



MARCH 2023

DIGEST

🌿 FOUR GAS DISTRIBUTION NETWORKS APPLY FOR 'HYDROGEN TOWN' TRIAL

🌿 UK TURNS TO LNG AS NATIONAL GRID REPORTS BUSIEST YEAR EVER FOR GRAIN TERMINAL

🌿 BP CUTS LONG-TERM FORECAST FOR OIL AND GAS DEMAND



GROWING A GREEN ECONOMY

HOW THE UK CAN REAP THE BENEFITS





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We are always seeking to share the latest research and ground-breaking industry developments in IGEM's journal. If you would like to see your work featured in the pages of *Gi*, contact the Editor by emailing sharon@igem.org.uk with a short synopsis of your contribution. 



WELCOME TO THE MARCH EDITION

EDITOR'S LETTER



THE EAGERLY AWAITED Skidmore review into net zero was published in January and called into question some of the disjointed policy-making which has so far underpinned the country's efforts to reduce carbon emissions by 2050.

Mission Zero makes 129 recommendations, covering areas including the greater role that business can be supported to play, making better use of infrastructure and delivering more energy efficient homes. In this edition of *Gi*, we're taking a look at some of those recommendations and how they can be applied to make the most of the opportunities presented by a green economy.

Meanwhile, the people at Wales & West Utilities have been hard at work designing a roadmap for decarbonisation across Wales and south west England. The network has been working with independent experts, Energy Systems Catapult (ESC) and engineering consultancy Costain since July 2021 on local and regional modelling work to identify the energy network requirements to meet the net zero deadline.

The work has explored a number of scenarios to assess the future role of the gas network and highlights opportunities for low carbon hydrogen production in Wales, alongside a dynamic net zero energy system in south west England. Find out more here.

Our own Ross McCart, IGEM Professional Development Officer, is here to make CPD simple, sharing his tips for recording your professional development and the knowledge you have gained through your work in an ever-changing world filled with new challenges and opportunities.

We are also thrilled to announce that *The Historic Gas Times* has moved to *Gi*. On a bi-monthly basis, we'll be bringing you gas history updates from around the world, courtesy of our dedicated History Panel volunteers, led by Co-Editors Russell Thomas and John Horne. In this edition, we're looking at the fascinating history behind that monolith of industrialisation: the humble gasholder.

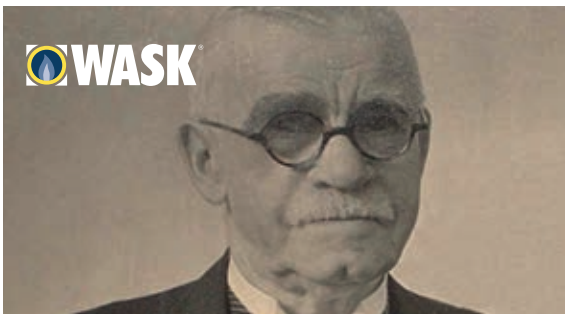
In addition, you can find out about IGEM's exciting new partnership with the Women's Utilities Network (WUN). Started in 2018 when a group of like-minded women working in the utilities sector came together for a common cause, the WUN aims to promote diversity in the utilities sphere and represent the interests of women working in a male-dominated sector.

The partnership offers IGEM members free access to the network as well as ongoing support, events and networking opportunities with other women in the gas industry.

All this is accompanied by the usual round-up of news and events from around the gas industry, including our much-loved London, Southern & Eastern Section Showcase Event and Lions' Lair and our very first Housing Partner Conference.

We hope you enjoy the March edition,

SHARON BAKER-HALLAM
EDITOR
BA (HONS) AIGEM, INSTITUTION OF GAS ENGINEERS AND MANAGERS (IGEM)



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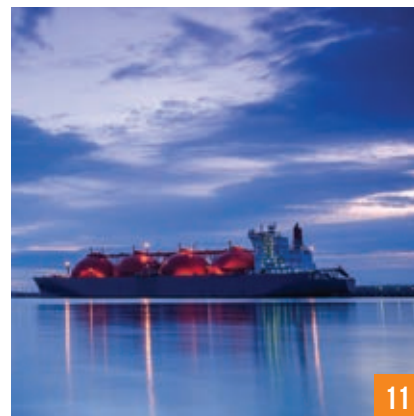
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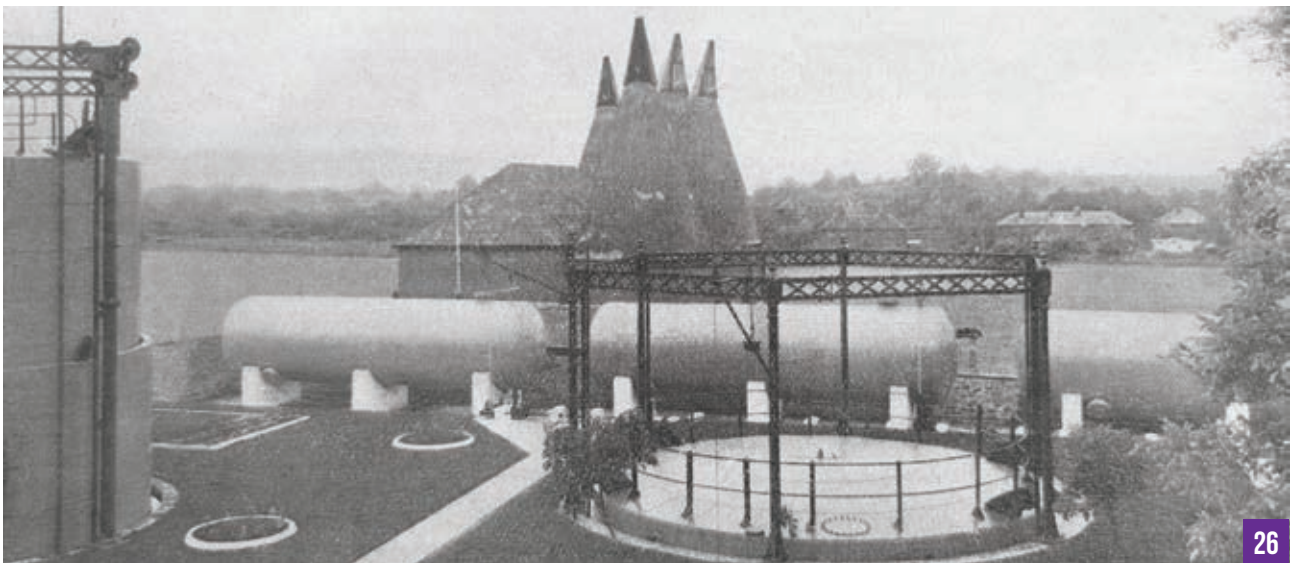
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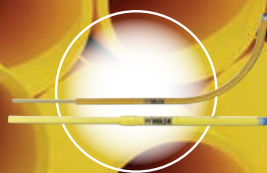
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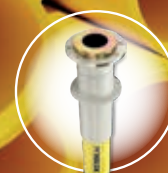
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DIGEST



PLANS FOR A HYDROGEN TOWN ARE NOW UNDER CONSIDERATION

FOUR GAS DISTRIBUTION NETWORKS APPLY FOR 'HYDROGEN TOWN' TRIAL

FOUR UK GAS distribution networks (GDNs) have submitted applications for government funding to further develop plans for a hydrogen heating town trial.

Government department BEIS said it is now reviewing each application with an announcement on which project it will fund in "due course".

Hydrogen has the potential to provide a low or zero-carbon source of heat when used in boilers specifically designed to run on a fully supply of the gas. However, there remain questions

to be answered about both the cost and effectiveness of using the gas to heat homes. The current methods of hydrogen generation are currently reliant on fossil fuels to produce at scale. The government has committed to ensure the UK has 10GW of domestic hydrogen production by 2030. Half of this capacity is intended to come from renewable sources, reports *H&V News*.

The hydrogen town plans are being considered as part of future trials planned to test hydrogen use in homes. The

final development of these towns would depend on whether the government decides later this decade to back some form of domestic hydrogen distribution for heating and other domestic use.

BEIS will now look at the initial proposals and see which of the projects it will choose finance to help produce an outline plan. This plan will consider the practicalities of using the gas to heat an entire town of homes and to consider the energy system needs and other supply chain requirements.

The final plan would be used as part of work to launch a neighbourhood heating trial using hydrogen. A village trial would then be expected to follow in 2025 with a project to heat an entire town using the gas potentially launching in 2030, depending on the outcomes of testing.

BEIS said in its original call for the hydrogen town proposals that heating systems designed to operate on a full hydrogen supply were not yet "established options" when compared to heat pumps and heat networks that are already on the market.

It added: "Further work is required to assess the feasibility, costs and benefits. That is why we are working with industry, regulators and others to deliver a range of research, development and trial projects to provide the necessary evidence."

Silvia Simon, Head of Hydrogen at Energy Networks Association (ENA), said: "These proposals are a critical next step in making net zero a reality, showing how hydrogen infrastructure could start to be rolled out once the industry's evidence gathering and trials are complete. Hydrogen will play a central role in decarbonising a wide range of sectors, and the projects now under consideration by BEIS reflect the progress made, and the benefits to customers, businesses and the climate." 🔥

BP CUTS LONG-TERM FORECAST FOR OIL AND GAS DEMAND

BP HAS TRIMMED its outlook for oil and gas demand in its latest annual forecast, arguing that the upheaval unleashed by Russia's invasion of Ukraine will push countries to pursue greater energy security over the next decade by investing in renewables.

As a result, global carbon emissions could peak earlier in the 2020s than it had previously suggested, according to a review of BP's annual energy outlook in *The Financial Times*.

But even with increased political support for the shift away from fossil fuel, governments and industry are still far behind in the race to achieve net zero emissions by 2050, the analysis showed.

One of the sector's most closely read studies, the outlook describes three scenarios for the evolution of the energy sector through to 2050. Under its 'New Momentum' scenario, which is designed to reflect the current broad

trajectory of the world's energy system, oil demand would be about 93mnb barrels a day in 2035, five per cent lower than it forecast last year, and natural gas demand would be six per cent weaker.

The lower forecasts reflect an increased role for domestic renewable energy as countries reduce dependence on imported hydrocarbons, but also expectations of weaker economic growth in the next

UK TURNS TO LNG AS NATIONAL GRID REPORTS BUSIEST YEAR EVER FOR GRAIN TERMINAL

THE TEAM AT National Grid's Grain LNG terminal in Kent have recorded its busiest year on record. The facility, which enables ships to dock, offload and store liquefied natural gas (LNG) in its tankers, has seen 91 ships arrive on site in 2022 – 60 per cent more than in 2021.

The previous record year was in 2011, when the terminal unloaded 66 ships. Once offloaded at Grain, the LNG is converted to gas, which can then be distributed throughout the UK via the national transmission system (NTS) or exported into Europe to support neighbouring countries.

In 2022, Grain LNG sent over 82TWh of gas into the NTS, compared to 59TWh in 2021, an almost 40 per cent increase. During the recent cold spell, the facility broke a series of records, reaching over 90 per cent of its capacity, pushing out 600GWh of gas into the UK's network over the month, compared to between 200 and 400GWh in a typical December.

The UK, which represents approximately 20 per cent of Europe's total LNG import capacity, has also been instrumental in the restocking of European gas reserves, which are in the region of 100 billion cubic metres (bcm). In fact, the UK was responsible for filling around 16 per cent of Europe's gas reserves this winter. Where global supply patterns have shifted from a reliance on Russian gas, LNG has filled the hole and become a key enabler for Europe to reach its 90 per cent storage target.

The fourth quarter of 2022 was also a record quarter for Grain, with 37 ships docking between September



and December compared to a seasonal average of 16.

National Grid owns the terminal, infrastructure and storage tanks, and works with a range of customers who use the terminal to import gas from around the world.

Before the start of the Russia-Ukraine conflict, the UK received around 30 per cent of LNG from Russia but, due to the events of the last 12 months, this has changed, with around a third of the ships coming into Grain from the United States. Other sources include Nigeria, Chile and Peru.

Grain's Importation Terminal

Manager Simon Culkin said: "It's been a remarkable year for the team at Grain, as we continue to play a critical role in supporting security of supply both here in the UK and for our European neighbours.

"UK energy security is dependent on a diverse mix of energy generation and sources, and LNG is an important part of that. Over the last year we have seen a real uplift in LNG imports from the US. Grain, which is the largest LNG terminal in Europe, has long been viewed as one of the leading gas terminals in the world and I'm proud of the service we provide to the UK and our European neighbours." 🔥

decade because of the lasting impact of the energy crisis.

"The experience from the major energy supply shocks of the 1970s suggests that events that heightened energy security concerns can have significant and persistent impacts on energy markets," Spencer Dale, BP's Chief Economist, said in the report.

As a consequence, global carbon emissions under the New Momentum scenario would peak in the 2020s and reach 37.8 gigatonnes in 2030. That is about four per cent lower than it outlined last year when it said

emissions would peak in the "late 2020s". The International Energy Agency has forecast that greenhouse house gas emissions will peak in 2025.

However, BP argues that natural declines in existing oilfields mean investment in oil and gas production will still be required for the next 30 years, even under the 'Net Zero' outlook.

"The events [of the past year] also show how relatively small disruptions to energy supplies can lead to severe economic and social costs, highlighting the importance that the transition away from hydrocarbons is orderly,"

Dale said. Demand for hydrocarbons must therefore fall "in line with available supplies", he added. 🔥



NATIONAL GRID TO PAY £3M TO HOUSEHOLDS AND BUSINESSES AS PART OF ENERGY SAVING SCHEME



MORE THAN A MILLION CONSUMERS
HAVE SIGNED UP TO THE SCHEME

NATIONAL GRID WILL pay out more than £3 million to households and businesses as part of a pioneering scheme that encourages them to cut their power use at peak times, reports *The Guardian*.

The electricity system operator trialled its “demand flexibility service” - which incentivises households in Great Britain to use less power during a designated period - for one day in January.

That followed the service being used

for real for the first time a few days later to help reduce the strain on the grid caused by the cold weather.

The scheme was piloted by Octopus Energy early last year before being rolled out to other suppliers in November, but was only enacted this year. More than one million businesses and consumers have signed up.

In total, National Grid is expected to pay just over £3 million to suppliers for

the service over the two days.

Octopus estimated that its customers reduced the UK’s energy usage by about 200 megawatt hours - the same as the city of Bristol going off grid for an hour.

Consumers need to be signed up to the service and must have a smart meter to participate. Their supplier will typically give them about 24 hours’ notice of a saving session and consumers then have to opt in. ⚡

NEARLY 12M BRITISH HOMES SPEND MORE THAN 10% OF INCOME ON ENERGY BILLS

OFFICIALS HAVE WARNED that around 12 million households across the UK are now spending more than 10 per cent of their income on energy bills, reports *Energy Live News*.

MPs at the Business, Energy and Industrial Strategy Committee heard from Emma Pinchbeck, Chief Executive at Energy UK, who said that bills were still too high for millions of customers.

She said: “Bills are still double what they were 18 months ago and we’ve got about 12 million households, which is about 40 per cent of customers, spending more than 10 per cent on energy. That’s the previous definition of fuel poverty.

“I think we need to look at targeted support but we also need to look at this as an affordability crisis across the piece and how that intersects with

the wider cost of living.

“We are up for having those conversations, but I don’t think that it is as simple as just looking at the Priority Services Register. I think this is still a really big problem.”

Emma Pinchbeck added that customer calls to suppliers were up about 300 per cent on previous years and requests for additional support were also up 300 per cent.

She said: “What that indicates is we’ve got many more houses moving into what has been considered vulnerability previously at pace and households who are not indicating to us

SMALL UK COMPANIES FEAR 'BRUTAL' YEAR AS MINISTERS SCALE BACK ENERGY SUBSIDIES



SMALL BUSINESSES ARE FEELING THE PINCH

SMALL BUSINESSES HAVE warned that UK government plans to slash energy subsidies will cause them acute pain, claiming that mistreatment from energy suppliers has left them exposed to higher costs.

In January, the government announced that it would scale back its energy relief for business in 2023-24, leaving about 5.5 million small companies with reduced assistance in the face of soaring bills, reports *The Financial Times*.

About one in four small businesses will have to close, downsize or restructure their operations owing to the cut in subsidies, according to the Federation of Small Businesses lobby group, while almost 30 per cent will only get a maximum of £49 in relief a year.

The new energy bill relief scheme, set to cost £5.5 billion, replaces the existing one introduced by the government in autumn to combat high energy costs in the wake of Russia's invasion of Ukraine.

The reduced package will provide

businesses with a flat rate per unit discount from April 1 for a 12-month period. Discounts of £19.61 per MWh for electricity – and £6.97 per MWh for gas – will be applied when prices are above a certain threshold.

For electricity and gas, the thresholds are £302 and £107 per MWh, respectively.

UK wholesale gas prices have already fallen below this threshold, but many small businesses were locked into fixed-cost contracts when prices spiked last year. ♣



that they are vulnerable.”

Meanwhile, Ofgem's chief shared some “good news” for the energy market as bills are predicted to go down later this year.

MPs at the Business Select Committee heard from Jonathan Brearley, who said: “Everyone recognises that customers are in an incredibly difficult position right now. The gas crisis has stages and right now we are seeing the full impact on customers' bills.

“Last time we were here, over the summer, we thought that without the Energy Price Guarantee (EPG) the price might be almost £6,000 a year for the

average household. There is some good news; the market has changed quite significantly and for the first time since the start of gas crisis we are seeing downward pressure on the prices.

“On existing projections, that means the EPG will be breached by the price cap in July and indeed that means bills going down for customers and significantly reduces the fiscal cost for the EPG in the first place.”

Consultants had previously predicted that energy bills for a typical household would fall to £3,208 in April and would decrease further to approximately £2,200 in July. ♣

EMPLOYERS ONLY SPENDING HALF OF APPRENTICESHIP LEVY FUNDS



APPRENTICESHIP LEVY-PAYING employers are only using an average of 55.5 per cent of available funds, according to research that finds the regime is not working as well as employers perceive it should.

Research from City & Guilds and The 5% Club has found that only one in 25 (four per cent) employers have used

their full apprenticeship funding in the past five years, meaning millions of pounds that could be used to develop vital skills are going to waste.

Their survey of 1,000 HR leaders at levy-paying organisations found that 94 per cent of firms that have not used all of their apprenticeship fund face at least one barrier to accessing it. Eighteen

per cent said the process involved too much bureaucracy and administration, according to *Personnel Today*.

Some also had practical difficulties in offering apprenticeships; 19 per cent cannot commit to the length of time that an apprenticeship takes to complete, and 17 per cent said they lacked the time to invest in apprenticeships.

Apprenticeships must run for at least 12 months, and the curriculum and standards set by the government are rigid. City & Guilds and The 5% Club said this meant employers were unable to tailor learning and apprenticeship spending to the needs of their business.

Kirstie Donnelly, CEO of City & Guilds, said: “Yet again the employer voice is coming through loud and clear - apprenticeships are a valuable recruitment and retention tool, but the current system is just not working for them, leading to large sums of funding intended for the levy instead going back to the Treasury because they cannot be used, all this at a time of such acute skills gaps and shortages.”

The report recommends the creation of a broader skills levy, which ringfences a significant amount of funding for apprenticeships but also allows employers to choose which qualifications would best fit their skills needs. 💡

HALF OF EMPLOYEES FEEL MORE PRODUCTIVE WHEN WORKING FROM HOME, RESEARCH FINDS



WHILE ONE FIFTH (20 per cent) of employees are burned out at work, half (51 per cent) feel more productive when working from home, a study has found.

Research by RingCentral, based on a survey of 1,002 UK full-time workers aged 21 to 65 conducted between

September and October, gathered views on remote, hybrid and full-time office work.

The data also indicated that when it comes to information workers, more than half (59 per cent) recorded increased productivity when working

from home, compared to a third (34 per cent) when working in an office.

As economists predict the UK may face a long recession, compounded by prolonged weakness in productivity, the study urged business leaders to “embrace a hybrid working model” to avoid additional suffering, according to *People Management*.

Indeed, the research also found that hybrid remains the preference for the majority, as one in five (20 per cent) workers dread working from an office, and fewer than one in 10 (eight per cent) want to be in an office every day.

Carolyn Hobdey, Chief People Consultant at Brilliant, said HR could “play a role” in supporting managers leading a split workforce by “helping them to facilitate conversations with their team about what’s working and what is not for that team - both individually and collectively”.

The data also suggested that flexibility is so important to employees that many would entertain some drastic changes to have it; for example, more than half (58 per cent) would change jobs or industries for hybrid or remote work. 💡

RUSSIAN PIPELINE GAS EXPORTS TO EUROPE COLLAPSE TO A POST-SOVIET LOW



RUSSIAN GAS EXPORTS to Europe via pipelines plummeted to a post-Soviet low in 2022 as its largest customer cut imports due to the conflict in Ukraine and a major pipeline was damaged by mysterious blasts, Gazprom data and Reuters calculations have showed.

The European Union, traditionally Russia's largest consumer for oil and gas, has for years spoken about cutting its reliance on Russian energy, but Brussels got serious after the Kremlin

sent troops into Ukraine in February.

State-controlled Gazprom, citing Chief Executive Officer Alexei Miller, a long-standing ally of President Vladimir Putin, said its exports outside of the ex-Soviet Union will reach 100.9 billion cubic metres (bcm) this year.

That is a fall of more than 45 per cent from 185.1bcm in 2021 and includes supplies to China via the Power of Siberia pipeline, through which Gazprom supplied 10.39bcm last year.

Russian direct gas exports to Germany, Europe's largest economy, were halted in September following blasts at the Nord Stream pipelines in the Baltic Sea.

The 100.9bcm of Russian gas pipeline supplies, which Gazprom defines as exports to 'far abroad', or outside the former Soviet Union, is one of the lowest since the collapse of the Soviet state in 1991.

One of Gazprom's previous post-Soviet lows of gas sales to 'far abroad' was at 117.4bcm in 1995, according to Gazprom Export.

Meanwhile, Russia has been increasing its sea-borne liquefied natural gas (LNG) sales, thanks mostly to the Novatek-led Yamal LNG plant in the Arctic.

According to the Rosstat government body, Russia's LNG production rose by almost 10 per cent in January-November to 29.7 million tonnes.

And Russia has managed to offset lower gas imports to Europe by higher energy prices as its budget revenues from oil and gas jumped by over a third in the first 10 months of the year.

Gazprom also said that its 2022 gas output is seen at 412.6bcm, which is down from 514.8bcm in 2021, when it reached a 13-year high. 💧

US LNG EXPORTS FALL 5% AS SHIPMENTS TO EUROPE SLIP



US EXPORTS OF LNG declined five per cent to 6.84 million tonnes in January compared to the prior month as cold weather boosted domestic demand and producers sent less gas to European customers, reports Reuters.

A total of 95 cargoes carrying LNG departed in January from US ports

mainly bound for customers in Europe, which received 68 per cent of exports. Asia took 23 per cent of the total, according to data from Refinitiv Eikon.

In December, US LNG exports had increased to 7.22 million tonnes as producers made an effort to supply as

much as possible to Europe. Clients there took 79 per cent of total exports that month.

LNG exports from the United States declined to 6.84 million tonnes in January amid a cold snap that boosted demand of natural gas.

Delays to restart the second-largest US LNG plant Freeport LNG after a fire have also created limitations to export the superchilled gas since mid-2022.

Freeport LNG recently asked US regulators for approval to supply natural gas to one of the three idled units at its Texas plant, a milestone in efforts to restore production after a seven-month outage. Federal officials had barred the producer from resuming output until they could complete an extensive safety evaluation. 💧



MISSION ZERO

HOW TO REAP THE ECONOMIC BENEFITS OF GREEN GROWTH

In January, former Energy Minister **Chris Skidmore** MP published his net zero review *Mission Zero*, which outlined the opportunities offered by net zero and how the UK can seize them



The UK's leadership on tackling climate change has delivered real change at home and led to a global transformation - but more should be done to reap the economic benefits that presents - this is according to former Energy Minister Chris Skidmore MP whose net zero review was published in January.

Mission Zero makes 129 recommendations, covering areas including the greater role that business can be supported to play, making better use of infrastructure and delivering more energy efficient homes.

Each recommendation has been designed to maximise economic investment, opportunities and jobs - all while working towards achieving legally binding targets to reach net zero carbon emissions by 2050,

according to Mr Skidmore's review.

He is urging ministers to grasp the 'historic opportunity' presented by green growth, highlighting how the government's Net Zero Strategy offers the right direction and the right policies to do so.

Speaking on the release of *Mission Zero*, he said: "We should be proud of the lead the UK has taken in tackling climate change, having exceeded expectations so far in our race to net zero emissions by 2050. As essential as that is environmentally, it also puts us at an economic advantage globally.

"We lead in areas including clean technologies, science, manufacturing and green finance - areas that, if managed right, can lead to new jobs and strong economic growth.

"In developing this report, we have engaged with communities, economists and climate experts from across the country through more than 50 roundtables and 1,800 submissions - all of which have led to the *Mission Zero* findings.

The net zero review travelled to all four nations of the UK, received over 1,800 responses to the call for evidence, and heard evidence at more than 50 roundtables across the country, making it one of the largest engagement exercises on net zero delivery in the UK.

"My recommendations are designed to make the most of this historic opportunity, covering the length and breadth of our economy, so that people in every part of the country can reap the benefits of this both in their communities, and in their pockets."

Mr Skidmore was commissioned to lead his rapid review of the government's approach to delivering its net zero target by former Secretary of State for Business and Energy Jacob Rees-Mogg last September. It followed major changes to the economic and political landscape, with Russia's invasion of Ukraine, historically high global energy prices and high inflation.

The review is split into two parts, with the first part exploring the opportunity, and benefits to individuals and the economy, emphasising that the UK must go further and faster to realise economic benefits.

The second part sets out a roadmap for how government and industry can

work to better exploit the opportunities and catalyse action in individual sectors of the economy, enhancing the role of local authorities, communities, and the individual to deliver the green transition.

The review was informed through a call for evidence and direct engagement with businesses, organisations, local government, academia and the public. The net zero review travelled to all four nations of the UK, received over 1,800 responses to the call for evidence, and heard evidence at more than 50 roundtables across the country, making it one of the largest engagement exercises on net zero delivery in the UK.

THE PROPOSALS INCLUDE: USING INFRASTRUCTURE TO UNLOCK NET ZERO

- ❖ Accelerating the implementation of the British Energy Security Strategy to update the mandate of Ofgem, creating the Future System Operator and accelerating the connection of cheaper renewables such as solar and onshore wind.
- ❖ Developing a cross-sectoral infrastructure strategy by 2025 supporting the building and adaptation of infrastructure for electricity, hydrogen, other liquid and gaseous fuels and CO₂ networks that support the green economy.
- ❖ Reforming the approach to planning, so that where locally supported, more solar and onshore wind can be developed more easily, helping communities reap the benefits of cheaper low carbon electricity.

CREATING SUSTAINABLE GOVERNANCE STRUCTURES FOR NET ZERO

- ❖ Developing an overarching government financing strategy by the end of 2023.
- ❖ Establishing an Office for Net Zero Delivery, responsible for placing net zero delivery at the heart of government thinking.

BACKING BUSINESSES TO GO GREEN

- ❖ Reviewing incentives for investment in decarbonisation, including via the tax system and capital allowances, and protecting British industries from environmental undercutting by progressing plans on carbon leakage measures and providing more detail on the UK's new Emissions Trading Scheme (ETS).
- ❖ Building skills needed for the transition by driving forward the Green Jobs Taskforce recommendations and launching a 'Help to Grow Green' campaign, offering information and

support to SMEs to plan and invest in the transition.

CATALYSING LOCAL ACTION

- ♣ Reforming the planning system at local and national level to place net zero at its heart.
- ♣ Backing for at least one Trailblazer Net Zero City, local authority and community, with the aim for these places to reach net zero by 2030.

INCREASING TRANSPARENCY AND ENGAGING PEOPLE

- ♣ Expanding the government’s public reporting on net zero.
- ♣ Ramping up public information through a new engagement plan, a new carbon calculator on the carbon cost of choices, and a standardised approach to ecolabelling on products.
- ♣ Developing a Net Zero Charter mark, acknowledging ‘best in class’ among firms for their work in reaching net zero.

DELIVERING CLEANER, CHEAPER, GREENER HOMES

- ♣ Legislating for the Future Homes Standard, meaning no new homes will be built with a gas boiler from 2025, and for all homes sold to be EPC C by 2033.
- ♣ Adopting a 10-year mission to make heat pumps a widespread technology in the UK and legislate for the end of new and replacement gas boilers by 2033 at the latest.
- ♣ Reforming EPC ratings to create a clearer, more accessible Net Zero Performance Certificate (NZPC) for households.

CAPITALISING ON INTERNATIONAL LEADERSHIP

- ♣ Conducting a strategic review on the UK’s international climate leadership and introduce environmental and climate protections in future free trade agreements, removing trade barriers to environmental goods and services.

SETTING OURSELVES UP FOR 2050 AND BEYOND

- ♣ Ramping up investment in research and development (R&D), with a new net zero R&D and technologies roadmap up to 2050, supporting up to three 10-year demonstrator projects.

Official statistics show there are already around 400,000 jobs in low carbon businesses and their supply chains across the UK, with turnover estimated at £41.2 billion in 2020. Both the British Energy Security Strategy and Net Zero Strategy aim to leverage an additional and unprecedented £100 billion of private investment, while supporting an additional 480,000 British jobs by 2030. ♣

REACTIONS TO THE NET ZERO REVIEW

ROSS EASTON, Interim Chief Executive of Energy Network Association (ENA), which represents the UK’s energy network operators, said: “This review is an important shot in the arm for the national debate around reaching our net zero goals. It highlights the pressing need for government to rapidly accelerate key decisions and regulatory changes, so that energy networks can build the right infrastructure, in the right places, at the right times, to help make net zero a reality.

“We must recognise the scale of the net zero transformation and the leading role networks will play in enabling decarbonisation, therefore we must ensure they are fully enabled and empowered to deliver.”

A spokesperson for gas distribution network SGN said: “To meet our 2050 ambitions, we need to focus on delivery in the next decade and we welcome the findings from the independent review of net zero, which reaffirms the UK’s climate commitments.

“At SGN, we are committed to playing our role in delivering net zero, and transitioning the grid to support the delivery of a hydrogen economy. With 23 million households currently using gas across the country, we’re going to need every available technology to achieve net zero. That means hydrogen, heat networks, heat pumps and biomethane.

“As we move towards a net zero future, the resilience of our energy system has never been more important. Net zero and energy security go hand in hand and we believe green technologies, such as hydrogen, will play a leading role in delivering a resilient energy system. We therefore welcome the review’s recommendation for a 10-year delivery roadmap for the scaling up of hydrogen production, which could help to reduce our dependence on global energy markets by utilising the UK’s rich renewable

resources.

“This is the decade that we can turbocharge our journey to net zero. At SGN, we’re fully committed to enabling that

transition and we look forward to supporting the UK government in delivering the review’s recommendations.”

Environmental Audit Committee Chair Philip Dunne MP said: “Skidmore’s review demonstrates, unequivocally, the countless opportunities net zero brings. His emphasis on clarity and leadership cannot be understated.

“In some areas the UK government has made major advances in tackling climate change, and its stated ambition is undoubted. But inconsistent policies and a lack of coherence across government in implementation, with little effective cross-departmental governance, does not give confidence to those sectors that will drive real change and develop green skills.

“Getting the tools in place to deliver net zero makes economic sense, and can cement our role as a world leader in tackling climate change. The benefits are too critical to get this wrong.

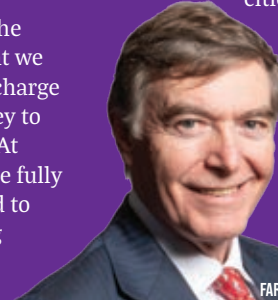
“The review reflects many issues the Environmental Audit Committee has been calling for over the years.”

Net Zero North West’s Chair Carl Ennis said: “We congratulate Mr Skidmore and his team for a comprehensive and insightful report. As the report notes, net zero is the economic opportunity of the 21st century and the UK is well placed to benefit. But as an international company, we see that there is a global race for green investment and the UK runs the risk of falling behind or losing out completely in some areas.

“It is not that there is a lack of ideas or strategies. Rather, we need the government to deliver on existing plans and provide greater policy certainty to unlock business investment. We must also stop our siloed approach to this problem, as we do in the decarbonisation of

cities, for example

and adopt whole systems solutions. We hope the Government will take on board the messages in this report and adopt its recommendations.” ♣



FAR LEFT: ROSS EASTON; LEFT: PHILIP DUNNE



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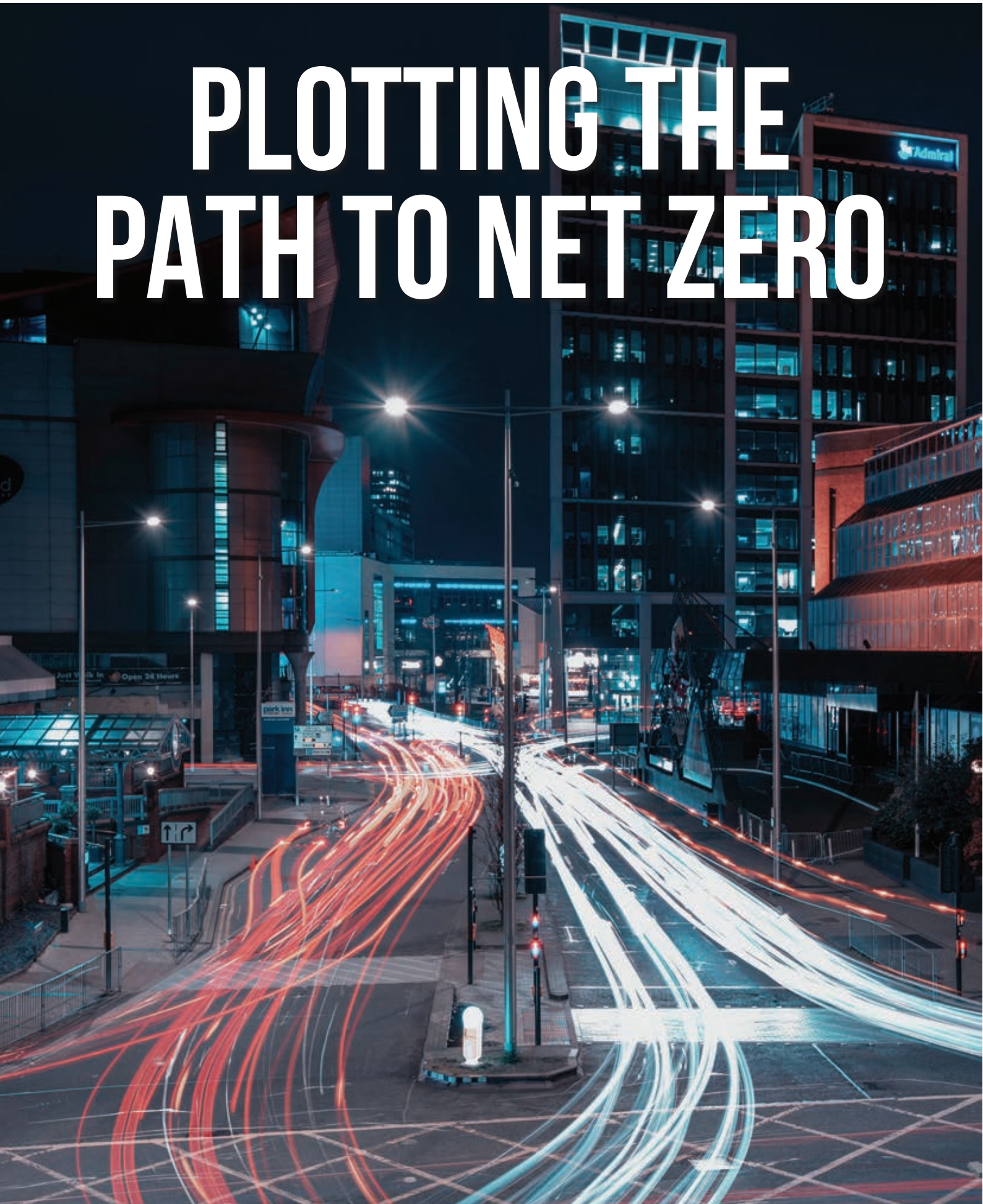
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PLOTTING THE PATH TO NET ZERO



Wales & West Utilities has published its *Regional Decarbonisation Pathways* report which sets out options for a future net zero energy system across Wales and south west England

Wales & West Utilities (WWU) has been working with independent experts, Energy Systems Catapult (ESC) and engineering consultancy Costain since July 2021 on local and regional modelling work to identify the energy network requirements to meet the UK government's 2050 net zero deadline.

The work has explored a number of scenarios to assess the future role of the gas network, and highlights opportunities for low carbon hydrogen production in Wales, alongside a dynamic net zero energy system in south west England.

The report will help local authorities and other organisations make decisions on local area energy planning and help plan the development of the gas network for net zero.

While the role of the gas network will evolve over the next 25 years, the report's findings indicate that the gas network, and the hydrogen it will transport, will need to play a key role if the UK is to meet net zero targets.

A significant amount of the existing gas network can already be reused to deliver hydrogen. This will help tackle the challenge of decarbonising sectors like aerospace and shipping, alongside targeted investment in dedicated new infrastructure.

Matt Hindle, Head of Net Zero and Sustainability at Wales & West Utilities, said: "Delivering net zero means changes to the energy system in communities across the country. While national targets are clear, we know local authorities and our regions want to understand what these changes could mean for them, and what options will be available.

"The *Regional Decarbonisation Pathways* report, written and developed by independent experts, provides that information. And by coupling scenario development with detailed engineering analysis, we have developed a more detailed understanding of the role of hydrogen and gas network infrastructure as we transition to a green, net zero energy system."

The key findings in the report include:

❖ **Repurposing the gas grid is essential to delivering net zero homes and industry:**

The gas network and the hydrogen it will transport will be essential in helping the UK achieve its net zero ambitions – even with high levels of electrification of home heating.

❖ **Hydrogen is essential to decarbonise home heating:** An energy system with hydrogen and electric heating working together will make sure people can stay warm and comfortable at the coldest times of the year, while keeping disruption to a minimum.

❖ **Smart hybrid heating systems support the delivery of decarbonised home heating:** They reduce the electricity network investment needed and can work alongside hydrogen boilers, making sure we make best use of existing infrastructure, while keeping the impact on homes and customer bills to a minimum.

❖ **Hydrogen will be essential to decarbonise industry:** Supported by natural gas with carbon capture and storage, it will make sure that industry across the country can decarbonise.

❖ **Wales offers a strategic location to start the production of hydrogen at scale:** Hydrogen produced in Wales will enable the early decarbonisation of heavy industry in the area and deliver wider economic and employment opportunities.

❖ **Hydrogen offers south west England unique opportunities:** The region has a rich engineering and energy history, and hydrogen will allow the decarbonisation of local homes, industry and transport – potentially including hard to reach sectors like aerospace and shipping.

The present study work has taken an initial look at developing a Regional Decarbonisation Pathway for Wales and the South West. It sets out a credible gas network decarbonisation strategy in consideration of:

❖ Future energy demand as defined by energy systems modelling scenarios, which optimise whole system costs based on the input assumptions assigned for each scenario, whilst meeting 2050 net zero emission targets and broad energy supply and demand balance requirements

❖ Current UK energy strategy and specific plans for UK-wide gas network development, particularly in regard to hydrogen supply, transmission and storage.

❖ Practical considerations in terms of regional hydrogen production capacity, network capacity, network integrity and gas network reliability to meet security of supply commitments.

REPORT CONCLUSIONS

Under some scenarios, hydrogen is introduced into the distribution from the early 2030s. If new infrastructure is required and given the length of time that planning approval can take, it would be prudent to consider starting conceptual design activities in early 2024.

This work constitutes the first step in what will be a structured and managed programme of works which will move from a focus on studies to implementation works over time. This programme of works will be more explicitly drawn out in the work presented in the Regional Decarbonisation Pathways plans.

A number of assumptions used in the energy systems modelling aspect of the delivered scope of work have been discussed and agreed in consideration of any evidence available from existing work to date and from key stakeholder feedback.

"Delivering net zero means changes to the energy system in communities across the country. While national targets are clear, we know local authorities and our regions want to understand what these changes could mean for them, and what options will be available"

It is acknowledged that predicting the precise decarbonisation options and the magnitude of each in the overall future energy consumption framework is a challenge. However, it is expected that the potential envelope of possibilities can be defined to some degree of confidence by the extreme scenarios of high electrification and high hydrogen as per Future Energy Scenarios approaches.

It was therefore decided not to investigate the extreme extents of either electrification or hydrogen network scenarios in the present study since the probability of such scenarios being realised is low.

However, if in future it is identified that the UK is demonstrably on a trajectory to realise one of these extreme scenarios, then this study work should be updated at that time if required.

The analysis performed has identified that the decisions made by key industrial stakeholders (such as power plant operators) if implemented as a block, could drive outcomes towards one extreme or the other. In other words, a median outcome is not necessarily also a more likely future outcome.



UK decarbonisation strategy, particularly on hydrogen, is based around the development of hydrogen production and baseload demand driven by decarbonisation of major emitters at Industrial Clusters. The key emitters (power generation and iron and steel industry for the case of Wales) are likely to have a significant impact on the initial net zero pathway solutions which are established in each region.

It is recognised that at this early stage there is considerable uncertainty in terms of how and when individual industries and specific sites will decide to decarbonise and therefore the energy systems infrastructure which will be retained, extended and/or developed to support this activity.

While assessments including energy systems modelling and network conversion plans can be developed based on the study assumptions, the present work has a sizeable degree of uncertainty attached.

This is not unusual at the early optioneering and feasibility stage of an engineering programme, or enterprise. Uncertainty in the definition of decarbonisation pathways may also come from the fact that gas and electricity network operators would need to react to policy driven developments undertaken by others, at a point in time when this policy is deployed.

Energy Systems Catapult's ESME

modelling provides a credible perspective on future hydrogen demand in WWU's area of operations across Wales and the South West.

However, in practice the future could potentially look very different, dependent upon the strategic designs made by a few key stakeholders.

UK government policy, such as the UK's Industrial Cluster Mission, is likely to initially drive hydrogen production and demand for industrial emissions reduction.

North Wales and the South West are likely to take the lead from the infrastructure projects being developed in the North West and South Wales (Merseyside and South Wales Industrial Clusters).

Power producers are a key gas consumer. How they decarbonise operations will significantly influence the future regional hydrogen demand. Similarly, the decarbonisation decisions made by the four main non-power emitters: Tata Steel Port Talbot, Valero Pembroke Refinery, and the cement works at Padeswood and Aberthaw, are also likely to have a significant influence on the decarbonisation solutions which are implemented overall in their regional location and also when they are implemented.

If there are no large industrial hydrogen related projects, then any hydrogen roll-out is less certain and would be expected to take longer. With the technical and

practical gas and electricity system constraints likely to have an increased impact on selected solutions.

Matt Hindle added: "It's essential that gas goes green if we are to decarbonise home heating, heavy industry, power and transport in an affordable and sustainable way.

"This report demonstrates that high levels of electrification of home heating will not be enough to meet our ambitious climate targets and the repurposing of the gas grid will be an essential part of delivering net zero to homes and industry."

Wales & West Utilities is investing £400 million between 2021 and 2026 to deliver a net zero-ready gas network by 2035. The company is also committed to playing its part in getting to net zero carbon emissions by 2050. It has 46 power stations connected to its network to support renewables like wind and solar power, while 19 green gas sites inject enough decarbonised green gas to power approximately 180,000 homes. Additionally, the company's network supplies bus garages in three locations across the south west of England, fuelling CNG buses that improve air quality and reduce carbon emissions from public transport. ♡

♡ *The full Regional Decarbonisation Pathways report is available to read at www.wwutilities.co.uk*

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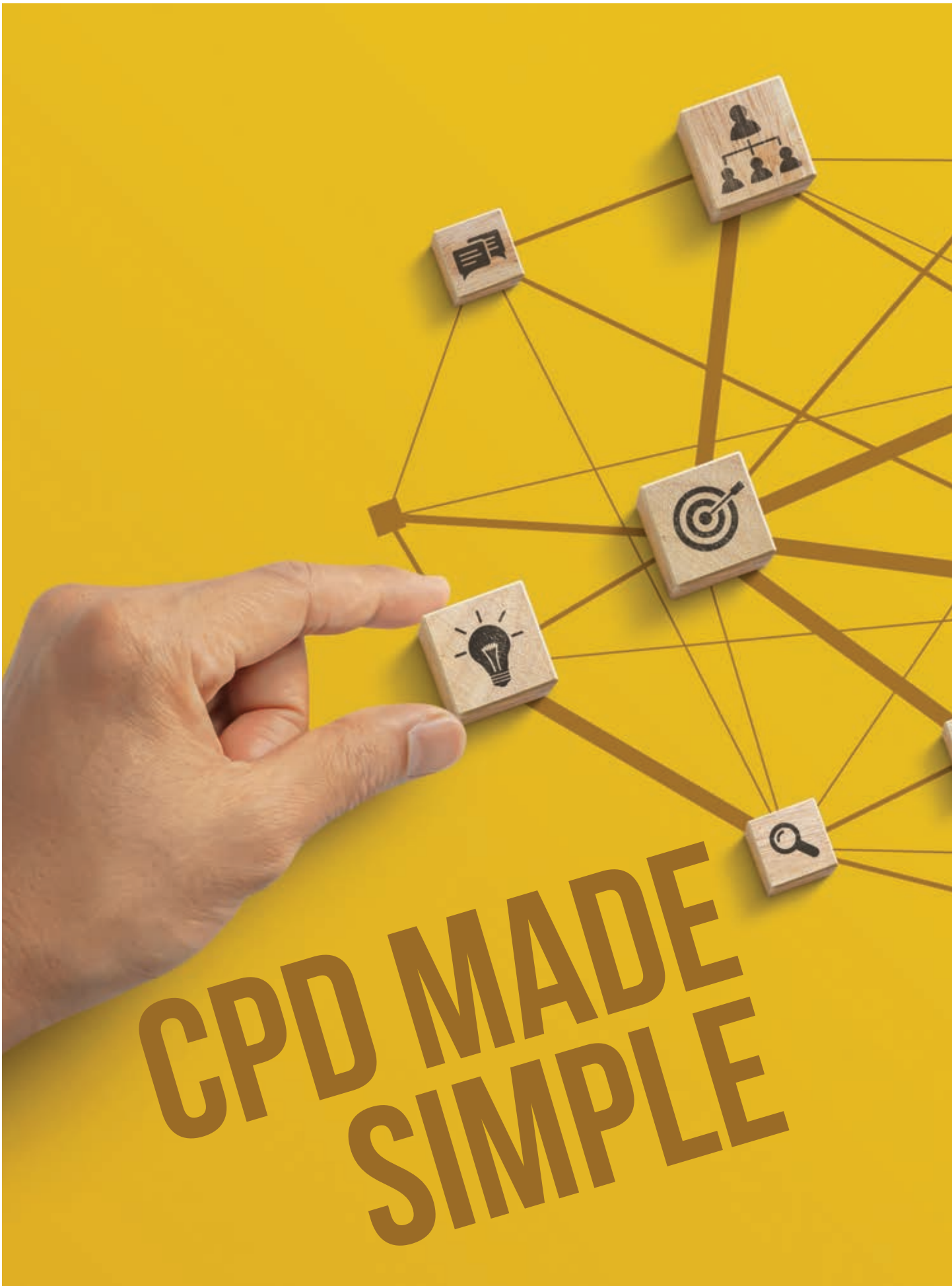


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**CPD MADE
SIMPLE**



Ross McCart, IGEM Professional Development Officer, gives his handy tips for recording your CPD and reflecting on the knowledge you have gained through your work

In an ever-changing world filled with new technologies, new laws and new challenges, it is more vital than ever that those working in the gas industry keep their skills and knowledge current and up-to-date.

You can do this in all kinds of ways. Sometimes, these are conscious decisions such as attending training courses or staff briefings. But sometimes they are things you do without thinking about it such as mentoring a new colleague, double checking figures in a calculation or catching up with colleagues over a cup of tea.

All of these things, and more, are continuing professional development (CPD) and it doesn't matter how you do it. It only matters that you do it.

CPD is critical for any group of professionals, from doctors and nurses to solicitors and accountants, and it is especially true for those working in the gas industry, whose work can affect thousands of lives.

In our industry, getting something wrong could result in something as simple, but annoying, as spending five minutes to correct the mistake - or it could result in explosions that risk lives. This is something anyone working in the industry is aware of and as a result you'll find that you are doing CPD on an almost daily basis. There are always lessons to learn and opportunities to improve.

CPD is critical for any group of professionals, from doctors and nurses to solicitors and accountants, and it is especially true for those working in the gas industry, whose work can affect thousands of lives

There is a risk that you may be missing out on opportunities or missing some key lessons. To really capitalise on CPD activities and cement the lessons learnt, you need to record them. Whether you jot it down in the back of a notebook or log it on a company system,

the thing that is almost as important as doing the activity is recording that you did the activity and, by extension, reflected on what you learned.

Recording your activities gives you a moment to stop and look at what you've achieved. It may only take you two minutes to write something down, but sometimes that's all you need to give yourself the chance to lock in the knowledge. This in turn means that you're more likely to remember it off-hand in the future and save time constantly referring to your notes.

Or, maybe your memory isn't that great and it takes you more than two minutes to absorb something. In that case, the CPD record is equally important as it will give you a chance to refer back and refresh yourself.

A record of your CPD activities also doubles as a record of your development. This record can help you better understand yourself. By reviewing your CPD record, you may notice that you get more out of a particular type of activity than another. Maybe you're the type of person that learns better through discussions with a colleague, or maybe you prefer to sit in a quiet room and research things at your own pace. Maybe you need to read up on something before trying it, or maybe you're better with a more hands-on approach, seeing something in action first.

We're all individuals and our CPD records will reflect this. By recording and reviewing your CPD activities, it will help you to map out and plan your future training and development so that you get the most out of it, which can only be good for your career.

Today we seem to be busier than ever, so when it comes to recording your CPD activities, the best way is little and often. Although you are likely doing CPD activities on a daily basis, there's no need (or time) to record everything. Taking two minutes once a week or even once a month to record your CPD is fine. The best way to record CPD is by habit. Maybe on the last Friday of every month you could get yourself a cup of tea and take five minutes to record a couple of things you did that month. Or, every Monday, before you open your emails, you could take two minutes to do a quick CPD update.

Once you're in the habit of recording your CPD activities, you can then start taking a bit of time to reflect on the activity itself. Recording a CPD activity – simply jotting down what you did – is a critical first step and it can provide some insight into your preferred



development activities. But to really make the most of the CPD activities, you need to actually sit down and reflect on what you've learned. What skills did you develop/improve? What knowledge did you gain? And how will you now apply these in the workplace?

By reviewing your CPD record, you may notice that you get more out of a particular type of activity than another. Maybe you're the type of person that learns better through discussions with a colleague, or maybe you prefer to sit in a quiet room and research things at your own pace. Maybe you need to read up on something before trying it, or maybe you're better with a more hands-on approach, seeing something in action first

Recording the benefits gained from each CPD activity will give you a much better understanding of the activity, what you learned and how it helped you improve. By properly analysing each activity, you'll likely find that there were two or three things you learnt without realising it.

As discussed, we don't have time to sit and write essays on learning, but reflecting on CPD activities doesn't have to be a long, drawn-out process. You just need to take a few more minutes to really think about the activity. So maybe

at the end of the month you can grab a biscuit with your cup of tea and just take an extra 10 minutes to reflect on your CPD activities.

I'd like to highlight that although CPD records – how you record them and what you record – are up to each individual, you're not alone in this process. As the professional institution for the industry, IGEM will support you with any CPD requirements. Whether that's providing you with opportunities to complete CPD activities, through our Section and technical events, or providing you with a means to record them through our online mycareerpath tool, IGEM can support you with your CPD needs.

For the last seven years, we have written out to randomly selected professionally registered members and given them the opportunity to have their CPD records reviewed and to receive feedback. We recognise what a benefit this is and are now offering this facility to every member. From May, we'll be giving all members the opportunity to submit their CPD records to us and receive feedback and support.

So, if you're not sure what to record as CPD, how often or even how to record a CPD activity, then please contact us here at IGEM. We recognise the importance of CPD and will do everything we can to help our members record and reflect. 💡

💡 *If you'd like to know more about our CPD support, visit www.igem.org.uk/membership for more information or call our Membership Services team on +44(0)1509 678150.*



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SMARTester approved for Cadent network roll-out



PRESSURE TESTING THE PE MAIN AFTER A DEAD MAINS INSERTION

IMPROVING DATA COLLECTION

processes through innovative thinking is at the core of Cadent's aim to constantly optimise the service it delivers. Creating a culture where data sits at the heart of everything is the reason that in 2023, Cadent approved the SMARTester for use across its network.

SMARTester forms part of Cadent's strategy to ensure its data quality meets the expectations of the government's Energy Data Taskforce. SMARTester is now approved for all low and medium pressure test activities, providing Cadent with instant evidence that testing is fully compliant.

The big question is; what does this look like in practice for everyone involved? From the people working

on-site carrying out gas pressure tests, through to those at the SCO desk, authorising engineers and, ultimately, the customer.

Easy to use for Cadent teams on the ground, the wireless pressure tester works alongside the mobile app, guiding users through the industry's latest testing standards. As a robust pressure testing system, SMARTester guarantees that data capture and management are both efficient and smart.

Test data is easily accessed in real-time. This helps identify non-compliance, meaning Cadent can meet its reporting obligations. Suddenly, desktop auditing is a proactive endeavour resulting in shorter stand down periods and an overall saving in time and cost.

When it comes to data and asset audit trails, it is crucial that the right information is available to the right people at the right time. Investment to modernise data capture and management processes liberates information from the constraints of paper-based systems. Doing so offers better visibility of operational data, which delivers improved productivity and reduces delays in commissioning new mains and services. Customers can be confident that the work is being carried out to the rigorous standards that they expect.

Cadent Engineering Manager Kevin White recognises the importance of being a data-driven organisation. On the roll out of SMARTester, Kevin

said: “We continue to work towards transforming our network into a smart, self-sufficient and integrated one. Implementing SMARTester across the Cadent network helps us ensure operations support the outstanding levels of safety and reliability that our customers expect, while also minimising interruptions to supply.”

Designed and manufactured by Steve Vick International, SMARTester is already being used by energy suppliers including EDF and Octopus to document the safe installation of smart meters. The adoption of the SMARTester system by Cadent to enable testing on gas mains shows the broad range of opportunities that SMARTester has to offer the whole gas industry.

AUDIT TRAIL

The SMARTester system is an all-encompassing solution for creating reliable audit trails for pressure test data and asset management. SMARTester helps companies drive improved accountability by providing total confidence that pressure tests are immediately compliant, and that evidence is fully traceable.

The SMARTester system works to remove uncertainty and ambiguity from test data management. Each pressure test is conducted using a highly accurate wireless gas pressure tester, traceable to UKAS-accredited calibration equipment.

EVIDENCE

The wireless pressure tester transmits live data to the accompanying app, which uses the latest IGEM standards, and when a test is complete the data is submitted to the online portal. Additionally, SMARTester records live temperature and atmospheric pressure data to help build a complete picture. Timestamps, GPS location, photos and engineering notes provide further context.

The SMARTester system eradicates risk factors associated with managing paper documentation, dramatically reducing compliance investigation times. Likewise, field operatives can depend on SMARTester to provide proof of a perfectly executed tightness test.

ACCESSIBLE

Evidence is reported in a consistent and reliable manner. The SMARTester portal is a secure and searchable online repository of pressure test data. From within the portal, managers can generate and download test certificates, providing a straightforward and trusted method of data sharing.

PROACTIVE

With an abundance of data available from the online portal, SMARTester enables companies to harness the power of big data. Decisions about investigations and competency are well-informed and non-compliance is easy to identify. This means that desktop auditing is an insightful experience, converting test results into meaningful business intelligence.

SECURE

The SMARTester system is fully compliant with GDPR, with protocols in place to ensure the security and privacy of test data and confidential information. Only authenticated users have access to data. Test records or other business-related information are never stored in a publicly accessible repository or in an unencrypted state.

The product is developed and maintained by qualified and diligent engineers. Penetration tests and vulnerability scans are performed by CREST-accredited security specialists, ensuring the highest level of threat protection is afforded to business critical national infrastructure data. 🔥



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W E L C O M E T O

THE HISTORIC GAS TIMES

We are thrilled to announce that *The Historic Gas Times* has moved to *Gi*. On a bi-monthly basis, we'll be bringing you gas history updates from around the world, courtesy of our dedicated History Panel volunteers

Editors' Letter

A BIG WELCOME to any new readers who have stumbled across *The Historic Gas Times* section in this edition of *Gi*. *The Historic Gas Times* - or *HGT* - is a quarterly newsletter which has been published since 1994 as a standalone publication.

In 2022, it was decided to merge the publication with *Gi* in order to reach a wider audience of gas industry professionals. We also hope to maintain our links with those existing subscribers who are not IGEM members, who have supported *HGT* for many years.

HGT is the publication of The Panel for the History of the Gas Industry (PHI), which was formed in 1980. Since that time, there have been five panel chairs: Crawford Sugg, Don Wilson, Barry Wilkinson, John Horne and Russell Thomas. We are currently joined on the panel by Brian Sturt, Chris Sugg, Derek Robinson, Joan Waters, Nick King, Mark Smethurst, Sayda

Lees-Manning and Matt Winfield. The volunteers who make up the panel are passionate about recording and preserving the rich history of the industry and many of them have ancestors who were involved in gas long before they were born. They have a diverse range of backgrounds and interests, reflecting the gas industry itself.

We hope you enjoy this selection of stories we have compiled for you and we are looking forward to bringing you a regular dose of gas history in the months and years to come.

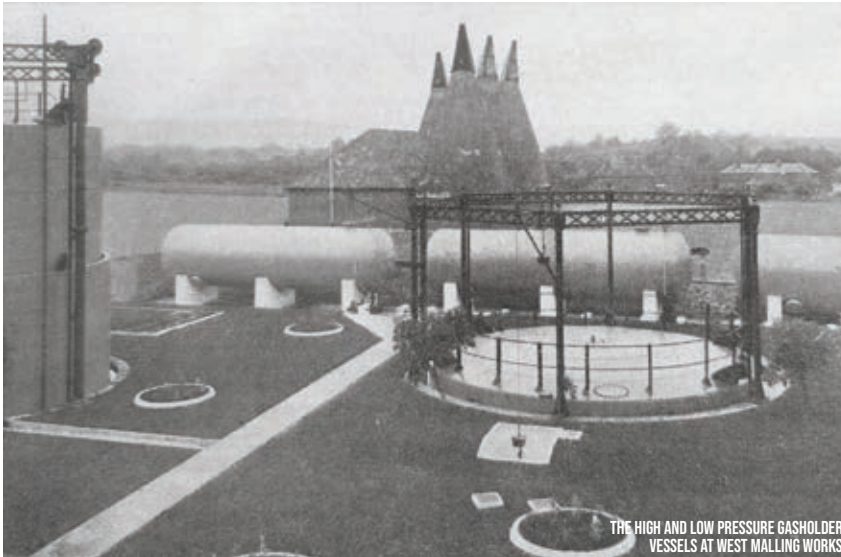
Russell Thomas and John Horne

Co-Editors, The Historic Gas Times

We are always looking for new content from our readers in the form of pictures, plans and stories about the gas industry. These can be sent to hgt@igem.org.uk or via post to History Panel, IGEM House, 26 & 28 High Street, Kegworth, Derby, DE74 2DA, United Kingdom.

WEST MALLING

THE MOST BEAUTIFUL GASHOLDER STATION IN BRITAIN?



LOCATED IN WHAT was a rural part of Kent, the high-pressure storage station at West Malling was a relatively unique site. Not only did it incorporate what was, at the time, state-of-the-art high-pressure gas storage, but it was also a very attractive small gasholder station of which great care was taken to ensure its pleasing appearance. The Gas Press discovered West Malling in the early 1950s, surrounded by blossom from adjacent orchards.

The gasholder station, which was described as unique at the time of these photographs in 1952, stored gas at a higher pressure than anywhere else in England. The site was originally a small gasworks, erected in 1854, which operated until 1905 when the Mid-Kent Gas Company acquired the gasworks.

The formation of the Mid-Kent Gas Company in July 1899 aimed to establish a large new gasworks in Snodland, replacing the smaller

gasworks in the grounds of Charles Townsend Hook & Co. Once the new gasworks at Snodland was built, the smaller gasworks at West Malling, Wrotham (Borough Green) and Staplehurst (which they had taken over in 1900) were closed early in favour of supplies from Snodland. The original retort house was later reused as the compressor house and motor room. West Malling became the epicentre of the Mid-Kent Gas Co distribution system, which supplied 23 parishes over a total of 127 square miles. In total, the company operated seven gasholder stations, all supplied from Snodland gasworks. The other stations included East Peckham, Laddingford, Paddock Wood and Waterringbury.

The Mid-Kent Gas Co came under the control of the South-Eastern Gas Corporation in June 1936. The South-Eastern Gas Corporation was established by GM Gill and the

merchant banking firm of Dawney Day and Co in 1932. It was subsequently taken over by the Gas Light and Coke Company in the following year.

In 1946, it had become necessary to provide for additional gas storage in the Mid-Kent Gas Co's area to meet the increasing demands for gas for new housing developments. Falconer Birks, then a Director of the South-Eastern Gas Corporation (and the Gas Light and Coke Company), was anxious to investigate the storage of gas 'for district purposes at a pressure of 200-250lbs/in² and the board of the South Eastern Gas Corporation agreed to install a high-pressure station at West Malling working at this pressure. In 1949, the Mid-Kent works of the South Eastern Gas Corporation were absorbed into the South Eastern Gas Board (SEGB).

The Mid-Kent Gas Co was a pioneer of high-pressure gas systems, which predated others in Britain. The long lead wool-packed joints used by the company were subject to leakage after World War II and the high-pressure system was rebuilt by SEGC and SEGB in the 1940 and 1950s. The works at Staplehurst were unique to SEGB as the site had a Horton sphere used for high pressure gas storage.

The gasholder station originally had two small low-pressure water-sealed gasholders, typical of such small country works.

The West Malling gasholder station could be controlled remotely by an Elliott Shotter system, which provided a continuous indication at Snodland of the pressure in the high-pressure vessels, the gas demand at West Malling, automatic control of compressors at West Malling, an indication at Snodland of motors and compressors in operation and a two-way telephone system.

Like many small former gas sites, there is nothing visible left of the West Malling works - even the Oast houses have since gone. 🍷



THE CONCORD GASHOLDER PRESERVATION



By Russell Thomas

IN CONCORD, the capital city of New Hampshire in the US, an impressive project has been undertaken to preserve one of the few remaining structures of the American manufactured gas industry. The structure, a gasholder house, was one of many that once existed across the northern states of the US and Canada.

The housing of gasholders is a practice which goes back to the earliest years of the gas industry. Following an explosion in October 1813, at the Great Peter Street gasworks of the Gas Light and Coke Company in London, an investigation by the Royal Society was arranged under the leadership of Sir Joseph Banks. There was concern that the gasholders were an explosion risk, which the then works engineer Samuel Clegg struggled to dispel. Clegg requested that a pick axe and candle were brought to him, after which he used the pick axe to create a hole in the side of a gasholder lift and then - with great concern from the visitors who quickly retreated - he proceeded to ignite the gas escaping from the hole with the candle. As Clegg had predicted, the gas burnt with a strong flame, but no explosion occurred, which will come as no surprise to those reading this. However, there were perhaps easier ways

of making this point. The subsequent Royal Society report, published in 1814, recommended limiting gasholders to 6,000 cubic feet capacity and placing them within houses.

The gasholders houses were thought to provide protection in the case of a gas leak and subsequent explosion, but they did the opposite if poorly ventilated. While these recommendations were soon done away with in Britain, the best surviving example from this time is the frontage of the former Warwick gasworks, which incorporated two gasholder houses. The building is now residential accommodation. The structures were useful to protect against heavy snowfall, which could damage an unhoused gasholder. Gasholder houses were therefore built across snowier parts of Northern Europe and North America.

Concord Gas Light Company was formed in 1850 to provide the city with gas light. They were unable to meet demand for gas and, by 1888, had built a new works off South Main Street, on a two-acre site which included the gasholder house in question - the only significant surviving feature. The gasholder house ceased operating in 1952 when the gas company switched from manufactured gas to supplying

natural gas brought in through new pipeline infrastructure. The Concord Gas Light Co had continued to preserve the gasholder house although it was not in use. However, the company has since changed hands several times.

Built in 1888, the Concord gasholder house provides a striking welcome to travellers entering the City of Concord from Interstate 93. Its curved red brick walls mirror the internal shape of the gasholder and the peaked slate roof and distinctive cupola form as familiar a feature as the gold dome of the New Hampshire State House. The gasholder house was built to store 120,000 cubic feet of gas when constructed. The structure operated in the same way as gasholders built in Britain; the 88-foot diameter vessel which stored the gas was kept in alignment within the gasholder house by guide wheels fixed to the top of the vessel. However, these ran along guide rails built into the walls of the gasholder house instead of being supported on columns, as we would have seen in Britain.

The gasholder house in Concord is unusual in that it still contains the working components of the gasholder. The last-of-its kind in the US, it is viewed as an icon of the city's history of industry and innovation. The structure was damaged by a tree following a storm in 2013 and has since been gradually



YANKEE STEEPLEJACK CO
CREW REPAIRING SLATE ROOF

deteriorating. Its owner, Liberty, announced its intention to secure a demolition permit for the structure in 2020. The gasholder house was listed on the National Register of Historic Places and the New Hampshire Preservation Alliance included the property on its 2020 'Seven to Save' list (for a second time) because of its national significance and imminent threat.

There have been many examples of gasholder houses being successfully converted to new uses in places such as Vienna, Copenhagen, Helsinki and Dresden, to name a few. The Concord gasholder provides a separate challenge as it still has the vessel present within the gasholder house. This provides some limitations on how the structure could be reused in a way that it ensures the health of future uses, the environment and the heritage of the building are all protected. There will be ways that this can be achieved, but for now the essential engineering works to stabilise the building have been completed. The stabilisation project could not have been made possible without the skill of a number of specialists involved, including Structures North Engineers, Yankee Steeplejack Company, Milestone Engineering & Construction and Bruss Project Management, who have worked with the New Hampshire Preservation Alliance in collaboration with property owner Liberty and the City of Concord.

The works have allowed the structure to survive the recent storms in North America, which have been a useful first test. This is just the first in a series of works required to secure the future of the gasholder house. The New Hampshire Preservation Alliance is engaging with stakeholders and partners to enable the future redevelopment of the site - an exciting project and no doubt one to watch for the future. 💡

💡 **For more information about the Concord Save Our Gasholder campaign, or to join the email list, visit www.saveourgasholder.org.**

GENERAL NEWS

CARRICKFERGUS GAS MUSEUM TO CLOSE

IN 2022, we received the sad news that the Carrickfergus Flame Gas Museum, in Northern Ireland, was to close its doors. It is sad that this once excellent museum, the last of its kind in the whole of Ireland, has closed. It was only in 2018 that the museum was awarded the Queen's Award for Voluntary Service. Hopefully, the museum is in a state of hibernation with protection provided under local and national government and there is hope that it will emerge once again. We hope our surviving museums - Fakenham, Biggar and Leicester - can continue to operate

and tell their important stories, with the Carrickfergus gasworks rejoining the fold in the future. Through telling their stories they can educate the public about the development of the energy industry and how it has evolved over the past 200 years. 💡



CARRICKFERGUS FLAME GAS MUSEUM

ICONIC BIRMINGHAM GASHOLDERS CELEBRATED IN NEW EXHIBITION



BIRMINGHAM'S THINKTANK MUSEUM

A CITY LANDMARK familiar to generations of families is being celebrated with a special exhibition at Birmingham's Thinktank science museum.

The giant 'twin' gasholders at Windsor Street were the largest in the world when they were first built in 1885.

Famously painted in the claret and blue of neighbouring Aston Villa FC, the gasholders were an important part of Birmingham's industrial heritage. Thousands of motorists on the nearby A38(M) Aston Expressway passed the

giant landmarks every day.

Part of the structures - along with oral histories - are in the display, which features a section of the joining plate which connected gasholder 13 and 14.

Birmingham's Thinktank is a science museum and part of Birmingham Museums Trust, located within the Millennium Point complex on Curzon Street, Digbeth. Its opening hours are typically 10am-5pm, Wednesday to Sunday. 💡

SEEKING YOUR INPUT: RESEARCH INTO THE GAS CONVERSION PROGRAMME

Russell Thomas, Chair of the IGEN History Panel, is undertaking a piece of research into the conversion programme which saw Britain move from town gas to natural gas in the 1960s and 1970s. He is keen to hear from any readers who were involved in the programme and may be able to provide insights.

More information can be provided by contacting him at russ.thomas@wsp.com

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COMPANY MEMBERS

WALES & WEST UTILITIES AMONGST THE FIRST TO ACHIEVE NEW INCLUSIVE SERVICE CERTIFICATION



WALES & WEST UTILITIES is among the first organisations to achieve BSI certification to the Inclusive Service Kitemark - demonstrating its commitment to supporting vulnerable customers.

The kitemark provides assurance that Wales & West Utilities is providing an inclusive and flexible service that benefits all consumers, regardless of

their personal circumstances.

The certified organisations have demonstrated compliance to the standard BS ISO 22458 on consumer vulnerability and the requirements for designing and delivering inclusive services.

Nigel Winnan, Customer and Social Obligations Strategy Manager at Wales & West Utilities, said: "We are delighted

to be one of the first nine organisations to have achieved certification to the new Inclusive Service Kitemark. It will help us to further build trust with customers and demonstrate that our services are fully inclusive, ensuring everyone is treated equally.

"We are especially proud as our certification covers our whole business, including our leadership team, back office, and operational workforce. Our colleagues are trained to identify customers who require additional support during our works and can refer them to our network of partnerships helping to tackle the cost of living crisis and ensure they are safe in their homes.

"This certification demonstrates our continued commitment to reaching the most vulnerable people in society and to do all we can to help them gain access to better support."

To achieve the BSI Inclusive Service Kitemark, Wales & West Utilities was assessed by an expert auditor against the BS ISO 22458 standard and scheme requirements. This was a two-part assessment, which involves a programme of ongoing surveillance now that certification has been achieved to assess continuing compliance. 💧

CADENT USES OLD PPE TO HEAT HOMES IN NEW PILOT SCHEME

CADENT HAS LAUNCHED a new scheme across its North West network to stop old PPE going to landfill, potentially using it to help keep people warm in their homes.

Colleagues are being encouraged to place all their old hard hats, overalls, glasses, gloves, boots and more into new blue bins at five North West depots.

The gas network has asked PPE supplier PWS to look for innovative ways to reuse this abundant and redundant kit.

Working with recycling specialist ShredStation, Cadent is now encouraging all North West employees - including contractors and sub-

contractors - to dispose of their old PPE in these new blue bins.

The intent is to turn it into material that can insulate homes, as well as provide feedstock pellets for power generation plants.

"We have thousands of employees, who each have thousands of items of PPE, that right now just end up in landfill after it's no longer usable," said Project Engineer Connor Weaver, who is leading the pilot scheme.

"This project isn't going to save money, but it is the right thing to do, to help us become a sustainable organisation that deals with its waste in the right way.

"We're already talking to our other four networks about rolling this out across Cadent, and we're also taking lessons learned from NGN, who run a similar scheme."

Connor added: "I am extremely invested in sustainability, and so is Cadent. As part of the sustainability strategy we set out for RIIO-2, we have sustainability goals and we have to satisfy the criteria we set out. These bins can help that, as a small but important step.

"Carbon management is so important for the future of our business, and every business. When the opportunity came my way to lead

SGN COLLEAGUES BRIGHTEN UP HOSPICE AS PART OF COMMUNITY SCHEME



SGN TEAM MEMBERS HELP OUT AT ST VINCENT'S HOSPICE



SCOT DOUGALL WITH TWO OF HIS COLLEAGUES PRESENTING THE £500 CHEQUE

A TEAM OF eight volunteers from SGN's Glasgow office swapped their day jobs for decorating to help out at St Vincent's Hospice, in Renfrewshire, Scotland.

The hospice and its staff offer specialist care and services to those affected by life-shortening illness. The team chose to help them as part of SGN's Community Action Programme, which gives employees time off to help out in their local communities.

Engineering Manager Scot Dougall wanted to give back to St Vincent's following the death of his brother-in-law Stuart, who died last year following a diagnosis of pancreatic cancer.

Scot said: "Stuart passed away on 18 June, at home, with his wife Ruth by his side. He was only 54. Throughout his illness, he received first-class support from St Vincent's. A palliative care nurse called Helen, who cared for Stuart and supported Ruth, was remarkable."

The team of eight colleagues painted rooms in an old barn, which is being converted into a day care facility, and will return to help out this spring. SGN also donated £500 to the hospice.

St Vincent's Hospice CEO Kirsteen Murray said: "It is incredibly tough for hospices like ours at the current time with finances stretched in all directions.

Not having to pay for the decoration of the barn was so very welcome and the gift of £500 on top, to pay for patient care, was a lovely bonus. We are all so grateful to SGN and Scot."

Scot added: "Thank you to all my colleagues for your hard work and dedication. I'd also like to thank SGN for giving us all the opportunity to give something back to our community and for also donating £500. But most of all, I'd like to thank St Vincent's. It truly is an amazing place that does incredible things, and we are eternally grateful for everything they did for Stuart and Ruth." 💧

this project, I jumped at the chance."

Almost every item of PPE that is out-of-date, or no longer compliant, or unfit for purpose can go in the bins. However, items that are or could be contaminated cannot; for example, any that may contain asbestos. These will be disposed of in the appropriate, normal manner.

The bins are clearly signposted at the depots in Hollinwood, Garston, Blackpool, Oakhill and Warrington. Cadent hopes to have additional bins in Great Harwood, Crewe and one of the Morecambe, Kendal or Barrow depots soon, to ensure full North West network coverage.

Stacey Weeks, Cadent's Sustainability Manager, said: "We're committed to zero waste to landfill, part of our environmental commitment, as we strive to make the societies where we work greener.



PROJECT ENGINEER CONNOR WEAVER IS LEADING THE PILOT SCHEME

"Initiatives such as PPE recycling are essential in helping us cut bulky items from our waste streams and deliver against that promise, but not only that we'll be helping keep homes

warm as the waste will be turned into material to insulate homes.

"I'm delighted the team are pushing ahead with this. It really will make a big difference." 💧



EMISSIONS DATA STEP CHANGE

By John Batterson, Network Asset Engineer at Cadent Gas and YPPC 2022 runner-up



FIGURE 1 GLOBAL WARMING POTENTIAL OF METHANE

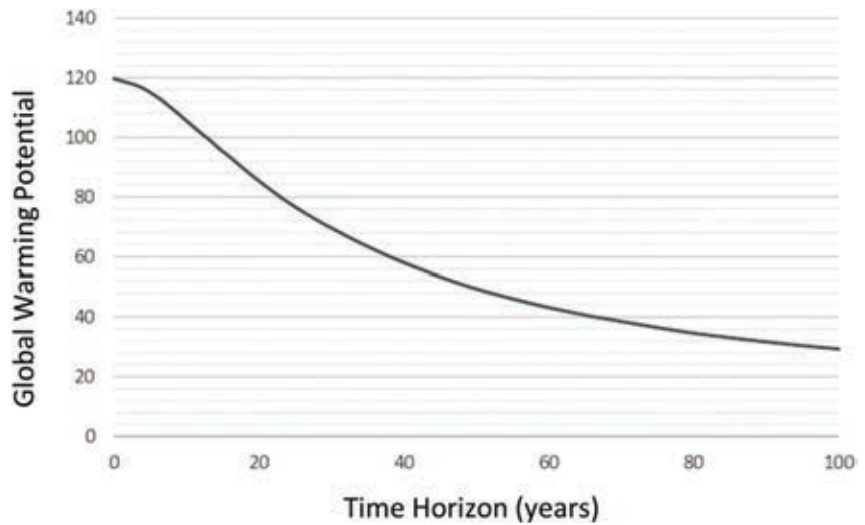


FIGURE 2 LEAK INDICATION SEARCH AREAS (LISA) AND DISTRIBUTION NETWORK ASSETS



GAS DISTRIBUTION NETWORKS (GDNs) within the UK use an Ofgem-approved shrinkage and leakage model to calculate the escape of natural gas (which contains around 90 per cent methane by volume) from its assets. This model is reliable at a network-wide scale but does not enable the localised targeting of methane emission hotspots.

Commonly quoted figures place the global warming potential (GWP) of methane at about 25 over a 100-year period. This means that each kilogram of methane emitted will warm the atmosphere by 25 times more than that of one kilogram of carbon dioxide in that time.

In the short term, methane’s warming effect is much higher - after 20 years in the atmosphere, its GWP is closer to 80. Rapidly cutting methane emissions is one of the best opportunities that countries and communities have to rapidly slow emissions that are causing the warming of our planet. This is reflected in targets set by organisations such as the Global Methane Alliance,

which endorses a 75 per cent reduction in methane emissions by 2030. The UK government’s target is a 50 per cent reduction by the same date.

The carbon footprint of UK GDNs is dominated by the methane lost from the network over its transportation journey (known as shrinkage). Eight-six per cent of this shrinkage is from the GDNs’ pipeline networks. These networks are extensive throughout the UK, providing energy to 23 million gas users across the country.

Being able to measure emissions at asset level can enable a new and improved response to large methane emitters. There are two ways of reducing methane emissions from a gas network: a) replacing the highest emitting gas pipes and b) targeting repair activities to the largest emitting leaks. Management of pressure within the natural gas network also has a part to play but is not an absolute solution to methane shrinkage.

My role within Cadent is focused on the asset management of London’s 20,000km of gas distribution pipes.

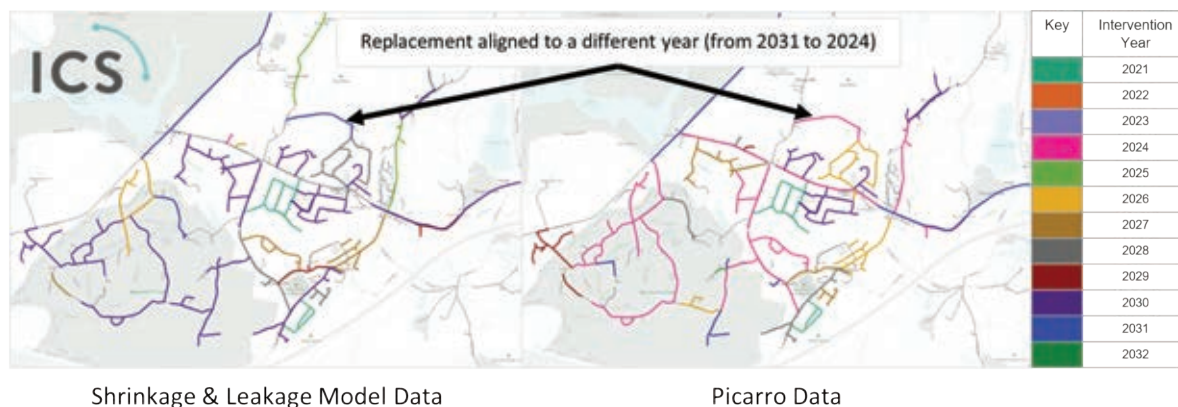
The data used to quantify methane emissions from these pipes is key to the asset management process. Recently, I managed a project which has produced a step change in how Cadent understands its assets and strives to beat the UK’s methane reduction targets.

SURVEYING FOR METHANE EMISSIONS AT ASSET LEVEL

Over the last 10 years, Picarro has developed a solution to measure actual methane emissions at street level. Using a vehicle-based data gathering platform and a model devised by machine learning, Picarro can survey a network and pinpoint leaks up to 200m from the vehicle. By driving the distribution network six separate times with a survey vehicle, the system builds an accurate model of gas leakage.

As an innovative project in the utilities industry, the trial of Picarro was eligible for funding through the Transport for London (TfL) lane rental fund. Cadent was successful in gaining investment from this fund through

FIGURE 3 REPRIORITISATION OF AN AREA WEST OF LONDON USING THE DATA FROM PICARRO



Shrinkage & Leakage Model Data

Picarro Data

an application paper that I authored. The surveying phase of the project took approximately seven months to cover 10 per cent of Cadent's London network, using a hydrogen-powered car as the vehicle platform for the survey equipment. Throughout this phase, the output from the Picarro system gradually materialised, an example of which is shown in Figure 2.

Leaks found by Picarro are indicated by the position of leak indication search areas (LISAs), which can often resemble the arcade game character Pac-Man. The geographical area of these LISAs designates where to search for the leak. Smaller LISAs indicate greater confidence in the leak location. The colour shows the methane emission flux (e.g., in litres/minute) of the leak. Redder areas indicate a larger emission flux.

Typically, the LISAs produced by Picarro extend over multiple assets, which are shown as purple linear assets in Figure 2. To 'plug and play' the data generated by Picarro into Cadent's systems, the flux from each LISA had to be projected onto a linear asset. I enabled and facilitated a key bridge between Picarro and Cadent's enterprise asset management software provider ICS to develop an algorithm to do this. It utilises a leakage model that ICS had already generated to inform the gas pipe replacement programme and apportions the flux onto the linear assets based on the intersection length of the asset within the LISA and its projected leakage. If two assets intersect a LISA with equal length, the one with a higher predictive leakage will inherit more of the LISA's flux.

IMPROVING GAS PIPE REPLACEMENT SEQUENCING

Within Cadent's London network, over 300km of gas pipes are replaced every year, driven primarily by the Iron Main Risk Reduction Programme, which will conclude in the early 2030s. This programme, enforced by the Health

By superseding the data from the shrinkage and leakage model with Picarro's data and reprioritising, the gas pipe replacement programme can drive an extra cumulative methane emission saving of 40 per cent by 2030

& Safety Executive (HSE), requires all small diameter iron gas pipes within 30m of a property to be replaced. The huge size of the gas pipe replacement programme within the UK provides an optimisation opportunity to maximise benefits across its duration. For example, replacing a gas pipe with poor asset health early on in the programme will cause less methane to be emitted to the atmosphere. The key to making this decision is the data used to optimise the programme, which until the arrival of Picarro was not at the asset level detail that is needed to drive interventions at local methane emission hotspots.

Cadent uses ICS' AIM tool to optimise its gas pipe replacement programmes. By superseding the data from the shrinkage and leakage model with Picarro's data and reprioritising, the gas pipe replacement programme can drive an extra cumulative methane emission saving of 40 per cent by 2030. This is on top of a programme that is already expected to meet the UK's target of a 50 per cent reduction in methane emissions by 2030.

TARGETING REPAIR ACTIVITIES

The maintenance and repair of gas pipes is a cornerstone of the gas distribution industry and is critical to complying with the Gas Safety (Management) Regulations set by the HSE. In the UK, the majority of gas leaks are reported through the National Gas Emergency

Service number when a member of public smells natural gas. This has proven to be a robust method to ensure the safety of the gas network, but it does not give a full picture of the health of the gas distribution network or enable the targeting of large methane emitters.

An overwhelming proportion of the volume of methane lost from the distribution network is generated by a small number of large leaks. Hypothetically, fixing the top five per cent of leaks by methane flux could reduce the shrinkage of the distribution network by up to 50 per cent. Factors such as leak recurrence must be factored on top of this figure, but it shows that there is a significant environmental benefit to proactively targeting the largest leaks on the network.

As part of the trial, the top 50 leaks found by Picarro were attended by Cadent's engineers. This is a significant opportunity area and one which will be explored in detail as part of a further roll-out of this technology.

CONCLUSION

Developing a company's intelligence over its assets can increase the effectiveness of its work activities. In the case of GDNs, the emergence of a new data collection technology for finding and quantifying methane emissions at street level presents a significant step change opportunity for how they manage their networks and resources that can benefit the environment and the safety of the network.💡

💡 *If you missed the YPPC Final, you can view all our finalists' presentations by logging on to our online video channel IGEMtv*

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PARTNERSHIPS

EMPOWERING CHANGE



IGEM joins up with the Women's Utilities Network to support women in the gas industry. Marketing Communications Co-ordinator **Jordanne Allsopp** reports

IGEM IS PLEASED to announce that we have partnered with the Women's Utilities Network (WUN).

The partnership offers IGEM members free access to the network as well as ongoing support, access to events, and networking opportunities with other women in the gas industry.

WUN board member Jo Butlin said: "We are delighted to welcome IGEM as a new partner working with WUN to extend our reach and offer our services across IGEM's membership of gas engineers and managers. We look forward to working with IGEM to support the development of women in this under-represented sector."

WUN was started in 2018 when a group of like-minded women working in the utilities sector came together for a common cause. They felt the sector was lacking in diversity and they felt

under-represented.

Five years on, they have over 4,100 members, hold regular events across the country and host a successful mentoring programme, which offers support from experienced mentors to women at any stage in their careers.

IGEM's Head of Membership Claire McHugh said: "At IGEM, we are strongly committed to promoting diversity and giving our members support opportunities.

"There has been an increase in women coming into the gas industry over recent years, but there is still a lack of diversity in the sector, and many women are still under-represented. We are thrilled to work with WUN for a variety of reasons.

"The collaboration will allow us to assist our female members in achieving their full potential, and together we

can build a community of women that can interact, grow, help and inspire one another. We look forward to supporting the growth of such a valuable network."

The WUN partnership was announced at our Women in Gas Networking Event, on 7 February, in London. At this event, a collection of women from across the industry came together to network, discuss their strengths and share their experiences with each other.

The afternoon had a large attendance from women all around the country including Stacey Churchill, IGEM's new EDI Secretariat Lead.

She said: "It was lovely to see so many women at our networking event. We had over 35 women attend of all grades and areas of the gas business.

"Lucy Ritchie, Advocate for WUN, kickstarted the event with the announcement of IGEM's partnership with Women's Utility Network (WUN).

"Shirley Course, representing IGEM's London, Southern and Eastern Section, encouraged group chats amongst the attendees. It was great to see so many likeminded women sharing practices and thoughts. We received some useful feedback which we will take on board ready for our next meet up."

The partnership with WUN is one of many efforts IGEM is undertaking to support equality, diversity and inclusion in the sector and within the institution.

Stacey added: "I am excited to be part of such an important group at IGEM. Together, the Equality, Diversity and Inclusion Group will guarantee IGEM provides equal opportunities and that we respect individual diversity.

"It is my aim to prevent discrimination, allow equal access to services and encourage positive attitudes. In February, we presented a webinar titled 'Unboxing Mental Health' in an attempt to help members understand mental health and recognise when others may be struggling." 💡

💡 *For more information about IGEM's equality, diversity and inclusion work, or if there are any topics/training you feel should be covered by our events team, email events@igem.org.uk.*

SPOTLIGHT ON...

APPRENTICES



In our ongoing series of case studies, **Jordanne Allsopp**, IGEM Marketing Communications Co-ordinator, is chatting to our members about their careers to date and how IGEM has supported them so far. To celebrate National Apprenticeship Week, she spoke

to former apprentice **Dave Williams**, now Network Asset Engineer at Cadent and an IGEM EngTech member

WHEN ASKED WHAT advice Dave Williams would give to anyone wanting to get into the gas industry, he said: "In my opinion, an apprenticeship is the best route to go down. Many of the great people I've worked with were apprentices or trainees at the beginning of their careers and it's a great way to gain a full understanding of the job from the ground up."

Dave started his career in 2007 as an Apprentice Pressure Control and Storage (PC&S) Engineer at National Grid. He said: "I was in a relatively large cohort of apprentices and was lucky to make some friends for life during those three years. Most of us are still in contact now and work together regularly."

Once Dave qualified as a PC&S Engineer in the North London network, he became involved in maintenance, commissioning, overhaul, and fault finding across a range of pressure control equipment and pipelines.

After a few years, Dave looked for some development as an engineer, which led to him successfully securing an assessor role in the skills and competence team. Dave said: "As part of this role, I assessed NVQ candidates in the workplace on safety, policy, engineering and procedural knowledge and competence. I was part of a team that tried to continuously reimagine and improve working methods."

He added: "I was happy to be line manager to some fantastic apprentices, some of whom are now evolving their careers in the same way I did and becoming very successful engineers."

He explained that he still tries to help where he can today by developing new

talent coming into the business. For example, Dave was recently asked to be the EngTech Lead for the Developing Engineers Forum at Cadent.

In 2018, Dave became an Asset Supervisor for the East of England network, where he utilised his engineering knowledge and operational experience to manage asset health and deliver strategic investment for the network.

During the pandemic, the opportunity presented itself to become an Integrity Engineer for the 2bar and below team, where he would focus on pressure reduction installations (PRIs) and DSEAR.

He said: "This was a fantastic role and really allowed me to develop my underpinning knowledge of gas industry engineering. One thing I loved most was being able to take the time to think, digest information and plan."

Dave now works as a Network Asset Engineer in asset investment for the

"I value EngTech for allowing me to be recognised as an engineer but also for the plethora of people it has brought me into contact with. Being the Cadent representative for IGEM's EngTech Working Group is a fantastic honour and I hope to utilise my network to help promote the grade more with the hope of bringing even more engineers into IGEM"

East of England network at Cadent. He hopes to learn more about asset management and add value to his team and to his stakeholders.

He said: "I'll be undertaking Institute of Asset Management training in the next few months and am looking to use that new knowledge along with my understanding and experience of the assets to develop a truly robust and resilient network asset management plan and ensure continued resilience and safe operation of the network."

When asked why he became an IGEM member, Dave said: "Originally, during my apprenticeship, IGEM members from the YPN came to discuss membership with my group and I became an apprentice member."

Dave then rejoined in 2019 as an EngTech. On his decision to return to IGEM, he explained: "I decided to become a member for recognition as an engineer in the gas industry and to open up access to a wealth of additional learning materials that weren't as readily available to me before."

"I value EngTech for allowing me to be recognised as an engineer but also for the plethora of people it has brought me into contact with. Being the Cadent representative for IGEM's EngTech Working Group is a fantastic honour and I hope to utilise my network to help promote the grade more with the hope of bringing even more engineers into IGEM."

When asked about his engineering heroes, Dave said two people in particular have influenced his life and career. The first is Richard Peck, Pressure Control Technician for the North London network. Dave said: "I wouldn't be where I am today without his help, support, guidance and no-nonsense way of explaining things."

He also mentioned John Grimsdell, former Network Supervisor for the North London network, adding: "Thanks to John, I have a keen interest in bringing through future talent and helping them the same way he helped me."

Finally, Dave emphasised the importance of asking questions. He said: "Don't be scared to ask questions, even if you understand something, double check. If you're not sure, ask. If you don't know, admit to it. It's harder to learn if you don't admit to not understanding or not knowing something." 💡

💡 *If you're interested in becoming an IGEM member, visit www.igem.org.uk/membership for more information or call our Membership Services team on +44(0)1509 678150.*



DAVE WORKED ON THE PETER'S GREEN REBUILD



HATFIELD KIOSK REBUILD

EVENTS

THE LION CONTINUES TO ROAR



David Goodall, Senior Engineer (Gas) at Steve Vick International and IGEM London Southern & Eastern Section member, reports from this year's London Showcase Event

I'M DELIGHTED BY the continued popularity of the London Showcase Event which saw over 150 friends and colleagues turn up to discover the latest innovations making an impact for the gas industry.

Kate Lazenby, Executive Director of the Pipeline Industries Guild, opened the event and thanked our event partner Cadent and all the exhibitors for their sponsorship.

Kate also took a moment to remember our dear friend and colleague Chris Bielby, who died last year following a diagnosis of motor neurone disease. The Motor Neurone Disease Association was chosen as this year's charity in his memory and were honoured to have both Chris's wife Pat and his daughter Kate with us at the event.

Our prestigious 'Lions' were then introduced to the stage: Andrew Musgrave, Chair and Head of Engineering & Network Strategy at SGN, Richard Sansom, Director of East Midlands Network at Cadent, and Professor Ruth Allen, Non-executive Director, Board Adviser and Visiting Professor of Infrastructure Engineering at the University of Exeter.

As in previous years, the event got off to a brilliant start with the Solutions for the Planet Young Presenters of the Year, who joined us from Alderbrook School, in Solihull. These were: Aidan Poore, Kharamjit Taak and Tyler Thompson, also known as the Charge Find Team, who presented their amazing solution for tracking power

supplies for charging vehicles.

Following some stiff questioning from our Lions, Simon Joyce, Chair of the IGEM London Southern & Eastern Section, congratulated the team and presented them with their awards. Simon then set the stage for our brave gladiators to step into the Lions' Lair.

I must say the competition standard was higher than ever with five contestants for the Lions' Lair.

First up was Gary Dwyer, Head of Gas at Radius Systems, with his presentation on the Hyperion hydrogen PE solution for the future of UK gas distribution networks. He demonstrated the work of Radius to develop a new pipe to carry hydrogen and test existing pipes for suitability.

Next was Pravin Smart, Research Engineer at engineering consultancy company Synovate, which aims to tackle climate change one pipe at a time with its new advanced robot technology to detect in-pipe leakage.

This was followed by Andrew Wrath, Product Manager for Flow at SICK UK Ltd, who presented the Ultrasonic Gas Meter Gas Quality Indicator with its goal to investigate how precise hydrogen purity determination is by SOS measurement.

Then it was Jonathan Kane, CEO of Kane International and representative for CO-Gas Safety, who gave a great presentation on training emergency service providers to test for carbon monoxide, therefore reducing the risks of poisoning by carbon monoxide in



the household.

Last but not least, Alex Phillips, Mechanical Design Engineer at Steve Vick International, showed off the new Large Diameter PE Cutter, which is safer, more accurate, cost effective and easy to use.

Simon thanked all the presenters and while the Lions deliberated on their difficult decision we retired to the exhibition area where we were able to network and enjoy a welcome hot meal.

Glenn Norman, Contract Director for Morrison Energy Services, introduced Antony Green, Hydrogen Director at National Gas Transmission, who gave the keynote presentation. And what a keynote presentation! His first words were: "Electric is the way forward" - and he definitely had our attention after that. Antony delivered an in-depth speech about the future of UK energy, sustainability and trying to reach net zero.

After the keynote presentation, it was my turn to take to the stage to present prizes to the Lions' Lair runners up, followed by a tribute to Chris Bielby. I then invited Chris' wife Pat and his daughter Kate to present the new Lions' Lair shield, named The Chris Bielby Award in his honour and memory, to the worthy winner of the Lions' Lair, Jonathan Kane. It was a fitting end to a wonderful evening which saw us raise a total of £516 for charity.

Following the event, Kate Bielby said: "Having the great privilege to attend one of my late father's favourite events and present the Lions' Lair award to its worthy winner was something I will treasure forever. Thank you, David, and all my father's friends and colleagues, for your kindness and support. He was truly blessed to work with such wonderful people."

Pat Bielby added: "We're forever grateful for the wonderful friends and colleagues of Chris. What a wonderful evening. Thank you to David and everyone who showed myself, Kate and Daniel such kindness on an evening never to be forgotten." 💎

💎 *If you wish to make a donation, visit www.justgiving.com/fundraising/chiltern-branch-mnda. Be sure to mention our beloved friend Chris Bielby in your message.*

AN ELECTRIC EXPERIENCE

IN JANUARY, 10 attendees from IGEM's North East & Yorkshire Section, visited the Leeds Schneider Electric Innovation Hub to find out more about Electricity 4.0 and the path to net zero.

Ben Gray, Marketing Manager, Power & Grid, and Schneider Electric's Nick Thompson delivered presentations on sustainability and the role Schneider Electric plays.

Jake Parnell, Software Solutions Assistant, Schneider Electric, gave a presentation on the AVEVA approach to unified operations centres which included a demonstration of the AVEVA software.

The group also looked at Schneider's Ecostructure; a single, open, IoT-enabled system which allows the company to innovate at every level.

Wez Little, Key Account Manager at Schneider Electric, said: "We love showing people around our manufacturing plants. Very few people can imagine there's such a massive one in the centre of Leeds."

NEY Chair Adam Madgett said: "This was an opportunity to see how the transition to support net zero is being supported by Schneider. The attendees were provided with a number of presentations and a tour of the production facility. Perhaps of most importance was their work in supporting clients with technology solutions for hydrogen." ❖



HOUSING MATTERS



Kevin Ransom, IGEM Company Member Engagement Manager, reports on the institution's first Housing Partner Conference

THE RAPIDLY GROWING IGEM Housing Partner membership helps landlord members in the social housing sector address the many challenges ahead. At the start of February, IGEM was proud to welcome members to the inaugural Housing Partner Conference, at Kegworth's IGEM House.

IGEM CEO Ollie Lancaster kicked off the day with insightful view of the UK energy landscape of tomorrow. Touching on the need to decarbonise the gas grid, he outlined the integrated whole energy solution we will require to heat homes, power industry, go electric for transport and keep the lights on.

Keith Owen, Head of System Development and Energy Strategy at NGN, highlighted the future of hydrogen in UK housing stock. He spoke about the Engineering Research Facility in Low Thornley, a place of global research for the gas industry over the last 30 years. He also spoke about the challenge of retrofitting homes and explained how the Customer Energy Village trial currently under construction aims to capture the full spectrum of challenges facing communities as they fight to reduce their carbon output.

Delegates also heard from Ewan Sutherland, National Training Manager at Worcester Bosch, who looked at the current

UK policy pathway for decarbonisation of heat in homes, the different appliance options and benefits, the forthcoming Bosch 100 per cent hydrogen-ready appliances and their benefits.

Richard Harper, from EU Skills, addressed bridging the skills gap of today and tomorrow and the practical, logistical and technical issues involved in converting buildings and appliances to use hydrogen.

Turning to the safety session, Steve Critchlow, Principal Gas Engineer for HSE, explained the importance of the Health and Safety at Work Act and the problems the HSE encounters. Steve also discussed the landlord's role with reference to Regulation 36 and some of the practicalities of compliance.

Concluding the safety session, Nick Evans, from Blueflame, discussed the DSEAR regulations, which set the minimum requirements for the protection of workers from fire and explosion risks related to dangerous substances and potentially explosive atmospheres.

The day was full of interesting topics and Durham County Council's Anthony Shale encapsulated the mood when he said: "The event was great. A good insight into many areas with some good contacts gained and a very friendly atmosphere." ❖

TECHNICAL Standards and updates from the IGEN Technical Services team

TECHNICAL STANDARDS

STANDARDS RECENTLY PUBLISHED

- IGEM/IG/1 Supplement 2 Domestic training specification*
- IGEM/G/11 Edition 2 Supplement 1 Responding to domestic CO alarm activations*
- IGEM/H/1 with amendments June 2022 Reference standard hydrogen utilisation*
- IGEM/G/11 Edition 2 with amendments July 2022 Gas industry unsafe situations procedure*
- IGEM/G/13 Domestic supply capacity and operating pressure at the outlet of the meter*
- IGEM/UP/19 Edition 2 Design and application of interlock devices and associated systems used with gas appliance installations in commercial catering establishments*
- IGEM/GM/PRS/3 with amendments July 2019 and July 2022 Meter regulators for gas flow rates not exceeding 6m³h⁻¹ and inlet pressures not exceeding 75mbar*
- IGEM/GM/6 Edition 3 Non-domestic meter installations. Standard designs*
- IGEM/TD/3 Supplement 1 Steel and PE pipelines for hydrogen*
- IGEM/UP/9 Edition 3 Application of natural gas and fuel oil systems to gas turbines*
- IGEM/SR/25 Edition 2 Supplement 1 Hazardous area classification for hydrogen installations*
- IGEM/UP/11 Edition 3 Supplement 1 Operation and management of gas installations within educational establishments*

- IGEM/GM/5 Edition 4 Electronic gas meter volume conversion systems*
- IGEM/G/12 Universally adopted symbols*
- IGEM/GL/8 Edition 4 Reporting and investigation of gas-related incidents*
- IGEM/TD/13 Edition 3 Pressure regulating installations*
- IGEM/TD/4 Edition 5 PE and steel gas services and service pipework*

WORKING DRAFTS

- IGEM/G/1 Edition 3 Defining the end of the network, a meter installation and installation pipework*
- IGEM/G/8 Edition 2 Handling, transport and storage of PE pipe and fittings*
- IGEM/GL/5 Edition 4 Procedures for managing new works, modifications and repairs*
- IGEM/IG/1 Supplement 4 LPG training specification*
- IGEM/UP/2 Edition 4 Installation pipework on industrial and commercial premises*
- IGEM/UP/20 Edition 2 Compressed natural gas fuelling stations*
- IGEM/UP/22 Design of VIT LNG vessels*
- IGEM/SR/16 Edition 3 Odorant systems for gas transmission and distribution*
- IGEM/SR/22 Edition 2 Purging operations for fuel gases*
- IGEM/SR/28 Edition 3 Trenchless techniques*
- IGEM/TD/2 Edition 3 Assessing the risks from high pressure natural gas pipelines*

- IGEM/TD/4 Edition 4 Supplement 1 Hydrogen blends*
- IGEM/H/2 Enabling standard for domestic hydrogen installations*
- IGEM/H/3 Enabling standard for non-domestic hydrogen installations*
- IGEM/H/4 Hydrogen quality standard*

DRAFTS AFTER COMMENT

- IGEM/UP/1 Edition 3 Strength testing, tightness testing and direct purging of industrial and commercial gas installations*
- IGEM/UP/1A Edition 3 Strength and tightness testing and direct purging of small low pressure industrial and commercial natural gas installations*
- IGEM/IG/3 Guidance for the safe recovery of road tankers*
- IGEM/IG/4 Bulk transport of LNG by road*
- IGEM/UP/12 Edition 3 Application of burners and controls to gas fired process plant*
- IGEM/UP/21 Liquefied natural gas fuelling stations*
- IGEM/G/6 Edition 2 Gas supplies to mobile dwellings*
- IGEM/GL/10 Gas quality specification for conveyance of Group H gases of the second gas family*
- Drafts at approval to publish*
- IGEM/GM/PRS/11 Purchasing specification for diaphragm meters*

GET INVOLVED IN IGEN'S STANDARDS

WE TAKE great pride in our standards and are always on the lookout for new panel members. If you are working in the industry and believe you can make

a contribution to the review process, please contact the Technical Services team by emailing technical@igem.org.uk or calling **+(0)1509 678179**.



CALENDAR

TECHNICAL TRAINING

- MAR 8-9** HYDROGEN AND THE NATURAL GAS NETWORK *Virtual*
- MAR 8-9** INTRODUCTION TO IGEN/TD/12 *Virtual*
- MAR 21-22** INTRODUCTION TO IGEN/TD/3 *Virtual*
- MAR 28-29** INTRODUCTION TO IGEN/TD/13 *Virtual*

- APR 19-20** HYDROGEN AND THE NATURAL GAS NETWORK *Virtual*
- APR 25,26,28** INTRODUCTION TO IGEN/TD/1 AND IGEN/TD/2 *Virtual*
- APR 25-26** INTRODUCTION TO IGEN/SR/25 *Virtual*

CORPORATE EVENTS

- MAR 16** SIR DENIS ROOKE MEMORIAL LECTURE *No 11 Cavendish Square, London*
- APR 18** GAS UTILISATION *National Conference Centre, Solihull*

SECTION EVENTS

- MAR 15** PIPELINE MAINTENANCE CENTRE VISIT *Hitchin, Hertfordshire*

MEMBERSHIP

Latest news from the Membership Services team

NEW COMPANY MEMBERS FOR IGEM

IGEM is pleased to introduce its newest Company Members

**CSD GAS LTD**

CSD Gas is a domestic and commercial gas engineering company working within the utilities sector in south east England. The company operates on the Cadent, London CMO and SGN contracts and its work includes multiple occupancy buildings, mains replacement and direct work streams.

HIIROC-X DEVELOPMENTS LTD

Working collaboratively with the University of Hull, HiiROC is a Hull-based small business that has developed thermal plasma electrolysis which will accelerate cost-effective and climate-friendly hydrogen production using production units the company has designed, developed and built. The business recently secured a grant of

£36,000 from the HEY LEP's Growing Hull and East Yorkshire business investment grant scheme to scale up production of these units.

ANDY SUTHERLAND TRAINING LTD

Using his 42 years' experience in the gas and utility fields, Andy Sutherland offers support and web-based training with a focus on gas and water distribution. An EUSR-approved trainer, Andy delivers all the main SHEA courses, including renewals and upgrades. He also acts as a mentor and assessor/verifier for candidates completing gas and water courses. His stated mission is to develop, learn and share his knowledge and experience with engineers to help them achieve their potential and safeguard the future of the industry. 💡

WELCOME TO OUR NEW MEMBERS

IGEM would like to welcome the following people who have joined the institution or transferred grades

ENGINEERING TECHNICIAN (ENGTECH MIGEM)

Dale Conchie
David Graham
Miss Heather Gribben
Mr Paul Kundi
Mr Robert Bonsell
Simon Terrell
Stuart Donnelly
Umar Uthman

GAS TECHNICIAN

Geraint Morgan
Mr Thomas Claxton
Richard Hulbert

ASSOCIATE (AIGEM)

Akash Hirani
Andrew Bradley
Calum Lorimer
Calum MacGillivray
Claire Scarfe
Declan Goater
Hazel Richardson
Iain Stephens
James Bowyer Adams
James Turnbull
Jessie Dhariwal
Jo Anne Tomkins
Michael Davies
Mr Calvin Mang Yau Chan
Mr Matthew Booth
Mr Stephen Murray
Pamela Colgan
Samuel Hansen
Colm Delaney

STUDENT

Lee Jones

To enquire about any of IGEM's forthcoming events or to exhibit at or sponsor an event, please contact the events team on +44(0)1509 678150 or email events@igem.org.uk Further details for each of the events can be found at www.igem.org.uk

NORTH EAST AND YORKSHIRE SECTION

MAR 22 BISHOP AUCKLAND COMPRESSOR VISIT AND DNV FLOW CENTRE

Bishop Auckland, Spadeadam

MAY 26 CHARITY BALL

Carrville, Durham

SOUTH WEST SECTION

MAR 07 HYDROGEN TRANSITION SHOWCASE

BAWA, Bristol

MAR 28 HPVC EXPERIENCE AND HPC SITE TOUR

Cannington, Bridgwater

MAR 28 AGM

WWU, Bridgwater

SAVE THE DATE

JUN 06 POLICY CONFERENCE

No 11, Cavendish Square, London

JUL 13 GAS INDUSTRY AWARDS LUNCHEON

Intercontinental London Park Lane



HYDROGEN AND THE NATURAL GAS NETWORK

*IGEM EVENTS AND TRAINING COURSES ARE SUBJECT TO CHANGE BASED ON GOVERNMENT GUIDANCE RELATING TO COVID-19 PLEASE CHECK THE WEBSITE FOR THE LATEST INFORMATION.

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OBITUARIES

ANTHONY CLEVELAND

GRADE: Fellow CEng

SECTION: London, Southern & Eastern

AGE: 96

OWEN FARRELLY

GRADE: Chartered

SECTION: London, Southern & Eastern

AGE: 82

SIR RICHARD V GIORDANO KBE 1934-2022



SIR RICHARD V

GIORDANO was born on March 24, 1934, in New York City, New York. He graduated from Harvard College in 1956 and got his law degree from Columbia Law School in 1959.

After working as a lawyer with Shearman & Sterling in New York City, Sir Richard joined Airco Inc in 1963 as Assistant Secretary. He was elected

President, Chief Operating Officer and a member of the Airco board of directors in 1971. He became Chief Executive Officer in 1978, the same year Airco was acquired by BOC Group. He was appointed Group Managing Director and Chief Executive of BOC Group (then BOC International) in October 1979. From January 1985 to December 1990, he combined his position as Chief Executive of BOC Group with that of Chairman. In July 1982, Sir Richard was appointed a part-time member of the UK Central Electricity Generating Board and continued in that post until the privatisation of the industry in 1989. He was a non-Executive Director of National Power until he retired from the board in September 1992.

On January 1 1994, he was appointed Chairman of British Gas Plc. Following the demerger in February 1997, he became Chairman of both companies (BG Plc and Centrica). He relinquished the chairmanship of Centrica at the end of June 1997 and he relinquished the chairmanship of BG Plc at the end of December 2003.

In December 1989, Sir Richard was appointed an Honorary Knight Commander of the British Empire for his services to British industry. In 2002, Sir Richard was granted British citizenship, which he held alongside his USA citizenship, and he was appointed an additional Knight Commander of the Order of the British Empire. In 1994, he was elected an Honorary Fellow of the London Business School. In 1995, he was elected an honorary Fellow of the Royal College of Anaesthetists, and in 1998 he was granted an Honorary Doctorate of Laws by Bath University.

A Companion of IGEM, Sir Richard is survived by his wife Marguerite, his brother Joseph, his children with former wife Barbara: Susan Giordano and her husband Walter Sass, daughter Anita Ustjanauskas and her husband Richard Ustjanauskas, their children Jessica and Jacob, son Richard Giordano Jr. and his wife Renee and their children Nicholas and Tessa. He will also be missed by his stepchildren with Marguerite, Katherine and Rule. 💧



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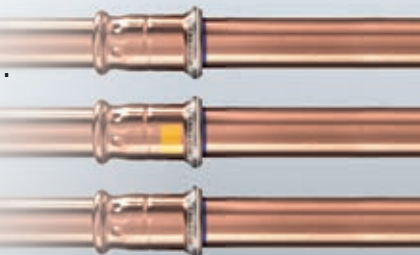
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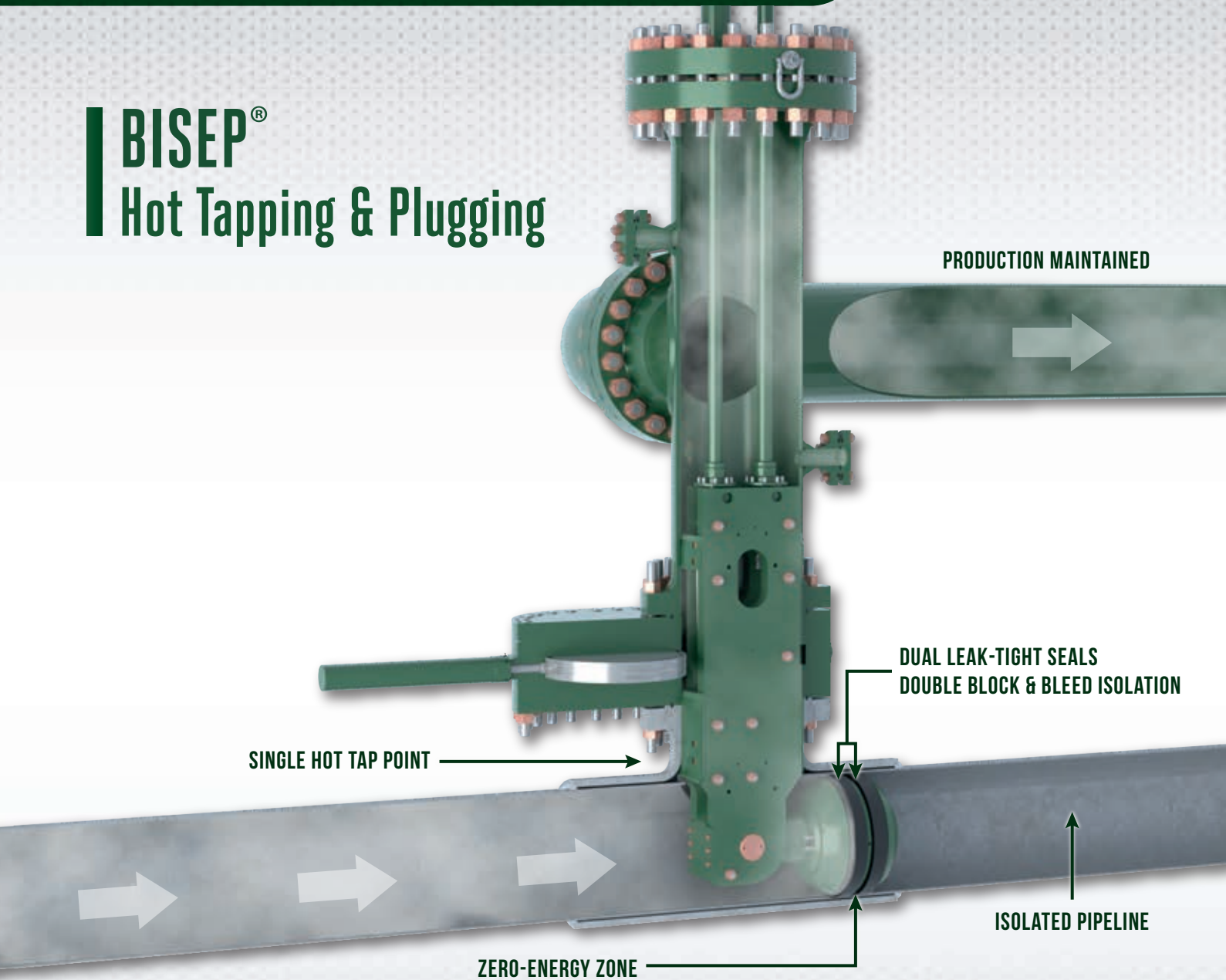




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