battery storage has a vital role to play in unlocking the path to net zero. We want to work with suppliers who share our desire for a transparent, fair and sustainable supply chain. We also all have to keep making the case for battery storage and why its flexibility can help us back up and get more intermittent renewable generation onto the system.

Solar Energy UK:
looking back and looking forward

2023 was an extraordinary year for solar energy. High gas prices, the need for energy security and the response to climate change led to the greatest number of residential installations since 2011 – almost 190,000. The majority of these are now being fitted with battery energy storage systems – and retrofitting them to existing installations is now VAT-free thanks to Solar Energy UK lobbying.

By the end of the year, 16GW of solar farms held planning permission and a grid connection, with another 9GW under planning scrutiny. Though numbers are hard to pin down, the commercial rooftop sector is clearly very healthy – as E.ON revealing a record-breaking 31MW rooftop project at the Port of Liverpool recently demonstrates.

Overall capacity, on rooftops and on the ground, was estimated to be 17.6GW at the end of last year, over a quarter of the way to reaching the government's goal of 70GW by 2035.

Delivering that is the subject of the Government-industry Solar Taskforce, established in May 2023 and chaired by myself and energy minister Andrew Bowie. It has been front and centre of Solar Energy UK's work since then and its due to conclude with the publication of a roadmap to 70GW later this spring. It represents a remarkable change in attitude compared to what the industry faced under Liz Truss.

Solar roadmap

I must be circumspect before the roadmap is published, I can say that it will address the industry's foremost priorities: accelerating network connections, building a domestic supply chain, communicating the benefits of solar, filling skills gaps and encouraging investment in rooftop solar.

The roadmap will serve as the foundation for our work and for the government to support the industry in the years to come. Regular meetings with officials and ministers will continue, to ensure progress on delivery.

Meanwhile, our membership has grown continuously and is now approaching 400, with ever-rising attendance at our regular working groups, steering groups, webinars and face-to-face meetings.

Another achievement was updating RC62 - guidance for insurers and their clients for the procurement, ownership, operation and maintenance of safe and efficient PV system.

Vital industry partnerships

Our partnership with MCS remains the foundation for promoting high installation standards and consumer protection. Meanwhile, the Solar Stewardship Initiative, established jointly with Solar Power Europe, is now working to ensure high standards of supply chain transparency across Europe.

We have been delighted to develop our partnership with Solar & Storage Live, which had over 17,000 visitors in October. While continuing at the NEC, the expo is now coming to London's Excel Centre at the end of April. I hope to see you there.

One aspect of our work that has expanded considerably of late is the skills agenda, not least with the introduction of the Recruitment Zone at Solar & Storage Live last year, while maintaining our popular Installer Training Hub. We have also attended careers fairs, given talks to schools and began collaborating with Mission Renewable, which points people leaving the armed forces into careers in green energy.

Aside from the taskforce, there was no shortage of policy wins last year:

- The Scottish Government committed to having a minimum of 4GW of PV in place by 2030, with an ambition to reach 6GW – in line with our lobbying.
- Again in Scotland, new PV installations were exempted from non-domestic rates until 2035 - allowing businesses to gain the full financial benefit of onsite generation.
- Planning rules were further liberalised in England and now extend to flat roofs and installations over a megawatt.
- Announcements in the Autumn Statement were extremely welcome, notably the acceptance of the Winser report, which is set to speed up grid connections. The Chancellor also mentioned stimulating corporate investment in solar and battery storage by deducting their costs before paying Corporation Tax; speeding up planning decisions through 'Planning Performance Agreements', and reforming the Electricity Generator Levy for new renewables installations.
- Lastly, the Government revealed a plan to make installing solar power on listed homes and those in conservation areas easier.

We very much hope to see that solar is made effectively mandatory under the forthcoming Future Homes Standard, in the same manner as the planned Future Buildings Standard. Failure to do so would be nothing more than an economic own goal.

Looking forward, over 33,000 MCS-scale installations had been undertaken by the end of February this year, putting the sector roughly in line with the record-breaking performance last year.

As ever, I must thank our members for their generous support, which has allowed Solar Energy UK to expand its activities and grow our staffing. My final thanks go to the team, whose dedication and hard work have borne so much fruit.

Chris Hewett, Chief Executive, Solar Energy UK

Install as much as you can:
a solar case study

RICHARD Fuell has been in the solar industry for more than 10 years. He started out as an installer back when the Feed in Tariff was introduced to the UK. In that time, the market has evolved significantly, in terms of the equipment, the technology, and the interconnection of different products. Richard was a long-standing member of staff and a passionate ambassador for global inverter manufacturer SolarEdge, and now works for a commercial PV EPC, Aniron Renewables, based in Northamptonshire. Richard shared with us the insights he's gathered by installing solar panels on his own home, having moved house in 2022.

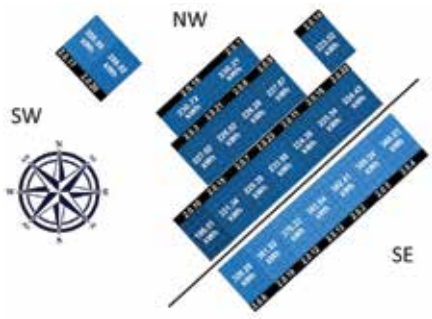
Over the years in training events, to friends, to anyone that asks for my advice on solar I say "Install as much as you can". Solar panels work very well when the sun is shining, when it's a clear cloudless day. But, with the infamous British weather, we get a lot of clouds so, in my opinion, you want to generate as much as you can when it's cloudy. You want to consider 365 days of the year when it comes to the solar installation, and I honestly believe you should fill the roof space that's available.

I moved house in late 2022 and, unfortunately, it isn't blessed to have solar panels! I could only fit seven panels on the southerly facing roof. Don't get me wrong, 7 panels on a southerly aspect is great, and certainly better than nothing – generating approximately 2500kWh a year. However, I wanted a solar system that would generate as much power as possible from the sun.

So, I decided to install on both my southerly and northerly facing roofs.

Installing on a northerly facing aspect isn't something anyone would ever really suggest. In the winter months, the northerly facing panels get no direct sunlight on them at all, and therefore they generate very little. However, in summer months, when the sun is higher in the sky, they get the direct sunlight and, quite importantly, they also get the late afternoon and evening sunshine. The benefit of having late afternoon and evening sunshine is that more savings can be made directly when we're in the house using power.

Below is a diagram showing the generation of every single solar panel in 2023.



The seven panels facing south-east have generated around 380kWh each in the whole of 2023. (The ones on the ends suffer from chimney shadows which is reflected in their reduced generation.)

As expected, the panels on the north-west-facing roof generated less than those to the south. A quick glance shows an average of 220kWh per panel which is almost two thirds of the south-east-facing roof. For a roof on which it would never be recommended to install solar panels, I think they've performed very well.

Something interesting that I noticed many times throughout the year was that, when it was a grey, cloudy day, most of the solar panels, no matter which direction they face, generally made the same amount of power.

The question many people would ask is whether it is economically viable to install solar panels on a north-facing aspect. There is lots to consider when trying to accurately calculate this: the cost of installation, the cost of scaffolding, and comparing this to a southerly aspect roof. However, self-consumption is a big factor here, as they're generating power later in the day when the southerly aspect has dropped in performance. Therefore, the economics of it all comes down to the amount of power you are not buying from the grid at this time of day, as well as the financial reward you're gaining for putting power onto the grid at this time of day.

It was my intention to generate as much power as I could to also heat the hot water tank with the generated solar power. I had a smart hot water controller installed, and now every day I use the power that would go to the grid to heat my hot water. At 5pm, when the boiler gets to its daily schedule to heat the hot water, the tank is already hot, so I no longer have to use gas to heat the hot water.

This was such an incredible achievement that for 6 months of the year my gas usage was zero.

ZERO.

It was so effective that I actually turned the boiler completely off in May, and kept it off until October, when we didn't need heating. And, without the northerly facing panels, I wouldn't have been able to achieve this. In addition, for those six months we were able to power our eight-year-old EV, which has a small 23kWh battery, just from the afternoon sun.

Installing solar panels isn't just about putting panels up on the roof and away you go. The beauty of it, and the benefit of it, is knowing how much you're generating, and then smartly using as much of that generated power when it's available.

I believe that installing solar panels on northerly facing roofs will become a lot more popular, especially on commercial roof tops, as the angle of the roof isn't as steep as a residential property. The payback, the financial benefits, and the rewards, all depend on how you're using the power, how much power you're using and when you're using the power.

We found Richard's journey so fascinating that we wanted to dig deeper – so we asked some questions about his systems, monitoring, and his plans for the future.

Q Beyond the panels, what's the system you have in your house that allows it to operate so efficiently?

I believe we've moved away from having solar panels on your house to having a "solar home energy system" with the combination of different technologies all speaking to each other. The solar panels generate the power, the devices smartly use that power in the property. After 10 years in the solar industry, I know the capabilities that solar has. With the combination of smart technologies and understanding the consumption of a property, my approach was to be as energy efficient as possible and reduce my intake of power from the grid and fossil fuels as much as possible.

Working for SolarEdge, knowing the products and knowing the capabilities of the products really helped. The SolarEdge system, although more expensive than other solar inverters, has become a residential energy system with all the different products that are designed to work together.

I think it's important for both installers and homeowners to think beyond today. Don't just think about generating energy, but also what you're going to do with that energy. It's a 20+ year investment, and you're only going to install the solar system once, but you need a buildable system for when you add different devices as your lifestyle changes in the coming years.

Q What have you learned by monitoring your system?

Monitoring of the system has become an obsession! My wife has also become very interested in it, something I never thought would happen in a million years! So much so, last year she purchased a slow cooker to use the power during the day! We use the power during the day, rather than evenings, for everyday appliances like a dishwasher, a washing machine, even an oven when cooking the Sunday roast! Sad as it sounds, the small things add up to big savings throughout the year.

Our electricity rate that we're paying for power from the grid is currently at 30p per kWh. We receive a fraction of this for the power that goes out to the grid, so this is why it's important to use the power that's generated from the solar, from a financial point of view. The price of gas has at least tripled since we moved into our house, so the savings on gas have been outstanding. It's not just about saving of electricity, it's the saving on gas too.

I believe that a kWh is simply not a familiar term to many of the public. Things like smart meters, electric cars and solar have started to make people aware what a kWh is, however, it's still not common for someone to know how much power a kettle or a washing machine uses. But I believe that once you can see it and understand it, you will use the power from the solar during the day, and reduce the energy you're purchasing from the grid. Monitoring is key. It's very important.

Q Is there anything you wish you'd done differently?

Is there anything I would change if I could go back in time? Not really, although I would like to have installed electric underfloor heating. However, the cost to change the floor would have been extremely high and I couldn't justify it. I was also interested in having a heat pump, however the house isn't right. Although we changed the windows to double glazed which was a huge improvement, the house is so old I can't have cavity wall installation, and we don't generate enough power in the winter for a heat pump.

Q What are the next steps for you in your home?

I wanted to see the viability of everything for a whole year before I invested in a battery, so I suspect this is something I'll look to in the future. However, I think in the future, with electric cars gaining in battery capacity, perhaps the need for a home battery in my situation won't be viable.

I'd really like to explore capturing the heat from the loft space and putting in some kind of ventilation system so that the hot air can be pumped down into the house. I'm not quite sure how I can achieve this, or of the costs involved, but I don't like waste and feel there is wasted heat energy I could tap into. I'm also looking to potentially adding more panels in my small garden in the future. I'm sure there will be other smart devices which I can add to my house in the coming years which I'm looking forward to. I'd love to have a very small wind turbine, or a collection of small wind turbines on the ridge of the house. I don't think it's viable, but it would be SUPER cool..

Q And what do you think is next for the industry?

I think air conditioning is going to be in big demand in the future which, perhaps, my solar system will also have a big part to play in, too.

I also think storage is the big one, including batteries, both in residential and for commercial systems. This is not just for self-consumption but for energy trading. I've said for a number of years, energy trading or grid services is like talking about the internet back in the early 1990s. It's exciting, it's different, and it is going to change everything. A huge proportion of people in the solar industry don't know what energy trading is yet, nor do they see how vital solar energy's part in it is. Residential solar systems, commercial solar, and ground mounted solar too. As the energy market changes, renewable energy - especially solar, electric vehicles, and energy storage - is going to change everything.

Earning from energy: the house of the future

FOUNDED and hosted by Robert Llewellyn (Red Dwarf, Scrapheap Challenge, Carpool), Everything Electric is a festival of electrification that has expanded its remit from electric vehicles to home energy solutions this year. Here, Everything Electric envisions the low-cost, low-carbon home of the future.

The House of 2040, built on a foundation of innovation, sustainability, and cutting-edge design, has been curated by Dan Caesar, CEO of Fully Charged, Imogen Bhogal, Presenter and Producer, and Robert Llewellyn.

A massive 57% of homes in Britain now contain a smart device and, with the global smart home market expected to generate a revenue of US$154.4bn in 2024, the journey towards an intelligent, eco-friendly future is well underway. Here are some of the factors driving innovation and growth.

Virtual power plants

In 2023, the UK grid averaged around 45% renewable energy, however, with smart home technology, everyone can turn their homes into a renewable energy power plant.

Solar PV could become the standard. With initial costs coming down around 90% since 2009, and households able to reduce energy bills by up to £450 per year using a 3.5 kilowatt-peak PV system, it is a no-regret choice for new-build homes.

EVs will become ever-increasingly sustainable for homes with solar power. With the development of chargers that fully integrate and communicate with the PV panels, smart control of home energy is simple and future-proofed.

Dave Roberts, UK Managing Director at GivEnergy, commented: "By 2040 we believe lots of houses will be virtual power plants (VPPs). By charging their batteries overnight using a lower variable tariff, customers can save up to £5 per day on energy. Some of our customers are making £24 a day selling their excess energy back to the grid with our GivBack service!"

Home energy generation brings with it the need to store excess energy to be used when it's needed most, or sold back to the grid and there is an exponential uptake in battery solutions, as we hear on page 32 of this issue.

In 2040, smart homes will come with smart cars – vehicle-to-grid (V2G) technology is already available, so homeowners will have a huge amount of power at their fingertips, allowing the vehicle to discharge energy which can either be sold back to the grid or stored in home storage batteries, ready to be used at peak times.

"We've already seen multiple manufacturers launch cars with V2G capability – including the Volkswagen ID. 4 and the Renault 5 E-Tech electric – with more to follow this year. With limited options for storing clean energy, and challenges to managing peak load on the grid, this is truly an enabling technology, unlocking significant clean energy storage and distribution potential in cities," comments avid electric vehicle advocate, Robert Llewellyn.

The future of heating

By 2040, new gas boilers will likely be a thing of the past. While some homes will turn to fully-electrified heating systems, such as resistance heaters and infra-red heating panels, heat pumps are becoming increasingly mainstream and heat networks are also on the increase.

"There are already over 17,000 heat networks in the UK, and nearly half a million homes and businesses connected to them; district heating can offer a source of low carbon heat to residential homes, and could even help tackle fuel poverty," suggests engineer and broadcaster, Imogen Bhogal.

The House of 2040 benefits from a local district heating network that uses a singular central heat source, such as geothermal or data centres, to distribute warm water through a network of insulated pipes to multiple dwellings. A recently-published study suggests that 4,000 wastewater treatment plants that sit within 2km of heating district networks could deliver around 175TWh of heat to the networks per year.

Building new houses

Almost 300,000 new houses will need to be built each year in the UK alone to keep up with demand, but building homes from scratch is taxing on the environment. Concrete remains one of the most widely-used materials in construction, with cement, the glue used to make concrete, emitting as much as 2.5 million tonnes of CO_2 per year.

A switch to variants made from waste products such as wood shavings, hemps shives from the hemp fibre industry, or coal ash, could become more mainstream, saving between 40-100% of embodied CO_2.

The gold standard for future housing is a passive house – a building that has a small ecological footprint being as much as 90% more energy efficient than typical building stock. Passive houses lend themselves to modular building techniques, which leads to greater savings, and less waste and carbon in construction.

"We must ensure nobody is left behind in the transition to clean energy, so while we can't always build new homes, we can retrofit existing stock houses so that these, too, can enjoy the benefits of wind, solar and battery storage.

"We're going to see huge advances in our homes over the next 10-15 years, and electrification really is key in providing affordable, low carbon housing, that offers smart spaces and a high quality of life for its inhabitants", concludes Bhogal.

Envirolec Smart Energy Solutions

No other industry will have bigger impact

LONDON-based Envirolec Smart Energy Solutions is passionate about, and committed to, delivering sustainable cost-effective solutions, whilst reducing carbon emissions. It was set up in 2015, by two directors, Chris Hunter (operations director) and Dan Wills (commercial director) who shared a passion for the environment and sustainability, and wanted to provide a comprehensive solution - from planning and concept to design, install and implementation, right through to commissioning and aftercare.

Q How has the business changed/ evolved since then?

The business has seen an exponential growth pattern over the last 12 months, with the need to recruit more local people to meet the needs of our clients. For the first time this year, Envirolec Smart Energy Solutions is taking on two electrical apprentices, who will be trained in solar PV electrics alongside domestic installs. We recognise that by investing in fresh talent, we can improve productivity, nurture, and pass on our knowledge and gain competent, knowledgeable, professional and skilled individuals who work with us to cater to our business needs.

Q What are your main service offers/ areas of business?

We provide renewable energy solutions to the UK's leading house builders and prominent construction companies, home, and business owners. With over 70 years of combined industry experience, we specialise in helping to reduce carbon reduction targets whilst saving money, providing a single provider for sustainable technology needs.

We are committed to supporting our clients to future proof developments and meet the increased demands towards net-zero.

Facts and figures

- We have installed PV Solar panels on over 500 commercial projects
- We have installed over 2,500 electric vehicle charging stations
- We can provide 80% energy cost savings
- We have installed PV solar panels on over 250,000 new build properties
- We currently have 28 staff and are looking to grow our design, project and install teams over the next 12 months

Q What are your goals for the business for the next few years?

To continue to be the sustainable partner of choice to our current client/ customer base and future clients/customers. We need to manage our ambitions and targets across residential, commercial, and roof-top systems recognising the pace at which this is happening. Our growth plans are to take advantage of the current market position but

realising we are working in a relatively young industry which does not manufacture its own products (in a cost-effective manner) therefore relying on mainly Asian supply, raw material price volatility and shipping costs.

Q What's your view of the renewable energy landscape as it stands?

We believe that at this exact moment no other industry will have a bigger impact on how we move forward, as people start to harness our natural resources and shape the future away from fossil fuels.
After many years at the forefront of this exciting industry, we can't see anything that will change that. In that time, we've seen game-changing innovation and breathtaking new technologies change the face of sustainability and a collective aspiration for smarter working and living environments.

Q What do you think are the main challenges for your business/the renewable industry at the moment?

As a fairly young industry, we are having to fight globally to secure modules/panels made in China. The demand outstrips the supply in the absence of government hand-outs and goes against a sustainable supply chain.

Finding and securing suitable, locally qualified employees.

Keeping up with fast-paced technology changes and training our employees accordingly.

Q What are the main opportunities for your business/the renewable industry at the moment?

The global climate crisis calls for urgent action to reduce carbon emissions and transition towards cleaner, renewable energy sources. Adopting solar PV systems plays an essential role in this transition as households and businesses work towards achieving net-zero carbon emissions goals.

Envirolec Smart Energy Solutions recognises that solar PV systems can be integrated with other cutting-edge technologies to optimise energy consumption, enhance efficiency, and support the pursuit of net-zero carbon emissions. We are committed to training our workforce to enhance their skills base in fitting battery storage systems, EV charging points and connectivity to smart grid and microgrids.

Battery storage systems: By combining solar PV installations with advanced battery storage solutions, homeowners and businesses can store excess solar-generated electricity and use it during periods of low sunlight or during peak energy demand times. This further reduces reliance on grid electricity and enhances the overall effectiveness of solar PV systems.

Electric vehicles (EV): The increasing adoption of electric vehicles presents another opportunity to leverage solar PV systems effectively. Charging electric vehicles using solar-generated electricity not only reduces transportation-related carbon emissions but also contributes to a broader sustainability strategy.

Smart grids and microgrids: Solar PV systems can be integrated with smart grids and microgrids, allowing for efficient energy management and contributing to grid stability. These interconnected systems help local communities and businesses reduce overall energy consumption, carbon emissions and energy costs while increasing their resilience and adaptability to future energy challenges.

Q Do you agree with the Government's net zero strategy?

The transition to net zero is well underway, but it is not happening fast enough. Growth in key climate technologies, including wind and solar power and electric vehicles, has helped accelerate decarbonisation efforts worldwide. The pace of scaling these technologies has not kept up with projections for a warming planet. We need a significant acceleration to meet net-zero targets.

Q Do you have any particular ideas for advancing the net zero agenda?

Part L of the building regulations aims to improve the energy efficiency and sustainability of new and existing buildings in the UK, but local, new build sites are often being built with no or little solar PV installation. It would benefit the renewable market to help reach net zero targets if local government and councils used local businesses to tender for work rather than just meeting cost efficiencies.

Q Highlight a business achievement, project or case study you're particularly proud of

Envirolec has had the privilege of participating in numerous innovative smart energy projects but, in January 2024, we reached a significant milestone. We were honoured to secure a smart energy scheme alongside The Hill Group, focusing on solar and battery storage for a groundbreaking zero bills decarbonisation initiative.

This cutting-edge technology will complement an Air Source Heat Pump (ASHP) to achieve the ambitious goal of eliminating energy bills throughout the entire development. Leveraging Octopus Energy's intelligent platform 'Kraken', which can optimise home energy systems to achieve zero bills over 12 months. This involves tailoring the system around customer controls and preferences, managing solar and battery systems within the home, and overseeing the heat pump's operations.

By incorporating data from weather forecasts and dynamically responding to market conditions, the system will offer flexibility services to the grid. Not only does this initiative contribute to a greener future, but it also enhances property value and marketability. Zero Bills Homes not only fetch higher prices but also sell faster than their bill-bearing counterparts.

We are proud to be at the forefront of this transformative project, demonstrating our commitment to sustainable solutions and driving positive change in the energy sector.

What do you think? Are your experiences similar to those of Envirolec? We're always interested to hear from installers, so please get in touch! Contact us at news@renewableenergyinstaller.co.uk.

The Heat Training Grant: Installer view

THE Heat Training Grant has helped hundreds of installers get upskilled into heat pumps at a fraction of the cost. Awarding organisation, LCL Awards, is responsible for the qualification behind many of these new heat pump engineers. We caught up with Chris Scramell, who completed his heat pump training with Daikin, one of LCL Awards' approved centres. Daikin's National Training Centre is located in Woking Surrey and has trained 85 candidates through the Heat Training Grant.

Chris has recently undertaken the LCL Awards Level 3 Award in the Installation and Maintenance of Heat Pumps with Daikin. He owns and runs CABM Solutions a plumbing and heating firm based in the Thames Valley and saw the Heat Training Grant as an opportunity to future proof his business. Chris, like many, had faced challenges during COVID and was forced to down-size and let some staff go. Now, in his mid-fifties, he's re-evaluating his career and looking to diversify. He explains:

"I've been thinking about heat pumps for a while now and have decided to focus on renewables. I've come across a lot of badly installed heat pumps lately and it's frustrating. People are being misinformed by installers who aren't doing things properly and I'd like to help improve the reputation of heat pumps and make sure that people aren't being ripped off.

"The £500 grant was instrumental in helping me decide to take the qualification. It's a decent part of the cost and, as Daikin sorted out my application for it, it was hassle free. I'd been to Daikin for a trial session prior to the course, to familiarise myself with their products and was impressed with what they had to offer."

Asking the awkward questions

"Daikin's standards are incredibly high – in both the manufacture of the kit and the training," Chris enthuses. "They're very nice people and believe me, I didn't give them an easy time. I'm the chap who's there asking the awkward questions! I've been in the heating business for a long time, and I want to be sure I'm making the right choice.

"The training was great and I'm as excited by the idea of designing systems for people's houses as much as the installation itself. The course taught me how to calculate the correct size of heat pump for each property, balancing energy efficiency against potential heat loss to determine the correct size of unit. They emphasised the importance of making homeowners aware that if they change some of the variables – e.g. fit double glazing or build an extension after their heat pump is installed, the calculation is put out and the system won't run as it should. I don't think people understand that.

> "The Heat Training Grant has given me the boost I needed to up-skill and future proof my business"

"The design side of the business is really interesting. I like problem-solving and as I get older and lose the urge to cart heavy kit around, I would like to focus on designing the systems that younger, fitter members of my team can then install. It means I'll be able to work for longer.

"I'm serious about the change I'm making and have invested in other courses to supplement this one - a heat pump design course and an F-Gas qualification so that I can also work with air conditioning units. I feel it's important to equip myself with the knowledge and experience to help people who live in all sorts of houses make the switch from fossil fuels."

POWERVAULT

Solar storage

that helps installers stand out from the crowd

THIS summer Powervault is launching the P5, an intelligent battery system you and your customers will love.

Starting at a trade price of £2,500, the Powervault P5 is a state-of-the-art fully integrated solar and storage solution, with IP65 rating and modular design. The P5 draws on all of our 10 years of battery storage expertise, and offers hassle free set-up for both installers and their customers.

Above all, the P5 enables installers to deliver better energy bill savings to customers, reducing payback time. Powervault's unique SMARTSTOR™ energy management software optimises the use of off-peak energy to deliver 80% more savings than a regular solar battery.

Alongside the launch of the P5, we are improving our partnership model to installers, which now includes:

- **Qualified Lead Sharing:** Powervault takes the hassle out of lead generation by pre-qualifying solar and storage leads and sharing them with its installer partners across the UK.
- **Tailored Training Programmes:** Time off the job can be costly to installers so Powervault helps new installers hit the ground running by offering on-site training for their first survey and installation. Further training can be delivered remotely with innovative virtual reality programmes for additional team members.
- **Fit and Forget:** Powervault's "fit and forget" approach means that once the unit is installed and commissioned, Powervault offers to proactively manage maintenance and warranty issues, freeing up installers to concentrate on the next project.
- **Proactive Remote Monitoring:** Powervault remotely monitors every battery unit, resolving alerts quickly, minimising downtime for customers and creating opportunities for installers to develop an after-sales revenue stream via upgrades.
- **UK Based Technical Support:** With a team of UK energy experts on hand, Powervault's approved installers can rest assured they have the support they need, whether it's for installation tips or troubleshooting advice. The Powervault team also handles post-installation customer queries, so installers can get on with the next job.

Be the first to offer the Powervault P5 to your customers

Becoming a Powervault installer puts you at the forefront of solar battery technology and will help your business stand out from the crowd. Get in touch today to start offering Powervault to your customers.

You can email one of Powervault's UK energy experts at installers@powervault.co.uk or call 020 3653 1111. We'll be at Solar & Storage Live London on 29-30 April 2024 – come and see us on stand G10.

Powervault P5 overview

Capacities
5, 10, 15, and 20kWh options (DC nominal)

Features
- Fully integrated all-in-one solar and storage solution
- Modular design with retrospective upgrades
- IP65 rating
- Backup protection through the Powervault Gateway
- Portal access as standard, SMARTSTOR via Powervault user subscription

Hybrid Inverter
3.68 or 6kW options

Prices from
£2,500

This summer, help your customers lower their energy bills, use greener electricity and be part of the solution to climate change with the Powervault P5.

For more information:

Battery storage is breaking records with an outstanding start to 2024

IN his regular column for REI, Ian Rippin, CEO at MCS, considers the unprecedented growth in battery installations in the UK since the first MCS registered battery installation in April 2022.

2023 was a record-breaking year for battery storage, with nearly 5,000 MCS certified installations registered across the UK. We're seeing this momentum for battery storage carry forward into 2024, with over 2,200 certified installations already recorded since the year began, setting the stage for what looks to be another record-breaking year for this technology.

MCS recorded its first battery installation back in April 2022. Throughout the remainder of this year, the monthly average stood at just 34 installations, significantly rising to over 400 installations per month in 2023. In 2024 we're now seeing an average of over 1,100 batteries being installed across the UK each month, showcasing an unprecedented rise in uptake. The growth in battery storage mirrors the growing demand amongst homeowners to store their home-grown energy, reduce their energy bills, and claim their energy independence.

Nearly two years since the introduction of the Battery Storage Installation Standard, we've seen remarkable growth in the number of contractors and installations for this new tech type. Battery storage now ranks as the third most popular technology type to be installed amongst our contractor base, with over 1,100 contractors now certified for the technology. This has increased from February 2023, having just 93 contractors certified for battery storage, our contractor base has grown by over 10 times in the space of a year.

Strength to strength

February of this year marked a milestone month for battery storage, it was the highest month on record for uptake, and the first to surpass 1,000 installations. We see this rise come after the temporary removal of VAT for all battery storage systems retrofitted onto existing solar PV installations, which came into effect on 1st February 2024. We expect to see battery storage continue to go from strength to strength throughout 2024, as the tax incentive means costs are now reduced by up to 20% for installations with solar PV, enhancing accessibility and affordability for homeowners.

So far this year 85% of certified battery storage installations have been installed alongside a solar PV system. We're seeing that combining battery and solar PV is becoming a trend amongst homeowners, allowing them to make the most out of their home-grown energy by storing it for use during peak consumption times, or by selling it back to the grid under a Smart Export Guarantee.

Exceeding expectations

One homeowner, Stephen, recently spoke to us about his experience of installing both battery storage and solar PV on his home in Telford. Installed by MCS certified contractor Craig Michael Renewables, Stephen reported that his installations had surpassed expectations, generating more electricity in six months than the average British household consumes in a year.

In the consultation on the 2025 Future Homes Standard that was published last year, the Government 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.

Battery storage plays a vital role in driving forward the UK's progress towards net zero. We anticipate continued demand and growth for this technology throughout 2024 and remain committed to closely monitoring its uptake, whilst informing government and industry stakeholders of its progress.

A smart future: connected Homes and the green energy transition

AFTER a recent webinar in partnership with the Chartered Institute of Plumbing and Heating Engineering (CIPHE), Kevin Lowe, Technical Manager at the Hot Water Association (HWA), discusses the crucial role cylinders can play in the future of renewable heating.

As the UK aims for a 78% carbon emission reduction by 2035 and Net Zero by 2050, low to zero carbon heating solutions, including hot water cylinders, will become critical to achieving this target. While there are currently nine million cylinders in England, just under 45% of homes have one installed, a decline from 77% in 2001.

The UK has excelled in recent years in producing renewable energy, often witnessing days where no reliance on fossil fuels for electricity generation is necessary, proving that a renewable transition is achievable.

When it comes to heating systems specifically, new HWA research has revealed how the future of renewables can be unlocked through the integration of hot water cylinders.

Harnessing energy stores

The HWA's latest report, Connected Homes, spotlights the role of hot water cylinders as long-term energy stored. Thermal energy storage incorporates a range of hot water and thermal store cylinder solutions that store energy as heated water. From low-temperature domestic hot water storage to high-temperature process heat to large district heating buffers, the application is universal. This is notable in the millions of hot water cylinders installed and maintained by heating engineers in homes across the UK.

For use in the home, hot water cylinders must work smartly if they are to be used as energy storage. Indirect cylinders with electric immersion heaters that are to be used as an energy store – either by sourcing energy directly from the grid or from solar photovoltaic sources should be paid significant attention. If it is a connected appliance, such as a heat pump, prime performance can be achieved through control of the heat source. Fitting a cylinder with built-in smart abilities or retrofitting the cylinder with smart controls allows customers to control hot water schedules with an app while also providing additional energy consumption insights.

If the consumer prefers, control can also be outsourced to third parties, with a plethora of choice facing homeowners. They can choose between the smart control within the appliance, retrofitting a thermostat, connected to a switchboard or smart plug, or embedding a Wi-Fi module. Here, there is a vital role for installers and heating engineers, as they can use their knowledge and expertise to inform consumers of the right choice, dependent on their requirements.

So, what's in it for consumers?

In short, the benefits are substantial. By optimising hot water cylinder heating to take advantage of lower electricity prices during off-peak hours, customers can reduce their energy bills. A similar approach in Ireland has already proven successful, facilitating renewable energy adoption while helping many fuel-poor homes. Research showed that equipping 450,000 Irish homes with smart cylinder technology could accommodate around 90% of curtailed wind power.

Homeowners can also increase self-consumption of solar energy by directly using solar electricity generated during the day to heat water in the cylinder, avoiding the need to sell excess energy back to the grid at a lower price or to install costly batteries.

The connectivity and flexibility of hot water cylinders enable more inclusive uptake of decarbonised technologies. According to the Connected Homes report, heat pumps paired with cylinders are projected to rise 651% by 2030. Heating water during times of abundant renewable supply brings customers closer to decarbonising home energy use without severe upfront costs. This can also provide low-carbon solutions for social housing and homeowners with limited funds for green upgrades.

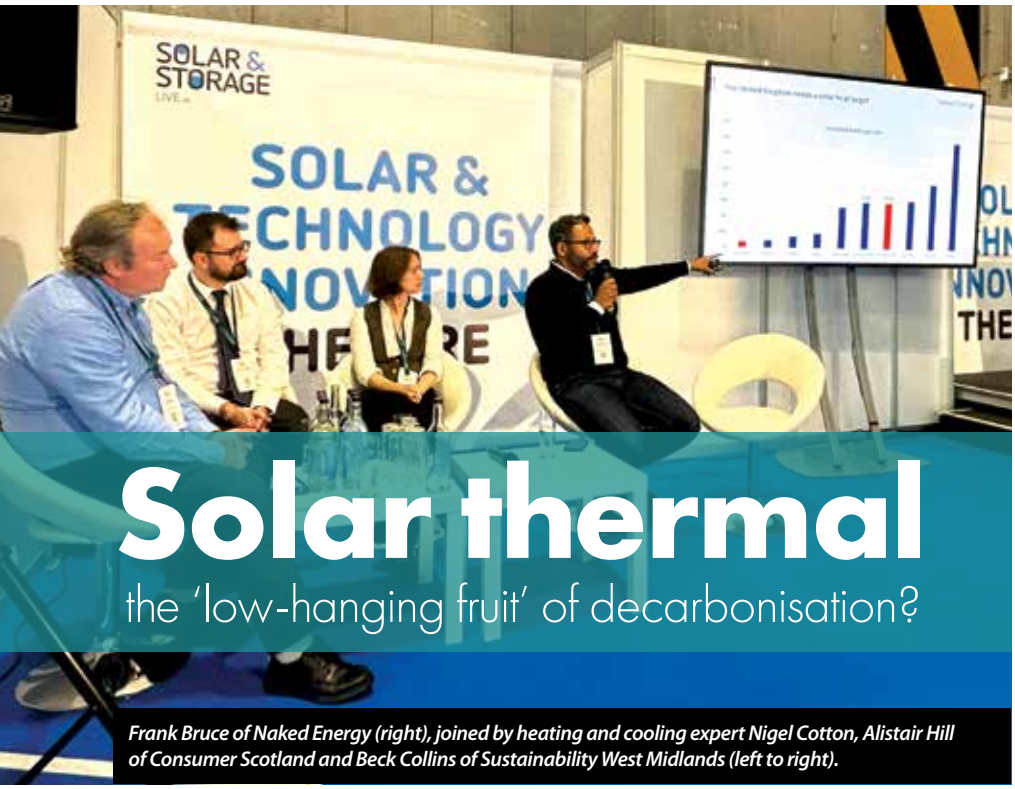
However, policy reforms are needed to lower costs and encourage these upgrades. Retrofitting a cylinder with smart capabilities ranges from £100-£2,000. Introduction of grants and incentives is essential to provide the financial support required to spur adoption.

An achievable, flexible future?

UK homes use 250 Gigawatt hours of electricity per day. The Connected Homes report envisions hot water cylinders as batteries for grid electricity, unlocking 23 Gigawatt hours if smartly connected. However, to release this potential, smart functionalities must be integrated and collaboration between industry, government, and homeowners must be achieved.

Faced with a myriad challenges – from soaring costs of living, to reduced support on energy pricing – many households are struggling. In this current landscape the significance of renewable sources such as heat pumps and solar panels will no doubt escalate. As highlighted in our report, calculations reveal the potential for households to save £200 per year by optimising their hot water cylinder usage with clean energy or time of use tariffs. For consumers to successfully benefit in this way, we must provide robust mechanisms to stimulate uptake of hot water cylinders via grants or similar incentives as well as encourage the use of smart controls.

Energy security and resilience will sit at the centre of debate for years to come. Thankfully, smart cylinders can be used to mitigate the risk of outages during peak demand, providing peace of mind to both grid providers who face fines in the event of disruption, as well as customers who are determined to reduce their energy bills.



Solar thermal

the 'low-hanging fruit' of decarbonisation?

Frank Bruce of Naked Energy (right), joined by heating and cooling expert Nigel Cotton, Alistair Hill of Consumer Scotland and Beck Collins of Sustainability West Midlands (left to right).

AS a decarbonisation solution, solar thermal receives much less attention than other renewable technologies yet, for many, it has a huge role to play in the energy transition.

Across Europe and globally, solar thermal is growing in significance for its ability to provide a clean source of heating and hot water, while reducing demand on fossil fuels, reducing reliance on the grid and improving energy security.

Solar Heat Europe is among those actively promoting the use of solar thermal technology for renewable heating and cooling. Its publication 'Energising Europe with Solar Heat – A Solar Thermal Roadmap', has been signed by more than 100 entities and sponsors.

Heating is responsible for around 50% of global energy consumption and, according to Solar Heat Europe, solar thermal represents the main 'low hanging fruit' among the available solutions for decarbonisation and its emissions saving potential is 'severely underestimated'.

UK-based Naked Energy is one of the main sponsors of the Solar Heat Europe roadmap, and it was interesting to hear the solar tech firm's view on the role of solar thermal during a panel discussion at the last Solar and Storage Show.

It asserts that the UK should have a solar heat target and has set this at 11GW of solar thermal to be installed by 2030. This equates to 0.16kwth per person and matches the EU target. Countries like Germany, Denmark and Austria have already met or significantly exceeded this target, while France, Sweden, Ireland and the UK are languishing far behind.

The UK currently stands at just 0.02kwth and would need to see 26% growth in solar thermal every year from now until 2030, across both residential and commercial.

Presenting the figures at the Solar and Storage Show, Naked Energy marketing lead, Frank Bruce, said: "It's a tall order, but we feel it's not insurmountable when you look at other countries like the US, Poland, Greece and Italy, who have all seen that sort of growth recently."

A critical role in energy transition

According to the roadmap, solar heat has a critical role to play in the energy transition as a competitive and reliable source of heat for homes and industry. It says the potential has been underestimated and that while electrification of heat is 'a reality and shall continue evolving, its complementarity with renewable heat supply needs to be further exploited' and should be given the same political support as solar PV or wind.

The report cites a number of benefits to solar thermal, including:

Cheaper than electrification: Solar thermal means a completely clean supply of heat, not being dependent on the carbon content of the electricity supply.

Positive EU trade balance: Solar thermal has the hegemony of supply to the European market as a net exporter, with manufacturers across Europe, rather than relying on imports from Asia.

Contribution to climate: It's among the most environmentally-friendly of renewable solutions when considering the full product lifecycle. A solar thermal system for space and hot water heating saves around two tonnes of CO_2 per year (when replacing an oil-based heater).

Energy storage capacity: Solar thermal systems installed in Europe have a combined energy storage capacity that is 20 times greater than the total power storage capacity available.

Energy density: Solar thermal is more energy efficient than other solar technologies, able to provide over three times more energy than solar PV and concentrated solar power (although availability of rooftop space is a factor).

Combines with heat pumps: A hybrid solution of solar thermal and a heat pump combines the strength of the two technologies for higher performance.

According to Naked Energy, a typical UK solar thermal installation can meet 40% to 60% of heating and hot water needs, thereby halving gas bills and carbon emissions.

Why isn't solar thermal higher up the UK agenda?

The various reports and data are very convincing, which begs the question as to why solar thermal isn't higher up the UK agenda.

Frank said: "The problems are a lack of consistent regulation, lack of financial support needed to provide security of investments and a lack of skilled workers. There also needs to be more awareness.

"Solar thermal is much more efficient than PV, depending on the type of tech. There was a peak a few years back thanks to the Green Homes Grant which enabled homeowners to decide what to invest in, but then for whatever reason, it was stopped.

"It's also a really good decarbonisation pathway because you can install solar thermal with your gas boiler to slash emissions now, then tackle the remaining carbon at a later date by adding a heat pump or green hydrogen."

Also on the panel at the Solar and Storage Show was Nigel Cotton, a heating and cooling expert who has worked on a number of high-profile projects. He said: "Solar was growing 20% per year in 2007 when you could earn money from it, which shows you can increase the market with the right conditions. The technology can be put in place for a mass ramp up; integration into housing stock is a question, political will is a question, funding is stop go and that is a question, but these can all be overcome."

Reducing reliance on the grid

Solar thermal also has the advantage of reducing reliance on the grid to power heating and hot water.

Frank said: "Heat pumps are a big topic, and we like heat pumps, but that's not necessarily the right technology for every use case. The UK has one of the oldest power grids in the world, and the amount of heat pumps this country needs to install to meet its net zero obligations is significant, and also requires a significant upgrade of grid capacity.

"You can't electrify your way out of the climate crisis. If you were to electrify heat totally you would need three to four times the amount of the existing grid capacity, and who is going to pay for that? Where would it even go?

"Even if you only power your hot water using solar thermal, that's one less strain on the grid. So solar thermal helps to alleviate one of the biggest issues we have in energy transition, and that's the grid."

Achieving the solar heat target

Like many renewable technologies, there's still a huge amount of work to do around education and awareness, and until it's supported by policy and investment, it can be difficult to get the mass market on board.

"It needs to start with regulation. Regulation that housing stock needs to become more efficient, that PV or solar thermal should be installed on every rooftop in the country," Frank said.

"Once that law is in place, then you have the financial sector backing because there's money to be made. Then you get the people you need joining those industries.

"We need to be having open conversations about solar thermal – how much it will actually cost you to heat your home, the grid issue, all of it. For installers it's crucial to inform themselves, do all the training courses available and have enough knowledge to advise on the technologies available to create a complete renewable home solution.

"It's the future, and if you know what you're doing, you'll never be out of a job."

A 'comfort index' for the UK home

Nigel believes that the way forward is to provide a comfort system, rather than a heating system, with renewable solutions that heat in the winter and cool in the summer.

He said: "Solar thermal doesn't get good exposure in the UK, so my argument is we need a comfort index when we sell a house, which covers the heating, the cooling, the air quality.

"The comfort index is a way of saying we're not buying bits of technology anymore; we're buying a level of comfort that is renewable."

Indeed the Solar Heat Worldwide report from the International Energy Agency has also predicted growth in this area, citing that 37% of the total electricity demand growth will be for air conditioning by 2050. Therefore resulting in 'enormous potential for cooling systems that use solar energy, both solar thermal and PV-driven solar cooling and air conditioning systems'.

While these are global predictions, we have seen situations during heatwaves in the UK in recent years where electricity has had to be bought from other countries at high prices to prevent blackouts.

The Government's Heat and Building Strategy also talks about changing the way we 'heat and cool our buildings'.

With various agencies, such as Solar Heat Europe and the International Energy Agency, predicting growth across Europe and the rest of the world, it will be interesting to see how the solar thermal market develops in the UK this year.

Do you have a view on the role of solar thermal in decarbonisation? Are you working on an interesting project in this area? We'd love to hear from you. Drop us a line at **linda@renewableenergyinstaller.co.uk.**

Seamless solutions for retrofit battery storage

THE production and storage of energy, particularly electrical energy, is of increasing concern to both building developers and environmentally conscious home owners, but how is it best achieved?

Despite the often windy conditions in the UK and a comparative lack of sunshine compared to our southern European neighbours, in the majority of locations, solar remains the most practical solution for harvesting electrical energy. With ongoing technical development delivering increased efficiency with every new panel being brought to market, it becomes an increasingly attractive option.

However, for the most efficient system, the storage of energy is equally important as its generation.

With Its long history, deep understanding of the sector, reputation for quality products, specialist knowledge and diverse product portfolio, Ecobat Battery is the UK's largest battery supplier offering a wide range of power storage solution in order to deliver the Ecobat mission of 'Any battery. Anywhere.'

At the forefront of power storage technology, EcoFlow is an innovative specialist with a wide range of products that deliver alternative power storage solutions. We spoke with Ecobat to find out more about the Power Ocean DC Fit, the latest product from EcoFlow.

"The recently launched EcoFlow PowerOcean DC Fit is an excellent option for the domestic new build or renovation environment, as it sits between the solar panels and an existing inverter. This is made possible by its unique coupling technology and means that it can be seamlessly installed without any extra certification and instantly add a power storage capacity to the home, maximising the efficiency of the user's existing solar system, which can be called upon for instant power, stored for later use or sale back into the national grid."

Unparalleled ease of Installation

"The PowerOcean DC Fit is a modular system available with one, two or three advanced 5kWh LFP battery packs, each of which has an 800V high voltage battery to independently start both single-phase or three-phase solar inverters. With trusted LFP battery chemistry from CATL and a comprehensive range of active and passive safety measures, it delivers unrivalled battery reliability and performance

"Utilising EcoFlow's pioneering self-adaptive control algorithm, the PowerOcean DC Fit solution also smartly mitigates the risk of oscillation between the solar coupled battery system and the third party solar inverter, with up to 15kW solar input bypass power per string.

"In addition, unlike many other battery solutions on the market, the PowerOcean DC Fit connects its batteries directly to solar ports, and as there is no need to replace the existing solar inverter or change the wiring on the AC side, the entire system is unparalleled in its ease of installation.

"As well as being quick to install, it can be located inside or outside and features smart monitoring via a web portal or an app, has an integrated battery management system, is equipped with an auto heat module to ensure efficient winter operation and has fire suppression built in.

"In short, for installation in applications that produce solar energy for domestic consumption and sale to the national grid, the EcoFlow PowerOcean DC Fit is a truly great solution as it enables the effective and efficient storage of excess energy that can be used either for resale or for periods when solar production is not possible."

Energy storage
poised for exponential growth

AN engineer and business leader who drives corporate transformation by translating strategy into action, Robin Stopford joined Powervault In November 2023.

Here we talk with Robin about what drew him to join this British green energy tech company and to hear his thoughts on the current energy storage market, the future direction for the company and how energy management software and 'time-of-use' tariffs are set to deliver exponential growth in the domestic sector for renewable energy storage solutions.

Q Robin, please give us a little of your background before joining Powervault

Before joining Powervault late last year I was at James Fisher and Sons, the marine engineering business, where we were very focused on supporting the energy transition. Before that I was at Spectris, the high-tech instruments and equipment company. I'm an engineer by training – I started at Rolls Royce – and I'm convinced that technology has a vital role in decarbonising the energy market. I've worked in many corporate roles in industrial and technology businesses, often during periods of change and growth – I like pulling things together and making them work. In my corporate roles I have invested in many small innovative technology businesses, helping them fulfil their potential.

Q How did the role with Powervault come about and why is it the right move for you?

"Be part of the solution" is an idea which means a huge amount at Powervault. That's what really brought me here. Powervault is a terrific business, it has the pioneering green energy technology and culture to play a meaningful role in transforming the way people use energy. I have the skills, passion and network to grow technology businesses. But there is still work to do. We need to make sure people know about our high-quality solar batteries and unique software like SMARTSTOR, keep designing great products, and keep building our UK-based customer service.

Q Give us an overview of the UK domestic energy storage market, highlighting the key drivers and what you consider to be the tipping points for uptake.

We're at a tipping point right now. Electricity prices have increased significantly over the last five years so people are looking for more savings on their bills. The price of solar batteries is coming down and they are getting better, more reliable and easier to install – all of which is great for installers. Time-of-use tariffs and energy management software are opening up further savings. It all makes storage more attractive, whether it's retrofit or new installations. There are already nearly 1.5 million homes with solar panels in the UK – consumer interest in green tech is getting stronger and stronger.

Q Give us a little on the background and evolution of Powervault since its launch in 2014.

Powervault started in the days when people were putting solar panels on their roofs and getting paid by the government for exporting electricity back into the grid under the feed in tariff scheme. We realised that you could store excess solar electricity at home in a battery. Our very first prototype used lead-acid car batteries from Halfords and a simple control system. Obviously we have come a long way since then, moving to lithium ion batteries, enhancing our controls, and adding a portal for customers to understand their energy usage and most recently adding AI technology. All those years of really learning how batteries work, how they need to be controlled, seeing what other manufacturers are doing – that bedrock understanding allows us to provide customers with robust solutions and really supportive customer service.

Q Powervault is a specialist in smart storage solutions. What do these add to the drive for energy efficiency, reduced consumption and the transition away from fossil fuels?

Solar panels, time-of-use tariffs and batteries all offer huge potential for saving money and using greener electricity. The magic happens when you get them working together effectively, and

that's where the energy management software comes in. Our AI software, SMARTSTOR, learns your individual energy usage patterns, constantly scans the weather forecast, and knows your tariff, so that it can make daily decisions about how much cheap energy from the grid to store and how much battery capacity to leave available for your free surplus solar generation. We think it's a game changer that really resonates with users. This technology can also help shift the load away from the peak grid use time of 4:00 – 8:00pm. When lots of people do this, more and more off peak renewable energy will be used, this enables the grid to work more effectively and help the transition to net zero.

Q You have indicated your enthusiasm for working with entrepreneurial leaders, building the best teams and helping teammates to fulfil their potential. What are you hoping to bring to Powervault and what will success look like for you?

Everybody has more impact when they are a valued member of a winning team on a worthwhile mission. My job is to make that happen: to help teams align on a clear goal and take the actions to reach that place. Success will be lowering energy bills for a lot of people around the world, and reducing their carbon footprint. It means new products, new technology and new sales channels.

Talking about teams, we're spending a lot of time extending our installer network – we want to make their installation jobs faster and simpler. One advantage we have is that we're UK-based so can talk to installers easily and help to resolve issues. We think it's right that we take responsibility for our products by supporting installation with full training and advice for installers, and that we directly resolve any customer questions and concerns and that we support the warranty directly.

We're launching a new hybrid inverter right now, meaning our batteries can be installed alongside new solar panel installations, not just as retrofits. We're looking forward to expanding our range further soon, we can't say much now but think the market will find it exciting. We are working with a few installers we know well to make sure it's a big success.

Q Domestic storage solutions are strongly associated with solar installations. Is there an argument for installing storage solutions in the absence of solar?

Yes, the reasons for installing batteries, even if you don't have solar, are getting stronger. It's becoming easier to make the most of new time-of-use tariffs, by combining them with batteries, so that you buy energy at the cheaper prices and store it for when you need it. Batteries are becoming cheaper and better.

Q Tell us about compatibility across the domestic renewables industry. Are manufacturers collaborating to ensure different elements can be combined easily by installers to deliver optimal solutions for customers?

At Powervault we have worked to make our product work alongside other products in the green tech ecosystem, and with energy tariffs from a number of different suppliers. Some installers like to use systems from the same supplier, but we hope to convince them to choose best of breed products instead. We can help by providing customers and installers with advice about how to set things up to work well together.

Q How much impact has the scrapping of VAT on energy storage systems had on uptake? What additional changes would you like to see in legislation, funding or certification that you believe would facilitate far more rapid domestic energy decarbonisation?

We spearheaded a campaign to scrap VAT on storage retrofit and were delighted when the government made that decision. It aligned storage retrofit with the rest of the market, and unlocked a pent-up demand. The resulting lower price should give a sustainable boost to the market. We have worked hard with our installer network to ensure that those savings are passed through to customers. Other changes that would be welcome? We are a long-standing campaigner for new legislation to facilitate energy storage and unlock the significant CO2 reduction benefits it can bring. It has often been a struggle to get distribution network operators to permit connection of all forms of clean energy technology to the grid – but we all know that batteries help the network because they store unwanted generation and use it to reduce peak demand. There is still more that the Government, Ofgem and DNOs could do to make it easier to connect batteries and unlock CO2 benefits.

Q What does 2024 hold for Powervault?

Right now we're getting ready to launch the Powervault P5, our new solar battery, which we think installers are really going to like. In addition to the hybrid inverter, it's IP65-rated for outdoor installation and has modular all-in-one construction, ranging from 5kWh up to 20kWh. It's easy to install, competitively priced and we think users will love the slimmer aesthetic finish.

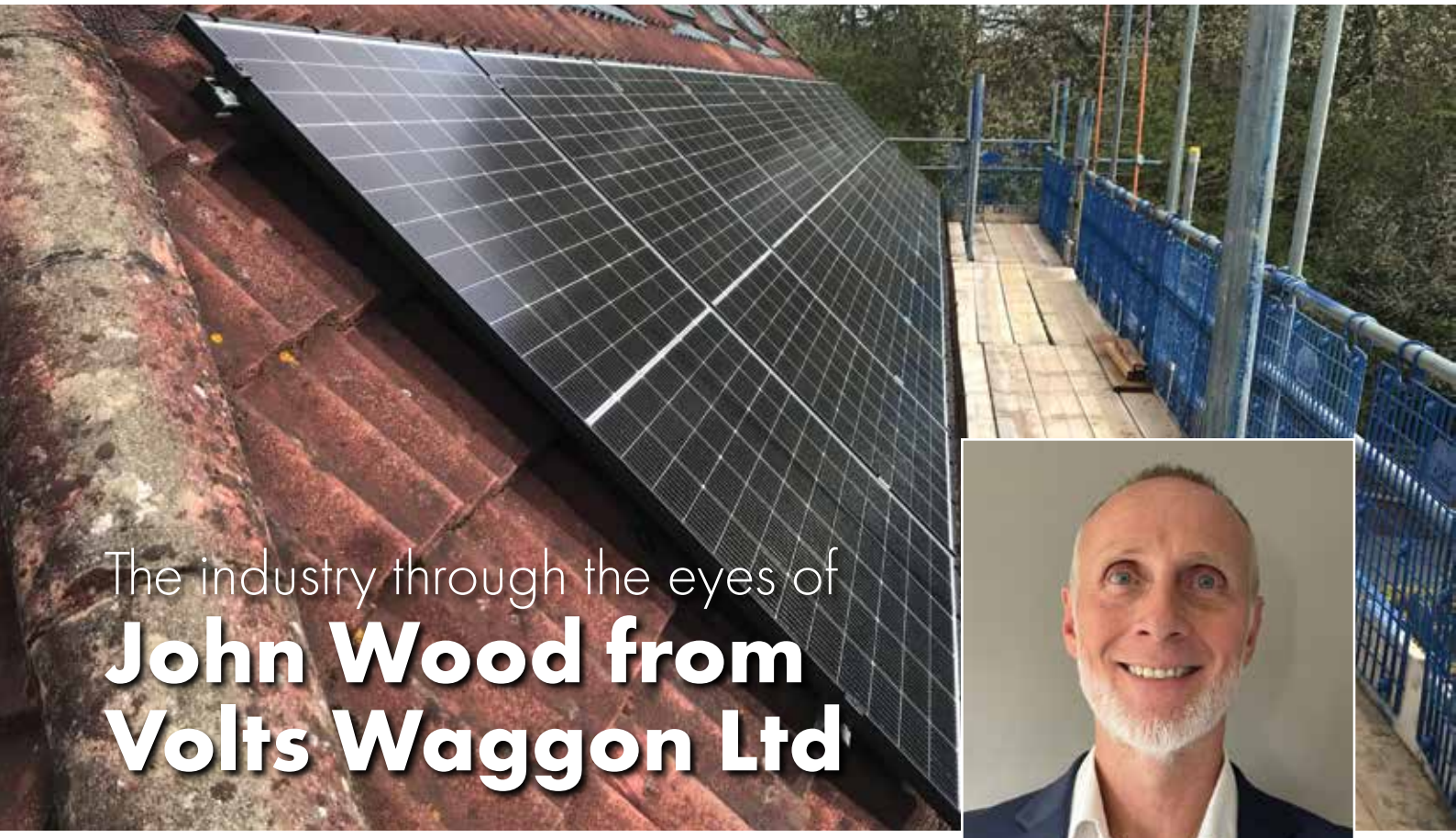
We're aiming to launch the P5 in the summer. In order to make sure it delights installers and customers from the outset, we're currently in the midst of a rigorous testing programme, and are working with a few installers we know well to make sure it's a big success.

Alongside the P5, we'll also be launching our new subscription service, which will incorporate the benefits of SMARTSTOR and several exciting new features. These will make it even easier for Powervault to manage customer support over the lifetime of the battery.

We're looking forward to talking to installers about it all at Solar & Storage Live, together with some other new products which we'll be unveiling there.

Q What do you believe the future holds for installers of domestic renewable energy systems – what will be the hottest solutions?

The future is exciting because the underlying market continues to grow through the growing demand for electricity and drive to net zero. There will be innovative alternatives to lithium ion, algorithms to optimise storage cycling will improve, and EV batteries will become part of the mix. The installation market is very competitive at the moment, but as customer awareness grows there will be a shake out. The installers who thrive most will be those who give good advice to customers, a quick response, adapt to changing technology and provide safe installation.



The industry through the eyes of John Wood from Volts Waggon Ltd

WITH REI back in print and reaching more people than ever, coinciding with the increase of interest in renewables, we want to get to know you – our community of installers, on the front line of this huge transition. That's why we're delighted to introduce our new regular feature, Installer Insights. With this series, we'll give you the chance to read about the industry through the eyes of other installers.

First up, we have John Wood, founder and director of the Hampshire-based Volts Waggon Ltd.

Want to get involved? Read to the bottom of this interview to find out how.

Q Tell us about your career as an installer to date

I have been in the sector as a prosumer (producer and consumer of electrical energy) for over 10 years. I worked as an electrician on installations in the industry over the years and formed Volts Waggon as an installer in November 2022. I manage a small local family business, and I love to provide general consultation to help people reach informed decisions on a renewable energy solution that meets their needs. Our certifications include MCS (battery as well as solar), RECC, Trustmark, NAPIT, CPS, TSI.

Q How has the last year been for you in terms of business? Have you noticed any trends in demand?

2023 was enjoyably busy, with 29 local installations that involved various combinations of solar, battery storage, EV chargers and general support and maintenance.

There is an increase in demand for: (i) battery storage, (ii) replacement of parts of older systems that have started to fail.

Q Are there any new technologies, tips or tricks of the trade that are working for you right now?

Lots! There has never been a better time to invest in battery storage, whether that is as a standalone system without any solar, added to an existing solar system, or installed in conjunction with solar. Technology has become safer and more affordable. There are sometimes opportunities to get paid to use electricity to charge your batteries. Microinverters and optimisers can offer significant benefits compared with low-cost string inverters such as greater safety, more longevity, better performance, superior monitoring and better support and maintenance.

Q What are the biggest opportunities for renewable energy installers right now? Is there anything you're excited about?

Some properties have limited options to cater for solar panel installations, and battery storage alone can sometimes offer a shorter payback period than solar. This all depends on tariff, and there continues to be exciting opportunities to explore as tariffs evolve: not just for installers but also for consumers to save on electricity bills.

There are systems available for as little as £2 a month which can automate the process of charging and discharging batteries in accordance with fluctuating market rates and achieve even greater savings than default settings.

Solar panels have halved in price over the last 6 months, it is significantly cheaper to get solar installed than it was back in 2011 when the Government provided a Feed In Tariff (FIT) subsidy in the form of 43.3p per kWh payment. Add to this the fact that solar panels generate twice as much power as they did 10 years ago. A modest solar only install can start under £5,000.

Battery storage is a more recent addition to the renewable energy story that has huge potential and, whilst this is currently the most expensive part of a solar and battery installation, the EV industry anticipates a 50% reduction in the same battery storage technology. It would be very exciting if this technology becomes accessible on a significantly lower budget to enable more people to reduce their electricity bills.

The current level of dependency on coal and gas in the UK need not be the case moving forward.

As of 2023: for the first time, global investment in solar was greater than that of oil.

For the first time in history, everything about putting solar panels into space to meet the planet's energy needs in future is entirely doable not just from a technology point of view but also economically.

Q What are the biggest frustrations or concerns you have as a renewables installer at the moment?

Here's a list.

- Fuel Poverty – defined as households where more than 10% of disposable income is spent on fuel. The number of households this applies to is estimated at 6.3 million in the UK. There are significant savings to be made from battery storage, with or without solar, (which can cost significantly less than heat pumps) but without support or incentives such investments are out of reach for those who would benefit most.
- Misinformation published in tabloids and social media sites, especially surrounding EVs and Lithium batteries.
- The Government feigned interest in, and evidenced apathy of, meaningful targets towards Net Zero.
- The market flooded with "lead generation" services, some of which do more harm than good.
- Too much choice in the form of several dozen manufacturers of inverters, batteries and EV chargers with varying specifications, functionality and proprietary ways of working, all of which make it difficult for consumers to make comparisons.

Q What's the one piece of advice you give to people getting into renewable installing?

You are a pioneer; enjoy the journey; join a good team that rewards you well.

Find out more about John and his work at: https://voltswaggon.co.uk/

If you're an installer with insights to share then we'd love to hear from you! Email jessica@renewableenergyinstaller.co.uk with a little about your organisation, and you could find yourself on these pages.

Derek Hettenbach

life as an independent solar consultant

DEREK Hattenbach is an independent consultant based in Banbury. He provides tailored solar and renewable solutions to his clients, working with a number of different installation companies and suppliers to fit the systems to the job. Priding himself on the personal touch, Derek shares his journey and experience, and offers advice to anyone who feels they have been undercut by a dodgy Facebook ad recently.

Q What was your path to becoming an independent consultant?

I started in renewable energy about 13 years ago, at the time the government Feed-In Tariff was being introduced to kickstart an industry that, although up and running, needed support to meet commitments in alignment with international agreements. This carrot and stick approach started the industry that we know today, and I realised that this opportunity could create not only an income, but also a benefit for homeowners. I began training to become a surveyor for solar panel installations, advising homeowners of the benefits and explaining how the financial model would work for them. As a natural progression, I worked not only as a sales representative, but also as a consultant to make sure the customer fully understood all aspects, benefits, pros and cons of a potential installation.

The industry, at that time, began to attract a less than desirable reputation because of the actions of some disreputable companies not providing the correct services to their customers and due to sharp practices of sales staff. I made the decision to only work with a company which had an impeccable reputation for honesty and quality of service.

Unfortunately, because of rapid expansion, that company began to experience problems with maintaining their high standards, as volume meant customer service suffered. Rather than continue working directly with them, I decided to take control of the presentations and offerings to customers, as an independent consultant, to maintain the integrity of the process. I began to build a network of trusted installers to complete the work my customers required.

I was therefore able to work in the best interests of the homeowner or business owner, able to find the right installation company to do their work, rather than only working on behalf of a single business which may not be the best installation company for that style of solar panel system.

I have been independent for just over six years now and have working arrangements with several installation companies, so I'm able to offer a number of options for consideration, tailored to the individual requirements of the homeowners and commercial property owners alike. This works to the benefit of each of my clients as there is no bias towards any one company and means there are always several different propositions to consider. I work almost exclusively by recommendation and personal introductions. Referrals are the strongest form of connection in business.

Q What are your thoughts on the future for renewables?

The future of renewables is very much in the control of the Government and the organisations responsible for the upkeep of infrastructure and the utility grids in this country. The infrastructure has been underfunded for many years, and integrating new technologies with a crumbling and outdated connection system is unlikely to be successful.

Planning departments and distribution network operators do not seem to be ahead of the curve, rather they are being left behind by technological advances and acceptance of new technologies designed to benefit consumers. Without a change of attitude, whether voluntary or by government instruction, we will not be able to fully take advantage of existing potential.

There seems to be a fluid attitude in government of what is the right direction to take for the future of energy supply. This constant uncertainty benefits no one, and what is clear is that policy from the highest level needs to concentrate on upgrading, maintaining and building the framework upon which a viable and renewable-based and self-sufficient energy grid can be built to give us all energy independence.

Net zero targets cannot be met through indecision, U turn or party-political posturing. Target dates are irrelevant if the goal posts are constantly changing. Consensus across all spectrums is needed. I'm not sure that can be

achieved in the current world economic climate where energy supply is being weaponized.

Q What does an average week look like for you?

There is no average week; every week and every day is a different challenge, prospect and opportunity. Networking is an important part of my business life and I network extensively. Enquiries and requests for assistance can come in at any time so the online diary is constantly being updated. Where possible, I like to leave at least two hours daily to be available for consultation, but I can be very flexible around appointments. Personal time is also a priority as I am well aware of the burnout risks of running your own business.

Q Tell us about your customer's journey

I start with a relaxed, no-pressure consultation to establish the customer's requirements through a fact-finding discussion of the current situation they're in. This consultation is to answer questions about the process, the industry, the pros and the cons, the installation partners, and, in a lot of cases, to dispel the myths that have grown larger over time that customers find on Dr Google!

Unless I fully understand their current circumstances, I have no information to be able to suggest possible solutions. It is never an 'on the day' pressure sales approach. It is a large investment needing a qualified decision, so my job is to set out the facts and allow the customer to decide without resorting to the tactics some use.

People rarely enquire in situations where everything is going smoothly, and when everything financial in their lives is in order. There is normally a problem or a difficulty which is causing them pain for which they are looking for a solution. As a consultant, you need to understand what it is that is causing them this discomfort.

It can be quite personal to discuss, and a 'sales' approach will never truly get to the heart of this. Having understood and clarified their situation, and the problems they have identified, the next step is to discuss the two possible outcomes that may occur: with or without solar as a remedy to their pain. If they want to understand the benefits, they should compare that to the alternative path of doing nothing, delaying or considering something else to solve the difficulty they are in. If they continue on the same course that they are on now, what are the implications of doing so and how does it affect the problems they have expressed in the future? Is the problem they have identified going to get better over time, or worse over time? Is continuing as they are viable, or does some solution or action need to be found?

It is only by understanding their situation, problems and the implications of doing nothing that you can discuss the potential for assisting them. This is about showing the potential benefits of solar and battery storage to fulfil their needs and protect them from energy price inflation. It is the Goldilocks approach: find the solution that is just right for their personal needs. I don't specify a system inappropriate to their exact needs and anticipated future consumption or upsell systems that are too large.

This process requires honesty and trust from all parties, a straightforward explanation of the facts and figures, and a genuine desire to allow the customer to make the decision that is best for their circumstances. The last thing you need, having been open and honest, is a salesperson trying to force you into an immediate decision and using every trick in the book to try to get a signature from you without allowing you the time to make a qualified decision. A forced contract is a cancelled contract.

Working with an independent consultant like me, instead of a supplier, means that there is no bias towards any single individual company and more options become available to the customer. I work for the client's benefit, with their requirements and best interests in mind, and find the right trusted installer for them.

Q What is your favourite part of the job?

The satisfaction is in seeing a job that I have specified and priced and placed with the installer of the customer's choice completed right first time every time. I enjoy seeing the results coming through over the course of time in exactly the way both myself and the customer anticipated.

OPINION: Consultant Derek Hattenbach shares his biggest concern in the solar industry right now.

"I have spent years finding the right installing partners, the client is unlikely to find one by clicking on a Facebook link."

Derek is passionate about sharing his understanding of the sales tactics being used to advertise solar solutions on social. Here's a quick guide to help you communicate your value to potential customers when they compare your price to the prices they've seen online.

Were you tempted by, or did you click the button on a Sponsored Facebook Ad about Solar? Let me save you some time and dissect the clickbait used to trick you into a sales process.

- There is no "secret your electricity supplier is keeping from you".
- There is nothing the "Government is avoiding telling you".
- Your postcode alone doesn't determine if you can have solar, so it does not need checking.

The individual property and its characteristics are what matters more. All solar panels available in Europe are designed for the European and UK market by default.

- "No upfront cost" normally means a no deposit loan.
- No-one is "Paying You" to go solar.
- There is no "Special Price". They will quote for what they think they can get away with.
- A call to "my manager" is a drop-selling tactic not a true offer.
- Beware the price tag "from" implying a lower price than the actual price.
- You will not see real pricing as they want to have a rep visit you to close a deal on the day.
- There is no "New Technology" system you need to check for eligibility on.

These Ads are data mining, a hook to get your contact details, not to give you information. Your contact details become data to be sold to multiple solar installers.

- "Compare Prices" means your details are automatically shared and then sold to the market.
- The "Package" is what they want to sell, not necessarily the best equipment level for you.
- The price will be a high starting point as they have high lead costs to cover.
- If they can suddenly find a cost reduction for a quick decision beware!
- A phone call to offer a lower price because of a rescheduled installation is a last resort ploy.

If a customer really want the facts about a potential solar installation, and what it could do for them, they would do well to cut out the data mining and frustration of dealing with multiple pushy salespeople by going direct to someone who will treat them as an individual, and give them sound advice and real pricing.

Are you and your customers experiencing the same frustrations with the proliferation of click-bait, social media adverts undermining the integrity of the industry? Share your experience with Jess, Community Content Lead for REI: **jessica@renewableenergyinstaller.co.uk**

Prioritising safety

strategies for effective customer communication

WE know that the industry goes through highs and lows when it comes to demand – but, whatever the season, it's crucial for installers to prioritise safety and compliance in their projects. However, communicating the importance of these aspects to customers can be challenging, especially when faced with competitors who may compromise safety to offer lower prices.

Recently, a LinkedIn post by John P Thomas, Owner of Modern Energy and Electrical Services, highlighted this issue. John shared his experience of losing a tender for a solar and storage project to a company that appeared to be installing without proper safety measures, such as edge protection and skylight protection. This started a lively conversation on LinkedIn with installers and other professionals sharing their experience of seeing jobs they lost being won by people with scrupulous practices.

Here's what the community had to say about this issue:

"As an installer I'm also thinking how long would that take to [do the install in an unsafe] manner! With all safety measures in place you can move quickly and freely around the array. It'll take twice the time [without them], so the scaffolding and additional protection bill would be covered by a halved Labour cost."

Craig Davies – Managing Director, Evergreen Renewable Solutions LTD, Cardiff

"Explaining the client's responsibilities and who will answer to the HSE along with a brief process of an investigation [is a great tactic]. That little education is winning the contracts over price. For example [would they prefer] a £50,000 installation done correctly or £39,000 [installation] and a HSE nightmare, a director's free ticket to the dock and the business under investigation? We now publicly display this message for residential customers, and it's effective."

Eco Mirage Limited, Gloucester

While we don't have control over being priced out, what installers can do is educate their clients on the significance of safety and compliance – and why it's important.

Here are some tactics to effectively communicate these values:

Highlight certifications and qualifications

We spend a lot of time discussing the value of certain qualifications – but this is a great example of when they come in handy. Emphasise any relevant accreditations and certifications you or your company have. Explain how these qualifications ensure that your work meets industry standards and is endorsed by the relevant authorities. Encourage customers to verify your credentials through the regulating body's website and other reputable sources.

Demonstrate the risks of non-compliance

Sometimes seeing is believing. Use examples, such as the LinkedIn post mentioned above, to illustrate the dangers of working with companies that cut corners on safety. Share stories of HSE investigations and the potential legal consequences for both contractors and clients who fail to prioritise safety.

Educate clients on their responsibilities

Many potential clients simply don't know the risks or where they're liable. Inform clients of their own responsibilities under the Construction Design and Management Regulations (CDM). Explain that they can be held liable if an accident occurs due to a lack of safety measures. By understanding their role in ensuring a safe working environment, clients may be more inclined to choose compliant contractors.

Showcase your safe working practices

Make safety something worth shouting about! Provide potential clients with evidence of your commitment to safety, such as photos and videos of your completed projects that feature proper safety equipment and practices. Share testimonials from satisfied customers who value your focus on compliance and worker well-being.

Emphasise the long-term benefits of choosing a compliant installer

While prioritising safety may result in higher upfront costs, stress the long-term benefits of working with a compliant installer. These include peace of mind, reduced risk of accidents and legal issues, and a higher quality installation that will last for years to come. If a contractor is cutting costs on safety for their team, where else might they be cutting corners?

Collaborate with local authorities and industry organisations

This is a wider issue than we can solve as individuals. Work with local authorities and industry organisations to raise awareness about the importance of safety and compliance in installations. Participate in workshops, seminars, and other events to educate both installers and clients on best practices and the consequences of non-compliance.

Over to you:

What challenges have you faced when communicating the importance of safety and compliance to potential clients?

How do you educate clients on their responsibilities under the CDM regulations?

Can you share an example of a situation where prioritising safety helped you win a contract over a competitor who offered a lower price?

If you have experience in this area, or if you'd like to share some insight – get in touch with **jessica@renewableenergyinstaller.co.uk**

Becoming MCS Certified - an installer perspective

MORE than 1,800 contractors became MCS certified in 2023, marking a 70% growth in its contractor base since the end of 2022, and bringing the overall number of certified contractors to more than 4,000.

In April, the certification body held its annual contractor survey to find out how it can further 'enhance the value and experience of MCS certification'.

So, when Heat From Air got in touch with us recently to tell us about their recent MCS Certification, we took the opportunity to dive deeper into this process for a new company and spoke to Director Andy Norris for an insight into the journey, from his perspective.

Q To start with, tell us about your company

Heat From Air is based in Shirley, Solihull and covers the West Midlands (currently). We are a small company with aims to grow quite substantially across the coming months. We have been operating for just over a year on both residential and commercial properties.

Q How did you decide to get MCS certified?

We decided to become MCS certified for two reasons: first, to be able to offer the boiler upgrade scheme (BUS) grant, which is now £7,500, and, secondly, so that our installations would be done to the highest possible standards as set out by MCS. A recent study by Heat Geek showed that there is a direct correlation between the quality of the installation and the efficiency of the heat pump i.e. the better the installation, the higher the efficiency.

Also, having to go back to an installation to fix a problem would erode our margins and damage our reputation with our customers and, therefore, our ethos is "the right system for the customer, installed right, first time".

Q How did you find the process of getting accredited? How long did it take, and were there any challenges?

It took four to five months – much longer than it needed to in hindsight. The first challenge was figuring out what we needed to do to become MCS certified and to be able to offer the boiler upgrade scheme grant. It didn't help that the various organisations I contacted interpreted the process differently.

In a nutshell, this is what we did:

1. I spoke to several assessment bodies and decided to register with APHC. The assessment body audits the quality management system of the applicant, an installation and the qualifications of the engineers who installed the heat pump system. Our engineers trained at Heat Pump Central and it took a month for BPEC to award the certificates which delayed our MCS certification.

2. After spending a few months trying to work with HIES, I went to RECC, the other consumer code, and found them much easier to work with. We adopted their model consumer documents such as the quotation form, contract, warranty etc.

3. MCS certified installers must insure any deposit taken from customers and the warranty for the installation. I engaged one of RECC's recommended insurers, IWA and they were easy to work with.

4. We wanted to be TrustMark registered, and I made the application through RECC and this was also simple.

5. Once we had joined RECC consumer code and passed the assessment with APHC, we became MCS certified.

6. We then contacted Ofgem to register for the Boiler Upgrade Scheme and this took about a week.

Q What's changed since getting your accreditation?

We are one of the few MCS certified installers in our region and you can probably see why. We modified the website to reflect this, and the benefit of being able to offer the £7,500 grant. We are also listed as an approved installer on several heat pump manufacturers' websites.

Q How has being MCS certified changed your organisation operationally? What's the time commitment?

We would have always installed to a very high standard so there is no penalty there. The paperwork is done via online portals, and being able to self-certify for building control saves us time and money. The Ofgem process to get the grant is somewhat cumbersome, but not particularly difficult.

Q What tips do you have for installers and companies considering accreditation?

- APHC will also assess an installation for building control which is needed for every heat pump installation. Heat From Air is now registered with the Competent Persons Scheme so that we can self-certify for building control which saves time and money.
- Every heat pump over 0.6m3 will need planning permission and, in Solihull where we are located, this can take up to 12 weeks.
- If you haven't created a quality management system before, it could be worth checking out Easy MCS.

Q How do you communicate with consumers about your accreditation? Have many people asked about it?

We use our website and social media to communicate the benefits of using an MCS certified installer, and Heat From Air in particular. Few people have asked for it, and I think organisations like Ofgem or MCS could do much more to promote take up of this green technology.

Are you MCS Certified and would you like to share your experience? Or have you opted not to get the accreditation and want to share your reasoning? We're interested in hearing both sides of the story, so we want to hear from you! Email jessica.riches@renewableenergyinstaller.co.uk with your thoughts – and we'll be in touch.

ECO4 – the scheme

MARK Hyde, Sales Director of Ronnan Corporation (Energy) Ltd is a successful Managing Agent for the Government's Energy Company Obligation (ECO4) Scheme that delivers funding for energy efficiency improvements for domestic properties across the UK.

In his first article, (REI October 2023) Mark talked us through the difference between working in the 'able to pay' sector and working with the ECO4 market.

Here, in part 2, Mark throws the textbook out of the window to share more detail about the scheme itself.

My previous article seemed to be very well received and piqued the interest of many installers that were aware of ECO but not sure how to break into it or how they sat within the scheme. In the article and the many calls and emails that followed, I outlined the differences in business models between able to pay and ECO scheme. I thought I would take this opportunity to put a bit more meat on the bone.

I could bore you all by reciting various sections from the ECO guidelines and give you the text book answers to the following questions:

- What it is?
- How can installers get involved?
- What types of installs (measures) are covered?
- How the scheme works?
- What is ECO4 designed to achieve?
- Why is it important to the retrofit sector?

Those installers I work with will know that I don't follow standard practice and like to keep things as simple and straightforward as possible, so the text book is out of the window. Should you want to want an exacting answer to the questions above, please be my guest and go to the Ofgem guidelines via the link https://www.ofgem.gov.uk/sites/default/files/2023-08/ECO4%20Delivery%20Guidance%20v2.0_0.pdf where you can read the full 246 pages and lose the will to live!

When I initially came into the industry, I thought the 'ECO' element of the title was referencing 'Ecological' given the main aim of the scheme is to tackle fuel poverty and help reduce carbon emissions. Imagine my surprise when I realised it is an acronym of Energy Company Obligation and the number after it is the version of the scheme. We are now on the 4th version, hence ECO4.

You'll all be aware the sensationalist headlines about energy companies and the profits they make, the Government has targeted them to work a bit harder for these profits. In a nutshell, Ofgem has said that, given the amount of money they are making, they must be obligated to be the driving force behind this scheme. This is how the Energy Company Obligation was born. Houses are being targeted as the easiest way to tackle fuel poverty and reduce carbon emissions and, without getting into a social-economic debate, the decision has been made to focus the funding from the utilities on those houses with residents unable to afford the installs.

This is intended to ensure that whatever money is coming into that household is not all being spent on heating and electricity.

Given this scheme is basically Government money, they want to make sure that the scheme,

and all those involved are regulated. The last thing the Government wants is to provide the funds for an install to an incompetent business that delivers a poor result meaning the Government has to pay again to get the install rectified. They want to pay once and once only.

The key players within the ECO industry are:

Trustmark – they are like the police of the scheme. No entity can be involved in the scheme without being Trustmark Approved, and any work undertaken needs to be lodged with them.

PAS (Publicly Available Standards) – this is a certification body that basically confirms the installer has the correct skill set and credentials to undertake the work.

MCS (Microgeneration Certification Scheme) – this is a certification body that focuses on low

carbon products and installations.

IBGs (Insurance Backed Guarantees) – these are needed to ensure that, if there are any jobs with poor workmanship, then the homeowner has a means to get it fixed.

Any installation business must be registered with, or accredited by, the entities above. There are some 'work arounds' to the above but, in my opinion, this is the most straightforward and easiest way.

Measure for measure

You may read a lot about 'measures' within ECO4. This is simply another term for the type of installation taking place. Measures can be very wide ranging – anything from external wall insulation, cavity wall insulation, internal wall insulation, loft insulation, solar panels, air source heat pumps, heating controls (anything that can control heating i.e. these can be dials on radiators through to apps on a mobile connected to the boiler) etc. etc.

How it all works

The mechanics of the scheme was outlined in the previous article but, for those that may have missed it, in a very brief nutshell, this is the business model for an ECO4 Installation Business for example, Hyde Solar:

- Lead generators locate suitable houses (most have an EPC rating of E or below) and make sure the inhabitants also meet the criteria (benefits/health/age) for the installation.
- This lead is then passed to Hyde Solar for them to sign up and book in a visit to the property to make sure everything is suitable for the installation and diagrams are created or photos taken.
- This information is passed to a Retrofit Assessor (RA) to check the house and inhabitants fit the criteria. A plan of action is drawn up confirming that the suggested measure, if fitted will increase the EPC banding to make sure the house becomes more energy efficient. This involves plenty of reports and calculations.
- This plan of action is provided to a Retrofit Coordinator (RC) to co-ordinate the job and plan what needs to be installed and where in, or on, the house it needs to be installed. This again involves plenty of reports and calculations.
- This is then passed to the actual fitters physically undertaking the installation. Plenty of pictures are needed of before, during and after the installation to confirm it's been carried out as per the RA/RC specifications.
- Once the installation has taken place, all of the pictures are provided to the RC for them to complete their post installation report and calculations.
- These reports/calculations/photos are then packaged electronically by the Hyde Solar submissions team and sent to a Funder / Managing Agent, such as Ronnan Corporation, to check for compliance.
- The Managing Agent makes sure the installation is scheme compliant and submits the job and all reports/pics to a utility company.
- The utility company submits to Ofgem
- Ofgem pay the utility, the utility pays the Managing Agent and the Managing Agent pays the installer

It's all about the money in part 3 of this series, as Mark addresses the important matter of the finances behind the scheme. Make sure you are subscribed to get your copy!

Given the amount of interest raised by these insights into ECO4 we are happy for you to share any questions that you have so that we can cover them in future articles.

Please get in touch with Margaret Major, Publishing Director, REI: **margaret@renewableenergyinstaller.co.uk**

The first article in this series can be read online at https://www.renewableenergyinstaller.co.uk

In control

the value of energy monitoring systems for solar PV

ROB Barker, Director of Power Quality Expert Ltd, has more than 25 years' experience in electrical test and measurement. Here Rob considers the advantages of a single supervision system for prosumer photovoltaic PV storage and self-consumption.

The prosumer approach to the integration of renewable energy sources and storage in buildings and the distribution grid creates a need for sophisticated control and monitoring systems to ensure efficient energy management and grid stability.

These systems provide real-time data and decision-making capabilities that empower building owners and operators to optimise energy consumption, reduce costs, and enhance resilience.

With the exponential uplift in solar PV installs, measurement and communication systems are becoming increasingly important. In the past, installations used to be planned according to the "fit and forget" principle and PV systems were connected to the grid in an uncontrolled manner.

Today, PV systems with active power management should be actively controlled based on the system conditions. Some controls such as feed-in limitation, dynamic voltage limitation or even frequency control can be implemented locally without communication. However, if the PV systems are integrated into the overall system and operated to optimise with the distribution and transmission grid, supervision systems are necessary.

Under supervision

Energy monitoring and management systems can create a complete supervision and management system for photovoltaic systems (including multi-site ones) which will allow for the continuous control and monitoring of each component (inverter, panels, strings, etc.) in order to avoid total or partial stops in energy production and, at the same time, allow the energy produced and/or used for an installations activities to be measured and managed.

Monitoring and management systems can act as a single controller of the various components of the systems, regardless of their type, allowing you to manage various functions.

A single supervision system can benefit photovoltaic, storage, and self-consumption since it will:

- Optimise energy production: the system can track solar irradiance and other environmental factors to determine the optimal time to generate electricity. It can also adjust the inverter settings to maximise power output.
- Manage energy storage: the system can track the state of charge of the storage system and optimise its use to meet energy needs. It can also switch between using grid power and stored energy to minimise energy costs.
- Promote self-consumption: the system can analyse energy consumption patterns and suggest ways to reduce reliance on grid power. It can also schedule energy-intensive appliances to run when solar power is available.

Track energy use and production to spot issues quickly and make smart choices

Keeping the PV system under control is essential for ensuring a high and constant return and to cover the cost of the investment in the shortest possible time. With energy monitoring and management systems, you can acquire instant and historical data including the energy used or exported into the electricity grid.

In order for the yield to be at its maximum and constant, the individual photovoltaic panels that make up the system must function correctly. A faulty or unproductive panel compromises the correct functioning of the entire string and consequently the entire system. The causes can be many such as: dirty cells, shading or poor power quality.

Because PV inverters can affect power quality, it is recommended to monitor and measure for power quality disturbances, especially harmonics and imbalance.

Predictive maintenance and remote control

Energy monitoring and management systems allow you to exploit the benefits of predictive and/or preventive maintenance of a production plant. Thanks to the continuous acquisition of data and the generation of appropriate notifications it is possible to manage the maintenance by knowing the real operating conditions of the system.

The planned maintenance is therefore no longer at regular intervals but based on the actual operating conditions and before the occurrence of faults, significantly reducing costs and repair schedules.

Interconnection and integration between devices (inverters, storage systems, etc.) and systems (heat pumps, electric vehicle charging stations) of any brand installed or part of a legacy system is possible in order to create a system that allows continuous control of the functioning of each component.

Intelligent and shared data management makes a significant difference in both efficiency and in operational and decision-making speed. It is essential that remote management and interconnection are achieved using connections and protocols based on documented, publicly available and internationally recognised specifications (Modbus RTU o TCP-IP, HTTP, MQTT, JSON, Web API, etc.).

The result is the creation of an integrated digital ecosystem that can be controlled remotely.

An IoE (Internet of Everything) digital platform allows you to control and manage systems and buildings by combining the aspects of monitoring and energy automation with the possibility of interacting in real time on different devices using the possibilities offered by IoT (Internet of Things) systems.

For example, in a grid-connected photovoltaic installation, a control system is needed to manage the flow of electricity between the solar panels, the storage system, and the grid. The control system should be able to do the following:

- Limit PV production to prevent excess power from being sent to the grid.
- Maintain a healthy power factor at the point of grid connection to avoid penalties.
- Shift energy-intensive loads to the time of day when solar power is most abundant.
- Be compliant for demand response programs, which require the system to reduce or increase energy consumption during certain times of the day. This can be effectively achieved using storage or multiple generation sources.

Simplifying installation

The installation of an effective monitoring and management system is greatly simplified by using a pre-configured kit that is designed for the task.

One such solution is the Electrex monitoring kit. Based on the Libra devices that are designed for photovoltaic systems, the Electrex represents the 'plug & play' solution and delivers advanced technology for monitoring and managing any component of the system:

- Inverters, strings and storage
- Low and medium voltage electrical loads

- Power quality analysis
- Direct current measurement
- Environmental and process parameters.

Libra devices have internal, multiple modules that are configured based on the needs of the system, allowing a quick, simple and non-invasive installation.

Summary

With a correctly specified single device it is possible to record the energy produced, consumed and exchanged, as well as integrate the data of the inverters or any other device in order to control every single panel in order to optimise its performance.

Why plumbing and heating installers are essential to successful retrofit and renovation

IN the light of the recent announcement by the Department for Energy Security and Net Zero (DESNZ) that the requirement for loft or cavity insulation will be removed from the Boiler Upgrade Scheme (BUS), reducing the imperative for energy efficiency improvements, RWC's Richard Bateman, Product Marketing Manager for Plumbing and Heating, explores the importance of retrofit and renovation – and why heating and plumbing installers have a leading role to play.

There are more than 30 million homes in the UK and, together, they are responsible for around a fifth of all the country's emissions, with the majority – around three quarters –generated by home heating. This makes the decarbonisation of homes key to overarching ambitions of achieving net-zero by 2050.

This places installers at the heart of activity to curb emissions and improve the efficiency of homes – both through the adoption of low-carbon systems and innovative plumbing and heating technologies.

Here, we will consider the scale of the challenge that lies ahead and the role of plumbing and heating professionals in moving the UK towards a greener future.

Why the answers lie in retrofitting and renovation

With an average of 170,000 new homes being built each year in the UK, the reality is that the majority of the homes people will live in by 2050 are already built. With millions of these properties already falling behind in terms of energy efficiency, the focus must be on retrofit and renovation to bring them up to standard.

Millions of British homes currently do not meet the requirements for Energy Performance Certification 'C'. The impact of this rating is two-fold. Firstly, occupants of under-performing buildings may face higher energy bills alongside reduced levels of comfort. Secondly, to compensate for a property's heat loss, heating systems will likely be working harder and having a greater negative impact on the environment.

In practice, ensuring existing homes meet EPC 'C' standards is essential for the UK to achieve its net zero ambitions. To achieve this, the renovation of these properties and the retrofitting of effective plumbing and heating systems – from underfloor heating through to heat pumps – to improve efficiency and reduce heat loss, will put the UK on a more sustainable footing.

The role of installers and the solutions facilitating retrofits

To make the vision of a more sustainable future a reality, installers will play a critical role. Working directly with property owners, plumbing and heating engineers are the experts on the ground, assessing properties to identify the most suitable solutions, and installing them correctly to deliver the greatest impact.

With millions of homes across the country in need of energy efficiency upgrades, tried, tested, and trusted solutions will be used heavily to unlock the best results. This approach allows homes to benefit from proven systems, minimising the disruption of adoption while delivering long-term results.

Underfloor heating (UFH) is one solution that can be installed to improve efficiency and comfort within a property. Compatible with new and old heat sources, UFH operates effectively at much lower temperatures than traditional radiator systems to reduce energy demands while sufficiently heating a home. Its positioning beneath floors also creates a much larger surface area, enabling UFH to heat spaces quickly and more effectively, improving comfort and efficiency.

For renovation projects, low-profile UFH systems are a proven solution, enabling installation over existing subfloor structures. For screeded floor applications, castellated panels support easy installation, whereas for timber floors, foil and mesh panels can be used to run pipes efficiently. These options equip installers with the systems and versatility to upgrade home heating systems and unlock greater levels of efficiency.

Aside from retrofitting sustainable heating systems, installers can also use pipes and fittings that contribute to greater levels of system efficiency. Plastic solutions can strengthen plumbing and heating systems to unlock greater performance, while fewer connections reduce the potential for problems such as leaks – which can compromise overall efficiency. Innovations such as push-fit technology, found in RWC's JG Speedfit range, can also reduce the complexity of upgrading systems, simplifying jobs for installers.

The future of home heating

While installing more sustainable technologies will move homes towards a greener future, it is important to keep in mind what the future of home heating could look like. Manufacturers will lead the way through product innovation to ensure that systems and solutions continue to comply as the country's infrastructure changes.

Richard Bateman is the Product Marketing Manager for Plumbing and Heating for RWC, a company supporting installers by developing the products to deliver the plumbing and heating systems that will underpin future home efficiency.

IN CONVERSATION
with the Heating and Hotwater Industry Council

STEWART Clements is the Director of the Heating and Hotwater Industry Council (HHIC). With over four decades' experience in the heating and plumbing industry, Stewart has played a major role in driving, supporting and promoting the sustained growth of the UK domestic heating industry. Here, Stewart answers key questions about the HHIC, the challenges faced by the industry and what the organisation wants to see in the future.

Q What is the purpose of your organisation?

The Heating and Hotwater Industry Council (HHIC) is a member organisation dedicated to using our knowledge and expertise to define practical solutions for decarbonising heat and hot water in UK homes and businesses.

Q Who are your members?

We represent the UK residential supply chain for heating and hot water appliances and installation, from boilers to heat pumps and everything in between. We manage a wide range of industry working groups, including the Heating & Hot Water Technical Panel, Heat and Hot Water Policy and the Water Treatment Group.

Q How many members do you have?

The HHIC currently consists of around 100 members from every aspect of the heating industry. This includes manufacturers of heating appliances, heating controls, water treatment companies, installation businesses, merchants, training providers, research centres and other trade bodies.

Q What are the objectives of your organisation?

The primary objective of the HHIC is to support the decarbonisation of heating and hot water in UK homes and businesses. We do this by providing expert advice to the government on practical solutions in support of decarbonisation policy. We also provide technical expertise, often involving unbiased market data collection and analysis, and authority across all heating and hot water technologies, in addition to communicating and ensuring an industry-wide understanding of technical and regulatory changes in the sector.

Q Why should our community join?

For companies operating within the UK heating and hot water industry, membership of the HHIC offers a range of benefits from a forward thinking, focused organisation delivering value for money. We foster an environment for members to come together, have a voice and be actively involved within the domestic heating industry.
As a member, you gain the opportunity to access a weekly political monitoring, a monthly industry statistics service, a weekly e-news bulletin, as well as the chance to engage with fellow peers and expand your network.

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

The key challenge currently facing our membership and the broader sector is being prepared for any upcoming mandates and regulations. The Future Homes Standard, with significant changes to the part L Building Regulations for 2025, will ensure all new build houses are fitted with heating appliances that are zero carbon at point of use, which will lead to a heightened demand for air source heat pumps. As a result, it's crucial that our members are prepared for this and any other significant developments that may be just around the corner.

Q What are your main current activities?

We are heavily engaged with our membership on the Future Homes Standard Consultation and Home Energy Model Consultation alongside our usual series of group meetings. We are updating a number of our resource documents as well as drafting on new topics. Most recently we have published an updated guide on frozen condensates and a quick guide on the variances in CO legislation across the UK nations with our colleagues at CoGDEM. Some of our most recent work has also included our Heating Up to Net Zero report and Skills, Training and the Future of Heat reports and Hybrid Heat Pumps paper, all discussing the challenges our industry faces on the route to Net Zero.

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

"We want to see heating in buildings decarbonised, but in a way that ensures no consumer is left behind. A crucial starting point is to consider the fabric of buildings and make sure that all lofts and cavity walls are insulated where technically and economically feasible. This significantly reduces the chances of households paying for lost heat due to the inefficiency of their property.

Working across the heating and utility industry, we would also like to see a plan developed to train the UK workforce that eventually must be prepared for the country's low carbon future. Doing so will additionally promote the heating and utility sector as an attractive place for young people to have a rewarding and fulfilling career.

A modern heating solution for stunning new builds

THE developer of four brand new homes in Boston, Lincolnshire was looking for the right solution to deliver heating and hot water.

The considerations led to Warmflow, a manufacturer leading the way in renewable heating with its range of high efficiency home heating appliances.

The luxury homes are 2600 sq. ft with 4 bedrooms and 3 bathrooms; demanding households for both heating and domestic hot water. Fitted with underfloor heating on the ground floor and radiators on the first floor, they are ideally built to benefits from renewable technology in the form of an air source heat pump.

The perfect solution

Working closely with heating engineers Multi Plumb, the developer, S L Developments from Boston, chose state-of-the-art, Warmflow Zeno air source heat pumps as the perfect, modern heating solution.

Once the choice was made, the design team at Warmflow liaised with the installation team at Multi Plumb to ensure the correct sizing of the appliance for the property and to discuss any special installation requirements.

Aesthetics as good as its efficiency

Stephen Garrard, Founder of Multi Plumb, commented: "The service from Warmflow was exceptional. Niel and the team advised us throughout this installation to ensure that our customer was getting the most efficient & reliable heating system for the new homes.

"Warmflow was with us every step of the journey and the numerous on-site support visits, both pre and during installation, were invaluable. The Warmlink remote control technology was a deciding factor in determining which brand of heat pump to use.

"Not only does the Warmflow Zeno heat pump cover the heat demand of the property efficiently but the fact that we can monitor and control the heat pump remotely is a great additional feature.

"The colour is also great with the anthracite grey colour blending in perfectly to the aesthetics of the property."

Heating engineers, Multi Plumb, installed each of the AS02 – R32 Warmflow Zeno Air Source Heat Pump units alongside a Warmflow Nero 290ltr Heat Pump cylinder – a pairing that delivers a range of benefits to both the installation engineer and the end user.

Assisted by the Warmflow team, Multi Plumb commissioned each of the units using Warmflow Warmlink technology – a 4g pre-installed modem which allows for remote monitoring, diagnostics and efficient fault finding, enabling the units to be monitored remotely to ensure they are running smoothly.

Warmflow Renewables Sales Manager, Niel Rumbold commented: "Warmflow is very proud to see our Zeno Air Source Heat Pump installed in such modern, luxury homes, which have been designed with the homeowner in mind. This type of heating system suits these homes perfectly, and it was great to see Multiplumb successfully complete their first Warmflow Zeno Air Source Heat Pump installation."

Warmflow Zeno heat pumps are available in 8kw, 12kw and 20kw modulating outputs and all come with built-in Warmlink technology allowing for remote monitoring and control.

A Day in the Life...

Name: Paul Bailey
Organisation: Baxi
Job title: Heat Pump Engineer
Location in the UK: Doncaster

IN this edition of our popular feature, in which we shine a light on a typical 24 hours in the life of professionals within the renewables industry, we're stepping into the shoes of Paul Bailey, a heat pump engineer at Baxi, to discover what a day in his life looks like, from the moment his alarm goes off at 6:30am in Doncaster, to the last thing he does at night.

Paul's day is filled with the intricacies of heat pump commissioning, ensuring each installation is up to scratch according to the manufacturer's instructions and optimised for the system's design and customer needs.

Through Paul's eyes, we delve into the technical, the challenging, and the rewarding aspects of working with renewable heating systems, from troubleshooting common faults to the satisfaction of educating customers and installers alike on the benefits of efficient heat emitters.

Join us for a glimpse into the world of renewable energy through the lens of those who are helping to shape a more sustainable future – one heat pump at a time.

My alarm goes off at

6:30am every morning. The first thing I do is put my contact lenses in, and then I make a cup of tea.

My typical day...

My typical day working on heat pumps would probably be a commissioning job which, depending on location, could fill my whole day, including the travel.

When commissioning, my main objectives are to ensure the installation meets our manufacturer's instructions and to optimise the settings to complement the system design and customer requirements.

ASHPs are usually very reliable appliances, so when something goes wrong or doesn't perform as expected, it's usually due to an issue with the wider system.

The most common faults tend to be down to system design, installation, or incorrect settings, which is forgivable when the product remains relatively new to many. This is one of the reasons we offer an assisted commission on the first installation to ensure that any errors are caught and corrected. It's also an opportunity to educate customers on heat pump operation so that they receive all the benefits of an effective renewable heating system.

As part of the commissioning process, I like to walk through the installation with the installer. We work using a checklist to ensure every installation is of a standard and quality that we can all be happy with. The checklist follows a full start-to-finish format. At the beginning, we'd be looking for things like a solid base, condensate drainage, minimum clearances around the appliance and ending with scheduling domestic hot water times and temperatures for the customer. Issues identified during the commissioning can usually be rectified as we go along and tend to stick as a good reminder for future projects.

The best part of my job...

Has got to be meeting installers and talking about their latest renewable projects. This could be their first or just the latest of many installations. As all are slightly different in execution, no two jobs are ever quite the same. Because of these intricacies, these conversations usually end up being the most interesting and informative, certainly for me.

Another aspect of my role involves talking with the end-user and listening to the different reasons they've chosen a renewable energy solution. This conversation often includes my electric van, which they've spotted, and they seem pleased that we're also being energy conscious with the vehicles we use.

My most memorable work moment...

A recent commissioning job was pretty memorable. The customer had just had a pavilion built in his back garden, nicely positioned between the tennis courts and swimming pool.

With the property being off-grid and having a large freestanding PV array at the bottom of the garden, it made sense to use a heat pump to do the heating load. It was also minus 1°C outside, so I guess that's another reason I remember it!

The most challenging part of my job...

Has got to be educating people on the benefits of more efficient heat emitters, designed at lower flow temperatures. Building Regulations stipulate that a wet heating system should be sized for a maximum flow temperature of 55°C or lower.

However, when installing heat pumps, a reduced flow temperature of 45°C or even 35°C maximises the Seasonal Coefficient of Performance (SCOP).

For example, on a Baxi ASHP 7kW, if we drop our design temperature from 55°C to 45°C, the SCOP improves from 3.23 to 4.11, with an increased efficiency uplift to 5.03 if the design temperature is lowered to 35°C.

I relax after work by...

Walking and cycling, which fills a lot of my spare time. Over summer, I'm hoping to do Hadrian's Wall as a 4- or 5-day trek, so training for that is underway.

The last thing I do each day is...

I have a final cuppa tea, check my van's charging, and take out my contact lenses.

INNOVATIVE, RELIABLE, EFFICIENT.

WARMFLOW

Zeno

Air Source Heat Pumps

R32
REFRIGERANT GAS

WarmLink
Remote control & diagnostic capability

A+++

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