



Welcome to Adveco's October newsletter,

This month, we take a look at our CPD offerings. These are a fantastic way for consultants and contractors to gain greater insight into the design of hot water applications, with a particular focus on how they can be integrated as part of a wider sustainability drive in buildings, both new and old. We also take a deeper dive into the advantages of electric boilers and their role in hybrid DHW systems such as FUSION. And we round things off with a look at the impact of The Public Sector Decarbonisation Scheme and its drive to promote low-carbon technology such as heat pumps.

## **Adveco Offers CPD Seminars For Electric-Based Commercial Hot Water Systems**



Adveco continues to support its customers' continuing professional development (CPD) with its range of CIBSE-accredited seminars, which provide the most up-to-date insights on best practices for electric-based commercial hot water systems.

With stepped carbon budgets created by the government until 2037 and, effective as of June 2022, the new Part L planning requirements setting the carbon emissions factors of the energy sources that we use, the UK has entered a period of all-electric heating and domestic hot water systems.

Vince Ng, Business Development Manager, Adveco, said: "This process has introduced significant carbon and financial implications when designing domestic hot water (DHW) systems. Understanding, designing and selecting the best engineered application has become increasingly important for the successful delivery of all-electric systems that reduce carbon emissions and control costs."

Adveco's electric-based commercial hot water CPD covers best practices for immersion heating, point-of-use electric water heating, and the advantages of using electric boilers and indirect water cylinders. The seminar also incorporates a brief overview of how to use air source heat pumps (ASHPs) as commercial and public sector organisations endeavour to reduce carbon emissions from their building stock through new build or retrofit projects, applying heat pumps as a core technology.

"Cutting carbon emissions through the electrification of water heating makes absolute sense. However, without correct sizing and sensible specifications based on an understanding of electric-based technologies and approaches to integration into DHW applications, real problems can quickly arise. We already see this with the use of immersions as a primary heat source, or efforts to decentralise DHW with point-of-use, which are counterproductive, and ultimately costly to specify and maintain," Vince observed. "The complexity and particular demands of delivering DHW systems for commercial properties with heat pumps are also not without their challenges."

The CPD, therefore, also considers the differences and advantages of direct and indirect DHW systems with a focus on how to integrate ASHPs.

For a more in-depth assessment of low-energy/high-storage systems used with air source heat pumps, Adveco offers a follow-on seminar. Designing Commercial Hot Water Systems Using Heat Pumps. This CPD session takes a deeper dive into how to design heat pump-based preheat systems, comparing heat pump pre-heat and heat pump water heating systems, and explores the topic of designing high-temperature heat pumps as water heaters.

All Adveco CPD seminars are offered free and can be presented at your offices or online.

To book a session, visit our training pages to contact Vince Ing.



**BOOK YOUR CPD**



**Best Practices for Designing Commercial  
Hot Water Systems Using Heat Pumps**

**London Wednesday, 5 November  
17:30 - 18:30**



SoPHE are also delighted to be able to invite you to its upcoming Best Practices for Designing Commercial Hot Water Systems Using Heat Pumps CPD with Adveco. Vince will be presenting at RCDC Ltd, London on Wednesday, 5 November from 17:30 - 18:30 GMT. The seminar is free to attend, but space is limited, so please reserve your place...

**SOPHE CPD TICKETS**

## Meet Adveco at Kent Construction Expo Tomorrow...



As the UK works to achieve a climate-neutral building stock by 2050, there is no doubt that being more sustainable comes at a cost. Because of the ubiquitous need for hot water - from basins to showers, laundry, catering and hygiene - addressing how demands for this energy-intensive resource are cost-effectively met is one of the best ways of making active carbon savings from building stock today. You can talk to Martyn and Umer tomorrow at the Kent construction Expo. Please drop by stand Q04 in the John Hendry Pavilion to say hello and discuss your commercial project's hot water needs in person...



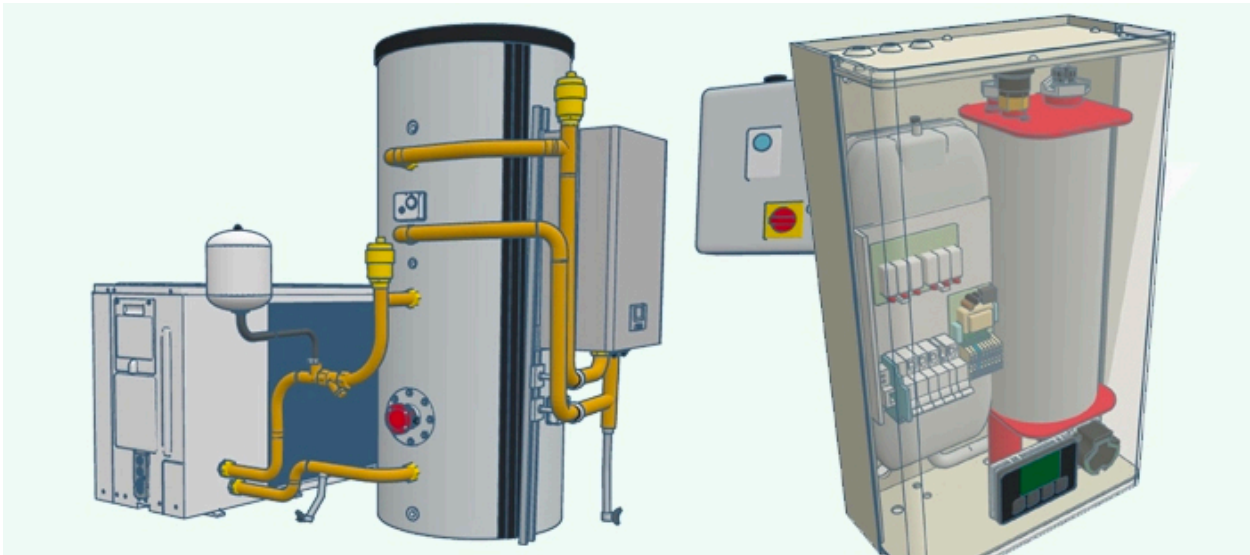
**Meet Martyn Pooley, Adveco Sales Manager For London & The South East**



**Meet Umer Tanvir Khan, Adveco Applications Design Engineer**

VISIT KENT CONSTRUCTION EXPO

## ARDENT & FUSION: A Balanced Approach To Electric Water Heating



Commercial new build stipulates the use of electric heating for the provision of domestic hot water (DHW), and specifications will typically seek to deploy heat pumps to supply the building's space and water heating. However, commercial systems should be approached separately as hot water requires consistent, year-round storage at or above 60°C for daily supply, plus they must be able to meet unexpected or extended peak demands, as well as regular high temperature flushing to prevent any Legionella bacterial growth. This has consequently driven developments in high-temperature heat pumps, said to be capable of achieving temperatures of up to 70°C under optimal conditions. These appliances, using CO<sup>2</sup> or R290 (propane) as a refrigerant, are typically large, heavy and therefore expensive to purchase and install. There also remain unresolved concerns over the use of larger quantities of flammable refrigerant, especially when installed in proximity to other electrical devices, which have the potential to become a source of ignition should there ever be a leak.

### Hybrid Water Heating

After much consideration, Adveco believes a hybrid approach, which still leverages heat pumps, but to supply DHW system preheat only, is the optimal method for the delivery of water heating. This maximises the effective capability of heat pump technology designed to work at lower temperatures (sub 55°C), meaning smaller, lower-cost units operating with safer R32 refrigerant can be used to offset primary electrical heating costs as well as providing highly effective carbon reduction. Adveco has developed the [ADV-W Range Of Heat Pumps](#), offering single and three-phase units with heating capacities from 9 to 110 kW, making them suitable for the majority of commercial DHW applications. To then gain the necessary higher system temperatures, Adveco recommends the use of a commercial electric boiler deployed in indirect configuration with a cylinder for storage. Adveco [ARDENT](#) is a range of compact wall-hung or floor-standing electric boilers with heat outputs from 9 to 100 kW. Easy-to-integrate, high-capacity, reliable, they provide a compact response to the needs for primary top-up of electric hot water and central heating demands in commercial buildings.

With multiple electric heating elements immersed in ARDENT's integrated water storage tank, the boiler provides a rapid and reliable source of thermal energy with stepped power control and integrated overheat protection, reducing start-up current and economically adjusting the heating load when approaching the set point temperature.

Using pre-heated stored water, the ARDENT boiler operating at a relatively low temperature (80°C) quickly brings the system water up desired working temperatures. But without the heating intensity on surfaces typically seen in direct immersion-based systems, destructive limescale build-up in hard water areas can be very effectively reduced. With ARDENT used in a sealed 'primary loop' configuration, little to no scale build is seen as the boiler recirculates the same finite amount of water through the heat exchanger, maintaining efficient operation and improved response time over an extended lifespan due to the increased reliability.

Adveco's award-winning **FUSION Electric Water Heating System** brings all this functionality and advantage together in a single, pre-sized system which mounts ARDENT to the cylinder and is packaged with controls and pre-built pipework for up to 750 litre capacities and up to 52 kW nominal heating output with the addition of an optional air source heat pump. An immersion can also be added, providing extra redundancy to what is already built into the ARDENT boiler, ensuring no single point of failure for business-critical applications.

The hybrid approach to electric water heating, encapsulated by the new FUSION TW system with ASHP, more than meets the sustainability demands of new buildings, delivering up to a 48% reduction in carbon emissions compared to equivalent direct electric systems. But it can also be applied to existing properties seeking to upgrade and transition away from gas water heating. In this scenario, carbon emissions of up to 68% are possible. Electric water heating does still come at a price, both in terms of new appliances and higher operational costs, despite the use of heat pumps. Offsetting as much of the energy demand for primary heating is therefore incredibly valuable, and properly sized and installed hybrid systems such as FUSION can gain as much as 70% of system heat for the heat pump. And if you size correctly, the need for large, costly high-temperature heat pumps can be avoided. For commercial operations with basin and sink-led demands, typified by schools, cafes & restaurants, retailers and offices, the cost of implementing a DHW system can be cut by as much as 90% by adopting the hybrid approach, which makes sustainability strategies not only attractive, but feasible.

#### ARDENT ELECTRIC BOILERS

## Heat pumps & The Public Sector Decarbonisation Scheme



Earlier this year, the government confirmed a further £630 million investment for the fourth and final phase of the UK's Public Sector Decarbonisation Scheme (PSDS), but what form will this investment take?

The aim is to encourage the ramping up of cleaner, more sustainable energy systems in our public buildings. The scale of investment clearly demonstrates that the incumbent administration is getting serious about hitting net-zero targets, and what's more, it puts heat pumps right at the heart of the national decarbonisation effort. Adveco considers what this all means and how successful it has been at making public building decarbonisation with heat pumps a real priority for the UK.

### **The Public Sector Decarbonisation Scheme: A Real Game Changer**

The PSDS was created to support public sector organisations in cutting down on their carbon emissions and using less energy. To date, the sector has made more than 3,270 applications valued at more than £6.3 billion. Of these applications, 1221 have been granted with awards totalling £2.9 billion since Phase 1.

This latest £630 million is targeting a range of energy efficiency upgrades. From solar panels to better insulation, and, of course, a lot more heat pumps. The scheme is aimed at a wide range of public buildings – schools, hospitals, care homes, community centres, which combined together represent a not inconsiderable contributor to the nation's carbon footprint.

This investment signals a continued drive to usher the public sector into a future based on low-carbon heating. It's about moving away from those old fossil fuel systems. By offering financial inducement, the PSDS is trying to negate the initial, potentially high, cost barrier that often prevents public organisations, which constantly struggle with budget constraints adopting greener technology. It's a proactive move, and important for making sure that public building decarbonisation with heat pumps becomes the norm, not just something a few places are able to embrace.

### **Heat Pumps: Taking Centre Stage?**

Heat pumps are a central pillar of communication for the PSDS. Correctly deployed, they can be an efficient means of cutting carbon emissions from building operations. Unlike traditional, and still very popular, gas boilers, which burn fossil fuel to generate heat, heat pumps can extract thermal energy from the environment (whether it's the air, ground, or water) into a building. This process still requires an energy input, in this case electricity, so while not a true renewable, they do at least represent a low-carbon technology able to release as much as four times the thermal energy compared to that required to operate. That said, air source heat pumps (ASHP), which are by far the most popular options still only one of over 30 different technologies which have received PSDS funding so far, and many new technologies are in development.

The PSDS is specifically pushing for replacing older gas boilers with heat pump technology, including air source, ground source, and even water source heat pumps. This direct swap is a key part of making public building decarbonisation with heat pumps happen quickly and effectively. Adoption has not been uniform but is now increasing following an initial high demand in Phase 1. Despite 848 projects incorporating ASHPs having been funded, PSDS-funded technology installations which incorporate ASHPs number just 345, and average just under £100,000 per project, so they account for a small part of the PSDS' overall funding.

For public buildings, which often need a lot of heating and hot water, installing these ASHPs will help address the environmental impact a building has. Operational costs will increase when compared to equivalent gas systems they replace, as electricity continues to be more expensive. But for new builds, which do not have the option of new gas connections, the application of heat pumps will dramatically reduce direct-electric heating costs.

But this will have an impact, and many will not have considered or planned for subsequent, and not inconsiderable, increases in operational costs.

### **Adveco's Part in Helping Public Sector Decarbonisation**

As experts in commercial hot water and heating systems, we at Advenco are in a great position to help public sector organisations make the most of their funding, especially those seeking applications under the £1m mark. We offer a full range of heat pump products designed to be implemented to reduce emissions from energy-intensive water heating applications, which are often operationally critical. The ADV-W and ADVS-W air source heat pumps have been specifically developed for commercial applications. These systems can be put into brand new buildings or fitted into existing ones, giving you efficient and reliable hot water.

But it's not just about the heat pump units themselves. Advenco also brings expertise in designing and putting together entire low-carbon hot water systems. This includes integrating thermal storage, which helps heat pumps work better by letting them run more consistently and store hot water for when it's most needed. Focusing on the whole system design like this makes sure that the investment in public building decarbonisation with heat pumps really pays off in terms of efficiency and long-term sustainability.

### **The Wider Impact Of The Public Sector Decarbonisation Scheme**

As well as being good for public sector buildings getting the upgrades, this investment is intended to send a really strong message to the whole market. By showing clear, continued government backing for heat pumps and other low-carbon technologies, the expectation is for the PSDS to encourage further innovation and growth in the low-carbon heating sector. This 'upstream' effect could lead to better heat pump technology, increased manufacturing here in the UK, and a more skilled workforce. All of which ultimately makes the technology more accessible. It must be said, however, that many in the industry question the government's belief that this will also lead to notable decreases in unit costs, making heat pumps affordable. The technology used in heat pumps is not new; it uses the same production lines as the refrigerant industry, the global output of which dwarfs heat pump production. As such, the unit price point of components is unlikely to reduce; therefore, without considerable government subsidies, heat pump prices are unlikely to fall in line with the price of current gas water heaters. This is a real potential stumbling block for the PSDS later in this decade if prices do not fall as has been suggested.

As a route to decarbonisation, the capability of heat pumps to cut emissions is inarguable, and success stories that come out of these PSDS projects will hopefully inspire private sector organisations to jump on board too. As more public buildings show just how good decarbonisation with heat pumps can be, the hope is that it will be able to build necessary confidence and speed up the adoption of these technologies across the whole of the UK.

There are wrinkles in this vision, and the private sector will, for the most part, have its eye firmly on the bottom line. It will always react more favourably to the carrot rather than the stick. The PSDS investment shows the government can support this space, but the private sector continues to wait for similar levels of support. For many smaller businesses, the capital investment and operational costs just do not stack up, and that is a problem, as the ripple effect the PSDS aims to create is absolutely vital for the UK to hit its national net zero goals.

In the wider scheme of things, a £630 million investment is nothing compared to the billions needed to update and upgrade national energy infrastructure or replace ageing systems across the commercial built estate. It's a first volley in a complex and potentially protracted battle to win hearts and minds that is necessary to see the country embrace and achieve net zero by 2050. The government isn't just changing public buildings; it's attempting to kick-start a much bigger shift in how we think about energy. At Advenco, we can help that conversation at the board level; we can help organisations understand how they can best apply government funding or their own investments into their buildings to secure real carbon savings today. Critically, this can be achieved without the punishing capital investment which so often comes with it, and which can so often derail sustainability strategies before they have a chance of implementation. Whether planning to transition from gas to electric, or trying to achieve the best value from new build

specification, talk to the experts first who can walk you through lower-carbon and renewable alternatives – from heat pumps to solar, electric and beyond...

SUSTAINABILITY FOR PUBLIC SECTOR BUILDINGS



**ADVECO**  
HOT WATER SPECIALISTS

**Learn From The Experts With Free CIBSE Approved Seminars**

- Sizing domestic hot water systems for commercial environments
- Best practices for electric-based commercial hot water systems
- Best practices for designing commercial hot water systems using heat pumps
- Solar thermal energy in the UK



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## Sustainable Hot Water



### FUSION

Adveco's FUSION packaged electric water heaters offer a range of low-carbon, all-electric applications for commercial projects with a wide choice of pre-sized variants combining ARDENT electric boiler, cylinder, ASHP, controls and immersions.

[FIND OUT MORE](#)



### ADV16-30W ASHPs

The ADV-W air-to-water heat pump range includes 16, 22 & 30kW (3 phase) and 10, 12, & 16kW (single phase) models able to provide hot water output up to 60°C throughout the year for 55°C working flow.

[FIND OUT MORE](#)



### ARDENT Electric Boiler

ARDENT is designed to serve as an indirect water heater or heating system. Wall-hung and floor-standing 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 2025 Product Guide

Get the handy guide to Adveco's current product range for 2025

## 2025 PRODUCT GUIDE



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

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[Solar Thermal Systems](#)

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[ADV65-110W ASHP](#)

[ADVS10-16W single phase ASHP](#)

[FPi R32 monobloc Air Source Heat Pump](#)

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