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UK POWER NETWORKS IGNITES TRIALS FOR SUSTAINABLE COMMUNITY HEATING

King's Cross in the heart of London is set to become a living testbed for decarbonising heat

UK Power Networks' flagship project Heatropolis, is using King's Cross regeneration zone to create a sustainable blueprint for heating homes and buildings, using clean energy.

The innovation is being led by UK Power Networks, with partners including Metropolitan, Passiv UK and Guidehouse, each bringing critical expertise to drive the initiative forward this year.

The four-year project is exploring how heat distribution systems can be designed to optimise the ways heat and electricity networks work together. This will involve three winter trials (2025-2027) across three key building models: a low-density residential heat network, a multi-occupancy building, and a large mixed-use site, with King's Cross serving as the benchmark for the latter.

The former industrial site is one of the city's largest redevelopments and is home to several major corporations, including Google, Meta and Universal Music. It has also been rejuvenated with public squares, parks, restaurants, homes, schools and a university. With more households converting to electric heating, Heatropolis is finding solutions to manage additional demand on local electricity networks in the most cost-effective way. It aims to reduce the costs of connecting and operating electrical heat networks by using 'flexibility' to help manage peaks and troughs in supply and demand.

The potential carbon savings are significant, with an estimated 3,000 tonnes of CO₂ emissions avoided through reduced electricity network reinforcement and a financial benefit of £70 million by 2050 from deferring or avoiding unnecessary grid upgrades.

Heatropolis is one of three UK Power Networks projects that secured Beta funding from the Strategic Innovation Fund, an Ofgem programme managed in partnership with Innovate UK.



Staff from UK Power Networks and partner companies gather at Camley Street Natural Park for the Heatropolis 'Beta' launch

Luca Grella, head of Innovation at UK Power Networks, said: "We are excited for the physical rollout of Heatropolis as it presents a unique opportunity to make sure the way we heat our homes and buildings is fit for the future."

"By integrating low-carbon technologies with advanced flexibility and control systems, we can significantly reduce peak demand on electricity networks, which will result in lower energy costs for consumers and contribute to a more sustainable energy future."

Bruce Geldard, engineering director at Metropolitan which delivers low carbon heat, hot water and cooling networks

for new communities, said: "We are delighted to take the next step in our partnership with UK Power Networks in the latest phase of the Heatropolis project. This collaboration is an exciting opportunity for Metropolitan to be able to further develop our work in delivery of sustainable, low-carbon heating solutions."

"Through this initiative, we are helping to create a blueprint for decarbonising and optimising existing and new heat networks, driving forward the transformation of energy system across the UK to meet our carbon reduction goals." www.ukpowernetworks.co.uk



King's Cross regeneration zone is set to become the test bed for decarbonising heating.

salix

We enable and inspire organisations to achieve net zero and create better places to live and work

We are passionate about delivering decarbonisation projects across the UK – we're on a mission to save the planet



Every day our expert teams are committed to supporting organisations achieve their net zero targets, improving the lives of communities across the country.

Whether it is through the Social Housing Decarbonisation Fund or Public Sector Decarbonisation Scheme and other funds, we're committed to working with governments across the UK to reduce our carbon emissions.

Climate change is on our doorstep, we have no time to waste.

Our job is to deliver and administer grant and loan funding on behalf of the Department for Energy Security and Net Zero, Scottish and Welsh governments and more. This is delivered across the public sector as well as housing.

As delivery partner and agent for government, we work closely with organisations to help deliver funding as well as to deliver projects throughout the decarbonisation journey. Together we are reducing carbon emissions and creating better buildings to live and work.

Schemes include:

- › Public Sector Decarbonisation Scheme
- › Social Housing Decarbonisation Fund
- › Scotland's Public Sector Heat Decarbonisation Fund
- › Digarbon, the decarbonisation fund for tertiary education in Wales



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NEW GREEN ENERGY AGREEMENT LAUNCHED, OFFERING PRICE STABILITY FOR SUSTAINABLE POWER ACROSS UK PUBLIC SECTOR

Public sector funding will be channelled into UK renewable energy projects, boosting growth and driving investment in UK based renewable energy technology.

A new commercial agreement from Crown Commercial Service (CCS), entitled the Provision of Power Purchase Agreement (PPA), gives central government and wider public sector organisations direct access to UK-based renewable energy and competitive long-term contracts with suppliers.

Procured under PCR 2015, the innovative agreement offers a unique combination of renewable energy sourcing, long-term fixed pricing, and UK-based supply security that has never been available at this scale. This is a significant step forward in supporting public sector organisations to meet their net-zero targets while providing wider access to the market and greater budget certainty.

The agreement went live on 15 April 2025 and will be in place for 4 years.

WHAT ARE POWER PURCHASE AGREEMENTS?

Corporate PPAs are long-term power contracts between customers and suppliers that allow for the purchase of agreed volumes of green energy directly from renewable generators for a fixed period. Renewable generation may come from various sources, such as onshore and offshore wind turbines and solar PV farms.

John Welch, Commercial Director – Estates at Crown Commercial Service, explains: "This new agreement represents an important step forward in our commitment to supporting public sector organisations in meeting their sustainability goals while securing



predictable energy costs. By enabling access to a UK-based renewable energy supply through long-term contracts, we're helping the public sector reduce its environmental impact and contribute to the government's net-zero ambitions."

SUSTAINABLE ENERGY SOLUTIONS WITH PREDICTABLE, LONG-TERM PRICING

Market intelligence gathered has shown the need for CCS customers to have access to greener energy with a clear, concise route to market. This new agreement gives CCS customers and the wider public sector direct access to green electricity with price certainty, protecting them from market volatility while accelerating progress towards net zero targets.

The agreement creates significant value for the nation, providing energy security, economic efficiency, market innovation, and carbon reduction.

For example, by focusing on UK-based renewable assets, this

agreement strengthens national energy independence, reducing our reliance on imported energy. The agreement will also support the government's mission to make Britain a clean energy superpower.

Encouraging innovation in the renewable energy sector advances the UK's commitment to reach net zero by 2050. As a result, customers using the new agreement will benefit from:

- access to UK-based renewable energy assets
- competitive rates
- fixed-term pricing options, allowing for more efficient budgeting and future cost estimation
- a simplified procurement process that provides access to call-off contract terms aligned with the PPA market
- support toward net zero targets

To learn more about the new Provision of Power Purchase Agreement framework, please visit the agreement page or contact the CCS Service Desk at info@crowncommercial.gov.uk or 0345 410 2222.

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RACE FOR GRID CAPACITY IS A CASE OF SURVIVAL OF THE FITTEST



Rapidly transitioning our energy systems is fundamental to achieving the government's Clean Power 30 initiative and boosting economic growth. But with up to 1,000 gigawatts of capacity seeking to connect to the grid – which needs only 200 gigawatts to support the energy transition – the race to connect has become a high stakes battle of the fittest, with only the most strategic and well-connected developers likely to emerge victorious.

It is hardly news that developer applications to the UK's electricity distribution and transmission networks have experienced a period of stasis for some time, with lengthy queues of projects waiting for connections. For some projects, it is estimated that delays could be up to 10-15 years resulting in uncertainty around final costs due to significant market volatility

Spencer Thompson, CEO at Eclipse Power



in both capital costs, funding costs and wholesale energy prices. Such severe delays are putting developments at risk as investors reconsider projects that may not secure connections for many years.

The National Energy System Operator (NESO) has recognised that a 'first-in-the-queue, first served' policy with out-dated processes over joining the connections queue, is a major problem. Through its Connections Reform process it has been inviting consultations and running working groups to find solutions to break the gridlock. However, concern is mounting that the problem is not solely a first-in-the-queue issue, but also one of only the very large, very well-funded companies having a realistic opportunity to secure their place in that queue.

The UK's race to connect renewable energy projects to the grid has become a high-stakes battle of the fittest, with only the most strategic and well-connected developers likely to emerge victorious.

These "fittest" players are accelerating planning approvals, locking in supply chain agreements, and aggressively lobbying government and regulators to tip the scales in their favour. Meanwhile, smaller, independent developers with strong technical expertise are at risk of being left behind. Without the same resources for ongoing finance and high-level lobbying, they may see their shovel-ready projects passed over

in favour of the industry giants. One developer confided they've poured millions into developing projects, only to see over half now at risk due to the grid connection bottleneck.

The stakes couldn't be higher. The UK needs hundreds of billions in investment to deliver the energy transition and meet net-zero goals. But if too many projects fall by the wayside, that vital capital could dry up, with investors taking their money elsewhere in Europe or globally.

It is developers with the deepest pockets and strongest industry connections that will reap the rewards in the current landscape. The rest face an uncertain future, their green energy plans at risk of being crowded out by the industry giants.

But could a more flexible approach to capacity help alleviate not only project inertia but improve opportunities for smaller developers? Currently, once a connection offer has been accepted, it is considered contracted generation, even when the developer is not actually ready to generate electricity. NESO analysis shows that only 30% to 40% of projects in the queue are completed.

This can hold back those that are more readily able to proceed – often smaller, more agile developers.

With energy resources mainly located where there is very little demand, and demand where there is little resource, power transmission is increasingly required over greater distances, putting huge pressure on delivery of new infrastructure. Moving to regional or zonal solutions will help the GB grid.

Added to the greater distances required for power to be connected, developers can also be faced with high use of system charges due to increasingly out-of-date charging methodologies, resulting in a system that penalises investors trying to deliver a renewable energy development in a location where actual energy generation can take place.

A general absence of transparent dynamic modelling also means the grid system is frequently over-engineered for assets connected to it whilst, at the same time, limiting further connections based on a very narrow band of potential peak generation that does not always match a real-world situation. In short,

contracted generation isn't necessarily aligning with actual generation.

NESO is already pursuing improvements in queue management (offering Transmission Equivalent Capacity amnesties allowing energy generators to terminate or reduce their TEC without penalty), as well as better enforcement of connection agreement milestones. The CP30 criteria for renewables on a zonal basis will help a great deal but there will be winners and losers here, and it is important that post 2030 is considered quickly also.

However, an additional flexible approach that could see significant benefits for all developers – including smaller, more innovative companies – could be for partial capacity to be awarded that would enable developers to fast-track their projects (with additional capacity granted as the project develops and grid allows). Such an approach could free up a lot of projects in a congested marketplace, rather than the current stringent either/or approach that is leaving many developers and investors in limbo. <https://eclipsepower.co.uk/>

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CUTTING ENERGY RED TAPE: WHY IT'S MORE IMPORTANT THAN EVER FOR THE GOVERNMENT TO LISTEN TO BUSINESS

Since the Labour government came into power, there has been much debate about whether its environmental and economic growth strategies are at odds with each other.

In a speech earlier this year, Chancellor Rachel Reeves described net zero as the 'industrial opportunity of the 21st century', and that there would be no 'trade off' between economic growth and net zero.

However, since she made that statement, there have been rumours of cuts to the budget for the Department for Energy Security and Net Zero's (DESNZ) flagship Great British Energy project and ongoing rumblings about whether net zero by 2050 is a viable target.

It should be said we fully support the ambitions outlined in its Clean Power 2030 Action Plan. Although ambitious, switching to cleaner energy sources is absolutely necessary. In addition, net zero by 2050 is non-negotiable, and there are huge commercial, reputational as well as environmental benefits for businesses who embed sustainability into their operations.

The recently published Planning and Infrastructure Bill also pledges to unblock the planning process for major infrastructure projects, such as renewable energy schemes.

However, do these reforms go far enough to support UK businesses and the challenges they are facing right now?

RED TAPE – OUR CHALLENGE TO GOVERNMENT

Last year, our Business Energy Tracker asked businesses where they would most value support from the government. Reducing planning red tape was top of this list, so it is great to see steps in a positive direction where this is concerned.

Anthony Ainsworth, Chief Operating Officer, npower Business Solutions



They also called for more grants and tax incentives to help them install measures such as energy efficiency and on-site generation, as well as highlighting the increasing number of non-commodity costs that are having a huge impact on the amount they are paying for their energy.

Using this insight, we then launched our 'Red Tape Challenge', asking businesses what energy and net zero policies and regulations they would like to see cut – or at the very least reviewed – to support their sustainability ambitions and give them the confidence for future investments.

More than 900 respondents took our survey, highlighting that businesses really want to be heard.

So, what did businesses call for?

Again, planning rules, non commodity costs and grid constraints were high on the list, as well as concerns around the impact of the Review of Electricity Market Arrangements (REMA) and questions around the effectiveness of schemes such as the Energy Savings Opportunity Scheme (ESOS).

Despite the positive moves made by the government since the General Election in July, such as ending the defacto ban on offshore wind, increasing the budget for Contracts for Difference, and publishing the Clean Power 2030 Action Plan, businesses are clearly concerned that energy policy for the here and now is not going far enough to give them the confidence to invest.

This is coming against a backdrop of anti-net zero sentiment, with many high profile cases of businesses either rolling back, or completely scrapping, net zero

targets as they seek to mitigate their risk against other economic pressures.

To feed this back to government, I produced a letter and recorded a video for Sarah Jones, Minister of State at both DESNZ and the Department for Business and Trade. In it, I outline the results from our research, and urge her and her colleagues to listen to what businesses have to say. Working in partnership with businesses to shape future energy and net zero policy decisions is more important than ever.

MAKING CLEAN POWER A REALITY NEEDS BUSINESS SUPPORT

2025 will be a year when major change needs to happen if the Clean Power 2030 target and wider net zero by 2050 ambition are to be met. Businesses will play an important role in both of these, particularly when it comes to low carbon investments.

So, while a clean power system and net zero driven economy that encourages greater private sector investment will be crucial in the important years ahead, in the short term, businesses desperately need policy clarity and simplification.

With several major policies and strategies set to be published this year, including the Industrial Strategy and the Great British Energy Act, we will continue to work closely with government to ensure they deliver for UK businesses. Because, when it comes to energy and net zero, it is absolutely vital that the voice of business is heard.

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THE ROLE OF DISTRIBUTION NETWORK OPERATORS IN DOMESTIC RETROFIT

Since the introduction of PAS2035 in 2019 the mantra of domestic retrofit has been *fabric first*.

With space heating accounting for around two thirds of a typical home's energy load (<https://www.gov.uk/government/statistics/energy-consumption-in-the-uk-2024>), reducing that load by trapping as much heat inside the building as possible makes good sense; especially when it has the bonus of increasing thermal comfort, tackling chronic cold, and reducing the risk of damp and mould.

In the fabric first approach only once the building's thermal efficiency is optimised should grid connected technologies such as solar PV, heat pumps, and batteries be considered.

Take a scenario of a single dwelling undergoing a programme of deep retrofit. External wall insulation (EWI) is installed along with roof and floor insulation in the first phase, completely insulating the thermal envelope of the building.

Here we might have our first interaction with the distribution network operator (DNO). In an example where best practice is followed, wall-mounted meter boxes would be relocated at the start of the first phase to avoid thermal bridging in the wall insulation. This is often a thorny issue, as moving meter boxes can cost upwards of £1,000, and the waiting list can be several months.

Also, the cost and response time varies from distribution network operator to distribution network operator with no standardised approach. As a result, meter boxes are often left in situ and uninsulated, which can cause a thermal bridge leading to patches of black mould on the internal wall.

In a second phase of retrofit, zero/low carbon technologies such as air source heat pump (ASHP), solar PV, and a battery array might be installed. The interactions with the distribution network operator here would be minimal: assuming an inverter of <3.68kW has been installed, a single G98 notification for the PV, heat pump, and batteries would be submitted by the installer up to 28 days after the commissioning date.

However, this picture changes when we move to retrofitting at scale, as is often the case in social housing schemes like the Social Housing Decarbonisation Fund (SHDF).

At Salix we act as delivery agent for the fund on behalf of the Department for Energy Security and Net Zero. Much of

Dean Firth, Senior Technical Manager, Salix



my work is involved in supporting grant recipients in the journey to net zero.

My job allows me to use my experience in retrofit to support colleagues at the Department and the delivery partner in understanding the real-world challenges of delivering retrofit. I find that my technical knowledge and expertise in industry practices goes a long way in providing context and insight to key decision makers.

In these schemes a social housing provider will apply to the government grant funding scheme to deliver retrofit at scale across their housing stock. The social landlord grant recipient might own all the houses on a street. In this instance it would make very good sense, due to the economies of scale, to retrofit the whole street at the same time.

Moving the heating load of a whole street from gas to electricity might very well overburden the local grid, which is likely to be old if the houses it serves are being retrofitted. In the same way, the unpredictable power fluctuations from a whole street of small solar arrays might be too much for the existing grid to handle. That is to say that the local substation and the electrical cables running to the houses would have to be radically overhauled to facilitate this upgrade.

Complicated, expensive, and time-consuming applications would have to be

negotiated ahead of any large-scale install, and the cost of submitting the applications, as well as designing and delivering the grid upgrades will usually fall to the social housing provider. This is an externality which is not factored into the grant funding structure.

The result is that large-scale retrofit schemes at a single geographical location often radically scale back or forego entirety grid connected technologies.

There is no one clear solution to this multifaceted issue, but joined-up thinking on the issue is certainly required. Dedicated domestic retrofit teams at distribution network operators might help. Another consideration might be adapting the structure of grant funding policy to allow for the cost of local grid reinforcement to be covered. Maybe the Great Grid Upgrade (<https://www.nationalgrid.com/the-great-grid-upgrade>) should take large-scale domestic retrofit into account, as it upgrades the grid to accommodate large scale renewables onto the UK grid.

I'm passionate about retrofit, and especially in social housing, which I see as a chance to deliver real change at real scale.

Through my work at Salix, I hope to be a meaningful part of that change. This is a fascinating industry to work in, where every day we help to lift people out of fuel poverty as well as to drive down carbon emissions. www.salixfinance.co.uk

NEW

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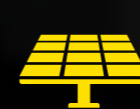


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HOW AN 11-DAY ENERGY AUDIT UNCOVERED LONG-TERM SAVINGS

It's easy to talk about the potential of power and energy loggers (PELs), how they help track energy usage, highlight inefficiencies, and save costs. But how do they perform in real-world conditions? *Julian Grant, General Manager at Chauvin Arnoux UK, shares practical insights which were revealed during an 11-day energy monitoring session at a secondary school in Kent.*

Most organisations and businesses are used to working with tight budgets, but schools are probably dealing with some of the tightest ones out there. So, it's crucial to get the most out of every (£) pound they spend. And since energy bills take up a large chunk of their budget, focusing on energy efficiency becomes a top priority.

That's why we partnered with a secondary school of 700 students to carry out an in-depth energy audit. The goal? To identify opportunities for improving efficiency and cutting costs.

The school's governors were keen to take action, so we decided to install a Chauvin Arnoux three-phase power and energy logger at the school's main incoming supply. This would give us the data we needed to spot areas where savings could be achieved.

This innovative data logger uses flexible current transformers, clamp-on connections, and a magnetic base

for quick and easy mounting. Thanks to its design, it was installed with minimal disruption. The device was left in place for eleven days, capturing a complete set of data from both school days and weekends.

The results were both insightful and practical. One of the key findings was a significant imbalance in phase currents, as shown in Figure 1. The peak current on one phase reached 219.2 A, compared to 172.8 A on the second phase and 150.3 A on the third, which highlights a clear issue with how the school's loads – mostly single-phase are unevenly distributed across the phases. This is undesirable as imbalance increases the current in the neutral conductor and can result in excessive heating. Current imbalance

can also lead to local voltage imbalance at various points in the installation, which may affect the efficient operation of three-phase loads like motors.

Also notable was the high level of harmonics in the supply system. As seen in Figure 2, the third and fifth harmonics were particularly high. Given the growing numbers of 'electronic' loads in today's schools, it's not surprising.



Personal computers, office equipment and LED lighting tend to introduce third harmonics, while uninterruptible power supplies (UPSs) and servers are a common source of fifth harmonics. That said, harmonics can still pose a risk as they may cause unexpected heating in neutral conductors and can interfere with the proper functioning of electronic equipment.

Perhaps the most surprising discovery from the logged data can be seen in Figure 1. As would be expected, peak current usage occurs during regular school hours when the building is occupied. But what really stood out was that even during evenings and weekends, when the school was closed, around 30 A per phase were still being drawn. While some of this probably relates to things like emergency lighting and is therefore unavoidable, the overall figure was unexpectedly high.

The school then investigated this out-of-hours consumption and found that the portable electric space heaters, which were being used to supplement the poorly performing HVAC system in part of the school, were often being left on during the night and at the weekend.

This turned out to be a classic example of a quick, zero-cost energy saving opportunity. The solution? Simply encouraging teachers to be more mindful about switching off heaters at the end of the day.

One final parameter that was carefully evaluated during the monitoring period was power factor, but this was found to be good at all times, with little opportunity for further improvement. This was probably because the school had few inductive loads, and those were balanced out by capacitive loads such as LED lighting. But in other settings, including other schools, the situation might be very different. That's why it's always important to pay close

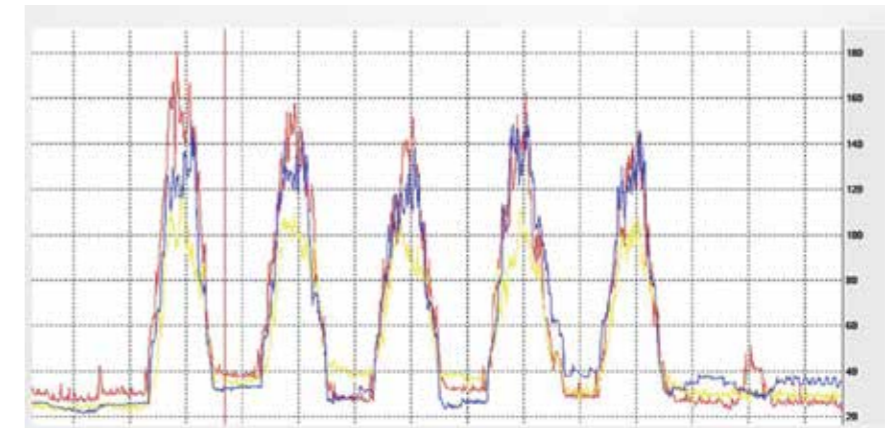


Figure 1

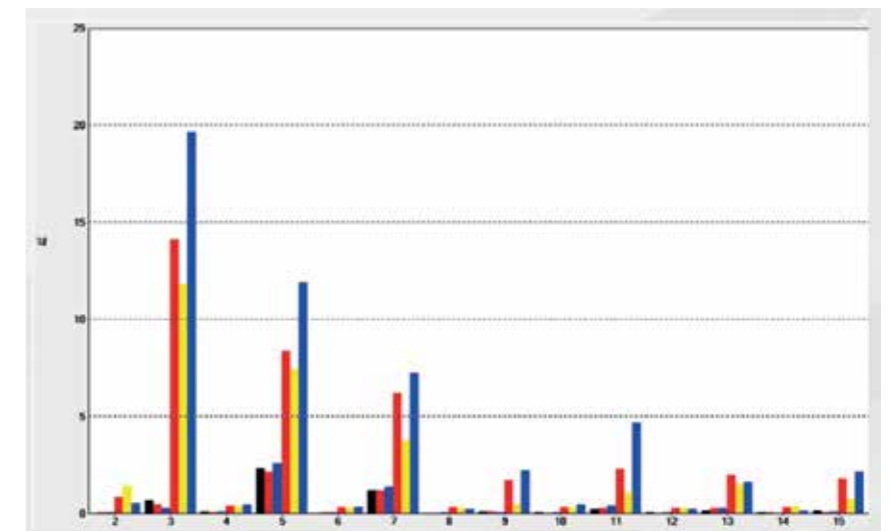


Figure 2

attention to power factor results during any energy monitoring exercise.

Moreover, this data logging activity delivered clear, actionable recommendations that promise significant benefits moving forward.

Switching off portable heaters outside of school hours has already been put into action, though it's only a temporary fix. In the long term, far greater energy savings are expected by upgrading the school's HVAC system. The goal is to improve overall efficiency to the point where portable heaters are no longer needed at all. There may be other unnecessary out-of-hours energy loads too like lights and computers left on when no one's around. The school can further investigate and consider simple solutions, such as occupancy sensors for lighting and timed switches to automatically power down computers at the end of the day.

Next, high levels of harmonics certainly need to be addressed. It would be beneficial to identify

the individual sources and, where necessary, fit filters. The result will be cleaner supplies, reduced cable heating and longer equipment life.

Lastly, the school can look at redistributing single-phase loads on the power system to provide better balance between phases. Again, this would reduce heating in neutral conductors, and help ensure that any three-phase loads on the system operate efficiently.

Monitoring power quality and usage at the school in Kent turned out to be a straightforward and low-cost exercise that had zero impact on day-to-day operations. What it did deliver, however, was a wealth of valuable insights that will help the school use electricity more efficiently and cut down on energy costs. So, to answer the question raised at the start: are power and energy loggers useful in real-world settings? Absolutely. They're an incredibly effective for identifying energy-saving opportunities. <https://www.chauvin-arnoux.co.uk/>

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Happy Customers

But you don't have to take Chris's word for it. Simply read what the Gypsy and Traveller Team Manager for West Sussex County Council had to say:

"Working with Energy Controls, we have introduced a new cashless PayPoint system for the SMART meters at our Traveller Sites. This system has been a huge improvement for the Council because not only does this mean our staff no longer have to handle cash, the PayPoint service gives our residents greater flexibility and independence. I would not hesitate in recommending Energy Controls and their products and services."

The Manager at Southend YMCA went even further:

"Energy Controls supply 21st century thinking and a great web based service, with lots of useful functions, allowing you to see how much energy has been consumed on an individual basis. We highly recommend Energy Controls to any business. The whole experience of having the latest metering system installed was too good to be true and very straightforward."

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ENERGY
CONTROLS

BENCHMARKING INSIGHTS FROM HEATING AND ENVIRONMENTAL DATA

The importance of understanding heating and environmental conditions in student accommodation has grown significantly. Rising energy costs, increasing awareness of sustainability, and the need to ensure student wellbeing, mean providers are turning to data-driven solutions to optimise their living spaces. The challenge lies not in collecting data – modern sensors and smart devices do this continuously – but in extracting meaningful, actionable insights from that data.

Student rooms generate a vast array of data points. Temperature, humidity, sound pressure, CO₂ levels, occupancy patterns, and heating system performance can all be tracked. These data streams provide a real-time snapshot, helping providers ensure comfort, promote energy efficiency, and identify potential maintenance issues before they escalate.

However, raw data is rarely immediately useful. For example, a temperature sensor might report fluctuations throughout the day, but without context, it's unclear whether those changes indicate a problem, or are just normal daily cycles. That's where data analysis and contextualisation come in.

Sensors can produce noisy or incomplete data – perhaps due to connectivity issues or equipment faults. A system such as Iirus draws on vast datasets and aligns information from different sources, such as correlating temperature readings with timestamps and room occupancy to provide sensible insights.

IDENTIFYING PATTERNS

The data is analysed to identify trends and anomalies. Time-series analysis helps detect patterns over days, weeks, or even seasons. For instance, if a particular room consistently shows lower temperatures than the rest of the building, it may indicate poor insulation or a malfunctioning heat source. Alternatively, if occupants frequently open windows in winter, it might point to overheating or poor ventilation.



Clustering groups of rooms with similar environmental characteristics, helps facilities teams prioritise maintenance. And unusual behaviour can be flagged – like higher room temperatures than the system is set to – signifying the use of supplementary heaters.

COMBINING ENVIRONMENTAL DATA WITH BEHAVIOURAL INSIGHTS

To extract meaningful information, environmental data should be combined with behavioural and usage data. Intelligent thermostats with multi-sensors offer a fuller picture. For example, linking low room temperatures with room absence, this can help differentiate between a technical issue and an intentional energy-saving decision.

Additionally, integrating data regarding student comfort can ground quantitative findings in real-world experience. If multiple residents report discomfort in certain rooms, data analysis helps pinpoint the root cause and validate the claims with hard evidence.

PRACTICAL APPLICATIONS AND OUTCOMES

With the right analysis, operators of buildings can achieve significant outcomes:

- **Energy Efficiency:** Identifying overheating zones and optimising heating profiles can reduce energy consumption and costs.
- **Improved Comfort:** Monitoring CO₂ levels, ventilation quality,

and humidity ensures students have a healthy indoor environment, which is essential for concentration and wellbeing.

- **Preventive Maintenance:** Detecting irregularities in heating systems early, and pinpointing the exact location of issues, allows for proactive maintenance, reducing downtime (and search time) and costly emergency repairs.
- **Informed Planning:** Long-term data trends can inform renovations, retrofits, and even the design of new buildings to meet sustainability goals. Not to mention the procurement of utilities.

IIRUS BENCHMARKING

Software tools within the Iirus ecosystem make all this possible. With more than 75,000 Controls across 150 sites the dataset is of a significant magnitude to enable geographical or building type/age benchmarking for your property. This will return meaningful insights and recommendations for optimising both energy and operational efficiency.

This is a real step towards smarter, more sustainable, and student-centred environments. By turning raw sensor data into actionable insights, providers are making evidence-based decisions that improve the student experience and their own efficiencies. The key is in connecting the dots: contextualising, analysing, and acting on the data with a clear purpose. www.prefectcontrols.com

LIGHT MONITORING DASHBOARDS: A REVOLUTION IN ENERGY MANAGEMENT

With ever increasing energy prices and continuing sustainability targets to meet, finding new ways to help optimise energy use in buildings are a welcome development for property owners and operators alike.

In the lighting arena, one new innovation is promising just that: light monitoring dashboards.

Paired with smart lighting systems, light monitoring dashboards are a brand-new technology that can provide users with the extensive insights needed to manage lighting use intelligently and effectively.

Providing comprehensive insights into a building's lighting infrastructure at a glance, they act as a 'hub', collecting real-time information from smart fittings and presenting them in a user-friendly interface to provide full visibility of the lighting infrastructure at a glance.

Recording and storing details such as energy consumption per fixture, occupancy patterns, brightness levels, temperature/environmental conditions around fixtures and maintenance alerts, they are enabling lighting environments to be monitored, managed, and optimised like never before.

From an energy management perspective, light monitoring dashboards are a complete game-changer, providing operators with the ability to reduce energy use from both lighting in operation, as well as an organisations wider carbon footprint.

Light monitoring dashboards can be used to provide real time data on energy consumption, offering granular insights into how, when, and where energy is being consumed. This insight is not limited to single buildings but can be used to view connected installations across multiple buildings and estates.

Users are able to track patterns, identify inefficiencies, and make data-driven adjustments as required. For example, businesses can pinpoint underutilised areas where lights have been left on unnecessarily, or access information on peak usage times to adjust their schedules accordingly. This capability not only enhances energy efficiency but also reduces carbon emissions, supporting broader sustainability initiatives.

There's a new technology setting the lighting field alight. Promising easy and efficient energy optimisation, reduced costs and streamlining maintenance and reporting processes, it is revolutionising management of the built environment. We spoke with Chris Anderson, Technical Manager at Ansell Lighting who reveals more about this game-changing innovation and its potential to transform energy use associated with lighting.

Maintenance and management procedures can also be greatly streamlined with the introduction of light monitoring dashboards again supporting carbon footprint reduction. By providing a central hub to track the performance of all smart lighting fixtures, the need for in-person manual inspections is eradicated. Similarly, the statutory testing of emergency and non-emergency luminaires can also be carried out at the touch of a button without the need to make an in-person visit to site. This is particularly useful over multiple building campuses and estates, minimising the use of vehicles and reducing associated carbon emissions and energy consumption.

The technology can also help improve factors such as product longevity, again improving sustainable practices within the organisation. For example, temperature readings might reveal a light fitting is installed too close to a heat source which can lead to overheating and premature wear. By identifying such issues early, operators can make necessary adjustments, such as relocating the fixture or addressing the heat source, helping to prevent damage and extend the fixture's lifespan. This proactive approach not only reduces maintenance costs but also minimises waste by ensuring products are used to their full potential.

Whilst not directly related to energy



use, another major benefit of light monitoring dashboards is that they act as a central hub on which all lighting data and reports can be accessed and stored. This greatly simplifies reporting procedures and means that the status of every lighting device can be viewed in one place. This is extremely useful for those responsible for energy management within organisations, streamlining reporting procedures and ensuring accurate information is readily available whenever it may be needed.

Considering that lighting generally accounts for between 20 and 40% of a company's electricity use, technology that can support energy optimisation has the potential to make a huge impact. As organisations continue to work towards net zero, every kilowatt of energy used counts.

Light monitoring dashboards are a powerful tool available to energy managers that can help them to make meaningful reductions to energy use, cut operational costs, and achieve ambitious sustainability goals. Unlike traditional methods of managing lighting – such as manual controls and standalone systems, the technology provides actual, real-time data, giving organisations the ability to make more informed decisions that will have a real impact on consumption and will support the wider achievement of environmental, social, and governance (ESG) targets. <https://ansell-lighting.com/>

SMARTER PRICING FOR ALL THANKS TO MARKET-WIDE HALF HOURLY SETTLEMENTS

The need for energy meters in public sector buildings to adhere to the Market-wide Half Hourly Settlement (MHHS) rules set out by Ofgem is inching ever closer. It is important to remember that this migration is more than simply a technology upgrade; it signifies a move towards a more adaptable, responsive, and sustainable energy framework. By giving energy managers more control, promoting innovation, and encouraging collaboration, MHHS sets the stage for a future where achieving net zero is not just a goal, but a tangible reality.

POWER BACK IN THE HANDS OF THE PUBLIC SECTOR

In many ways, this overhaul puts the power back in the hands of public sector businesses and provides greater awareness of energy consumption than ever before. Through the new breed of associated smart meters and the innovative time-of-use tariffs

What is MHHS?

Market-wide Half Hourly Settlement (MHHS) is the new electricity market arrangements that will enable the flexibility to support transition to Net Zero. A shorter and more accurate Settlement timetable using Half Hourly meter readings for settled energy will support a cost-effective electricity system, encourage flexible use of energy and help lower bills. The MHHS Programme is an industry-led programme established to deliver the Target Operating Model and aims of the Electricity Settlement Reform Significant Code Review (SCR). This will see meters migrate to a new topline to comply with the changes. MPANs will migrate in phases by supplier. The suppliers are going through a qualification process, and this will determine when the MPAN is migrated.

David Sheldrake, Global SVP of Sales360, POWWR



that will surely become available, energy managers will be able to make more informed decisions about when and how they use energy. This will not only help lower energy bills but lead to greater grid stability.

But it will in no way be an easy operation. Around 30 million meters will need to move over to the new MHHS Target Operating model, with 2.6 million of those being within businesses.

WORKING HARDER TO GET SMARTER

Smart meters have been replacing traditional gas and electricity meters across the UK for almost a decade and a half. They make the energy system more flexible, boost efficiency, help in the move towards more renewable energy sources, and reduce energy consumption. Yet, despite these proven advantages though, moving customers to them has been tricky. According to the most recent data there are around 32.4 million smart and advanced meters in the UK, representing just 57% of all meters. That means that the energy industry is having to work doubly hard to convince the remaining 43% to rip and replace any meters that are not MHHS compatible.

A TIMELINE FOR SUCCESS

There are several significant milestones that have been set out by Ofgem. Here is a summary of those still to come so that you can plan accordingly:

- September 2025 – The industry needs to be ready to change the Top Line Supply Numbers and migrate meters to be half hour ready. No physical meter changes are expected at this point, however terminology on bills will change. The migration of meters to half hour will be phased in two waves.
- March 2026 – For the meters that are unable to be switched to half hour, suppliers will have to

engage with consumers to make physical changes or replace meters to align to MHHS.

- May 2027 – The date by which all eligible meters need to be switched.
- July 2027 – Timeline complete and all meters can be half hour settled. All other electricity profile class (01-04) will no longer exist.

THE BENEFITS ARE NUMEROUS

The benefits of MHHS are numerous. Perhaps the most important, however, is that it will boost accuracy and stability. Through MHHS energy managers – and the industry as a whole – will have access to more granular data. This will lead to pricing with enhanced accuracy based upon true market conditions. The increased data will also likely lead to innovation in product offerings and a more stable grid.

BECOMING ACTIVE CONTRIBUTORS

2025 will be see a ramp up in efforts to ensure both pricing and settlements become better aligned in the future. However, the overall roll-out will likely take another couple of years. During this time, there will be a teething period where public sector businesses and the energy industry alike need to become familiar with the required top line changes to the meters and what the new associated terminologies mean.

However, it is surely a price worth paying. The move to MHHS will ensure that energy managers can ensure that their businesses are no longer passive recipients of energy but become active contributors in a dynamic ecosystem. Becoming empowered to shape their own energy futures through participating in more dynamic pricing schemes and time-of-use tariffs. <https://www.powwr.com/>

EMERGING TECHNOLOGIES FOR SUSTAINABLE STEAM GENERATION

The Future of Steam: Reducing Carbon & Cutting Costs



As industries across the UK and Ireland strive towards Net Zero, the way we generate and use steam is evolving. Steam remains the backbone of countless manufacturing and process operations, but emerging technologies are reshaping its sustainability and efficiency. The good news? Cutting carbon doesn't have to mean cutting into profits. With the right solutions, businesses can reduce emissions and drive long-term cost savings simultaneously.

HOW STEAM TECHNOLOGIES DELIVER CARBON REDUCTION & COST SAVINGS

Decarbonisation is high on every agenda but achieving it while maintaining operational efficiency and managing costs can be a challenge. Fortunately, the latest steam generation technologies are proving that sustainability and financial viability go hand in hand.

1. HIGH-EFFICIENCY BOILERS & ALTERNATIVE FUELS

Traditional boilers are being replaced or upgraded with high-efficiency models that significantly reduce fuel consumption and emissions. The integration of hydrogen-ready and biofuel-compatible boilers allows businesses to transition smoothly towards greener energy sources without major overhauls.

Modern condensing boilers can achieve efficiencies of over 95%, capturing latent heat from flue gases that would otherwise be lost. Meanwhile, alternative fuels such as biogas, synthetic methane, and green hydrogen offer viable pathways to significantly reduce carbon footprints while ensuring energy security.

2. ELECTRIFICATION OF STEAM GENERATION

With grid decarbonisation advancing, electric steam boilers are an increasingly viable option. They eliminate combustion-related emissions and offer precise control, making them an excellent fit for sites with access to renewable electricity or carbon-free energy contracts.

Advances in electrode boiler technology enable rapid steam generation with high energy efficiency, reducing the reliance on fossil fuel-based generation. Coupling electric boilers with renewable energy sources or battery storage solutions can further enhance their sustainability credentials.

3. HEAT RECOVERY & REUSE

Capturing and repurposing waste heat is one of the most cost-effective ways to improve steam system efficiency. Technologies such as economisers, flash steam recovery, and condensate return systems help businesses reduce energy demand while lowering fuel costs and emissions.

- Economisers recover heat from exhaust gases to preheat feedwater, improving overall thermal efficiency.
- Flash steam recovery captures excess steam from condensate return systems, reducing energy waste and fuel consumption
- Condensate return systems recycle hot condensate, reducing water and chemical treatment costs while enhancing system efficiency.

4. SMART STEAM SYSTEM CONTROL & DIGITALISATION

Advancements in digital steam management provide real-time insights into system performance, allowing operators to optimise usage, detect inefficiencies, and prevent costly energy losses. Smart monitoring ensures that steam is used precisely when and where it's needed, minimising waste and maximising efficiency.

The integration of Industrial Internet of Things (IIoT) sensors, AI-driven analytics, and cloud-based monitoring platforms enhances visibility into steam systems. These technologies enable predictive maintenance, reducing unplanned downtime, and improving overall equipment lifespan.

BALANCING CAPEX & LONG-TERM OPEX BENEFITS

Investing in sustainable steam

generation requires careful consideration of both capital expenditure (CAPEX) and operational expenditure (OPEX). While some emerging technologies may require upfront investment, the long-term returns often far outweigh the initial costs.

- Energy cost savings: Reduced fuel consumption and optimised steam usage lead to significant cost reductions over time.
- Lower maintenance costs: Advanced, high-efficiency systems require less maintenance and experience fewer breakdowns, minimising downtime.
- Regulatory compliance & futureproofing: Investing now in low-carbon solutions helps businesses stay ahead of evolving environmental regulations and avoid potential carbon taxation.
- Enhanced operational efficiency: Smarter steam systems improve process performance, reducing waste and enhancing productivity.
- Financial incentives & funding: Various government grants, carbon credit schemes, and tax incentives can help offset CAPEX investments in sustainable steam technologies.

MOVING FORWARD: A SUSTAINABLE, COST-EFFECTIVE STEAM FUTURE

The transition to sustainable steam generation is not just about meeting environmental targets – it's about future-proofing operations for efficiency, cost savings, and long-term resilience. Whether through electrification, waste heat recovery, digitalisation, or alternative fuels, businesses have a range of options to achieve decarbonisation while maintaining financial sustainability.

At Spirax Sarco, we're committed to helping industries optimise their steam systems for a greener future. Our experts can assess your current steam infrastructure, identify efficiency opportunities, and provide tailored solutions that align with your sustainability and financial goals.

Speak to our specialists today to explore the right steam technologies for your business. www.spiraxsarco.com



SHINING A LIGHT ON SOLAR CARPORTS

Local authorities face a familiar paradox: land is at a premium, yet the imperative to deploy renewable capacity grows more urgent. Rooftop solar continues to be a mainstay of councilled decarbonisation, but many towns and cities lack enough contiguous roof area or sites for groundmounted farms. Solar carports have emerged as a practical, high-impact solution, transforming existing parking estates into low-carbon generation hubs without requiring additional land allocation.

THE GROWING CASE FOR CAR PARK PHOTOVOLTAICS

Solar PV in the UK has expanded rapidly in recent years: between January 2024 and January 2025, installed

Sandeep Kang, Senior Product Manager at Energy Systems Catapult

capacity rose by over 1.15 GW, taking the national total to almost 17.9 GW. In 2023 alone, solar generated roughly 27.2 TWh of electricity, equivalent to around 10% of Britain's annual demand. Yet this impressive growth belies an even larger untapped resource, our 629,000 plus public and private parking spaces. Research indicates that equipping just half a million suitable parking bays with canopies could yield an additional 1.57 GW of capacity and over 1,450 GWh of clean energy each year.

For local authorities, the appeal of

solar carports extends beyond raw generation figures. Parked cars stay cooler under PV canopies, reducing urban heat island effects and vehicle airconditioning loads. Canopies can be designed to integrate electric vehicle (EV) charging infrastructure, tackling two pillars of climate policy – clean electricity and transport decarbonisation – simultaneously. Moreover, because car parks sit adjacent to existing distribution networks, grid connections often require minimal reinforcement, keeping project development costs in check.



A COUNCILLED PILOT: FROM PLAN TO CANOPY

A leading local authority recently demonstrated an innovative approach in exploring alternative solar deployments. Following the completion of its Local Area Energy Plan (LAEP), the authority was keen to advance the identified sustainability pathways despite facing the common urban challenge of limited suitable land for traditional solar farms.

The authority already possessed an impressive record in renewable energy, with an operational solar farm, a hydro scheme, and a heat network under development. Yet it recognised that meeting ambitious Net Zero targets required a different strategy.

To identify suitable locations for solar carports, the authority partnered with Energy Systems Catapult for a data-driven solution. Through the Net Zero Data product, a comprehensive dataset was developed. The dataset identified existing car parks potentially suitable for solar carport installation and estimated

the potential energy generation capacity at each site. The data also assessed the electricity network capacity in the surrounding areas and reported on available headroom at nearby substations.

This approach enabled the authority to quickly evaluate and prioritise potential sites based on reliable, up-to-date information. The bespoke dataset was delivered within two months, a pace considerably faster than traditional consultancy methods.

QUANTIFYING THE NATIONAL OPPORTUNITY

Energy Systems Catapult's Net Zero Data has mapped over 252,996 council-owned car parks across Britain comprising 201,760 sites in England, 13,541 in Wales and 31,888 in Scotland. Together, they represent up to 24 GW of deployable PV capacity, with estimated annual generation of 23 TWh (18.75 TWh / 1.23 TWh / 2.11 TWh respectively). Even installing canopies on just the top 5% of these sites would yield around 1.6 GW of capacity and 1.5 TWh per year, enough to power over 400,000 average UK homes. Expanding to 10% coverage boosts figures to almost 2.9 GW and 2.75 TWh annually.

To put these numbers in context, National Grid's Future Energy Scenarios forecasts UK electricity demand growing to between 533 TWh and 700 TWh by 2050. Even at the lower bound, fully utilising just 5% of council car park potential could contribute nearly 0.3% of future demand, an appreciable slice for a single asset class, achieved without eating into urban land budgets.

BUILDING THE BUSINESS CASE

The financial and operational rationale for solar carports is compelling:

- **Reduced energy costs:** Onsite generation can be consumed behind the meter, lowering wholesale purchases for council buildings, leisure centres and street lighting.
- **New revenue streams:** Surplus exports can be sold into the wholesale market or via private wire arrangements, attracting thirdparty investment and lowering capital outlay.
- **EV charger integration:** Bundling PV with charging infrastructure increases utilisation rates potentially reducing the cost of the electricity being supplied to the chargers by using onsite generation, generating greater margins on charging revenues, and strengthening a project's overall return.
- **Maintenance synergies:** Colocating PV arrays with council maintenance

depots can streamline O&M schedules and share security infrastructure.

Capital costs for canopy installation vary by site complexity, but innovative financing models such as leasepurchase, green bonds or energyperformancecontract structures, can mitigate upfront expenditure. By demonstrating predictable, long-term cash flows from energy savings and export revenues, councils can secure competitive borrowing rates or attract solar investors.

OVERCOMING CHALLENGES

Despite the clear upside, solar carports have not yet become ubiquitous. Key barriers include:

1. **Data gaps:** Without granular intelligence on roof geometry, shading and local network headroom, councils may err on the side of caution or abandon studies prematurely.
2. **Grid interface complexity:** Early engagement with Distribution Network Operators (DNOs) is essential to understand reinforcement requirements and avoid latestage surprises.
3. **Planning and heritage constraints:** In conservation areas or listed sites, canopy design may need to be sensitively tailored to local character.
4. **Internal capacity:** Many authorities lack inhouse technical expertise to scope, procure and manage bespoke solar canopy projects.

By partnering with bodies such as Energy Systems Catapult, councils can access turnkey data solutions that streamline each phase of delivery. This collaborative model reduces reliance on lengthy, high-cost consultancy engagements and embeds best-practice insights directly into local decisions.

LOOKING FORWARD

As renewable deployment intensifies and urban demand for EV charging grows, solar carports stand at the nexus of energy and transport decarbonisation. By adopting a data-driven framework councils can rapidly mobilise projects that deliver clean power and cost savings.

Net Zero Data crystallises this opportunity, offering councils the insights to prioritise high-value sites and build robust business cases. With careful planning and innovative financing, the car park canopy can become a pillar of decarbonisation providing tangible benefits for residents and the climate.

Want to find out more? Head to the website: <https://www.netzeromarket.org.uk/s/product/detail/01tTv00000APZw5IAH>

TOP TIPS TO LEVERAGE SOLAR IN PUBLIC SECTOR BUILDINGS

As more public sector operators turn to solar to provide clean, low-cost energy for their buildings, many energy managers are finding their roles extended to managing what's on the roof as well as inside the building. For those new to solar, this shift may feel daunting.



However, help is at hand. Here, Christelle Barnes, UK Country Manager at SolarEdge Technologies, discusses recent advancements in solar technology that help to optimise energy production, reduce O&M costs, and make solar even safer.

What are the top priorities for individuals charged with responsibility for a solar installation?

As the deployment of PV (photovoltaic) solar systems accelerates and existing systems mature, PV installations are being viewed as more than just a source of clean energy. Instead, they are regarded as long-term investments that need to be closely managed in order to improve their ROI and bottom line. As with any investment, the two main ways to improve the ROI of a PV system is to increase the revenue it provides and decrease the lifetime cost of ownership.

One of the first steps to increase PV system production happens during the design process. It's important to select a system that can meet both the site's current and future energy needs.

For example, if electric vehicle (EV) charging stations are planned, they will increase the site's electricity demand. This should be considered during design to ensure the system can handle future needs.

Advancements in solar technology, such as more efficient solar panel materials, are making it possible to pull more power from even the most challenging roof spaces. Even more important are advancements in solar inverters. Although they account for less than 10% of solar system costs, inverters are responsible for 100% of energy generation. Therefore, choosing the right inverter has significant implications for the system's long-term financial performance.

In a traditional inverter system, the inverter has two main functions: converting DC electricity from solar panels into AC electricity for buildings and performing maximum power point tracking (MPPT) to extract maximum power from the system. Since MPPT is the most expensive component of an inverter system, it's common to connect as many panels as possible to each MPPT. While this may save money initially, it creates inefficiency, leading to higher long-term costs.

This is because of the energy mismatch that occurs when panels operate at different efficiencies. There are many factors that can impact panel performance, including ageing, soiling, or shading from clouds, trees or nearby buildings. In traditional inverter systems, panels are wired in series, so if one panel's output is low, the efficiency of all connected panels is reduced, significantly lowering overall energy production.

Additionally, traditional inverter systems also require panels to be placed in identical string lengths and at the same pitch and orientation. This can limit the number of panels that can be installed and potentially make solar financially unviable.

Due to these and other limitations, there has been a notable shift from traditional string inverters to more advanced DC-optimised systems. In a DC-optimized system, Power Optimizers are installed on each pair of panels to



monitor and optimize performance at the panel level, rather than the string level. This ensures that if one panel's performance drops, only that panel is affected. Further, DC-optimized systems also provide more design flexibility, enabling larger installations on rooftops with limited space.

What are the most effective maintenance strategies to help decrease PV system lifetime costs?

The most common O&M strategies for PV systems are preventative and corrective maintenance. Preventative maintenance aims to keep the system in optimal condition and minimise downtime, typically requiring an annual site visit to evaluate components and check system health. Standard inverter systems necessitate inspecting each panel to ensure proper function, which can be costly, inefficient, and dangerous for personnel working at heights and with high voltages. During preventative maintenance, latent issues may be discovered that have led to decreased energy production, triggering the need for corrective maintenance.

DC-optimised technology introduces a third option: reactive maintenance. In a DC-optimised system, Power Optimizers monitor each panel pair's performance in real-time and send pinpointed alerts about system issues, reducing the need for site visits. This allows maintenance teams to analyse and troubleshoot remotely. For example, if a panel has a

failed diode, an alert is sent to personnel, who can quickly identify the panel and provide a screenshot for a warranty claim. This way, during the next site visit, the team can replace the failed panel, instead of only learning about its existence.

What can be done to ensure solar systems are safe – and remain safe?

With millions of systems installed worldwide, solar is proven to be safe and reliable. However, as traditional solar installations can reach voltages as high as 1,500VDC, precautions should be taken to ensure the safety of people and assets.

There are two key safety features to consider when selecting solar technology. The first is the safe-DC feature, which minimises the risk of electrocution during installation, maintenance, or in the event of a fire. In traditional inverter systems, shutting down the inverter or grid connection stops the current flow, but DC voltage in the string cables remains live while the sun is shining. Safe-DC addresses this by automatically lowering the output voltage of each panel to a touch-safe 1V.

The second feature is arc fault detection. While rare, electrical arcs can be triggered by issues like loose connections. The U.S. has strict regulations for arc fault detection, and while the UK has not yet introduced similar requirements, this is expected to change. So, it's important not to get caught out. www.solaredge.com/uk

Power Optimizers track the performance of solar panels in real-time and provide pinpointed alerts to system issues in order to reduce trips to the site and time spent on site.

PROTECTING C&I SITES AGAINST ENERGY PRICE DISRUPTION WITH A SOLAR SHIELD

Near-site solar power presents a way for UK energy managers to decarbonise their operations while insulating themselves against grid volatility.

Over the past five years, Energy Managers in the UK have had to contend with a series of seemingly intractable challenges. The country's commercial and industrial (C&I) energy market has suffered repeated pricing disruptions since the 2022 energy crisis, when record spikes in the price of natural gas almost saw UK consumers face an 80% energy price cap increase before the government stepped in.

A string of macro-scale events, outside of any Energy Manager's control, conspired to cause the recent energy price instability. Events like the Russian invasion of Ukraine disrupted natural gas and power markets in Europe. In addition, an underperforming French nuclear fleet exacerbated price increases because normally the UK buys a percentage of its power via large subsea cables called interconnectors and this supply became uneconomic. The impact of both offshore events materialized in the sustained high wholesale market energy prices, which was paid for by government, businesses, and consumers.

The prospect of insulating individual sites from pricing volatility is a routinely difficult task for energy managers, even in 2025. However, there are funded decarbonisation solutions that can act as an energy price hedge.

The UK's efforts to become a more energy independent "clean energy superpower" are progressing and renewables penetration is increasing at an encouraging rate. On April 1st, 2025, Great Britain achieved a new maximum solar generation record.

To meet the government's Clean Power 2030 goals, the country's power system will need to see "clean" energy sources produce at least as much power as Great Britain consumes in total over the whole year, with at least 95% of the power generated in the UK. Wind



Alexander Vit, Commercial Director at Clean Energy Capital



and solar need to reach approximately 80% share of the country's energy mix in the next five years to achieve this, meaning that investment into renewables innovation, research, manufacturing, and construction will be pivotal.

So far, the current government has taken encouraging actions to decrease development barriers for renewables projects. The de facto ban on new onshore wind has been lifted. Recent planning rule changes have empowered local authorities to determine smaller projects thus decreasing the cost and admin burden created by central government processes. More needs to be done to unlock investments. There is nearly twice as much solar energy capacity in planning (27 GW) as the total amount that has ever been built in the UK (15.5 GW).

However, these larger renewables projects feed power into the grid, where the benefits are realised indirectly. Data centres and UK industry need to look at direct contracting strategies to secure direct benefits. The increasing

viability of locally generated solar power presents an avenue for large power users to achieve annual energy cost savings and secure a hedge against future price disruptions. The two best technical solutions underpinning the hedge are onsite and nearby offsite renewables.

The simplest onsite solution is rooftop solar. Rooftop solar represents a significant source of growth for the UK's solar capacity. There are currently 1.6 million rooftops fitted with solar technology in the United Kingdom, with more than 200,000 non-residential buildings also having been equipped. The UK's warehousing stock has the necessary unused roof space to accommodate up to 15GW of new solar infrastructure – essentially doubling the UK's solar PV capacity as of 2023. Building out PV solar on the largest 20% of the UK's warehouses would provide 75 million square meters of roof space, avoiding the need to develop new land equivalent to the footprint of around half a million homes.

However, rooftop solar still doesn't offer material impact for larger facilities like hyperscale data centres or complex industrial sites, simply because their roofs are too small. The UK's largest power users need megawatts and gigawatts – not kilowatts. Therefore, to bypass spatial limitations, projects are often built offsite. Connecting one or more dedicated generation assets, via a private wire, to a large energy consumer's site can provide the necessary solution at scale.

From a development and delivery perspective private wire projects are faster than grid connected renewables. Grid connection queues and costly reinforcement works are bypassed because most generation is consumed onsite and by the end user. Little volume spills over into the grid, if any. Planning for such projects is often viewed favorably because the dedicated renewables asset is being built to decarbonise a large regional employer.

As the decade continues, the UK's power grid will become increasingly overloaded, leading large power users to

face potentially painful power constraints unless urgent grid upgrades are undertaken. At a business level, power from the grid must enable all energy users to pursue the decarbonisation of their business activities. Electrification of heat and transport initiatives are too often stalled or halted due to grid upgrade requirements. These costly delays or upgrades often force customers to seek on-or-near-site solutions. The emergence of new power-hungry demand segments like hydrogen electrolysis and AI Data centres creates additional grid upgrade requirements of uncertain magnitudes.

For large energy users, the renewables business case is driven by cost certainty and cost savings. Long term renewable energy supply agreements are 30% cheaper than grid electricity because private wire projects don't pay non-commodity costs. These cost savings create a defensible competitive advantage which allows eligible sites to outperform their competitors.

Though desirable, renewables projects are complicated and often create distractions for Energy Managers with competing priorities. Turnkey and funded solutions exist. Capex free solutions have the additional benefit of enabling large energy buyers to allocate scarce capital towards core business growth initiatives. Price certainty is achieved through different pricing and product structures. If the renewable asset is not generating because it's not sunny or windy, the ability to import from grid remains provides resiliency and a safety net.

The UK is on track for a clean energy future but getting there will require steep renewables adoption. In the meantime, energy managers can't afford to be at the mercy of the grid. Investing time to understand near-site renewable options is a simple step that C&I energy managers can't afford not to explore. <https://www.cleanenergycapital.co.uk/>



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TIME TO REIMAGINE COMMUNITY-LED DECARBONISATION

The way we plan, fund and deliver change in the built environment is negatively impacting the resilience and wellbeing of individuals, communities and neighbourhoods. However, changes at the neighbourhood level – specifically around decarbonisation, can make a substantial difference. *Alex Calkin*, Sustainability and Social Impact Consultant and *Elliott Higgins*, an Associate from the Energy team at Buro Happold discuss how they used the learning from their Urban C:Lab project to address these challenges head-on.

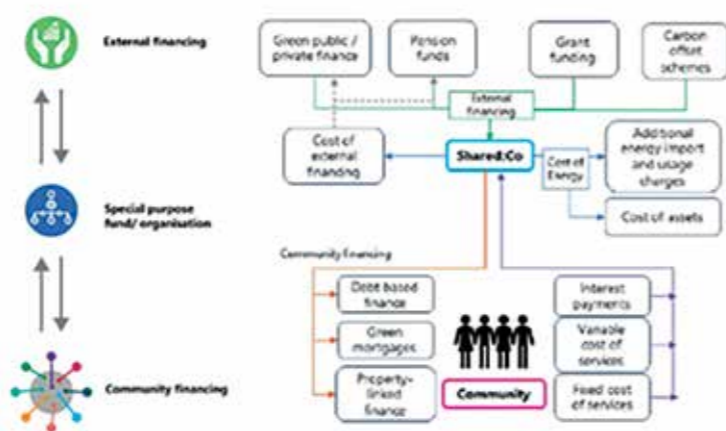
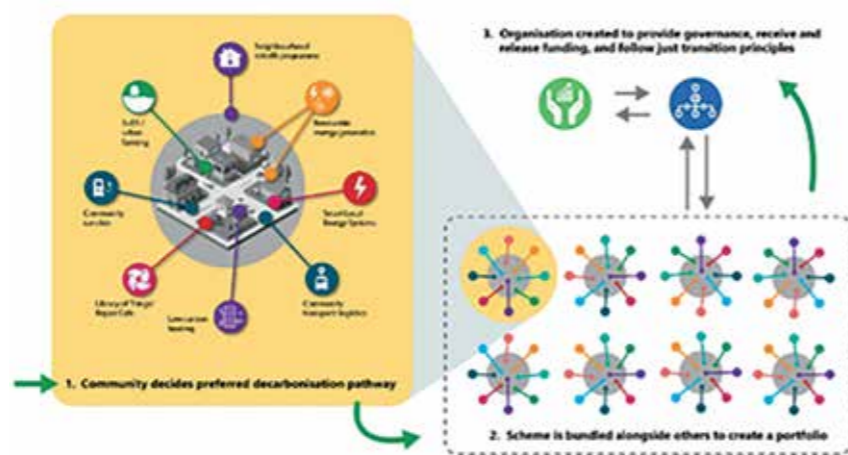


Transitioning to low-carbon heat sources, changing to electric vehicles, etc. all come with a hefty price tag. However, by shifting the perspective from 'me' to 'we' and addressing the challenge at a neighbourhood level, communities can tackle decarbonisation effectively.

SO HOW WOULD THIS WORK?

A good starting point for implementing 'Hyper:Shared' infrastructure – a methodology designed to enable community-led reimagining of neighbourhoods – would be to identify the community's specific needs. Fortunately, there are already successful examples of neighbourhood decarbonisation across the UK, from community-owned renewable energy generation to Libraries of Things, so starting from scratch wouldn't be required. Communities could also choose from a toolkit of potential interventions, including energy cooperatives, neighbourhood-wide retrofit schemes, green infrastructure, and shared solutions for transport and resources.

The next step would be to identify opportunities and eliminate barriers to shared and co-owned infrastructure and services. A key barrier to both community-led initiatives and holistic decarbonisation schemes alike is their ability to commercialise projects and secure funding. Hyper:Shared seeks to resolve this through 'bundling' various neighbourhood-level initiatives



to create and investible portfolio. Projects can then be matched with green finance initiatives, carbon offsets, biodiversity net gain credits

and other relevant funding sources. Hyper:Shared encompasses a technical assistance programme, an open-source methodology, an investible

portfolio and a governance and funding structure. The initiative would act as a bridge, assisting communities in obtaining the necessary finance to implement initiatives simultaneously within existing neighbourhoods, thereby expanding the scope and effectiveness of decarbonisation efforts.

Finally, the approach would look to ensure that money is retained and reinvested within the neighbourhoods, fostering local resilience and prosperity.

WHY NOW?

Available data shows an existing pipeline of projects that require commercialisation. There is also a surfeit of green finance looking for projects. The ideal would be to connect the two. Ultimately this can be broadened to capture a wider sweep of interventions, such as transport, green infrastructure, retrofit and resource use.

Examples include Civic Square's community-led work in Birmingham, and the Ambition Lawrence Weston CIC that delivered England's largest onshore wind turbine with 100% community ownership. Human Nature's Phoenix development in Lewes has adopted some bold principles around shared spaces and resources, as have many

Community Land Trusts. ShareOurCars in Oxford managed to create a community-run car share club that can be scaled to the level of a residential street.

At the present time smaller scale projects are not that attractive to potential investors and quite laborious when it comes to setting them up individually. This is where Hyper:Shared can respond, creating an over-arching governance to make the set-up process easier for communities, while remaining community-centric in both approach and methodology.

With rising council tax and other bills, it's necessary to realise the greater decarbonisation potential with schemes such as these, where the wealth is retained in the local area. Schemes reviewed in isolation can then be bundled together to create an investible portfolio, delivering multiple interventions at speed and executing community and stakeholder engagement for buy-in.

A critical next step will be a delivery mechanism that attracts investment to enable the viable delivery of dozens of multifaceted schemes simultaneously. The Cities Commission for Climate Investment (3CI)'s work is focussed on this issue and Buro Happold has signed up as a partner. The West Midlands Combined

Authority's Local Net Zero Accelerator Programme, currently in development also has huge potential. The funding and commercialisation mechanism they're exploring is very similar to Hyper:Shared, which is encouraging.

BENEFITS

There are four key benefits to Hyper: Shared which will have a positive impact on communities.

- 1. Greater decarbonisation potential** – decarbonise more efficiently and effectively.
- 2. Financial reward** – reduced cost of living and retainment of wealth in the local area.
- 3. Greater system resilience** – to future financial shocks and existing grid constraints.
- 4. Increased wellbeing** – positive impact on health, participation, and equity.

WHERE NEXT?

Immediate action around the climate crisis is essential. While this methodology is currently high-level, Calkin and Higgins are actively seeking collaboration partners to co-create processes and projects. www.burohappold.com



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RINNAI HYBRID HEAT PUMP SYSTEM AT LUXURY HOTEL COMPLEX IN THE CITY OF LONDON

Rinnai provides Practical, economic & technical solution with Low-GWP 50kW Heat Pump, bespoke thermal stores, Plate Heat Exchangers and ten cascaded I2HY20 Hydrogen-ready continuous flow water heaters new development opened in the heart of Farringdon district of London.

On a luxury hotel development complex in the heart of the fashionable Farringdon district near the City of London, Rinnai's Hybrid water heating H2 array of Low-GWP 50kW heat pump plus bespoke thermal water stores, with optimised coil transfer to maximize heat pump performance, have been combined with 10 x cascaded Hydrogen blends ready (I2HY20 certified) continuous flow water heaters. The systems were delivered in one complete consignment, ready for installation at the new multi-million-pound development. The expansive complex comprises a new luxury hotel, prestigious & contemporary office space plus affordable housing units.

The multi-purpose use of the site meant that only a fit-for-purpose design would satisfy the practicalities and nuances of space, demand, and energy usage in ensuring hot water requirements are met and exceeded 24/7.

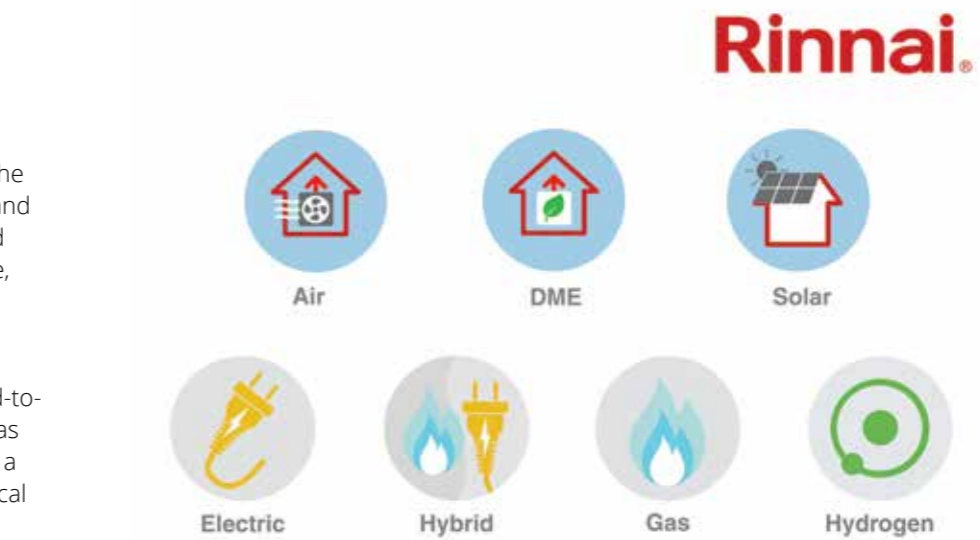
The site was originally a Victorian-era schoolhouse for poor children. It was a 'Ragged School' - the term 'ragged school' was used by the London City Mission

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 of the poor - orphans, waifs, and strays.

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

Rinnai



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 already has one other unit in London with two others planned.

Comments Darren Woodward for Rinnai, 'The site is very complex and still has many original features from the Victorian era - meaning that a full and comprehensive site survey with capital expenditure, operational expenditure and carbon modelling was conducted. We paid special attention to the practical requirements of the site which included 150 luxury bedrooms that needed constant hot water on demand, but we also needed to meet the site's decarbonisation credentials. The overall system design meant that a truly hybrid system employing a heat pump, plate heat exchangers, bespoke thermal stores plus Hydrogen-ready hot water heating units was supplied in one complete consignment.

"We believe that a solution like this is the way forward on the bigger retrofit sites in London and all other UK cities. Once we had the data for capital expenditure, operational expenditure, and carbon modelling we were able to demonstrate to the clients a value proposition of a delivered-to-site-in-one-package. This site has proven that Hybrids can create a practical, economic, and technical feasible solution whereby all technologies and appliances work efficiently in terms of operational costs and lowering the carbon footprint without impacting overall system performance.

Visit www.rinnai-uk.co.uk

DRIVING NET ZERO WITH SMARTER AND MORE SUSTAINABLE BUILDINGS

The world of energy is set to change dramatically by 2030, driven by the shift towards renewables, hydrogen, and advancements in energy storage and AI-driven optimisation. For building operators, the message is clear: adapt or fall behind. Meanwhile, the UK and EU's ambitious net-zero goals add further pressure on the building sector – one of the continent's biggest polluters. The good news? Smart technologies offer a clear pathway to decarbonisation.

These innovations are essential for improving efficiency, optimising energy use, and reducing waste. Simple yet effective solutions, such as occupancy-based smart controls, automatically adjust HVAC, lighting, and plug loads, switching to energy-saving mode when spaces are unoccupied. Even small interventions like these can yield substantial results – reducing operational costs by as much as 22% on low-occupancy days. With electricity now accounting for 34% of total final energy consumption in buildings, optimising its use isn't just beneficial – it's imperative. Here's how smart tech is shaping the built environment's journey to net zero.

DRIVING A LOW-CARBON FUTURE WITH SUSTAINABLE BUILDINGS

If the EU's goal of net zero by 2050 is to be met, the building sector must take decisive action. Fortunately, forward-thinking operators are already embracing smart technologies, laying the groundwork for a more sustainable future. The UK green building market, for instance, is projected to grow from £5.09 billion in 2024 to £13.2 billion by 2033 – evidence that the shift is well underway. But this transition isn't just about adopting best practices. As urban populations expand and new developments emerge, sustainable construction is key to ensuring cities grow responsibly.

To accelerate this shift, building owners need greater visibility over their operations. Without a deep

Digital technologies are transforming buildings, making them more efficient, sustainable, and comfortable for occupants. But their biggest impact? Accelerating our path to climate neutrality. Joining us to explore how smart buildings are driving this change is Kas Mohammed, VP of Digital Energy at Schneider Electric UK&I.



understanding of where energy is consumed, used, and lost, meaningful reductions remain out of reach. The climate challenge is, at its core, an energy challenge – making intelligent technologies indispensable for providing the insights necessary to drive efficiency.

For existing buildings, retrofitting with smart tech is not just feasible but increasingly straightforward. Low-cost IoT sensors can be deployed throughout a facility to collect real-time data on occupancy, temperature, air quality, and energy usage. When connected to an overarching software management system, this data enables operators to make informed decisions, optimise energy consumption, and streamline maintenance. By leveraging real-time insights, they can reduce workforce requirements, tighten budgets, and ensure the efficient use of space.

Consider a facility struggling with temperature inconsistencies. By monitoring heat distribution, operators might discover that a particular room is poorly insulated. Instead of relying on assumptions or a costly audit, they can act immediately – installing high-quality, sustainable insulation to create an effective thermal barrier.

As smart technologies continue to evolve, buildings will become more adaptable. Rooftop solar panels, wind turbines, and even microgrids

will integrate seamlessly into existing infrastructure, reducing reliance on external energy sources. Maintenance, too, will shift from scheduled servicing to predictive, needs-based interventions, cutting costs and improving operational efficiency. At its core, the shift to smart buildings represents the first major step toward a sustainable future.

FINDING EFFICIENCIES THROUGH SMART TECH

The impact of smart technologies isn't limited to building operations. The construction sector itself is undergoing a transformation, driven by AI and GenAI. From initial design phases to on-site workforce management, AI is redefining how structures are planned, built, and maintained. By enabling architects to model buildings digitally before breaking ground, these tools minimise waste and improve sustainability.

Material production is also benefiting from AI-driven efficiencies. In construction, digital procurement is streamlining supply chains, ensuring that resources are used optimally. Meanwhile, advancements in automated quality control are improving sustainability – concrete slabs, for example, are now scanned for imperfections before installation, reducing material waste.

Beyond construction, digital twins are proving invaluable for ongoing

efficiency gains. These virtual replicas allow operators to simulate different scenarios, testing energy-saving measures before making real-world changes. A prime example comes from the University of Liverpool, which used a digital twin to assess refurbishment strategies. The result? A 23% reduction in energy consumption in one campus building, translating to an annual cost saving of £25,000.

Once a building is operational, smart technologies continue to refine its performance. Sensors track key metrics – temperature, lighting, air quality – adjusting systems dynamically based on pre-set criteria. Over time, machine learning algorithms analyse this data, identifying patterns and fine-tuning performance. This cycle of continuous improvement enables operators to achieve peak energy efficiency with minimal manual intervention. As automation increases, energy waste declines, allowing building owners to focus on other areas that enhance sustainability and long-term asset value.

A BLUEPRINT FOR THE TECHNOLOGICAL AGE

For building operators, data is the key to unlocking efficiency. Modern AI and machine learning systems constantly analyse historical trends, growing more precise over time. The benefits are wide-ranging: predictive maintenance extends the lifecycle of elevators, escalators, and HVAC systems; occupant comfort improves

as buildings learn user preferences; and workplace productivity rises due to optimised environmental conditions.

Facility owners are also experiencing a shift in how electrical systems are designed and maintained. Digital twins allow engineers to model power infrastructure in a virtual environment before physical implementation, reducing design flaws and inefficiencies. Moreover, the concept of the "live digital twin" ensures that a facility's virtual model remains dynamically updated with real-time operational data. This continuous optimisation enables facility managers to plan future upgrades with precision – whether integrating renewable energy sources, implementing EV charging stations, or scaling up power capacity to meet demand.

There isn't a one-size-fits-all solution for smart buildings. However, the key lies in connectivity: the more systems that are brought online through IoT devices, the greater the potential for efficiency gains. By iterating gradually – scaling from basic monitoring to fully autonomous building management – operators can future-proof their assets without significant upfront costs.

THE PATH TO NET ZERO

In the UK, some building operators are already demonstrating the potential of smart technologies. Take Sidara, the multinational design, engineering, and construction firm. At its 150 Holborn headquarters, over 650 IoT devices gather and process data from more

than 60,000 data points. Through smart building controls, these systems monitor environmental conditions, occupancy patterns, and energy consumption – enabling precise adjustments that drive efficiency.

The results speak for themselves. Meeting rooms remained in a resting state – automatically lowering HVAC, lighting, and plug loads – for 76% of business hours, thanks to occupancy-based controls. Over a four-week period, these measures reduced energy use and carbon emissions by 22% on low-occupancy days. Crucially, these efficiencies were achieved without compromising indoor air quality. CO₂ levels, humidity, and volatile organic compounds (VOCs) all remained within optimal ranges, demonstrating that sustainability and occupant well-being can go hand in hand.

The financial returns are equally compelling. Sidara estimates a two-year payback period for its smart building investments, with additional savings expected as HVAC components are further optimised.

And they're not alone. According to Deloitte's 2025 commercial real estate outlook, AI is poised to play an even greater role in shaping the future of both commercial properties and data centres. As the race to net zero accelerates, smart buildings will be essential in reducing the built environment's carbon footprint – ensuring a more sustainable and resilient future for generations to come. <https://www.se.com/ww/en/>

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HOW A CARBON REDUCTION PLAN CAN MAKE YOUR ORGANISATION PROCUREMENT READY

As organisations transition to carbon neutrality and net zero, the expectations for their suppliers to follow suit is increasing. For suppliers to the public sector, this is no longer an expectation but a requirement.

Under the PPN 06/21, suppliers must have a formal plan to reduce their business emissions if they want to provide goods or services to the public sector, including the NHS.

WHAT IS THE PROCUREMENT POLICY NOTE 06/21?

PPN 06/21 mandates that suppliers with central government contracts exceeding £5 million, as well as all NHS contracts, must have a strategy in place to reduce their business emissions and overall environmental impact.

Based on the contract value, suppliers with high-value contracts must produce a comprehensive carbon reduction plan, while lower-value contracts can submit a Net Zero Commitment.

The introduction of the PPN 06/21 represents a shift in how procurement contracts in the public sector are appointed. Organisations in the supply chain will be required to show consistent progress in reducing their carbon emissions, rather than simply having good intentions.

WHY IS A CARBON REDUCTION PLAN IMPORTANT?

An organisation's supply chain can account for up to 90% of its total carbon emissions. Therefore, suppliers can play a vital role in a business' carbon reduction and whether it achieves its net zero goals.

Certain emissions, such as those directly produced by the assets of a business (Scopes 1 and 2), are within a

Natalia Block, Analytics Consultant at TEAM, explains the importance of a Carbon Reduction Plan (CRP) and how it can support a business' approach to procurement.



company's control to manage and reduce. However, emissions in a business' supply chain (scope 3) are harder to manage and reduce. Asking suppliers to create a CRP and commit to more sustainable practices, can support an organisation's own plans to reduce its emissions.

The aim of a CRP is not to replace existing sustainability reporting within a business but to demonstrate that it is committed to reducing the impact it has on the planet and how it intends to achieve the goals it has set out.

GETTING SUPPLY CHAIN READY

The NHS is aiming to become a net zero health service, with the target to reach net zero for the emissions it can control by 2040 and the emissions outside of its influence, such as suppliers, by 2045.

NHS contracts are valued at over £6 billion a year, and organisations that provide these goods and services will be expected to produce a CRP to support the institute in its own transition to net zero.

Suppliers to the NHS are required to:

- Make a formal commitment to achieving net zero by 2050 or earlier
- Publish a link to their carbon reduction plan publicly on their website using a PPN 06/21 template as a minimum

- Monitor and record their scope 1, 2 and certain categories for scope 3
- Outline the steps they have planned to take to reduce their carbon emissions

These expectations do not just come from the public sector, organisations should be mindful that increasingly more customers in the public and private sector may need them to provide their decarbonisation plans for successful procurement. If a carbon reduction plan is not in place, businesses risk losing out on potential or recurring contracts. By having a CRP, businesses are able to stay ahead of industry changes and the evolving expectations of their customers.

CREATING SYSTEMIC CHANGE

The PPN 06/21 marks a key change in procurement, driven by the UK Government's target to be net zero by 2050, it uses supply chains to leverage positive change in decarbonisation.

Shifting the way contracts are appointed and prioritising sustainability in business creates a ripple effect that trickles down supply chains to their customers, making reporting and reducing emissions easier for all businesses.

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THE HIDDEN COSTS OF PR24: UNDERSTANDING THE REAL IMPACT ON BUSINESSES

As the uncharted waters of the regulatory landscape shift with PR24, businesses need to understand that the true cost of these changes will be far greater than the headline figures suggest.

The average percentage increase, while striking, doesn't capture the real financial burden on large businesses. At Waterscan, we've spent the past month analysing the PR24 final determination (FD) to better understand how our customers – particularly those in the self-supply community and other large users – will be affected.

The headline numbers, such as the average 36% increase in household bills over the next five years, paint an incomplete picture. While these figures may seem manageable at first glance, they fail to fully convey the actual impact on businesses, particularly in the first year when prices will rise much more sharply than the overall average suggests.

FRONT-LOADING AND INFLATION: THE UNSEEN COSTS

The first and most significant issue that businesses need to recognise is the front-loading of price increases. Ofwat's documents discuss an average 36% increase over five years, but this statistic obscures the reality that the first year alone will see an average 20% price rise. With inflation also excluded from these quoted numbers, the real cost is far more significant. In practice, businesses may be facing increases of 50% or more, depending on their consumption levels and tariffs.

We've also seen that in some cases, the cumulative effect of inflation will push the overall increase to as much as 53%, and for some businesses, particularly those in high-cost regions, price rises could reach up to 100% by the time all factors are taken into account. The financial strain of these increases cannot be overstated.

As Neil Pendle, CEO of Waterscan, explains: "The headline numbers provided by Ofwat simply do not reflect the true financial burden that businesses will face. The price rises are more front-loaded than most realise, and the lack of clarity around inflation and tariff changes will hit businesses hard. Delaying decisions, such as retendering water contracts, could cost companies hundreds of thousands in unanticipated additional costs."

THE DISCONNECT BETWEEN REAL AND REPORTED PRICE INCREASES

While the PR24 documents focus primarily on average increases in household bills, the reality for businesses is very different. Water companies have applied tariff changes across varying consumption levels, meaning that large users will face much higher price hikes than the average 36% increase that Ofwat reports.

For example, in some regions, businesses may see tariff increases between 40% and 54% for water supply and waste costs. This isn't just an incremental rise – it's a significant cost shift, with some businesses likely to see their water bills nearly double.

The pricing structure changes don't stop there. Many water companies are moving away from the falling block tariff system, which historically benefited high-consumption businesses. This shift will disproportionately affect larger users, compounding the already steep price rises. It's an industry trend that has been building for years but is now reaching its tipping point.

THE REAL COST OF DELAYING RETENDERING

One of the most pressing issues we're seeing is that many businesses are delaying retendering their water contracts in response to PR24. Unfortunately, this delay can be incredibly costly. As tariffs rise, businesses that have not already retendered their contracts could find themselves locked into unfavourable deals that reflect outdated pricing models.

With price increases front-loaded, companies that are slow to act will face higher costs than necessary. This delay could result in businesses spending hundreds of thousands more than if they had proactively renegotiated or retendered their contracts ahead of the impending price hikes. The financial impact will be felt immediately, and the longer businesses wait, the more they stand to lose.

THE URGENCY FOR TRANSPARENCY AND ACTION

What businesses need now is transparency and clarity. Waterscan has worked to provide our customers with the most accurate information possible, so they can make informed decisions about

how to manage these price increases. The lack of clear communication from Ofwat and the water companies regarding tariff changes, inflation adjustments, and price front-loading only adds to the complexity.

This is a critical moment for businesses to act. Understanding the full impact of PR24 is essential for ensuring that you can manage costs effectively and avoid the financial pitfalls that are emerging in the wake of these regulatory changes.

A CALL TO ACTION FOR BUSINESSES

We strongly advise businesses to take action now to understand how PR24 will impact their water costs. Delaying retendering or contract renegotiations could result in significant financial losses. Instead, businesses should take advantage of the current window to renegotiate contracts, explore alternative water sources, and implement more efficient water management practices.

This is an opportunity for businesses to look beyond the immediate price hikes and embrace innovation in water management. By adopting smarter water solutions, businesses can mitigate the impact of these price rises and build resilience for the future.

As Neil Pendle concludes: "The business fundamentals around water efficiency have materially changed. Investing in innovative water management now will not only help companies reduce their exposure to rising costs but also provide opportunities for long-term sustainability and growth."

CONCLUSION

The PR24 price increases will have a far more significant impact on businesses than many are prepared for. The actual cost of these changes will be felt most acutely by those who are slow to act, particularly when it comes to retendering and adjusting water usage strategies. Businesses must be proactive, transparent, and strategic in their response to these regulatory changes.

Waterscan is here to help businesses navigate this complex landscape, ensuring they can manage rising costs while also driving innovation in water efficiency. The sooner businesses act, the better they will be positioned to manage the impact of PR24 and thrive in a changing market. <https://waterscan.com/>

RINNAI: LEADING BAKERY & BREAD MANUFACTURER ADOPTS ULTRA HIGH-EFFICIENCY WATER HEATERS TO CUT OPERATIONAL COSTS

Rinnai has installed its range of I2HY20 Hydrogen blends 20% certified commercial water heaters at a leading bread manufacturing brand in Bradford. An industrial scale bakery must have access to a consistent flow of clean water for sanitation purposes and to produce dough. A plant bakery can use anywhere from 10,000 to 300,000 gallons of water per day.

Find out more about the Rinnai condensing range: <https://www.rinnai-uk.co.uk/products/commercial>

For the bakery to continue operations without negating production output and to reduce costs Rinnai design specialists decided that installing a Rinnai N series unit would be the ideal solution. The Rinnai N series range of commercial condensing water heaters guarantees copious amounts of temperature accurate hot water. The Rinnai commercial water heaters are also highly efficient with a tested efficiency of 97% and as Rinnai condensing water heaters do not store water, wasteful standing losses are also avoided.

The Rinnai Sensei N Series continuous flow hot water heater range offers a more compact, enhanced combustion design that allows for easier installation, superior operational performance as well as ease of serviceability.

The Rinnai N Series is the first ever continuous flow hot water heating unit manufactured with stainless steel heat exchangers to be available in the UK - this provides a greatly extended working life at optimum performance to each of the four models in the range. In addition, market leading extended warranties are provided to ensure customer satisfaction. Rinnai N Series continuous flow water heaters are hydrogen Blend and Bio-LPG blend ready.

The four models are:

- the N1600i giving 954 litres per hour (at 50 degrees)
- the N1600e (external) also giving



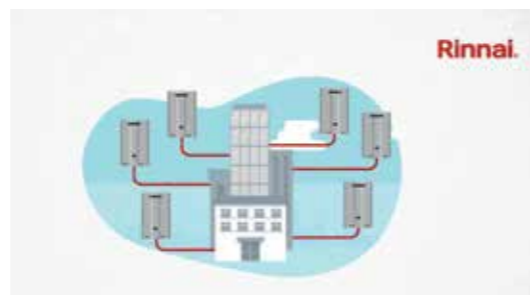
954 litres per hour (at 50 degrees).

- the N1300i giving 775 litres per hour and
- the N1300e (External) giving 775 litres per hours of temperature controlled hot water at 50 degrees.

The two 1600s are load profiles of XXL and are water efficiency class A rated, while the 1300s are load profile XL and are also water efficiency class A rated.

The entire range is low-NOx (Less than 26ppm meaning they gain additional points under BREEAM) and futureproofed. The N series continuous flow water heater utilises Rinnai's patented advanced burner technology with a 13-1 turn down ratio - the largest on the market combined with 97% efficiency rating. Integral controls on the units enable the water heater to achieve high efficiencies due to advanced burner control and high modulation ranges.

This wide range of modulation means that energy usage is completely



optimised as the water heater maintains smart inbuilt controls that will only heat the water to the temperature required - thus preserving energy.

Rinnai is continuing to design and produce cost-effective technology for commercial operations that require clear access to huge amounts of clean hot water. Rinnai also offers a range of clean power alternative technologies in their H3 product range which includes hydrogen, solar and hybrid decarbonising technologies for domestic or commercial applications.

For support on your next water heating or heating project contact us today <https://www.rinnai-uk.co.uk/contact-us/help-me-choose-product>

ECOBAT BATTERY FINDS THE SOLUTIONS, WHATEVER THEIR SIZE, AND WEIGHT!

There are a host of worthy causes that can inspire individuals and businesses into action, but those related to the sobering subject of cancer make a particular connection, as there are few families that have been spared the trauma of having a loved one in some way affected by the terrible disease.

Although it's difficult to make any measurable differences on the medical side, providing help on almost any basis has a huge impact at a personal level, which is greatly valued by those involved, and one such example is the Stapleford Miniature Railway and its support for LOROS (the Leicestershire and Rutland Organisation for the Relief of Suffering).

The Friends of the Stapleford Miniature Railway (FSMR) is a voluntary body, in conjunction with the Gretton Family, which is dedicated to maintaining the railway in an operational capacity for the purpose of occasional public and private events. All proceeds over and above the cost of maintaining and running the railway are donated to charity.

The FSMR - www.fsmr.co.uk - has been associated with fundraising for LOROS ever since the railway first reopened to the public for the first Stapleford Steam event in the summer of 1995. As well as the two annual public events, the FSMR raises money in other ways for LOROS. The occasional "great train robberies" which sometimes can occur at the SMR, on private invitation days, are also very entertaining as well as raising money.

In addition, its President, Jennifer Lady Gretton, is the current President of LOROS.

Ecobat Battery's Mark Allsopp is also involved with FSMR and its support for LOROS, and he recently spotted an opportunity for Ecobat Battery to step in and provide a practical solution to



a growing issue facing the railway and its enthusiastic, but aging, volunteers.

The braking system for the coaches running on the line had been relying on three rather heavy lead acid batteries, which had started to be a problem when they had to be lifted out to charge and maintain them. Ecobat Battery's solution was to donate three of its own brand lithium EBL100 batteries, which being about half the weight of the previous batteries, not only solved the lifting issue, but as they have a much longer lifespan, also provided a long term resolution to the matter.

As a result, the team responsible for ensuring the railway is operating correctly, have one less thing to concern themselves with and the FSMR can continue to support LOROS, and add to the enormously impressive £109,000 that



it has already provided to the charity!

The Stapleford Miniature Railway is open to the public on 14th & 15th June, 26th & 27th July and 23rd & 24th August, with full details available on the organisation's website.

For further details, please visit Ecobat Battery at: <https://www.ecobatbattery.com/brands/ecobat-2/>



SCOTLAND'S FIRST PASSIVHAUS-CERTIFIED PRIMARY SCHOOL RECORDS OUTSTANDING FIRST YEAR RESULTS

Scotland's first Passivhaus-certified Primary School has recorded outstanding first year energy performance results, due in no small part to the highly efficient hot water design. Baxi's *Andy Green* discusses the success of the strategy with BakerHicks Passivhaus designer *David Coulter*.

A first-year assessment of Riverside Primary School in Perth, Scotland's first Passivhaus-certified primary school, has revealed actual energy operational performance of just 43 kWh/sqm/annum, significantly below the classic Passivhaus target of 60 kWh/sqm/annum, while consistently providing excellent comfort levels. Helping contribute to the exceptional standards with energy-efficient hot water provision are Baxi's Heatrae Sadia point of use electric water heaters.

Passivhaus standards and certification requirements prioritise energy efficiency and minimal heat loss. Passivhaus is particularly popular in Scottish school buildings as projects requiring funding from the Scottish Futures Trust need to meet an energy target of 67 kWh/sqm/annum, similar to a typical new build Passivhaus school. The funding is provided on an outcomes-based approach over 25 years with building energy performance and outcome monitored at set intervals. Where the energy

target is not achieved in full, funding is reduced correspondingly, hence the increased uptake of Passivhaus standards to de-risk funding by eliminating a potential performance gap.

When designing Passivhaus and low energy buildings, the focus is placed on the primary building geometry and fabric performance. But careful consideration must also be given to engineering solutions, plant selection, and building user operations, such as hot water delivery. Traditional buildings are often designed with a centralised hot water system, which can result in significant heat losses during distribution and long wait times for water. Both factors contribute to energy waste and increase a building's overall energy demand – something that Passivhaus and low-energy designs aim to minimise.

So how has the hot water strategy at Riverside Primary School contributed to the building's impressive energy performance?

David Coulter, Associate Engineer and Certified Passivhaus Designer at BakerHicks (Motherwell), was part of

the team that provided mechanical and electrical design services for principal contractor Robertson Tayside on the Perth & Kinross Council project.

"To reduce energy waste, we need a solution that heats water only where and when it is needed," said David Coulter. "Point of Use (POU) Water Heating is an effective approach that minimises the energy losses of a centralised system. By providing immediate hot water at the source, it ensures availability when required while significantly reducing distribution losses and reheat times."

Installing a point of use water heater like Baxi's Heatrae Sadia Multipoint that incorporates anti-legionella functionality, water pasteurisation and anti-tamper design, will ensure that water is adequately stored, cycled and distributed. Baxi's technical sales and specification team worked with David to identify the multiple Heatrae Sadia POU water heaters required to serve wash hand basins located near classrooms at Riverside Primary School.

When choosing a point of use water heater, selecting a standard model with 10-15 litres of storage volume to serve a single appliance is common practice. However, while the capacity typically provides sufficient hot water and aligns with the principles of point of use water heating, it can often be oversized compared to the actual hot water demand of the appliance. Oversizing can lead to unnecessary energy consumption, reducing the overall efficiency of the system.

As the school wash basins are primarily used for general handwashing,

it was possible to reduce both the storage volume and the associated energy consumption (electric kW duty).

"The general guidance for handwashing is 20 seconds per person," David explained. "By comparing this timeframe with the available storage volume in the POU water heater and the maximum flow rate of the wash hand basin, we identified an opportunity to further optimise the design, enhancing efficiency while maintaining functionality.

"We discussed this approach with the client who were pleased that the design was based on actual usage rather than a worst-case scenario, which would be oversized and underused," David continued. "Collaboration between FES (Stirling), the MEP Engineers, Baxi, the manufacturer, Archtype, the Architect, WARM the PH Certifier and the Client was critical in achieving this solution. By understanding how each end user would interact with the sanitaryware, the team were able to generate an operational energy focused solution that delivered energy savings."

Following this design, the overall water storage for the project was reduced by 25%, with hot water W/K heat loss decreased by 30%, contributing to a more efficient and sustainable design.

With the recent report on energy operational performance demonstrating the success of the solution, BakerHicks now use this design as a template for future projects, even where Passivhaus standards are not applied.

David said: "We are pleased to see these energy results and are delighted that the building is operating far more efficiently than initially projected. The data shows significantly lower energy consumption which demonstrates the importance of strong operational performance and effective energy management. The client team and end users have adapted well to the Passivhaus strategies, learning valuable lessons along the way. This marks a promising step forward for future projects and building services solutions."

For more information on Baxi's commercial electric heating and hot



water solutions, visit www.baxi.co.uk/commercial/our-solutions/electric-heating-and-hot-water

BABCOCK WANSON LAUNCHES NEW ELECTRIC THERMAL FLUID HEATERS

Industrial process heating equipment and solutions specialist Babcock Wanson has launched the EPC EL range of electric thermal fluid heaters, providing customers with an effective low carbon process heater with no direct emissions. The key functionality required by thermal fluid heaters are high turndown, low heat flux, accurate temperature control and high safety level which is incorporated in the design.

A multi-tubular type thermal fluid heater, with a series of flanged electrical heating elements inserted within the carbon steel exchange tubes where the thermal fluid circulates at high velocity, the EPC EL ensures a precise forecast of the fluid temperature at each point of the thermal fluid internal path, with no internal significant recirculation. The 1-D fluid arrangement allows for a more compact volume and greater protection of the thermal fluid when compared to a single vessel design, for improved fluid longevity.

Modular in design, EPC EL electric thermal fluid heaters can be configured in series and parallel to meet different applications and site requirements. The single functional unit is composed of two thermal heater elements, each with a maximum power of 60kW. In the event

of a thermal heater failure, the EPC EL can continue to operate at reduced power, excluding only the faulty element. A single 100 A thyristor controls the power, for flexibility and modulation.

For temperature limitation the heating elements are equipped with temperature sensors, connected directly to the surfaces of the heating elements.

The EPC EL is supplied with a separate power and control panel housed in a standard cabinet for ease of access. The panel is fitted with PLC with HMI for simple and clear operator interface.

As with all Babcock Wanson process heaters, the EPC EL is extremely durable and easy to maintain. Inside the casing the tubing is fully welded to prevent leakage points. The heating section is installed inside a protective steel frame housing, closed by thermal insulating sandwich panels which are easily



removable for inspection. The front of the heater, where the electric elements are located, is protected by a light cover, fitted with fast release bolts and handles that can be lifted by a single operator.

The EPC EL is the latest addition to Babcock Wanson's range of thermal fluid heaters, which include heaters with integrated gas, oil or dual fuel burners to meet the needs of modern industry.

For more information, please contact Babcock Wanson on 020 8953 7111 or info@babcock-wanson.com or go to www.babcock-wanson.com

GOOD ECO GROUP LAUNCHES NEW WEBSITE AND POWERFUL SOLAR CALCULATOR TO HELP BUSINESSES SLASH ENERGY COSTS AND ACHIEVE NET ZERO

Good Eco Group, a leading provider of energy-efficient solutions, has launched its brand-new website, marking a major milestone in its evolution from LED lighting a full-scale provider of energy efficiency and onsite energy generation solutions. With over 9,500 site installations across the UK since 2006, the company now delivers Solar PV, Battery Storage, Heat Pumps, EV Charging, and Building Services solutions – helping businesses cut operational costs, enhance sustainability, and future-proof against energy price volatility.

The revamped website offers businesses a seamless, user-friendly experience, providing essential insights into the latest energy solutions designed to drive cost savings, carbon reduction, and progress toward net zero.

But the real breakthrough? Good Eco Group's new Commercial Solar Calculator – a fast, intuitive tool that allows businesses to instantly estimate potential energy and cost savings with solar power – without the need for complex technical data or an upfront site survey.

A SMARTER WAY TO TAKE CONTROL OF ENERGY COSTS

Energy is one of the largest and most volatile operating expenses for businesses. By generating their own electricity onsite, businesses can take control of energy costs, reduce reliance on the grid, and protect themselves against future price increases.

Unlike other solar calculators that require precise building specifications, roof dimensions, or complex energy usage details, Good Eco Group's tool simplifies the process:

- Enter your postcode – the tool pulls up a Google Map of your building.
- Outline your roof area in a few clicks – no technical knowledge required.
- Instantly receive a savings estimate – see potential energy savings, approximate costs, and payback period.

For businesses exploring their path to sustainability, this tool provides



an instant, commitment-free way to assess whether solar PV can support energy independence, cost savings, and carbon reduction goals.

"We wanted to remove the barriers that stop businesses from exploring solar energy," says Saima Shafi, Sales & Marketing Director at Good Eco Group. "Most companies don't have their roof size or technical data readily available, and many solar calculators require complex inputs. Our tool makes it simple – within minutes, businesses can see how much they could save, how much energy they could generate onsite, and how solar can help protect them from rising electricity prices."

A NEW ERA FOR GOOD ECO GROUP – POWERING BUSINESSES TOWARD NET ZERO

The website launch follows Good Eco Group's rebrand in Autumn 2024, when the company transitioned from LED Eco Lights to reflect its broader portfolio of energy solutions. With over 9,500 installations across the UK since 2006, the company has a proven track record in delivering commercial energy

solutions that drive measurable impact.

Businesses are under growing pressure to cut operational costs, meet sustainability targets, and future-proof against volatile energy markets. Good Eco Group now provides a full suite of energy efficiency and onsite energy generation solutions, helping companies reduce grid dependence, lower carbon emissions, and transition toward net zero with confidence.

"Energy efficiency isn't a value-add anymore, it's vital to business operations," adds Saima Shafi. "With rising electricity costs, businesses are looking for solutions that provide immediate savings and long-term stability. Our new website and solar calculator are designed to help them take the first step toward energy independence and sustainability – without the usual complexity or delays."

TAKE CONTROL OF YOUR ENERGY FUTURE

Good Eco Group invites businesses to explore their new website and try out the Solar Savings Calculator at <https://www.goodecogroup.com/commercial-solar-savings-calculator/>

RINNAI – CUSTOMER SATISFACTION WITH MARKET LEADING WARRANTIES

Rinnai is guaranteeing customer satisfaction and ensuring optimum value for money by offering a range of market-leading warranties.

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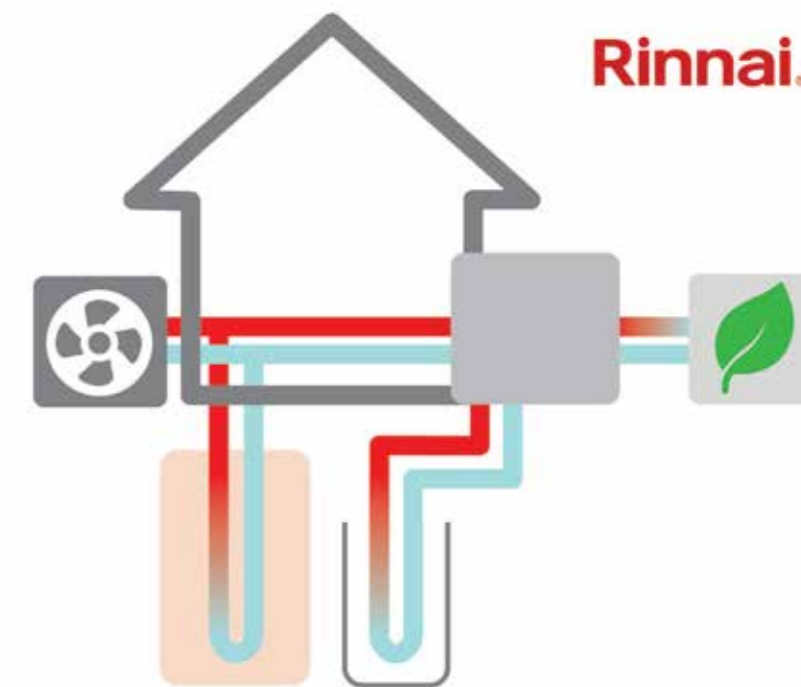
Will be offered a market leading warranty that provides protection against future costs and maintenance.

Commercial Condensing Water Heaters: Models: N-1300, N-1600 Internal, N-1600 External are all provided with a standard warranty of 3 years for all parts, which can be extended up to 12 years. For more information of the criteria for this warranty extension simply ask us a question today <https://www.rinnai-uk.co.uk/contact-us/ask-us-question>

Domestic Gas Multi-Point Water Heating: purchasing a Rinnai Tankless 11i, 16i, 17i, 17e means that customers will be provided with a 3-year warranty for the heat exchanger and all other components.

Rinnai is intent on supplying all UK customers with legally binding assurances that prevent the imposing of future additional costs relating to internal product maintenance. Therefore, Rinnai is offering a number of market leading extension warranties that function as a future proof security for customers.

For further information pertaining to Rinnai warranties and products visit www.rinnai-uk.co.uk Once you are on the opening webpage click on "Technical Information." Once here, customers can register applicable devices and request a Warranty Form. Rinnai's aim is to provide all customers with cost-effective products that can accept various fuels whilst supplying convenience through every step of purchase and beyond. www.rinnaiuk.com



The Renewable Energy Institute's Brand New Consultant Expert Certificate

Our Artificial Intelligence Consultant Expert Certificate is designed to explore the power of AI in renewable energy to **tackle global energy transition challenges and shape the future of clean energy.**

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methodologies, including neural networks and deep learning, and their use in **solving industry challenges** such as load forecasting, predictive maintenance and network optimisation.

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