

October
2025

Cadent
Your Gas Network

Developing networks *for the future*

Long-Term Development Plan 2025



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Welcome

This document shares our vision for the future and the evolution of our network, focusing on the investments we plan to make over the coming years to keep our customers' safe and warm *while protecting the planet,* while maintaining the high reliability of the network as we transition to net zero.

Our approach is shaped by extensive engagement with customers and stakeholders, using a robust programme of research, regional forums, and ongoing dialogue to understand the expectations and priorities of our customers. Insights from this engagement captured through initiatives like our 'Energy Diaries'. Willingness to pay studies, and our customer challenge group have directly informed the proposals in our RIIO-3 business plan, ensuring our key initiatives and commitments reflect what matters most to those we serve, from safety and resilience to affordability, innovation and support for vulnerable customers.

Over the past year, we have made significant progress across many areas of our business. We have connected new anaerobic digestion sites, delivering low-carbon green gas for our customers, and developed innovative scenario modelling tools to help us plan robustly for decarbonising the gas network. These advances mean we are more agile and flexible in meeting the needs of our customers and communities, both now and in the future.

A central part of our commitment to operating a safe, secure, and resilient network is our Iron Mains Replacement Programme (IMRRP) – a long-term initiative to replace ageing metallic gas mains with modern, durable polyethylene pipes. This programme not only enhances safety and reliability, but also significantly reduces leaks from our network. To further support this, we are pioneering the Advanced Leakage Management Approach (ALMA), underpinned by our Digital Platform for Leakage Analytics (DPLA). This platform enables us to strategically target and prioritise the pipes that leak the most, improving network safety and reducing our environmental impact.

We are constantly seeking ways to minimise risk, control costs, and reduce our environmental footprint. Innovation is at the heart of how we work. We are moving from traditional modelling to direct observation – investing in advanced emission detection sensors and working closely with regulators and industry partners to accelerate change across the UK.

The HyNet and East Coast Hydrogen pipeline projects are progressing well. Collaboration with government and use of appropriate frameworks are ongoing to advance these initiatives to the next critical phases in the successful utilisation of hydrogen at scale.

I hope you find this report informative, and we welcome your feedback and suggestions for improvement. Please share your thoughts with us at cadentgas.com/ltdp



Dave Moon
Director of Asset Strategy

Operational footprint

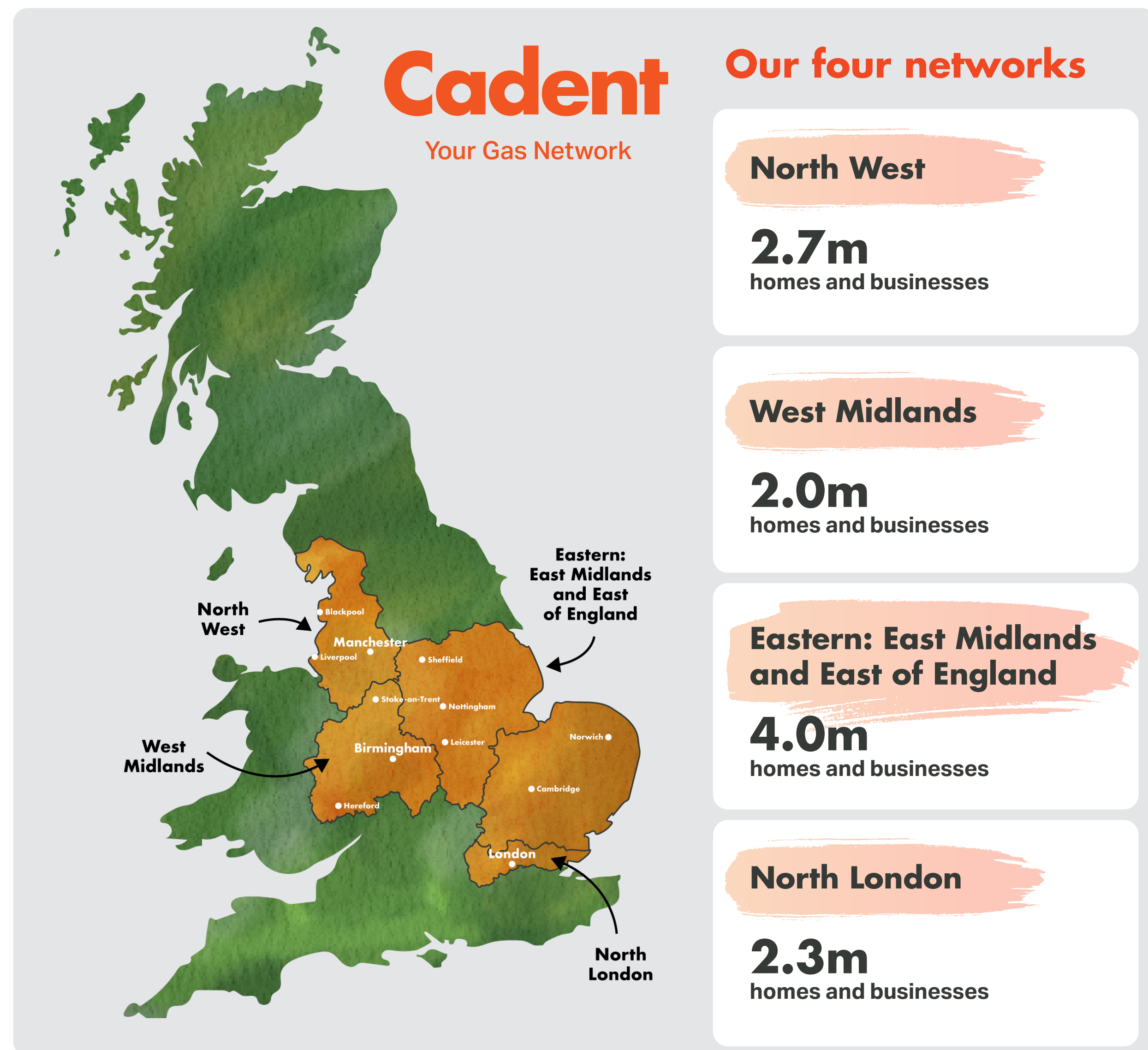
We're proud to be the UK's largest gas distribution company, delivering energy to 11 million homes and businesses. Our ~6,000 dedicated employees work every day to keep our customers safe, warm, and connected, supported by a network of 132,396 km of pipe with a reliability record of 99.99%.

Our RIIO-3 Business Plan (2026-2031) sets out how we will evolve our network to meet the challenges of the energy transition. Around **35% of the nation's energy needs are transported through our networks**, and hence we provide critical infrastructure to keep customers warm, and power businesses and industries across the regions we serve.

It is essential therefore that we continue to target investment in our network to deliver a safe, reliable and resilient service whilst also ensuring that customers pay no more than necessary.

We support the **UK's commitment to net zero by 2050**, we also want to play a leading role in the transition to net zero and provide resilience to the UK's energy system, whatever the decarbonisation pathway we follow.

Our mission is simple: to keep energy flowing in smarter, more sustainable ways. We're investing in innovation, working closely with local communities, and staying focused on delivering the high-quality service our customers expect. The journey to net zero is complex, but with the right people, the right mindset, and the right infrastructure, we're confident in our ability to lead the way and set new standards for the UK gas sector.



Our customers

Customer and stakeholder engagement

Our engagement strategy is built around listening, learning and acting, placing **customers at the heart of every decision we make**. Through our extensive customer and stakeholder engagement, we have a rich picture of what customers and stakeholders expect from us.

In developing our business plan for RIIO-3, we identified five key insights that helped validate the customer hierarchy of needs originally developed during RIIO-2. These insights, outlined on the figure on this page, continue to guide our approach and ensure that our priorities align with those of our customers.

Safety, resilience, and reliability remain the most important concerns, with resilience gaining even greater significance in light of global events such as the war in Ukraine. At the same time, expectations regarding customer service are rising, influenced by improvements seen in other sectors. Customers who are well-informed increasingly expect companies to support vulnerable groups and are willing to fund enhancements in this area.

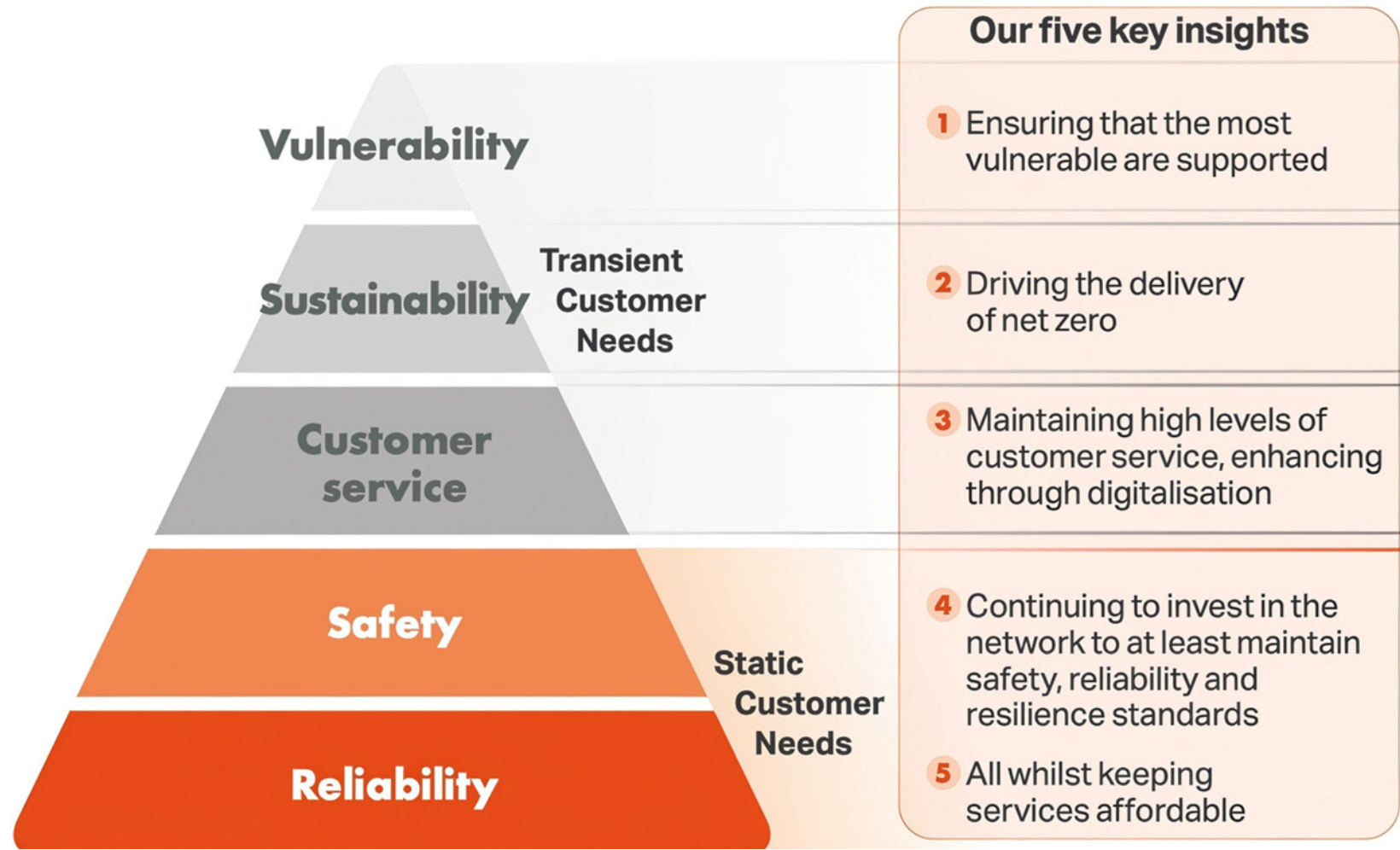
We also use **Willingness to Pay (WTP) research** to guide our investment decisions; by asking customers to weigh up service improvements against costs, we ensure our plans reflect real priorities and deliver value for money. **Over 50% of our customers say that they are concerned about climate change** and more than 70% support the Government's net zero target. However, 74% go on to explain that they believe that they are taking all of the actions that they can afford to take, with the vast

majority of these actions being relatively small in terms of impact (e.g. recycling at home). They expect large-scale environmental improvements to be delivered by the Government and large companies.

To strengthen our engagement, we established the **Customer Challenge Group (CCG)** in 2023, which acts as our Independent Stakeholder Group. The CCG provided expert review and independent challenge of strategic decision making across multiple topics aligned to RIIO-3 priorities. We have also launched a Sustainability Challenge Group to compliment the CCG, bringing

diverse perspectives and expertise to review our environmental commitments. This dual challenge model ensures we remain open to feedback and accountable for delivering meaningful change.

We continue to gather insights that help make energy fairer, easier and greener for all. Each year we review our enhanced engagement strategy with stakeholders to ensure it remains relevant and delivers better outcomes.



Demand forecasting

Forecasting demand is a cornerstone of our approach to **network planning and investment**. By analysing historic consumption, economic trends and policy developments, we ensure our network remains safe, reliable and resilient for our household customers, businesses and industry. Demand forecasting is not only a technical exercise, but also a strategic process that enables us to anticipate future needs, respond to changing patterns, and support the **UK's energy transition**.

Our forecasts are shaped by scenario modelling and stress-tested against industry standards, such as **NESO's Future Energy Scenarios**, whilst meeting our legal obligations to maintain supply during severe winters. We use these insights to guide investments in asset replacement, network upgrades and innovation ensuring we can respond to changing demand, support new connections (including **biomethane and hydrogen**) and proactively address risks like methane leakage.

The current situation reflects a period of transition. While the UK is moving towards net zero, the gas network continues to play a vital role in heating our homes and powering industry.

Most energy consumers in the UK are reliant on gas, and our research shows only 3% of surveyed customers are planning to transition away from gas in the next 5-7 years.

This underscores the importance of maintaining a robust network and investing in technologies that reduce our emissions and improve efficiency. Looking ahead our RII0-3 business plan sets out a clear direction to maintain a **safe, reliable and resilient network** while supporting the UK's energy transition to net zero. Our forecast guides targeted investment in asset replacement, network upgrades and innovation ensuring we can respond to the evolving demand and enable connections to bio-methane and hydrogen.

We also use advanced analytics and digital tools to identify risks such as methane leakage and to prioritise interventions that deliver the greatest value for customers. Customer and stakeholder views are central to our planning process. Through ongoing engagement and research, we understand that most customers continue to rely on gas for heating and energy, and expect us to deliver an affordable, high-quality service **while supporting vulnerable groups and driving environmental improvements**. These insights shape our investment priorities and ensure our plans reflect the needs of both individual customers and the wider country. By utilising robust forecast data and maintaining a dynamic, evidence-based planning process, we are committed to delivering a network that is resilient, efficient and ready to meet the challenges of the future whatever pathway the UK's energy transition may take.



Facilitating connections to our networks

In 2024-25, we delivered 7,776 new connections a 16.8% decrease from the previous year, reflecting higher energy costs and growing interest in alternative energy sources. Uncertainty around gas boilers in new homes and the government's net zero ambitions also contributed to this trend, making future forecasts challenging.

We also support **fuel poor customers**, recognising the wider impacts of living in cold homes. Through the Fuel Poor Network Extension Scheme, we provided free or discounted connections to 53 households at risk of fuel poverty in 2024-25, helping to lower energy costs and improve quality of life. **Our Centres for Warmth community hubs in areas of high fuel poverty – offer advice, safety education and practical support to help vulnerable customers stay safe and warm.**

Gas-Fired Power generation remains vital for energy resilience. We currently have 192 power generation sites connected, generating 2,342.3 MW, with 27 additional projects accepted for future design and build. We continue to support the power generation community and Utility Infrastructure Providers (UIPs), focusing on project design and commissioning.

Competitive connections

We process connections to Independent Gas Transporter (IGT) networks and UIP, ensuring seamless integration with our network. Account management is now embedded in the closure file process, and in 2024/25 we launched a customer engagement programme to drive continuous improvement. Full details of our connection services, including contact information and incentives for fuel poor areas, are available at cadentgas.com/services/3rd-party.

Off gas grid decarbonisation

Where feasible, extending the gas grid offers a cost-effective, low-disruption solution for communities. Our commissioned report shows switching from oil or coal to gas delivers a minimum net present value of **£6,000 per household**, with greater benefits for more polluting fuels. This transition reduces carbon emissions and can be further enhanced by renewable gases and future hydrogen readiness.

We plan to expand support for off-grid communities and are trialing **network extensions** to demonstrate added value and inform regulatory change. Feedback is welcome, especially from off-gas grid areas considering network extension. Share your views at cadentgas.com/ltdp.

Supporting customers in multi occupancy buildings (MOBs)

We routinely inspect gas infrastructure serving medium and high-rise buildings, Insights from these inspections inform our investment plan to replace MOBs infrastructure, ensuring continued safety and reliability.

Through our **Energy Exchange Programme**, we remove gas assets from buildings where replacement is not financially viable, providing compensation for affected residents. We also support district heating schemes, offering communal heating solutions that can reduce costs for customers in low, medium, and high-rise buildings.

Our commitment extends to ongoing stakeholder and customer engagement, helping communities in MOBs identify optimal energy solutions. We welcome feedback, especially from those involved in regional district heating schemes. Share your views at cadentgas.com/ltdp.

Strategic vision

Commitment to Net Zero by 2050

The UK is committed to reaching net zero greenhouse gas emissions by 2050 meaning the total emissions produced will be balanced by those removed from the atmosphere, with the goal of limiting global warming and mitigating climate change.

We are fully aligned with this ambition. Our commitment to net zero is central to everything we do, guiding how we manage our network, where we invest, and how we serve our customers. It is a responsibility we embrace with optimism and urgency because shaping a cleaner, safer energy future starts with the choices we make today. We recognise that the journey to net zero will not be straightforward. The UK's energy needs are changing, and so are the expectations of our customers, communities, and stakeholders. Our role is to make sure that the gas network continues to deliver safe, reliable, and affordable energy, while also leading the way in reducing carbon emissions.

To achieve this, we are taking a balanced and practical approach:

Reducing our own emissions: We are investing in advanced technologies to cut methane leakage from our pipes and are decarbonising our vehicle fleet and property **portfolio; we are also improving our waste management with a 2% year on year reduction in waste to landfill.**

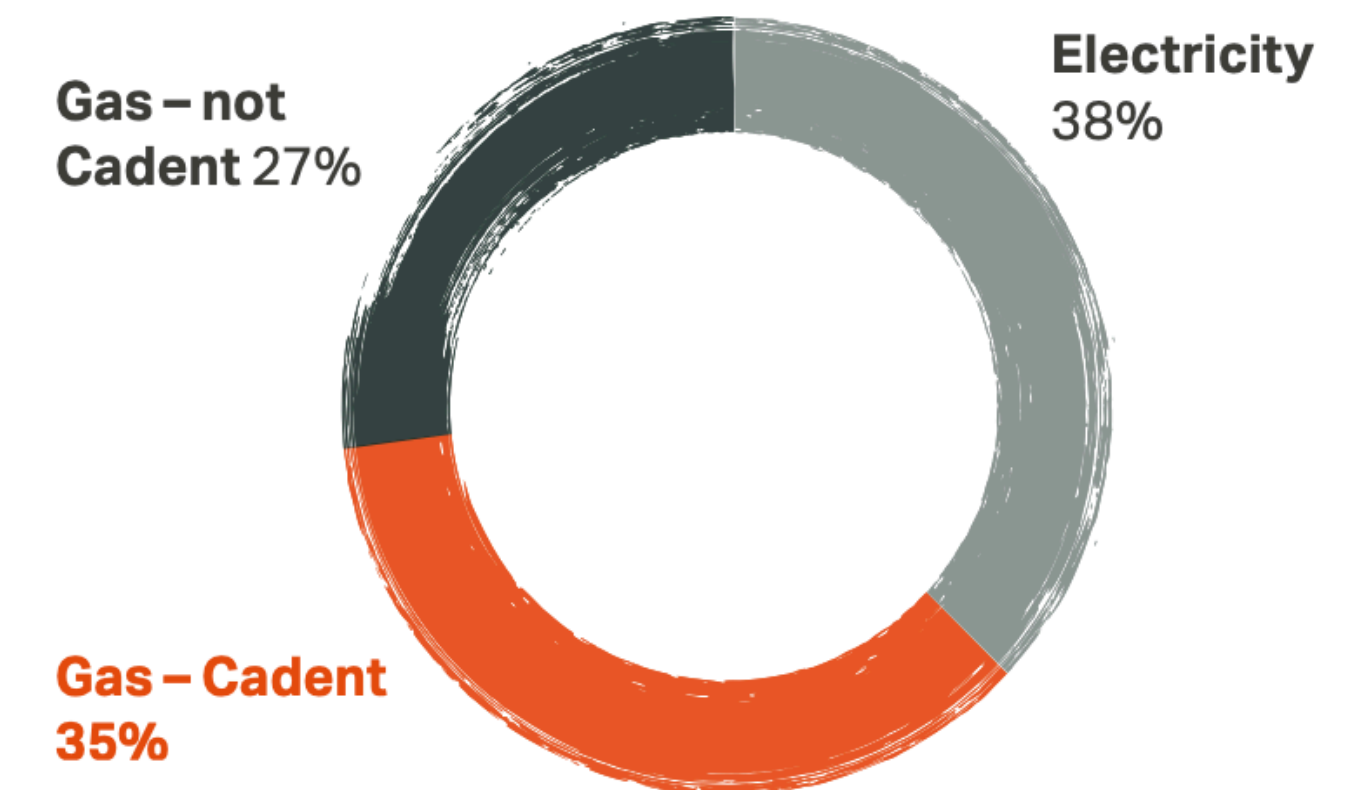
Enabling green gases: We are preparing our network to transport more biomethane and hydrogen; by replacing our gas mains now we will have a network capable and ready to support the transition away from fossil fuels.

Supporting customers and communities: We are making it easier for homes and businesses to connect to greener energy sources, and we are collaborating with local partners to deliver solutions that work for each region, **whilst maintaining our excellent reliability of 99.9% ensuring only one in three customers will experience an unplanned gas interruption in their lifetime.**

Investing for the long term: We are committed to maintaining a safe and resilient network that will continue to play a vital role in the UK's energy system for decades to come.

Our plan is ambitious but achievable. By focusing on **innovation**, collaboration, and responsible investment, we will help the UK reach its net zero target while keeping people warm, supporting economic growth, and protecting the planet for future generations.

Our network supplies over one third of the energy used by UK homes, businesses and industry



Policy landscape and industrial collaboration

The energy sector is changing rapidly, shaped by new government policies, **ambitious climate targets**, and the growing need for reliable, affordable, and **sustainable energy**. We recognise that our success depends on our ability to adapt to this evolving landscape and to work closely with others across the industry.

We actively engage with policymakers, regulators, and industry partners to help shape the **future of energy in the UK**. By staying close to government and regulatory developments, we ensure that our plans are aligned with national and regional priorities, including the UK's commitment to net zero by 2050.

Collaboration is at the heart of our approach. We work with other gas and electricity networks, **National Energy System Operator**, local authorities, and industry bodies to share best practice, develop new solutions, and deliver joined-up energy systems. This includes supporting **whole energy system planning**, where gas and electricity networks are coordinated to deliver the most efficient and resilient outcomes for customers.

We also play a leading role in industry, working groups and partnerships, helping to develop new standards, drive innovation, and support the transition to greener energy sources **like biomethane and hydrogen**.

By working together, we can deliver more for our customers, support economic growth and help the UK achieve its climate goals.

Our commitment is to be a trusted partner one that listens, collaborates, and leads by example as we navigate the challenges and opportunities of the energy transition.



Innovation and future technologies

Innovation is at the heart of our strategy. We are committed to finding new and better ways to deliver safe, reliable, and sustainable energy for our customers, while supporting the UK's transition to net zero.

We are investing in technologies that will help us reduce emissions, improve efficiency, and future-proof our network. For example, we are rolling out state-of-the-art **leakage detection systems** and digital platforms that allow us to find and fix leaks faster and more accurately than ever before. This not only helps protect the environment but also keeps costs and disruption down for our customers.

We are also preparing our network for the future by enabling the use of green gases like **biomethane and hydrogen**. Our network is being upgraded so it can safely transport these cleaner fuels, supporting the decarbonisation of homes, businesses, and industry across the UK.

We are also utilising technology like CISBOT to repair mains that are difficult to access or that are in high traffic areas. This approach helps to minimise disruption and reduce the need for road closures.

Our commitment to innovation and continuous improvement allows us to enhance customer service while streamlining processes to lower costs and mitigate risks – creating solutions that are both effective and enduring.

Collaboration is key to our approach. We work closely with technology partners, other network operators, and industry experts to share knowledge and bring the best ideas to life. By learning from others and trying **innovative solutions**, we can deliver real benefits for our customers and the wider energy system. Our focus on innovation means we are ready to meet the challenges of tomorrow, while continuing to deliver the high standards of service and reliability that our customers expect today.

Our two global technology conferences have showcased innovation, data and digital solutions from across the globe



Whole-energy system approach

The UK's energy future depends on more than just one solution. That is why we take a whole energy system approach looking at how gas, electricity, and emerging technologies can work together to deliver reliable, affordable, and sustainable energy for everyone.

Our gas network is deeply interconnected with the electricity grid and other energy systems. By coordinating our planning and investments, we can help balance supply and demand, support the growth of renewables, and provide backup energy when it is needed most. This flexibility is vital as the country moves towards net zero and as more homes and businesses adopt new ways of heating and powering their buildings.

We work closely with the **National Energy System Operator**, electricity networks, local authorities, and industry partners to develop joined-up solutions. This means sharing data, planning for future needs, and making sure our network is ready to support innovative technologies like hybrid heating systems, biomethane, and hydrogen. Our plan also facilitates a significant increase in biomethane connections, supporting the decarbonisation of heat and power for homes and businesses.

Our approach ensures that every region gets the energy solutions that works best for them whether it is supporting industry, helping rural communities, or powering major cities.

By thinking about the whole energy system, we can deliver the most efficient, resilient, and cost-effective outcomes for customers, while supporting the UK's transition to a low-carbon future.

We remain committed to supporting vulnerable customers, expanding initiatives such as centres for warmth and direct access to wellbeing services, and delivering more social value for less funding. Through collaboration, innovation and targeting investment, our network continues to play a crucial role in keeping people warm, powering industry, and protecting the planet.

Future Energy Explorer

As a responsible energy provider, we are committed to supporting the UK's net zero goals. This requires a deep understanding of future energy requirements of the UK and the ability to adapt our infrastructure to meet evolving customer needs.

However, traditional energy modelling often relies on generalised assumptions and lacks the granularity to assess the viability of different pathways at a local level.

To address this challenge, we developed the Future Energy Explorer (FEE), a powerful, consumer-focused forecasting model. FEE utilises granular data, including property types, energy efficiency ratings, consumer affluence, and local infrastructure, to create detailed, localised scenarios for every consumer within our network.

Unlike previous models that focused on broad regional trends, FEE analyses viability at the individual property level, considering the unique characteristics of each household and its surrounding environment. This allows for a more nuanced understanding of the costs and benefits of transitioning to different fuel types, such as hydrogen or electricity.

By integrating data from various sources, including Google Cloud and Looker, FEE harnesses the power of big data to generate credible and unbiased outputs. This enables us to build compelling, consumer-centric narratives around net zero transitions.

FEE represents a significant advancement in energy scenario modelling and we will use this to provide data to RESPs to support their regional planning and the NESO to inform national holistic transition plans.

Advanced Leakage Management Approach (ALMA)

Reducing methane leakage remains one of the most important challenges as we look to the future of our network. With **ALMA**, our **Advanced Leakage Management Approach**, we are taking a major step forward in how we find, analyse, and fix leaks across our system.

ALMA brings together new technology and smarter ways of working. We are rolling out **vehicle-mounted** and **fixed methane sensors** across our networks, giving us real-time visibility of

emissions and allowing us to move away from relying on static models and estimates. This means we can spot leaks earlier and respond quickly in a targeted fashion, making our network safer and more efficient.

At the heart of ALMA is our new **Digital Platform for Leakage Analytics (DPLA)**. This platform uses machine learning and hydraulic modelling to turn the data from our sensors into actionable insights. With this, we can pinpoint the highest-

leakage assets and target our interventions where they will have the biggest impact.

We are also launching a targeted **Advanced Leakage Intervention Programme**, focusing on the leakiest iron and steel mains. By combining traditional methods with innovative techniques including robotic intervention, we will be able to deliver repairs and replacements more efficiently and with less disruption to communities across our networks. Through ALMA, **we have ambitions** to achieve up to an additional 10% reduction in methane leakage during RIIO-3, on top of the progress already made through our Iron Mains Risk Reduction Programme. There is clear support from our customer base for a shift from a reactive to proactive approach to leak management. The full rollout of ALMA and the DPLA is planned by 2028, positioning us as a leader in leakage management and environmental stewardship.

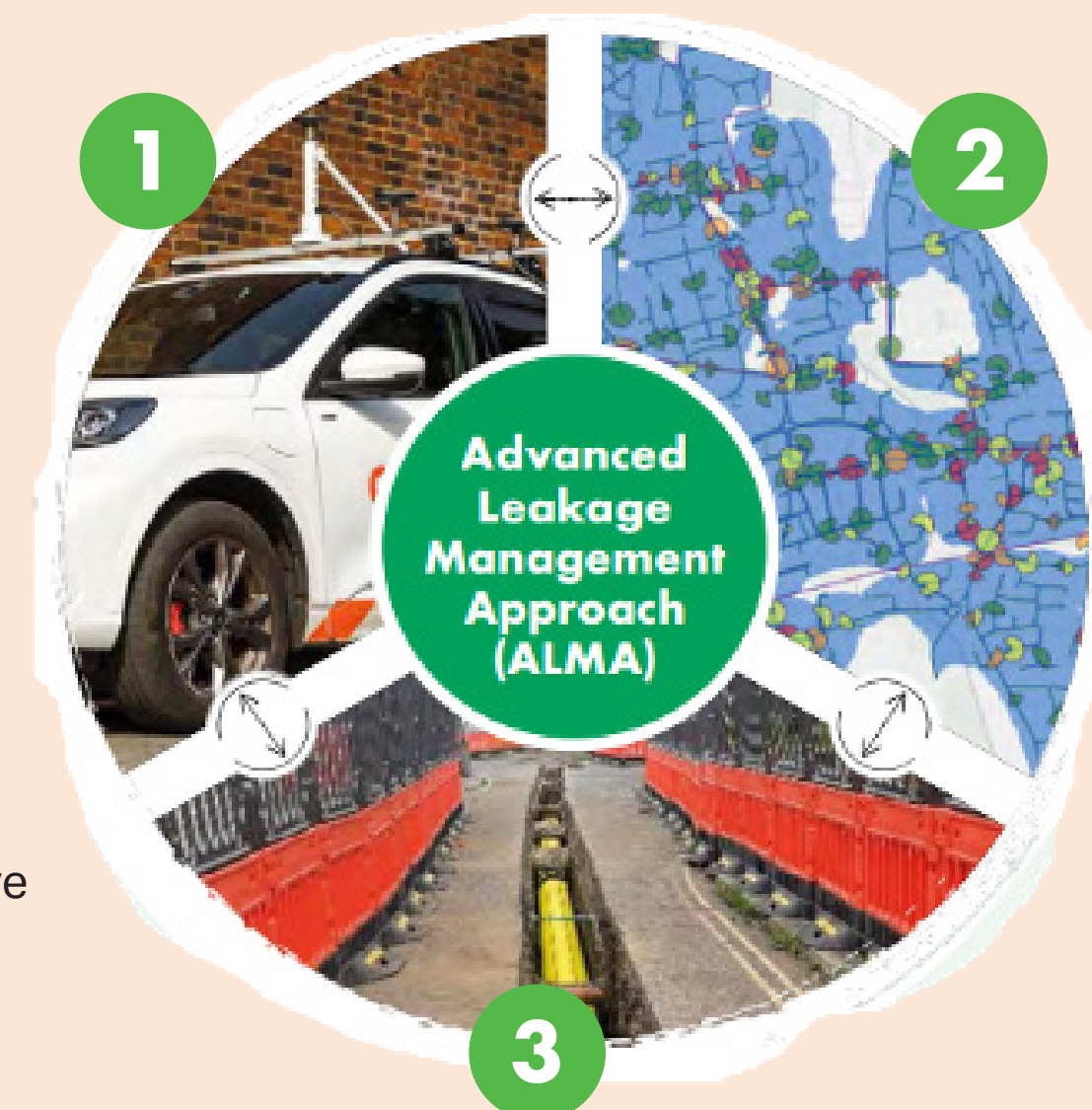
ALMA is a key part of our strategy to deliver a safer, cleaner, and more resilient gas network for the future.

Advanced Leakage Detection (ALD)

During RIIO-2 we have trialed the use of Picarro's Advanced Leakage Detection technology in several of our networks, starting with North London.

Advanced Leakage Intervention Programme (ALIP)

The ALD and DPLA ultimately feed ever more accurate and impactful leakage intervention, which in turn will feed the outcomes back to drive learning and impact into future planning through the DPLA.



Digital Platform for Leakage Analytics (DPLA)

The DPLA works alongside the ALD project delivering real-time, granular insights into leakage across our entire asset base by leveraging the data from sensors such as Picarro.

Regional hydrogen programmes

Hydrogen is set to play a key role in the UK's **clean energy future**, and we are leading the way in developing regional hydrogen programmes that will help **decarbonise** industry, power, and homes. Our network is being upgraded so it can safely transport hydrogen, making us ready to support new **hydrogen projects** as they emerge. We are working on pioneering initiatives like **HyNet North-west**, which aims to create one of the UK's first hydrogen industrial clusters.

This project will help local industries switch from natural gas to hydrogen, cutting carbon emissions and supporting jobs and growth in the region. We are also supporting other regional hydrogen programmes, such as **East Coast Hydrogen, Hydrogen Valley, and Capital Hydrogen**. These projects combine new infrastructure with the repurposing of existing assets, making it possible to deliver hydrogen to where it is needed most whether that is in major cities, industrial hubs, or rural communities.

By investing in hydrogen-ready infrastructure and collaborating closely with local partners, we are helping to create a flexible, resilient energy system that can adapt to future needs. Our goal is to make hydrogen a practical and affordable option for customers, while supporting the UK's ambition to become a global leader in **clean energy**.

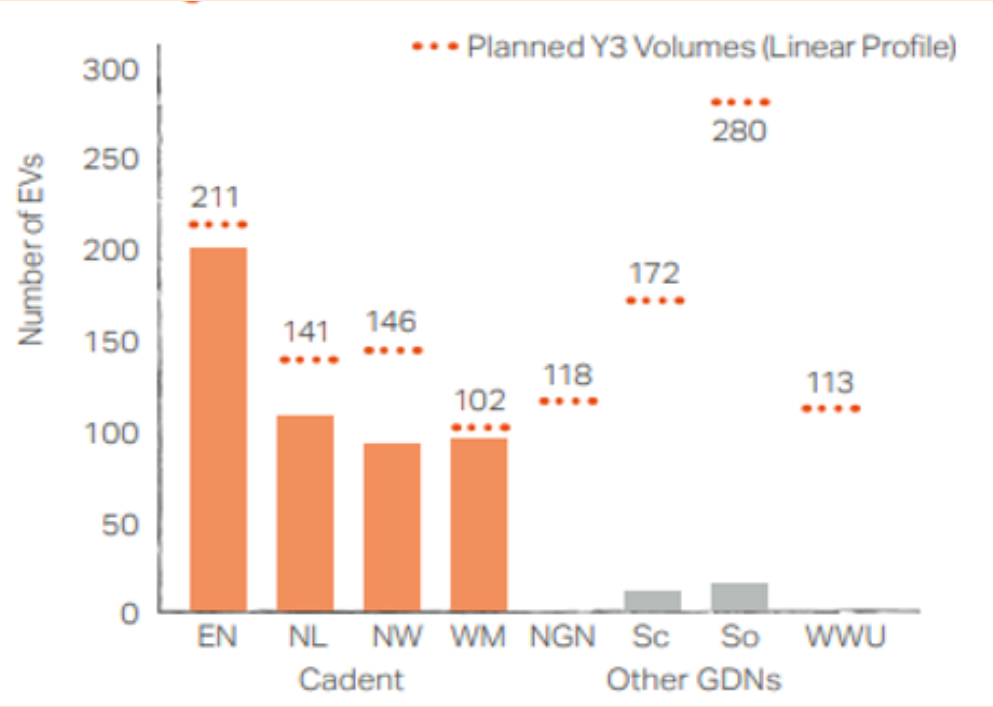


Decarbonising transport

We are proud to have delivered against ambitious targets set out in our RIIO-2 Environmental Action Plan, particularly in the decarbonisation of our operations. Through sustained investment and innovation, we have made significant progress in transitioning our commercial fleet to zero-emissions vehicles.

Around 50% of our emergency response vehicles are now zero-emissions, placing us at the forefront of sustainable fleet transformation. This reflects our commitment to reducing our carbon footprint and leading the way.

We are leading the sector in zero emissions commercial fleet roll out, achieving 49% of the period target, with other GDNs only achieving 2% combined



Fleet decarbonisation is central to our strategy to cut emissions and support the UK's net zero goals. We're transitioning from fossil fuel vehicles to cleaner alternatives across operations.

Our HGV fleet runs on bio-CNG, with each biomethane-powered vehicle cutting CO₂ by up to 84% compared to Euro VI diesel. Science-based targets guide our strategy, ensuring measurable carbon reduction.

By modernising our fleet, we are reducing our environmental footprint, improving air quality, and demonstrating leadership in sustainable transport.

Electric vehicle fleet

We stated our ambition in our RIIO-2 business plan (Environmental Action Report) to move to model where all of our emergency response engineers drive zero-emission vehicles by 2026.

We achieved 97% zero-emissions across our company car fleet by 2024. However, technology and charging infrastructure constraints have meant that we have not quite kept up with our ambition for emergency response vehicles. Nevertheless, we have made excellent progress during the period. In 2023/24, we deployed a further 473 (c.20%) First Responder Electric Vehicles (EV's) across the networks, meaning

that we now operate with more EVs than petrol or diesel vans across our entire first operative fleet.

Converting all first-call responder vans to electric vehicles or other zero-emission equivalents will save 4,000 tCO₂e per year, contributing towards our carbon neutrality targets.



Delivery over the next ten years

Major initiatives and investment strategy

Over the next decade, our investment strategy will deliver safe, reliable, and sustainable energy while supporting the UK's transition to net zero. We're focused on strengthening our network through targeted investments – replacing aging infrastructure, deploying methane-reducing technologies, and enabling the transport of green gases like biomethane and hydrogen.

Built on strong financial foundations, our strategy balances affordability for customers with long-term value for investors. By driving innovation, improving efficiency, and reducing environmental impact, we're ensuring our network is ready for the future by supporting the energy transition and keeping homes warm for generations to come.

Iron Mains Replacement Programme (IMRRP)

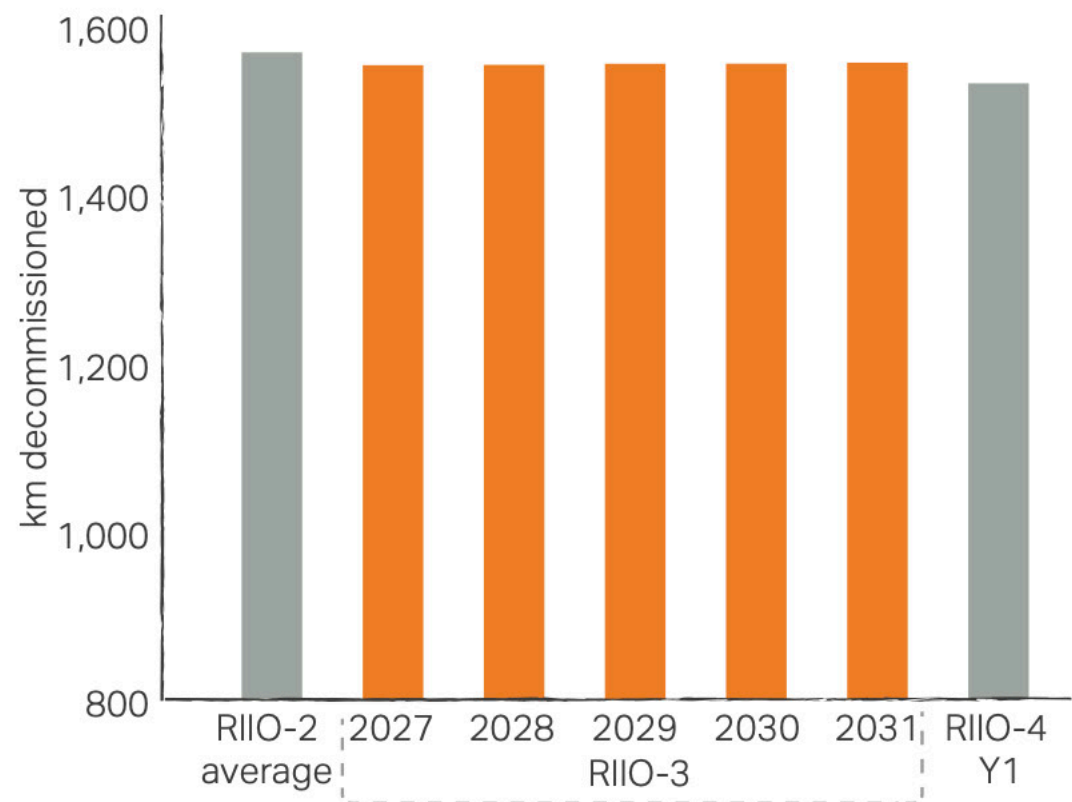
The Iron Mains Replacement Programme is one of our most important safety and reliability initiatives. Over the next decade, we are committed **to replacing thousands of kilometres of aging iron gas pipes** with modern, durable polyethylene pipes. This work is essential to keep our network safe, reduce the risk of leaks, and support the UK's transition to a **low-carbon future**. Our programme is driven by strict safety standards and regulatory requirements. **By 2032, we will complete the replacement of all Tier 1** iron mains within thirty metres of properties, as well as targeted upgrades to larger diameter

pipes where needed. This will significantly reduce the risk of gas escapes and ensure our network remains resilient for years to come. Replacing iron mains also delivers major environmental benefits. Modern pipes are much less prone to leakage, helping us cut methane emissions and improve air quality in the communities we serve. This work supports the UK's commitment to net zero by 2050 and aligns with our wider strategy to reduce the carbon footprint of our operations.

The IMRRP is a large-scale investment that supports thousands of **skilled jobs** across our regions and strengthens our supply chain. We collaborate closely with local authorities, contractors, and communities to minimise disruption and deliver projects efficiently and safely.

By investing in the Iron Mains Replacement Programme, we are building a safer, greener, and more reliable gas network protecting customers today and preparing for the energy needs of tomorrow.

We are maintaining a similar level of Tier 1 mains replacement in RIIIO-3 (1,554km p.a average over RIIIO-3)



Strategic Innovation Fund projects

Innovation is at the heart of our approach to delivering a safer, more efficient, and sustainable gas network. Through the **Strategic Innovation Fund (SIF)**, we are investing in projects that will transform how we manage our assets, **reduce emissions**, and prepare for the future.

One of our key initiatives is the rollout of advanced leakage detection technology and the creation of a **Digital Platform for Leakage Analytics (DPLA)**. This means using state-of-the-art sensors such as vehicle-mounted systems and fixed monitors to find gas leaks quickly and accurately. The DPLA is a powerful digital tool that brings together data from across our network, helping us to spot problems early and target repairs where they will have the biggest impact. By combining these technologies, we can deliver a step change in reducing methane emissions and improving network safety.

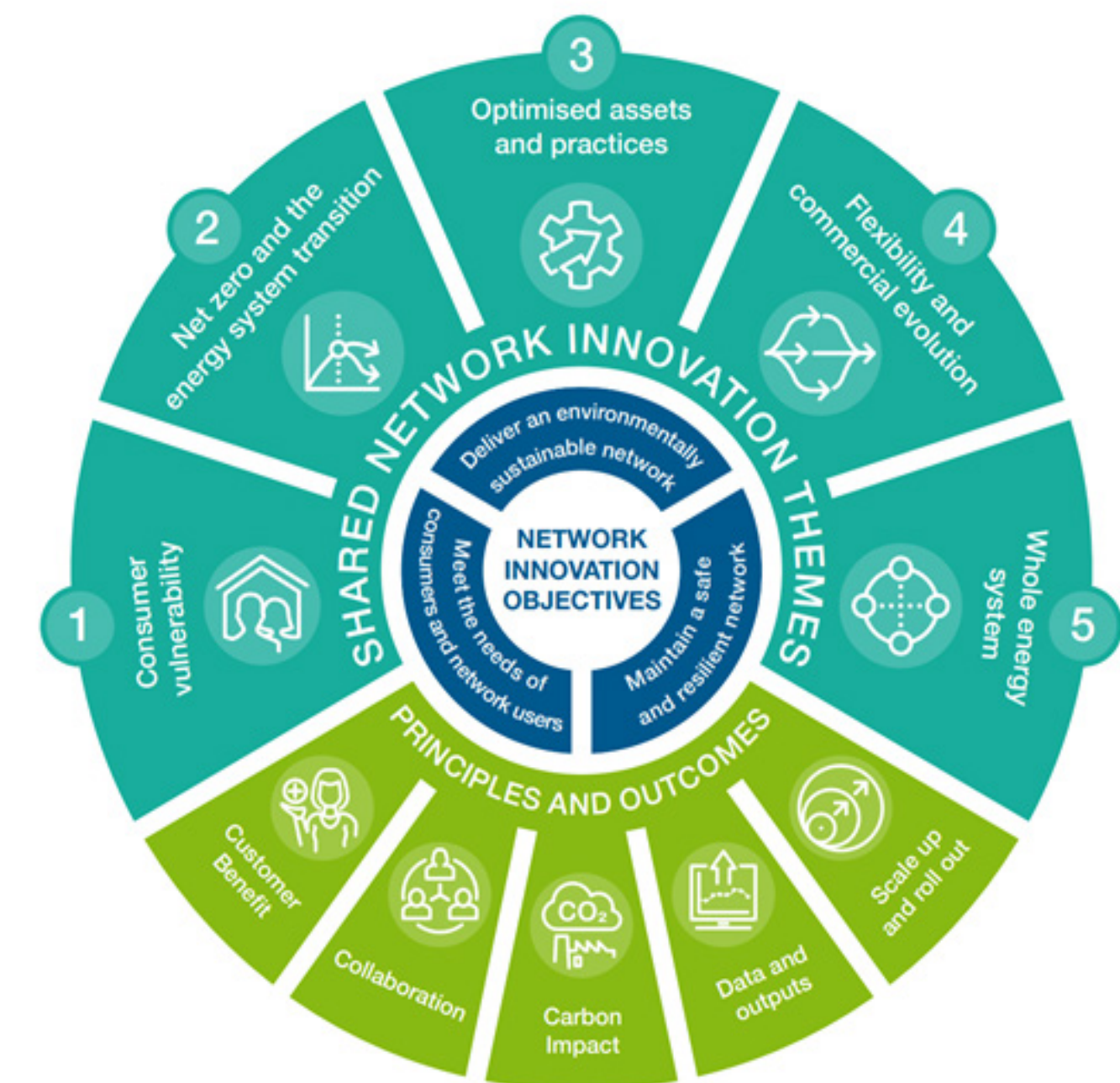
We lead 'project collaborate' alongside partners NGED and EA Technology to create the tools for the wider adoption of collaborative street works in the UK. This project will generate the opportunity for all parts of the UK to reduce disruption by better planned infrastructure works.

Our innovation programme is also about collaboration. We work closely with other network operators, technology partners, and academic experts to share knowledge and accelerate progress. By leveraging the Strategic Innovation Fund, we can trial new ideas, scale up successful solutions, and ensure that our network is ready for the challenges of tomorrow.

As part of our commitment to enabling a low carbon future we are preparing two bids focused on unlocking the potential of biomethane in our network:

- 1. Smarter Connection Point Identification** - This project will develop tools and methodologies to help biomethane developers more easily identify viable connection points. By improving visibility and reducing complexity, we aim to accelerate the deployment of green gas projects and support regional growth.
- 2. Reducing the Need for Propane** - Biomethane often requires blending with propane to meet gas quality standards before injection, this bid explores technical solutions to reduce or remove this requirement, improving efficiency and lowering operation costs for producers and networks.

Objectives, themes and principles from the Energy Networks Innovation Strategy. This strategy brings together all of the most important challenges and opportunities facing the GB gas transmission and distribution networks, and sets the foundations for how we innovate.



Biomethane and green gas strategy

Biomethane is a low carbon alternative to natural gas and forms a key part of our vision for a low-carbon future. As the UK's largest gas distribution network, we are committed to unlocking the full potential of biomethane to help decarbonise heat, power, and industry.

We currently have **47 biomethane sites** connected to our network, providing over 4TWh of low-carbon gas-enough to heat 350,000 homes. Our ambition is to support a rapid expansion of biomethane production, in line with the Renewable Energy Association's estimate of up to 30TWh UK-wide by 2032. For us, this means facilitating up to 15TWh of biomethane production to connect to our network by 2032, through a transformed commercial, operational, and regulatory framework that creates capacity on the network.

This strategy not only supports the UK's net zero targets but also delivers value for customers and society by reducing emissions and supporting economic growth in rural areas. For further information refer to Appendix B.

By maximising the use of existing infrastructure and supporting the transition to green gases, we are helping to deliver a resilient, flexible, and sustainable energy system for the UK.

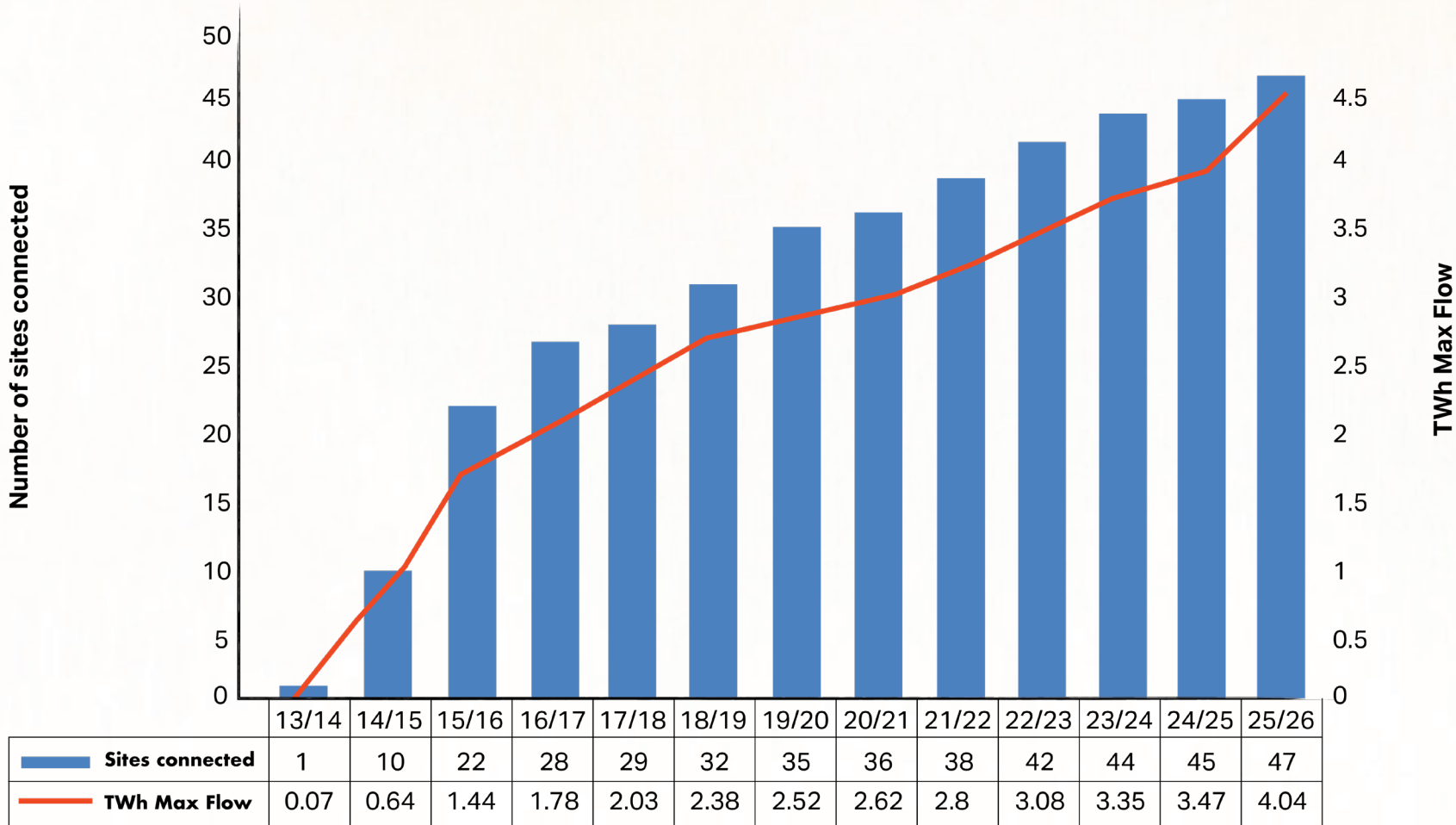
We will continue to support the transition to an environmentally friendly, and flexible, low carbon and low emissions energy system. Setting out our plans to create a transformation in the scale of biomethane production that can be connected to transport up to the 15TWh (across our networks that the Renewable Energy Association has estimated will be available in 2032.

Biomethane's Role in Achieving Net Zero

The National Energy System Operator's latest Future Energy Scenarios highlight that the UK must produce 65 TWh of biomethane annually by 2050—up from just 7 TWh today—to meet legally binding climate targets, including net zero. There is significant untapped potential: recent research for the Green Gas Taskforce estimates the UK could technically produce up to 120 TWh of biomethane by 2050, without affecting domestic food production. If fully realised, this could mean between 20% and 90% of the UK's gas supply is low carbon, depending on the (future gas demand scenario). The Green Gas Taskforce, co-founded by Cadent and industry partners, continues to champion biomethane's critical role in the UK energy system and its contribution to decarbonisation.



Biomethane Sites Connections



Environmental performance and emissions

As the UK's largest gas distribution network, reducing emissions and enhancing environmental performance is central to our strategy. We're committed to cutting methane leakage, lowering our carbon footprint (**Scope 1,2 and 3 emissions**), and minimising environmental impact across our operations.

Our **Advanced Leakage Management Approach (ALMA)** integrates cutting-edge detection technologies, a Digital Platform for Leakage Analytics (DPLA), and targeted interventions focused on the highest-risk assets.

To accelerate progress, we're modernising our infrastructure through the **Iron Mains Risk Reduction Programme (IMRRP)**, replacing legacy iron pipes with plastic mains to improve safety

and reduce methane emissions. By 2032, this will cut shrinkage by over 16%. We're also reducing our carbon footprint by electrifying our commercial fleet and already have over 500 electric vehicles in our fleet, upgrading properties, procuring renewable energy for our office and depot. We are also addressing our Scope 3 downstream emissions by engaging our supply chain on their emission reduction plans, and contractor fuel use. We continuously review each applicable category against the Greenhouse Gas (GHG) Protocol as our data maturity grows.

Digitisation is transforming our environmental response. Leak detection technologies like Picarro enable faster, more sensitive leak detection, allowing us to act swiftly and precisely. We aim to

survey our networks once per year with vehicle-based Advanced Leak Detection in time for RIIO-3 enabling us to implement a new emission method.

We're also enabling the transition to **low-carbon gases**. Our network supports biomethane injection and is preparing for hydrogen blending. By 2035, green gases could represent 24% of our supply.

We're investing in smart pressure management, network upgrades, and infrastructure to support producers in line with government policy. Through innovation, data-driven decisions, and strategic investment, we're cutting emissions while ensuring a safe, reliable, and future-ready network that supports the UK's net zero ambitions through the 2040s and beyond.

Case Study: Advanced Leak Detection

Since 2021, we have been piloting vehicle-based ALD technology in its North London network to reduce methane emissions and improve its carbon footprint.

By identifying and targeting high-emission areas, ALD enables earlier, more proactive interventions. This investment is a key enabler in our emissions reduction strategy, delivering multiple benefits in accelerating targeted repair works and DPLA implementation, alignment with HSE's updated enforcement policy, and supporting the UK's commitment to rapid methane reduction, directly contributing to net zero targets.

While the IMRRP allows us to prioritise high-emission assets, our effectiveness is limited without ALD data. ALD provides critical measurement insights, revealing that a small number of leaks account for a disproportionate share of emissions – **in our pilot, 10% of leaks contributed to 33% of total emissions.**

Identifying these high-impact leaks is only possible through field-based measurement. Increasing survey coverage and frequency significantly enhances our ability to detect and address the most emission-intensive leaks.



Shrinkage and emissions

Shrinkage is a key driver of our network's greenhouse gas emissions and a central focus of our environmental strategy. Shrinkage refers to gas that leaves our network without passing through a meter, including losses from leakage, operational use, and theft. Most of our emissions are attributed to leakage, with operational use and theft accounting for a much smaller proportion.

Over the past decade, we have achieved a 33% reduction in shrinkage volumes, equivalent to the annual gas consumption of over 40,000 homes. This progress has been driven by targeted pipe replacement, optimisation of system pressures, and the adoption of advanced leak detection technologies.

Looking ahead, we are targeting a further **23% reduction in emissions over the next ten years**, supported by continued investment in innovation and data-driven interventions. Reducing shrinkage not only delivers environmental benefits by lowering methane emissions but also helps to reduce costs for customers by minimising gas losses. We remain committed to enhancing our methodologies, collaborating across the industry, and investing in new technologies to further improve accuracy and performance.

For a detailed breakdown of our shrinkage assessment methodology, annual performance data, and future forecasts, please refer to Appendix A.

Asset Investment and Maintenance

Our asset investment strategy is designed to deliver safe, reliable, and future-ready infrastructure while supporting the UK's transition to net zero. We take a long-term, data-led approach to managing our network, **balancing cost, risk, and performance** across asset lifecycles.

We are evolving our Strategic Investment Planning (SIP) framework to integrate resilience, climate adaptation, and digital innovation into our decision-making. This includes embedding **decision support** tools, scenario modelling, and risk-based prioritisation to optimise investment outcomes.

Our best-in-class ISO55001 approach comprises:

- **Delivering a 10-year rolling investment plan**, aligned with our Strategic Asset Management Plan (SAMP) and Network Asset Management Plans (NAMPs)
- **Modernising our asset data systems**, improving granularity and accessibility to support real-time performance monitoring and regulatory reporting
- **Embedding climate resilience modelling**, enabling us to assess asset vulnerability and plan interventions that mitigate long-term risks.

- **Applying cost-benefit analysis and assurance processes**, ensuring investment decisions are efficient, evidence-based, and aligned with Ofgem expectations.

Our ambition is to operate as a **High Reliability Organisation**, underpinned by a **world-class asset management system**. We are patrons of the Institute of Asset Management, demonstrating our commitment to progress of the asset management discipline. By investing strategically and maintaining our assets proactively, we are building a resilient, efficient, and sustainable gas network that meets the evolving needs of our customers and communities.



Looking ahead: the following ten years

Future demand Factors and Scenario Modelling

Understanding **future energy demand** is critical to ensuring our network remains resilient, efficient, and aligned with the UK's net zero ambitions. Our approach combines robust forecasting with **scenario modelling** to guide long-term investment and operational decisions.

We anticipate that customer numbers will remain broadly stable through RII0-3, with significant declines only expected post-2040 under high electrification scenarios. Even in low-demand futures, a large proportion of our network is still required, highlighting the enduring value of our infrastructure.

Our modelling is grounded in evidence from the **Climate Change Committee, NESO Future Energy Scenarios, and international best practice**. It enables us to plan for a flexible, adaptive network that supports decarbonisation while maintaining affordability and reliability for customers.

We are **Embedding Resilience in our Asset Management Strategy** by using regional and local energy plan thinking in our investment framework and collaborating with NESO, local authorities, and other network operators through projects like Regional Energy System Optimisation Planning (RESOP+) and co-developing tools and methodologies for consistent whole-system planning.

Climate resilience: we are developing advanced risk models and adaption pathways to address the increasing frequency of extreme weather events and chronic risks such as flooding and higher temperatures. By 2028 we will have integrated climate risk

management into our asset management systems, enabling us to stress test our network.

Future Energy Modelling: We are investing in network visibility, data driven insights and flexible solutions including a digital twin of our network to enable accurate decarbonisation scenario planning.

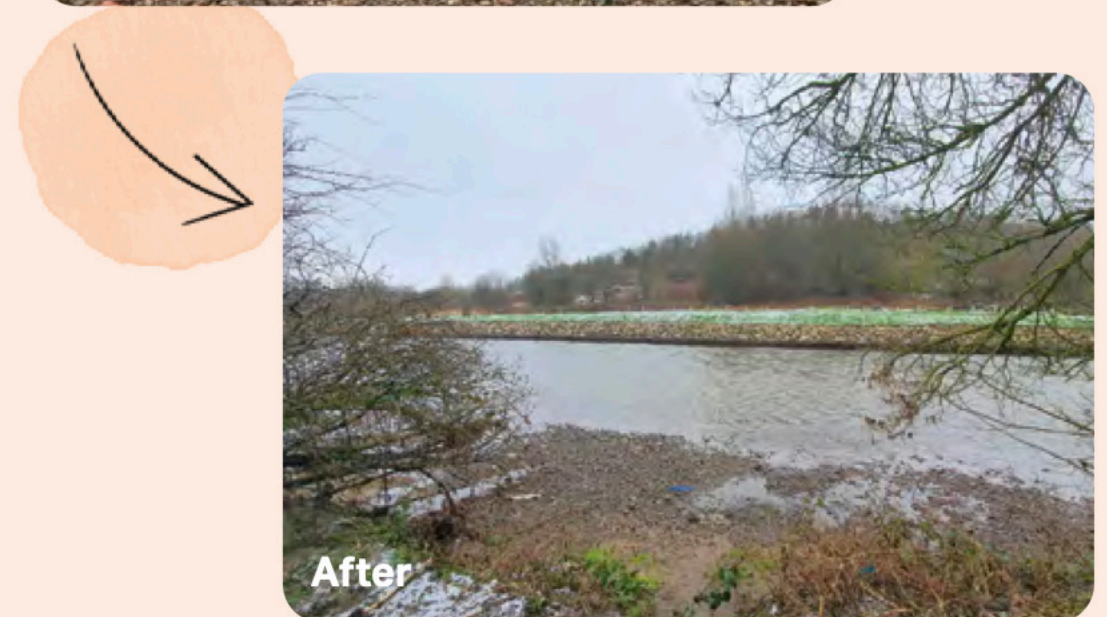
Cyber resilience: As digitalisation increases, so does the risk of cyber-attacks. We are embedding cyber risk assessments into our asset management framework, with cyber risk models in place by the end of RII0-2.

Preventing flood risks

We routinely carry out vantage site surveys at strategic sites across our networks, where we have identified potential risks as a result of climate change.

The images here show a high pressure pipeline, running from Warthfold to Middleton in our North West network immediately after a period of heavy rainfall and following a permanent reinstatement of bank using a combination of willow matting, reinstatement of the bank and pipeline cover and then rock blanketing of the bank to prevent further erosion.

The work involved extensive engagement with the Environment Agency, the use of specialist diving contractors and complex stress analysis to determine the risk the the pipeline at frequent intervals during the remediation works.



Strategic Energy Planning (RESPs, NESO, Hydrogen Readiness)

Strategic energy planning is central to our role in supporting the UK’s transition to net zero. We are aligning our network development with national and regional planning frameworks, including the National Energy System Operator (**NESO**) and Regional Energy Strategic Plans (**RESPs**), while preparing our infrastructure for hydrogen deployment.

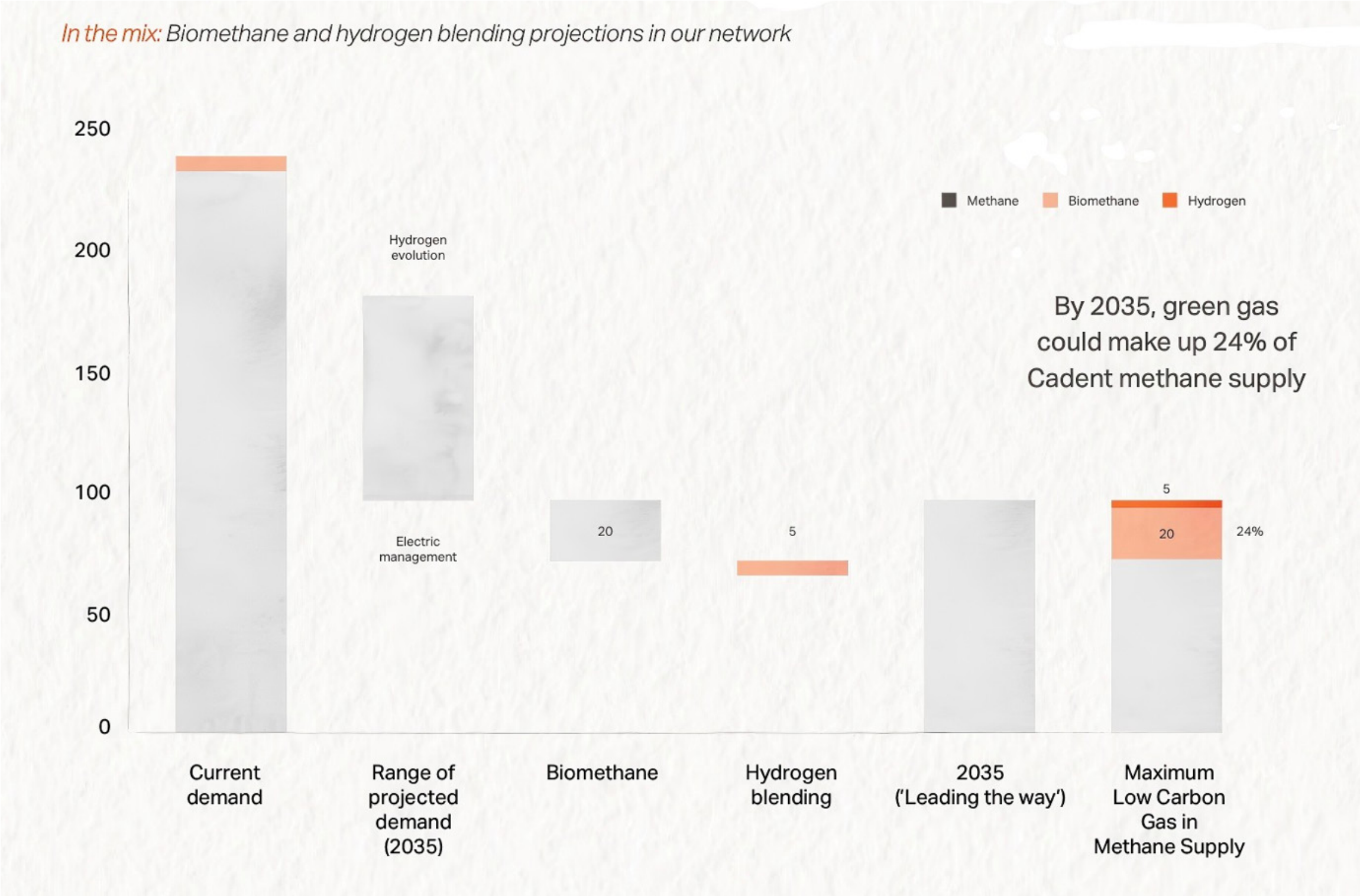
We are actively contributing to NESO’s **Centralised Strategic Network Plan** and supporting RESP development by sharing network insights and scenario modelling outputs. Our **Future Energy Explorer** tool enables us to provide granular data to regional planners, helping shape practical and efficient heat decarbonisation pathways.

Collaborating with NESO and RESP planners to ensure our network development reflects whole-system needs and regional priorities, and providing data and expertise to local authorities and electricity distribution networks to support joined-up planning across energy vectors.

Embedding hydrogen readiness into our investment strategy, repurposing existing assets and supports regional hydrogen programmes such as HyNet, East Coast Hydrogen, and Hydrogen Valley

Maintaining safety and reliability while enabling future flexibility through a “no regrets” approach to infrastructure upgrades.

Our planning is guided by robust analysis, **stakeholder engagement**, and a commitment to delivering a resilient, adaptable network. By integrating strategic frameworks and preparing for hydrogen, we are ensuring our network continues to deliver secure, low-carbon energy for decades to come.



Appendices

Appendix A: Shrinkage and Emissions

Emissions Performance

The chart shows the split between the different leakage components, theft of gas and own use gas categories in 2024/25. We expect the mains leakage portion to continue to decrease year on year because of gas mains replacement activity. Own use gas and theft of gas are calculated as a factor of throughput and so will vary according to demand.

The majority (92.6%) of our emissions are from Leakage, with Own Use Gas and Theft of Gas only contributing a small percentage of the total. Own Use Gas and Theft of Gas are components that account for gas that is used, but not metered, and so is estimated as part of the Distribution Network emissions assessment.

A summary of the 2024/25 Shrinkage volume performance against the prior year is shown in table 1 below. Across our four networks shrinkage gas losses were reduced by 37.2 GWh (3.7%). Based on an assumed typical annual consumption of 12,500 kWh, this reduction is equivalent to the gas usage of approximately 2,980 domestic properties.

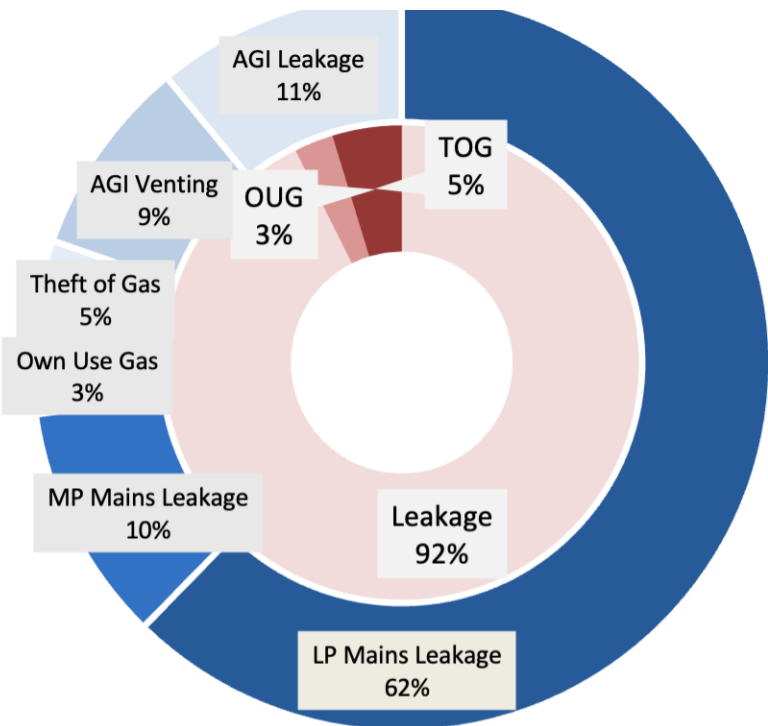
Network		
2023/24 Shrinkage (GWh)		1010.2
Mains	↓	-26.7
Services	↓	-12.2
Average System Pressure	↑	4.4
MEG Saturation	↑	1.6
Interference	↑	0
Own Use Gas	↑	0.9
Theft of Gas	↑	1.7
AGI Leakage & Venting	↓	0

Cumulative Performance

We are proud of the progress made in reducing emissions since the start of the RIIO-1 regulatory period, which was achieved from dedicated focus in three key areas:

- Delivery of the iron pipe replacement programme by inserting plastic into our metal pipes
- Optimisation of system pressures in the local networks
- Injection of mono-ethylene glycol (MEG) into our networks, which helps reduce leakage by swelling pipe joints

Network level cumulative performance is summarised in the table below, demonstrating the latest reported performance against the outturn position prior to the start of our RIIO-1 regulatory period. Since 2012/13, Shrinkage volume reductions of 538.8 GWh (35.6%) against opening baselines have been achieved. This is the equivalent to the gas consumption of approximately 43,108 homes using the calculation approach described above.



Appendix B: Biomethane and green gas

There are broad environmental and economic benefits to biomethane Injection

Biomethane is produced by fermenting organic matter, with feedstocks ranging from farm and animal waste to food and sewage waste, crops and silage. This gas can be injected straight into the existing gas distribution network, and customers won't need to make any changes to their appliances, making it a cost-effective decarbonisation solution for hard to electrify homes and businesses. In addition to decarbonising the gas we as a nation rely on for energy, the production and injection of biomethane into the gas grid also affords several other environmental and economic benefits:

- It provides a green and sustainable solution to waste management for industrial, commercial and domestic users
- It also produces two useful co-products: Digestate (an organic fertiliser that reduces the need for artificial fertilisers produced by fossil fuels) and biogenic CO₂ (which can be stored in the ground with CCUS technologies to reduce atmospheric CO₂ levels)
- It provides additional green revenue streams and jobs for farmers and rural economies

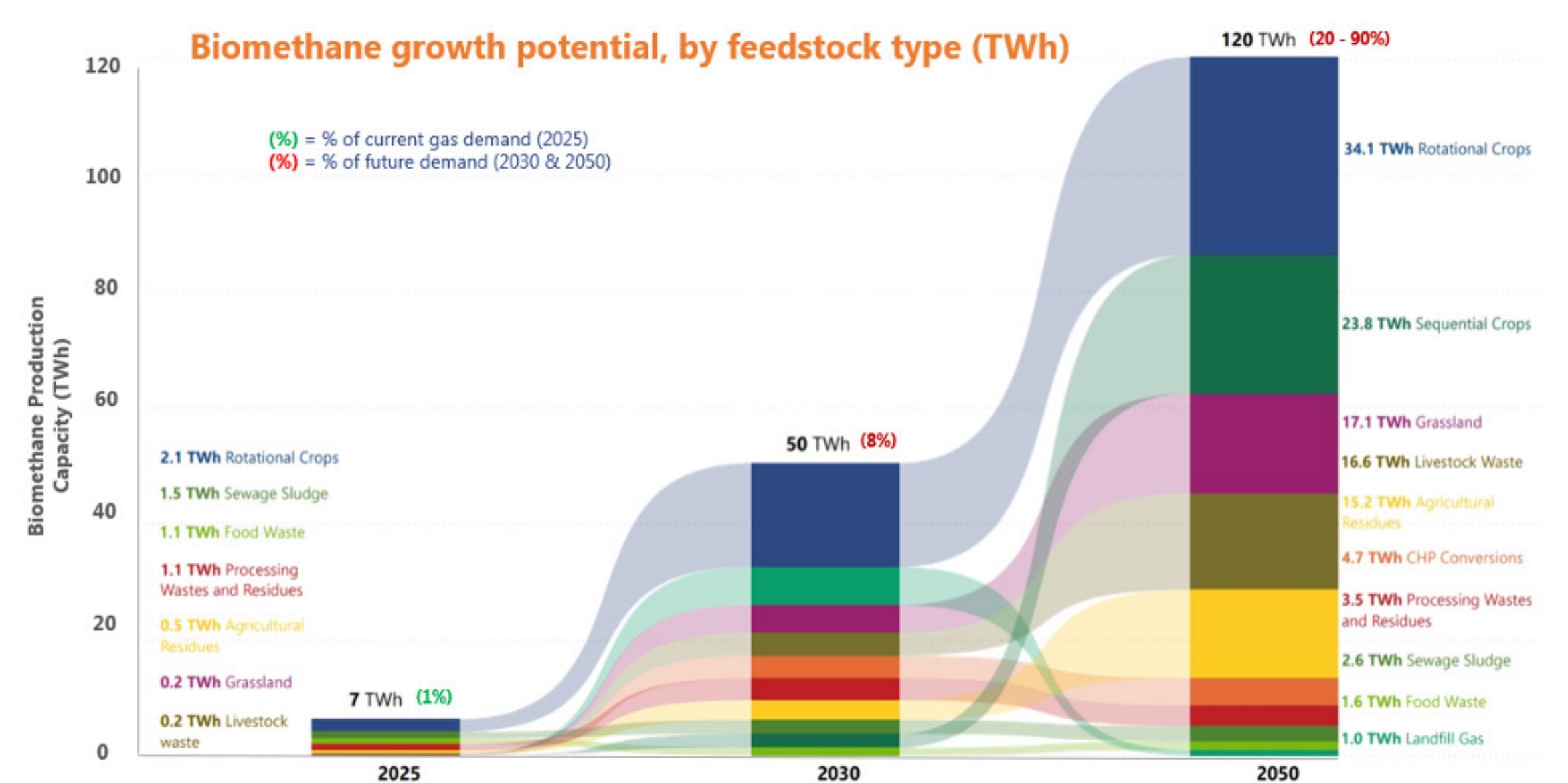
Biomethane will be needed to reach net zero

In their latest Future Energy Scenarios (FES) publication, the National Energy System Operator (NESO) have concluded that producing 65 TWh of biomethane by 2050 to displace natural gas is necessary to meet the UK's legally binding climate targets, including net zero by 2050. This compares to 7 TWh produced today.

There is untapped biomethane potential in the UK

We have co-founded the Green Gas Taskforce with other gas networks, biomethane producers and biogas members organisations. The purpose of this Taskforce is to explore and explain the importance of biomethane to the UK energy System.

Recent research by Alder Bio Insights commissioned by the Green Gas Taskforce has conservatively estimated there will be technical potential for 120 TWh of biomethane in the UK by 2050, without impacting our domestic food growing potential. Displacing natural gas with 120 TWh of biomethane would mean between 20% and 90% of the UK's gas by 2050 is low carbon (dependent on future gas demand scenarios).



We are making it easier for biomethane producers to connect

Since our first connection in 2013, we have sought and responded to customer feedback to help drive down costs and improve our processes and commercial frameworks. We are continually reviewing and refining our processes through lessons learned following project commissioning. We continue to receive large numbers of enquiries about the connection of plants, with 16 accepted offers, 3 gas to grid dates confirmed and 2 expansions to connected sites. We continue to work with Industry and the UK government to open further potential growth through the conversion of existing anaerobic digestion (AD) plants to Gas to Grid from Combined Heat and Power (CHP) as these assets come to their natural end of life.

We will build on the experience that we have gained to date delivering the 47 biomethane plants connected and continue to work collaboratively with the AD community to drive further innovation to maximise the full potential of AD to gas grid.

We are facilitating more distributed entry for green gas

We continue to engage with our customers so we can refine our processes to facilitate continued growth in the biomethane sector. We are facilitating more entry capacity in our network through:

- **Identifying existing capacity with better measurement**

We are installing flow meters at critical points in our network to refine our data of available capacity and identify hot spots where developers can connect most easily. This data is being converted into network capacity maps that we are preparing and will be sharing with developers.

- **Controlling gas flows to create more capacity where it is most needed**

We are installing smart pressure management technology and offtake metering systems across our network to help control our network flows and unlock more capacity at lower pressure tiers for biomethane developers to inject their produced gas, particularly during summer months.

- **Reinforcing our network to improve capacity**

We have commissioned the first reverse compression solution in the UK, the Optinet Project, that proves the concept of network solutions in the UK and unlocks capacity through compression up the pressure tiers when demand is low. We are exploring a standardised network reverse compression solution that can be replicated in capacity-restricted areas to cost-effectively facilitate the opportunity for more biomethane injection.

We need to unlock network capacity efficiently at the lowest cost to our customers. To do this, we are learning from the French gas network GRDF. GRDF have been pioneering in the use of network reinforcements and connecting biomethane developers, and we have signed a Memorandum of Understanding (MoU) with them to allow them to share their learnings with us, enabling us to significantly accelerate progress in making connecting easier for developers.

Biomethane will be an essential part of the future of our network

The renewable gas connections to our networks are changing the role and nature of the UK energy system. We continue to work collaboratively with the AD community and the Gas Distribution Networks (GDNs) through the 'Green Gas Technical Forum', to drive standardisation and growth of green energy for biomethane connections.

To find further information on our entry gas connection services for biomethane, or other forms of distributed gas, please visit cadentgas.com/services/gas-producers/biomethane.

Appendix C: Decarbonising transport

Biomethane vehicles

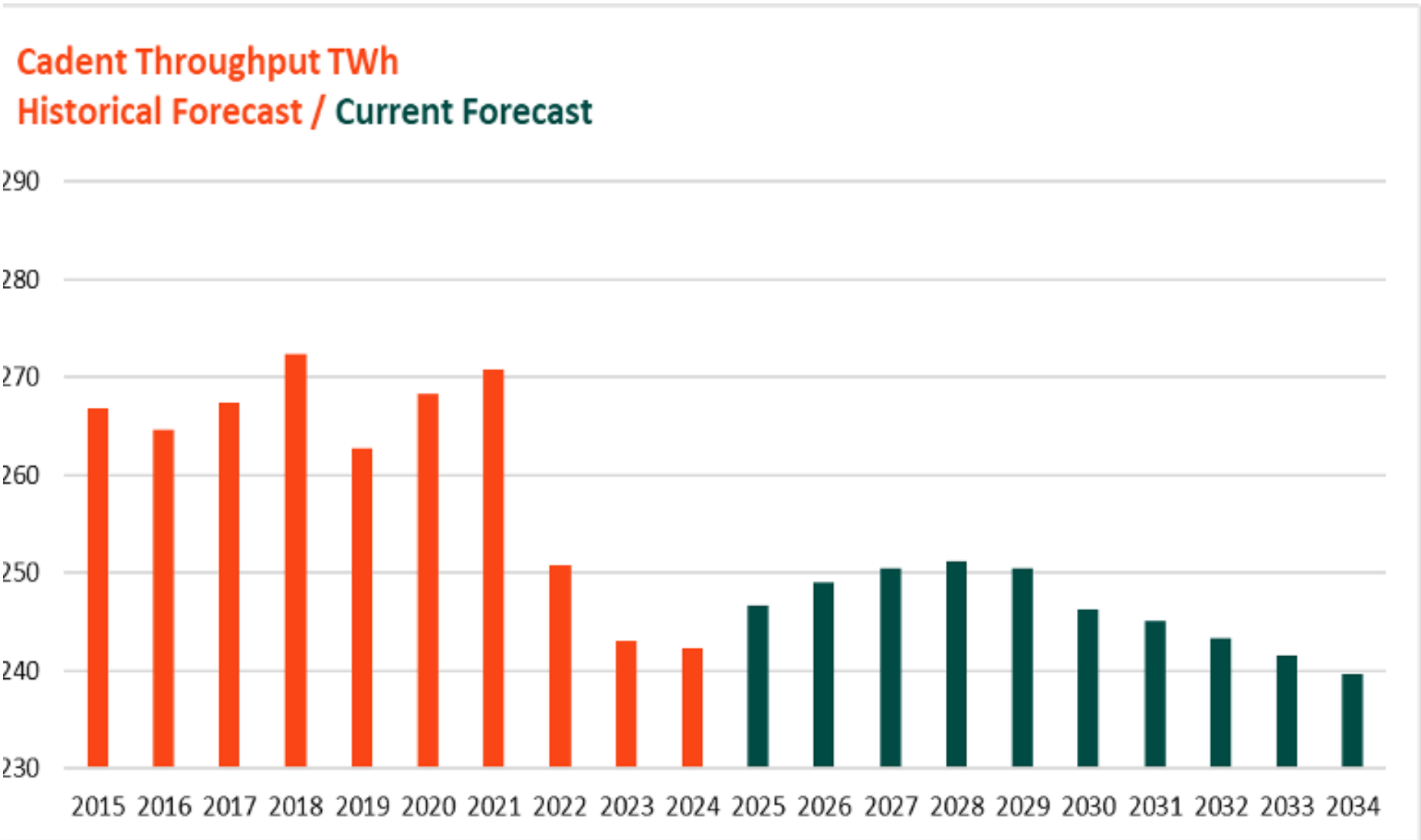
Each 100% biomethane-powered HGV typically saves up to 84% (typically 130-150 tonnes per year) of CO2, compared to the same vehicle powered by Euro VI diesel (a standard diesel blend).

Network	East Anglia	East Midlands	North-West	West Midlands	North London	Total
CNG Fueling Stations	1	5	5	1	2	14

Appendix D: Demand forecast vs Forecast demand

This year’s projection for future demand is going to be slightly higher than the previous year’s forecast. This has largely been due to a more gradual normalisation of consumer demand. It is forecast that residential demand will bounce back over the next couple of years followed by the commercial demand which recovers slightly slower than the residential. There is predicted to be a slight decrease in industrial demand in the later part of the ten-year forecast as the government target announcements for the use of hydrogen in industrial clusters. In 2018, Ofgem requested that networks across transmission, distribution, gas and electricity agree a common set of factors and assumptions for developing their core view of the future. As part of this review, we debated the key areas that will affect and drive behaviors in gas demand over the next ten years.

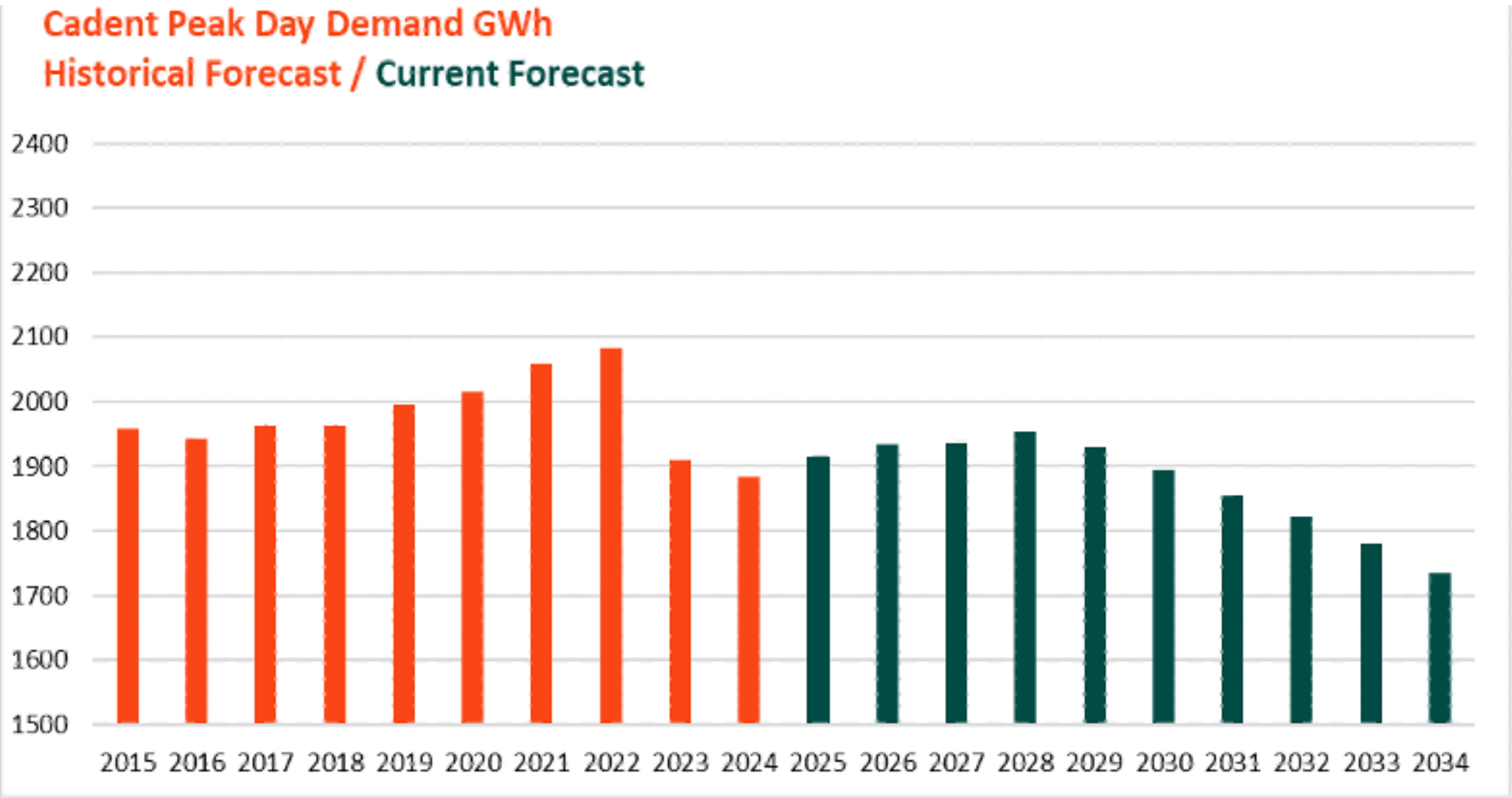
The outcome was an unprecedented level of collaboration and knowledge sharing, which has resulted in greater understanding and agreement on the common factors and assumptions affecting each network’s demand forecast. This has reinforced the stance we take in all key areas, providing a strong basis on which to review and agree to the position for our demand forecast.



Graph 1: Annual throughput – 10 year historical and 10-year forecast

The Future Energy Scenarios (FES) 2025 published by NESO outlines four distinct pathways for the UK energy system, each based on varying assumptions about societal change and technological progress. This year, the FES team has refined their scenario development methodology and provided an updated ten-year central forecast.

While the scenarios offer directional insight into potential long-term outcomes, the ten-year forecast presents a consolidated view of expected demand under central assumptions. For the purposes of this year’s LTDP, we have adopted NESO’s Central Forecast, as it represents the most credible projection of near-term energy system evolution. This forecast is less influenced by long-term decarbonisation modelling, making it more appropriate for short- to medium-term planning.



Graph 2: Peak hour demand - 10 year historical and 10-year forecast

Future demand factors

We have seen annual demand increases in 2024/25 as described above, then there is a gradual decrease over the 10-year period because of energy efficiency measures employed in homes and industry. The assumptions made about the impact of energy efficiency measures on gas demand continue to be reviewed as the easier measures are completed, which leaves the more costly and difficult ones to address.

Our forecast demand includes alternative technologies such as air source heat pumps, which will reduce customers’ use of gas. We also include gas-efficient appliance technologies like gas- sourced heat pumps and combined heat and power, which reduce carbon intensity. These new and emerging technologies can help us be flexible as we meet our domestic peak heat demand and reduce pressure on the electricity grid. New hybrid appliances powered by renewable electricity could transfer to gas at peak times, or at other times when there is not enough renewable electricity. Other developments include smart technologies that can switch from electricity to gas depending on changes in the price of electricity, and smart appliances that can choose the cheapest or lowest-carbon fuel. Combining all these technologies is the best way to make the most of renewables across both energy supplies. It will also maximise the use of the network and associated assets that customers have already funded.

New technology and the way gas is used across the year and at peak times are changing, and this will continue as new technologies become common place, and behaviors evolve. This is leading to a clear distinction between our view on annual demands versus peak demand. Gas used across the seasons is likely to continue to decline, but the original relationships that the gas industry has built from experience are beginning to be less relevant. Through numerous innovation projects run by the gas networks, we are looking to understand the evolving relationships between peak and annual demands, and to consider whether we take a whole new approach to how we forecast future demand.

Regulatory basis for document

This statement is produced for the purpose of and in accordance with Cadent Gas Ltd obligations in Standard Special Condition D31 of its DN Gas Transporters License and section O4.1 of the Transportation Principal Document of the Uniform Network Code in reliance on information supplied pursuant to section O of the Transportation Principal Document of the Uniform Network Code. Section O1.3 of the Transportation Principal Document of the Uniform Network Code applies to any estimate, forecast or other information contained in this statement.

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Standard Special Condition D3 requires that a statement, published annually, shall provide a ten-year forecast of Distribution Network Transportation Activity concerning likely use of the pipeline network and system developments that can be used by companies, who are contemplating connecting to our system or entering into transport arrangements, to identify and evaluate opportunities.

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Further reading and references

Please follow the links below if you would like to find out more

<https://riio3.cadentgas.com/>

Cadent's RIIO-3 Business Plan

<https://cadentgas.com/about-us/future-of-gas/our-green-print>

Our Green Print - Future Heat for Everyone

<https://cadentgas.com/get-connected>

Further information if you are interested in connecting to our network

<https://cadentgas.com/digging-safely/keeping-you-safe-around-our-pipes>

How to dig and work safely close to our gas assets

<https://cadentgas.com/news-media/document-library>

Information and research carried out/commissioned by Cadent, about the future role of gas in the UK energy system.

<https://www.neso.energy/publications/future-energy-scenarios-fes>

NESO's full Future Energy Scenarios documents and supporting information.

www.ofgem.gov.uk

Homepage for the Office for Gas and Electricity Markets (Ofgem).

<https://www.gov.uk/government/organisations/department-for-energy-security-and-net-zero/about> Department for Energy Security & Net Zero– the government department responsible for securing our long-term energy supply, bringing down bills and halving inflation.

www.energynetworks.org

Homepage of the Energy Networks Association (ENA), the organisation that represents electricity and gas network operators. They influence decision makers about regulation, cost and safety matters and facilitate best practice and collaboration across energy industries.

www.eua.org.uk

Energy & Utilities Alliance (EUA), a not-for-profit trade association that provides a leading industry voice to help shape future policy direction within the energy sector.

<https://www.gov.uk/government/organisations/office-for-zero-emission-vehicles>

The Office for Zero Emission Vehicles (OZEV) is a team working across government to support the transition to zero emission vehicles (ZEVs).

www.gasgovernance.co.uk

Home of the Joint Office of Gas Transporters. This site contains information about the Uniform Network Code and its ongoing developments.

https://cadentgas.com/getmedia/7e80b7d6-9530-4c3a-9303-4306b078f4d9/2024_Future-of-the-GasNetworkvFinal_1.pdf

Future of gas networks – our latest thought leadership publication, detailing how the gas network will play a crucial role in the energy transition by enabling the delivery of net zero.

Closing statement

Thank you for reading our Long-Term Development Plan 2025. We hope you found the report interesting and informative.

We've given you an insight into:

- Our enhanced approach to customer and stakeholder engagement
- The developments we are making to our connections processes
- Our performance in the environmental emissions space
- How we are helping the UK achieve its decarbonisation targets
- How we are driving change through innovation
- Demand forecast for our networks
- The investments we are making to enhance our networks

Our development plans are driven by our ambition to set the standards that our customers love, and others aspire to. We will continue to develop our plans based on customer and stakeholder feedback. Don't forget to share your feedback at cadentgas.com/ltdp if you would like your views to be taken into

Glossary

Annual Quantity (AQ):

The annual gas consumption at a supply point, measured over a year under average weather conditions.

Asset Data:

Information about the stock, location, health/condition, and risk of network assets, used for asset management decisions.

Bar / mbar:

A unit of pressure. 1 bar $\approx$ atmospheric pressure; 1 mbar = 0.001 bar. Used to describe gas network operating pressures.

Biomethane:

A renewable gas produced from organic matter, cleaned to meet network standards and injected into the gas grid as a low-carbon alternative to natural gas.

Calorific Value (CV):

The amount of energy contained in each volume of gas, measured in megajoules per cubic metre (MJ/m³).

CNG (Compressed Natural Gas):

Natural gas compressed to a high pressure, used as a fuel for vehicles.

Combined Heat and Power (CHP):

A system that generates both electricity and useful heat from the same energy source.

Comfort Levels:

A term used in demand forecasting to describe the temperature at which households choose to heat their homes.

Decarbonisation:

The process of reducing carbon dioxide emissions through the adoption of low-carbon energy sources and technologies.

Demand Forecast:

A projection of future gas demand, used for network planning and investment.

Distribution System:

The network of gas mains operating at intermediate, medium, and low pressures, delivering gas from the transmission system to end users.

DPLA (Digital Platform for Leakage Analytics):

A digital tool that uses advanced sensors and analytics to detect and prioritise gas leaks across the network.

Embedded Power Generation:

Gas-fired power stations or generators connected to the distribution network, providing local electricity supply and system resilience.

EV (Electric Vehicle):

A vehicle powered by electricity, either fully electric or as a plug-in hybrid.

FCO (First Call Operative):

A field engineer who responds to gas emergencies and operational issues.

Future Energy Explorer:

A digital scenario modelling tool used to forecast and plan for the integration of green gases and other technologies.

Future Energy Scenarios (FES):

Industry-wide scenario planning, led by NESO, to inform long-term energy system development and investment.

Gas Distribution Network (GDN):

A licensed operator responsible for the safe and reliable delivery of gas within a defined geographical area.

Gas Transporter (GT):

A licensed company responsible for transporting gas through the network to customers.

Green Gas:

A general term for low-carbon gases such as biomethane and hydrogen.

HGV (Heavy Goods Vehicle):

A large vehicle used for transporting goods, often referenced in the context of fleet decarbonisation.

Hydrogen Blending:

The process of mixing hydrogen with natural gas in the existing gas network to reduce carbon emissions.

Hydrogen Readiness:

The capability of the gas network and its assets to safely transport and distribute hydrogen, either blended or 100%.

IGT (Independent Gas Transporter):

A company that owns and operates gas networks independent of the main GDNs.

IMRRP (Iron Mains Replacement Programme):

A long-term initiative to replace ageing metallic gas mains with modern polyethylene pipes to enhance safety and reduce leaks.

LDZ (Local Distribution Zone):

A geographic area supplied by one or more offtakes from the National Transmission System, containing both high- and lower-pressure pipelines.

LNG (Liquefied Natural Gas):

Natural gas that has been cooled to a liquid state for storage or transport.

LTS (Local Transmission System):

Pipelines operating at >7 bar, transporting gas from the National Transmission System to the distribution system.

Methane Leakage:

Unintentional release of methane from the gas network, a key focus for emissions reduction.

MOB (Multi-Occupancy Building):

A building with multiple residential or commercial units, often requiring specific gas infrastructure and safety measures.

Monetised Risk:

A method of expressing asset risk in monetary terms, combining probability, consequence, and cost of failure.

NESO (National Energy System Operator):

In addition to the role of GB electricity transmission system operator, the national body is responsible for whole-system energy planning and coordination, including scenario development and network capability assessments.

NARM (Network Asset Risk Metric):

A methodology for assessing and tracking the risk of asset failure across the network.

Ofgem:

The Office of Gas and Electricity Markets, the regulator for the electricity and gas markets in Great Britain.

Own Use Gas:

Gas is used for operational purposes within the network, such as preheating before pressure reduction.

Peak Day Demand (1 in 20 Peak Day):

The level of gas demand expected to be exceeded in only one out of 20 winters, used for network planning and investment.

PHEV (Plug-in Hybrid Electric Vehicle):

A vehicle that combines a conventional engine with an electric motor and battery that can be recharged by plugging in.

Regional Energy Strategic Plan (RESP):

Spatially modelled regional plans that guide infrastructure investment and decarbonisation pathways.

RIIO-GD3:

The third price control period for gas distribution networks under Ofgem's RIIO (Revenue = Incentives + Innovation + Outputs) framework.

SAMP (Strategic Asset Management Plan):

A long-term plan for managing network assets, balancing safety, performance, and investment efficiency.

Scenario Modelling:

The use of digital tools and data to forecast different future energy pathways and their impacts on the network.

Shrinkage:

Gas was lost from the system due to leakage, own use, or unaccounted-for gas.

Strategic Innovation Fund (SIF):

A fund supporting innovation projects in the energy sector, such as DPLA and AED sensors.

Transitioning Networks:

The process of upgrading and adapting the gas network to support net zero, including hydrogen and biomethane readiness.

UIP (Utility Infrastructure Provider):

A company responsible for designing and constructing gas networks, which may then be owned and operated by Cadent or an IGT.

Uniform Network Code (UNC):

The industry code governing the arrangements for gas transportation, balancing, and network operation in the UK.