Welcome to Adveco's October 2024 newsletter,

This month we open with the news that FUSION continues to gain industry recognition for its innovative approach to the provisioning DHW for commercial properties, including the capability of ending damaging limescale in hard water areas.

We also review the uptake of technology for public sector sustainability across the built environment, focusing on water heating as a gateway technology toward achieving net zero targets. We also revisit the status of hybrid systems for commercial projects.

Finally, during the Autumn period we will be instigating a series of updates to the website, so we have a tease of the new look as well as a first glimpse of our latest product range coming very soon...

Building An Award-Winning Legacy in Hot Water

Adveco's low-carbon FUSION packaged electric water heater system continues to gather plaudits for its innovative approach to delivering low-carbon water heating for commercial projects. Heating & Ventilation News revealed that FUSION has been shortlisted as one of the commercial heating products of the year 2024.

Offering 80 pre-sized variants and multiple prebuilt pipework options FUSION simplifies the process of specifying and installing sustainable hot water in commercial buildings.

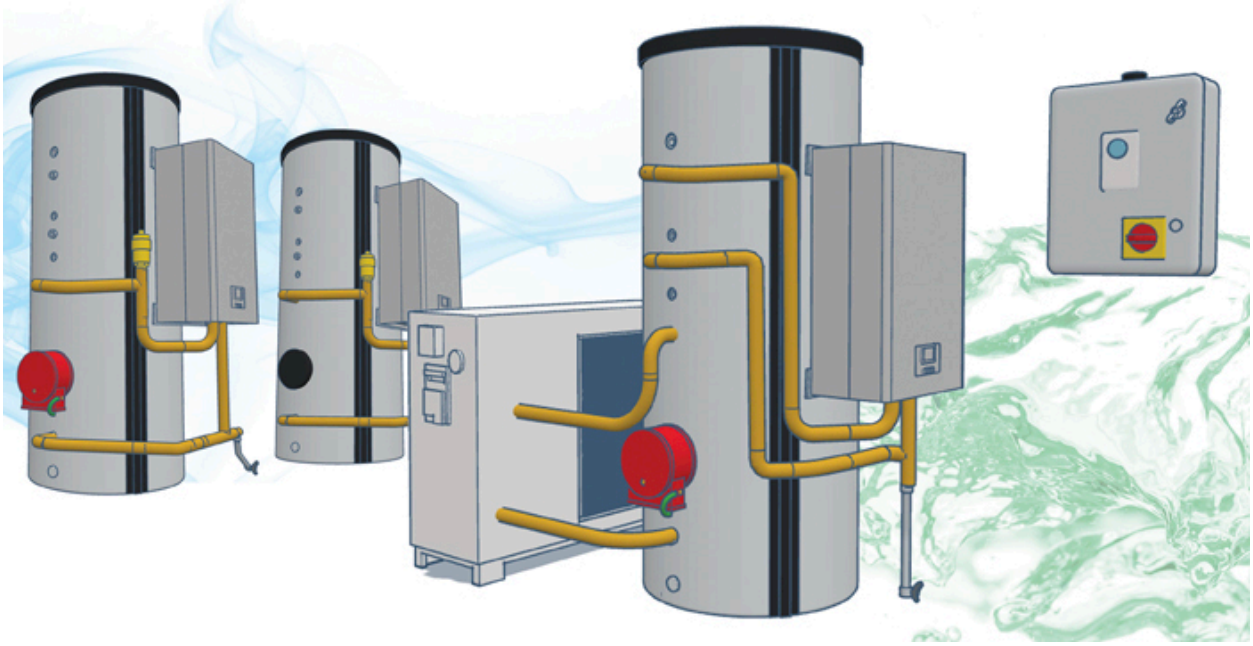
FUSION-E is an electric water heater combining Adveco's ARDENT electric boiler with a specially designed single (ATSI) corrosion-resistant stainless steel high-pressure indirect cylinder, pipework, thermostat and overheat thermostat. FUSION-T packages the electric boiler with a twin-coil (ATST) cylinder an FPi-32 monobloc air source heat pump (ASHP) and a FUSION Control Box for greater carbon reduction. FUSION-E and T-plus plus variants incorporate a 6 kW electric backup immersion and FUSION Control Box, plus provide remote alerts for added business resiliency.

The entire FUSION line now supports storage capacities ranging from 300 to 750-litre capacity with nominal power output starting at 14 kW in the FUSION-E and up to 33 kW in FUSION-T models that combine the electric boiler and an ASHP. FUSION will now support continuous flow rates of over 560 litres per hour, and in excess of 1380 litres during a two-hour period of peak usage.

Compared to equivalent gas-fired water heating systems the FUSION-E models, solely deploying the ARDENT electric boiler will provide carbon emission savings of more than 38%. But with smart controls balancing two heat sources in FUSION-T models contribution from the ASHP is maximised to deliver a working flow of 50-55°C at an ambient operating temperature of 2°C setting a realistic benchmark for operating conditions in the UK. This ensures the electric boiler is not required to work as hard to raise flow temperatures to the 65°C demanded by commercial applications. Carbon

emissions compared to electric-only systems are cut by up to 29% and by as much as 56% compared to gas-fired equivalents.

Incorporating water heating as a part of a sustainable building strategy, whether new build or retrofit, is typically complex and therefore time time-consuming and expensive. FUSION was conceived to address these challenges, simplifying the specification and installation of water heating with defined carbon savings. With the electric boiler mounted directly onto the cylinder with pre-built pipework supporting left or right-sided boiler location, FUSION is a more compact, space-saving alternative to gas water heating that can be installed and operational in as little as four hours.



Bill Sinclair, technical director, Adveco says: “With greater choice and continued development, FUSION stands as the benchmark for all-electric water heating in commercial buildings that must address their carbon emissions today. The hybrid approach that FUSION-T variants provide is, without doubt, the most effective and efficient way of optimising current technology to address net zero strategies in a realistic, lower-impact and cost-effective manner.”

“FUSION has proven to be a tough all-rounder, no matter a project’s location,” Bill continues. The corrosive effects of soft water are easily mitigated by FUSION’s stainless steel cylinders whilst the electric boiler, with multiple immersions inside its sealed storage tank, provides automatically balanced usage to prolong system life and immediate resilience for the boiler."

With this sealed ‘primary’ loop, the electric boiler heats the same water continuously effectively eliminating limescale issues typically found in electric systems used in hard water areas.

“FUSION continues to run clear and free of scale after a year of operation whereas electric immersions at the same location can be reduced to scrap in a matter of weeks,” Bill observes.

For those wishing to futureproof a specification, the FUSION-E systems can also be supplied with a twin-coil ATST cylinder as an alternative to the ATSI. Prebuilt pipework provides connection for the electric boiler to the lower coil in this case. The addition of a heat pump later can therefore be supported with a new pipework kit and controls upgrading the system to a FUSION-T specification.

For commercial organisations with both small or larger sink-led hot water demands, taller buildings with basement plant rooms or operations that rely on 24/7 hot water supply Adveco FUSION provides the most comprehensive response available today.

The HVN Awards winners will be named this October and we couldn't be more proud to be part of the shortlisted finalists this year.

DISCOVER MORE ABOUT THE AWARD-WINNING FUSION RANGE

Public Sector Sustainability- Now And In The Future

The UK public sector is poised for significant change in the coming decades with a shift towards sustainable, adaptable, and technology-driven building projects to address sustainability concerns and shifting economic dynamics. By embracing innovation, and focusing on social impact, the UK construction sector has an opportunity to become a leader in shaping the future of public sector built environments.

Much focus has been placed on public sector sustainability imperatives, with the government and organisations stating it to be a paramount concern for new commercial buildings. This drives awareness and expected demand for energy-efficient designs that deliver buildings with low energy consumption through sustainable materials, renewable energy sources, and smart building technologies. Building design is also expected to be adaptable and future-proof to accommodate changing business needs and technological advancements. New buildings are also expected to deliver improved employee well-being and productivity through greater comfort with efficient building services such as air quality and heating,

This future will be shaped by a combination of economic factors and regulatory frameworks aimed at achieving the UK's net-zero carbon emissions target by 2050. The previous government's commitment to sustainability was underscored by policies such as the Clean Growth Strategy, the Ten Point Plan for a Green Industrial Revolution, and the Future Homes Standard. The new Labour government's Green New Deal is a more ambitious policy framework for transforming the nation's economy and infrastructure to achieve net-zero carbon emissions. This comprehensive plan targets various sectors, emphasizing large-scale public ownership and investment. Prime Minister Keir Starmer has stated this new government will be "builders, not blockers" announcing the formation of Great British Energy (GB Energy), a publicly owned company that will invest in renewables crucial to the transition away from fossil fuels. The expectation is for the Labour government to pledge

substantially more investment in infrastructure, beyond the £600 billion over five years outlined in the previous Conservative government's National Infrastructure and Construction Pipeline.

Enhanced regulations will mandate higher energy efficiency standards, encouraging the use of sustainable materials and construction practices. The updates to Part L (Conservation of Fuel and Power) of the Building Regulations will drive this shift, alongside certifications such as BREEAM (Building Research Establishment Environmental Assessment Method) and LEED (Leadership in Energy and Environmental Design) which will be increasingly important, driving the market for green commercial buildings.

The public sector, charged with government expectations to lead change from fossil-fuel dependency to renewables is a critical resource for understanding how successful the transition to net zero by 2050 will be in the UK. Healthcare and education in particular are expected to demonstrate significant growth in new building projects.

Schools and universities will play a leading role in the adoption of sustainable building practices and renewable energy. Universities will develop green campuses with energy-efficient buildings, renewable energy installations, and sustainable landscaping, with many tasked with providing sustainability models and strategies that will be filtered to schools and other education facilities. Those schools will then integrate sustainability and energy education into their curricula, fostering a culture of environmental responsibility among students. Crucially, there is an expectation for existing educational buildings to be retrofitted with energy-efficient technologies.

Hospitals and healthcare facilities will focus on reducing their environmental impact while maintaining high standards of care. This will demand prioritisation of energy-efficient designs, renewable energy use, and sustainable building materials. Hospitals will incorporate resilient energy systems, exploring options such as microgrids and battery storage, to ensure continuous operation during grid outages. Achieving green building certifications will be particularly important for healthcare facilities to demonstrate their commitment to sustainability and public health.

For the wider public sector environment, government buildings will need to lead by example in the adoption of low-carbon technologies and sustainable practices. To this end, the new government will be required to develop and enforce new policies that promote sustainable building practices and renewable energy use across all sectors and then provide significant public investment directed towards retrofitting government buildings with energy-efficient technologies and renewable energy systems. This building work will serve as demonstration projects, showcasing the benefits of low-carbon technologies and inspiring community-wide adoption.

As a specialist designer and supplier of hot water applications to the public sector, Adveco is at the forefront of evolving commercial-grade sustainable applications for the provision of hot water. Traditionally deploying gas as a fuel, water heating with its regular daily, often business critical demands, has been a major facet of a building's energy consumption (as much as 30%) and therefore a key contributor to a building's carbon emissions. For the past 15 years, the company has heavily invested in the development of low-carbon systems as well as more efficient gas-fired technologies. This work has encompassed the development of heat recovery systems, controls, solar thermal, electric water heaters, immersions, electric boilers and more recently air source heat pumps.

During this past decade, Adveco has recognised a singular governmental focus on sustainable housing, to the detriment of commercial and public sector buildings. This has been typified by poor or no clear advice, a lack of mandated policy and underfunding of the public sector. We recognise that retrofitting the UK's existing building stock to be more sustainable is the greatest single challenge facing the construction industry and public sector alike.

Public Sector Sustainability 2019 – 2024

To better understand the challenge of achieving public sector sustainability Adveco recently commissioned research on the adoption of water heating technology across the public sector during the past five years. The research tracked more than 1500 projects during the period and clearly demonstrated the predominance of gas-fired water heating, accounting for 91% of all identified projects which included a wide variety of sites including schools, hospitals, local authority offices, prison service, police and fire.

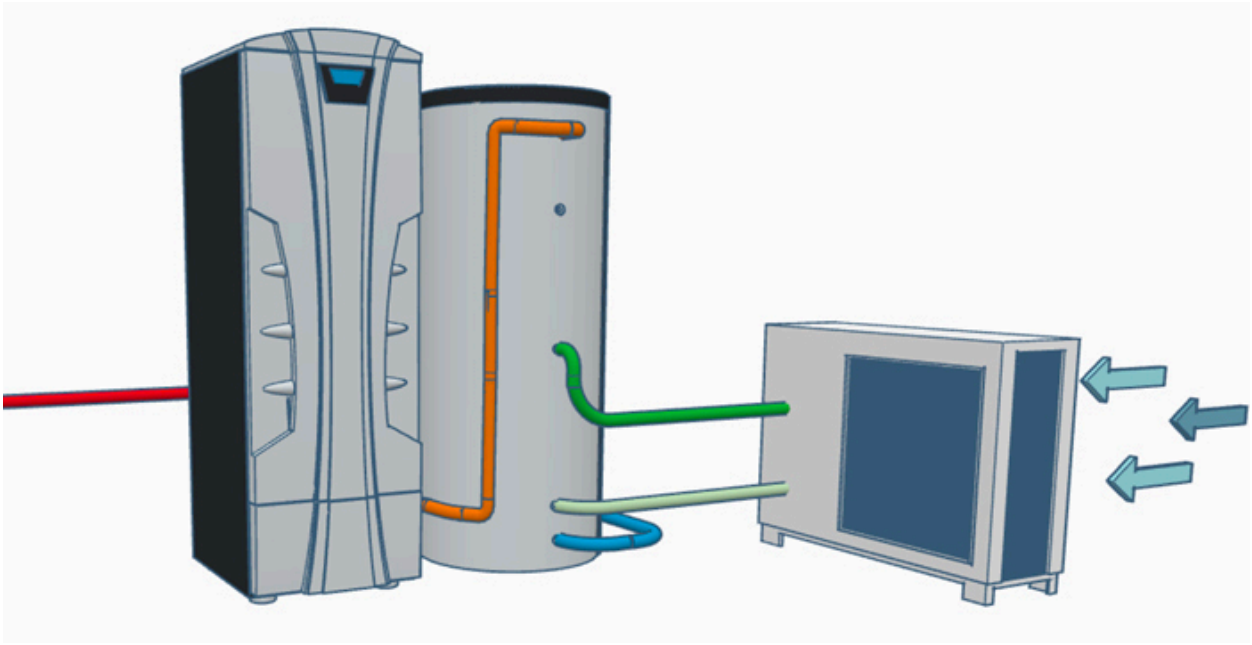
Adoption of electric water heating remains generally low, especially compared to commercial organisations, while air source heat pumps are increasingly being specified, but uptake remains slow. Solar thermal installations were consistent and have started to show recent growth as recognition of its ability to actively cut operational costs of electricity-based applications and reduce carbon emissions for faster return on investment has influenced its specification. On many accounts, solar thermal was perceived as the easiest and most effective way of offsetting existing gas-fired systems for active investment in measurable sustainability.

The lower-than-expected uptake of heat pumps is initially surprising given the expectation that new builds will specify them. When questioning consultants and contractors, heat pumps will always be specified for heating, but most are realising that heating and hot water in many cases are best left separate, which from a design perspective makes absolute sense. Hybrid hot water systems are being specified for new build, but when dealing with retrofit the majority of those questioned confirmed that while initially leaning toward heat pumps, they were encountering problems with cost, infrastructure and design. As a result, specifications are being revised back to gas when connections are available. Reasons cited included it being much simpler, familiar, and cost-effective to replace and run, and new generation appliances were seen to be more efficient with lower carbon and NOx emissions. Most are also 20% hydrogen-blend ready out of the box so offer a future-proof option for the next 15 to 20 years.

Extrapolating from the adoption curves, the public sector is on the cusp of a profound transformation, driven by the urgent need to achieve net-zero carbon emissions by 2050. But the path so far has been winding, the process slower and more intermittent than expected. Dependency on gas is reducing, but its predominance across built environments cannot be understated. When specifying works on buildings there remains uncertainty over new technologies both in terms of capability and costs. An observed lack of clear government advice has also not helped to accelerate adoption in recent years. Electrifying buildings, the predominant aim currently, is also a costly undertaking, even with grant funding, and those costs can spiral if the technology in question is not familiar or fully understood. Poor design and engineering can therefore lead to even greater, unwarranted costs.

Compromises on systems are possible, and better data on water demands from metering a site is a great way to gain insight into applying the correct balance of technologies to achieve an application design that saves carbon from water heating for far less capital and operational investment as part of wider public sector sustainability strategies.

Hybrid Water Heating, Still The Optimal Choice



According to the Department for Business, Energy and Industrial Strategy (BEIS), commercial businesses account for 17% of carbon emissions, 40% of which are generated through the process of heating, cooling and lighting buildings. When demands are high, water heating has the potential to be the most energy intensive process of all, accounting for up to 30% of daily energy demands. At Adveco our own research has shown that three quarters of new commercial projects still opt to rely on gas, which remains a key contributor to CO_2 emissions as well as NOx which has numerous health implications.

Studies which are more “almost all electric" argue in favour of an almost complete dominance of the heat pump, while the technology-open scenarios also predict large proportions of heat pumps, but also assume the use of gaseous fuels.

Just as electricity is becoming greener, via an ever-increasing share of renewable energy, so too over time will the gaseous fuels if Labour adheres to its ambitious vision for a green hydrogen revolution to support its broader Green New Deal. Staying on gas simply stacks up for a commercial business. They are familiar with the technology, no major infrastructure changes are required, so it represents a lower capital investment, and with lower operational cost as grid-gas remains considerably cheaper than electricity. The latest generation of appliances are more efficient and are compliant out of-the-box with potential stage one hydrogen blends up to 20% so are a future proof option.

This doesn’t mean commercial organisations can rest on their laurels. The impetus must be to increase sustainability to meet legally binding 2050 net zero targets, which means embracing gas but also leveraging renewables. In other words, adopting a hybrid route to supply buildings with hot water.

Hybrid systems are particularly relevant to buildings in which there is already a gas connection as they will require two heat generators and two energy connections, one of which being an environmental heat source. This leads to a higher complexity of the plant, requiring more effort and expertise from the system designer, supplier and installer which leads to higher CAPEX cost. It is typically estimated that the purchase and installation of a hybrid heating system compared to a pure condensing heating system is going drive initial costs up by approximately 50 to 60%. So, what are the advantages that outweigh these initial costs?

For older commercial properties where a new heating system is required, but wider renovation is either not feasible or required, a hybrid system with for example, a heat pump can be used as the pre-heat to supplement pre-existing fossil-based heating system. This helps to save costs as existing boilers can continue to be operated on the current installed heat distribution, heat transfer and flue systems while the heat pump can benefit from advantageous coefficient of performance (COP) in the right conditions and setpoints.

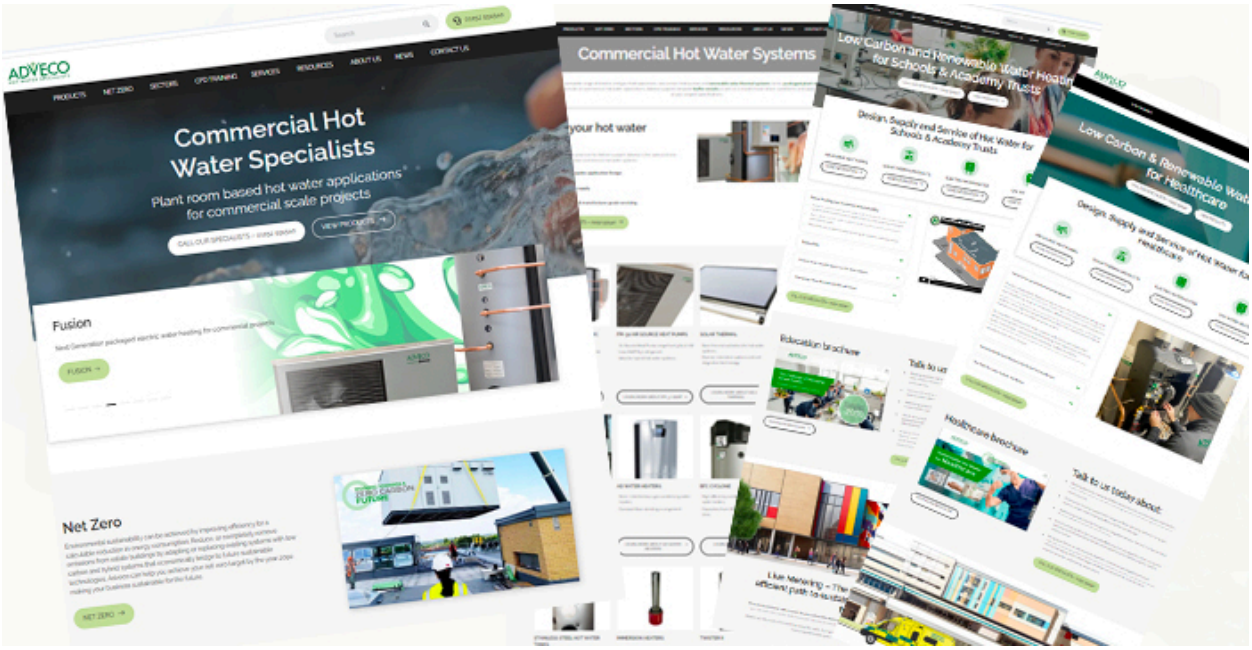
A hybrid heat pump/gas boiler system is able to reduce the maximum power consumption of a system by smartly balancing the heat generators for greater efficiencies and lower operational costs whilst guaranteeing high system temperatures to ensure the comfort of those still living or working in the building during refurbishment work. If the hybrid system is also equipped with buffer tank and domestic hot water tank the heat pump can achieve a high proportion of cover for space heating and DHW heating increasing the profitability of the system.

A hybrid heating system cannot only be controlled cost-effectively, it can also be optimised for CO_2 emissions by selecting the optimal (ecological) heat generator whenever possible via an energy management system that incorporates smart metering. With load management, the smart balancing of heat pump and condensing boiler operation, it not only becomes possible to addresses the lifetime cost of operating a system, but can help with the support of grid capacity, stabilisation of reserve capacities and potentially reduce the need for grid expansion. Should the building envelope subsequently be renovated, the required heating load decreases and the existing gas boiler can take on less of the annual heating work or eventually could be put out of operation.

Hybrid systems offer a fast and cost effective means for addressing aging and environmentally unfriendly heating systems, improving operations, delivering on corporate social responsibility and legal sustainability reporting. Due to the increased complexity ensure you communicate with an experienced design authority such as Adveco, which can walk you through system assessment, design and provision optimal appliances, whether gas, heat pumps or solar thermal to deliver the most effective hybrid systems at best cost.

LOWER CARBON WATER HEATING & NET ZERO

Shedding The Old To Make Way For the New



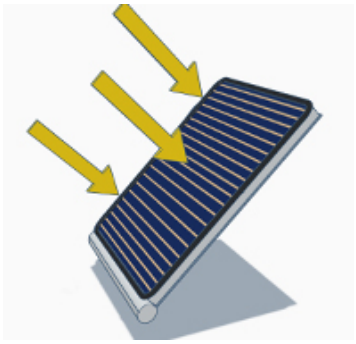
As always the best place to discover independent advice on hot water provision for commercial buildings and the products to best fulfil a specification is our website.

Over the coming weeks we will start a major overhaul of the look and feel of the Adveco website. We have been updating a lot of the content to reflect the fast pace changes affecting the industry and building a leaner, smarter and more modern website for you. You should experience faster loading, and with more intuitive navigation and on page guidance be able to quickly find the information you need to advance specification on your next project. Of course we are always on hand to respond to you questions and needs, so we will continue to make contacting and questioning as easy as possible, including outside of working hours.

We will also be introducing a key new product range in the very near future, we won't be saying much today, but here's a very quick peak at what we are cooking up for you...

VISIT THE ADVECO WEBSITE

Sustainable Hot Water For Commercial Projects



Solar Thermal

A proven and extremely reliable technology, solar thermal offers a clear path to reducing CO_2

Air Source Heat Pumps

The FPi32 & L70 ranges of commercial Air Source Heat Pumps (ASHP) for the provision of preheat

ARDENT Electric Boiler

ARDENT is designed to serve as an indirect water heater or heating system. Wall-hung and oorstanding

emissions and offsetting expensive electric costs for organisations using large amounts of hot water. Adveco's collectors with drain back provide a low maintenance option to help achieve sustainability goals.

FIND OUT MORE

in domestic hot water applications. Adveco ASHPs can be supplied as a part of a bespoke hybrid, or all-electric system, as wellas an element of a prefabricated plant room system.

FIND OUT MORE

variants for those seeking to avoid a reliance on gas energy supplies. In hard water areas the ARDENT electric boiler can be used to dramatically reduce the costly build up of damaging limescale.

FIND OUT MORE

Adveco 2024 Product Guide

Get our handy reference guide to Adveco's current product portfolio. Don't forget these are just the start of our offering, acting as the buildings blocks for your bespoke hot water systems...

2024 PRODUCT GUIDE

Discover Adveco's expanding range of low carbon and renewable products

Live Metering
Solar Thermal Systems
FPi R32 monobloc Air Source Heat Pump
L70 Air Source Heat Pumps for larger projects
FUSION packaged electric water heaters
Electric Boilers
Hot Water Cylinders, Indirect Water Heaters, Calorifiers & Buffers
Commercial Gas-Fired Water Heaters
Standalone Heat Recovery from Chillers
Offsite Constructed Packaged Plant Rooms

01252 551540
Enquiries@adveco.co