APRIL 2026

EM Magazine

www.energymanagermagazine.co.uk

SCHOOL ESTATE CUTS ENERGY COSTS AND CARBON

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EM Magazine

PUBLISHER: Ralph Scrivens
ralph@
energymanagermagazine.co.uk

PRODUCTION: Sarah Daviner
sarah@
energymanagermagazine.co.uk

ACCOUNTS:
accounts@
energymanagermagazine.co.uk

PRINT: Mixam Print

ENERGY MANAGER MAGAZINE
is published 10 times a year
by Energy Manager.

www.energymanagermagazine.co.uk

42 Wymington Park, Rushden,
Northants, NN10 9JP

Email:
mail@energymanagermagazine.co.uk

REGISTRATION: Qualifying readers receive Energy Manager free of charge. The annual subscription rate is £80 in the UK, £95 for mainland Europe and £115 for the rest of the world.

Single copies £10.

Some manufacturers and suppliers have made a contribution toward the cost of reproducing some photographs in Energy Manager.

PAPER USED TO PRODUCE THIS MAGAZINE IS SOURCED FROM SUSTAINABLE FORESTS.

ISSN 2057-5912 (Print)
ISSN 2057-5920 (Online)

APRIL 2026

School estate cuts energy costs and carbon.

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INSIDE

TURNING COLD STORE COMPRESSORS INTO REVENUE GENERATORS

High commercial energy costs continue to place sustained pressure on UK businesses. While wholesale prices have eased since their peak, electricity and gas costs remain well above pre-2022 levels. For energy-intensive sectors, this is not a short-term headache but a structural challenge demanding new ways of thinking about energy use.

Few sectors feel this more keenly than cold storage. Between 2021 and 2022, electricity prices for many operators doubled almost overnight. The result has been an urgent drive to improve energy efficiency, reduce carbon emissions, and protect already tight margins, often while relying on ageing infrastructure and operating within strict temperature and compliance requirements.

Yet hidden within this challenge is an opportunity. Under the right conditions, cold store equipment, from compressors and refrigeration packs to ice banks, thermal stores, heat pumps, and glycol chillers, can be transformed from pure cost centres into revenue-generating assets. The key lies not in major capital investment, but in smarter control of when these assets consume power.

WHY THE GRID NEEDS FLEXIBILITY

Traditionally, electricity systems have worked on a simple principle: generation follows demand. Power stations ramp up and down to match how much electricity consumers happen to be using at any given moment.

As the UK transitions to a low-carbon energy system, that model is under strain. Renewable generation is inherently variable; you cannot instruct the wind to blow or the sun to shine on cue. With less control over supply, the system operator increasingly needs flexibility from the demand side.

This is known as consumer-led flexibility. According to the National Energy System Operator, Britain currently has around 2.5GW of consumer-led flexibility capacity. By 2030, that figure needs to rise to 10 12GW to maintain grid stability and security. For businesses willing to participate, this represents a significant commercial opportunity.

HOW COLD STORAGE FACILITIES CAN RESPOND

Any asset that can briefly pause consumption, sometimes for only a few minutes, or shift its operation slightly earlier or later than planned, can provide valuable flexibility to the grid. Cold storage facilities are particularly well-suited to this role.

Compressors and related systems can be modulated in response to real-time grid conditions, ambient temperature, and site demand, without risking product integrity or regulatory compliance. Crucially, operators remain in control: participation is voluntary, parameters are agreed in advance, and everyday operations are not disrupted.

During periods of grid stress, facilities can be paid to temporarily reduce consumption. At times of surplus renewable generation, they may also be rewarded for increasing demand. Over the course of a year, depending on asset size and participation levels, many cold stores can generate several thousand pounds in additional revenue.

End to end flexibility services such as FlexGO by Flexitricity identify suitable assets, install the necessary controls and manage participation in flexibility markets, from dispatch through to settlement and payment. This allows site teams to stay focused on operations while their equipment works harder financially.

High energy prices are unlikely to disappear altogether. Grid flexibility offers cold storage operators a practical way to offset costs, reduce carbon impact and unlock new value from existing infrastructure.

HOW GROWERS CAN EARN REVENUE THROUGH FLEXIBLE OPERATION

Energy pressures are not confined to cold storage. Across the UK, growing, rising electricity and gas costs are pushing some growers to the brink. In a recent letter to Ofgem, the National Farmers' Union warned that energy prices are threatening the viability of many farmers' and growers' businesses.

For growers operating controlled environments year-round, energy is typically the second-highest cost after labour. LED lighting, combined heat and power (CHP), heat pumps, water pumps, and refrigeration are essential to maintaining crop quality, but they are also energy hungry.

As with cold storage, these assets can do more than simply consume electricity. With the right controls in place, they can also generate income by supporting the electricity grid.

FLEXIBILITY IN PRACTICE FOR GROWERS

The principle is straightforward. Any equipment that can pause, ramp down, or shift consumption without affecting output can provide flexibility. For growers, this may include dimming or rescheduling LED lighting, adjusting CHP operation, or briefly delaying non-critical pumping and refrigeration cycles.

Participation does not mean relinquishing control. Growers decide when and how their assets are made available, ensuring crop conditions and yields are never compromised. Flexibility events are typically short and carefully managed.

Depending on the scale of the site and the number of assets enrolled, many growers can earn several thousand pounds a year, an income that directly offsets energy bills while contributing to a more resilient, low-carbon grid.

Providers such as FlexGO by Flexitricity deliver a fully managed service, from asset assessment and installation through to market participation and payment administration. This allows growers to focus on production while turning unavoidable energy use into a strategic advantage.

A NEW ROLE FOR ENERGY-INTENSIVE BUSINESSES

For both cold storage operators and growers, flexibility represents a shift in mindset. Energy is no longer just a cost to be minimised, but a resource that can be optimised, traded and monetised.

As the UK's electricity system continues to decarbonise, the value of flexible demand will only grow. Those who act early stand to benefit, financially and environmentally, without disrupting the day-to-day realities of running complex, energy-dependent operations.

https://www.flexitricity.com/

THE DSO INCENTIVE CREATES AN UNEVEN PLAYFIELD FOR DIFFERENT-SIZED DSOS

Christopher Jackson,
CEO and Co Founder of
Advanced Infrastructure

Is the DSO Incentive Scheme producing winners and losers amongst the UK DSOs not purely on performance but size as well? Reports published over the past two years suggest that this might be the case. While the framework is designed to reward improvements, the financial outcomes are directly linked to the size of the customer base, a factor beyond the DSOs control. As a result, two operators delivering similar progress can experience different financial impacts, raising questions about how equitably the incentive operates across the sector.

HOW THE INCENTIVE IS CALCULATED

Each year, Ofgem evaluates every licensed DSO's performance across Great Britain and determines whether they have earned a reward or have to be penalised. The results are published in the Distribution System Operation Incentive Annual Report. The scheme is often discussed in terms of scores and rewards, but it also signals a broader shift in expectations – network operators are being assessed not only on reliability, but on their transparency, flexibility, and data provision.

The incentive is measured annually and built around two main assessments. The Stakeholder Satisfaction Survey measures how well each DSO engages with and responds to a variety of stakeholders' needs. The Performance Panel Review involves an expert panel evaluating the evidence which was submitted by the DSOs, including the development of flexibility markets, conflict management, data transparency, and delivery of benefits.

IS SATISFACTION A GOOD INDICATOR OF PERFORMANCE?

An interesting pattern emerging from the results is the variance between satisfaction scores, panel scores, and financial rewards. Satisfaction scores tend to cluster relatively closely, likely because respondents steer away from being overly critical. Moreover, engagement experiences can feel broadly similar across operators. As a result, satisfaction alone does not always differentiate performance strongly. The results show that every DSO improved year-on-year, with a threshold of 7.5 before a DSO can expect to be penalised.

Licensee	Stakeholder Satisfaction Survey scores 2024/5	Stakeholder Satisfaction Survey scores 2023/4
UKPN	9.59	9.06
NGED	9.03	7.77
SSEN	8.53	7.42
EWNL	8.86	7.94
NPg	8.08	7.77
SPEN	9.02	8.13

PANEL CHALLENGES LACK OF EVIDENCE

Panel scores show greater variance because they test capabilities rather than sentiments. The panel is assessing the evidence and processes, for which DSOs are at different stages of development. Small differences in approaches to data, transparency or options assessment can lead to significantly different scores. The panel often challenges claims if they lack evidence, leading to the variation in scores.

The panel results show a clear trend, with UKPN and NGED (the two largest operators) at the very top. Notably, all six improved over the course of the last regulatory period, suggesting an overall development in delivery and evidence quality. This is also the more dependable benchmark of performance because stakeholder selection is not fully transparent and may introduce bias.

Licensee	Panel Assessment scores 2024/5	Panel Assessment scores 2023/4
UKPN	9.36	8.91
NGED	8.45	8.24
SSEN	7.81	7.59
EWNL	6.71	6.19
NPg	7.34	6.58
SPEN	6.08	5.08

LARGE VARIATIONS IN FINANCIAL REWARDS

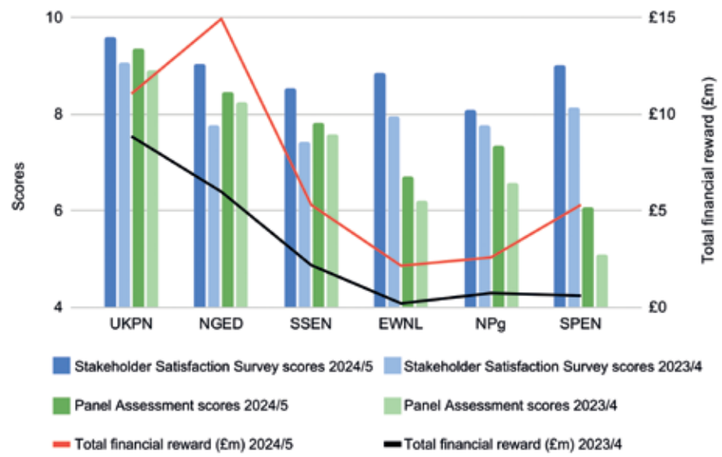
Financial rewards show the greatest variance of all. They are determined by the two assessment components and the size of the customer base served by the operators. Hence, small increases in satisfaction or panel scores can be worth more for larger operators like UKPN and NGED (each serving around 8 million customers) than for smaller DSOs, which serve roughly 3 million customers. The result is an uneven playing field: smaller DSOs have to deliver broadly the same upgrades but the financial upside is lower, even when performance improves by the same amount.

There is limited clarity in the published reports as to whether the scaling mechanism adequately adjusts for the differences in size between operators. This raises an important question: does the current policy design incentivise excellence equally across operators?

HOW LAEP+ IS HELPING DSOS IMPROVE THEIR PERFORMANCE

Over the course of the next assessment period it will be interesting to see what actions DSOs are taking to improve their scores. From our experience working with UK DSO teams, as reflected in their published reports, the direction is clear: more structured and data-driven planning that can be clearly evidenced against Ofgem's criteria.

That is exactly where our LAEP+ software tool comes in. It helps network operators and local authorities align their understanding of future energy demand and infrastructure needs. By bringing together network and demand datasets, among others, LAEP+ enables more coordinated planning and clearer evidence for investment decisions. The shared environment for scenario modelling, data integration, and stakeholder collaboration helps DSOs explain the decision-making process. Supporting National Grid Electricity Distribution, UK Power Networks, Scottish and Southern Electricity Networks, and Northern Powergrid, has shown us how this approach is becoming central to delivering transparent planning and stronger performance as electrification accelerates.



(Data Sources: 23/24 and 24/25 reports)

INDUSTRIAL HEAT WILL DECARBONISE THE SAME WAY POWER DID – SLOWLY, THEN ALL AT ONCE

Rayan Kassis, CEO – Aed Energy

A running joke when I worked at GE Energy was that, in many cities, the emissions guarantee on our gas turbine exhaust air was cleaner than the ambient air going into the intake. That's how I started my career, at a time when gas turbines were considered clean tech and wind and solar were interesting but yet untested technologies.

A career incarnation later, this time with wind energy pioneer Vestas, that background proved useful to convince sceptical operators that wind was worth deploying on their systems. The only problem was that I went from being a solutions provider, to a "part-of-the-solution" provider. Wind, then later solar, proved a clever way to generate increasingly cheap electricity, but couldn't be relied on, like gas turbines, to switch on and off on demand. And I was acutely aware of that, which then led me to the promise of concentrated solar power, harnessing the intensity of the sun, paired with thermal storage, to deliver 100% clean energy, on demand. Nice story, the physics was sound. But complexity killed it. Too many moving parts, too reliant on perfect conditions, and especially, too much bespoke engineering on every project. It never scaled.

Essentially, my career has been a search for the same thing: reliable, dispatchable, affordable energy without burning fossil fuels. And what it led to was the realisation that thermal storage, on its core merits, is the first technology I believe can deliver all three, at scale, without the compromises that undermined every previous attempt.

Technology transitions follow a consistent pattern. Early deployments generate performance data. Performance data builds trust and operator confidence. Operator confidence drives purchasing decisions. Which then drive volume and cost reduction. Precisely what happened to wind and solar energy – and not just happened, but delivered an astonishing reality today where renewable energy now contributes to over 30% of global electricity worldwide.

Quite a journey from when I started.

So far industrial heat has stubbornly held out on this transition, with massive implications. Heat for industrial processes represents 25 to 30% of global energy demand and emissions. The sectors that drive this are foundational to our modern existence: cement, metals, chemicals, food processing, ceramics, paper, refining. And across Asia, the Middle East and Africa they are expanding, with each new fossil-fuel-dependent facility locking in emissions for twenty to thirty years.

The reason for this is deeply structural. Unlike power assets, an industrial furnace is a vital production asset for these industries. The consequences of failure are direct production and revenue failures. That distinction drives everything – longer capital cycles, higher thresholds of operational reliability, procurement committees designed to be cautious.

Putting on my old operator hat, the evaluation criteria are not complicated: does the system work (can I trust it), can our teams operate and maintain it, and, critically, what happens when it fails at 3AM. These operational considerations are the primary concerns when determining procurement.

Which takes us to the state of fossil fuel alternatives today. Direct electrification exposes operators to price volatility and demands grid capacity that is often unavailable or prohibitively expensive. Hydrogen production costs remain exceedingly high, infrastructure is incomplete, and conversion losses are impossible to ignore. Both may matter eventually, but neither solves the near-term problem.

Long-duration thermal batteries present a highly compelling opportunity to deliver reliable, zero-carbon heat through simplicity, not sophistication. The process is, as one cleantech commentator put it, "absurdly simple". Convert electricity to stored heat – like a giant toaster – when power is cheap. Deliver it as direct heat to industrial processes, 24/7, on demand. Stable, abundant, cheap materials – no

complex chemistry, no constrained supply chains. Unlike my past experience with CSP, nothing is reinvented on every project.

The numbers work too. In our extensive modelling of thermal storage against all types of fossil fuel burners, in optimal conditions with low electricity prices, we deliver a 20-year levelised cost of heat below $25/MWh-th, versus a $20–70/MWh-th range across fossil fuel types – natural gas, LNG, heavy fuel oil, petcoke. This is not hype. These are hard numbers. With field performance data to back them up over the coming years, I believe thermal storage will do to industrial heat what coal once did to manufacturing – transform it entirely. The bottom line is simple: if we can deliver the same heat, reliably, at the same or better cost than your fossil fuel incumbent, what is left to decide other than trusting the technology?

Which brings us back to the power of simplicity. The diesel engine did not dominate because it was elegant. It dominated because it worked everywhere, under imperfect conditions, maintained by the local technician. That is the standard thermal storage must meet – and it is achievable.

Energy transitions do not announce their tipping points. They arrive when enough systems are working in enough places that the old model stops making economic sense. I believe industrial heat is rapidly moving toward that moment. **https://aed.energy/**

THE MANDATE FOR THE ENERGY CEO IS TO PROVIDE CLARITY THROUGH THE ERA OF AI

Helena Muir, Principle, Heidrick & Struggles.

Under the IEA's current policies scenario, global oil demand could increase from 100 mb/d in 2024 to 105 mb/d by 2035 and potentially rise further towards 2050. For more than a decade, the global energy conversation has been framed around a smooth and irreversible transition from hydrocarbons to renewables. But the reality is proving far more complex.

Global energy demand continues to rise, driven by artificial intelligence, data centres and industrial growth, while oil demand continues to exceed expectations. Recent inaccurate predictions around demand highlight how confirmation bias has become a strategic risk. Avoiding that bias is now a core test for CEOs across the energy sector.

Analysis from Heidrick & Struggles shows we are not witnessing a transition in the conventional sense, but entering an era of energy addition, where every viable form of power is being layered urgently on top of the last. The challenge now facing the sector is navigating expansion, uncertainty and structural demand growth all at once. Geopolitical, macroeconomic, infrastructural and technological forces have always defined this industry and have been part of the decision-making process for CEOs. What is different now is the cost of misreading the combination of forces at play. CEOs who do so risk mis-investing billions and losing their organisation's place within the global economy.

ENERGY ABUNDANCE AS STRATEGIC ADVANTAGE

AI is fundamentally reshaping electricity demand. Data centres already account for 1.5% of global electricity consumption, a share that is growing rapidly as digital infrastructure scales. Regions capable of providing reliable, abundant power are becoming magnets for the next generation of technological development, and energy companies are increasingly the ones determining where that development lands.

For energy CEOs, this reframes the stakes around generation capacity, grid investment and long-term supply decisions. But while grid investment will take years to materialise at scale, the opportunity behind the meter is more immediate. On-site generation, battery storage, microgrids and power purchase agreements are already allowing energy companies to partner directly with data centres and large industrial users while bypassing grid constraints and capturing demand that cannot wait. These choices, in both the long and the short term, will shape the geography of the digital economy.

CAPABILITIES SHAPING THE NEXT ENERGY CYCLE

The energy industry has never lacked capital, technology or geological advantage. What it has periodically lacked is clarity, both in reading external forces and in understanding what is shaping its own decisions. Four capabilities are now defining effective leadership in the sector.

Agility has become a genuine source of advantage. Spare capacity policy can shift over a weekend, geopolitical tensions can disrupt supply routes overnight, and regulatory frameworks can turn on a single election. The modern energy CEO must combine long-term conviction with tactical flexibility, able to change course quickly without losing strategic direction.

The activist mindset must be internalised. Activist investors have reshaped expectations around capital discipline and returns, but the most resilient energy companies are now embedding that discipline themselves, through continuous portfolio reviews, strict return thresholds and proactive consolidation.

Strategic integration has moved from desirable to essential. Operational excellence matters, but it is no longer sufficient on its own. AI demand, geopolitics, supply chains and energy policy are deeply interconnected, and effective leaders must be able to join those signals and act before the curve shifts beneath them.

Finally, foresight must replace faith in forecasts. In a world where projections have repeatedly underestimated the pace of change, the leaders who succeed will be those willing to challenge assumptions, stress-test alternative scenarios and prepare for outcomes that diverge from the consensus.

BOARD OVERSIGHT IN AN UNCERTAIN ENERGY FUTURE

If the CEO mandate is changing, board oversight must keep pace. Traditional performance metrics were built for a more stable environment. They are poorly suited to a system shaped by technological disruption, geopolitical volatility and chronic demand misforecasting.

Experience shows that the leaders who navigate turbulent periods most effectively share three traits: realism, humility and the ability to anticipate how shifts, whether in tariffs, technology or trade flows, may reshape markets faster than expected.

For boards, this means rethinking both how they select and how they evaluate CEOs. Succession candidates need to be stress-tested across different scenarios, from surging AI power demand to prolonged hydrocarbon resilience to geopolitical disruption. The central question is straightforward: can this person lead through complexity without losing direction?

In an industry that powers modern life, that quality of leadership is a baseline requirement. **https://www.heidrick.com**

5 PROVEN WAYS TO REDUCE ELECTRICITY WASTE IN 2026

This checklist was developed by Rochel Lewis, Marketing and Communications Manager at Chauvin Arnoux UK, to help you take simple, practical steps to become more energy efficient.

Following the COVID-19 pandemic, electricity prices rose sharply, contributing to an energy affordability crisis across the UK. As a result, both business owners and homeowners have been actively seeking ways to reduce their electricity costs.

Recent reports indicate that Ofgem has set the UK energy price cap so that average combined gas and electricity bills are expected to fall to around £1,641 per year for the period 1 April to 30 June 2026. This represents a reduction of roughly 7% compared to the previous cap, driven mainly by lower wholesale energy costs and changes to policy levies. However, analysts warn that prices could rise again later in the year if global energy costs increase.

Despite the energy price cap, electricity bills remain a significant concern. Household energy prices in the UK are still higher than pre-covid levels, and industrial electricity prices are among the highest in Europe, according to recent House of Commons committee reports. These high costs continue to put pressure on households and businesses across the UK.

To help address rising electricity bills, this article outlines 5 proven ways to reduce energy consumption at home, in commercial settings, and across industrial operations. These approaches not only help cut costs but also support environmental sustainability by reducing unnecessary energy waste.

RUN REGULAR MAINTENANCE CHECKS

Businesses and homeowners alike can benefit financially and environmentally by ensuring electrical systems are in good working order.

Regular maintenance checks aren't just a safety requirement. Devices such as air conditioning units, heating systems, and other electrical equipment can directly affect energy consumption. Neglect or failure to perform maintenance checks can cause energy efficiency levels on these devices to decline over time, directly affecting your electricity bills.

Research suggests that well-maintained equipment performs more reliably and consumes up to 15-20% less electricity (Gradwell Group, GOV.UK 2025).

Ensuring your filters, vents, and cooling fans are cleaned regularly to prevent overheating, replacing inefficient components with more energy-efficient alternatives, or opting for more advanced inspections under UK guidelines such as PAT testing will help achieve optimal machine performance and energy savings.

REDUCE STANDBY POWER WASTE

Unmonitored electronic devices can inflate household electricity bills even when not in use. In late 2025, average UK households could have wasted around £80 a year by leaving appliances on standby rather than fully turning them off (Go.Compare Energy).

Data from Measurable Energy suggests that up to 20% of total electricity use in offices could be from devices that are not in active use or from after-hours consumption – generally caused by standby/idle loads.

While a single standby device might draw only a few watts, with multiple devices like computers, printers, and HVAC systems, even with the energy price cap, standby consumption can add up quickly.

INVEST IN ENERGY-EFFICIENT UPGRADES

Electrical devices are built to perform, but older systems can quietly drain energy without you even recognising the pattern. Investing in newer, energy-efficient appliances or equipment (wherever applicable) could be the way to go, as this will help reduce unnecessary power use straight away. So, whether it's a small change, such as switching to LED light bulbs or motion-sensor lighting, or a relatively more expensive alternative, such as industrial equipment – moving towards energy-efficient upgrade for offices or homes can translate into lower energy bills.

MAXIMISE EFFICIENCY BY ENABLING LOW-POWER MODE

Electrical equipment often runs continuously. Businesses and household consumers can optimise usage and downtime by scheduling equipment use. Be it in industrial or residential settings, using programmable timers or smart plugs to power down instruments when not in use can help maximise energy efficiency efforts.

Pairing these practices with staff awareness can ensure instruments consume full power only when needed, thereby improving efficiency and reducing costs.

MONITOR ENERGY CONSUMPTION

Pro tip – sometimes it's a lot easier to assess energy usage patterns early on to curb spending and electricity waste. And when it comes to saving your operational budget, energy consumption monitoring helps ensure every pound is spent well.

Businesses and electrical specialists often employ energy monitoring systems on-site to track real-time consumption, log data to identify inefficiencies, optimise performance, and reduce energy costs.

Don't just take our word for it! See how data loggers measure voltage, current, power factor, harmonics, and more, and provide a detailed breakdown of consumption so that you know how and where your money is really going. Here's a quick YouTube video on the top features and benefits of using a power and energy logger. **https://youtu.be/A4azf622eI4**

CONSIDERING OPTING FOR SOLAR PV?

Installing a commercial solar PV rooftop array could be a practical move, but one that's quite expensive.

Generating your own electricity on-site can reduce reliance on the grid, lead to lower monthly energy bills, and improve your sustainability efforts. But considering costs vs potential savings is crucial in this scenario, since the initial investment may depend on several factors that can affect both your upfront spending and long-term savings plan.

And there you have it – these are 5 proven ways to reduce electricity waste in 2026! Whether you're running a small or medium-sized business looking to cut operational costs, an electrical contractor seeking smarter ways to help your clients save more, or a homeowner wanting to lower your energy bills, this checklist is designed to help you take practical steps toward becoming more energy-efficient. Visit **cauk.net** to learn more.

THE VALUE OF MULTI-MODULE BUILDING SERVICES MANAGEMENT

As expectations around building performance continue to rise, energy managers are under increasing pressure to deliver measurable efficiency, sustainability, and safety outcomes, particularly in multi-occupancy environments such as Purpose-Built Student Accommodation (PBSA), Build-to-Rent (BTR), Hotels, and Co-living schemes. These buildings are complex ecosystems, with hundreds of residents placing constant demand on heating, hot water, power, and safety systems.

Traditional approaches to building management often fall short in these settings. Large-scale systems can be expensive, complex to install, and overly engineered for residential applications. What's emerging instead is a more agile, modular approach, one that enables targeted control, scalable deployment, and real-time performance insight by reporting on individual rooms.

MODULAR INTELLIGENCE

Multi-module building services performance management is redefining how energy managers approach operational control. Rather than relying on a single, monolithic system, modular platforms allow different aspects of a building's performance, heating, hot water, utilities, water usage, and safety, to be monitored and controlled individually, yet managed centrally.

This approach provides two critical advantages. First, it enables precise, granular control over energy consumption and system performance. Second, it allows buildings to evolve over time, with additional modules introduced as operational needs or sustainability targets change.

At the centre of this shift is the growing adoption of intelligent central control systems. Designed specifically for multi-occupancy accommodation, and offering centralised monitoring and control of environmental conditions, equipment functionality, and utility consumption, through modular components using a single, scalable infrastructure.

EFFICIENCY THROUGH CONTROL

Heating remains the single largest controllable energy cost in most residential buildings. Intelligent room-level control, using occupancy detection, automated setback, and custom heating profiles, can significantly reduce waste while maintaining comfort.

Similarly, hot water systems, which are traditionally energy-intensive and difficult to monitor, are now optimised through integrated control and sensor-driven insight. With real-time data on temperature, load, and system health, operators can identify inefficiencies and respond proactively.

Utility sub-metering takes this a step further, offering visibility down to room or circuit level. This level of detail pinpoints anomalies, optimises load distribution, and supports ESG reporting with accurate, auditable data.

RISK MANAGEMENT AND SUSTAINABILITY

Beyond energy, performance management plays a crucial role in risk reduction and resource efficiency.

Leak detection systems identify issues early and automatically isolate supply, preventing costly damage and reducing insurance exposure. Meanwhile, smart water management tools can monitor flow, detect abnormal use, and encourage behavioural change among residents, supporting both cost savings and sustainability goals.

Safety is another key consideration. Cooking-related fires are a major risk in student accommodation, and intelligent monitoring that detects dangerous temperature levels and isolates power before ignition provide a vital layer of protection.

PRACTICAL BENEFITS

One of the most compelling aspects of modular systems is their practicality. Solutions that use existing electrical infrastructure for communication minimise the need for additional cabling or complex IT integration, making them suitable for both new-build and retrofit projects.

Installation is typically faster and less invasive, while ongoing maintenance is simplified through remote diagnostics and centralised management portals. For building managers, this means reduced operational burden and improved responsiveness.

Crucially, modular systems also support phased investment. Buildings can start with core functions, such as heating control or safety, then expand over time, aligning CapEx with evolving priorities.

MEASURABLE VALUE

For energy managers, the value of multi-module performance management lies in its ability to deliver tangible outcomes: reduced energy consumption, improved asset performance, enhanced resident safety, stronger ESG credentials, and increased asset value.

In a sector where data-driven decision-making is becoming the norm, having access to real-time, granular insight is a necessity.

FUTURE-PROOFING

As multi-occupancy estates continue to grow in scale and complexity, the demand for smarter, more adaptable control systems increases. Modular performance management offers a future-proof approach, one that combines flexibility, control, visibility, and intelligence.

For those responsible for building performance, the message is clear, the future isn't just about smart buildings, but about smarter, more connected ways to manage them. **www.prefectcontols.com**

WHEN ENERGY MANAGEMENT BECOMES A DAILY STRUGGLE: RETHINKING THE APPROACH

Organisations across public and commercial estates are struggling with rising energy costs, yet many still rely on fragmented, reactive processes that limit real-time visibility and lead to missed opportunities. As they shift towards proactive, data-driven energy management, integrated platforms like E.ON Optimum Connect & Control are helping teams spot issues earlier, control costs and strengthen operational resilience. Early adopters report clearer insight, making proactive energy management an increasingly strategic advantage.

THE PROBLEM

Energy management is emerging as a significant pressure on the public sector and commercial estates at a time when they face far more critical frontline issues. Rising costs, price volatility and growing decarbonisation expectations are converging just as estates teams face increasing strain. Yet many organisations still manage energy reactively, addressing issues only after budgets and performance have already been affected.

Too often, energy is handled through fragmented systems and historical data. Bills are reviewed after consumption, problems are identified once costs are locked in, and opportunities to optimise are missed. With both financial control and carbon reduction under constant scrutiny, this approach is becoming increasingly difficult to defend.

MORE DATA, LESS CLARITY

The issue isn't a lack of data – most organisations already collect vast amounts from meters, suppliers and building systems. The challenge is visibility, with information spread across disconnected platforms, making it hard for estates teams to see what's happening in real time. This is even more pronounced across multi-site estates, where small inefficiencies repeated across many buildings can quickly drive up costs and carbon, leaving teams unsure where to focus their efforts.

IS YOUR ENERGY USAGE WITHIN YOUR CONTROL?

As a result, a shift in mindset is underway. More organisations are beginning to treat energy not as a fixed overhead, but as something that can be actively managed, optimised and improved. This means moving beyond retrospective reporting and towards proactive energy intelligence. The focus switches from understanding what went wrong last month to spotting issues as they emerge and acting before they escalate.

In practice, this involves bringing energy data, performance insights and alerts into a single, accessible view. With real-time monitoring across an entire estate, teams can quickly identify abnormal usage, investigate causes and take action. This approach supports tighter cost control, improves operational resilience and allows more confident, informed decision-making.

DIFFERENT ESTATES, SHARED OUTCOMES

While the pressures differ, the benefits are shared. For public sector organisations, better visibility supports accountability and transparency, helping teams demonstrate progress against sustainability targets while making the most of limited budgets. For commercial estates, it enables stronger cost forecasting, benchmarking between sites, and closer alignment between energy use and business activity. In both cases, moving from reactive to proactive energy management is becoming a clear strategic advantage.

BUILDING RESILIENCE FOR WHAT COMES NEXT

Platforms such as E.ON Optimum Connect & Control are designed to support this shift, providing real-time visibility and easy remote connection to single sites, entire estates and assets without adding unnecessary complexity. The emphasis is not on more data, but on clearer, more actionable insight that helps teams intervene at the right time.

Our client in the defence sector had this to say after they signed a 3-year partnership to pilot Optimum Connect & Control at their remote site in south-west Scotland.

"Optimum represents a step change in how we manage energy across our estate. The platform has given us clear visibility of our performance (often in real time) and helped identify opportunities to reduce both costs and carbon emissions, supporting our wider net zero strategy.

Working with E.ON has been collaborative and productive. Their team understood our objectives and helped us get the most out of the system at every stage. I'd recommend Optimum to any organisation serious about improving energy efficiency and driving decarbonisation"
– Alex Hunter, Defence sector client

Ultimately, Optimum Connect & Control allows estates to move away from constant firefighting and focus instead on targeted, long-term improvements. As energy challenges continue to evolve, the organisations best placed to respond will be those that invest in visibility, insight and control.

Interested in learning more? Visit **https://eon.li/RelORYz3** or scan the QR code to complete the online form, and we'll take it from there.

HYDROGEN BLEND TRIAL SUCCESS AT LINCOLNSHIRE POWER STATION

A successful 2% green hydrogen gas mixing trial has been successfully completed at the Briggs power station in North Lincolnshire.

This is said to be the first occasion in which a green hydrogen and natural gas blend have been transported through infrastructure to power electrical generation in the UK. The trial was carried out by Centrica and British Gas to demonstrate the feasibility of hydrogen gas blends into existing UK infrastructure.

Across Europe several other separate hydrogen trials involving gas blending are on-going. Countries such as The Netherlands, Germany and Portugal are all in the process of using hydrogen in household appliances, experimenting with hydrogen gas blending in existing infrastructure or adapting existing infrastructure to transport 100% hydrogen in the near future.

Further details on of each trial has been released in a report by the European Clean Hydrogen Alliance in April 2025 titled: "Hydrogen-readiness of gaseous fuels distribution infrastructure and heating technologies in Europe."

The European Clean Hydrogen Alliance was started in 2020 by the European Commission and is a collective organisation of over 1,700 members – all of whom are involved in the hydrogen market value chain including governments, private and public investors, research institutions and commercial enterprises.

The European Clean Hydrogen Alliance states its aims as to promote financial investment into hydrogen as well as stimulate hydrogen production and use within the scope of climate friendly boundaries. To achieve these goals the organisation has divided itself into three separate groups of focus:

- hydrogen production
- hydrogen transmission, distribution, and storage
- hydrogen end-use

The first trial refers to "Hydrogen City," a project that is located in Stad aan 't Haringvliet, situated on the island of Goeree-Overflakkee in The Netherlands. The local community has voted to stop using natural gas as a primary fuel and will instead use locally sourced green hydrogen.

In between 2025 and by the latest 2030 all existing gas infrastructure will be repurposed to transport hydrogen into every domestic and commercial property within the municipality.

Portugal's leading gas operator Floene has begun a 12% green hydrogen natural gas blend project in Seixal, a city near Lisbon. Newly constructed infrastructure will carry green hydrogen to the local transmission network where a blended mix of green hydrogen and natural gas will be fed to 80 residential, commercial and industrial end users.

By 2030 the Portuguese government is aiming to provide a 15% green hydrogen natural gas mix in all domestic supplies.

A German project – H2Direkt is led by energy providers Energie Sudbayern, Energienetze Bayern and utility consultants Thuga. 10 private households and 1 commercial customer have been receiving 100% hydrogen since 2023 in the Bavaria region.

The original test schedule finish date has been recently extended and will go beyond the current year. Initial results of the test indicate that even when exposed to temperatures of -15°C the entire hydrogen infrastructure and the hydrogen heating systems were reliable.

Hydrogen has been identified as a potential gaseous component of the global energy transition. As demonstrated by the four UK and European examples of hydrogen blending and 100% hydrogen usage in this article, progress is being made in highlighting the potential operational value of hydrogen introduction.

Rinnai will continue to update all UK customers with information pertaining to multiple energy platforms that could affect customer energy and appliance options. Rinnai regularly reviews all international news relating to energy policy, investment and technological ingenuity.

Follow the free Rinnai newsletter for the latest news of polices and regulations: **https://www.rinnai-uk.co.uk/contact-us/newsletter-sign**

SCHOOL ESTATE CUTS ENERGY COSTS AND CARBON

As part of its strategic estate and asset management planning, the Excel Learning Trust worked closely with Garland UK's Technical Manager, Rob Wall, to refurbish the roof and reduce electricity bills at Carr Junior School, safeguarding the site from future energy cost hikes.

Across the UK public sector estate, many buildings face a similar challenge, ageing roof structures that are unable to support renewable technologies without prior refurbishment. For estate managers looking to accelerate decarbonisation while managing operational budgets, combining roof renewal with solar installation can provide a practical route to improving both building performance and long-term energy resilience.

A detailed roof condition survey revealed various issues with the existing build-up at Carr Junior School, including signs of cut-edge corrosion that had severely diminished the composite steel roof panels. In some cases, the protective coating was non-existent in large sections, exposing bare steel to the elements.

In its current condition, Garland UK advised that the existing roof was unsuitable for supporting a solar PV system without substantial refurbishment. Installing solar panels on a deteriorating roof would lead to high costs and operational downtime for future repairs, as the panels would need to be removed and reinstalled.

ONE PROJECT, ONE PARTNER

An initial Solar Investment Analysis revealed that by installing 70 PV modules using Garland's Solarise PV system, Carr Junior School would realise a 28.7 kWp system, generating 26,287 kWh a year and providing £5,840 in first-year energy savings.

Rob Wall

Carr Junior School roof before refurbishment

For the Trust, the project represented an opportunity not only to restore the roof but also to generate renewable energy on-site, reducing operational energy costs and contributing towards wider carbon reduction targets.

Garland UK designed a solution that would restore the roof's integrity and make it solar-ready in a single programme of works. The refurbishment used the R-MER CLAD system, a lightweight and durable metal overlay that avoided the need for full roof removal, reducing waste and disruption to the school day.

Delivering both upgrades together meant the Trust avoided the disruption and cost associated with undertaking two separate projects while ensuring the roof structure would support the solar installation throughout its lifecycle.

LONG-TERM SUSTAINABILITY GOALS

Rob Wall was the client's single point of contact throughout the project, providing weekly site visits throughout the roof refurbishment and solar installation and supplying detailed progress reports to all parties via Garland UK's cloud-based RAMP (Roof Asset Management Programme) system.

For estates teams responsible for multiple buildings, access to centralised documentation and maintenance records can play an important role in long-term asset management. The RAMP system provides a secure digital record of inspections, project updates and maintenance schedules for the building.

Specifying the R-MER CLAD system also delivered significant environmental benefits. By encapsulating the existing roof rather than removing it, the project prevented 4.7 tonnes of waste from being sent to landfill. The system is 100% recyclable, meaning that when the roof reaches the end of its natural life, the school can recycle the panels and avoid further unnecessary waste.

The roof refurbishment also significantly improved Carr Junior School's thermal performance, achieving a 0.18 U-value. Combined with the Solarise PV system, the school is expected to reduce its carbon footprint by up to 12 tonnes of CO_2 emissions annually.

Carr Junior School roof refurbishment and Solar PV

SUPPORTING SUSTAINABLE ESTATES

On completion, Garland UK supplied the Trust with a 20 year Single-Point Guarantee for the R-MER CLAD system and a 15 year product and 20 year performance guarantee for the Solarise system.

By covering design, materials and installation under one provider, the guarantee simplifies long-term risk management for estate owners and facilities teams responsible for maintaining building performance over decades.

The Trust will see a return on investment for the solar installation in just over four years.

Oliver Johnson, Director of Estates, adds, "The team at Garland UK did a fantastic job. The school is already seeing the benefits of the improved roof and solar panels, and we're confident this project will achieve the Trust's long-term sustainability and cost savings goals." **www.garlanduk.com**

RINNAI HYBRID SYSTEMS – A PRACTICAL PATH OF NETZERO ENERGY PROVISION?

Rinnai Director Chris Goggin evaluates the benefits of installing hybrid heating and hot water systems. Hybrid configurations can improve energy costs whilst offering performance that does not inhibit the continuity of daily operations that commercial properties require.

To learn more about Rinnai Hybrids request your free information pack today at www.rinnai-uk.co.uk/contact-us/ask-us-question

There are currently a multitude of low carbon technology options that the UK customer can select for commercial purposes. Mainstream media outlets often only mention singular technologies such as heat pumps, solar and natural gas boilers. One of the emerging options within the heating and hot water market is the hybrid system.

A hybrid energy system is considered to be a bridge technology in the way traditional fuels and carbon neutral technology is incorporated into one assimilated system. Rather than relying on one fuel source such as renewable electricity, hybrid options instead use two forms of power or heat generators to complete daily functions inside commercial applications.

Hybrid systems consist of a combination of traditional fuel sources like natural gas, oil or LPG and a renewable technology such as solar thermal or heat pump. Hybrid systems are designed to optimise factors such as outside temperature, current energy prices, property heating and DHW demand. Once this information is collected the system 'brain' can decide on selecting the appropriate fuel and technology that minimises carbon output and costs. For smart DHW hot water systems such as continuous flow water heaters used with heat pumps, the renewable heat generator provides the base load as the water heaters "top up" the temperature. This approach is inherent within the system and to ensure optimal performance.

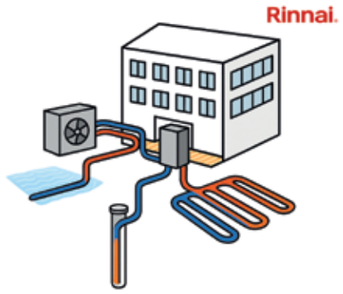
Read more about smart Rinnai hybrids in action: **https://www.rinnai-uk.co.uk/about-us/case-studies/hybrid-solutions**

Using two separate energies compacted into a singular system offers a range of benefits for the end-user. The first advantage is from a financial viewpoint: as electrical costs are higher than natural gas, utilising a system that accepts both renewable electricity and traditional fuel sources means that costs could be lower and more manageable when compared to exclusively electrical. From a capital expenditure perspective, the cost will be lower than a full electric system creating lower whole of life costs.

In terms of operational performance, a hybrid heating and hot water system combines the strengths of two energies and technologies that ensures energy efficiency and supports operational consistency. A hybrid system will preferably incorporate the heat pump or solar thermal technology during mild weather whilst using the other appliance during periods of cold conditions. This will optimise the strengths of each technological approach in separate weather condition circumstances.

A further benefit for the end-user is that both lifecycles of each technology is lengthened. As each technology does not have to apply full effort to satisfy demand, component and overall system longevity will be increased due to a lessening of required workload.

Hybrid systems offer a practical route for NetZero objectives to be accomplished. As not all customers can fully financially or practically commit to decarbonising practises, an alternative mix of technologies that incorporates both renewable and traditional technologies as well as fuels is offered to bridge this gap. This practical approach introduces customers to alternative and clean energies whilst



maintaining control over energy costs by still relying on traditional and more cost-effective methods of energy usage.

A hybrid system comprises a number of features, components, technologies and fuels. The main elements of a hybrid heating and hot water system is listed below.

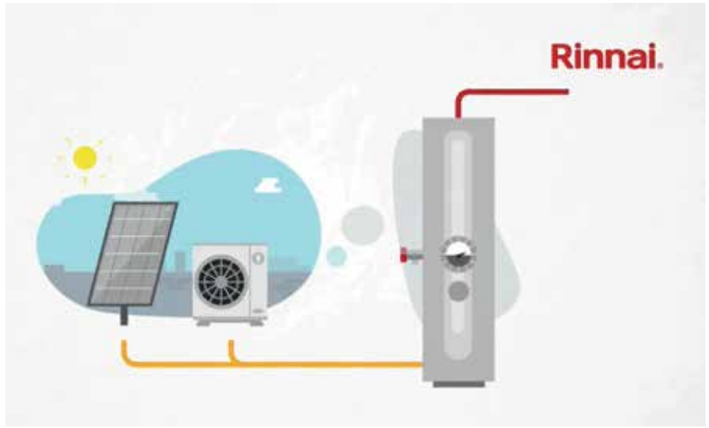
1. **Heat Pump:** The renewable backbone of the system. Most hybrid systems utilise air source heat pumps (ASHPs) due to their ease of installation and affordability. Ground source heat pumps (GSHPs) are also viable for specific applications, particularly in commercial settings.
2. **Condensing Gas Boiler / Water Heater:** A high efficiency water heater serves as the auxiliary or backup heat source. Modern condensing water heaters are designed to extract as much heat as possible from combustion gases, increasing energy efficiency.
3. **Solar Panels:** When solar thermal collectors are included, they can contribute heat to the system directly or to a buffer tank. This heat can then be drawn upon before the system calls for either the heat pump, gas boiler and water heaters making it more energy efficient.
4. **Control Unit / Smart Thermostat:** The 'brain' of the hybrid system, responsible for deciding which heat source to use based on real time conditions. Many units are integrated with weather compensation and predictive algorithms.
5. **Buffer Tank / Hot Water Cylinder:** Optional but recommended for systems that provide domestic hot water (DHW). The buffer tank helps to smooth out demand fluctuations and improve efficiency. Other cylinders can include buffers for minimum water content and for additional hot water demand.
6. **Sensors and Meters:** These measure temperature, flow rates, and energy consumption, feeding data back to the control system to enable automated switching.

Hybrid heat pump systems provide practical, economic and technical solutions and are best exemplified at a recent installation at a luxury complex at Farringdon in the City of London. At this site a hybrid water heating array of Low-GWP 50kW heat pumps plus bespoke thermal water stores, with optimised coil transfer to maximize heat pump performance, have been combined with 10 cascaded Hydrogen blends ready (I2HY20 certified) continuous flow water heaters.

The systems were delivered direct to site in one complete consignment, ready for installation. This expansive complex comprises a new, luxury hotel, prestigious & contemporary office space alongside affordable housing units.

The site was originally a Victorian-era schoolhouse for poor children. It was a 'Ragged School' – the term 'ragged school' was used by the London City Mission as early as 1840 to describe the establishment of schools, 'formed exclusively for children raggedly clothed'. From around 1845 until 1881, the London 'Ragged' schools gave rudimentary education to about 300,000 children who were the poorest in the local and surrounding community.

The expansive retrofit site will pay respect to this heritage with many of the original features retained in the



150+ bedroom luxury hotel, almost 20,000 sq ft of opulent capital city office space and nine new-build affordable residential units. The hotel group running the site already has one other unit in London with two others planned.

In addition to the City of London site, hybrid systems have successfully been installed and continue to offer seamless operational efficiency at alternative locations. A national chain of gyms has successfully piloted a LOW-GWP commercial ASHP (Air Source Heat Pump) with the aim of replacing their existing carbon intensive electric storage water heater systems which rely on multiple electrical immersions.

The flexibility of a bespoke hybrid system design has ensured that some of the existing electric water heaters can remain in place as part of a cost saving hybrid heat pump system – saving the end user on cost and reducing carbon emissions.

Each gym studio that has been measured revealed different kW load limits ranging from 8kW to 20kW. The gym owners were advised and then decided on the necessary decarbonizing technology required for each individual gym, these included:

- LOW-GWP R290 ASHP's
- Electric Storage water heaters
- Optimised Heat Pump Cylinder Coil cylinder or plate heat exchanger.
- Unvented kit (cold water feed).
- System controls

Consultants, contractors, specifiers and installers are advised to consider using manufacturers and suppliers of decarbonising technology with proven records of successful installations of hybrid systems that equip locations with the ability to reduce costs and emissions.

Rinnai aim to inform all UK customers and end-users of a wide variety of technological options, including and specifically, hybrid systems – that can supply all properties with hot water and heating requirements whilst decreasing carbon output and operational costs.

Contact us today for free support on your next heat and hot water project: **https://www.rinnai-uk.co.uk/contact-us/help-me-choose-product**

FROM PUBLIC BUILDINGS TO HOMES:

What Public Sector Decarbonisation Scheme technical lessons reveal about delivering the UK's Warm Homes Plan

Davide Natuzzi, assistant director, energy, carbon and technical, Salix

The UK's new Warm Homes Plan (WHP) marks the largest public investment in domestic energy upgrading in the country's history. Published on 21 January 2026, the plan sets out how £15 billion will be deployed to retrofit five million homes by 2030, focusing on electric heat pumps, rooftop solar, insulation, smart controls and improved housing standards. With residential buildings accounting for around onefifth of national emissions and more than 24 million fossil fuel boilers still in operation, the challenge is vast and technically complex.

What is often overlooked in commentary around the Warm Homes Plan is the deep pool of technical learning already generated by the Public Sector Decarbonisation Scheme. Our teams at Salix have delivered the scheme since its launch in 2020 on behalf of the government.

Since then, we have supported more than 1,400 publicsector decarbonisation projects, from hospitals and schools to museums and council campuses, with more £3.5 billion of investment delivered or committed up to 2028.

As the Public Sector Decarbonisation Scheme completes its existing Phase 3c and Phase 4 commitments, the question is how do we transfer the knowledge and skills of the scheme, into the delivery of home retrofits under the Warm Homes Plan?

Our work delivering the Public Sector Decarbonisation Scheme can directly improve the performance, costeffectiveness and credibility of the Warm Homes Plan.

1. ACCURATE HEATLOSS CALCULATIONS: THE FIRST CRITICAL LESSON

A first insight from Public Sector Decarbonisation Scheme is that heatloss modelling determines everything: system sizing, running temperatures, controls logic, and ultimately, heat pump performance.

Across public buildings funded through Public Sector Decarbonisation Scheme, technical assessments consistently revealed poorly understood thermal characteristics. Many sites had oversized boilers, undersized emitters, or inconsistent insulation conditions mirrored in UK housing, which is often described as among the least energyefficient in Europe.

The Warm Homes Plan shifts emphasis from a traditional fabricfirst approach toward electric heat pumps and solar, while still retaining fabric measures where costeffective. This shift increases the importance of accurate heatloss calculations because:

- Heat pumps must be sized to low temperature heating, not boilerreplacement approach
- Radiators and pipework often require upgrading
- Comfort levels depend on real, not assumed, thermal behaviour

If heat pumps underperform in the Warm Homes Plan, it will rarely be the technology that fails, it will be the calculations.

2. SYSTEM TEMPERATURES, EMITTERS, AND CONTROLS: LESSONS ON LOWTEMPERATURE HEATING

The Public Sector Decarbonisation Scheme has demonstrated repeatedly that converting large buildings from fossilfuel heating to lowtemperature systems requires, full emitter audits, hydraulic modelling, upgraded pipework and pumps and critical recalibration of controls.

These are the same technical pitfalls facing the Warm Homes Plan, but on a vastly larger and more fragmented scale across millions of homes.

The Warm Homes Plan significantly expands the Boiler Upgrade Scheme with grants up to £7,500 for heat pumps and additional support for airtoair systems. However, subsidy alone does not guarantee performance.

Our Public Sector Decarbonisation Scheme experience shows that heat pumps consistently underperform when controls are not reconfigured to weathercompensation strategies, radiator circuits designed for 70°C cannot achieve comfort at 45°C without emitter upgrades, commissioning quality is the decisive factor in operational success.

3. GRID CAPACITY AND DEMAND MODELLING: PUBLICSECTOR RIGOR APPLIED TO HOMES

I believe, one of the least discussed but most influential insights from the Public Sector Decarbonisation Scheme is the need to model local electrical capacity and peak demand when electrifying heat across multiple buildings. Homes present similar challenges. The Warm Homes Plan includes significant scaleup of heat pumps, solar PV, battery storage and heat networks.

Public Sector Decarbonisation Scheme projects, especially those on campuses and hospital estates, have shown that local substations can become limited very quickly when multiple heat pumps are installed and smart controls and load shifting significantly alleviate peak demand but must be designed from the outset.

As millions of homes electrify simultaneously, the Warm Homes Plan must embed gridaware retrofit practices, exactly the type pioneered in public sector decarbonisation projects.

4. DELIVERY, COMMISSIONING AND QUALITY ASSURANCE: WHERE OUTCOMES ARE WON OR LOST

Another powerful lesson from our work delivering the Public Sector Decarbonisation Scheme is that technical quality determines energy and carbon savings. The Warm Homes Plan risks encountering the same pitfalls unless commissioning and quality assurance are prioritised.

Public Sector Decarbonisation Scheme projects have shown that monitoring & verification (M&V) frameworks are essential for validating carbon savings. Installers need training in lowtemperature hydronics, not just heatpump installation.

This aligns with Warm Home Plan's ambition to create 180,000 new jobs across retrofit and clean heating by 2030 – but only if technical standards match the scale of investment.

5. DATA: THE QUIET FOUNDATION OF EVERY SUCCESSFUL RETROFIT

Through our Public Sector Decarbonisation Scheme assessments we see that data quality is the single biggest predictor of project success. The Warm Homes Plan includes new regulatory standards for the private rented sector, potentially upgrading nearly three million rental properties in four years. I believe, success will depend heavily on accurate EPC revisions, heatloss models, smart meter data integration and robust retrofit assessment frameworks.

The Warm Homes Plan is a onceinageneration opportunity to transform the UK's housing stock. To succeed, it must integrate the technical verification, the delivery governance and the commissioning and M&V standards that have defined the Public Sector Decarbonisation Scheme.

As Public Sector Decarbonisation Scheme funding ends and the focus shifts to homes, the UK must carry forward these engineering lessons. The Warm Homes Plan can succeed, but only if it considers technical quality as the foundation of its strategy. If it does, the UK will not only decarbonise its homes but build a retrofit market capable of sustaining netzero ambitions for decades to come.

Visit our website to find out more about our work. **https://www.salixfinance.co.uk/**

UNLOCKING INSIGHTS FROM YOUR BUILDING'S DATA

A building can meet every expectation at design stage and still fall short once it is in use. Research from the UK Green Building Council highlights a persistent gap between expected and actual performance, which is one reason why building data matters more than ever to facilities managers. The issue is rarely the lack of information itself. More often, the challenge lies in making sense of it across systems and using it in a way that supports practical decisions. Here, Peter Schwartz, senior technology consultant at IT and cyber security partner OryxAlign, explains how better integration and visibility can help.

THE DATA IS ALREADY THERE

Modern building management systems support more than basic monitoring. They capture data across HVAC, energy use and environmental conditions, often at a detailed level. As a result, facilities teams already have access to large volumes of operational data, and there is growing expectation that this information should support better decision-making.

As RICSfunded research into big data in UK facilities management notes, "Facilities Management organisations are facing increasing pressure from client organisations to manage facility portfolios with stringent goals for both cost efficiency and environmental impact. The ability to integrate, visualise and closely monitor building data... is critical to achieving these goals."

Not all data is easy to interpret in context. Individual data points can show what is happening, but they do not always explain why. Without a clearer view of how systems interact, it becomes difficult to draw meaningful conclusions. The opportunity lies in making better use of existing data rather than introducing additional systems.

WHY SILOED SYSTEMS LIMIT INSIGHT

Many estates still rely on systems that were implemented at different times and for different purposes. These systems do not always share data effectively, which limits visibility across the building.

When information sits across separate platforms, it becomes harder to validate, compare and act on. Patterns that span multiple systems can be missed, even when the underlying data exists. This can affect how facilities teams understand energy use, occupancy and overall building performance.

As buildings become more connected, the ability to bring these data sources together becomes increasingly important. Integration allows data to be viewed in context rather than in isolation.

WHAT USEFUL INSIGHT ACTUALLY LOOKS LIKE

When data is brought together, it can support a more practical understanding of how a building is operating. It can help identify where systems are not running as expected, such as equipment operating outside of required hours. It can also highlight patterns that may be affecting occupant comfort before they develop into wider issues.

Greater visibility of occupancy and usage can help align building operation with actual demand. Trend data can also support more informed maintenance decisions, allowing teams to act earlier rather than respond to faults after they occur. As the Better Buildings Partnership notes, "continued monitoring for energy performance involves analysing and reporting energy performance to avoid unnecessary cost and to drive on-going energy performance improvement."

In each case, the value comes from interpreting information in context rather than relying on isolated data points.

START WITH INTEGRATION, NOT REINVENTION

For many organisations, improving insight does not require a complete overhaul of existing systems. A more practical starting point is to identify which systems already generate useful data across the estate. From there, it becomes easier to assess where gaps exist in visibility, compatibility or accessibility.

Focusing on areas where clearer insight is likely to deliver immediate value can help build momentum. This may include HVAC performance, energy use or occupancy patterns.

An incremental approach can be more realistic in existing buildings, where full replacement is not always feasible. Involving both facilities and IT teams early also helps ensure that systems remain secure, scalable and aligned with wider operational needs.

Facilities managers do not necessarily need more data, but a clearer way of understanding what is already available. The ability to connect systems and interpret information in context is becoming an important part of building operation.

Organisations that treat IT infrastructure as part of that foundation are better placed to act on insight and respond to changing demands. With the right level of integration and visibility, building data becomes something that can be used to inform decisions rather than simply observed.

To find out more about how to make better use of building data, visit **www.oryxalign.com**

HVAC ELECTRIFICATION IS ACCELERATING – BUT WITHOUT FLEXIBILITY, ENERGY COSTS WILL FOLLOW

Energy managers across the UK are entering a new phase of building decarbonisation. Electrification of heating and cooling, rising deployment of heat networks, and the rapid growth of EV charging infrastructure are reshaping electricity demand across commercial estates. While these technologies are essential to achieving net zero, they are also concentrating load onto the electricity network, increasing exposure to peak pricing and system constraints.

The challenge is no longer simply how to reduce consumption, but how to manage electrified assets dynamically, in real time, without compromising operational performance or occupant comfort.

HVAC systems remain the largest single driver of electricity demand in many commercial buildings. As gas boilers are phased out and electric systems such as VRF, heat pumps and electric resistance heating become more prevalent, buildings are becoming increasingly sensitive to electricity price volatility. At the same time, EV charging introduces new, often unpredictable demand profiles that further amplify peak loads.

This shift means that energy efficiency alone is no longer sufficient. Without intelligent coordination, electrification can reduce carbon emissions while simultaneously increasing operational costs.

Demand-side flexibility is emerging as a practical solution to this challenge. By automatically adjusting electricity consumption for short periods during times of grid stress, buildings can reduce peak demand without affecting comfort or performance. This allows organisations to capture savings while also supporting grid stability and renewable integration.

A recent example of this approach in practice can be seen at Bolton Wanderers Football Club. The club operates a complex estate combining the 28,000-seat Toughsheet Community Stadium and the adjacent Bolton Stadium Hotel, both of which rely heavily on electric heating and cooling to maintain comfort for fans, guests and staff throughout the year.

Like many large venues, Bolton Wanderers faced the dual pressure of rising energy costs and the need to reduce carbon emissions, without disrupting operations or undertaking costly retrofit projects. Through a partnership with Voltalis, the club deployed the Voltalis Edge platform to connect and optimise more than 70 VRF systems and over 160 live monitoring and control points across both buildings.

The system provides real-time visibility of temperatures, setpoints and energy consumption while enabling automated optimisation of HVAC assets. By intelligently reducing non-critical demand during peak periods, the solution is expected to deliver up to 15% electricity savings on heating and cooling, while maintaining guest and fan comfort and enabling participation in national flexibility markets.

Importantly, the deployment required no capital investment from the club and was completed without disruption to stadium or hotel operations. For Bolton Wanderers, this has provided a route to cut operational costs, reduce Scope 2 emissions and modernise building controls simultaneously.

The lessons extend beyond stadiums. Hotels, universities, offices and healthcare facilities all operate similar electric HVAC systems and face comparable pressures around energy costs, carbon reporting and grid constraints. In many cases, buildings already contain the assets required to deliver meaningful reductions in consumption but lack the control layer needed to coordinate them effectively.

As renewable generation continues to expand, the ability for buildings to respond dynamically to grid conditions is becoming increasingly valuable. Flexible buildings can shift or reduce consumption when supply is constrained and make greater use of renewable electricity when it is abundant. This capability will play a critical role in maintaining grid stability as electrification accelerates.

For energy managers, the implication is clear. Investments in HVAC upgrades, heat networks and EV charging infrastructure must be paired with intelligent control and flexibility. Without it, the benefits of decarbonisation risk being offset by higher electricity costs and increased operational complexity.

The next phase of energy management will not be defined solely by new hardware, but by how effectively existing assets are orchestrated. By combining real-time monitoring, automated optimisation and participation in flexibility markets, organisations can reduce consumption, control costs and strengthen resilience – all while supporting the wider energy transition.

To learn more about how demand response and intelligent HVAC optimisation can support your estate, visit **voltalis.co.uk**.

HYBRIDS IN ACTION FOR COMMERCIAL APPLICATIONS

Rinnai's Head of Technical, Peter Seddon, looks at the benefits of heating & hot water hybrid systems in commercial applications. Hybrid systems utilise two fuels therefore contributing towards cleaner operations whilst maintaining seamless and efficient performance.

Mainstream media outlets often only mention singular technologies such as heat pumps, solar and natural gas water heater and boilers as solutions for commercial property heating and hot water. One of the emerging options within the UK heating and hot water market is the hybrid system.

Why Hybrid and not full electric? There may be certain technical or financial constraints which would prohibit full electric heating and or hot water systems to be installed in every non-domestic building. According to the statistics published on the government website there are approximately 2.13 million non-domestic buildings in the UK. If we look at heavily built-up areas like cities, these buildings are generally clustered together so space is a premium, to install large capacity heat pumps to satisfy the full building demand may not be viable. The electrical loading on the building may also prevent going full electric. The last issue could be the building owner/occupier may not simply have the funds available to switch to a full electric system either on a capital and/or operational expenditure. This is because heat pumps generally take up a lot more space and cost more per kW than a traditional gas system. Rather than not doing anything because of the aforementioned constraints, Hybrid Systems could be a good starting point for their decarbonising journey.

A hybrid heating and or hot water system uses various energy or power-driven technologies as traditional fuel systems and carbon neutral technology are incorporated into one assimilated system. Rather than relying on one fuel source or technology such as renewable electricity and heat pumps, hybrid options instead use two forms of power or heat generators to complete daily functions inside commercial applications.

Hybrid systems consist of a combination of traditional fuel sources like natural gas, oil or LPG and a renewable technology such as solar thermal or heat pump. Hybrid systems are designed to optimise factors such as outside temperature, current energy prices, property heating and DHW demand.

For smart domestic hot water systems such as continuous flow water heaters used with heat pumps, the renewable heat generator provides the base load as the water heaters "top up" the temperature. This approach is inherent within the system and ensures optimal performance. This type of system was installed at the Mere Leisure complex in Cheshire and resulted in reduced carbon emission, capital expenditure costs and high levels of DHW for bedrooms and catering facilities find out more: **https://www.rinnai-uk.co.uk/about-us/case-studies/hotels/rinnai-hybrid-heat-pump-system-improves-efficiency-large-hotel-golf-course-resort**

Using two separate energies compacted into a singular system offers a range of benefits for the end-user. The first advantage is from a financial viewpoint: as electrical costs are higher than natural gas, utilising a system that accepts both renewable electricity and traditional fuel sources means that costs could be lower and more manageable when compared to an exclusively electrical system. From a capital expenditure perspective the cost will be lower than a full electric system creating lower whole of life costs.

In terms of operational performance, a hybrid heating and hot water system combines two energies and technologies that ensures energy efficiency whilst supporting operational consistency. A hybrid system will preferably incorporate the heat pump or solar thermal technology during mild weather whilst using the other appliance during periods of cold conditions. This will optimise the strengths of each technological approach in separate weather condition circumstances; the addition of a combustion-based water heating technology will boost the renewable base load to ensure DHW performance.

A further benefit for the end-user is that both lifecycles of each technology is lengthened. As each technology does not have to apply full effort to satisfy demand, component and overall system longevity will be increased due to a lessening of required workload.

Hybrid systems offer a practical route for NetZero objectives to be accomplished. As not all customers can fully financially commit to decarbonising practises, an alternative mix of technologies that incorporates both renewable and traditional technologies and fuels is offered to bridge this gap. This practical approach introduces customers to alternative and clean energies whilst maintaining control over energy costs by still relying on conventional and more cost-effective methods of energy usage.

A hybrid system is comprised of a number of features, components, technologies and fuels. The main elements of a hybrid heating and hot water system is listed below.

- **Heat Pump:** The renewable backbone of the system. Most hybrid systems utilise air source heat pumps (ASHPs) due to their ease of installation and affordability. Ground source heat pumps (GSHPs) are also viable for specific applications, particularly in commercial settings.
- **Condensing Gas Boiler / Water Heater:** A high efficiency water heater serves as the auxiliary or backup heat source. Modern condensing water heaters are designed to extract as much heat as possible from combustion gases, increasing energy efficiency.
- **Solar Panels:** When solar thermal collectors are included, they can contribute heat to the system directly or to a buffer tank. This heat can then be drawn upon before the system calls for either the heat pump, gas boiler and water heaters making it more energy efficient.
- **Control Unit / Smart Thermostat:** The 'brain' of the hybrid system, responsible for deciding which heat source to use based on real time conditions. Many units are integrated with weather compensation and predictive algorithms.
- **Buffer Tank / Hot Water Cylinder:** Optional but recommended for systems that provide domestic hot water (DHW). The buffer tank helps to smooth out demand fluctuations and improve efficiency. Other cylinders can include buffers for minimum water content and for additional hot water demand.
- **Sensors and Meters:** These measure temperature, flow rates, and energy consumption, feeding data back to the control system to enable automated switching.

Hybrid heat pump systems provide practical, economic and technical solutions as best exemplified by a recent installation at a luxury complex at Farringdon in the City of London. At this site a hybrid water heating array of Low-GWP 50kW heat pumps plus bespoke thermal water stores, with optimised coil transfer to maximize heat pump performance, have been combined with 10 cascaded Hydrogen blends ready (I2HY20 certified) continuous flow water heaters.

The systems were delivered direct to site in one complete consignment, ready for installation. This expansive complex comprises a new, luxury hotel, prestigious & contemporary office space alongside affordable housing units.

The extensive retrofit site will pay respect to this heritage with many of the original features retained in the 150+ bedroom luxury hotel, almost 20,000 sq ft of opulent capital city office space and nine new-build affordable residential units. The hotel group running the site already has one other unit in London with two others planned.

In addition to the City of London site, hybrid systems have successfully been installed and continue to offer seamless operational efficiency at alternative locations. A national chain of gyms has successfully piloted a LOW-GWP commercial ASHP (Air Source Heat Pump) with the aim of replacing their existing carbon intensive electric storage water heater systems which rely on multiple electrical immersions.

The flexibility of a bespoke hybrid system design has ensured that some of the existing electric water heaters can stay remain in place as part of a cost saving hybrid heat pump system – saving the end user on cost and reducing carbon emissions.

Each gym studio that has been measured revealed different kW load limits ranging from 8kW to 20kW. The gym owners were advised and then decided on the necessary decarbonizing technology required for each individual gym, these included:

- LOW-GWP R290 ASHP's
- Electric Storage water heaters
- Optimised Heat Pump Cylinder Coil cylinder or plate heat exchanger.
- Unvented kit (cold water feed).
- System controls

Consultants, contractors, specifiers and installers are advised to consider using manufacturers and suppliers of decarbonising technology with proven records of successful installations of hybrid systems that equip locations with the ability to reduce costs and emissions.

Rinnai aim to inform all UK customers and end-users of a wide variety of technological options, including and specifically, hybrid systems - that can supply all properties with hot water and heating requirements whilst decreasing carbon output and operational costs.

For free of charge design support contact the Rinnai design experts today: **https://www.rinnai-uk.co.uk/contact-us/help-me-choose-product**
www.rinnaiuk.com

NETWORKING AT ITS BEST

Networked Ground Source Heat Pumps: the infrastructure that's revolutionising new home decarbonisation. John Marsh, GTC Chief Innovation Officer

As the Future Homes Standard (FHS) moves from policy into practice, the conversation is no longer simply about selecting a compliant low-carbon heating system; it is increasingly about long-term performance, reliability, whole-life cost, and how new homes can integrate more intelligently with a changing energy system.

Individual air source heat pumps receive much of the public attention, yet a quieter transformation is taking place beneath our feet. Networked Ground Source Heat Pumps are emerging as one of the most robust, efficient and future-proof solutions for FHS-ready developments, offering a 75-80% reduction in carbon from day one. By combining shared ground loop infrastructure with individual in-home heat pumps and smart optimisation technology, these networked systems offer predictability, comfort and grid-friendly performance.

FHS COMPLIANCE, MADE SIMPLE

For developers, the first challenge is ensuring that new homes meet FHS requirements in a way that is buildable, scalable, and attractive to buyers. Networked Ground Source Heat Pumps simplify this significantly. The constant year-round ground temperature provides a stable heat source that enables high seasonal performance, typically with heating coefficients of performance around 4.2, exceeding many air-to-water systems.

When combined with smart thermostat technology, these systems optimise heat delivery based on occupants' routines and integrate seamlessly with rooftop solar PV and other renewables. This makes it easier for developers to future-proof homes and deliver predictable low-carbon performance without requiring oversized emitters or intrusive equipment.

ATTRACTIVE AND TANGIBLE BENEFITS FOR HOMEBUYERS

The financial side of low-carbon heating is increasingly important to buyers. Rising energy bills have sharpened awareness of running costs, and new home purchasers are approaching heating choices with more scrutiny than ever before.

Against this backdrop, Networked Ground Source Heat Pumps perform strongly. A typical three-bed semi-detached home, built to the expected Future Home Standard and connected to a shared ground loop can achieve whole-home energy cost reductions of up to 44% compared with an equivalent gas-heated house. When compared with homes using individual air source heat pumps, the whole-life cost advantage is typically around 25% – a notable difference for households.

Comfort is another compelling factor. With no outdoor unit, the system avoids noise concerns and preserves outdoor space and aesthetics. Inside the home, quiet operation and consistent heat delivery create a comfortable living environment. And as the UK contends with increasing summer temperatures, the passive cooling capability of ground loops provides a low-cost way to meet Part O requirements while improving summertime comfort without resorting to energy-intensive air conditioning.

SUPPORTING A SMARTER, MORE FLEXIBLE ENERGY SYSTEM

As the UK shifts toward widespread electrification of heat, the resilience of the electricity system becomes a vital consideration. One of the most compelling advantages of Networked Ground Source Heat Pumps is their low peak electrical demand, often requiring a similarly sized electricity connection to gas-heated homes. This is typically half that required for individual air source heat pumps thanks to a stable temperature ground source versus variable air temperatures and humidity issues which cause frosting with air-source heat pumps.

Smart controls amplify this benefit by enabling households to participate in grid flexibility services. When residents opt in, their heat pumps can automatically shift or reduce their demand for short periods to help balance the grid during peak times.

This ability to integrate with the energy system marks a shift in how new homes contribute to decarbonisation. Rather than adding strain during peak periods, developments built around ground source networks can actively support the transition to a smarter, cleaner grid.

A PREDICTABLE, TRANSPARENT EXPERIENCE FOR RESIDENTS

From the resident perspective, Networked Ground Source Heat Pumps offer a simple, predictable and confidence-inspiring ownership experience. Residents pay a single monthly charge that covers all servicing, maintenance and replacements over the lifetime of the system. There are no unexpected repair costs, and no requirement to source specialist engineers.

The smart thermostat plays a central role in enhancing comfort and energy savings. It enables remote control via a mobile app, optimises heating schedules automatically, and provides transparency over energy use. These features make the system easier and more intuitive than many traditional heating controls.

Efficiency benefits also translate into environmental reassurance. Networked Ground Source Heat Pumps are up to five times more efficient than gas boilers, and around 15% more energy-efficient than individual air source heat pumps.

Finally, heat networks now fall under Ofgem regulation, offering residents the same protections and consumer confidence that they expect from established utilities.

A FUTURE-PROOF PATHWAY

Decarbonising heating will require a range of technologies, but Networked Ground Source Heat Pumps occupy a uniquely advantageous position. They offer high efficiency, predictable performance, grid-friendly operation, low running costs, and long-term simplicity for both developers and residents. **www.gtc-uk.co.uk**

NEW REGULATION CAN LOWER THE COSTS OF HEATING HOMES AND BUSINESSES. ARE YOU HNTAS READY?

Tom Burton, CEng, MCIBSE, a principal engineer at FairHeat.

In the media and public discourse, we often hear how deregulation is a catalyst for growth. And, of course it very much can be. However, we hear much, much less about how good, well thought through regulation helps to deliver growth by ensuring common standards, which are essential for building trust, increasing demand and supply and delivering growth.

What do the Electricity Supply Act of 1926 and the European single market both have in common?

They are both examples of regulation which were brought in to harmonise rules which delivered significant growth and lower prices for consumers.

Heat networks are now on the cusp of going through a similar regulatory journey which will help set the heat network sector on a path to supplying DESNZ's target of 20% of UK heat demand by 2050, up from just 3% of heat demand now.

DESNZ estimates that delivering this growth will involve investment of between £60 billion to £80 billion by 2050 and create about 30,000 jobs across the UK.

However, we believe heat networks could grow beyond that target with jobs and investment growing further too.

Becoming a regulated utility is an important journey for the heat network sector as it shows that the UK government has confidence in heat networks as a solution for decarbonising our energy supply and also for improving British energy security by providing heat from domestic sources for more British homes and more British businesses.

New regulations coming into force for heat networks include:

- **Zoning:** setting out where heat networks are the best solution for decarbonisation and increasing energy security.
- **Consumer protection:** Heat networks have until January 2027 to register with Ofgem as the new regulator which is putting in place new requirements around pricing, quality of service, and transparency.
- **HNTAS:** Heat networks will also need to meet the requirements of the Heat Network Technical Assurance Scheme (HNTAS).

WHAT IS HNTAS?

While many modern heat networks operate efficiently too many do not and there are currently no regulatory standards to enforce performance.

HNTAS is a new heat network technical assurance scheme that ensures a minimum level of performance and reliability for heat networks in the UK.

What does HNTAS mean for new networks? Having delivered some of the first new heat networks to go through the HNTAS pilot programme, FairHeat is pleased to say that builders who've adopted structured quality assurance are seeing significant capital expenditure (CAPEX) reductions, even after factoring in assessment costs.

Why? Because there has been a tendency both historically and in the present day for some heat network developers and consultancies to oversize networks and make them too complex.

The savings from HNTAS can be substantial and we've seen cost savings of between £500 to £2,500 per dwelling depending on technology choices.

What does HNTAS mean for existing networks?
To safeguard the performance and longevity of an asset, proactive monitoring and maintenance is a minimum requirement under HNTAS.

Local authorities, social landlords, ESCOs and managing agents operating large numbers of heat networks will also need to take a portfolio approach to prioritise which heat networks require investment first.

We are certain that minimum standards for heat networks will lead to better outcomes and lower costs for consumers and heat network investors in the long-term.

To this end heat network developers have already pledged to achieve a 7.5% reduction in the capital cost of building heat networks and a 20% cut in the cost of electricity consumed by them by 2030.

Furthermore, households connected to heat networks in England could save almost £150 million per year according to FairHeat's analysis of HNTAS-style regulations so far.

The average annual cost to residents of heat from a heat network pre-HNTAS would fall by almost one-third (32%) and by £328 per dwelling assuming the same cost assuming 15p kw/h.

This plays into the government's agenda to reduce costs reflected in its decision to lower energy bills by an average of £150 by removing funding for the Energy Company Obligation scheme from household energy bills.

While we appreciate there is always a cost and a time investment that organisations need to make to adapt to new HNTAS regulations, there is solid evidence that HNTAS will build trust, deliver growth and lower costs for operators and households.

And this is the kind of pro-growth regulation that should be welcomed. **https://fairheat.com/**

FAIRHEAT - photographer credit Nat Rosa

TURNING HEAT PUMP AWARENESS INTO ACTION

Sachin Vibhute, HVAC and Heat Pumps Technical Consultant and Product Training Manager at LG.

Heat pump awareness has been steadily growing in the last few years, largely due to a wider understanding of the benefits of installing green technology and increased government incentives. To this point, it's encouraging to see the Heat Pump Association's latest figures show that adoption of heat pumps rose again in 2025, to 125 thousand

Yet the same set of data also shows that the number of individuals being trained to install heat pumps dropped in 2025. A downtick in trained installers threatens to introduce a new problem to an already complicated puzzle. There are a myriad of other challenges impacting greater heat pump deployment; take for example, space constraints and legacy infrastructure. These two issues have long been seen as holding wider installation back, although there has been positive progress in these areas.

While removing existing barriers is easier said than done, with cooperation between industry and government, it's more than possible. Alongside, increased investment in hands-on-practical training of installers, there are innovative new technologies which can offer solutions and prevent a stall in momentum in the switch over to heat pumps.

CUTTING RED TAPE

The government's decision to relax rules around the size of external heat pumps was a welcome move, helping homeowners in England to install multiple units within one metre of any neighbouring property without planning permission. And detached property owners also have the option to install two heat pumps instead of a single unit, simplifying the process of heating bigger homes.

These moves are viewed by industry professionals as a productive step forward, providing clearer pathways to installation and enabling widespread deployment of the technology. But more needs to be done.

For instance, multifamily housing and large high-rise office buildings represent a significant opportunity for reducing emissions. But legacy infrastructure, a lack of space for external units, and fluctuating heat demands, can often mean these buildings are seen as too challenging for the technology.

That doesn't mean it's an impossible task. Smart controls and sensors can balance demand across varying building zones and keep water circulating throughout heating systems as low as possible. This helps identify inefficiencies such as heat loss or short cycling. And in high-rise buildings, replacing individual boilers with a centralised heat pump system can reduce maintenance cost and improve efficiency. Thermal storage also helps smooth load fluctuations and ensures reliable heating and hot water.

INNOVATION TO SUPPORT EVOLVING NEEDS

Raising public awareness about new innovative heat pumps can also change perception and encourage adoption of the technology.

Cascade heat pumps, for example, are central to the acceleration of heat pump installation in crowded spaces. Alongside centralised plant-room solutions and rooftop installations, these pumps address issues with space constraints as they distribute capacity across available areas, rather than relying on a single large unit. As they are smaller, they fit far easier into tight or irregular spaces such as flats, tall buildings or where there is limited outdoor space.

These pumps are made up of distinct units controlled by a cascade system which operates together like a single, smart heating plant. The individual units automatically switch on and off based on demand. This helps with efficiency and reduction of energy waste whilst also meeting performance requirements, making them an especially good option for social housing.

CLOSING THE INSTALLER GAP

New and innovative technologies can only turn the tide on heat pump acceleration successfully, if can be installed successfully in the first place. This means ensuring there are enough installers, technicians, and services partners with the right skills.

The current state of play is that courses are limited in availability and often far flung, making access more difficult than it should be.

Installing heat pumps requires careful assessment of space, accurate system sizing and specialist configuration – all of which means proper training is essential. Manufacturer-led training academies are already doing great work in equipping industry workers with the right skills to install systems, but more training needs to be made readily accessible and available.

MAKING REAL CHANGE HAPPEN

Growing awareness of low-carbon heating and government backed-incentives mean property owners are increasingly open to heat pump adoption. But coordinated heating industry and government effort is needed to remove existing barriers to the installation process. This includes scaling solutions that work in a variety of buildings, and making sure a skilled workforce is primed and ready to deliver. Failure to address these challenges will see interest stall, and adoption of the technology drop. But, getting it right will ensure awareness is turned into action. **https://www.lg.com/uk/**

AC VS DC CHARGING: A STRATEGIC DECISION YOU CAN'T AFFORD TO GET WRONG

Natasha Fry, head of sales at Mer Fleet Services, talks about why businesses must put charging infrastructure at the top of their EV fleet plans, and the risks to those that don't.

For EV fleets, one of the most consequential early decision points is how to design and specify charging infrastructure. It's a decision that is frequently delegated too far down the organisation, approached as a procurement exercise and decided by cost and delivery times, rather than a strategic decision that defines the project.

The choice between AC (alternating current) and DC (direct current) charging sits at the heart of this. Get it right and your infrastructure becomes a competitive asset that can reduce operational costs, increase driver retention and grow the fleet in the future. Get it wrong and you're looking at wasted investment and operational disruption, and probably some expensive retrofitting that erodes confidence in your electrification programme.

The technical difference between AC and DC charging comes down to where the power conversion happens. The electricity grid delivers AC power, but EV batteries store DC power. With AC charging, the conversion happens inside the vehicle itself, using the car's onboard charger, which is limited in size and weight, and therefore power capacity, or speed of charge. DC charging bypasses the vehicle's onboard charger entirely. The conversion from AC to DC happens not in the car, but in the charging unit itself, which can therefore be much larger and more powerful, shortening charge times dramatically.

It might seem like a simple decision – after all, who wouldn't want faster charging? But DC charging infrastructure requires a higher capital outlay than AC, often by a significant multiple. At scale, across a large depot or many sites, that can run into hundreds of thousands of pounds. DC chargers are also more complex, more expensive to maintain and fix, and place significantly greater demand on your incoming electrical supply. For many sites, this triggers long and expensive grid reinforcement works, causing project timelines to stretch well beyond initial expectations.

So if vehicles don't need rapid charging to meet their operational duties, installing DC chargers can result in a significant investment tied up in infrastructure that delivers no tangible business benefit.

But the reverse error also has a cost: relying on the cheaper, easier-to-install AC infrastructure in an operational environment that needs at least some rapid charging, results in vehicle downtime and service disruption. It will ultimately require retrofit investment to fix, something that almost always costs more than paying for the right specification up front.

It's clear that the companies which most successfully transition to EV fleets are those who reframe the AC versus DC question, turning it from a technical decision to a strategic direction. They're asking the question: which infrastructure model best protects our ability to operate continuously, at scale, and with the flexibility our business demands?

In practice, there is no single right answer: it varies significantly by business model and other factors, including geography and available investment. A logistics operation with depot-based vehicles and predictable overnight dwell times has fundamentally different infrastructure requirements to a field service business with unpredictable schedules, or a passenger transport operator running vehicles across multiple shifts. A business operating in an urban environment faces different challenges to one in a rural setting.

Each business has a charging profile that needs correctly matching to the right technology to become an operational strength. Incorrectly matched, it becomes a liability.

Approaching charging infrastructure strategically also builds in three advantages that compound over time.

- **Scalability.** Infrastructure designed with growth in mind, using the right technology mix from the outset, makes it easy to accommodate additional vehicles without expensive site or technology reconfiguration. This is particularly valuable for businesses with ambitious fleet transition timelines or those anticipating significant growth in their EV fleet.
- **Cost efficiency.** Correctly specified infrastructure, matched to actual operational patterns rather than theoretical scenarios, avoids both over-investment in unnecessary capability and under-investment that creates operational bottlenecks. Over a fleet's lifetime, this can translate into a significant financial sum.
- **Organisational confidence.** One of the less-discussed challenges of fleet electrification is internal buy-in. Drivers, operations managers, and finance teams are all watching the transition closely. Infrastructure that works reliably, charges vehicles as expected and doesn't affect operations, builds internal confidence in what can often be a multi-year transition programme.

The AC versus DC charging decision is ultimately inseparable from a deeper set of operational questions: how vehicles are deployed, how sites are configured, how the fleet will evolve and how energy costs are structured. These are questions that charge point operators are best placed to answer.

Specialist fleet charging expertise brings a different kind of value to an organisation. It's not simply about knowing which charger to install – it's about understanding the operational context in which that infrastructure must perform. That means proven experience modelling real duty cycles, anticipating growth scenarios, integrating with fleet management systems and designing infrastructure that remains fit for purpose as your fleet, your vehicles and your business evolve.

For organisations at the early stages of fleet electrification, this expertise is most valuable precisely when it feels least urgent: before commitments are made, before hardware is ordered and before the cost of changing course becomes prohibitive.

AC versus DC charging is, on the surface, a technical question. But for any organisation making a serious commitment to fleet electrification, it's really a question about capital allocation, operational resilience and long-term strategic fit. And it's the organisations making this distinction and making the right decisions that are delivering on the full promise of fleet electrification.

https://uk.mer.eco/ev-fleet-charging/

RINNAI HYBRID TECHNOLOGY UNDERPINS MERE HOTEL RESORT M&E REFIT DELIVERED BY AB ENGINEERING, PROVIDING A PRACTICAL, LOW-CARBON AND ECONOMIC HOT WATER STRATEGY

A comprehensive refurb of the Mere Golf Resort & Spa included a completed M & E upgrade, delivered by AB Engineering, has given the site a high performance and cutting-edge building services across the hotel, spa and conference facilities. The multifaceted site has buildings dating back to 1924, meaning that a flexible design and technology approach was needed to deliver high volumes of DHW with limited onsite plant space – hence the Rinnai Hybrid system that combines high efficiency water heaters, R290 heat pumps and site-specific cylinders was selected.

Rinnai design experts are available to support your next Hybrid project contact today: **https://www.rinnai-uk.co.uk/contact-us/help-me-choose-product**

The 157-acre resort on the outskirts of Knutsford on the Cheshire Plains is managed by Fairmont in partnership with Dubai-based developer Select Group, which bought the property in 2022. It is now managed under the Fairmont premium luxury brand, which is owned by the Accor Group, one of the world's biggest hospitality concerns catering to all sectors of the market. It underwent this major refurbishment and relaunch with an expanded listing of 120 bedrooms, including 27 suites. AB Engineering delivered the full mechanical & electrical installations including all HVAC plus a highly efficient, hybrid, Rinnai hot water heating delivery system, all other water services, BMS, security, fire alarms and data systems. Modern plant, EV charging and advanced telecoms were integrated in close collaboration with the wide project teams.

Says Chris Smith for Rinnai, "Our technical & Design Team specified a customised hybrid system which included heat pumps and natural gas continuous flow water heaters – the complete system package provided by Rinnai was 2 x R290 60kW Heat Pumps, 8 x N1600i 20% renewable fuel ready natural gas water heaters plus bespoke vessels, to ensure maximum heat transfer and to optimise plantroom space, valves and all accessories – meaning all kit was delivered to site in one delivery"

"We carried out some of the commissioning, whilst performing onsite training for the client to ensure handover continuity and liaised closely with all other project teams from AB Engineering and the main contractor RussellWHBO. Our system delivers all hot water services on demand and is a fine example of a design based on practical, economic and technical criteria expertise, without any compromise to quality and longevity, producing the best result for the site and the end client".

The Mere project also benefited from Capital expenditure, operational expenditure and carbon modelling provided by Rinnai. The Rinnai design team calculated the optimum system when considering the nuances of the site and technical realities of such as space and infrastructure.

The Rinnai solution combines high efficiency R290 heat pumps to provide a high temperature baseload of DHW, in instances of peak demand the Rinnai water heaters will boost the DHW to the desired level to ensure continuity of DHW supply and support anti-legionella regimes. The Rinnai water heaters can monitor incoming water temperature and apply the precise amount of gas to bring the water to temperature meaning the gas usage is heavily reduced as the water heaters modulate from 58kw to 4.4kw.

Find out more about Rinnai Hybrid solutions today: **https://www.rinnai-uk.co.uk/about-us/case-studies/hotels**

Rinnai is constantly and actively searching for content that helps and assists the contractor, specifier, installer, and UK customer with information on all types and styles of hot water heating systems that deliver environment and energy efficient excellence with the best possible longevity and product lifetime.

Contact Rinnai today for any of your project needs: **https://www.rinnai-uk.co.uk/contact-us/ask-us-question**

BONOMI UK DELIVERS INTEGRATED FLOW CONTROL SOLUTIONS FOR DATA CENTRE COOLING SYSTEMS

As demand for data processing continues to accelerate across sectors such as AI, cloud computing and financial services, the need for reliable and efficient data centre cooling systems has never been greater.

Bonomi UK is supporting this growing sector with high-quality European-manufactured valves, actuators and instrumentation, delivering fully integrated flow control solutions for mission-critical data centre infrastructure.

Cooling systems are fundamental to data centre performance, ensuring stable operating conditions for high-density server environments. Whether used in chilled water systems, adiabatic cooling, or free cooling applications, effective flow control is essential to maintaining efficiency, uptime and long-term reliability.

Bonomi UK provides a comprehensive range of solutions designed specifically for these demanding applications.

HIGH-PERFORMANCE VALVE AND AUTOMATION SOLUTIONS

Valves play a critical role in regulating cooling and heating circuits, enabling isolation, flow control and system optimisation.

Bonomi's offering includes:

- Ball valves from RB and Valpres (brass, carbon steel and stainless steel) for reliable isolation and high-pressure performance
- Butterfly valves for large diameter pipework in chilled water and condenser systems
- Valbia electric and pneumatic actuators for automated control and seamless integration with BMS and IoT platforms

These solutions are complemented by a full range of pressure, level and flow instrumentation, providing real-time system visibility and supporting predictive maintenance strategies.

A COMPLETE SOLUTIONS PROVIDER

Through its global group of manufacturers and subsidiaries, Bonomi UK is able to deliver fully integrated valve–actuator–instrumentation packages, tailored to the specific operational, control and regulatory requirements of each data centre facility.

This integrated approach provides several key benefits:

- Proven compatibility between components
- Simplified procurement and installation
- Reduced project complexity
- Technical support from a single supplier

Combined with extensive UK stock availability and responsive service, Bonomi ensures customers can access both high-quality products and reliable support when it matters most.

SUPPORTING ADVANCED COOLING APPLICATIONS

Bonomi's solutions are widely used within advanced cooling technologies, including adiabatic systems designed to improve energy efficiency and reduce water consumption.

In a recent project supporting a specialist cooling equipment manufacturer, Bonomi supplied a range of components including:

- Brass ball valves
- Servo-assisted valves and solenoid valves
- Pressure gauges
- Lugged butterfly valves in multiple sizes

These products contributed to a reliable and efficient cooling system, supporting long-term performance in a demanding data centre environment.

GLOBAL EXPERTISE WITH LOCAL SUPPORT

Bonomi combines globally recognised European valve and actuator brands with local UK-based expertise.

From its UK headquarters, automation centre and warehouses, the company provides:

- Technical specification support
- Application guidance
- Local stock and fast delivery
- After-sales service and support

This ensures engineers, contractors and OEMs can confidently specify solutions for critical infrastructure projects.

SUPPORTING THE FUTURE OF DATA CENTRE INFRASTRUCTURE

As data centres continue to evolve, driven by increasing digital demand and sustainability requirements, the importance of reliable and efficient cooling systems will only grow.

By delivering integrated flow control solutions backed by technical expertise and local support, Bonomi UK is well positioned to support the next generation of data centre infrastructure.

For further information, please contact: Email: **sales@bonomi.co.uk**
Tel: **024 7635 4535 www.bonomi.co.uk**

ARCUS INSTALLS RINNAI HIGH EFFICIENCY WATER HEATERS TO REPLACE STORAGE AND LOWER ONSITE CARBON AT MAJOR SUPERSTORE

Arcus is one of the UK's leading FM companies offering a total maintenance and service solution via 1000s of multi-skilled and specialist engineers on the road, supporting an ever-growing list of nationally branded companies which operate in all retail sectors – superstores, supermarket chains, hotels, homewares, retail banks plus individual healthcare, business parks and online retail concerns.

The company recently completed the installation of 2 x Rinnai 1600 models at a superstore retailing grocery & fresh produce and on-site baked goods. The units – temperature accurate and capable of producing on demand over 1000 litres per hour – were replacing an old, traditional gas-fired calorifier. The two Rinnai units now meet and exceed all on site hot water needs whilst also significantly reducing the risk of legionella.

'Ashley Eaton of Arcus FM was leading the installation team doing a superb job', says Rinnai's Harry Barton, adding, the site now has a reliable and robust hot water system supplying all needs on-demand. The Rinnai units will improve energy efficiency, reduce carbon emissions with a more compact, space-saving and easily serviceable configuration.

"We are pleased to assist Arcus FM with a solution that helps drive both operational reliability and sustainability for one of the UK's leading supermarket chains that has annual sales in excess of £35Billion'

The bespoke Rinnai system has been designed not only to lower onsite carbon due to its expansive range of modulation, but the system is also configured to assist the superstore with ongoing compliance. The Rinnai system is specified with a bespoke unvented system expansion and valves giving the site G3 compliance.

The system is also set at 65 degrees with a hot water delivery capability accurate within 1 degree of this setpoint, thus assisting that legionella risk is minimised. Finally, the Rinnai system can be configured to integrate with any onsite BMS.

Find out more about Rinnai solutions in superstores across the UK: **https://www.rinnai-uk.co.uk/about-us/case-studies/supermarkets**

Arcus FM is an award-winning full-service facilities management company self-delivering over 80% of its services across the UK. The company has a fleet of over 1000 multi-skilled and specialist engineers and technicians on the road, supporting a growing list of national customers and their ever-expanding needs. From mechanical and electrical to cleaning and customer service, Arcus FM is available 24/7 365 days, being there to serve customers' needs.

Arcus FM is a technical-led facilities management expert that uses in-house developed technology to support all its services, offering customers faster response times and higher first-time fix rates. This blends well with the capabilities of Rinnai which can deliver products anywhere in the country next day and offer round the clock technical support.

Find out more about Rinnai today: **www.rinnaiuk.com**

HOW CAN DIGITAL WATER METERS SUPPORT THE UK'S WATER RESILIENCE?

Back in October, the National Drought Group warned that much of England needs to prepare for ongoing drought into 2026 due to the record low rainfall that many regions of the country have experienced.

Since then, record levels of rainfall have helped some parts of England – including the West Country and Yorkshire – to come back from the brink of drought and move into drought recovery.

However, with the Environment Agency predicting that England needs to experience at least 100 per cent of its average rainfall every month until the end of March 2026 to ensure that everywhere largely recovers from the drought, even this boost in rainfall may not be enough.

There is increasing talk about what needs to be done to secure water supplies for the future, given that climate change is affecting weather systems and making rain less predictable in England.

While systemic change is important, both individual businesses and households can also make changes in how they use water to help support ongoing water resilience. One type of technology that is becoming an increasing focus for water companies is digital smart meters.

WHAT ARE DIGITAL SMART METERS FOR WATER?

In a recent webinar for Smart Water Magazine, Sylvia Varga, head of UK & Ireland operations at Diehl Metering, and Vadim Lyu, managing director UK & Ireland at Netmore, discussed the different types of digital smart meters and how they can be used to save water.

There are two main types of digital smart meter currently in use by water companies in the UK.

- LoRaWAN
- NB-IoT

LoRaWAN is able to cover the majority of the country, because it offers long-range, low-power communication for water providers to help them gather data about their networks. It's used primarily in densely populated areas at present.

NB-IoT, meanwhile, relies on strong mobile network coverage as it is part of the Internet of Things (IoT). This form of metering is typically used in rural locations – although the need for a strong mobile network means it's not appropriate everywhere.

HOW DO DIGITAL SMART METERS HELP SAVE WATER?

For water companies, the reason to install digital smart meters is threefold: to improve leak detection, to improve customer service and to encourage data-driven operations.

Varga explained that South West Water has already introduced digital smart meters to its area, with over 100,000 meters deployed within its network. To date, these meters have helped the water supplier uncover 3,400 leaks and save 1.67 million litres of water per day.

In addition South West Water announced earlier this year that it is accelerating its rollout of smart meters for domestic customers to help them keep their bills down.

Similarly, Lyu highlighted Yorkshire Water's rollout of digital smart meters on its network, which is already saving two megalitres of water per day. As a result of the water savings the supplier has already seen, it is exploring how it can accelerate the rollout of such meters across its entire network.

ARE OTHER WATER SUPPLIERS GOING TO INSTALL DIGITAL SMART METERS?

Yes. The aim is to considerably increase meter coverage across the UK's network. In 2025, water meter coverage stands at just 12 per cent, but the aim is to increase this to 51 per cent by 2030 and to 75 per cent by 2040.

The rollout of digital smart meters across the water network is supporting the ongoing work under asset management period 8 (AMP8), which aims to halve leakage within the country's water infrastructure, reduce demand and increase water use efficiency.

The Regulators' Alliance for Progressing Infrastructure Development (RAPID), which was launched in 2019, is leading the way with this work.

One of the key aspects of RAPID's work has been bringing together water suppliers to ensure strategic collaboration to secure the country's water supplies for decades to come.

In addition to work to improve efficiency within the water system and reduce leaks, both of which can be supported by digital smart meters, RAPID is also working on significant infrastructure projects including the creation of new reservoirs and strategic large-scale water transfer schemes.

The scale at which AMP8 is working means that working with partners, such as Netmore and Diehl Metering, is essential to deliver the water savings required to secure the water supply for England and Wales.

CAN A BUSINESS INSTALL ITS OWN DIGITAL SMART METERS?

Yes, a business can install its own smart meter to monitor its water usage. An automated meter reading (AMR) service will allow you to see how much water you are using in your organisation and where it is going.

The smart meters available for businesses log water use on an hourly basis, providing consistent data which can be used to make decisions about water efficiency, as well as help identify leaks.

AMR systems work by measuring the water flow. A spike in water flow might indicate a leak, for example. By knowing this has happened within an hour, you can find the leak and take action quickly, even if it isn't immediately apparent through a visible burst pipe, for instance.

For most businesses, the reason to install a smart meter is to reduce their water bills. In our experience, the cost of an AMR system is usually covered within a few weeks based on savings on a company's water bill.

HOW CAN AUTOMATED METER READING HELP MY BUSINESS?

When you have data about your organisation's water usage, you can analyse it to identify peak periods of usage and explore how you can lower your water consumption consistently.

What's more, by having AMR in place, you can ensure that you maintain those savings and that your water usage doesn't creep up again over time.

This gives you data you can use to highlight the importance of focusing on saving water to your teams, as well as to point you in the direction of which parts of the business may benefit from innovative water-saving technology.

Your system will also be set up to send an alert should your water consumption exceed the preset limits, which means you will be able to take action quickly if your water consumption spikes.

This alone can save a business hundreds if not thousands, given the charges you pay for your water supply as a company.

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