Issue 4 | July 2024

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ON THE COVER

20 Productive partnerships

Partnerships are increasingly key to accelerating uptake of low carbon solutions. 26-year-old Ben Wright of Envirolec gives us the installer's view of an exciting new development.

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ENERGY INSTALLER & SPECIFIER

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JULY 2024

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The power of partnerships

WELCOME to our July issue.

When our previous issue went to press, we had no idea that, before this one would be published, we would not only have the announcement of a General Election, but the election itself, and a resultant change of government.

New Prime Minister Keir Starmer ran for office on a manifesto that promised big changes to the country's climate, energy and nature policies, and the Labour party swept to a resounding victory, securing 412 seats out of 650 – an encouraging vote of confidence for the promise of a clear road to net zero.

We take a look at the key polices impacting our sector, along with the industry's response on pages 7 to 10. We also hear thoughts on future policy, including the importance of stability and the need to consider carefully how to avoid a 'one size fits all' approach and deliver for all settings on pages 12 and 13.

Industry partnerships are an increasingly common theme, as those in the industry look to simplify the sector for all involved – for customers, installers, investors, suppliers and manufacturers. We hear more about some of these exciting developments throughout this issue where the overarching theme is one of building confidence in low carbon solutions, making it easy for consumers to switch, and accelerating uptake.

Please keep sharing your questions, views and news with us – it is only by addressing the challenges together, and combining voices to advocate for solutions, that real change will come about.

Our next issue will look in detail at the latest product launches as well as developments in solar and storage and sector support – please get in touch if you have something to share.

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REI: Supporting the sector since 2008

Pre-dating even the Feed in Tariff (FIT) scheme, the first issue of REI magazine was published back in 2008, rapidly becoming the leading publication for all things renewable. In response to popular demand, we brought the magazine back – in both print and digital format to complement our popular digital channels. With valuable insights for installers, specifiers, engineers, manufacturers, and suppliers, REI covers heat pumps, solar, storage, EV charging and domestic energy efficiency as well as the integrated home, smart controls and retrofitting, with a roundup of sector developments, insights from leading voices, news analysis and features.

Enthusiastically received by the industry, we will continue to support the sector with this valued industry publication.

Visit us online at www.renewableenergyinstaller.co.uk

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Installers sought to help boost Nesta's popular new Visit a Heat Pump scheme

MORE than 600 people have so far visited a heat pump in someone's home as part of a pilot scheme by Nesta which aims to encourage take-up of the low carbon heating solution.

Since launching the 'Visit a Heat Pump' platform to the public this April, around 350 hosts across the UK have opened their homes to people interested in heat pumps.

Installers are now being called upon to help take the initiative to the next level, while using the platform to generate leads for their businesses.

Through the platform, anyone considering renewables can find a host and visit their house to see a heat pump in a real world setting. They can search for homes similar to theirs and ask the homeowner all about their experiences of a heat pump, from cost and installation to day-to-day management.

Katy King, Nesta's deputy director for sustainable future mission, said: "Transitioning to renewables is going to be essential for our net zero goals, and while you can easily see solar panels, many people have never seen a heat pump. That was the inspiration for this service.

"We wanted to make it as open as possible so people can share real experiences. The hosts who join are often frustrated with negative coverage and want to myth bust. The platform already represents a variety of homeowner circumstances, including new and old heat pumps, complete renovations and heat pumps on their own or combined with other technology.

"There are all makes and models of heat pumps to visit. Hosts are honest about any challenges they faced, such as any issues during installation, finding someone to do the servicing, how much they pay for their energy bills and so on. They are giving a realistic picture, and people really value that real experience."

The opportunity for installers

While the platform is being developed and rolled out further, Nesta is seeking help from installers to take it to the next level so it becomes a self-sustaining service for the future.

Katy added: "We're really looking for installation companies who would like to partner with us on this for the long-term. Installers might find it useful for recommending to any customers who are considering a heat pump and would like to see one in situ.

"We have a few installers using it a lot and they think it's a great way to keep customers excited about their install while they're waiting for the work to take place.

"We're currently attracting hosts through advertising, but going forward, this will work best if installers promote it to their customers because they have constant access to people who have had heat pumps installed.

"In turn, hosts can include the name of their installer on the platform, which could generate leads for those businesses. We're also looking to add features such as installer web pages on the site.

"The platform is incredibly easy to use and the hosts don't need to be experts. We'd love to get more coverage across the UK, and are aiming for 1,000 visits in the next few months. Long-term, we'll be developing a way to evaluate the service for impact and build partnerships to support future delivery and growth."

The call for installers therefore is:

- Share it with your prospective customers so they can see a heat pump in action
- Share it with anyone in your pipeline to help keep them interested while waiting for the work to take place
- Contact Nesta if you're interested in forming a partnership with the Visit a Heat Pump platform.

A view from a host – heat pumps do work

Eleanor van Heyningen was one of the first hosts to join the scheme and has so far opened her five-bedroom, three-storey, Victorian terraced home in South London to around 18 people. Visitors come in small groups at a time to suit the host.

The family had a 8.5 KW Mitsubishi air source heat pump installed around two years ago as part of a wider retrofit project, which included new windows, insulation, new radiators and a mechanical ventilation heat recovery system.

Katy King, Deputy Director of Nesta

Eleanor said: "We had lived in the house for 15 years and were at a point where we were looking at either moving or investing in the property to make it more sustainable and to work better for us. We wanted to improve the way we were living.

"We don't even think about it now. It's very efficient and keeps us warm when we need to be. Overall, with all the improvements we have made, we definitely have a more comfortable living environment. There are no hot and cold spots throughout the house.

"The heat pump is inside a specially-made unit in the garden so it's kind of camouflaged.

"We had an initial test visit with Nesta and have hosted three or four small group visits since then. Visitors have had lots of questions and there's always good discussion between them about their situations as well. People are really interested in the size of the heat pump and the noise. They're always surprised that it's not actually noisy.

"The other thing I think is really important is to show them the other equipment that goes with the heat pump and how much space they need. For example you still need a water tank.

"There has been a lot of negative coverage about heat pumps, so I think this scheme is a good opportunity to counter that very simplistic view. Every home will be different, but, certainly, the idea that heat pumps don't work and don't keep you warm is not the case."

New pilot scheme launched to help more people 'Go Renewable'

AN innovative new scheme is being piloted in parts of the UK to make the process of finding and installing renewable energy technologies even easier.

MCS has teamed up with the Energy Saving Trust to create 'Go Renewable' which simplifies the whole consumer process, from discovering which technologies are suitable for their home to receiving detailed quotes from MCS-qualified installers.

It's also designed to significantly simplify and speed up the process for installers by providing them with all the information they need to quote for a job, without having to go out for additional checks.

Installers registered for the scheme will get qualified leads directly to their inboxes, from consumers who have been equipped with relevant knowledge throughout the process.

The pilot scheme is focusing on installers and consumers who are physically located in Gloucestershire, Wiltshire, Herefordshire, Worcestershire, Bristol and Oxfordshire. However, anyone can use the tool to find out which technologies are suitable for their home.

How it works

1. Consumers can use the online assessment tool to find out what their options are for installing renewables at home and create a personalised home energy plan. This stage is free for anyone to use and doesn't involve any commitment.

2. Anyone who wants to progress can book a home survey to get an in-depth report and updated energy performance certificate from professional assessors who are specially trained in providing this particular survey. There is a one-off fee of £300 for this part which also negates the need for multiple surveys by different installation companies.

3. Details are sent to a number of qualified MCS installers in that area who are registered with the scheme. They can decide whether to quote for the job, and submit their costs via the Go Renewable dashboard ready for customers to view.

The benefits

We spoke to Daniel White, market development director at MCS, to find out more about the benefits of the Go Renewable scheme for consumers and installers.

"This brings the reputation and reliability of two trusted brands together to simplify the home upgrade process," he said.

"The Energy Saving Trust is very good at consumer awareness, especially in Scotland. We've worked with them to adapt their Energy Finder tool in Scotland for consumers in England.

"It gives a pretty good view on whether your home is suitable for technologies such as an air source or ground source heat pump, a biomass boiler, solar PV, solar hot water panels and electric battery.

"That's where most tools of this nature stop, but with Go Renewable they can take it all the way to installation. We've worked with Elmhurst to develop a new home survey that includes an EPC and additional information and photographs that an installer would need in order to provide a quote.

"MCS-registered installers can apply to join Go Renewable and receive reports to quote on. Because installers are all providing quotes against the same data set, they should all be within around 10% of each other.

"This consistent assessment should give the buyer greater confidence about what they're paying for, rather than receiving three wildly different quotes that they have to interpret.

"It's great for installers because they receive the information they need. In addition, consumers who have come through this funnel will be more confident in what they want."

The pilot has only been live for a couple of months and will run for as long as required to provide a decent data set about its efficiency. This will include feedback from installers around the level of information included in the home survey.

Thousands of people have so far used the online tool to complete the initial phase, and the first batch of completed assessments are ready to go out for quotes from qualified installers.

Daniel said: "Just having access to the online tool is a great thing in itself. More people are gaining an understanding of the potential of their property for renewables and we now have people who have progressed to the next stage of having the home assessment carried out, which includes an EPC.

"It means we can use that awareness generated through the Energy Saving Trust to bring more people to the quality of MCS installers."

More assessors desperately needed

One of the initial issues identified from the pilot scheme is a lack of assessors able to carry out the home survey.

MCS and the Energy Saving Trust are looking for people who are already DEA, URA or PAS retrofit qualified assessors. They will need to undergo two days of additional training with Elmhurst to be able to carry out the more specialist surveys.

"We do have a need for more assessors to undergo the specialist training. This will initially focus on surveys on homes in the pilot areas, although the aim is for the scheme to eventually be rolled out across the UK. It's a bit chicken and egg at the moment, but we do expect the work to be there," Daniel said.

More information for assessors interested in training, installers who want to register and anyone who wants to find out about their home's suitability, is all available on the Go Renewable website.

‘Labour must show they are serious about achieving net zero’ – industry reactions to the new government

AS the dust settles on what felt like a landmark General Election, all eyes are now firmly on the new Labour government to see just how it plans to deliver on its promise of ‘making Britain a clean energy superpower by 2030’.

There are some big and bold headline actions included in the manifesto which could potentially be transformative for the renewable energy industry – plans to create 650,000 new jobs, to invest £8.3bn in a new publicly-owned energy company, £6.6bn to upgrade homes and to offer grants and low interest loans for domestic renewables, for example.

But as always, the devil will be in the detail and everyone in the industry is waiting with bated breath to see how the new policies and Green Prosperity Plan will impact them.

A number of key measures were included in the manifesto and it now falls to new Secretary of State for Energy Security and Net Zero, Ed Miliband, to make good on them.

THE KEY ENERGY PLEDGES

Clean power by 2030

- Double onshore wind, triple solar power and quadruple offshore wind by 2030
- Invest in carbon capture and storage, hydrogen and marine energy
- The lifetime of existing nuclear plants will be extended
- A strategic reserve of gas power stations will be maintained – existing licences will not be revoked, but new ones won't be issued

Great British Energy

- Create a new publicly-owned company called Great British Energy
- It will be given £8.3bn to create jobs and build supply chains across the UK, including to facilitate local energy production

Energy system reform

- Work with industry to upgrade national transmission infrastructure and rewire Britain
- Ensure a tougher system of regulation that puts customers first

Warm Homes Plan

- Invest an extra £6.6bn over the next parliament to upgrade five million homes to cut bills
- Offer grants and low interest loans to support investment in insulation and improvements such as solar panels, batteries and low carbon heating
- Work with private sector to provide further private finance to accelerate home upgrades
- Ensure homes in private rented meet minimum energy efficiency standards by 2030

High-quality jobs

- Invest in industries of the future through the National Wealth Fund to create 650,000 new jobs by 2030
- Reward clean energy developers with a British Jobs Bonus, allocating up to £500m per year from 2026

Accelerating to net zero

- Support the introduction of a carbon border adjustment mechanism
- Make the UK the 'green finance capital of the world', mandating UK-regulated financial institutions to implement credible transition plans that align with the 1.5°C goal of the Paris agreement

INDUSTRY REACTIONS TO THE NEW LABOUR GOVERNMENT

Industry reactions to the new Labour government

Reactions have been coming thick and fast from across the industry, with people commenting on the election of a new government and what they hope to see form part of its plans in the coming months and years.

We've included in this article comments from contributors across the industry, with additional comment and analysis to be found on the website at www.renewableenergyinstaller.co.uk

Ian Rippin
CEO at MCS:

Labour's win presents a pivotal opportunity for a new government to demonstrate its commitment to accelerating the UK's transition to cleaner and greener energy.

Labour must show they are serious about achieving Net Zero by 2050, which means not only reducing the UK's carbon emissions to benefit the environment, but also making home-grown energy, such as solar PV and heat pumps, more accessible and affordable, ensuring a seamless transition to renewables that works for everyone.

It's imperative that Labour drives forward the uptake of renewable technologies through policy developments, financial incentives and investment in training pathways for the design and installation of renewable technologies to develop a skilled renewable workforce fit for the future.

As the UK's quality mark for renewable technology, MCS will play an increasingly important role in the future of renewables. Our mission is to give people confidence in home-grown energy by ensuring quality renewable installations and improving consumer protections.

Chris Hewett
Chief Executive of Solar Energy UK:

We are committed to helping the new Government's national mission to deliver clean power by 2030. Labour's first year in power is going to be a critical period for the solar and energy storage sectors – essential for future energy security, lowering energy bills and addressing the climate emergency. We have every confidence that the new Government will demonstrate a more positive attitude towards the industry and so bolster investor confidence.

To meet Labour's objective of decarbonising the grid by the end of the decade, it must hit the ground running. That means embracing solar by making swift ministerial decisions on nationally significant solar projects, mandating solar on new homes and revamping the Solar Taskforce's draft Solar Roadmap to align with the ambitious goal of 50GW of solar capacity by 2030.

Charlotte Lee
Chief Executive of the Heat Pump Association:

On behalf of the Heat Pump Association and its members, I extend my congratulations to the newly elected government. We stand ready to engage, support and collaborate closely to achieve our shared goals of reducing carbon emissions and advancing the widescale deployment of heat pumps in the UK.

The transition to low-carbon heating is critical in addressing climate change, and heat pumps are a cornerstone of this transition. We urge the new government to pursue robust, clear regulatory changes and policy developments that remove unnecessary barriers to the widescale deployment of heat pumps, such as the implementation of the Future Homes Standard and changes to Permitted Development Rights and provide clarity on the future of the Clean Heat Market Mechanism.

Additionally, it will be vital to reduce the upfront and running costs of heat pumps to make the lowest carbon heat the lowest cost heat. Steps should be taken to consult on how best to rebalance electricity and gas prices, with the aim of making electricity cheaper.

Furthermore, it is essential to ensure we have a skilled and competent workforce to support this transition. We call on the government to invest in training and development programmes that will prepare our workforce for the future of low carbon heating. These include the continuation of the Heat Training Grant, publishing the updated Mandatory Technical Competency documents, and mandating low temperature heating training for all heating engineers.

Engaging consumers in this transition is equally important, and we seek to work with the government to raise awareness and support for heat pump technology.

Lastly, we must support the heat pump supply chain by maintaining and updating technical standards. This will ensure that our industry can continue to innovate and provide reliable, high-quality solutions.

The Heat Pump Association looks forward to working with the new government to achieve these goals and drive the UK towards a more sustainable future.

Dave Sowden
Interim Chief Executive of the Sustainable Energy Association:

As we enter a new era with the first Labour Government since 2010, the SEA remains committed to its vision for creating healthier, warmer, and more sustainable buildings, as part of a just transition to Net Zero.

We hope that the new Labour Government will stay true on its manifesto commitments to:

- Invest an extra £6.6 billion in energy efficiency upgrades for the benefit of 5 million homes
- Introduce greater standards for private rented homes
- Offer grants and low interest loans to support investment in insulation, solar panels, batteries, and low carbon heating

The SEA will continue to advocate for a fabric first, technology agnostic approach to deliver buildings fit for the future, and we look forward to working with government and industry to drive real change.

Christophe Williams
CEO of Naked Energy:

Now Labour is in power, they must end the subsidies on fossil fuels. We're being led to believe, by some, that we must choose between renewable energy and domestic security – that it's impossible to have both.

This is not true. Security of supply for the UK can be secured by ending our dependence on natural gas. Gas prices have risen by 24% over the last three months, and as temperatures get colder in the winter, we can expect this to rise further.

At the moment we're importing liquefied natural gas from the US. This should only be a backup – it's far too expensive to be the solution. All this makes it misleading to suggest that subsidising fossil fuels will shore up our domestic energy security and keep prices down.

Renewable energy is the only answer for long-term security. The UK has hundreds of small businesses producing innovative renewable technology that can provide our energy needs. What's been holding them back is an inconsistent and uncertain investment environment.

This is particularly relevant for decarbonising heat. It's responsible for about 37% of total UK carbon emissions, yet is consistently forgotten about in the rush to electrify everything. The next Government would be wise not to neglect it – we can't reach net zero without renewable heat.

A positive step Labour could take would be to re-introduce the Renewable Heat Incentive for commerce and industry, and make sure it stays in place. We should also introduce an advantage for local suppliers, much like the Inflation Reduction Act did in the US. Giving a 10% bonus on products designed or made in the UK would provide a huge boost for renewable energy.

In conjunction with this, we also need to train the next generation of workers to fill the jobs that will be created. Governments should work with businesses and set up academies to do this, as well as fund more apprenticeship schemes.

We have an opportunity to become world leaders in renewable energy, and it won't require historical levels of funding. All we need is the Government to provide the support and clarity that will nudge us in the right direction. We have the innovation and the resources to take care of the rest.

Thomas Farquhar
Co-Founder and Chief Operating Officer of Heatio:

The election result shows people want change. High energy prices hurt the consumer while strangling the economy. Yet, we are dangerously reliant on fossil fuels, leaving us vulnerable to the whims of other countries ethically, ecologically, and economically. Low-carbon technologies like heat pumps are the future, but people need social proof.

Labour promised to lower the cost of energy through renewables, accelerating to net zero by making Britain a clean energy superpower and upgrading our creaking National Grid.

After years of climate change and energy security being used as a political football, we now need the new government to take immediate action. Promises must be put into action.

People need more support to adopt clean technology around the home. With winter just around the corner, now is the time for the new government to show strong leadership both immediately and in the long-term, and show the rest of the world that the UK won't be left behind.

Griff Thomas
MD for GTEC & Heatly:

Welcome to the new Labour government, it will be interesting to see what the next five years bring. With a strong focus on improving home standards, including bringing rental properties up to band C, there should be plenty of opportunities for installers in the building services and energy efficiency retrofit sectors.

What's most important is that we stick to the programme; flip flopping of environmental policy is extremely damaging and dents confidence in installers and consumers. I would like to see the plan for our path to net zero set for the next ten years.

Mark Krull
Director for Logic4training & LCL Awards:

It's clear that change was what the British public wanted, let's hope it's for the better and Labour delivers on its promises. Some of its environmental policies look particularly interesting, such as the Local Power Plan and Great British Energy, encouraging a community approach to net zero that should provide a boost to local installers; all of the policies outlined relating to our sector will call for a trained and expanded workforce.

Caroline Bragg
Association for Decentralised Energy Chief Executive:

We congratulate the Labour Party on their success. The new Government's commitment to a massive acceleration of renewables will protect us from another energy crisis and our members have the answer to making this work in practice – by creating a smarter system that puts money in the pockets of households and businesses.

As we know, heating is one of the biggest sources of UK emissions. With the mandate now given to the new Labour Government, now is the time to move decisively towards a low cost, just path for decarbonising heat. Billions of pounds of investment are waiting to invest in zero carbon heat infrastructure across the UK's cities and towns – all we need is certainty. With decisive action and ambitious targets, we can create hundreds of thousand jobs, drive economic growth and save the UK billions.

Mark Wilkins
Technologies and Training Director at Vaillant:

We welcome the announcement of the new government and Prime Minister. It is a vital time for the heating industry as we look to decarbonise our housing stock. We look forward to working with the new government as they create a framework to reach net zero and meet the UK's carbon budgets. As a UK manufacturer, there is a sizeable green opportunity that net zero presents, providing new jobs and investment to support the critical reduction in carbon emissions.

While there is no silver bullet, heat pumps are key in heating the UK's future housing stock. For heat pumps to continue to make an impact on net zero, we must address the fabric of buildings, look to improve the current home heating systems, upskill the workforce and increase consumer engagement.

The skills gap is apparent in the industry and focus must be given to support the upskilling and reskilling of new and existing heat pump installers nationwide. In particular, the industry must look to increase the number of apprentices in the trade. We eagerly await Labour's apprentice levy reform to support the younger generations, helping to drive the number of engineers in the UK.

According to the previous government, approximately 80% of the UK housing stock is suitable for a heat pump installation, however, some of these properties could be considered as complex to decarbonise and need fabric improvements for a heat pump system to be efficient. We therefore welcome the new government's manifesto pledge of £6.6 billion into the Warm Homes Plan, which will aim to upgrade 5 million homes and cut bills for families through insulation and other measures, including heat pump installs. We look forward to details surrounding home upgrades to be clarified in the coming weeks.

Engaging consumers must be a priority for the new government, heat pumps are the lowest carbon heating solution and therefore, should reward homes with lower energy cost-savings. We urge the new government to make the rebalancing of gas and electricity tariffs a priority, encouraging more consumers to upgrade to a heat pump in order to meet decarbonisation targets.

Our focus remains on decarbonising the heating industry and the value of onshore manufacture, so we welcome the new government, and look forward to working together supporting the UK to meet its net zero commitment.

Ethan Wadsworth
Sales and Marketing Director, DiscreteHeat:

Congratulations to the Labour Party on winning the election. We are pleased that the new government has made clear statements that they want the UK to be a 'clean energy superpower" and we are hopeful that the commitments made to date to net zero will not only remain, but be expanded.

The inception of Great British Energy is something we will be keeping a close eye on. Companies like British Gas, Octopus, Ovo etc have already made incredible steps to support and facilitate the energy transition, which we would not like to see jeopardised.

The previous government introduced schemes like the BUS grant to enable more homeowners to access cutting edge tech. Now, the focus should be to support with the funding of training necessary to upskill our engineering workforce in these fields to meet the shortage of skilled labour. Free training for existing gas engineers is essential to support this transition.

Peter Armstrong
CEO of Mixergy:

Mixergy congratulates the Labour Party on winning the election and are looking forward to working with the new government to accelerate the decarbonisation of the electricity grid and the provision of more energy efficient homes across the country.

This includes new housing stock and, more importantly, the refurbishment of existing homes to provide better insulation and low carbon heating and hot water that will also help to reduce household energy bills.

We are interested in finding out more about their plans for Great British Energy, and are keen to be part of the consultation process and demonstrate how Mixergy products can support the national grid's onboarding of more renewables.

Rachael Owens
National Retrofit Hub Co-Director:

We welcome the commitment from the Labour Party to double the planned government investment to deliver warmer homes.

Whilst we support this ambition, there needs to be a focus on practical implementation. Ensuring we meet carbon, fuel poverty and health targets will require robust policies, and effective collaboration across sectors. Without a clear and detailed roadmap, these objectives will not be fully realised.

In the next 12 months, the new government should co-author and implement a comprehensive National Retrofit Strategy. It is crucial that this strategy be written in partnership with industry, to ensure existing systems and supply chains are leveraged to scale up the pace of retrofit across the UK most effectively. A national strategy to upgrade the nation's homes will deliver economic growth, and local jobs, save billions on decarbonising the electricity grid, and produce savings for the NHS: part of a just transition for all communities.

The need for stability in **clean energy policy**

FOLLOWING a number of policy changes introduced this year that have impacted the domestic energy efficiency industry, Jon Bonnar, Managing Director, Cotswold Energy Group, part of SCIS Group, highlights the need for stability as we anticipate the formation of a new parliament: "The industry wants clear and consistent policy to drive the transition to low-carbon heating solutions such as heat pumps.

"The recent decision from the government to backtrack on penalising boiler manufacturers if they fail to hit heat pump targets is the latest example of muddled policy. This is not simply an issue associated with the Conservative Party. For example, earlier this year, the Labour Party cut its £28 billion green investment pledge by half."

Hindering investment

"Such examples highlight the need for stability and certainty in policymaking. Constant changes in policy create uncertainty for businesses in the energy efficiency industry, hindering its ability to scale up operations and invest in the growth of the heat pump market.

"In more recent developments, we have seen the government attempt to remove certain barriers to heat pump adoption. In March, changes to the government grant scheme for heat pumps made them cheaper and easier to install. According to the government, households can now save around £2,500 off upfront costs, with insulation no longer required to access heat pump grants.

"But even this has raised eyebrows within the industry as, after all, a quarter of a house's heat is lost through the roof, so having sufficient loft insulation is always recommended when getting a property ready for a heat pump."

Clear legislative support

"To ensure a sustainable and accelerated uptake of green energy solutions like heat pumps, we need legislative support that mandates all new build properties to be designed for heat pumps, regardless of whether a heat pump is fitted initially. This could involve sizing pipes, radiators, underfloor heating, and hot water cylinders for heat pump compatibility, paving the way for cost-effective retrofits in the future.

"Another idea could be including 100A incoming fuses on all new build properties to allow for a straightforward transition to heat pumps as well as EV charging and solar PV. The Future Homes and Buildings Standards consultation has just closed, which covers some of these topics; positive changes like these need to be brought into legislation more quickly. To incorporate changes like these, there could be additional costs of a few hundred pounds to house builders, but savings of thousands later down the line.

"Creating long-lasting momentum to prevent the stuttering growth witnessed over the last couple of years requires a subsidy framework that offers meaningful incentives for mass adoption. Alternatively, increased gas prices through augmented carbon levies could make the comparable running of heat pumps more attractive."

A stable framework

"In summary, it is crucial for the government to provide a stable framework that supports long-term industry planning and investment. We urge the incoming government to prioritise clear and consistent policy to facilitate the widespread adoption of heat pumps and accelerate the transition to a low carbon future."

A call for equal policy support for renewable liquid fuels and heat pumps

The next government must align with industry and consumers for net zero to be successful

ANOTHER industry voice considering future domestic decarbonisation policy is Malcolm Farrow, head of public affairs at OFTEC, who addresses below the industry body's concerns for the off-gas grid sector and calls for support for a multi-tech approach.

The UK remains committed to achieving net zero by 2050 and the off-gas grid heating sector continues to invest and innovate to drive this ambition. Increasingly, consumers are also supportive of the need to reduce carbon emissions in their home if affordable and practical solutions are offered. What has been less clear is the direction of travel from government which has a vital role in instigating the policy levers and actively supporting industry by providing a clear road map.

Industry, consumers and government must all be aligned for the roll out of low carbon technology to be successful. That's why whichever political party is in power must take a more open and pragmatic approach to decarbonisation policy.

This means catching up with the progress industry has made and the reality on the ground for consumers in the current economic climate.

It's fair to say when it comes to decarbonisation, the off-gas grid heating sector has been through a bit of a rollercoaster. Initially, there was a proposed ban on the installation of fossil fuel boilers in the home and in commercial premises from 2026 and 2024 respectively. These were then pushed back to 2035 after MPs and consumers raised concerns about the potential impact.

This uncertainty has made it more difficult for manufacturers and installers to make long term investment decisions and created confusion amongst consumers. As a result, the transition to low carbon heating has been slower than it could have been.

The one area where government policy has been clear in recent years is on heat pumps. The technology has been at the forefront of decarbonisation plans and been promoted as the primary solution for off-gas grid buildings. Heat pumps undoubtedly have a very important role to play and OFTEC recognises they are an ideal solution for many properties. That's why we've invested in new training courses to upskill the next generation of heat pump installers.

However, despite government policy backing, slow progress has been made towards the target of installing 600,000 heat pumps a year by 2028 with the current figure around a tenth of that. One of the main challenges is consumers aren't fully on board. For many properties, particularly in older off-gas grid housing stock, the cost of installing a heat pump and making all the necessary changes for the technology to work effectively can be over £20,000 according to the government online calculator. Combined with the disruption from new radiators, new piping and other improvements to the home that many properties will need, uptake from consumers has been slow.

Recent changes to the Boiler Upgrade Scheme to remove the need for energy efficiency improvements to claim funding were seen as a policy leaver to boost uptake. That said, the fundamental challenges for consumers remain the same, and the change could make the risk of a less optimal outcome more likely. There is also a shortage of heat pump installers with tens of thousands more needed to reach the target the government has set. Alongside this, the wider industry of servicing technicians and the supporting supply chain needs time to grow.

Householders are rightly demanding choice and an alternative solution on offer for off-grid homes is renewable liquid fuels. The industry has demonstrated through real world testing that fuels such as Hydrotreated Vegetable Oil (HVO) are an ideal replacement for kerosene with minimal disruption and cost to transition.

There is already an extensive and experienced industry of manufacturers, installers and fuel distributors ready to roll out the fuel at scale. Consumers are also supportive with a recent survey of oil heated households showing 85% want the option of making the switch.

The challenge for renewable liquid fuels is the opposite of heat pumps: industry and consumers are ready but government support and the policy mechanisms are not yet in place. The Energy Bill committed the government to publishing a consultation on a Renewable Liquid Heating Fuel Obligation and the new government will need to deliver this. Alongside this, we've also been calling for an equalisation on tax duty. Currently, the use of renewable liquid fuels for home heating is taxed. However, fossil fuels are not. This is counterintuitive and disincentivises take up. We're calling on the new government to equalise the tax duties for renewable liquid fuels.

The roll out of heat pumps and renewable liquid fuels both demonstrate the importance of the government, industry and consumers being aligned. Both technologies are being held back because these three elements are not working together. So, how do we move forward?

The new government will have little wiggle room financially, so they need to adopt a practical and pragmatic solution. That's why the direction of travel off-gas grid is multi-technology. If the government can provide equal policy support, consumers have the choice of which technology to adopt, and if we continue to train installers in both technologies, then we can make the change we need. We will work with the new Labour government to make this happen.

Energy as a Service – the future of the low carbon home?

AS with most innovations, it all started with an idea: 'What if we could create a subscription model to remove the cost barrier of home renewable technology altogether?'

This is what Heatio founders Thomas Farquhar and Simon Roberts had in mind when they set about creating their Heatio Flexx home energy management platform.

They then teamed up with E.ON and Energy Systems Catapult to secure funding from the Government's Green Home Finance Accelerator to develop the UK's first subscription model for low carbon technologies.

It eliminates the upfront costs of heat pumps, solar panels and battery storage via a 25-year subscription, alongside a first-of-its-kind energy management solution that maximises cost savings even further.

Heatio offers a comprehensive renewable energy subscription service, with no equipment costs. Customers simply pay a monthly fee to enjoy all the benefits of solar energy and energy storage for 25 years.

The service provides homeowners control over their energy future and the ability to harvest, store, use and sell energy. It provides smart energy management, cheaper grid energy rates, heating, hot water, solar power, and backup power – without the worry of hardware, repairs, or replacement costs.

The first 350 households are expected to go live on the 'game-changing' scheme this summer as part of a trial in the North West of England. After that, it will hopefully be rolled out across the country to make low carbon technologies – and the energy savings they offer – affordable and accessible to everyone.

With that in mind, we spoke to Thomas Farquhar and Heatio to find out exactly how energy-as-a-service (EaaS) works and its potential to turn renewable technologies from 'nice-to-have' to 'no-brainer'.

"The net position is you will be better off based on your energy bill saving, even with your subscription fee," Thomas explained.

It's a bold claim, but not one he would make lightly.

The Heatio history

Thomas has been working in renewable energy since 2007, starting with a heat pump business in a sales role back when the first heat pumps were being installed.

He met his business partner, Simon, in 2010 and it wasn't long before they had set up their first venture – a business which supported installers to get the training they needed to transition into renewables.

They then helped another business develop and grow into a major renewable installer, before beginning to work on their goal of making low carbon technology more affordable for everyone.

Thomas said: "What if we came up with a subscription model to remove the cost barrier altogether? What if we could get data on energy usage and accurately show someone what impact renewable technology could have on their bills, without even setting foot in their home? That's where we started.

"We got to work developing Heatio Flexx. There are two arms to the platform. You can go on, get data from your home and accurately see the impact of different technologies, so people can confidently decide when to switch.

"Then once you have the tech in the home, Heatio Flexx will manage and optimise everything together to minimise energy usage and costs."

Drawing on masses of data

Heatio Flexx draws on masses of data and information to match someone's heating, charging and energy needs with external factors, energy modelling, machine learning and consumption patterns. For example, if you tell the system you need your EV the next day for a long journey, the platform will work out when the best time is to charge it.

"We set it all up for you to make sure you have what you want, when you want it, but running at its absolute best performance, at all times. Nobody else has done that," Thomas said.

"It can also specify the size of technology or system needed for maximum efficiency of a property.

"The partnership with EON will remove all the capital costs of the equipment, while we are managing the energy and the subscription through the platform.

"Heatio Flexx is currently being tested with a small group before being launched more widely this summer. The first level – showing the savings that could be achieved for a particular home – will be free for all to use."

Thomas hopes the new platform, and the energy-as-a-service model will provide the step-change needed in the roll out of renewable technology.

"Climate change isn't an issue that's way down the road, we need to do something about it now. It's moved beyond early adopter phase but we need to accelerate that transition to mainstream.

"I truly believe this removes the big cost barrier and makes it a no-brainer. It also fits with changing consumer habits; more people than ever now subscribe to things like their car, phone, TV and internet.

"We want to see people who wouldn't otherwise be switching, able to move to cleaner, greener energy, especially as more are finding themselves in fuel poverty. We want to make real strides into the market to enable people to make the change."

How a home energy subscription works

SO JUST how is that possible? We asked Heatio all the big questions about how energy as a service works.

What is Energy as a Service?

Energy as a Service allows customers to acquire a full suite of solutions to generate their own energy to power and heat their home, while benefitting from a more efficient heating system.

The complete subscription includes a heat pump, solar panels, solar battery and hot water cylinder, all monitored and optimised by the Heatio Flexx platform.

The key feature of Energy as a Service is that, rather than a significant capital cost to design, purchase and install the equipment, the customer pays no upfront cost, and instead pays a monthly subscription fee over a 25-year term. This enables them to install and start saving energy and money straight away, rather than having to save up for a significant purchase of the system.

By generating their own energy and improving the efficiency of their home heating system, the customer can use significantly less energy from the national grid, resulting in lower bills and reducing their carbon footprint.

Service and maintenance is also included within the service, for complete peace of mind.

Who owns the technology?

Through the innovative relationship between Heatio and the customer, energy is provided as a service. The customer pays a fee for the technologies to be managed and optimised to deliver cheaper, cleaner, reliable energy. The technologies are a means to deliver the service, they are not the actual service itself.

The customer acquires and owns the heat pump and hot water storage system through the BUS grant. Heatio retains ownership of the solar system and manages all the software. The customer enjoys the renewable energy benefits and, for additional energy needs they don't generate, they can save money on their monthly bill with an exclusive E.ON Next tariff.

EaaS gives homeowners control over their energy future and the ability to harvest, store, use and sell energy. It provides smart energy management, cheaper grid energy rates, heating, hot water, solar power, and backup power – without the worry of hardware, repairs, or replacement costs.

What happens to gas and electricity bills?

When a householder has the ability to generate their own renewable electricity to heat their home, the amount of electricity or gas they would usually purchase from the grid will automatically decrease. Should, at times, the energy they generate be insufficient and a top-up is needed from the grid, customers will benefit from an exclusive renewable tariff.

With less reliance on the grid, people can maximise energy savings and protect themselves from fluctuating energy prices.

Alternatively, should the customer generate surplus energy they do not wish to use, they can choose to sell the excess electricity back to the grid. The system is flexible to the needs of each household.

All of this will be managed on the customers' behalf by Heatio Flexx to maximise savings at all times.

How much is the subscription fee?

Throughout the 25-year subscription service, monthly payments are expected to be around £150 per month.

What happens if someone moves house?

The incoming owner of the property will take over the subscription and the more efficient energy secure home. With this in mind, the customer will incur zero exit fees and can apply for a new Energy as a Service solution for their new home should they wish to do so.

What are the advantages of taking part in the trial?

Energy-conscious customers who want to improve the efficiency of their home, but couldn't afford the upfront cost of renewable technologies, would be able to transform their energy and heating system quickly, with zero upfront equipment cost. Paired with an exclusive E.ON tariff and Heatio Flexx automatic optimisation, the homeowner can maximise the use of renewable energy. The household will be able to switch from using around 20% renewable energy to around 90% overnight, helping them save on energy bills and significantly reduce their carbon emissions.

What barriers to end-user adoption of renewable home energy solutions are overcome through Energy as a Service?

One of the main barriers to renewable energy technologies is the upfront cost to purchase and install the solutions. Providing a 'Netflix-style' subscription for low-carbon technologies removes this barrier and makes them more accessible and affordable for everyone.

A second barrier is the access to a reputable installer. Customers can encounter difficulties including initial cost, a lack of certified installers and a complicated and convoluted process to receive and install. With Energy as a Service, the entire process is handled by Heatio to deliver a hassle-free experience.

A third barrier it aims to overcome is the negative messaging and misinformation around renewable technologies, especially heat pumps. By taking care of the complete process from specification and design to installation, service and maintenance, customers can transition to clean energy in the home with minimal disruption and experience the benefits these technologies deliver to reduce carbon emissions and energy bills.

The installation process

Heatio has its own trusted engineers who have vast experience in designing and installing these low carbon solutions. Initially a video call will be scheduled with the homeowner to get some initial data on their home and energy usage patterns and current heating system set up before moving on to a home visit where all of the necessary inspections can take place.

Finally, the installation itself could take anything from two to five days for completion depending on the solutions and the design/layout of the home.

Does it create an opportunity for installers?

We believe this project will lead the charge of heat pumps and other low carbon solutions becoming the main way that homes in the UK use energy, as we work towards achieving the Government net zero targets, including to install 600,000 heat pumps a year.

Services such as EaaS will drive the adoption of renewable technologies and pave the way for heat pump installers, as well as incentivise gas installers to upskill and transition to heat pumps.

UK's first low carbon subscription

unlocking benefits to renewable technology

AROUND 350 households in the North West of England are among the first to be able to take advantage of a game-changing new Energy as a Service subscription model.

Liverpool-based clean tech specialist, Heatio, has partnered with E.ON and Energy Systems Catapult to provide the UK's first home subscription product that unlocks energy savings through low carbon technologies.

Part of the Government's Green Home Finance Accelerator, the initiative is unlocking upfront costs for consumers considering heat pumps, solar PV, or battery storage via a 25-year subscription service, with monthly payments around £150 per month.

The Heatio Flexx home energy management solution will form a core part of the service, ensuring a home's energy use is as efficient as possible.

This 'Netflix of home energy' is being offered to existing E.ON customers who will be asked to register their interest and sign up to the free Heatio Flexx platform to complete a simple survey about their home and energy use. This will ensure their home is ready for renewable technologies, although other improvements, such as insulation, will be recommended if required to maximise efficiency of the whole system.

Once homes are accepted onto the trial, Heatio will manage all aspects of the installation, including solar panels, solar battery and the heat pump.

The pilot is expected to run from this summer until around February 2025. The aim will then be to grow the EaaS offering and make it available more widely.

It Is hoped the trial will show that some of the main barriers to the adoption of low carbon heat solutions in the UK can be overcome with the right service, and that an energy efficient home can be achieved without the upfront equipment costs that would normally be required.

The partnership is also seeking to put the UK on the same path as countries that are steaming ahead, such as Norway, where heat pumps are fitted in 66% of homes and are far more common than traditional boilers.

Chris Norbury, E.ON UK Chief Executive, said: "Bundling the technology along with service is commonplace for the many millions of people around the UK who have a mobile phone contract. We're bringing the same flexibility to energy customers so they can benefit from the transition to cleaner and greener homes without the need to find the upfront finance.

"This is a game-changer for home heating and makes sustainable energy more affordable in the first place, while lowering bills in the longer term and helping transform the energy system."

Heatio co-founder Simon Roberts says: "Energy saving shouldn't just be for the affluent, as it's the poorer households that are hit by fluctuating prices and high energy bills. If we redesign the industry, we can deliver new ways for homeowners to access renewable technology. By providing heat pumps, solar power and battery storage on a monthly subscription, homes can use 60% less energy and not have to worry about installation and maintenance costs. To have all the home energy tech installed and start saving on energy consumption has obvious benefits for both the consumer and the nation."

Unlocking access: creating a mass market

Simplifying the sector: challenges and solutions

As the need to reduce our carbon emissions intensifies, attention is beginning to shift away from the onus being on the individual consumer and the individual homeowner, to innovations which facilitate a rolling-out at scale.

We're seeing more schemes and initiatives that take a mass market approach, with the aim of removing barriers to renewable energy at source and making it more of a 'no-brainer' rather than a conscious environmental decision.

Therefore, in this edition, we're taking a closer look at some of the measures that are already being taken or could be taken to simplify the sector. This includes things like heat as a service, networked heating, easier installation methods and finance options.

A great place to start is a recent report by Leo Vincent, policy advisor at E3G, an independent climate change think tank focused on tackling the barriers and advancing solutions to a safe climate.

The report, called 'Creating a Heat Pump Mass Market in the UK: unlocking access to affordable clean heat', covers the challenges to heat pump roll out and makes recommendations on key solutions.

Several of the solutions suggested are already happening on a smaller scale, and throughout this edition, we turn the spotlight on several schemes, innovations and ideas that could pave the way for the future journey to net zero success.

Here's a summary of the report.

Creating a Heat Pump Mass Market in the UK: Unlocking access to affordable clean heat by Leo Vincent.

Decarbonising home heating is a national infrastructure priority. Success will enable the UK to meet its climate targets, bolster the nation's energy sovereignty, protect jobs in key industries, cut consumer bills and reduce air pollution.

Heat pumps will be the primary technology for decarbonising the way we heat our homes. However, the current cost to consumers of adopting clean heat is a significant and unyielding barrier to uptake – especially at the scale and pace required.

High electricity prices relative to gas, limited consumer options and low scope for business model innovation, as well as a lack of attractive public or private financing options all contribute to stifling the UK market for heat pumps.

As pressure grows on the public purse, this report considers which options offer the best value for money to the consumer and which would be low cost (or no cost) for government, while still achieving high ambition outcomes.

Presented here are a range of policy levers which can tackle the hurdles to heat decarbonisation, bring down the cost of heat pumps, and unlock access to affordable clean heat for all.

Reducing the running cost of electricity

Electricity in the UK is too expensive, with levy costs almost eight times more expensive for electricity than gas. This means that electrically heated homes pay far higher taxes than homes heated by gas boilers, a huge disincentive to move from polluting fossil fuel heating to a heat pump.

Policy makers should look to:

- Consider near-term options to lower heat pump running costs, including a potential reduced rate for electricity used by heat pumps
- Progress reforms of electricity market arrangements (REMA) to facilitate the decarbonisation of the electricity system
- Support long-term measures to permanently and structurally lower electricity prices.

Business models and consumer options

Today, most homeowners purchase a new heating system (including heat pumps) when their old system breaks down, paying upfront and owning their new system outright. However, we have identified that alternative models may play an important market-building role.

These models could offer different forms of ownership for heat pumps, could combine payment and service of the system, or even offer consumers different tariffs based on the flexibility individual heat pumps and households can offer the grid.

Policy makers should look to:

- Maintain universal grants (tapered over time) to ensure all households can purchase heat pumps upfront
- Support attractive consumer offers for leasing heat pumps, heat-as-a-service and smart/flexible models
- Support lenders and service providers to scale up new business models
- Fund a substantial innovation programme to develop flexible heat pumps and assess how much they can reduce bills for consumers.

Mobilising public and private finance

Whether a household purchases a heat pump outright or chooses a business model which spreads the costs over time, both private and public finance are key to unlocking the investment needed in the UK's heating systems.

Attractive private finance offers can help enable domestic heat pump purchases. Concessional finance can make offers more attractive, with public lending facilities providing a route to market for more consumers through the UK Infrastructure Bank, or potentially a new GB Energy fund.

Policy makers should look to:

- Support business models which can spread the upfront costs of heat pumps, including demand aggregation schemes and property-linked finance
- Revisit the Consumer Credit Act to address barriers to green lending and reduce risk for lenders in supporting the uptake of heat pumps
- Mandate the UK Infrastructure Bank to develop an attractive concessional finance offer for home retrofits.

Leo said: "This paper is designed to present and highlight the variety of options that are available to help grow a mass market for heat pumps. There is no one silver bullet, but there are various ways that we can unlock and enable new financial models and consumer offers. This will in part come from public investment, but there is a significant gap to be filled by the private sector, supported by the regulatory changes and suite of policies that are needed to unlock those options.

"We want to encourage new routes to market that make renewable energy viable for more consumers. It's about saying to policy makers that there are so many different ways you can think about this. All of them will ultimately rely on having a skilled installer base; installers of net zero technologies are the real driving force of this most vital of economic and societal transitions.

"The paper has received a positive response so far, sparking real conversations in the right places, particularly around green finance."

The Low Carbon Apprenticeship – sector solution or disservice?

The Low Carbon Apprenticeship is a misstep says Mark Krull

MARK Krull, Director for Logic4training and LCL Awards, criticises the recently launched 'Low Carbon Apprenticeships' as a PR exercise that ignores the needs and opportunities in the building services sector.

As a long-time member of Greenpeace and Director of the UK's leading Awarding Organisation for renewable qualifications you might be surprised that I'm not a big fan of the new 'Low Carbon Apprenticeship'. While there is no doubt that we need more installers with the skills to fit heat pumps and other renewable technologies (and more new entrants to the sector in general), the UK is a long way off from becoming fossil fuel free. Most homes are still heated by gas, and this is not going to change anytime soon.

In fact, by offering this route to young people keen to forge a career in our exciting a varied sector, we are doing them a disservice and limiting their options. Making apprentices choose between traditional or low carbon routes is the wrong approach for all concerned.

At the UK's current stage in its path to Net Zero we need multi-skilled installers, that can install heat pumps and, for a short time at least, new gas boilers. Once no longer installed, there will still be servicing and maintenance requirements for the millions of gas boilers that will be in use for 20 - 30 years to come. These multi-skilled installers will also be kept busy removing and decommissioning gas appliances from properties making the switch to heat pumps and other low carbon technologies. Only knowing about renewables is extremely limiting.

I imagine a Low Carbon Apprenticeship is more appealing to the younger generation, it sounds progressive, eco conscious and on the face of it, better for the world at large than choosing the plumbing and gas route. What we need, however, is a 'Heating Apprenticeship' that offers multi-technology pathways, with plumbing and gas at its core, alongside heat pumps, biomass and/or solar thermal options.

At the moment, gas apprentices can, of course, go on to add heat pumps (something we will be championing at Logic4training with the launch of our own apprenticeships later this year), what would be better is if the low carbon arm of our industry was explicitly included from the beginning.

Polarising the installer-base does our sector no favours

It's time we stopped polarising our sector and served the building services landscape as it currently stands. Consumers need installers trained to understand their heating requirements now and in the future; they're looking for guidance on what's best for their individual circumstance – only someone with a good understanding of the different options available can provide this guidance suitably.

The role of the installer should not be underestimated in the path to Net Zero. We have a real opportunity with our young apprentices to create installers that meet the UK's current and future needs.

The Low Carbon Apprenticeship is far too narrow a view.

Agree or disagree? What are your thoughts on the current approach to training? Email margaret@renewableenergyinstaller.co.uk to share your views.

Taking a closer look at the UK's biggest Zero Bills development to date

A view from an installer

The Hollymead project is providing Envirolec installers with new experiences and training opportunities – such as GivEnergy's dedicated training for their battery installation.

Among those working on the site is our cover star, 26-year-old Ben Wright.

Ben started his career as an electrician 10 years ago with an apprenticeship. He's been with Envirolec for three years and says he hasn't looked back since moving into solar PV.

"I've really enjoyed this project," Ben said. "The jobs I'd worked on before were much smaller two or three panel systems, so this is definitely my biggest project to date. I've probably installed up to 400 panels on this site, which is more than the rest of my career put together so far.

"I'd say it's an average of around 35 panels per roof, although some houses have more than 40 panels on them, covering all aspects of the roof.

"I've learned so much from installing solar day in, day out on such a large scale. I can probably fit around 33 to 35 panels on a good day now when everything goes perfectly to plan."

LONDON-BASED smart energy solutions installer, Envirolec, is currently playing a key part in the development of the UK's biggest Zero Bills site to date.

Octopus Energy has joined forces with award-winning housebuilder, The Hill Group, to build 89 low carbon homes at Hollymead Square in Newport, Essex.

The variety of two to five-bed houses and two-bed bungalows are being equipped with cutting edge low carbon technology to guarantee Zero Bills for five years under the innovative Octopus Energy scheme.

This landmark strategic partnership will also deliver some of the first affordable rent Zero Bills homes, as well as shared ownership homes with social housing provider, Clarion Housing, on 25 of the homes. The other 64 will be sold on the open market.

Each property will have solar panels, high-quality insulation, heat pumps and home storage batteries.

Designed to exceed the energy requirements for each home, the technology is integrated and optimised by Octopus' advanced Kraken platform to result in the zero energy bills.

A 'significant milestone' for Envirolec

Winning this contract was a major coup for Envirolec which has spent several months on site, working closely with companies including Viridian, GivEnergy and Octopus Energy to bring the designs to life.

Envirolec sales director, Saul Penhallow, said: "We were honoured to secure this smart energy scheme alongside 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 to achieve the ambitious goal of eliminating energy bills throughout the entire development.

"This was a significant milestone for us and we are proud to be at the forefront of such a transformative project, demonstrating our commitment to sustainable solutions and driving positive change in the energy sector.

"Our dedicated project management team has meticulously orchestrated the execution of this prestigious project, ensuring seamless co-ordination with the site management team to adhere to agreed-upon milestones."

At the time of interviewing, Envirolec had installed almost 600 Viridian 405W solar panels across 25 plots.

Saul continued: "As we transition to the next phase, internal works will include the deployment of 45 hybrid GivEnergy inverters and the commissioning of GivEnergy batteries.

"Collaborative efforts with Viridian meant we were able to quickly implement any design changes, ensuring compliance with individual SAP/EPC ratings per plot."

Greg Hill, deputy chief executive at The Hill Group, said: "We are excited to be working in partnership with Octopus Energy to provide our customers with the largest residential Zero Bills development in the UK. The new homes at Hollymead Square in Newport will provide a blueprint for future sustainable housing and mark the start of our fruitful strategic partnership to deliver new homes complete with cutting-edge low-carbon technology that enable zero energy bills."

Richard Cook, group director of development at Clarion Housing Group, added: "We are thrilled to be partnering with Octopus Energy and Hill Group on such an innovative project. It's crucial that we cut emissions and cut bills for homes of all tenures. I am proud that Clarion residents will be among the first to benefit from a Zero Bills home."

Octopus Energy and the Zero Bills goal

OCTOPUS Energy has set itself the ambitious goal of delivering tens of thousands of Zero Bills homes across the UK and beyond by 2025.

Zero Bills homes generate more energy than they consume, using a combination of low carbon technologies to guarantee zero energy bills for at least five years.

It's based on a fair use allowance, which is set at around double the average expected usage. EV charging is currently billed separately at Intelligent Octopus rates.

Customers are not locked into any sort of agreement and are free to leave or switch at any time.

The Kraken smart energy platform takes data from the home's devices, the grid, and external factors to calculate the best and most affordable way to power the home. This includes factors such as how sunny it is, how much charge is in the battery, the cost of energy in the grid and how much of it is renewable.

The platform automatically selects the greenest and cheapest option and directs that into the home, as well as managing the sale of any excess energy to the grid. This means the network can be supplied with green energy when it needs it most and offset the cost of any the home needs to buy.

We spoke to Octopus Energy's technical director, Nigel Banks, to find out more about how Zero Bills works and what makes it a viable proposition for the business.

A zero stress proposition

"For the consumer, this is a zero stress proposition," Nigel said. "There's no stress about bills going up. It's currently guaranteed for five years, but we are expecting to extend this to ten, and the tariff may continue beyond then, as long as the equipment is still functioning.

"For Zero Bills to work, the home has to be all-electric which means heat pump, reasonably good insulation, a battery and solar. And the solar array has to be large, typically covering both sides of the roof, with probably an average of 15 to 20 panels per property.

"It typically needs to be an 8-10kW solar array and a 10-13 kWh battery.

"It is only applicable to new homes so far although we are currently looking at the retrofit proposition. We have around 1000 homes that are either built, committed to being built, or in the planning phase.

"We believe we can get to 50,000 homes committed to being built by 2025 as we're expanding the model globally as well.

"We're currently trying to work with all major housebuilders as well as smaller building firms to try and develop a Zero Bills standard they can all adopt.

"There are further upfront costs for developers, but we are seeing these homes sell for more, so they should recover their costs, and the home should retain that extra value."

Commercially viable for everyone

"We think it's commercially viable for everyone, but we know it's quite counter-cultural to spend more when a return isn't necessarily guaranteed.

"With this model, we're trying to show that a low carbon solution is affordable, and is attractive for consumers. It's about, hopefully, creating a virtuous cycle of housebuilders saying they want to build these homes because people want to buy them.

"It could also help ignite the retrofit market when people see the savings their friends or family members are achieving in a Zero Bills home."

Octopus Energy has an approved panel of manufacturers to provide the low carbon technology and is adding more to the list.

Developers appoint installers and Octopus Energy works with them to clarify the specifications needed.

"For Octopus, we can guarantee Zero Bills and still get a margin by exporting excess renewable energy to the grid at peak times," Nigel said. "It's only really in the last 18 months that the cost of technology has come down enough to make it more viable and I think this will only improve over time.

"There's the potential to be exporting more power at peak times than importing, but we need to collaborate with the District Network Operators to make this work. The UK grid price varies massively throughout the day, and we're still turning on the coal plants to meet demand at peak times.

"If we can export renewable energy to the grid at these times, we can reduce our carbon use. There are also times when there is excess power in the grid, when prices can go very low, and we can make use of that to charge batteries in the home.

"It's a win all around."

Zero Bills for the customer

As Octopus Energy technical director, Nigel Banks, put it, 'Zero Bills' might currently present a more engaging proposition for the consumer than 'zero carbon'.

It assumes that even people who can't or don't want to implement low carbon technologies would prefer a green home with no energy bills when presented with a choice between the two.

A homeowner's view

Carolyn Minton is among the homeowners who already live in a Zero Bills home. She moved in to her four-bed Falmouth property, built by Berto Homes, in November last year.

She moved there from a similar new-build which had solar panels and underfloor heating and, when looking to relocate, she was happy to choose an even greener home.

"I think they only had 50 customers on Zero Bills at the time so they were still learning, but setting it up wasn't onerous at all; they did everything from their end," Carolyn explained.

"They cancelled my previous electricity supplier and registered my solar panels. I control the heating via an app on my phone. I've learned what the optimum temperature is for different rooms. I'm still quite frugal with it, even though the fair use allowance is almost double what the average consumption would be.

"I had oil-based heating before and this is so much better than that. I don't have to order oil, or keep an eye on the tank or look for the best rate. I don't even have to send meter readings for the electricity now and I've always got hot water.

"I think as long as the system is built well, you don't have to think about it at all.

"I have a Vaillant air source heat pump at the back of the house, 16 solar panels on the roof and the GivEnergy battery and inverter are in the garage. Even the router is in the garage.

"I would definitely recommend it. I wouldn't even look at a house that doesn't have green energy solutions now. It's the future. We need to be more sustainable and stop wasting energy. I can't see why the government hasn't yet enforced builders to stop putting gas boilers in."

Redeveloping MCS:

clearer, fairer, and more transparent

THE UK's transition to net-zero continues to dominate the headlines, with an increasing number of homeowners turning to renewables. As more low-carbon technologies are installed into homes, consumer confidence will be key in continuing this trend and driving uptake.

In his regular column, Ian Rippin, CEO at MCS, explains how the redeveloped MCS is designed to do just that, by raising standards and improving processes for installers.

The number of consumers that are turning to renewables is rising. Data from the MCS Data Dashboard shows that 2023 was a record year for certified solar PV installations, while 2024 is on track to see the highest number of certified heat pump installations in a year. It highlights how home-grown energy is becoming more mainstream, as we move from early-adopters towards widescale normalisation of low-carbon technologies.

It puts industry at a critical juncture. We need to make sure we have a skilled and competent workforce to meet this growing demand and deliver high-quality installations at volume.

Why is MCS changing?

This is where MCS has an important role to play. We create and maintain the standards that allow for the certification of low-carbon products, installers and their installations, working closely with industry to continually update and refine our standards to ensure quality.

In summer 2023, we ran a consultation on a series of proposed changes to MCS that are designed to make the Scheme clearer, fairer, and more transparent. We received feedback from a wide range of stakeholders, including consumers, trade bodies and, perhaps most importantly, installers.

Based on this feedback and almost two decades of experience, we are now making the final preparations ahead of the launch of the new and improved MCS in January 2025.

Clearer standards

One of the key changes to the new MCS is clarity – for both installers and consumers.

We want to make it as easy as possible for installers to understand how they can ensure compliance and to continue doing what they do best, which is delivering high-quality installations to their customers. The new Scheme will therefore move away from paperwork-heavy assessments towards an emphasis on 'delivered quality'. Compliance assessments will focus on capturing the evidence that an installer's quality processes and controls are delivering installations that work effectively, are technically sound and are compliant with our Standards.

We also know that consistency goes hand-in-hand with clarity, because as an installer you want to know that your assessments won't depend on your choice of Certification Body or individual assessor knowledge. So, to reduce potential inconsistencies between individual assessors and make it as straightforward as possible, MCS will deploy a standard set of assessment criteria to standardise the process. A key part of this standardisation will be the requirement of a named Technical Supervisor to 'sign off' on the quality of a completed installation. This replaces the current requirement for a Nominated Technical Person and will help to drive up standards by allowing installers to focus on what they do best.

At the same time, we know there are occasions where something does go wrong, and for consumers who are not familiar with renewables or the sector as a whole, the current procedures are overly-complex and can damage confidence in low-carbon technologies. This cannot be allowed to happen, because we need appetite to continue growing for our industry to thrive.

To ensure this is the case, MCS will become a single point of contact for consumers in the rare case they wish to escalate their complaint. There will be a clear route that involves MCS working with the installer to understand the nature of the complaint and how best to resolve it. It's a change that will improve consumer protections by providing greater transparency across the sector (more on that later) and means that once an installer has moved over to the new Scheme, membership of a Consumer Code will no longer be a mandatory requirement.

A fair Scheme

MCS Standards have always been created by industry, for industry. This is to ensure they are fair and work for those on the tools, and our technical Working Groups have been central to

this. Made up of individuals from across the sector, our Working Groups meet regularly to keep Standards up-to-date. We see our Standards very much as the distillation of best practice which evolve over time to meet changing demands – the development of our Battery Storage Installation Standard is testament to this.

The changes to MCS assessments, as outlined above, are about making things fairer for installers, and this also needs to be applied to consumers. We've been monitoring the role of Insurance Backed Guarantees in providing peace of mind to those who invest in low-carbon technologies, and feel that these fall short of what consumer's expect a "guarantee" to cover. That's why we are developing a financial protection standard for the market which will deliver a fairer deal for consumers, and ultimately allow installers to provide assurance to their customers that they are protected should anything go wrong.

At the same time, we have created an independent Consumer Protection Panel, chaired by the former Director General of Consumers International, Amanda Long. The Panel, which includes leaders from across the consumer protection and energy industry, will provide regular feedback to MCS on how well it is delivering for consumers. It comes back to consumer confidence – we want to make sure that everything we do has a positive impact on the quality of installations because this will drive further uptake.

A transparent approach

Finally, we want to make sure we are as transparent as possible in how we work. Whether it's minimising consumer detriment or certifying installations, we believe that an open approach is the best way to ensure clarity and fairness in the new Scheme.

The best example of this is the introduction of a Quality Risk Model. This will be used to determine the frequency of assessments undertaken by Certification Bodies, using factors that we know can result in poor-quality installations – such as the complexity of a contractor's operation. We want to reward good work with fewer assessments, while identifying poor workmanship quickly by undertaking more assessments on installers that present an enhanced risk.

Crucially, an installer should always know how MCS views their level of risk, and thanks to a new direct relationship that we'll have with installers, we will work with them to help drive their level of risk down. It means that the most common compliance issues shouldn't be the same year-on-year, because we'll be working with our Installer base to identify frequent issues and address them. This will improve standards, and that is fundamentally the best way to improve consumer confidence.

What now?

We are in the process of finalising the Scheme documents and continue to work closely with Certification Bodies to ensure they are ready to hit the ground running when the changes launch in January. In the autumn we'll publish all of the new Scheme documents, alongside guidance and support to help installers get ready. 2025 will be a transition period as we move everyone over to the new Scheme design, so installers should continue with current Scheme requirements until their Certification Body gets in touch to transfer them over.

As more consumers adopt low-carbon technologies in their homes, demand for skilled and competent installers will increase dramatically. The new clearer, fairer and more transparent MCS will play an important role in ensuring industry can deliver.

For more information on what the new Scheme means for installers, visit: **https://mcscertified.com/mcs-scheme-redevelopment/**

Creating climate-savvy leaders for a net zero future

EVERYONE in this sector is aware of the magnitude of the climate challenge. We know what the targets are and the many barriers that need to be overcome in order to achieve them – it's regularly discussed in these pages and on our website.

However, we also get to write about the inspiring schemes and initiatives taking place to further that net zero agenda, and the passionate people driving them forward.

Because it's the people who will ultimately be key to our success in saving the planet. It might sound trite, but a challenge of this scale really can only be achieved by everyone working together towards common goals.

One of the schemes we've recently learned about focuses on just that – people – and, more specifically, on the leaders who can drive positive change for businesses and the environment.

A group of forward-thinking individuals have come together to create the Future Leaders Programme, a nine-month course designed to equip current and future leaders with the essential skills they need to thrive in a world moving towards net zero.

It provides organisations with climate-savvy leaders, who will think differently, with different values, and who will be able to make knowledgeable decisions for the long-term.

The founding members of the Future Leaders Programme are MCS chief executive, Ian Rippin, leadership development specialist, Richard Cartlidge, and Greater Manchester Police chief resources officer, Lee Rawlinson.

They wanted to help people become effective, empowering and emotionally-intelligent leaders while creating a cross-sector network of net zero trailblazers.

Cohorts work together with peers from a range of organisations through teaching methods including one-to-one coaching with certified coaches, specialist expert facilitators, industry mentors, experiential workshops, a three-day retreat, a suite of learning materials and collaboration on a real project.

An army of net zero ready leaders

More than 60 individuals have completed the course so far, but Ian and Richard are on a mission to create an army of at least 1,000 net zero ready leaders by 2030.

And they're definitely doing something right, with one recent participant describing the programme as 'the single-most impactful experience of my personal and professional life so far'.

Ian said: "The net zero challenge is a huge one, and it's going to require effective leaders working together across all industries and sectors. As founders, we realised that we'd be into our 80s by 2050 so it's time to act now by supporting and equipping the leaders who are going to be taking us into that new net zero era.

"This programme teaches leadership skills together with a focus on the climate agenda. Students work collaboratively on a six-month net zero focused project. Some of their ideas have been phenomenal and have had the potential to be worked up into businesses.

"We've had great success so far and we're now looking for more employers to support their emerging leaders through the programme."

Richard added: "Personally I am thrilled at how well the Future Leaders Programme has been received by participants and their employers. The USPs of the programme, such as the project phase and inclusion from such diverse backgrounds, really set it apart.

"We quickly create an intimate and safe learning environment that offers many perspectives for participants and the highlight is always the strategy retreat – a three day residential. We have seen individuals enjoy promotions, personal fulfilment, improved self-esteem, greater confidence and much more.

"It is a privilege to work with this talent and truly unlock their potential, their belief and their passion to make a difference."

A variety of companies have so far supported the programme, either by putting candidates forward, or through sponsorship.

These include Balfour Beatty, BA Hydro Solutions, Ogilvy, DESNZ, MCS, the Environment Agency, National Grid, Renewable Energy Assurance, Sustainable Energy Association, TrustMark, DPS Group, The British Board of Agrément, OFTEC, UKSA, NAPIT, NICEIC, Compass Building & Construction Services, HPA, HPF, Installer, Corgi, Actuate UK and APHC (to name just a few!).

***To find out more about the programme, to sponsor an individual, or to join the next cohort, visit* www.yournavigator.co.uk/future-leaders-programme.**

What the participants say:

'The single-most impactful experience of my personal and professional life so far'

Jenny Russon
MCS Charitable Foundation

Q What's your background?

I studied French for my undergraduate degree at the University of Leeds, as I had always been interested in learning about people, language, and cultures.

Whilst I absolutely loved my undergraduate degree, I realised I wanted to focus my life around fighting to create a sustainable society. I also missed the more scientific subjects, having studied both maths and biology at A-level. After extensively travelling and working abroad, I decided to study an MSc at UEA in Environmental Sciences.

In my MSc dissertation, I compared heat pump diffusion in France and the UK since 2008 and interviewed both French and English stakeholders. The study aimed to identify lessons that could be learnt from France's heat pump success. This sparked a deeper interest in this subject area and so I decided to apply for an internship at MCS Charitable Foundation to try and bring about positive change in this ever-important sector.

Q What do you think is the key to a sustainable future?

Achieving a sustainable future is such a complex task that I would suggest it requires a complete rethinking of how we approach things. Of course, this is in regard to the technologies we use, but also a change in our behaviour as a society. We need to move away from being a consumerist and throwaway society, towards a more circular society that values the planet we exist on.

We need to change the way we eat, travel, generate electricity, farm, and build homes. Essentially, it requires systematic change and strong government intervention to ensure that the transition is at the pace and scale needed for a sustainable future.

Q What have you learned from taking part in the programme?

I have gained valuable insight from each of the three pillars that make up this programme and I will probably be consulting my 'blue brain', aka snazzy notebook, for years to come. The Foundation part of the course was all about the practical tools and tricks to learn how to make capacity, practice self-awareness, and empower others.

These are skills that I have already benefited from and intend to use for the rest of my career. The Application part of the course was a chance to practice these skills in real life and this was a lot more challenging, especially when it came to making capacity. The project taught me that learning these techniques is not something static, but something that I will have to continue to practice in order to make a habit.

The Aspiration stage for me has been all about the people. I feel so grateful to have already met so many wonderful and empowering leaders through this experience. It has consolidated my belief that the net zero challenge is all about collaboration and bringing people together. I have confidence that together we will bring about the positive change needed to achieve net zero.

Iqra Tabassum
University of Bradford, Union of Students

Q What's your background?

I am currently an elected sabbatical officer at the University of Bradford with my role within the team being Education Officer. I have been in position since the summer of 2022 and I have been re-elected so that I can be in office for a total of two years.

I have a first-class honour in Civil & Structural Engineering and am the recipient of multiple prizes including the Civil Engineering Department Project Oral Prize and the Bradford Soroptimist Leadership Prize award for my outstanding contribution to University/Community life.

Alongside my role of Education Officer, I take lead on events focusing on female empowerment and safety and I also like to play a role in organising and executing large social events and gatherings that the union hosts.

Q What do you think is the key to a sustainable future?

Education – teaching people how 'small' changes we make to our lifestyles and daily practices can create significant change. But also acknowledging that we can be a part of bigger changes to be made for a sustainable future.

Q What have you learned from taking part in the programme?

I feel incredibly fortunate to have been part of the Future Leaders Programme. It has significantly contributed to my professional development, and the invaluable lessons I've learned from Rich and the team will stay with me for life. I greatly appreciate tailored educational experiences, and this course excels in that regard.

The course is remarkably inclusive, and Rich, along with the delivery team, excels at addressing the unique needs of each participant.

To truly benefit from this program, it requires a commitment of time and energy. It's incredibly important to set aside dedicated time to work on this course, as the effort you invest directly correlates with the impact you experience. This is a once in a lifetime opportunity.

Ben Copson
Sustainable Energy Association

Q What's your background?

Having graduated from Cardiff University's Environmental Geography programme in 2020, I sought to find a job in the sector through the thick of the Covid 19 pandemic. After a degrading year and a half, and over 500 applications, I finally landed a rewarding position in the consultancy Gemserv, as a Policy Analyst.

Based in their Birmingham office, I transitioned not long after into one of their trade associations, the Sustainable Energy Association, as a Policy Advisor – a more public-affairs-based role – where I work happily and successfully today.

Q What do you think is the key to a sustainable future?

Evidence and collaboration. The baseline for a sustainable future is robust, rigorously tested and proven data, which is used to inform the 'best' pathway to remediating climate change. We need to continue our study of climate change and its affects, and more sensibly, calmly and professionally plot out what actions we need to take, by when, to transition our world to a more sustainable one.

Then, as a planet, we need to be joining up our thinking, direction and decision making, providing more equitable solutions for nations unable to transition and invest at the scale of others. As nations, we need to be leading citizens, organisations, and stakeholders in the right, unified direction: meaning coherent leadership and informed action from government's, which guide individual initiative and delivery. As people, we need to be sharing learning and best practice, learning how to collaborate and do things together better, and leading action.

Q What have you learned from taking part in the programme?

The privilege that is the Future Leaders Programme stands out as one of the single-most impactful experiences of my personal and professional life so far.

No other training I have received has created as much of a personable and tailored experience as FLP does. From the regular contact with fellow course-mates and tutors, to the bespoke journey afforded to you by the course design, and cerebral learning of coasteering, 'Lego Serious Play', and many guided workshops, this course has nailed the outcome of value for time and money.

My experience from FLP has fundamentally changed the way I think about my life and approach my career. I have also made profound relationships with those I shared the time with. I believe that this level of insight and development should be a staple for any business, not only looking to give its employees a head start on the journey to leadership, but also to grow more well-rounded and skilled people overall."

Harry Bowles
Department for Energy Security and Net Zero

Q What's your background?

I studied Politics and International Relations at university and wasn't entirely sure what I wanted to do. I landed an internship as part of the organising team for the UN Climate Change Conference (COP26) in Cabinet Office and started a career in government from there.

I now work as a Senior Policy Advisor in the Department for Energy Security and Net Zero. I previously worked as Senior National Account

Manager in DWP, leading the Green Jobs Champions Network, covering 37 UK districts for the department. This was an incredibly interesting role and opened my eyes on how far we need to go to prepare people and professions for the essential net zero transition.

Q What do you think is the key to a sustainable future?

Partnerships and meaningful collaboration between civil society, international/national/local government(s), business and youth will be essential to meet our legally binding net zero commitment by 2050.

I believe the role the labour market will play in delivering net zero is often overlooked. While innovation and investment are essential to accelerate action, a highly skilled workforce to bring this to fruition is paramount to success. We need people equipped with knowledge on how to decarbonise their community, industry and workplace and inspire others on the benefits of a low carbon society. This means we all have a role to play individually and collectively.

Q What have you learned from taking part in the programme?

The FLP has profoundly changed the way I see the world and understand myself. The retreat was one of the most enjoyable few days of my life and spending most of it outdoors meant I almost forgot that learning and developing isn't confined to a desk or classroom. Much of my professional experience thus far has come from working in hybrid environments due to Covid. This has meant I have defaulted to being slightly more cold and less personable due to the inability to engage in person and sometimes being completely remote.

This course has allowed us to engage face-to-face and virtually through vulnerable and enthralling sessions. I have learned immense amounts from the subject matter experts, from my course mates and buckets about myself. The ability to spot positive and negative patterns in others is useful but being able to understand this about yourself requires real humility and self-awareness and the course pushes this, especially via the emotional intelligence module.

I struggled for time and capacity with the application phase but the course has come at an important time in my development journey and equipped me with skills for life.

Hannah Thompson
NAPIT

Q What's your background?

I am Marketing Manager at NAPIT (National Association of Professional Inspectors and Testers). I have worked at NAPIT for six months now, and before that worked in various other marketing roles within various industries spanning from cuddly toy manufacturers to a disaster recovery and restoration franchisor (and a few different industries in between).

Before starting my career in marketing, I have trained all of my life as a professional dancer, so performing under the spotlight isn't something I shy away from! I also like that I can take the creativity of performance into my work in marketing.

Q What do you think is the key to a sustainable future?

The keys to building a sustainable future lies in allowing individual creativity and discovery in new technologies. Giving a voice to the new generations and nurturing the discovery of new technologies. Whilst also educating consumers to allow the embracing of change and promoting the philosophy of 'being the change you want to see in the world'.

Q What have you learned from taking part in the programme?

It is hard to put into words the skills being part of this course has instilled in me as a manager, colleague, mother, partner, friend and person that wants to contribute positively to those around me. In honesty the course is what you make of it, the knowledge and skills shared are second to none, but how this is implemented is fully dependent on you.

For those considering or preparing to develop themselves and partake in this course, I would say be honest, be open and be willing and the change it can make is limitless.

Alongside learning some fantastic skills, you will also meet some brilliant like-minded individuals, some influential experts in their fields of work and the wonderful Rich who will blow you away with his wonderfully calming green energy (all will become clear on the course).

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Leading the charge for **home decarbonisation**

WE are in conversation with Simon Phelan, the founder and CEO of Hometree, a company aiming to make heat pump installation, boiler care and replacement 'as easy as booking an Uber'.

With an ambition to accelerate the decarbonisation of UK homes by simplifying the process for both homeowners and installers, Hometree has already raised more than $83m from investors. A recently announced new debt facility from BlackRock will enable the company to further scale up its acquisition strategy.

The money has already been used to buy three installers, bringing the total number of companies acquired to eight and taking Hometree's workforce to over 5,000 multi-trade engineers and installers.

From an initial focus on home emergency breakdown and insurance, Hometree has expanded into renewable installations and financing, with a growing portfolio of products and services under three business divisions (Home, Energy and Financial Services).

Over 100,000 customers rely on the company to keep their homes running smoothly with emergency heating, plumbing, electrical repairs and maintenance plans. In addition, through its Finance division, the company has the largest portfolio of residential heat, solar and battery leases in the UK. By financing and owning the assets, Hometree enables customers to benefit from lower energy bills, without the upfront cost of installation.

Simon Phelan, founder and CEO of Hometree, speaks passionately of his desire to accelerate progress in domestic decarbonisation by taking on the bigger home service providers, and the company is in a prime position to accelerate the change from gas boilers to heat pumps and other renewable solutions.

We speak with Simon to understand how his strategy of buying up independent energy installers across the country will benefit both the installers and the homeowners, how Hometree intends to challenge the biggest home service providers, and how the combination of its large customer base and suite of financing and insurance products can simplify domestic decarbonisation.

Q Please share your story before founding Hometree and tell us how the company came to be?

Before launching Hometree, I worked in private equity and it was there through an investment that I was first exposed to the opportunity of decarbonising our homes.

Back then, there were different incentives for homeowners to install solar panels and I could see how this market was beginning to develop and what the potential business opportunities could be.

Q How has the business evolved?

Hometree initially started with a focus on home emergency breakdown and insurance, but we have since expanded into

renewable installations and financing, to support homeowners looking for green home energy solutions.

Q What drives you to diversify the business in this way and advocate for domestic decarbonisation?

Since before I started Hometree, the business and moral opportunity to decarbonise our homes fascinated me. The climate crisis is only increasing, temperatures are growing across Europe and the increase in natural disasters including flooding and droughts is all because of the rise in temperatures.

Renewable home energy is critical to reaching net zero but we need to ensure homeowners can easily access new solutions for their homes. We're proud to lead the charge for home decarbonisation.

Q What have been the key milestones along the way?

We have reached over 100,000 customers and we have a nationwide network of over 5,000 multi-trade engineers and installers – these are our major milestones.

We've also raised over £85 million in equity funding including from Legal & General Capital, one of Europe's largest asset managers, alongside a range of leading specialist energy investors including Energy Impact Partners, Inven Capital and 2150.

Earlier this year, we also secured a debt facility from funds and accounts managed by BlackRock to fund acquisitions of renewable energy installers, of which we have recently acquired three: Geowarmth, The Little Green Energy Company and IMS Heat Pumps. This brings the total number of companies we've acquired to 8.

As well, we recently raised a new £250 million asset-backed debt facility from Barclays to finance over 28,000 residential solar panel systems, batteries and heat pumps across the UK over the next two years. We will be offering low-cost, long-term leases & loans to homeowners, to continue to tackle the barriers to renewable adoption.

Q What's the latest with Hometree and acquisitions?

We have recently acquired three renewable energy installers as part of our move to offer a 'whole of life' solution. As the UK phases out gas boilers in new homes by 2035, many consumers are investing in renewable energy sources to power their homes including heat pumps, solar panels and electric batteries. We want to be their partner by offering renewable energy installations across the company through our network.

Q What makes an acquisition strategy the right one for Hometree?

The companies will gain access to Hometree's customer base, its suite of financing products and insurance services, so they can deliver even more value to their customers.

The acquisitions will enable us to bolster our engineering force and re-train more of our 5,000 engineers to be able to install, repair and maintain renewables. Reports have suggested that the UK needs 30,000 heat pump installers to meet its ambitious targets so we want to ensure we are at the forefront of this change.

Q Are there more in the pipeline?

The financing from funds and accounts managed by BlackRock means we have been able to acquire three companies: Geowarmth, The Little Green Energy Company and IMS Heat Pumps

The facility will further support our acquisition strategy so we will look to announce more in the future, as and when we can.

Q How does the Hometree approach simplify the sector from a consumer's point of view?

The installation market in Europe is very fragmented – no company owns more than 1% of the market in terms of annual installations. That makes it harder for consumers to find the right installer for them – they have to do lots of research into different companies, and it is also difficult to find the right financing.

By offering financing, installation, servicing and maintenance under one umbrella company, we're able to make it easier for consumers to buy, finance and maintain renewables.

Q What else do you think needs to happen to overcome some of the barriers to transition?

Affordability is the biggest barrier preventing people from installing green energy at home. The widespread availability of affordable long-term financing will be critical to removing the transition barriers to domestic green energy. That's why we have received new debt financing from Barclays to make this a reality.

Similarly, despite the energy efficiency advantages of heat pumps, disparities in energy prices, especially the electricity to gas price ratio, is one of the primary barriers. To encourage adoption, it's critical to close this gap through measures such as shifting taxes and levies away from electricity bills, introducing dynamic electricity tariffs, and carbon pricing mechanisms.

Q What are you hoping for from the new Government?

Concrete policies that will support homeowners' transition to renewables and green energy, and a more stable policy framework that enables private capital to invest in these markets without fear of policy ups and downs and changes.

There also needs to be more effective training to create the right green skills we need for now and the future. Reports suggest that to meet current heat pump targets, the UK needs 30,000 heat pump installers. Improved training and incentives for new engineers is necessary to scale up to this target.

Q What does the future hold for Hometree?

The debt facility from BlackRock will enable us to acquire more regional installers to build that base up whilst the industry first financing structure we put in place with Barclays means we can offer low-cost, long-term loans to households to drive the uptake of renewable energy.

We're on a mission to decarbonise 1 million homes by 2030, by becoming Europe's leading residential energy services company, so we have a lot ahead of us to reach that target.

The industry through the eyes of **Andrew Woodruff, Arrow Energy Solutions**

IN this, our regular feature, we talk with a member of our installer community and take a look at the industry through their eyes.

If you'd like to be involved and to share your insights with us you can find out how at the base of this article.

Here we speak with Andrew Woodruff, Managing Director of Arrow Energy Solutions, a Dorset-based company that covers southern regions as far from its Fareham base as Bristol and London, providing local communities with a broad range of insulation solutions and other sustainable energy solutions such as solar panels and battery storage.

Q Tell us about your own career as an installer.

Having started out marketing insulation services, I moved towards producing work-ready orders and finding subcontractors to fulfill. Over time, I created our own in-house teams and we've become our own installing company for insulation and solar measures.

Q Tell us more about your company.

Our main facility is now based in Fareham and employs around 24 staff offering both solar installations and insulation services such as cavity wall insulation using EPS bonded beads and loft insulation.

We are fully Trustmarked which enables us both to offer our services to the private market and to work within Government funded Schemes.

Q What have been the key milestones along the way for you and the business?

Our key milestones would include:

- Gearing up with our own facility and in-house teams to become our own installing company
- Gaining our Trustmark for government scheme work
- Gaining our MCS for Solar
- Gaining Constructionline Gold for Tier 1 Contractor works.
- Getting good teams together

Q How has the last year been and what trends are you seeing in the sector?

The private market has not been spending as much as before, so there was less work available. The work that tended to be available was not just upgrading work but work that also solved damp problems. This would indicate people were only spending if they had to.

Q Are there any new technologies, tips or tricks of the trade that you find work for you?

Just to provide a great service, do things right and be fair with customers – the way we have always worked.

Our culture is to provide our customers with honest advice, great workmanship and a VIP service. We are not a pushy sales company and we have well-trained, in-house teams that are responsible and accountable.

We also care deeply about our mission to not only provide our clients with a more comfortable home and to save money on the bills, but also to work towards reducing our community carbon footprint.

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

Personally, I am looking for market stability. Presently the news is awful; interest rates are high and an election approaches. I would be excited once the election is over, the Bank of England starts reducing interest rates, and people have fewer external influences to worry about.

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

Education on the benefits; there is too much negativity around market products and practices hanging over from 20+ years ago.

Grant programs are too complex and not easy to offer. There are also too many local ones to work out what's best to offer.

Q What's the best piece of business advice you've ever been given?

To always provide value.

Q What is the most memorable moment you have had as a renewable installer?

I don't have a particular memorable moment, but it does feel good to know the work we are doing makes people's homes and lives more comfortable and healthier, lowers their energy bills and lowers our carbon impact on the world.

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

Get your relevant qualifications and certificates. The industry is very certification based.

You can find out more about Andrew and his work at **arrowinsulation.co.uk**

We will hear further from Andrew in our next issue as he considers why, despite the growing emphasis on renewable energy and sustainable living, a mere 5% of new homes being built in the UK are equipped with solar panels, and shares his thoughts on the action needed to increase this figure.

With REI back in magazine format and reaching an increasing number of those active in the renewables industry, we want to get to know our community of installers better and to share their valuable insights as we seek to play our part in removing the obstacles to the decarbonisation of domestic energy.

At the heart of this evolving sector, and on the front line of the accelerating energy transition, our regular 'Installer Insights' feature enables you to see the industry through the eyes of other installers – to share experiences, identify common challenges and develop solutions.

If you're an installer then we'd love to hear from you. Please email margaret@renewableenergyinstaller.co.uk with a little about you and your business and you could find yourself featured on these pages.

R A Brown

"It feels like a time of innovation and collaboration – clear Government strategy is the missing piece"

R A BROWN Heating Services was founded over 35 years ago in Norwich by Richard Brown. In 2001 Richard and his first apprentice were beginning to work further out of the city on barn conversions. By 2008, they had started installing heat pumps which complemented the underfloor heating which was becoming a bit of a specialism alongside the work on rural properties. In 2012 the company was growing, moving into an office and showroom space. The following year, R A Brown won a H & V News award, which was to become the first of many national awards.

We speak with Louise Howlett, Commercial Director.

Q How has the business changed/ evolved since then?

The company now employs just over 20 people including a full time M & E designer and a designated service team. We are currently experimenting with introducing a technical supervisor role ahead of the changes to the MCS structure – now delayed until next year.

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

The main focus is air and ground source heat pumps but other services include MVHR, air conditioning, plumbing and gas services.

Facts and figures

The company turnover has dipped over the last few years. There have been many challenges since covid and we have experienced a significant reduction in retrofit enquiries and a greater challenge converting leads. Homeowners have felt heat pumps are expensive to run with high electricity prices. The switch to the BUS grant has in effect reduced the amount being paid to homeowners for switching. Equipment costs have risen significantly over the last few years.

One shocking statistic is that, in the year after BUS was introduced, we carried out zero ground source heat pump installations. We would normally expect to complete around five or six per year. We currently employ just over 20 people and are set to grow when the market improves.

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

To be ready to grow and scale when some of the misaligned economic factors fall into place. We have been working with MCS to support the new Low Carbon Heating Incentive to be delivered in our local college. We have always had a comprehensive apprenticeship programme and this new qualification is key. We are working with various platform developers whose products can support the customer to have a smooth journey to having a heat pump installed. Our main goal is to be a good example of best practice in domestic heat pump installation. I am currently writing an e-book aimed at homeowners on how to set about switching to a heat pump.

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

It is not working at all well in the retrofit market. There has been too much conflict with resources put towards exploring

the possibility of utilising hydrogen in domestic heating. This has felt very political to us with big business money connected with the oil and gas industry. The question has been can the domestic gas grid be said to be decarbonising by switching to or adding hydrogen?

The proposed trials have been cancelled, and all that is realistically left to contribute to the carbon zero targets are heat pumps. Unfortunately the image of the domestic heat pump industry has been damaged by bad press. Confusion is rife around which properties are suitable for a heat pump, partly caused by utility companies 'cherry picking' small easy retrofit installs to install at 'loss leader' prices. The knock on effect is that 'rejected' homeowners are left feeling their house isn't suitable or feeling independent companies are 'ripping them off' when they seek alternative prices and are faced with a realistic quote for a quality low temperature system.

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

Keeping enough work flowing through the books until some of the imbalances in the market shift after the General Election.

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

It feels like a time of innovation and collaboration where all kinds of people are trying to create platforms and software to help the installers and homeowners to be able to achieve the outcome of transitioning to a heat pump. The missing piece of the jigsaw is a clear strategy from Government.

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

I'm not sure I even know what the Government's net zero strategy is.

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

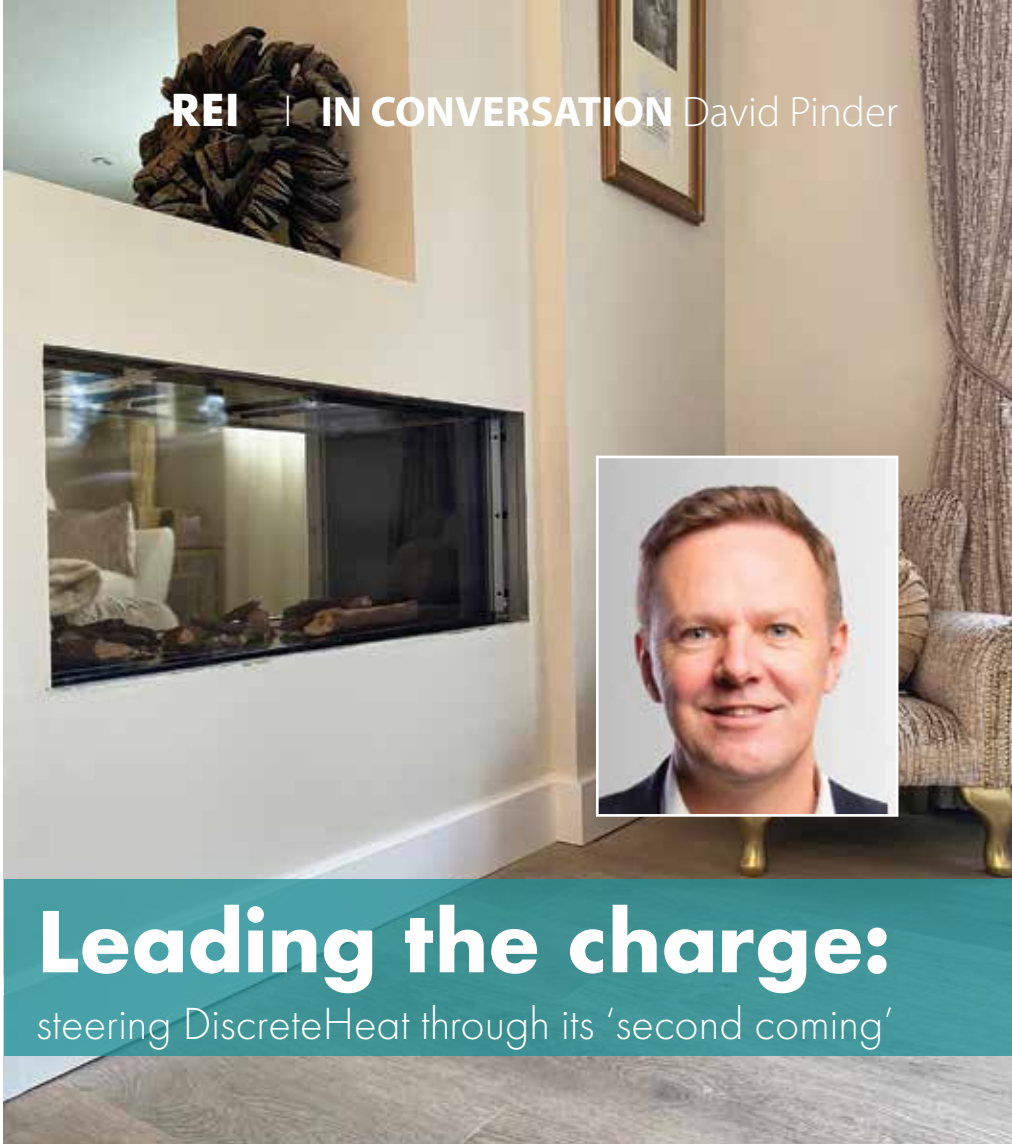
Providing a smooth, informed, 'safe' journey for homeowners to transition. We would like to see all homeowners that want to switch to a heat pump to be able to access the funding to do so.

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

Being instrumental in lobbying and supporting my local college to offer the new Low Carbon Heating Technician Apprenticeship.

Q Are you involved in any industry bodies, membership organisations or campaigns that you'd like to highlight?

I am a spokesperson for Heating Trade Networks UK, a campaign to set the record straight on heat pumps after all the toxic press.



Leading the charge:

steering DiscreteHeat through its 'second coming'

WE are in conversation with David Pinder, the new non-executive chairman of DiscreteHeat, who has been tasked with steering the company through its 'second coming'

Although it's been around since 2008, heating solutions provider DiscreteHeat is experiencing something of a second coming thanks to the ramping up of heat pumps as a low carbon heating solution.

Now finding itself positioned at the right place at the right time, the business is taking off on an unprecedented scale and has therefore brought in a well-known industry figure to help lead the charge.

Former Baxi CEO David Pinder has joined DiscreteHeat as a non-executive chairman and will be bringing his years of knowledge and experience to help successfully manage and finance the business through this period of growth.

DiscreteHeat is home to ThermaSkirt, an energy efficient radiant heating system, cleverly designed to look like a traditional skirting board. It can work with existing heating systems, whether that's a gas boiler, heat pump or electric heating, and can be controlled just like conventional radiators, using existing thermostats and timers or smart controls.

Founder Martin Wadsworth took the concept to Dragons Den in 2008, and despite being turned down by the investors, it has gone on to win numerous product awards in the years since.

So why the sudden growth?

We caught up with David to talk about his appointment, why DiscreteHeat is suddenly taking off and his general views on the renewable energy transition.

Q What's happening with ThermaSkirt at the moment?

DiscreteHeat has been around for a number of years, developing and honing its unique system and is well proven. ThermaSkirt has always achieved a steady level of sales, mainly for aesthetic reasons and in setting such as the NHS and care homes, because it's much easier to clean than radiators.

But the real change now is because of the relationship between ThermaSkirt and heat pumps. With the move towards heat pumps, which work more effectively by heating the system water to 40-45 degrees rather than 60 with gas boilers, a bigger radiator would be needed to heat the space. However, people are often reluctant to have bigger radiators, or they don't want to take their existing ones out due to the cost and disruption.

ThermaSkirt answers those issues and has therefore really come into its own. People can keep their existing radiators and supplement them with ThermaSkirt, or take out the radiators and just have ThermaSkirt.

DiscreteHeat is experiencing something of a second coming now. The rise in low temperature heating systems has been a bit of a serendipity and they are now seeing growth that is off the scale. It's also a great partner to underfloor heating because it's much easier to install upstairs, as well as offering an alternative to underfloor heating altogether.

Q What will your role as non-executive chairman entail?

I have experience of working in larger corporations and the governance aspect of that. I've also worked with start-ups before and helped secure funding. I did this with Mixergy, which I am still involved with as executive chair.

DiscreteHeat needs to raise funding to support this steep growth and that's what I'll be focusing on, along with the various other challenges that arise from scaling a business.

Q Tell us about your career to date

I started as a graduate trainee at Pilkington glass manufacturing company, straight from university. I've always had a sales, marketing and strategy focus rather than technical, but with an emphasis on making that connection between technology and the benefits it brings to customers.

I moved up through the ranks at Pilkington to managing director, overseeing the UK and southern Europe operations. One of the developments at the time was their self-cleaning glass and I often found myself promoting this on the TV.

I left there in 2012 to join Baxi as CEO of their UK and Irish businesses. In the later years of my time with Baxi, the focus was on the energy transition and how we would be able to deliver that to our customer base; how we'd gradually move away from boilers to heat pumps.

There was a big challenge in how we would take our customers on that journey. I became really interested in renewables. I am chair of the Green Construction Board, which advises government on the approaches needed to deliver zero carbon, zero waste, biodiversity and environmental net gain in the built environment. One of the projects we are working on, for example, is exploring how we can decarbonise concrete.

I also helped set up the National Retrofit Hub. I eventually decided that I wanted to do more of this sort of work and less of the day-to-day tasks that being a CEO involves, so I decided to explore other avenues.

Q How did you come to be involved with DiscreteHeat?

I was a perfect fit because of my background, and also the work I've done with Mixergy. The other quirky side is that I went to school with Martin Wadsworth. We met at a school reunion a while back and realised we were both working in the same industry. We stayed in touch after that and it made sense for me to join them at this time.

Q What drives you in your work in the renewable energy sector?

I want to deliver a fair transition. A low carbon home shouldn't just be for those who can afford it, and when people do make that switch, their bills have to go down, not up.

The fact that gas is four times cheaper than electricity means bills with a heat pump are probably only on a par with a gas boiler. So there are real concerns about people in fuel poverty or social housing if they don't have a heat pump that's installed properly, or the fabric isn't done first. They could end up in a situation where their bills go up instead of down and a home that isn't comfortable. We need to make the transition happen equitably, so that people aren't worse off. Countries which have been most successful in the transition are where the price gap between electricity and gas is smaller, but I don't think much progress is really being made on the price of electricity.

Q What do you think needs to happen to overcome some of the barriers to transition?

We need to be looking at the best solution for the individual and for the grid. Too often government looks at the home and the grid in isolation, but we need to decarbonise the grid as well as heat – one without the other won't work.

Storage will play an increasingly important role and having this connected to the grid to manage the peaks and troughs.

We also need more certainty from government. Industry is quite good at gearing up if we know the opportunity is there and isn't going to be removed, i.e. in the form of subsidies that are suddenly taken away. We need a clear line of sight as to what the targets are, how we get there and what government support there will be, without the goalposts being moved.

At least the Future Homes Standard offers some certainty around new builds, and the Social Housing Decarbonisation Fund is also a good scheme. The real policy gap is around the owner occupier. That's why we set up the National Retrofit Hub. We need a national infrastructure programme, and we need more education around this.

Q A final word about how the future's looking for DiscreteHeat?...

For DiscreteHeat it's all about growth. We're starting to get some traction with new builds and local authorities. ThermaSkirt has really come of age and we're all really excited about growing the customer base and the installer base.

Thank you, David.

We bet those Dragons are regretting letting this one get away!

Answers to five of the most-asked questions about ThermaSkirt

A RECENT reel posted on Instagram by DiscreteHeat, showing a step-by-step guide on how to install ThermaSkirt, chalked up over 20 million views, 220,000 likes and nearly 2,000 comments.

It prompted a variety of technical questions, which have been answered in a more detail here by DiscreteHeat's sales and marketing director, Ethan Wadsworth.

Q Is ThermaSkirt suitable for older properties?

Yes – around 70% of the installations we've done so far have been retrofitted into existing properties. We are energy agnostic, so whether there's already a heat pump or a gas boiler, ThermaSkirt will work with it.

If the home has a boiler, we have the option to oversize the ThermaSkirt. If we take out a 2kW radiator, we'll install a larger ThermaSkirt system so the boiler can be turned down.

For example, when I moved into this 1970s house, there were radiators in every room and the boiler was running at 75°C. Now I have a ThermaSkirt system and the boiler is running at 55°C. My gas consumption has reduced by nearly 20%, because the boiler is constantly condensing.

It's not just necessarily about working well with heat pumps, it's actually about maximising the efficiency of the existing property. With ThermaSkirt, just the same as underfloor heating,

even in an older property, you aren't heating up the air, you're heating up the fabric of the building. Once you've built up the temperature, it's a lot more stable, even in older properties

Q How does ThermaSkirt heat the room? How does the air flow?

The easiest way to explain how ThermaSkirt works is first to explain how a radiator works.

There are three ways that heat energy can be transferred. There's conduction, where heat is transferred through contact. Then there's radiation, which is the infrared rays that come off anything that's warmer than its environment. Finally, there's convection, which is basically both conducted and radiated heat that's transferred onto air molecules. The air molecules stratify: the cold dense air falls and the hot less dense air rises, so radiators create a convection current. Even though they are called radiators, they are actually convectors.

ThermaSkirt is actually a radiator in its truest sense: it's an infrared heater. Hot water in the pipe heats up the aluminium profile and the aluminium radiates heat into the room. Inevitably, some air movement will be created, but the main heat is radiant heat, so no air flow is required. ThermaSkirt is more akin to underfloor heating in that respect, because you don't get air flow across underfloor heating either.

There is a common misconception about how heating works. It doesn't require any air flow. It's offsetting the heat losses of the building, not trying to move hot air around. With older properties you can insulate, but it's quite hard to make them airtight, so it is much more efficient to heat up the fabric of the building, either with ThermaSkirt or underfloor heating, and then the temperature will remain more stable.

Q How many kW of heat is generated? Is it powerful enough to heat the room?

With a boiler you can get up to around 180W per metre of ThermaSkirt. Heat pumps run at a lower temperature, around a maximum of 50°C, so you can get around 100W per metre. Either way, it's quite a high heat output and very effective.

For example, a 4m by 4m room has about 15m of available skirting area, taking out a metre for the doorway, giving you around 2.8kW in 16 square metres. Or, to put it another way, it's 170W per square metre.

Q How has the design changed over the years since the product was first launched?

Fundamentally, the way the product works hasn't changed at all, because that's just physics, and those laws rarely, if ever, change.

The changes we've made have mainly been around ease of installation, aesthetics and durability. Back in 2010, where the corners met there were plastic cover plates and plastic trims. Now we use powder coated stainless steel, which looks great and is very durable. We used to use an extruded bracket, which we have changed to an injection moulded design, creating an easier and quicker installation.

Back in the day, you really needed to take your time with the installation, and we even stressed that during our training sessions. Now, the improvements have made installation a piece of cake, and even a semi-capable DIY-er can make a really good job of installing the product. Compared to plumbing a complete house with copper pipe, heating engineers say it's a complete doddle.

Q How easy is it to install? Do I need to change the whole house?

The video on Instagram that went viral is literally a step-by-step for how to change a radiator for ThermaSkirt. It shows us taking the radiator off the wall, removing the skirting boards and then using the existing radiator pipe work to connect into the ThermaSkirt.

There are a lot of people who would love to have underfloor heating, retrofitting it would be totally impractical and a huge amount of work – it's a 'move out of your house while the work's done' type of job! Whereas with ThermaSkirt, you can move all the furniture to the middle of the room and work on the existing pipe work. Very few plumbing alterations are usually required – it's just a straight swap.

You can also do it on a 'room-by-room' basis. It's a common misconception that you have to do your whole house, that you have to have all radiators or all ThermaSkirt. If there's one room in particular where you'd like to get rid of the radiators, you can just install ThermaSkirt in that one room.

And when heating engineers are retrofitting a heat pump, and find in their heat loss calculations that some of the radiators are undersized, they can either replace radiators in those rooms with ThermaSkirt or they can leave the radiators in place and use ThermaSkirt to make up the shortfall in total heat output.

For homes with a gas boiler, we want it to run as low and efficiently as possible, so we size it to the heat losses of the room. This means that if the required heat load could be achieved by installing ThermaSkirt on two walls we can match the other walls with dummy skirting. There's a great deal of flexibility on how you specify and install the system.

Want to join ThermaSkirt's registered installer base?

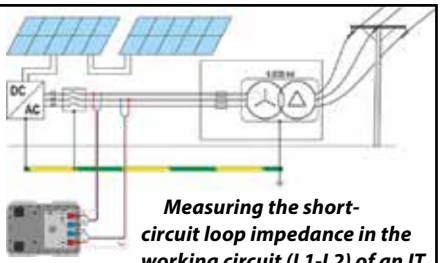
DiscreteHeat offers a series of online training modules for installers who want to become registered ThermaSkirt installers. There are three modules to complete, and each is broken down into bite-sized chunks of easily digestible information.

Once all three modules have been completed, installers are eligible to become a Registered Installer, and start using the ThermaSkirt trade-only online portal and all its benefits. They will also receive priority technical support by phone or WhatsApp.

The next level is Accredited Installer. To qualify, installers can attend a training and assessment day, either at the DiscreteHeat training centre in Manchester or at partner training facilities across the UK.

On successful completion, their details will be added to the 'Find an Installer' map on the DiscreteHeat website, so that potential customers – homeowners, specifiers and contractors – can find them.

When they've completed 10 ThermaSkirt installations, they become a Professional Installer and will receive priority leads in their area and exclusive marketing support from the in-house team to boost their business.



Measuring the short-circuit loop impedance in the working circuit (L1-L2) of an IT network, using the example of a solar photovoltaic farm with an 800V AC IT network

A solar power farm with an inverter with a power of P ≈ 185 kW. Taking measurements using the Sonel MZC-340-PV meter

Measurements of the mains voltage parameters in a PV facility. A PV power plant in Poland

Measuring short circuit loop impedance
at solar photovoltaic farms and power plants

ROB Barker, Director of Power Quality Expert Ltd., has more than 25 years' experience in electrical test and measurement. With the proliferation of ever larger solar PV installations, Rob considers the vital role a new product has to play in ensuring protection against electric shock in these high voltage networks.

With the increasing and dynamic development of solar photovoltaic farms and power plants, we are witnessing a growing demand for proper short-circuit loop impedance measurement between the inverter and the LV/MV transformer. To enable these tests to be made, Sonel have developed the Sonel MZC-340-PV high current fault loop impedance meter. The world's first meter designed for measuring short-circuit loop impedance in networks with voltages as high as 900V AC the meter has measurement category CAT IV 1000 V and is equipped with a special, high-performance ventilation system that delivers smooth and effective operation without downtime to increase efficiency and significantly reduce measurement time.

All around the world we are seeing ever larger solar photovoltaic installations being built with the owners and developers planning to periodically expand them to generate additional tens or hundreds of megawatts of power. In order to reduce the costs associated with facilities on this scale, and guided by the need to ensure the highest possible energy yield and thus the maximum return on investment, investors and designers are starting to employ inverters with a nominal active power of P ≈ 185 kW. These inverters convert 1500V DC power into 800V AC. Once the power has left the inverter, the energy goes to the medium voltage network through a 0.8 kV / 20 kV transformer substation. This solution is becoming a standard at substations with capacities starting at 1 MW.

Guidelines for contractors building solar PV farms and power plant

In order to commission, check, periodically service and supervise such extensive installations, the contractor should refer to the guidelines defined by the BS:EN 62446-1 standard 'Photovoltaic (PV) systems – requirements for testing, documentation and maintenance'. This standard indicates that inspecting a photovoltaic farm should, when it comes to electric shock protection, be carried out in accordance to the standards IEC 60364-6 and IEC 60364-4-41.

The contractor should present reports on the measurements carried out, which should also include the measurement of short-circuit loop impedance. Making this measurement is one of the basic methods of ensuring there is protection against electric shock.

Sonel MZC-340-PV – a world first among loop meters

The output voltage of 800 V AC for these larger PV systems, which in real conditions often exceeds this value, poses a huge problem for contractors and servicing companies, since to date, for such high voltages, there have been no devices on the market to check the installation for compliance with the conditions of electric shock protection in terms of measuring the impedance of the short circuit loop.

Sonel was the first company in the world to take on the challenge of creating such a fault loop impedance meter for operating voltages up to 900 V AC and measurement category CAT IV 1000 V. With this in mind, Sonel decided to fill this niche by pioneering a new kind of product – and this is how the Sonel MZC-340-PV fault loop impedance meter was created.

The meter is designed for measuring short-circuit loop impedance and for establishing the short-circuit current with the device allowing tests to be performed on networks with voltages as high as 900V AC.

CAT IV 1000V measurement category

Measurements at voltages this high and on sources of great energy, which include inverters and transformers used at large PV power plants, are made possible due to the fact that the Sonel MZC- 340-PV high-current short-circuit loop impedance meter was designed and manufactured within the CAT IV 1000V measurement category.

This is the only measurement category that can ensure safety for the personnel carrying out measurements in these test conditions. Due to the particular nature of the tests, voltages exceeding 800V to ground may appear when testing is being carried out. This means that measurements carried out with lower category meters are prohibited, as they are a threat to the safety of the engineer making the measurements and are most certainly going to be questioned by an informed safety and supervision inspector.

Remote measurements ensuring maximum safety

The energy released at mains voltage of 800-900 V AC can pose a danger to the personnel performing measurements. That's why the MZC-340-PV is only wirelessly controlled.

The new meter does not have a built in display, instead it allows for remote control and presentation of results through the use of a mobile device with built-in wi-fi (phone, tablet,

Taking measurements using the Sonel MZC-340-PV meter

Control using a phone or a tablet

Review results using a smartwatch

laptop, etc.) and a web browser. The Sonel MZC-340-PV can communicate with up to five devices at the same time and the functionality of the meter does not require an internet connection except when it may be necessary to update the device's firmware which will be downloaded directly from the Sonel.

The meter can be controlled using:

- **a phone or a tablet** – no matter what system it is using (Android, IOS, Windows...). Full functionality for initiating measurements, reading results and managing the memory can be made.
- **a touch panel in a car** – initiating measurements, reading results and managing memory is possible.
- **smartwatch** – supervision of and review of the test results can be seen.

Substantial functionality with a wide range of application

A great advantage of the Sonel MZC-340-PV is its ability to measure very low short-circuit loop impedances, effectively starting as low as 7.2 mΩ with a resolution of 0.1 mΩ, where:

- with a voltage of 230V AC, the measurement current value is 130 A,
- with a voltage of 550V AC, the measurement current value is 305 A,
- with a voltage of 900V AC, the measurement current value is 250 A.

The device can operate in networks with rated voltages of 220/380V, 230/400V, 240/415V, 290/500V, 400/690V and 460/800V (up to 900V) within the voltage frequency range of 45...65 Hz. For its measurements, the Sonel MZC-340-PV meter employs the four-wire (4P) method, in which the measuring wires do not affect the value of the measured impedance. Testing can be carried out with the use of crocodile clips and Kelvin probes, which, like the meter are within the CAT IV 1000V measurement category.

Additional applications

Despite being intended mainly for solar photovoltaic farms, the Sonel MZC-340-PV can also be a great choice for carrying out measurements on other renewable sites such as wind farms, low- voltage transformer substations and even in heavy industry making it an excellent choice that will ensure years of safe and reliable operation.

Efficiency

a golden opportunity for heat pumps

HIGH efficiency heat pump installations save money for homeowners, build installer confidence and contribute to the long-term sustainability of the low carbon heating sector. Rick Clarke, NIBE's Product Manager, explains why efficiency should always be a priority for specifiers and installers.

Installers and their customers have more choice than ever before when it comes to heat pump installation – from the high-volume, low-cost delivery models that have grown out of the need to meet net zero obligations, to leading-edge bespoke designs that incorporate the very latest smart technology.

There is no 'one-size fits all' solution for mass heat pump deployment. We need a wide variety of approaches to ensure we are providing effective low carbon solutions to the greatest number of people. But one constant must remain: achieving a high efficiency must be at the core of every heat pump project.

Efficiency matters

There is no escaping the fact that the price of a heat pump install is more than that of a gas boiler – not just because of associated retrofit works, but because the market is still growing. However, it is a mistake to focus solely on upfront costs. A heat pump that is expertly specified, installed and commissioned for maximum efficiency will cost considerably less to run, yielding significant savings over its lifetime.

A more efficient heat pump, with, for example, a seasonal co-efficient of performance (SCOP) of 4 or 5, will use less energy to achieve and maintain the required temperature. An initial investment in quality is, therefore, a wise financial decision.

Long-term savings

Heat pumps are capable of achieving very high efficiencies – up to 600% efficiency compared to around 92% for modern A-rated gas boilers – which more than makes up for the difference between the cost of electricity and gas.

For example, assuming the cost of electricity is *24.5p/kWh, a heat pump operating at a SCOP of 3 would cost the end user 8.16p per unit of thermal energy. However, if the heat pump was performing at the top end of its capacity, e.g. a SCOP of 5, the end user would be paying just 4.9p – around 40% less for every unit of thermal energy.

What makes a heat pump efficient?

There are many factors that play into the overall energy efficiency of a heat pump system. Accurate surveys and heat loss calculations lay a strong foundation for design and specification. The quality of the products, and their features, controls and connectivity are also key, while ensuring that installers have appropriate qualifications, manufacturer training and support throughout the process ensures that installed systems are operating at the top end of their capabilities.

Laying the right foundations

According to the latest reports, heat pumps can work well in all types of home but if corners are cut during the design stage, there is a risk of high costs and inefficiencies. The initial survey, including accurate heat loss calculations, is essential to determine the appropriate size of the heat pump and associated system – pipework and radiators. At this point, a good installer should provide recommendations for fabric first upgrades, which will reduce heat loss and running costs for the end user.

The requirement to have adequate insulation before installing a heat pump under the Boiler Upgrade Scheme has recently been removed. While minimising financial barriers for consumers is helpful, it's critical to acknowledge the impact that insulation has on efficiency, particularly with low temperature systems where the margin of error is much smaller.

Preventing heat loss will lead to long-term savings. Insulation, draught proofing and double-

glazed windows reduce energy wastage and associated electricity consumption costs over time, improve end-user comfort, and can potentially lead to a reduced requirement to upgrade radiators. Crucially, energy efficiency measures will increase the likelihood of an install achieving a higher SCOP.

Communicating these benefits to customers is important; where possible you should encourage them to carry out energy efficiency works before a heat pump is specified.

Heat pumps as part of the connected home

Precision is key when it comes to maximising heat pump efficiency, therefore, the more accurately heat pump operation can be monitored and controlled, the better it will perform. Heat pumps that incorporate advanced features and intelligent technologies will deliver enhanced functionality and higher efficiencies compared to low-cost alternatives.

As manufacturers, we can play a key role in increasing the efficiency of heat pumps by investing in R&D and innovation. All of NIBE's S-Series systems benefit from integrated wi-fi, wireless sensors and enhanced connectivity, fitting seamlessly into the connected home and providing full control over the system from a smartphone or tablet. Smart technology is capable of adjusting the indoor climate automatically according to weather conditions, user behaviour and energy provider tariffs, ensuring that end users have a system that meets the requirements of their household at the lowest price.

Installer support

While the products and features have a role to play in efficiency, it is the installer who brings it all together. Their skill during the design, installation and commissioning process, including the positioning and calibration of every component, sets the heat pump up for optimum performance.

It's not just homeowners who are having to change their mindset on heating, installers are on a journey too. From learning hydronics and developing knowledge of heat loss to navigating MCS, there is a lot to take on. Installers must be supported through each stage of the process so they can deliver high efficiency, low carbon heat pump systems.

The importance of efficiency cannot be emphasised enough – poorly specified and installed systems lead to negative consumer experiences and fuel the spread of fear and misinformation online and in the national news, where heat pumps have become a hot topic of late.

We have a golden opportunity to set the bar high for heat pumps, we should all be working towards a truly sustainable heat pump sector that works now and in the future.

***https://www.greenmatch.co.uk/average-electricity-cost-uk**

Warmflow Warmlink

Technology that keeps heating engineers on the front foot

TAKE a step towards the future with state-of-the-art control, thanks to Warmflow's Zeno air source heat pump control technology – Warmlink.

Warmlink is Warmflow's remote control and diagnostic platform which comes as standard with all Zeno heat pump models. The installing engineer simply downloads the Warmlink app onto their phone, scans the unique QR code on the side of each appliance and is then able to remotely monitor, fault find and control the unit from anywhere in the world.

Warmflow also offer installers the chance to receive training in one of their seven training centres across the UK, which give in-depth training on Warmflow's Zeno Air Source Heat Pumps. Training involves installation, commissioning & troubleshooting.

By offering the capability to monitor their installed Zeno air source heat pumps, Warmlink enables heating engineers to ensure high efficiency and optimum performance. The unique app gives installers the ability to get ahead of the curve and spot potential issues before they arise, with the functionality to run diagnostics and check errors without having to attend the unit on site – saving time and money for both the engineer and the homeowner – as well as delivering the best possible customer experience.

Empowering installers and consumers

The WarmLink user interface is now included as standard with all Warmflow Zeno air source heat pumps ensuring the smooth and efficient running of your appliance for many years to come. A pre-installed, 4G sim automatically connects to the Warmlink cloud-based app. A simple scan of the unit gives the engineer control of the heat pump for monitoring, commissioning and fault finding.

As heat pump uptake accelerates, efficiency, reliability, and customer satisfaction are key to successful adoption. This is where the Warmflow Zeno air source heat pump delivers a clear advantage: it is a game-changer, that not only caters to homeowners' needs, but also offers a multitude of benefits for installers, revolutionising the way heat pumps are installed and maintained. The Zeno range by Warmflow isn't just another line of heat pumps; it's a comprehensive package that empowers installers in several compelling ways.

By combining the Zeno heat pump with the WarmLink user interface, Warmflow is providing effortless, easy to use remote control technology for both homeowners and engineers, allowing users to control and monitor the heat pump remotely or from the comfort of their sofa.

For your customers, setting up WarmLink access on a smartphone, tablet or electronic device couldn't be easier with a simple to use app available on Google Play or Apple app stores. Simply by downloading the app and connecting their device your customers can also enjoy the benefits of remote control access to their Zeno air source heat pump.

Convenience in mind

First and foremost, the Zeno heat pump range is designed with installer convenience in mind. Featuring a user-friendly design and straightforward installation process, the Zeno series significantly reduces the time and effort required for setup.

With easily accessible components and intuitive interfaces including Warmlink, installers can efficiently complete installations, minimising downtime and maximising productivity.

Installers can take pride in offering a durable and reliable product to their customers, enhancing their reputation for delivering superior and professional solutions. With the ability to extract heat even in colder climates, these heat pumps provide a solution suitable for a wide range of environments, expanding the market and installation opportunities for professionals.

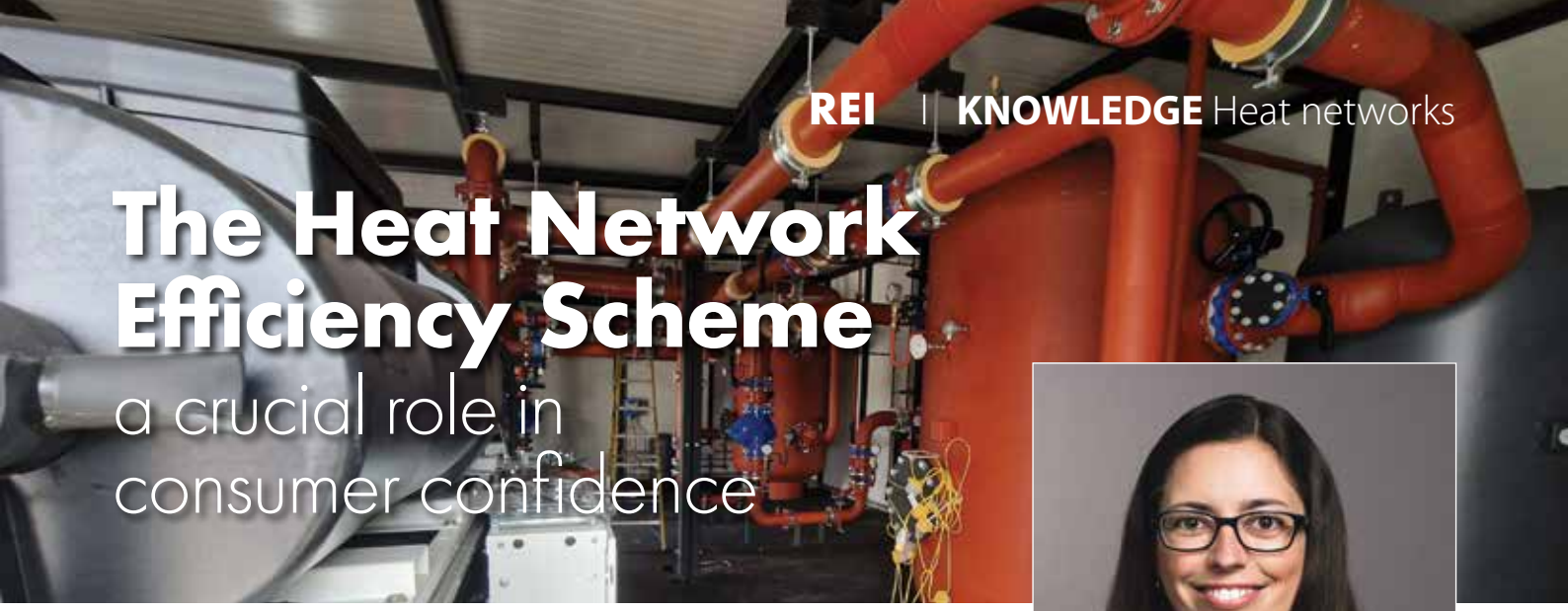
Additionally, Warmflow's emphasis on innovation extends beyond the product itself. The company provides comprehensive training and support for installers, ensuring they are well-equipped with the knowledge and skills needed to effectively install, maintain, and troubleshoot the Zeno air source heat pumps.

Features

Warmlink is easy to use and offers a range of features including the ability to:

- Fully control the appliance via smartphone, tablet or PC.
- Easily control the heating and hot water for the appliance from anywhere in the world to ensure maximum home comfort.
- Deliver complete customer confidence.
  In the unlikely event of a fault, error codes can be reviewed remotely, allowing for more efficient diagnosis and speedy response

To learn more about Warmlink technology and Warmflow's Zeno Air Source Heat Pumps, speak to your local area sales manager or contact Warmflow on 01952607750 or salesgb@warmflow.co.uk



The Heat Network Efficiency Scheme

a crucial role in consumer confidence

THE Government's Heat Network Efficiency Scheme (HNES) is a £77m grant support programme that provides funding to support improvements to existing district or communal heating projects.

Gemserv, a Talan Company, has been appointed the Delivery Partner for HNES. With its aim of improving heat network performance in existing projects where customers are experiencing sub-optimal outcomes, Louise Singleton, Principal Consultant at Gemserv and HNES Programme Manager, explores the crucial role the scheme has to play in delivering greater consumer confidence in this longstanding technology.

Government backing

Heat networks are a proven technology and a vital solution to help decarbonise our homes and buildings at scale. An alternative to individual gas boilers or heat pumps, heat networks generate heat from a central, communal location, routing this to buildings in the local area through a series of pipes. The solution removes the need for individual boiler installations within a property and is often the lowest cost, low carbon heating option for high density areas. Heat networks, like current water supplies, connect heat and hot water straight to the home.

The Government has recognised the important role that heat networks will play as we transition away from traditional gas boilers. The technology has the potential to provide low carbon heating to thousands of homes, and the Government has recently backed the Heat Network Transformation Programme with an additional £530 million, including £45 million of capital funding to the Heat Network Efficiency Scheme (HNES).

HNES is designed to complement other schemes such as the Green Heat Network Fund (GHNF) which provides capital support for the commercialisation and construction of new low carbon heat networks. GHNF has so far funded a plethora of innovative low carbon heat networks, ranging from large industrial heat pumps to energy from waste and geothermal energy solutions.

Confidence is key

The construction of new heat networks is important to help the Government meet its target for the technology to provide 20% of the UK's heating demand by 2050, but it's also key that existing customers connected to a network trust the technology. Without existing consumer confidence, it will become difficult to gain public support for the expansion of heat networks, and many will be reluctant to connect to one.

HNES addresses these potential issues by focusing on existing district or communal heating networks. The scheme provides funding to housing associations, local authorities, the NHS, education and private sectors for efficiency improvements on heat networks currently providing sub-optimal outcomes. As heat networks become more commonplace across the UK, customers will be looking to their peers for inspiration, information and advice on connecting to a heat network. HNES ensures that those currently connected to these networks are getting the best value for money, and have reliable, energy-efficient heating and hot water all year round.

The scheme provides both capital grant funding and revenue funding. The former supports networks with capital improvements to older, less-efficient heat networks, whilst the latter provides funding for organisations to commission optimisation studies for their heat networks. These optimisation studies inspect and identify issues and potential improvements that could be made to existing infrastructure. Some projects that have received revenue funding have since used the outcomes of these studies as a basis to apply for capital funding in a later round.

Since the main scheme launched in February last year, HNES has provided over £32 million worth of funding to 200 heat networks across 111 organisations. A total of 41,192 residents will benefit from efficiency improvements to their heat networks, with the potential for more improvements across projects currently undertaking optimisation studies for their existing heat network.

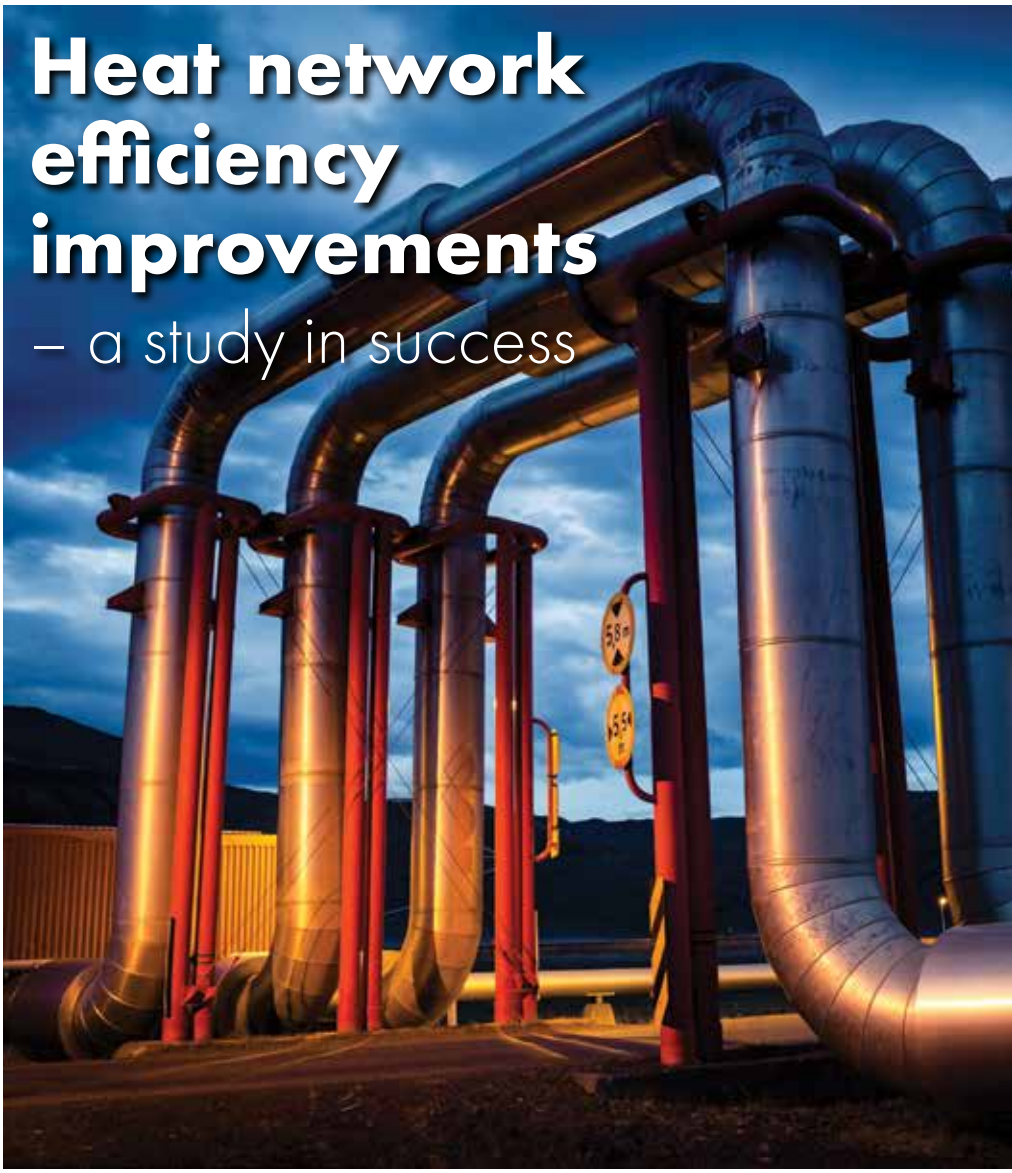
We expect that funding announced so far will result in carbon savings of almost 100,000 tonnes of CO2 per year across the next 40 years, and this demonstrates the importance of improving existing infrastructure. On the route to Net Zero, huge benefits can be achieved through upgrading and optimising existing technology and infrastructure, and this is true not just in the heating sector but across various industries, including transport, energy, and building efficiency.

A 2018 study by the Competition & Markets Authority on heat networks found that, overall, average unit prices and bills for the majority of heat networks are close to or lower than the bills for a traditional standalone gas boiler. To provide assurance to consumers, the Government has announced plans to regulate heat networks across England, Scotland, and Wales, providing similar protections to those that already exist for gas and electricity customers.

Alongside pricing, the UK Government is also planning to announce proposals for heat network zoning in England and Wales, which will identify and designate zones where heat networks will be the lowest cost solution to decarbonise heat. These regulatory and legislative changes will see the appeal and quantity of heat networks increase in the coming years. However, the importance of ensuring existing heat network infrastructure is fit for the future is crucial to providing greater consumer confidence and satisfaction with this longstanding technology.

See our case study on page 42 for an example of the impact of HNES, and find out more about the scheme and view case studies from other successful projects here: **https://gemserv.com/heat-network-efficiency-scheme-hnes/**

Heat network efficiency improvements – a study in success



FOLLOWING our look, on page 41 of this issue, at the crucial role for the Heat Network Efficiency Scheme in delivering consumer confidence in heat network technology, we share a case study from one successfully-funded project.

Southern Housing: Church Elm Lane

Church Elm Lane, located in the London Borough of Barking and Dagenham, is a scheme operated by Southern Housing, one of the largest housing providers in the UK. The project was awarded part funding in Round 1 of the main scheme to implement improvements after an optimisation study found opportunities for efficiency enhancements.

The scheme, located on the outskirts of London and served well by local railway stations, is just a stone's throw away from local parks and nature reserves. Southern Housing has more than 78,000 homes across London, the South East, the Isle of Wight and the Midlands, giving over 167,000 people somewhere affordable to call their own.

They wanted to ensure their residents at Church Elm Lane were able to heat their homes more efficiently and affordably. To achieve this, the optimisation study identified opportunities for significant improvements that could be made to the heat network serving the scheme, reducing energy usage and bills for residents.

Heat network efficiency improvement works and outcomes

Through the improvements made possible by funding, in part provided by HNES as well as internal funding, enormous value and benefits have been delivered to heat network customers. Capital funding provided in Round 1 unlocked the ability for the housing provider to:

- Recommission the Building Management System (BMS) and pumps to optimise the heating provision
- Reconfigure each resident's thermostats
- Install new HIUs to provide improved and optimised communication across the heat network
- Install new and updated pipework providing better efficiency
- Install additional insulation to prevent heat leakages, increase the heat network's efficiency levels, and reduce costs for Church Elm Lane's residents.

Lessons learned

Southern Housing recognised the importance of running an optimisation study ahead of considering improvements to the heat network. By identifying areas for efficiencies and key considerations early on in the project, Southern Housing were able to utilise their Round 1 capital funding effectively, targeting hotspots and providing maximum value for residents at reduced costs.

Conclusion

The Church Elm Lane project demonstrates both the effectiveness of investing in future-proof, high quality infrastructure to provide efficient heating to residents connected to a heat network, and the need for a data-driven, bottom-up approach to delivering improvements. Southern Housing were able to unlock energy bill savings for their residents through strong forward planning, early identification of opportunities, and targeted interventions through foundational optimisation studies.

Greg Falder, Energy & Heat Networks Manager, said: "We're thrilled to have successfully delivered the capital works project at Church Elm on behalf of our residents, who are already feeling the benefits of lower bills and more comfortable homes. The HNES fund made the project possible by providing funding, a clear route to delivery and a template for future projects across other heat networks.

"Our project delivery team and Invicta Building Services completed all upgrades ahead of schedule and within budget, whilst maintaining particular focus on engaging residents and minimising disruption."

Stephen English, Project Manager, said: "Residents had been experiencing a number of failures with the original Potterton HIUs such as a loss of heating, hot water or both and were very pleased to see the programme commence in October 2023 in time for winter. By the start of 2024, the majority of properties had their new units installed and were feeling the benefit.

"The relocation of the thermostat and new thermostatic radiator valves within flats, along with the changes required to the building management system and the installation of new sensors completed the work. It's hoped the system should reach the efficiency levels expected."

A Day in the Life...

Name: Thomas Farquhar
Organisation: Heatio
Job title: Chief Commercial Officer
Location in the UK: North West

IN this edition of our popular feature in which we shine a light on a typical 24 hours in the life of a professional within the renewables industry, we're chatting with Thomas Farquhar, the chief commercial officer at Heatio. We discover what a day in his life looks like, from the moment his 6am alarm signals its start, to the last thing he does as it ends.

Based in the North West of the UK, Thomas starts his days early with family responsibilities, before diving into a busy schedule of meetings and strategic planning.

Whether he's commuting or working from home, his role involves a mix of hands-on activities and high-level strategising aimed at advancing Heatio's mission of making clean, affordable energy accessible by making homes smarter.

Follow along to discover how Thomas navigates the challenges and rewards of his role, balancing professional demands with personal commitments.

My alarm goes off at

6-6.30 am (child-based alarm)

The first thing I do each day is

My wife and I make breakfast for the boys and attempt to make a coffee. I usually read the news, deal with early emails, and help get the boys both dressed and ready.

I prepare for the day ahead by

Checking my calendar, sending any prep emails or researching anything pertinent to my meetings the next day.

I can't leave the house without

My phone and notebook (paper).

My typical day...

I'm usually woken up by either one or both of our children telling me it's time for breakfast, typically 6-6.30am. The next hour and a half consists of my wife and I making breakfast for them, coffee for us, dressing them whilst watching a series of early morning children's shows, any pre-school reading or work and then off on the school run. It's usually one drop-off at nursery followed shortly after by the other at school, all before 9am, ideally a tag team approach.

If I'm travelling that day, then early morning clubs typically mean I'm on the road or a train by around 8am. Depending on where I am travelling to, or if I'm in our Liverpool office or at home, I usually have a fairly packed calendar of virtual calls (not a fan) and in-person meetings (big fan). During the short gaps in between, I'm dealing with emails and notifications from one of the 53 different communication platforms everyone now uses.

On the run

If I'm at home, I aim to run 10k either first thing or at lunchtime. I don't eat breakfast and usually miss lunch, and stay fuelled on liquids and the odd snack if time permits. School pick up is either 3.15pm or 5.30pm depending on the day and where my wife is, with the nursery at 5.45pm, so I will nip out to do this in between calls if I can, as both are within 3-4 mins of our house

Then, depending on the day, evenings usually consist of a child-based activity like swimming or football, making tea for our eldest, bath, stories and bed, before collapsing and having something to eat together, unless it is one of those days where we have later evening calls based on time zones. Then maybe 1-2 hours of tidying up, eating, and a brief television followed by bed!

My most memorable work moment … visiting Slush in Helsinki as part of Baltic Ventures' first cohort of high-growth, innovative tech businesses. An incredible trip meeting investors and like-minded tech experts from across the globe.

The worst part of my job

Admin, receipts and travelling on trains.

The best part of my job

Working with incredibly talented people, affecting real change, and seeing people truly value what we have built.

I relax after work by

Watching TV with my wife or sharing a meal if we can, working out, playing the odd video game, and reading.

On my bedside table is

A photo of us and our two little boys, a stack of books, some vitamins and a bottle of water.

The last thing I do each day is

Check on my two boys and make sure they are tucked in.

I'm normally in bed by

10pm

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The NEW Ecodan air source heat pump is setting new standards for performance and sustainability. Using R290 with a Global Warming Potential of only 3 and offering flow temperatures of up to 75°C, Ecodan offers flexible application. Available in 5kW, 6kW, and 8kW sizes.

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