
APPENDIX A6

ENVIRONMENTAL ACTION PLAN

11th December 2024

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1. Introduction

1.1. Who we are and what we do

We are Northern Gas Networks (NGN), the gas distributor for the North of England. We provide 2.9 million homes and businesses with gas through our vast underground pipe network.

We are committed to providing a safe, reliable and great-value service to our customers and stakeholders, while developing new technologies to deliver forms of low-carbon energy, such as hydrogen, to support a greener future. By thinking differently, listening to our colleagues and stakeholders, working closely with our partners and considering our communities, we are pushing the boundaries of what a utility company is capable of.

Our vision is:

'Keeping our customers safe and warm, our colleagues healthy and inspired by delivering an outstanding, sustainable value, ensuring that we lead the way in establishing a fairer, greener future for all our Northern communities.'

1.2. Our Environmental Action Plan summary

Our Environmental Action Plan (EAP) promises to deliver wide-ranging environmental benefits during the RIIO-GD3 period which extends from 2026 to 2031. These benefits are summarised in Figure A6.1.

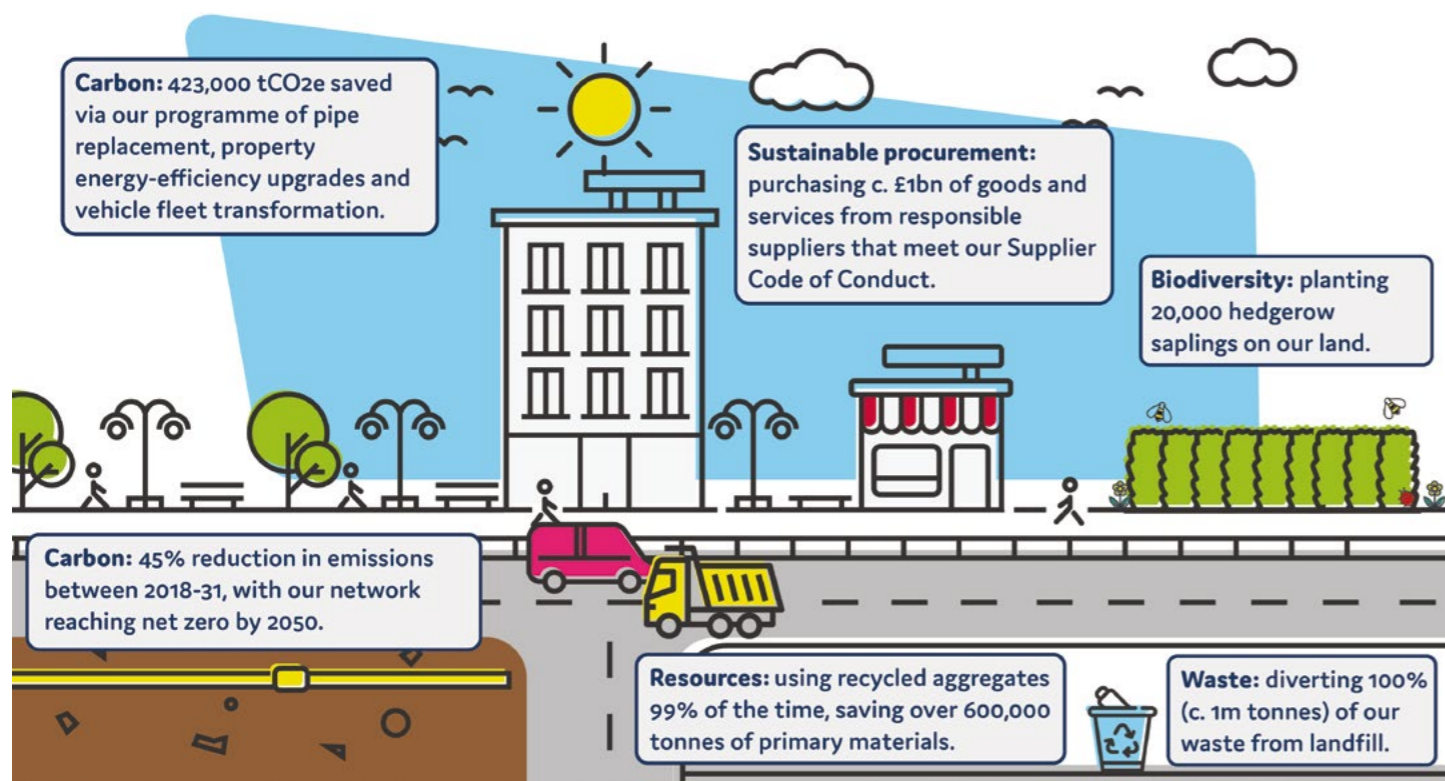


Figure A6.1: Summary of benefits delivered by NGN's RIIO-GD3 EAP



1.3. What is the purpose of this document?

Our EAP identifies actions that we will take in RIIO-GD3 to reduce our carbon emissions and enable the achievement of our long-term Net Zero greenhouse gas (GHG) emissions target. This will be in addition to actions to reduce the environmental impact of our operations. We identify targets to be achieved for key environmental performance objectives and how we will report our progress against these in a transparent and accountable manner.

1.4. Key supporting documents

Our EAP and wider environmental performance is supported by strategies across our business, including, but not limited to the following RIIO-GD3 strategies:

- Our Innovation Strategy – this sets out our approach to delivering innovation in RIIO-GD3 (particularly in relation to enabling the achievement of our Net Zero emission targets), with a focus on the benefits provided to consumers.
- Our Climate Resilience Strategy – this outlines how we plan to adapt to the impacts of a changing climate to ensure that we continue to provide our customers with a safe and reliable supply of energy.
- Our Workforce and Supply Chain Resilience Strategy – this recognises the importance of having a diverse and inclusive workplace in the achievement of Net Zero.

1.5. Our long-term strategy

Our EAP builds upon the last seven years during which we have worked hard to establish long-term priorities for our approach to the environment. Initially, this took the form of our Environment Strategy which was the basis of our RIIO-GD2 EAP and subsequently evolved into our [People and Planet Strategy](#). Our People and Planet (P&P) Strategy is founded on the principles of our ISO 14001 certified [Environmental Management System](#), which requires us to identify, assess and manage our most significant environmental impacts.

We were the first UK gas distribution network to publicly share our support for the achievement of the United Nations Sustainable Development Goals (SDGs) in 2018, and our commitment remains focused around seven key goals. The strategic commitments of our P&P Strategy and the SDGs that they support are summarised in Figure A6.2. Each of these commitments is underpinned by short-term (to 2026), medium-term (to 2030/31) and long-term (to 2050) supporting targets, as detailed in our 2023 [Annual Sustainability Report](#).

Using the strong principles of our P&P Strategy, which we developed in collaboration with over 14,000 stakeholders, we have established an ambitious and challenging RIIO-GD3 EAP based on our medium-term commitments to our planet and partnerships:

- Eliminate emissions – Net Zero business by 2050
- Produce less waste and recycle all of it
- Manage our land to benefit the environment
- Enable affordable, decarbonised heat, power and transport solutions
- Spend responsibly and hold our suppliers to high sustainability standards.

In addition to this, the medium term goals for our people have been used to shape our RIIO-GD3 Workforce and Supply Chain Resilience Strategy.

'Having our People and Planet Strategy in place since 2022 means that we're not reinventing the wheel when it comes to our RIIO-GD3 EAP. Our strong commitments and targets from our strategy are reflected in our RIIO-GD3 plan, and we have well-established governance, policies and practices already in place to support their delivery.'

Neil Whalley, Head of Environment and Sustainability



Figure A6.2: The strategic commitments of our People and Planet Strategy

1.6. Reducing the environmental impact of our network: What are our most material issues?

To focus our long-term strategy, EAP and associated initiatives in the right areas, we need to understand which environmental aspects are most material to our network, and which we can have the greatest impact upon. One element of this is undertaken as part of our ISO 14001 certified Environmental Management System which requires us to identify and assess the possible environmental impacts of all aspects of our business activities. The environmental impact of all of our aspects are scored based on severity and likelihood on a 5x5 matrix, and those which score 15 or greater are classed as significant. We have undertaken this process over many years and as such have developed a detailed understanding of the environmental impacts of our business. A summary of our assessment methodology and latest findings is provided on page 6 [here](#).

Our significant environment aspects represent our greatest environmental risks and are targeted for action in our long-term strategy and EAP to reduce these impacts. Our significant aspects are shown in Table A6.1, alongside the relevant long-term (P&P Strategy) commitment and focus area for our RIIO-GD3 EAP.

Stakeholder insight 5: Informed customers value the People and Planet strategy but want more ambition on emissions targets, financial support, and sharpening of sustainability metrics, governance and assurance. Transparency in reporting is key.

Significant environmental aspect	Long-term strategy commitment	Relevant focus area of EAP
Gas transportation and venting of gas	Eliminate emissions – Net Zero business by 2050 and enable affordable, decarbonised heat, power and transport solutions	Shrinkage and Biomethane
Purchase of goods and services (including polyethylene (PE) pipe)	Spend responsibly and hold our suppliers to high sustainability standards and produce less waste and recycle all of it	Resources and waste and Supply chain
Use of energy in buildings and infrastructure	Eliminate emissions – Net Zero business by 2050	Business carbon footprint
Use of fuel	Eliminate emissions - Net Zero business by 2050	Business carbon footprint
Use of virgin aggregate	Produce less waste and recycle all of it	Resource use and waste
Production of waste	Produce less waste and recycle all of it	Resource use and waste
Contaminated land	Manage our land to benefit the environment	Biodiversity and land

Table A6.1: Our significant environmental aspects, relevant long-term strategy commitments and focus areas of the RIIO-GD3 EAP

1.6.1 Further assessment of materiality

We are committed to ensuring our business makes decisions reflective of customer and stakeholder values and preferences, founded on a substantial evidence base. Over recent years, we have built a tried and tested approach to working with our stakeholders that gives us the breadth and depth to explore difficult and challenging issues and get to the heart of what's important to them (Chapter 2 of our RIIO-GD3 business plan provides an outline of this).

In addition to our environmental aspects and impacts assessment process (as detailed in Section 1.6), we undertake further materiality assessment¹, which broadens the focus to wider sustainability issues. This enables us to take an 'outside-in' approach, ensuring that our stakeholders' priorities are incorporated. In 2023, we commissioned an independent third party (Create Clarity) to help us understand which topics our stakeholders feel are most important to them, and which topics we have the greatest ability to tackle. This involved two elements:

1. Analysis of historical stakeholder information such as our annual customer perceptions research from the last four years, which involves harnessing the opinions of approximately 1,200 domestic customers each year;
2. New research interviews undertaken with 110 stakeholders from backgrounds such as manufacturing, charities, landowners, local enterprise partnerships, supply chain and others.

Our stakeholders prioritise the following issues, in order of most important to least:

1. Keeping bills as low as possible
2. Providing a reliable supply of gas
3. Helping the region meet climate change targets
4. Providing a safe service
5. Trust and transparency
6. Providing help for those who need it most

This can be interpreted as our stakeholders saying climate action is important but must be value for money, and not at the expense of reliability or safety. Transparency is valued, as is supporting those with vulnerabilities within our communities. We used this insight to understand the materiality of sustainability issues and to ensure that our long-term strategy is focused on the right areas

¹ <https://www.northerngasnetworks.co.uk/wp-content/uploads/2024/04/ESG-Materiality-Assessment-2024.pdf>

1.6.1 Opportunities and challenges associated with addressing our most material issues

We have considered the strategic opportunities and challenges that we face in addressing our significant environmental impacts during RIIO-GD3, as summarised in Table A6.2. These have been considered when developing our RIIO-GD3 EAP and business plan investments.

Opportunities	Challenges
<ul style="list-style-type: none"> Stakeholders regard NGN as a responsible 'anchor' business in the community which should reduce its 'local and global' scale environmental impacts. Net Zero emissions legislation provides a driver to decarbonise our own operations and contribute to wider decarbonisation of the UK energy system. New technology and innovations are available which can be utilised to deliver improvements. Innovation funding is available for appropriate initiatives. Exemplar environmental performance can deliver reputational benefits. Other gas networks and utility companies are often keen to work collaboratively on new initiatives and share examples of good practice. 	<ul style="list-style-type: none"> Utility networks are under pressure to keep customer bills as low as possible. Initiatives must represent value for money to customers. Initiatives must be robust and scalable to deliver material changes. Initiatives must not risk achievement of our licence obligations or negatively impact on our customer performance. Initiatives must consider whole-life environmental costs. Uncertainty regarding the future role of gas in the UK energy supply. NGN do not control the type of gas used in our network. Significant environmental improvements have been delivered during RIIO-GD1 and RIIO-GD2, so further improvements may be more difficult in terms of cost and practicability. Reporting requirements are likely to increase as we near Net Zero target dates, bringing with them a greater likelihood of stakeholder scrutiny and need for transparency.

Table A6.2: Opportunities and challenges associated with addressing our material environmental impacts

2 <https://together.northerngasnetworks.co.uk/wp-content/uploads/2024/03/Customer-Perceptions-2024-Wave-4.pdf>
 3 <https://together.northerngasnetworks.co.uk/wp-content/uploads/2024/03/Customer-Perceptions-2024-Wave-4.pdf>

1.7. Meeting stakeholder priorities

Our commitment to continuous engagement has ensured that we didn't need to start 'from scratch' when developing our RIIO-GD3 EAP. Since developing our first Environment Strategy in 2018, engaging with stakeholders to understand their priorities and perceptions with regard to environmental matters has become business as usual for us. We engage with our stakeholders through a variety of methods, as described in Chapter 2 of our RIIO-GD3 business plan, with the total number of stakeholders engaged through our core business plan engagement activities reaching over 13,000. We have used this insight to inform our understanding of our most material environmental matters which in turn we have used to shape our short-term goals and our long-term strategy.

We have obtained and analysed a wealth of stakeholder feedback, key messages from which are outlined in Table A6.3. This insight has been used to inform the development of our EAP to ensure it is reflective of our stakeholders' priorities as well as our most material environmental issues.

ANNUAL CUSTOMER PERCEPTIONS RESEARCH: A FOCUS ON SUSTAINABILITY

A formal annual survey to approximately 2,000 domestic and commercial customers in our region to help identify core issues and priorities.

This research² identifies that helping our region meet climate change targets is important to our customers, ranking in fourth place priority after keeping bills low (first place), providing a reliable supply of gas (second place) and providing a safe service (third place). This prioritisation has been stable for a number of years and confirms that stakeholders consider sustainability, in particular climate change, an important issue, but investments must be value for money.

A key insight from our 2024 customer perceptions research³ was that 82% of all participants agreed that company sustainability reports need to be checked by a third-party expert. This should happen before they are published to ensure that the information is as accurate as possible.

Stakeholder message: 'You said'	Our response: 'We did'
<p>Our future customers⁴ told us that the most responsible thing to do when falling behind on carbon targets is to keep the targets to maintain accountability but to look at alternative ways to benefit the environment.</p>	<p>We commit to transparency in our environmental reporting – in our Annual Environmental Report (AER) and anywhere else we report our progress. Taking into account stakeholder feedback, we will make it very clear when reporting where we are falling short of targets. All reporting will also be undertaken in accordance with the latest standards and guidance (including the GHG Protocol Corporate Accounting and Reporting Standard).</p> <p>We also commit to reporting our carbon emissions as both a total and disaggregated by emissions sources and show our progress clearly. This is intended to remove any confusion that stakeholders may feel about shrinkage emissions being reported separately to other emissions sources in our RIIO-GD2 EAP (as per Ofgem requirements).</p> <p>While we do not intend to utilise offsetting as an alternative to reducing our emissions, we commit to looking for UK-carbon offsetting if and when it is needed. If we do use offsets, we'll report this as a net emissions figure so that it is clear where offsets have been included. We used this insight in developing our commitments in Section 3.2 of our EAP.</p>
<p>Members of our Citizens Panel⁵ told us that they support our carbon targets but feel that they are too slow to achieve Net Zero (by 2050) and should be brought forward.</p>	<p>The majority of our emissions (>90%) are related to leakage of the natural gas that we transport. Elimination of these emissions is reliant upon national policy-led decisions regarding the decarbonisation of the UK energy system to enable the achievement of Net Zero in the UK by 2050. Gas networks continue to play an important role in the UK energy system, and will continue to do so in the near term, but face an uncertain long-term future. In light of this, we feel that committing to a target date to achieve Net Zero emissions earlier than 2050 would cause confusion for stakeholders. As a result, we have not brought forward our overall Net Zero target date, but we recognise that this conflicts with some stakeholder views.</p> <p>Our non-leakage carbon emissions reduction targets (Scope 1 and 2) go beyond our science-based aligned targets, meaning that they are ambitious and will deliver emissions savings now to support a Net Zero future. We used this insight in developing our commitments in section 3.2 of our EAP.</p>
<p>Members of our Citizens Panel⁶ highlighted the link between waste and efficiency. They encourage NGN to avoid waste production at the source to reduce compounding the environmental impacts by transporting this waste.</p>	<p>The waste hierarchy is embedded in our policies, procedures and strategies. We have included a target to reduce waste from our office and depots by 50% by the end of RIIO-GD3 (vs 2018 baseline). In addition to this, we have a target to divert all waste from landfill.</p> <p>We will also work to embed the principles of the circular economy throughout our procurement teams to improve knowledge and ability to source alternatives where possible. We used this insight in developing our commitments in Section 5 of our EAP.</p>
<p>Subject matter experts at our biodiversity workshop⁷ in 2021 told us that they prioritise equally all aspects of biodiversity. They believe NGN should invest to encourage biodiversity on our own land and work sites (without compromising safety or security). They identified planting hedgerows to deliver broader ecosystem benefits, and how small integrated improvements can deliver large cumulative benefits.</p>	<p>Throughout RIIO-GD2, we laid the foundation to understand how to encourage and measure biodiversity on our sites, and as a result, we have integrated targets into our RIIO-GD3 plan as follows:</p> <ul style="list-style-type: none"> Continue to monitor and report the natural capital value of 30 of our larger sites as completed in RIIO-GD2; Strategically plant 20,000 saplings to create 2 miles of new hedgerow at our operational sites to encourage biodiversity. <p>We used this insight in developing our commitments in Section 6 of our EAP.</p>

4 https://together.northerngasnetworks.co.uk/wp-content/uploads/2023/11/FINAL_YIC-2023_Session-4_Report_V1.pdf
 5 <https://together.northerngasnetworks.co.uk/wp-content/uploads/2023/11/NGN-Panel-14-July-23-final-published-report-2.pdf>
 6 <https://together.northerngasnetworks.co.uk/wp-content/uploads/2023/11/NGN-Panel-14-July-23-final-published-report-2.pdf>
 7 <https://together.northerngasnetworks.co.uk/wp-content/uploads/2021/09/Environment-Workshop-12-January-2022-v2.pdf>

Stakeholder message: 'You said'	Our response: 'We did'
<p>Transparency in reporting is key, and informed customers⁸ told us that they value the P&P Strategy but want to see the sharpening of sustainability metrics, governance and assurance.</p> <p>A key insight from the 2024 customer perceptions research⁹ was that 82% of all participants agreed that company sustainability reports need to be checked by a third-party expert. This should happen before they are published to ensure that the information is as accurate as possible.</p>	<p>We are working collaboratively with the other gas distribution networks (GDNs) of Great Britain and Ofgem to create metrics that deliver transparency. This will enable stakeholders to compare networks side by side on their environmental performance, while taking into account the fundamental differences in our operating models and business structures.</p> <p>For RIIO-GD3, we have agreed that our Scope 1 and 2 carbon reporting will be checked by an independent third-party expert to provide assurance. Note that the cost of this will not be passed on to the customer.</p> <p>We used this insight in developing our commitments in section 7 of our EAP.</p>
<p>The cost-of-living crisis is both an opportunity and a challenge to drive engagement on sustainability with consumers and businesses. Stakeholders¹⁰ say there is scope to go 'next level' on supply chain sustainability.</p>	<p>We plan to have all of our key contracted suppliers, and at least 85% of our supply chain by value, signed up to our Supplier Code of Conduct by 2031, which will embed strong sustainability principles across our supply chain. We offer a programme of assisted, or tapered, compliance to our suppliers to ensure that we are not inadvertently excluding small and medium-sized enterprises who may be at the early stages of their own sustainability journey. We used this insight in developing our commitments in section 4 of our EAP.</p>
<p>Our annual research¹¹ tracking customer priorities identifies that stakeholders consider climate change an important issue, but investments must be value for money.</p>	<p>We recognise that value for money is fundamental to our customers and have made decisions based on this, which are outlined within this document. Our methodology for identifying value for money options to address our environmental impacts is outlined in Section 1.8.</p> <p>An example of this in action is our decision to cease gas conditioning during RIIO-GD3. This is because it is of limited effectiveness with respect to gas leakage reduction in the modern gas network and thus offers poor value for money to customers (See Section 3.3 for further details). In contrast, we have reviewed a range of options for gas system pressure management to identify the optimum RIIO-GD3 solution in terms of leakage reduction for expenditure.</p>

Table A6.3: A summary of some of the key stakeholder messages from across RIIO-GD2 that have shaped our RIIO-GD3 EAP

1.8. Our methodology for identifying cost-effective options to reduce environmental impacts

Our RIIO-GD3 EAP contains a range of initiatives to tackle our most significant environmental impacts. Some of these impacts can be managed by initiatives that are low complexity and/or no or low cost. As such, they do not require detailed analysis to identify the optimum option. In contrast, some of our significant impacts are complex and can only be tackled by relatively high-cost investment. For such impacts, it is important to establish a methodology to identify cost-effective, robust initiatives to address the impact at lowest cost to our customers.

During RIIO-GD1, we embedded a sophisticated Value Framework (VF) within our investment cost-benefit analysis process and we have continued to use this approach as business-as-usual. Our VF provides monetised unit rates for various material social and environmental factors associated with our business, including customer service performance, safety performance and environmental impacts (such as emissions of carbon and air pollutants, and pollution incidents).

When used with our investment decision support tool, these values enable the social and economic costs and benefits of an investment to be taken into full consideration alongside, and equal to, the financial project costs over the full lifetime of the investment (for example, 45 years). This process allows the outcomes of different investment options to be fully compared and analysed and thereby optimises our investment decision-making.

Our VF approach ensures that we are robust in considering the social and environmental outcomes of our key business investment decisions alongside the financial costs. This means that we can be confident that we are incorporating consideration of our most significant environmental and social impacts with our wider business planning and decision making processes.

All significant investments contained within our RIIO-GD3 business plan were subjected to a rigorous cost-benefit analysis utilising our VF approach. This optimised our investment decision-making and ensured that value-for-money investments were identified, cognisant of the social and environmental costs and benefits.

Indeed, many of the investments proposed in our RIIO-GD3 business plan have been identified as value for money based on the monetised carbon benefits of avoiding gas loss, a key significant environmental impact for NGN. See Section 3.3.3 for further discussion of how we have identified a value-for-money approach to shrinkage reduction.

Further details of our investment cost-benefit analysis process are provided in individual Engineering Justification Papers (EJPs) contained within our RIIO-GD3 business plan.

⁸ <https://together.northerngasnetworks.co.uk/wp-content/uploads/2024/05/NGN-Panel-16-March-24-final-report.pdf>

⁹ <https://together.northerngasnetworks.co.uk/wp-content/uploads/2024/03/Customer-Perceptions-2024-Wave-4.pdf>

¹⁰ https://together.northerngasnetworks.co.uk/wp-content/uploads/2024/02/FINAL_S4TP-Youth-Insights_Northern-Gas-Networks-YIC-2023_End-of-Year-Report_V1.pdf

¹¹ <https://together.northerngasnetworks.co.uk/wp-content/uploads/2024/03/Customer-Perceptions-2024-Wave-4.pdf>

2. What role do we expect to play in low-carbon energy transition?

In RIIO-GD3, to meet our vision of a fairer, greener future for the North of England, we will continue to deliver a safe, reliable gas network while preparing our network for an affordable and fair Net Zero transition.

We play a crucial role in helping our customers, stakeholders, region and nation to transition to Net Zero. Our stakeholders want us to act now to reduce our environmental impacts and also work towards Net Zero. The rest of our EAP is focused around reducing our environmental impacts immediately. This section will outline the role that we see NGN playing in the UK-wide transition to Net Zero.

We don't expect that significant changes to our physical network will be required during RIIO-GD3 because of the uncertainty around the timings, scale and distribution of energy transition. This means that we will focus on continuing to operate a safe, secure and resilient network, while preparing to enable decarbonisation beyond RIIO-GD3.

Our strategic vision for the future of gas during RIIO-GD3, as shown in Figure A6.3, underpins our approach.

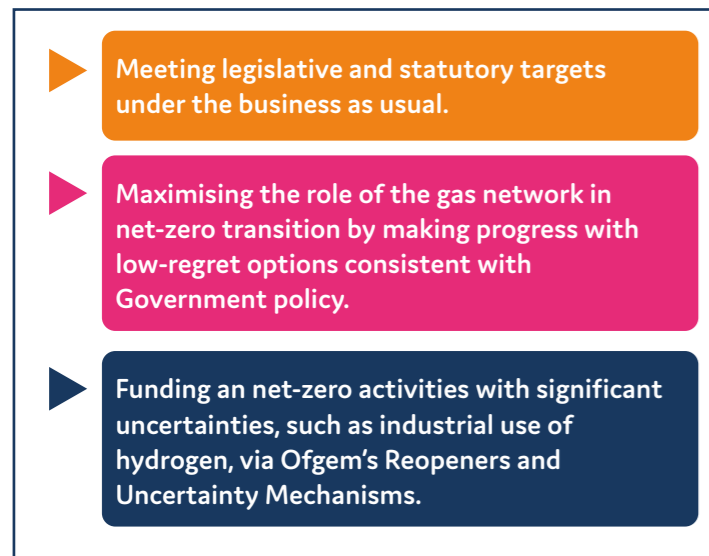


Figure A6.3: Our strategic vision for the future of gas in RIIO-GD3

To achieve our strategic vision, in RIIO-GD3, we will:

- Pursue cross-vector collaboration, putting our customers at the heart of energy transition;
- Conduct projects to strengthen our network capabilities for transition to Net Zero, enabling us to adapt to policy changes to enable change;
- Align with government policy to enable whole-systems decarbonisation.

Section 4.3 of our RIIO-GD3 business plan outlines our approach in detail and gives an understanding of the projects and investments that will be required.

2.1. Our Net Zero commitments for RIIO-GD3

Across RIIO-GD3, we continue to commit to the achievement of Net Zero in the UK, and we have a pivotal role to play. We have five commitments that outline our approach to Net Zero:

1. We will continue to operate a safe, secure and resilient network. Customers tell us that their top priorities are for us to minimise bills and provide a safe and reliable supply of gas. This means that we will focus on delivering value for money, high levels of customer service, and at the same time look at different ways of transitioning to Net Zero.
2. We will pursue low-regrets investments collaboratively to enable fair and low-cost energy transition. Customers believe that the risks and benefits of climate change may not be fairly distributed within our current energy system. We agree that those most at risk must be protected from carrying undue costs and burdens. Low-regrets investments are those that provide benefits in the short term, whatever the outcomes of climate change. Our collaborative projects will strengthen our network capabilities towards Net Zero. Our actions will continue to align with government policy to facilitate whole-systems decarbonisation; for example, by supporting projects such as biomethane, hydrogen blending and use of hydrogen in industry.
3. We will use the uncertainty mechanisms and reopeners efficiently to explore future Net Zero opportunities. Amid uncertainty about the future of the gas industry, we will work collaboratively to develop public knowledge of the safety and cost-benefit case.

4. We will be transparent and accountable when we report our environmental performance. Stakeholders told us that they value transparency and accountability in environmental reporting. We will publish an AER throughout RIIO-GD3 to clearly document our performance against our RIIO-GD3 EAP commitments. Our AER will be prepared in accordance with the latest standards and guidance (including the GHG Protocol Corporate Accounting and Reporting Standard for emissions reporting). See Section 7 for more information about how we'll report progress.

5. We will reduce gas leakage by 24% over RIIO-GD3. Stakeholders have told us to take value-for-money actions now to reduce carbon emissions. We will continue our gas mains replacement programme and system pressure management. We will report our progress against our gas leakage and shrinkage performance targets in our AER, alongside detailing the actions we are taking to improve our performance and enable observed leakage measurement.

We know that the journey to Net Zero will be complex, and as a result, there are many aspects to our approach to low-carbon energy transition in RIIO-GD3. Some of these are listed in Table A6.4, with further detail provided in Chapter 4 of our RIIO-GD3 business plan.

Key Net Zero topics for RIIO-GD3	Benefits for customers
Customer journey research	We seek to understand consumer journeys in various Future Energy Scenarios. This will be essential in people-centric energy planning so that nobody is disadvantaged or left behind in the journey to Net Zero.
Network sectorisation (hydrogen repurposing)	We aim to create a strategy to prepare our network for energy transition through installation of isolation valves (i.e. network sectorisation). This can help us with either decommissioning or repurposing to hydrogen in a safe manner. Investment in low-regrets options now will help distribute the costs of energy transition fairly among current and future customers. This will alleviate the risk of intergenerational unfairness and unjust transition.
Understanding disconnection and decommissioning'	Some of our network assets might require decommissioning as some of our consumers will adopt other low-carbon alternatives, regardless of government decisions. Safely decommissioning the network is a significant task which must be managed well. We aim to assess what network structure needs to be in place to operationally enable the Net Zero journey and make strategic plans to remove any obsolete pieces of equipment.
Biomethane research	Biomethane is a decarbonisation solution available now, but significant barriers to entry and operation exist. We will support projects that aim to reduce connection and operational costs for biomethane plants to support grid decarbonisation.

Table A6.4: Our key Net Zero topics for RIIO-GD3 and the benefits they provide to our customers

3. Greenhouse gas emissions

3.1. Understanding our emissions

The UK has committed to achieving Net Zero GHG emissions by 2050, with many local authorities in our region targeting Net Zero emissions much earlier (for example, Leeds City Region by 2038). We recognise that we have an important role to play in enabling these targets to be achieved. We will do this through transforming our infrastructure to be resilient and future-ready and by enabling green gas connections. But it's also vital that we decarbonise our own operations wherever it is possible now to make improvements on the road to Net Zero.

During 2023/24, our GHG emissions were 308,973 tCO₂e. Figure A6.4 demonstrates that shrinkage comprises 91% of our typical emissions annually. Shrinkage represents gas lost from our network by leakage (the majority), gas used by our own infrastructure, and gas stolen from our network by third parties. The remainder of our emissions are associated with our vehicles, energy use in premises, and value chain emissions, which make up our business carbon footprint (BCF). Although Scope 1 and 2 BCF emissions make up only around 2% of our total GHG emissions, our stakeholders have told us that they expect us to reduce all elements of our carbon emissions, not just gas shrinkage.

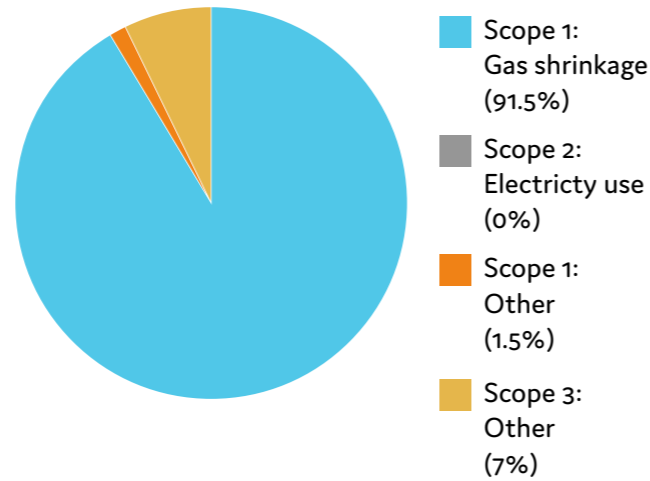


Figure A6.4: The composition of our 2023/24 greenhouse gas emissions. Our total emissions were 308,973 tCO₂e.

3.2. Focus area: RIIO-GD3 carbon targets and commitments

Our primary RIIO-GD3 carbon commitment is to reduce our total Scope 1 and 2 GHG emissions by 45% against our 2018 baseline by the end of RIIO-GD3 (2031).

In addition, we aspire to achieve Net Zero operational Scope 1 and 2 emissions (excluding shrinkage) by 2031. A summary of RIIO-GD3 Scope 1 and 2 carbon reduction targets is presented in Table A6.5.

	2017/18 (baseline)	2026/27	2027/28	2028/29	2029/30	2030/31	% Reduction vs 2017/18
Scope 1 – shrinkage	407,403	271,310	257,300	243,199	229,373	216,000	47
Scope 1 – energy use in premises (natural gas)	285	0	0	0	0	0	100
Scope 1 – vehicles	5,190	2,183	1,638	1,092	546	0	100
Scope 2 – electricity use (market based)	2,019	549	500	452	403	0	100
Total Scope 1 and 2 emissions (market based)	414,897	274,042	259,438	244,743	230,322	216,000	48

Table A6.5: RIIO-GD3 targets for Scope 1 and 2 greenhouse gas emissions

In our EAP, we commit to business investments that save 423,000 tCO₂e over RIIO-GD3. Table A6.6 summarises our RIIO-GD3 investments where carbon savings are the principal or significant investment driver. Carbon savings are estimated as per our cost-benefit analysis procedure.

Investment category	Details	Investment Decision Pack Reference	Estimated RIIO-GD3 carbon savings (tCO ₂ e)
Network Carbon savings based on 1 Gwh of leaked natural gas = 1,226.42 tCO ₂ e	Mandatory mains replacement	Mandatory Repex	198,705
	Non-mandatory mains replacement	Non-mandatory Repex	85,653
	Pressure management	Pressure Management	121,796
	Preheating	Offtake Pre-heating	3,557
	Filters	Offtake Filters	4,489
	Pressure control	Offtake Pressure Control	6,892
	Governors	Governors	1,214
Non-network	Property energy efficiency upgrades	Business Plan Data Table CV5.06 (Other Capex) and supporting commentary	600
	100 electric vans	Business Plan Data Table CV5.08 (Vehicles) and supporting commentary	557
Total			423,462

Table A6.6: Summary of lifetime carbon savings from RIIO-GD3 investment where carbon savings are the principal or significant investment driver

3.2.1 Our approach to offsetting

In the event that we were to fail to achieve our total Scope 1 and 2 emissions reduction targets over the period, we will treat the environment like a customer and compensate for this failure in performance. This will be via traditional third-party certified offsets or possibly via other innovative ways at NGN's own expense. This will ensure that we achieve our decarbonisation targets on a net emissions basis. This approach has been heavily influenced by our Young Innovators Council (YIC)¹² who told us that offsetting should be used with caution, ideally have immediate impact, be related to the original emissions source and be UK based.



¹² https://together.northerngasnetworks.co.uk/wp-content/uploads/2024/03/FINAL_YIC-2024_Session-1_Report_V2.pdf

3.3. Focus area: Shrinkage

Long-term P&P Strategy commitment: Net Zero business operations by 2050



RIIO-GD3 commitments:

- Reduce shrinkage by 22% and leakage by 24%, saving 201,000 tCO₂-e
- Continue consistent and transparent reporting of shrinkage and leakage in our AER
- Enable the reporting of observed leakage via innovative techniques and modelling

3.3.1 Background and RIIO-GD2 performance

RIIO-GD2 commitment	Description of expected benefit	Target year	Red, amber, green (RAG) indicator	RIIO-GD2 status update
Reduce gas leakage by 24%	Carbon savings of c.285,000 tCO ₂ e	2026	Green	Gas leakage reduced by a further 6% (16 GWh) in 2023/24 vs 2022/23, meaning that we are still on track to achieve our RIIO-GD2 commitments.
Repairing gas leaks faster – 89% within seven days and 98% within 28 days	Carbon savings of c.30,000 tCO ₂ e	2026	Green	Targets achieved in 2023/24; repairs within seven days = 91% and repairs within 28 days = 98%.

Table A6.7: A summary of our key RIIO-GD2 shrinkage commitments and performance to 2023/24

Methane, the primary constituent of natural gas, contributes to the build-up of harmful greenhouse gases when it enters the atmosphere. Our biggest direct GHG emission (>90%), and direct environmental impact, is gas shrinkage from our network, which includes natural gas leaking from our network (c.95%), gas stolen from the network (c.3%) and gas used during distribution (c.2%); for example, to preheat gas. Reducing our gas shrinkage is a key part of our contribution to the UK’s journey to Net Zero GHG emissions by 2050. Our RIIO-GD2 shrinkage reduction commitments are summarised in Table A6.7.

Our long-term shrinkage and leakage reduction performance is summarised in Figure A6.5, demonstrating that between 2013 and 2024, NGN’s annual gas leakage reduced by 39%. Cumulatively, this represents a saving of 942 GWh of natural gas over the period compared to our baseline position, equivalent to approximately 1,155,000 tCO₂e of Scope 1 NGN emissions.

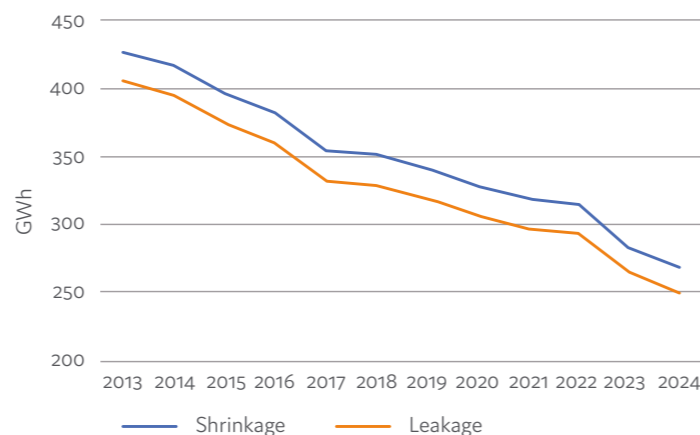


Figure A6.5: NGN annual shrinkage and leakage performance since start of RIIO-GD1

3.3.2 RIIO-GD3 shrinkage targets

We are committed to reducing gas leakage by 24% and shrinkage by 22% over the course of RIIO-GD3. This will reduce our direct carbon emissions by over 201,000 tCO₂-e over the period. This will mean that between 2013 and 2031, we will have reduced our annual gas shrinkage by 55%.

The largest contribution to these ambitious reductions will come from our mains replacement programme, which extends until 2032 and prioritises the leakiest metallic pipes within our network. Significant additional gas leakage reductions will also continue to be delivered by our investments in system pressure management. We have committed to further optimising this technology in RIIO-GD3 to refurbish existing equipment to ensure continuity of operations. In order to deliver best value for our customers, we have decided to cease the conditioning of our gas with mono-ethylene glycol (MEG) during RIIO-GD3. This is because by then, the network pipe composition (substantially plastic) will mean that the gas leakage reduction benefits of this activity will no longer outweigh the costs of completing it.

Table A6.8 shows the leakage associated with gas mains and service pipes at in-year pressure, demonstrating the projected leakage reduction attributed to mains replacement, as well as showing the total leakage and total overall shrinkage for comparison.

Year	2026/2027	2027/2028	2028/2029	2029/2030	2030/2031
Mains / services leakage (GWh)	158.32	146.89	135.40	124.12	113.23
Total leakage (GWh)	218.08	206.65	195.16	183.88	172.99
Total shrinkage (GWh)	239.16	227.74	216.24	204.96	194.07

Table A6.8: RIIO-GD3 leakage and shrinkage projections

We will continue to report our actual shrinkage outputs consistently and accurately against the forecasted shrinkage volumes. Table A6.9 shows the forecasted average system pressure, mains and services leakage at year 5 benchmark pressure, mains and services leakage at in-year pressures and the total shrinkage forecast for each year. We have collaborated with our fellow GDNs to ensure our shrinkage and leakage projections have been derived in a consistent manner to enable comparison between the networks.

We will report our annual shrinkage and leakage volumes and our progress against our projections throughout RIIO-GD3 in our AER, working collaboratively with the other GDNs to ensure consistent reporting methodologies. We will also detail our actions taken to reduce our shrinkage and leakage emissions in our AER.

Year	2026/2027	2027/2028	2028/2029	2029/2030	2030/2031
Average system pressure (mb)	31.83	32.06	32.27	32.48	32.68
MEG saturation (%)	0.00	0.00	0.00	0.00	0.00
Mains / service leakage at yr 5 benchmark pressure / MEG (GWh)	161.94	149.38	136.92	124.80	113.23
Mains / services leakage at in-year pressure	158.32	146.89	135.40	124.12	113.23
Total shrinkage (GWh)	239.16	227.74	216.24	204.96	194.07

Table A6.9: RIIO-GD3 leakage and shrinkage projections

Gas escapes because of asset damage or failure, result in emissions of natural gas into the atmosphere. As detailed in Chapter 3 of our Business Plan, in keeping with our RIIO-GD2 approach we are proposing bespoke customer service commitments to repair emergency gas escapes quicker during RIIO-GD3. These commitments will reduce the amount of gas lost to the atmosphere and, while difficult to measure and report, will deliver real-world carbon emissions savings.

3.3.3 Creating our RIIO-GD3 shrinkage targets

Our strategy

We have developed our RIIO-GD3 shrinkage reduction strategy with recognition of:

- Our statutory duties under the Iron Mains Replacement Programme (requiring replacement of all metallic gas pipes located within 30 m of a property);
- Our stakeholders' wish for us to take action now to reduce our carbon emissions by value-for-money investments.

We have worked with our Independent Stakeholder Group (ISG) throughout the development of our RIIO-GD3 shrinkage reduction targets to ensure we are being appropriately ambitious and meeting stakeholder requirements. This included holding a review and challenge deep dive into our RIIO-GD3 shrinkage and leakage reduction strategy and targets during August 2024. Our ISG is supportive of our RIIO-GD3 shrinkage reduction strategy, targets and the rationale used to derive them, and consider them to be appropriately challenging.

Our approach to reducing shrinkage is based upon an options analysis, whereby we assessed the effectiveness, the confidence we have in that effectiveness, and the cost of the different measures we utilise to reduce shrinkage. The measures that we have utilised throughout RIIO-GD1 and RIIO-GD2 to reduce shrinkage are the following:

- Mains replacement (mandatory and non-mandatory), which delivers c.80% of the shrinkage reductions annually;
- Pressure management, which delivers c.10–20% of the reduction annually;
- Gas conditioning with MEG to seal aged metallic pipe joints which deliver c.5–10%.

These options provided the starting point for the development of our RIIO-GD3 reduction strategy which is identified further below.

Mains replacement

Our RIIO-GD3 business plan includes a comprehensive programme of metallic gas mains replacement, the majority of which is mandated under the Iron Mains Replacement Programme. However, some of the replacement is non-mandatory or discretionary. The 395km of non-mandatory replacement work, as identified in the Non-mandatory Repex Engineering Justification Paper (EJP) in our business plan, is justified as value for money on the basis of the safety and environmental benefits delivered by replacement of these pipes. This non-mandatory pipe replacement work provides valuable gas leakage reductions which was assumed in the development of our RIIO-GD3 shrinkage targets presented in Section 3.3.2. Should a different programme of non-mandatory pipe replacement work be adopted in RIIO-GD3, our shrinkage targets will require revision.

System pressure management

Throughout RIIO-GD2, we have adopted a system pressure management strategy which has been successful in reducing our average system pressure and thereby reducing gas leakage. This has required hard work and close management. In deciding the strategy for RIIO-GD3, four scenarios were produced and analysed, as shown in Table A6.10, to identify the optimum approach on the balance of effectiveness and value of money.

Details	System pressure management strategy option			
	Maintain	Stop	Seasonal only	Do more
	Continue as per RIIO-GD2 strategy – replace technology as required to maintain performance	Remove pressure management equipment and replace with conventional data loggers	As per Stop plus summer and winter pressure settings	Deploy more technology beyond coverage in RIIO-GD2 where network conditions allow
Gas savings over RIIO-GD3				
Mains replacement	11.5%	11.5%	11.5%	11.5%
Pressure management	11.0%	0%	7%	11.3%
Total	22.5%	11.5%	18.5%	22.8%
Gas saving effectiveness	High	Low	Medium	High
Approximate cost over RIIO-GD3 (£m)	£4.4m	£1.8m	£1.8m	£5.6m

Table A6.10: RIIO-GD3 pressure management strategy options considered. Preferred option is Maintain.

It was identified that the 'Maintain' option was the preferred pressure management strategy for RIIO-GD3 on the balance of gas savings versus cost (which would be maintained at approximately RIIO-GD2 levels), and in light of the success with which this strategy operated during RIIO-GD2. The 'Do more' option was determined to provide small gains for the additional cost. Full details of the options analysis are contained in the EJP for System Pressure Management. The 'Maintain' option was assumed in the development of our RIIO-GD3 shrinkage targets presented in Section 3.3.2. Should a different approach to system pressure management be adopted in RIIO-GD3, our shrinkage targets will require revision.

Gas conditioning

Our shrinkage management options analysis process identified that gas conditioning offers low effectiveness for shrinkage reduction, with relatively low confidence of effectiveness, and is of limited use in the modern, predominantly plastic gas network. As such, in planning for RIIO-GD3, we have taken the decision to cease gas conditioning on the grounds that it no longer represents value for money to our customers.

3.3.4 Digital Platform for Leakage Analytics (DPLA) project

As recognised in the RIIO-GD3 Sector Specific Methodology Determination (SSMD) GD Annex and in our correspondence with the Health and Safety Executive, the application of gas leak detection technologies and the DPLA offer potentially significant safety and environmental benefits. Primarily this relates to the use of collected leakage field monitoring data as leading indicators of gas main condition to enable refined prioritisation for replacement/refurbishment which would thereby reduce gas leakage.

In accordance with the SSMD we have included costs within our RIIO-GD3 baseline allowances for the deployment of leakage detection technology in our network. This core funding will enable us to commence this activity without the need to wait for the full rollout of the DPLA. Our programme of work focuses on the deployment of vehicle mounted leakage detection equipment, such as that offered by Picarro or Bohr. We propose to build a dedicated and fully resourced team to enable regular strategic surveying of our pipe network during RIIO-GD3. The survey programme will focus on where the data can add best value to maximise safety and environmental benefits, such as our metallic distribution mains network RIIO-GD3. The costs for this activity have been estimated at a total cost of £4.90m over RIIO-GD3 as identified in Table A6-11. Our costs for this activity are based on the assumption of deployment of Picarro vehicle mounted leakage detection technology as referenced within the DPLA project and as demonstrated by Italgas. We have assumed deployment of this technology on three dedicated NGN vehicles.

Indicative cost benefit analysis has been complete to assess this investment. Our analysis identifies that this new technology will need to enable gas leaks to be addressed at least 15% more quickly than currently for there to be a positive Net Present Value (NPV) from this investment and for the social benefits of reduced GHG emissions and shrinkage costs to exceed the costs of the activity within the RIIO-GD3 period.

Expenditure category	Detail	2026/27	2027/28	2028/29	2029/30	2030/31	RIIO-GD3 total
Capex	Purchase of dedicated survey vehicles	0.12	0	0	0	0	0.12
Opex	Technology service provider fee	0.52	0.52	0.52	0.52	0.52	2.61
	Work management	0.44	0.44	0.44	0.44	0.44	2.18
Total		1.07	0.96	0.96	0.96	0.96	4.90

Table A6.11: Summary of gas leakage detection deployment costs included in baseline allowances in 2023/24 prices.

The DPLA Strategic Innovation Fund (SIF) project led by Cadent is in progress and the associated recommended scope and costs for deployment by the individual GDNs are being developed. The DPLA project team provided scopes and estimated costs for a range of potential deployment scopes to each GDN in September 2024. The scopes all comprised varying use of leakage detection by fixed, vehicle mounted and hand held sensors but no use of satellite imagery. The cost range across the three different potential scenarios is low, however until the project is completed these costs should be viewed with a low degree of certainty.

The costs for the three potential scenarios as of October 2024 provided by the DPLA project for NGN's network are summarised in Table A6.12 and total approximately £20 million across RIIO-GD3, similar to our estimate provided in our RIIO-GD3 SSMC response. Given the scale of these costs and the associated uncertainty we have included them within our RIIO-GD3 business plan within the Uncertainty Mechanisms. Each of the DPLA scenarios provided include for the use of vehicle mounted leakage surveying of a similar nature to that included in our baseline RIIO-GD3 allowance as described in Table A6.11. To avoid duplication, our estimated DPLA Uncertainty Mechanism cost is net of the costs presented in Table A6.11 (£14.26m). Until the exact scope and associated costs of the DPLA application are understood and tested it is difficult to fully assess the potential costs and benefits of this approach but we would anticipate a relatively long payback period given the scale of the costs.

The timescales associated with our roll out of the DPLA will depend upon the progress and outcomes of the DPLA project. We commit to working collaboratively with our fellow GDNs and other stakeholders throughout the remainder of RIIO-GD2 and into RIIO-GD3 to enable the development and deployment of the DPLA. This will deliver more accurate and robust reporting of gas shrinkage and leakage.

DPLA Scenario	Cost Item	RIIO-GD3 total (£m at October 2024)
Probabilistic Modelling (preferred approach of DPLA SIF project as of October 2024)	In-field detection methodologies	13.86
	Scaled DPLA modelling and development	3.11
	Technology and organisational readiness	2.99
	Total	19.97
Blended	In-field detection methodologies	15.66
	Scaled DPLA modelling and development	2.11
	Technology and organisational readiness	2.41
	Total	20.19
Normalised In-field Detection	In-field detection methodologies	15.87
	Scaled DPLA modelling and development	1.29
	Technology and organisational readiness	2.39
	Total	19.55
Scope of in-field detection sensor technology deployment:		
Probabilistic Modelling: 40 x fixed, 9 x vehicles, 2 x handheld		
Blended: 60 x fixed, 10 x vehicles, 2 x handheld		
Normalised In-field detection: 80 x fixed, 9 x vehicles, 2 x handheld		

Table A6.12: Summary of DPLA SIF project scenarios and associated costs for NGN as provided by DPLA SIF Project, October 2024

The modal shift to the use of leakage detection technology and the application of the DPLA bring with it a range of potential risks and opportunities of diverging significance as summarised in Table A6.13. Most notably a significant area of risk is the potential for the deployment of leakage detection technology to substantially increase the number of identified gas escapes to which GDNs would be required to address and potential implications for our mains replacement delivery programme. This increased workload would inevitably result in the requirement for additional workforce and resources and result in increased operational costs. The potential scale of this workload and cost increase is currently very difficult to estimate at this early stage of the DPLA project and as such we consider that any such costs should be recoverable via a RIIO-GD3 Reopener.

Aspect	Opportunity (O)/Risk (R)	Indicative Materiality*
Proactive identification of leaks	O: Operational efficiencies from some gas escapes being proactively identified rather than operating an entirely responsive service.	Low
	O: Data used to refine mains replacement priority allowing leakiest mains to be tackled first thereby minimising leakage (safety and environmental benefits).	Medium
	O: Proactively identify equipment / infrastructure which is leaking which might otherwise not be detected, allowing it to be repaired and leakage avoided.	Low
	R: Substantial increase in identified gas escapes resulting in increased operational costs.	High
	R: Identification of substantial quantities of previously unidentified leaking infrastructure which may be costly to repair or require replacement.	High
More accurate reporting of shrinkage emissions	O: Improved stakeholder confidence in GDN shrinkage reporting.	Low
	R: Increase in shrinkage gas purchase costs if shrinkage gas volume found to be substantially greater than currently measured.	High
Reliance on a limited number of technology sources	O: Opportunity to deliver economic efficiencies by collaborative tendering with other gas networks.	Medium
	R: Limited competitive tension due to small number of necessary equipment and software.	Medium
	R: Risk of critical system failures or cyber attacks if reliant on a limited number of third party systems.	Medium
*Indicative cost/benefit impact: Low = <£1m / Medium = £1-10m / High = >£10m during RIIO-GD3		

Table A6.13: Risks and opportunities associated with the use of leakage detection technology and the application of the DPLA

3.3.5 Smart leakage repair

To further our leakage reduction performance we have included a RIIO-GD3 Use It or Lose It (UIOLI) allowance project for smart leakage repair. Building on a successful RIIO-GD2 innovation trial (as described on page 15 [here](#)) we will further assess the application of down-pipe robotic leakage identification and repair technologies. This project will determine how we can harness this promising technology to delivery potentially significant environmental and efficiency savings, most notably with respect to accurate leak detection and in-situ repair.

3.4. Focus area: Business carbon footprint

Long-term P&P Strategy commitment: Net Zero business operations by 2050



RIIO-GD3 commitments:

- Aspire to achieve Net Zero operational (non-shrinkage) Scope 1 and 2 emissions by 2031
- Continually expand range of Scope 3 emissions reporting

3.4.1 Background and RIIO-GD2 performance

RIIO-GD2 commitment	Description of expected benefit	Target year	RAG indicator	RIIO-GD2 status update
Reduce Scope 1 and 2 emissions by 47% (excluding shrinkage)	Carbon savings of c.13,000 tCO ₂ e	2026	Red	2023/24 emissions were 0.1% higher than 2022/23 and 27% greater than our annual target. Our performance is impacted by the constraints we are experiencing with decarbonising our vehicle fleet and a larger operational workforce.
Reduce key Scope 3 emissions by 11%	Carbon savings of c.5,000 tCO ₂ e	2026	Red	2023/24 emissions were 13.9% greater than 2022/23 and 17.9% greater than our annual target. This is the result of increased mains replacement workload which is unlikely to substantially change until the end of our Repex programme in 2032.

Table A6.14: A summary of our key RIIO-GD2 BCF commitments and a summary of performance as of 2023/24

Our stakeholders have told us that they expect us to reduce all elements of our carbon emissions, not just gas shrinkage via value-for-money investments. Working with the Carbon Trust in 2018/19 during the development of our long-term Environment Strategy, we were the first UK gas network to establish and adopt science-based aligned carbon reduction targets. These targets plotted a responsible reduction trajectory to 2050 for our non-shrinkage Scope 1 and 2 emissions for a well-below two degree warming scenario in 2050.

During the development of our RIIO-GD2 EAP, we refined our science-based aligned targets in light of the UK's commitment to achieving Net Zero GHG emissions by 2050 (as detailed in Table A6.14). Our RIIO-GD2 EAP carbon reduction targets are ambitious and reduced further and faster than our existing science-based aligned targets. The aim is to achieve Net Zero non-shrinkage Scope 1 and 2 business carbon emissions by the end of RIIO-GD3 (2030/31). It is of note that the Science Based Targets Initiative will not currently validate carbon reduction targets for gas distribution networks.

Although Scope 1 (direct) and Scope 2 (indirect) BCF emissions only comprise c.1.5% of our total reported GHG emissions in a typical year, across RIIO-GD2, we have seen some great progress, including the following:

- Increasing awareness and understanding – we are delivering a programme of climate change and carbon awareness training for our colleagues, with almost 60 hours of training delivered during 2024 so far. See the Case Study 1 below for further details.
- Decarbonising our company car fleet – 100% of our company cars are now hybrid, plug-in hybrid or battery electric vehicles supported by EV charging infrastructure at all of our offices and depots. We have also ordered our first batch of battery electric vans which should arrive in early 2025. In addition our new diesel vans for our emergency response engineers are fitted with fuel saving devices including a battery powered cab heater which is topped up via a solar panel. This device helps keep our engineers warm without the need to have the vehicle engine running thereby saving carbon emissions.

- Helping colleagues to make sustainable choices – our colleagues can now take advantage of an electric and hybrid vehicle leasing salary sacrifice scheme to enable them to make sustainable vehicle choices. This transition is supported by providing colleagues with access to our network of EV charging infrastructure at our offices and depots.
- Decarbonising energy at our offices – we continue to purchase only 100% certified renewable electricity for our premises. In 2023/24, we completed the design, structural assessments and procurement to enable delivery of our commitment to install rooftop solar photovoltaics (PV) at our offices and depots, with installation commencing during August 2024. In addition to this, we are exploring options to purchase certified green gas from 2025/26 onwards when our current supply tariff expires.

Despite these positive actions, achieving our RIIO-GD2 BCF targets remains challenging and as a result, as shown on Figure A6.6, we are currently not on track to achieve them. The main influences on our Scope 1 and 2 BCF performance, and why we haven't seen a significant overall reduction in emissions, are the external constraints we have experienced with delivery of our commercial vehicle fleet investment plans, most notably, the delayed delivery of 200 new diesel vehicles that we ordered during RIIO-GD2. We have also been impacted by the limited availability of suitable zero-emission commercial vehicles. As a consequence, our operational vehicle fleet emissions intensity remains stable and is not reducing, as was anticipated when we prepared our RIIO-GD2 EAP. This area in which to reduce emissions remains challenging for us, and our performance will significantly influence our ability to achieve our Scope 1 and 2 BCF targets for end of RIIO-GD2 and RIIO-GD3. Detailed information is provided in our [2023/24 AER](#) regarding the challenges that we face in the delivery of these targets.

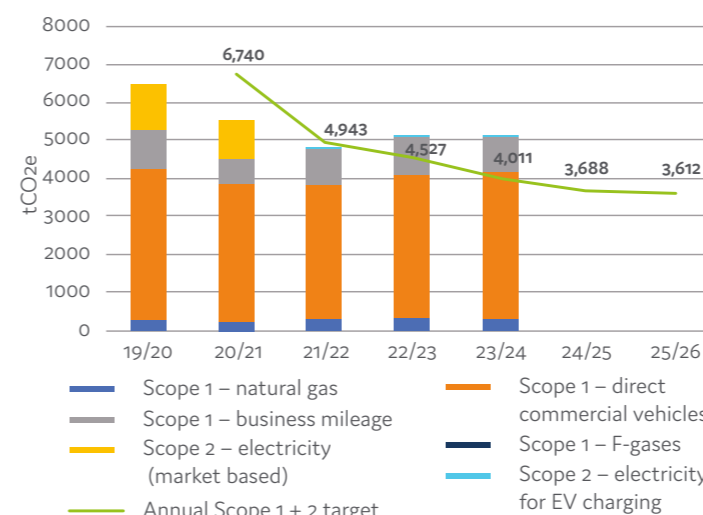


Figure A6.6: Composition of Scope 1 and 2 greenhouse gas emissions excluding shrinkage and carbon offsets

CASE STUDY 1 - HELPING OUR COLLEAGUES UNDERSTAND THE TRANSITION TO NET ZERO

The UK Committee on Climate Change recognises that behavioural shifts will play an important role in achieving Net Zero. Across RIIO-GD2, we have trialled different methods of engaging with our colleagues to increase awareness and knowledge around climate change, carbon and Net Zero, with the end goal of empowering them to make sustainable choices, both inside and outside of work.

We investigated different options in order to find a solution that represented value for money and which provided engaging and informative content. We found that a good solution for our colleagues was to run 'lunch and learn' sessions via Microsoft Teams in collaboration with the Supply Chain Sustainability School. This was a pre-existing partnership and enabled us to run trial sessions, gauge feedback and then create a programme of ongoing engagement.

During 2024, we have provided almost 60 hours of training to our colleagues on climate change and carbon awareness via this route. Following the sessions, more than 50% of respondents who attended told us that they think training/learning about climate change and carbon will be 'very important' to their role in the future, and almost 85% said that they would be interested in more sustainability training in the future.

Across RIIO-GD3, we recognise the importance of upskilling our colleagues in the area and have committed to the development of the green academy (see our Workforce and Supply Chain Resilience Strategy for further details).

3.4.2 RIIO-GD3 Scope 1 and 2 business carbon footprint targets

For RIIO-GD3, we are retaining our existing RIIO-GD2 EAP ambition to achieve Net Zero non-shrinkage Scope 1 and 2 business carbon emissions by the end of the period (2030/31).

We recognise that this is highly ambitious, very challenging for us to achieve, and that our recent performance as shown in Figure A6.6 is not on track to achieve this. Nevertheless, stakeholders (specifically [future customers](#)) have told us that the most responsible thing to do when falling behind on carbon targets is to keep the targets to maintain accountability and ambition, and to look at alternative ways to benefit the environment. We worked with our ISG to consider and develop our RIIO-GD3 Scope 1 and 2 BCF targets. They are supportive that the targets are appropriate, reflective of stakeholder requirements and in keeping with our long-term P&P Strategy.

Our RIIO-GD3 BCF targets are shown in Table A6.15. We will clearly report our Scope 1 and 2 BCF emissions and performance against our targets in our AER throughout RIIO-GD3 in accordance with the latest standards and guidance (including the GHG Protocol Corporate Accounting and Reporting Standard).

Stakeholders¹³ were also keen to tell us that we should not view our BCF emissions in isolation as it is the reduction of total emissions that is important. Instead, BCF emissions should be viewed in the round alongside all sources of our emissions, and that underachievement in BCF reductions can be compensated by our performance in reducing other emissions, such as leakage.

We cannot be certain that we will achieve our BCF targets during RIIO-GD3. However, stakeholders¹⁴ have clearly told us that it is important to be bold and ambitious with regard to carbon emissions reductions to deliver the step change that we need to achieve Net Zero. It is also important to view our BCF targets as a contributor to our overall primary carbon reduction target of 45% total Scope 1 and 2 emissions between 2018 and 2031.

Key RIIO-GD3 initiatives that will help us on our journey to achieving our BCF targets include the following:

- Purchasing of certified renewable electricity and low carbon 'green' gas for our premises.
- Improving building energy efficiency through a c.£1.5m investment programme – supplementing the solar panels installed during RIIO-GD2, we will invest to make our premises more energy efficient, to strive to achieve a Net Zero head office with respect to energy. The proposed energy efficiency investments at our head office include new, low carbon heating and cooling systems, new efficient windows and low energy lighting, and are estimated to save approximately 120 tCO₂e annually.

- Reducing the impact of each mile driven - we will replace 557 vehicles during RIIO-GD3 according to our fleet replacement policy, targeting six years of operation or 100,000 miles to maximize efficiency and reduce costs. Due to the limited availability of suitable zero-emission large vans, we will purchase 303 new diesel vans which will be more fuel efficient and deliver carbon savings. For smaller vehicles we aim to buy 100 electric vans out of 230 new purchases (43%) which will save approximately 550 tCO₂e during RIIO-GD3. To support this roll out of electric vans we are proposing to expand our electric vehicle charging network with rapid chargers (50kw+) strategically placed across our properties to ensure the resilience of our business operations. We also plan to buy 21 cars/4x4s of which 10 will be hybrids and trial two hydrogen fuel cell vans. See Case Study 2 for further details.
- Working closely with our colleagues to increase awareness and empower them to make decisions to the benefit of the environment, particularly around Net Zero.

Year	2026/ 2027	2027/ 2028	2028/ 2029	2029/ 2030	2030/ 2031
Scope 1 – energy use in premises (natural gas)	0	0	0	0	0
Scope 1 – vehicles	2,183	1,638	1,092	546	0
Scope 2 – electricity use in premises (market based)	0	0	0	0	0
Scope 2 – electricity use in company controlled vehicles (market based)	549	500	452	403	0
Total Scope 1 and 2 emissions (market based)	2,732	2,138	1,544	949	0

Table A6.15: RIIO-GD3 targets for Scope 1 and 2 greenhouse gas emissions excluding shrinkage

CASE STUDY 2: DRIVING DOWN OUR EMISSIONS

In RIIO-GD2, we set a challenging target to replace 146 of our fleet vehicles with an ultra-low emissions vehicle (ULEV) alternative, and to install EV charging points at all of our depots and offices. This was to encourage more colleagues to make the switch from an internal combustion engine to a full battery electric car for both personal and business travel.

While we've had success in installing EV charging infrastructure, with 43 points now installed across our network, we have struggled to find suitable vehicles to integrate into our operational fleet. We have continued to search the market for a fit-for-purpose battery electric van and have undertaken research and surveys across the network to understand suitability for operational use and emergency response.

In 2024/25, we expect to receive delivery of our first batch of ten battery electric vans to fully trial across the network within the First Call Operative emergency response role. Delivery dates may be subject to worldwide supply chain issues that are still being experienced by fleet operators. We anticipate this trial to start in January 2025. Further orders may be placed in RIIO-GD2 subject to suitability assessments and availability of vehicles. Despite not yet completing the EV van trial we are aiming to purchase 100 EV vans during RIIO-GD3 to deliver carbon savings.

Across RIIO-GD2, we have placed greater focus on reducing the number of miles driven by our colleagues, through enhanced engagement with our Senior Management Team to encourage sustainable business travel practices wherever possible. For example, this may mean taking the train as opposed to driving or flying if practical to do so. We will continue this focus throughout RIIO-GD3.

3.4.3 RIIO-GD3 Scope 3 business carbon footprint commitments

Scope 3 emissions are those associated with an organisation's value chain and fall into 15 categories (from goods/services purchased, to waste and leased assets). In 2021, we completed a materiality assessment of our Scope 3 GHG emissions. Our materiality assessment helped us to see which of the categories were material to our business. The assessment identified that approximately 15% of NGN's total GHG emissions originate in our supply chain, and that only categories 1 to 7 are relevant to us.

In accordance with best practice (SBTi Net Zero Corporate Standard), businesses are only required to set targets for Scope 3 if they comprise more than 40% of their overall carbon emissions. As such, we have not developed Scope 3 absolute targets at this stage, instead, we will focus on the following during RIIO-GD3:

- Engaging our supply chain to raise awareness and build capability within their own businesses;
- Continuing to improve our Scope 3 data and reporting. We estimate that we currently (2023/24) report Scope 3 GHG emissions data from the suppliers that make up approximately 45% of our annual expenditure, and we aspire to increase this throughout RIIO-GD3.

We will clearly report our Scope 3 emissions and performance against our targets in our AER throughout RIIO-GD3 in accordance with the latest standards and guidance (including the GHG Protocol Corporate Accounting and Reporting Standard).

It is important to note that the majority of our Scope 3 emissions (c.85%, as reported in 2023/24) are associated with our gas mains replacement programme (contractor vehicles, materials, waste disposal, etc). This programme of work will be completed in 2032 and will result in a substantial, permanent reduction in our Scope 3 emissions. As such, the development of long-term Scope 3 reduction targets is not deemed critical for our business at this juncture. Alternatively, we propose to develop and report carbon efficiency metrics to help stakeholders to understand our emissions in relation to the amount of work that we are delivering. See Section 7 for further details.

¹³ <https://together.northerngasnetworks.co.uk/events/young-innovators-council-feb24/>

¹⁴ <https://together.northerngasnetworks.co.uk/events/young-innovators-council-feb24/>

3.5. Focus area: Embodied carbon

Long-term P&P Strategy commitment: Spend responsibly and hold our suppliers to high sustainability standards



RIIO-GD3 commitments:

- Continue measurement and reporting of embodied carbon for core business activities throughout RIIO-GD3 and report this in our AER

3.5.1 Background and RIIO-GD2 performance

RIIO-GD2 commitment	Description of expected benefit	Target year	RAG indicator	RIIO-GD2 status update
Development of embodied carbon assessment	Development of assessment methodology and metric	2026	Green	Methodology developed and reporting completed for 2021/22, 2022/23 and 2023/24 and reduction targets established for 2025/26

Table A6.16: A summary of our key RIIO-GD2 embodied carbon commitments and performance as of 2023/24

Embodied carbon (EC) is commonly defined as the whole life ('cradle to grave') total GHG emissions generated to produce a built asset, including emissions associated with extraction of raw materials, manufacture/processing, transportation, assembly and end-of-life decommissioning.

As part of our RIIO-GD2 EAP commitments (see Table A6.16) we completed a scoping assessment of the EC associated with our principal areas of work expenditure, namely, gas mains replacement, diversions and reinforcements (<7 barg); new connections; and gas emergency repair. This assessment was aligned to PAS2080 and included consideration of asset lifecycles. This scoping enabled the development of an EC measurement and reporting methodology for our principal work areas which accounts for approximately 90% of total identified emissions (see Case Study 3). The details of this analysis and methodology are provided in Appendix C of our [2021/22 AER](#).

Using our methodology, we have already established baseline total and normalised 'as built' EC values for 2020/21 for this workload, in addition to reporting actual performance values for 2021/22, 2022/23 and 2023/24 (normalised to 2020/21 cost basis for consistency to remove inflationary effects) in our AER. This includes reporting of total EC emissions, normalised emissions for tCO_{2e} EC per £m expenditure on all work streams and tCO_{2e} EC per km of pipe replaced. For full details of our reporting, see our [2023/24 AER](#).

Our EC assessment methodology has been shared and discussed with the other GDNs to promote knowledge sharing and standardisation of reporting. Our methodology may evolve over the remainder of RIIO-GD2.

3.5.2 RIIO-GD3 embodied carbon targets and commitments

We commit to continue measurement and reporting of EC for our principal work expenditure areas throughout RIIO-GD3 and report this in our AER, utilising the methodology that we have developed during RIIO-GD2. As such there is no level of financial materiality threshold for EC reporting under this commitment. Our measurement of EC is at a relatively early stage and improving year-on-year as our understanding develops. We propose to establish an RIIO-GD3 EC target for the identified work types during Year 1 of RIIO-GD3 (2026/27) to enable us to base this on a full RIIO-GD2 performance dataset and confirmed RIIO-GD3 work programme details.

We commit to working with our supply chain to address challenges in reducing EC; for example, eliminating waste and maximising the use of recycled materials. We already participate in this type of activity for initiatives such as the reduction of single-use plastic in the supply chain.

We plan to extend the scope of our EC data capture during RIIO-GD3 to include capital projects such as fixed asset site upgrades and diversions undertaken for third parties. This will enable a wider scope of EC reporting in the future but will require education of our supply chain and continuous improvement during RIIO-GD3 due to the nascent levels of data available and general understanding. We will collaborate with the other GDNs to define a suitable materiality threshold (for example projects over £10m expenditure) and scope for work for significant network capital projects that require reporting of EC. This will enable future comparison of GDN EC performance.

CASE STUDY 3 - MEASURING OUR EMBODIED CARBON

During RIIO-GD2, we developed a methodology to enable us to measure and report our EC emissions for our most significant workstreams (gas mains replacement, diversions and reinforcements (<7 barg); new connections; and gas emergency repair).

Based on process mapping of our key workstream activities, we completed a semi-quantitative materiality and data quality assessment for all known sources of EC in our works. This identified that c.90% of emission sources were measurable and had readily available data of sufficient quality to allow inclusion in our EC methodology. Our EC methodology includes contractor vehicles emissions, operational travel in our own vehicles, excavation waste disposal, excavation reinstatement materials, capital goods (plastic, copper and steel pipe and fittings), logistics of goods/materials purchased and operational waste disposal.

We commenced reporting our EC emissions in our 2021/22 AER as total emissions, emissions per £m expenditure (as shown below) and emissions per km of pipe replaced.

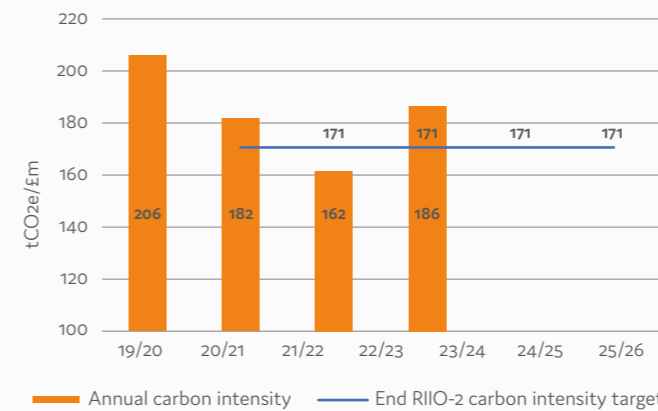


Figure A6.7: Embodied carbon emissions intensity for gas mains replacement, diversions and reinforcements (<7 barg), new connections and emergency repair work in 2020/21 prices.

3.6. Focus area: Biomethane

Long-term P&P Strategy commitment: Enable affordable decarbonised heat, power and transport



RIIO-GD3 commitments:

- Continuation of enhanced RIIO-GD2 customer service levels and initiatives to streamline and standardise connection processes including:
 - Green gas connection initial capacity studies completed within <=5 working days
 - detailed capacity studies completed within <=20 working days

3.6.1 Background and RIIO-GD2 performance

RIIO-GD2 commitment	Description of expected benefit	Target year	RAG indicator	RIIO-GD2 status update
Increased green gas capacity connected to network	Aspiration for 10% green gas flowing through network by 2030, 100% by 2050	2026	Green	Whilst not in our direct control, biomethane connections to our network are increasing steadily, with biomethane contributing over 1% of total network gas throughput.
Improved customer service for biomethane providers	Green gas connection initial capacity studies within <=5 working days and detailed capacity studies within <=20 working days compared to <=15 and <=30 working days during RIIO-GD1	2026	Green	During 2023/24 95% of initial capacity studies were issued within our <=5 working days enhanced voluntary target time and 100% of detailed capacity studies for new connections within our enhanced voluntary target of <=20 working days.

Table A6.17: A summary of our key RIIO-GD2 biomethane commitments and performance as of 2023/24.

We are committed to enabling the connection of biomethane and other low carbon gases to our network to support the transition to a flexible, low carbon energy system and enable Net Zero by 2050. Our engineers work closely with producers to enable them to maximise their gas injection volumes and minimise down time and we have worked hard to develop our connection procedures, including development of a dedicated website, across RIIO-GD1 and 2. As shown in Figure A6.8, we have continually increased our connected capacity of biomethane. By 2023/24 this had reached 18,257 standard cubic metres of biomethane per hour, which is equivalent to the amount used by 59,000 typical UK homes in one year.

It is of note that the development of new green connection sites is significantly influenced by the availability of government subsidies / incentives. In RIIO-GD2 we committed to improved levels of customer service for prospective connection sites to speed up the connection process for new sites. We also committed to working with the other GDNs to streamline and standardise the connection process for new green gas production sites.

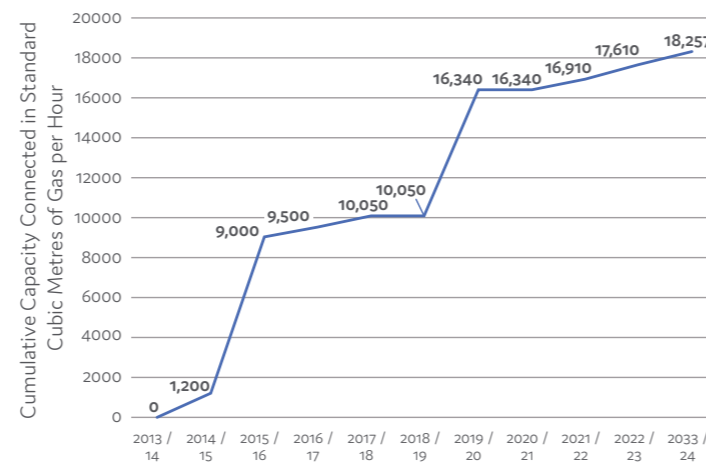


Figure A6.8: Capacity of biomethane and low carbon gas injection capacity connected to NGN network

3.6.2 RIIO-GD3 biomethane targets and commitments

Influenced by Stakeholder insight 7, we will continue to pursue low regret solutions to support decarbonisation, including biomethane. Across RIIO-GD3 we will continue to provide a high level of customer service to the same enhanced voluntary standards as RIIO-GD2 which go beyond the mandatory Ofgem requirements (green gas connection initial capacity studies completed within <=5 working days and detailed capacity studies completed within <=20 working days).

We also commit to continue regular engagement with the green gas production connected sites as part of business as usual, to help producers optimise their injection of this important green energy source. Case Study 4 summarises an example of the outcomes of our RIIO-GD2 biomethane stakeholder engagement programme.

We commit to continued active participation in the Entry Customer Forum (EnCF) and Gas Entry Connections Technical Working Group throughout RIIO-GD3. The purpose of these groups is to drive standardisation, streamlining and continuous improvement of the connections process across the GDNs and thereby improve outcomes for producers. We are confident in our mature connections process, but see value in promoting knowledge and best practice sharing between GDNs to the benefit of potential connections customers. These groups are also effective forums to drive improvements for connected sites, and have led to smaller spin off projects that aim to improve the experience for producers, including driving network CV capping improvements.

In response to direct feedback from our community of biomethane producers, during RIIO-GD3 we will support innovation projects that aim to reduce connection and operational costs for biomethane plants to support grid decarbonisation. Further details of this commitment are provided in Chapter 4 of our RIIO-GD3 business plan. We will continue to report our biomethane connection and customer service performance in our AER throughout RIIO-GD3, including working with the other GDNs to ensuring consistent reporting.

CASE STUDY 4- MAXIMISING OUR CAPACITY FOR BIOMETHANE AND GREEN GAS WITH OUR STAKEHOLDERS

Having undertaken a programme of workshops with our biomethane producers and investors across 2022, it was clear that operational processes and challenges dominated and often acted as blockers to having strategic future-focused conversations. Primarily our biomethane customers wanted us to focus our efforts on making sure they could operate their plants and inject Biomethane into our grid as much as practically possible.

In response, we changed our engagement programme, splitting it into two distinct strands (day to day operations & future investment) to allow us to better understand both the operational and the strategic challenges facing our investors and operators .

Through a programme of ongoing bilateral meetings and joint network groups, with the other gas distributors we've identified some clear areas of improvements to boost capacity availability in our network and tackle issues around gas quality targets that our sites face, to get the most out of their connections to the grid. For example, stakeholders told us they wanted us to share information about site performance and as a result we now produce a quarterly performance dashboard to help individual sites understand where they are lacking in order to improve operational performance.

Feedback from producers and investors was positive and we plan to continue this engagement throughout RIIO-GD3 to ensure we are supporting producers in the way that they require.



4. Focus Area: Supply Chain

Long-term P&P Strategy commitment: Spend responsibly and hold our suppliers to high sustainability standards

17 PARTNERSHIPS FOR THE GOALS



EAP target for RIIO-GD3:

- 100% of our key contracted suppliers are signed up to our Supplier Code of Conduct

4.1. Background and RIIO-GD2 performance

RIIO-GD2 commitment	Description of expected benefit	Target year	RAG indicator	RIIO-GD2 status update
80% compliance with new Supplier Code of Conduct	Development and implementation of Supplier Code of Conduct embedding sustainability in supply chain	2026	Green	Supplier Code of Conduct developed and launched March 2022 82% compliance achieved for 2023/24

Table A6.18: Summary of our key RIIO-GD2 supply chain commitments and performance as of 2023/24

We recognise that the most effective way to enable lasting achievement of the UN SDGs is to work in partnership to amplify the outcomes of our efforts. As a result, we have committed in our P&P Strategy to supporting Goal 17. For us, Goal 17 is about building lasting, sustainable partnerships that amplify our impacts throughout our business, supply chain and stakeholders.

This approach is particularly important when we consider how to build and embed a sustainable approach to procurement. NGN is a large company within our region, and during RIIO-GD2 to date we have spent an average of £225m per year on goods and services, most notably with our network of local mains replacement and reinstatement providers. These companies account for approximately 40% of our expenditure annually. To us, the objectives of sustainable procurement are to reduce resource consumption and waste, minimise whole-life environmental impacts and deliver reduced costs to our customers. We also aim to provide opportunities for smaller business, in particular those based in our region, to join our supply chain.

Throughout 2021/22, we developed and implemented a Supplier Code of Conduct (SCC)¹⁵ and the associated compliance process. The development of the code was scrutinised from the early stages, with significant input from colleagues, other utilities, business intermediaries (including the Federation of Small Businesses), our supply chain members and our Customer Engagement Group (now ISG).

We were keen that our SCC would not be exclusionary to smaller businesses and would provide them with a clear route to join our supply chain as they follow their own sustainability journey.

Our SCC is aligned to our P&P Strategy and requires our suppliers to operate to high standards of environmental management and sustainable business practices built upon the principles of the circular economy. In our SCC, we set out key principles that underpin our business values and commitments. This is alongside our expectations and requirements for our suppliers tailored to the nature of our procurement activities. We expect our suppliers to support us in achieving our strategic aims and demonstrate their own commitment to continuous improvement.

Our SCC encourages a high standard of environmental commitment. Some examples of this in the SCC include encouraging our suppliers to:

- Monitor and report their own GHG emissions in accordance with best practice;
- Set themselves challenging targets and action plans to reduce their emissions;
- Engage with their own supply chain to encourage wider reductions through their value chain.

Following the launch in April 2022, our SCC is subsequently being communicated to existing and potential suppliers and compliance tracked. As detailed in Table A6.18, we report the percentage of our supply chain complying with our supplier code in our AER each year and as of 2023/24, 82% of our spend was with suppliers who are signed up to our SCC. This includes all of our mains replacement contractors, who deliver the largest proportion of our workload.

Additionally, our procurement processes are designed to ensure that we can understand the environmental impacts of our potential suppliers. For example, potential suppliers for procurement events are typically required to complete a pre-qualification questionnaire (PQQ) which as standard includes questions regarding their environmental management systems, past environmental performance, corporate environmental objectives, how they meet our EAP objectives and their sustainable business practices. These suppliers are then awarded scores accordingly and evaluated against a minimum pass mark (typically 60%).

Across RIIO-GD2, we have partnered with the Supply Chain Sustainability School (SCSS), and our membership provides resources to our supply chain free of charge. Since the school began, 25 of our suppliers have engaged with over 1,000 resources via this platform. These range from attending webinars and summits to undertaking e-learning modules online on a wide range of sustainability topics, most notably Net Zero, sustainable procurement and carbon footprinting. In addition to this, in 2023, we ran our own supplier education webinar regarding the UN SDGs, which was well attended, with 13 of our key suppliers being present (see Case Study 5 below).

CASE STUDY 5: TALKING TO OUR SUPPLIERS ABOUT SUSTAINABILITY

Since we created our Environment Strategy in 2018, we have publicly supported the UN SDGs. We have assessed where we can have the biggest impact against the goals, and prioritised seven of them. Since 2020, we have been listed on the [Support the Goals](https://www.northerngasnetworks.co.uk/support-the-goals) website with the maximum rating for committing, taking action and publicly declaring our alignment to the goals. In 2023, we were awarded a fifth star in recognition of our engagement with our supply chain regarding the UN SDGs.

Examples of this engagement include that during November 2023, we held a webinar¹⁶ for our key suppliers to raise awareness of the UN SDGs and shared how they could demonstrate their support. We invited suppliers making up 80% of our supply chain by spend to share the findings of our research into the level of SDG commitment demonstrated by our major suppliers.

We used this as an opportunity to share knowledge and give them access to free resources that would help them to demonstrate their commitment to the SDGs.

The webinar was well attended and helped us to begin an important conversation with our suppliers about the importance of sustainability. This engagement will continue into RIIO-GD3, with the digitisation of supplier information and onboarding requiring a greater level of detail around suppliers' commitments to sustainability.

4.2. RIIO-GD3 supply chain targets and commitments

We commit to continuing our sustainable procurement journey with an enhanced target of 100% of our key contracted suppliers, and at least 85% of our total expenditure, being compliant with our SCC, or equivalent requirements, by the end of RIIO-GD3. During RIIO-GD3 we will also continue to report the actual percentage of our suppliers meeting our SCC (by value) each year in our AER.

As with all company documents, our SCC is reviewed at regular intervals to ensure that it is appropriate, driving the desired outcomes and based on the latest guidance for embedding sustainability and circular economy principles. This process will continue throughout RIIO-GD3.

During RIIO-GD3, we will have increased focus on the way that we carry out assurance and monitoring compliance with our SCC. During RIIO-GD2, we have commissioned and implemented a system that has digitised our supplier onboarding and ongoing relationship management. This process will improve the transparency and robustness of the information that we hold about our current suppliers, which previously typically ended at the information provided at procurement stage for most suppliers. This new approach will enable us to review and monitor compliance with our SCC for individual suppliers, rather than being reliant on supplier disclosures.

We will maintain our engagement with our supply chain, notably our key suppliers during RIIO-GD3. We will share best practice, insights and resources to enable them to continue to build their understanding of sustainability and the circular economy. This will be undertaken in parallel with ongoing building of the knowledge base of our own procurement team on these matters.

To enable this increased focus on sustainable procurement during RIIO-GD3 we have included for the appointment of three additional team members within our base cost allowances to ensure we are appropriately resourced to deliver this valuable work.

¹⁵ https://www.northerngasnetworks.co.uk/wp-content/uploads/2022/04/Supplier-Code-of-Conduct_FINAL_compiled.pdf

¹⁶ <https://together.northerngasnetworks.co.uk/events/support-the-un-sustainable-development-goals-webinar-for-supplier/>

5. Focus area: Resource use and waste

Long-term P&P Strategy commitment: Produce less waste and recycle all of it



RIIO-GD3 commitments:

- 50% less office and depot waste compared to 2018
- 0% recyclable or recoverable waste to landfill by 2031
- 99% recycled aggregate use in planned work reinstatement by 2031

5.1. Background and RIIO-GD2 performance

RIIO-GD2 commitment	Description of expected benefit	Target year	RAG indicator	RIIO-GD2 status update
<0.1% excavation spoil to landfill	c.930,000 tonnes of excavation spoil recycled, saving 10 tCO ₂ e	2026	Green	0.0% spoil to landfill performance in 2023/24. We have been working with our supply chain to ensure that we achieve our RIIO-GD2 target and have overcome location-based constraints regarding access to recycling facilities.
20% less office/depot waste (vs 2017/18)	850 tonnes of waste reduction, 4,800 tonnes of waste diverted from landfill, saving 480tCO ₂ e	2026	Green	17% reduction in office and depot waste tonnage in 2023/24 compared to 2017/18 baseline. This remained similar to 2022/23. We plan to carry out waste surveys at our premises in 24/25 to ensure that we remain on target.
0% office and depot waste to landfill		2026	Green	0.25% office and depot waste sent to landfill in 2023/24, down from 1.3% in 2022/23, following a proactive change in waste management service providers.
Eliminate avoidable single-use plastics from offices and depots	Reduced carbon emissions, resource use and waste	2026	Green	Strategy to achieve this developed. Changes made already including phasing out plastic milk bottles at our head office, changing our bin bags to ensure that they are biodegradable or recyclable and replacing single-use water bottles with reusable alternatives.
<2.5% virgin aggregate use in reinstatement	640,000 tonnes of recycled aggregate preferentially used, saving 80 tCO ₂ e	2026	Green	2.7% virgin aggregate used in 23/24 compared to 9.5% in 2022/23. We have been working with our supply chain to ensure that we achieve RIIO-GD2 target despite work location-based constraints accessing recycling facilities.

Table A6.19: Summary of our key RIIO-GD2 commitments and a summary of performance as of 2023/24

We typically generate c.200,000 tonnes of waste annually, over 99% of which is excavation spoil. Of this, for the first time, 100% was recycled, reused or recovered in 2023/24. In addition, we are on track to achieve our target of reducing our quantity of office and depot waste by 20% between 2018 and 2026. This excellent performance is a result of concerted effort during RIIO-GD2 to engage with our colleagues and supply chain to communicate our targets, identify solutions and monitor our performance to ensure that our waste-to-landfill targets are achieved. Our RIIO-GD2 waste commitments and performance is summarised in Table A6.19 with a full breakdown of our waste performance provided in our [2023/24 AER](#).

In the delivery of our works, we utilise significant quantities of materials, most notably aggregates for reinstating our excavations, which is our largest material use by quantity. As detailed in Table A6.1, due to the quantities that we use, we recognise the use of primary (virgin) aggregates as a significant environmental aspect of our business. In response, we have an RIIO-GD2 EAP commitment to minimise our environmental impact and promote the circular economy by using less than 2.5% primary (virgin) aggregate (crushed stone) in our reinstatement works by 2025/26. During 2023/24, our virgin aggregate consumption substantially decreased to 2.7%, our best-ever performance, and we are on track to achieve our target. Like our waste performance, this is attributable to our proactive engagement with our supply chain to identify solutions regarding location-based constraints which were previously being experienced. A full breakdown of our resource consumption is provided in our 2023/24 AER.

During the development of our RIIO-GD2 EAP, our stakeholders¹⁷ told us that it was important to reduce the amount of single-use plastics that we consume. This followed a similar drive across wider society. We have taken a number of actions during RIIO-GD2 to remove single-use plastics from our operations and premises as summarised in the Case Study 6 below.

CASE STUDY 6: ELIMINATING SINGLE-USE PLASTICS

Our previous EAP included a commitment to eliminate avoidable single-use plastics from our offices and depots by the end of RIIO-GD2. We undertook a baseline assessment of our single-use plastics consumption across our facilities, identified areas for improvement and made the following changes:

- Successfully providing operational colleagues with reusable water bottles, replacing the c.80,000 single-use plastic bottles we previously provided annually (saving c.3 tonnes of plastic waste per year);
- Successfully using glass milk bottles instead of single-use plastic milk containers at our head offices (saving >1,000 bottles and c.40 kg of plastic waste per year);
- Changing our office bin liners to recyclable or biodegradable bags;
- Ensuring that we have recycling facilities for used printer ink and toner cartridges.

5.2. RIIO-GD3 resource use and waste targets and commitments

In RIIO-GD3, we commit to continuing our journey to becoming less wasteful and more resource efficient. Building on the advancements we have made in RIIO-GD2, we commit to furthering our performance by achieving the following targets by the end of RIIO-GD3 (2030/31):

- Zero waste to landfill - disposing of 0% of our non-hazardous recyclable or recoverable waste to landfill – this includes all waste streams, including excavation spoil and office and depot waste;
- Waste reduction - producing 50% less office and depot waste compared to our 2018 baseline (1,145 tonnes as per our RIIO-GD2 EAP);
- Support the Circular Economy in our region by using 99% recycled aggregate use in our planned work reinstatement.

The above targets will be delivered by continuation of our proactive engagement with our colleagues and supply chain as demonstrated during RIIO-GD2. Achievement of these targets will deliver improvement across our most significant waste and resource-related environmental impacts, while also continuing to directly support the circular economy within our region, most notably with respect to recycled aggregate production.

We will report our quantities of waste, our percentages of waste recycled, reused, recovered or landfilled, and our performance against our targets identified above in our AER each year throughout RIIO-GD3.

¹⁷ <https://together.northerngasnetworks.co.uk/wp-content/uploads/2023/11/NGN-Panel-14-July-23-final-published-report-2.pdf>

6. Focus area: Biodiversity and land

Long-term P&P Strategy commitment: Manage our land to the benefit of the environment



RIIO-GD3 commitments:

- Monitor and report the natural capital value of our key sites
- Strategically plant 20,000 saplings to create two miles of new hedgerow at our operational sites
- Manage and monitor the ground conditions at our portfolio of former gasworks sites

6.1. Background and RIIO-GD2 performance

RIIO-GD2 commitment	Description of expected benefit	Target year	RAG indicator	RIIO-GD2 status update
250 homes for nature	250 positive interventions to enhance biodiversity	2026	Amber	Interventions made at 96 sites to end 2023/24 since 2018. Strategy to deliver interventions at 250 sites by 2026. Created and trialled new methods to achieve this during 2023/24.
Development of natural capital assessment	Report natural capital valuation of ecosystem services provided at up to 50 NGN sites during 2021, 2023 and 2025	2026	Green	Ecosystem services screening completed, bespoke natural capital valuation tool developed and utilised on baseline assessments at 32 infrastructure sites in 2021/22. Repeat assessments took place in 2023/24 as per EAP commitment.
Plant 40,000 trees in our region	>£21m of cumulative benefits over 50 years including reduced air pollution, carbon sequestration (2,450 tCO _{2e}), biodiversity gain, flood alleviation and amenity gain	2026	Green	During 23/24, we planted 22,430 trees, bringing our cumulative total to 45,497 trees planted across West and East Yorkshire. This means that we have already achieved and exceeded our target. Our programme will continue throughout the remainder of RIIO-GD2.
Land remediation programme	Management programme including eight remediation projects – reduced risk of pollution	2026	Green	Continuation of inspection, monitoring and investigation programme. No new remediation projects started, completion of existing remediation project from 2021/22.
Gas holder decontamination and demolition programme	Decontaminate and demolish 23 gas holders – reduced risk of pollution	2026	Green	A further five gas holders were decontaminated and demolished in 2023/24, bringing us to a total of 20. This means that we are ahead of schedule in achieving our RIIO-GD2 target of removing all remaining gas holders by 2026.

Table A6.20: Summary of our key RIIO-GD2 biodiversity and land related commitments and performance as of 2023/24

A key long-term commitment in our P&P Strategy is to manage our land to the benefit of the environment – a challenging aim. The majority of our landholding has long been used for operational gas infrastructure. This brings with it a legacy of potential for environmental contamination but also the requirement that the vegetation is closely managed to ensure a safe working environment. A summary of our RIIO-GD2 EAP biodiversity and land commitments and performance is provided in Table A6.20 with further discussion provided below.

Biodiversity

It is well established that biodiversity in the UK and worldwide is facing significant threats as a result of land use and climate change. Our RIIO-GD2 'homes for nature' commitment involves making small, positive changes at 250 of our fixed asset sites by the end of RIIO-GD2 to encourage biodiversity. This is all at no additional cost to gas customers and is compliant with our vegetation management requirements. These changes can include installing habitats or changing vegetation management techniques to promote conditions in which biodiversity can increase. To support this, we have developed a catalogue of biodiversity enhancement methods suitable for our infrastructure sites and shared this with our landscape management team to enable implementation. Case Study 7 provides details of one of our RIIO-GD2 'homes for nature' initiatives.

In RIIO-GD2, we laid the groundwork for establishing our approach to assessing natural capital on our sites. We did this by completing an ecosystem services screening assessment for our landholding and using the results to develop a bespoke natural capital valuation tool. We used this tool to carry out baseline assessments at 30 of our larger sites in 2021/22 and 2023/24 to understand how the natural capital value had changed on these sites across that time period.

During RIIO-GD2, the legal requirement to achieve biodiversity net gain for projects requiring planning consent has been established. We meet this requirement where necessary, although due to the nature of our work programme and asset characteristics, we undertake relatively few projects which require planning consent.

During RIIO-GD2, we also established a strategic partnership with the White Rose Forest, Humber Forest and Community Forest Trust, enabling us to directly fund the planting of 45,000 trees to tackle poor urban air quality in our region. This scheme is built upon £400,000 of NGN shareholder funding. This programme will reach its natural end during RIIO-GD2, but the funding we have provided to date has enabled the project teams to grow and become permanently established.

CASE STUDY 7: NO MOW MAY

NGN's landscape management procedures for operational gas sites currently include a prescriptive regime of regular grass cutting to maintain safe site access and egress, minimise fire risks and maintain a 'tidy' appearance.

Throughout RIIO-GD2, we made a commitment to create 'homes for nature' at 250 of our fixed asset sites to encourage biodiversity, all at no additional cost to gas customers. To help biodiversity, most notably pollinators, during May 2022, NGN consciously trialled not cutting the grass at five of our infrastructure sites for the duration of the month ('No Mow May'). The outcomes were successful and attractive to see (Figure A6.9), with the growth of wildflowers visible on site without practical detriment to operational safety. As such, the trial was widened to ten sites during May 2023 and 2024, with the intention to apply these principles across our larger gas infrastructure site portfolio thereafter.

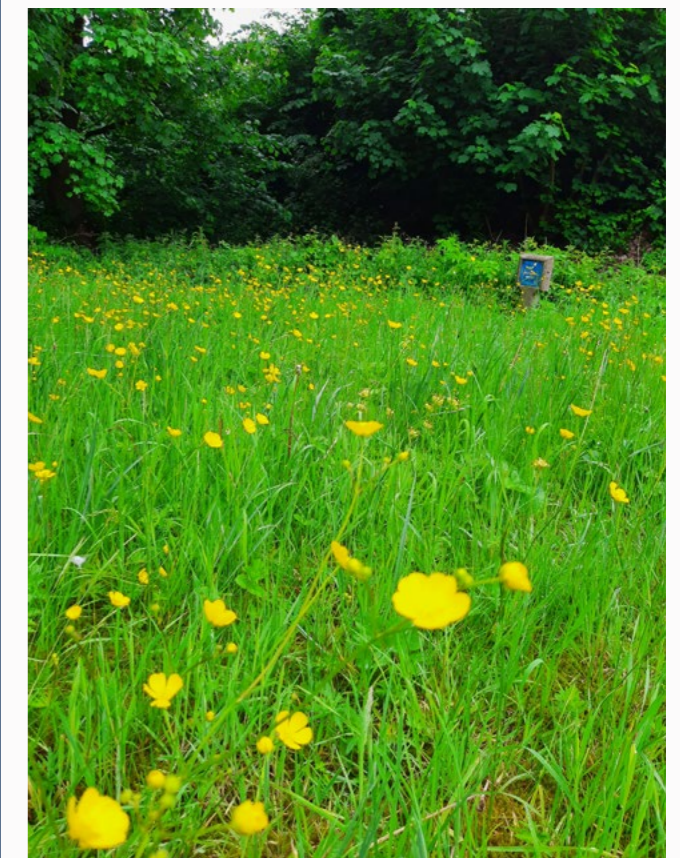


Figure A6.9: Cooper Bridge AGI, West Yorkshire during 'No Mow May 2022'

Land contamination

During RIIO-GD2, we have continued our award-winning land remediation programme which was initiated in RIIO-GD1 to proactively manage our portfolio of approximately 150 gas infrastructure sites built on former gasworks land. Such land carries a potential legacy of ground contamination associated with its former use and is one of our significant environmental impacts. This programme of work ensures that our sites are maintained in statutory compliant conditions, posing no significant pollution risks.

This work programme involves targeted inspection, investigation and monitoring works, with bespoke remediation where necessary, to ensure that our sites are maintained in statutory compliant conditions, posing no significant pollution risks. Project Case Study 8 provides an example RIIO-GD2 land remediation project that used innovative techniques to deliver environmental betterment. Further details of our RIIO-GD2 land contamination management programme are provided in our 2023/24 AER.



Figure A6.10: Solar-powered coal tar recovery system at Howdon Lane, Newcastle



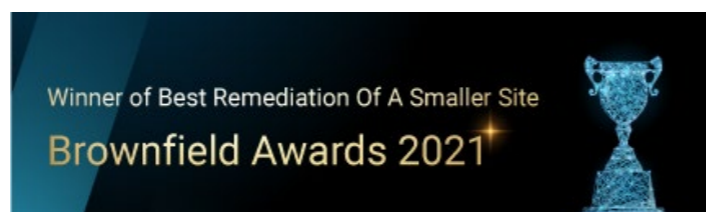
Figure A6.11: Solar-powered coal tar recovery system at Howdon Lane, Newcastle

CASE STUDY 8: LAND REMEDIATION AT HOWDON GAS HOLDER STATION

NGN owns a former gasworks and gas storage site at Howdon Lane, Newcastle, which currently houses an operational governor. The site previously contained three gas holders. Gas holders 2 and 3 were above-ground gas holders and were decontaminated and demolished in 2016. Gas holder 1 was a below-ground gas holder that was demolished and infilled between 1989 to 1993.

Ground investigation within Gas holder 1 identified that the tank was 9.7 m deep in the annulus and contained significant volumes of hazardous coal tar towards the base which could leak in future and impact local groundwater. Coal tar up to 2.0 m thick had accumulated in wells installed during the investigation works.

In 2020, a remediation project to recover coal tar from within the gas holder tank commenced to deliver longer-term environmental benefit. Specialist solar-powered pumps were installed within boreholes drilled into the former tank, with the objective of recovering as much of the coal tar as possible for an initial 12-month period. After 12 months, the system was still recovering significant volumes of tar and the period of recovery was therefore extended. The system was operated until November 2023, by which time c.58,000 litres of coal tar and contaminated water had been successfully recovered and sent for specialist off-site disposal.



6.2 RIIO-GD3 biodiversity and land targets and commitments

Biodiversity

We will continue our biennial natural capital and ecosystem services monitoring and reporting programme, as established during RIIO-GD2, throughout RIIO-GD3, to capture changes in natural capital and ecosystem services at our 30 identified key sites. The monitoring programme outcomes will be reported in our AER during RIIO-GD3.

Our natural capital survey programme, in addition to stakeholder feedback received at our biodiversity workshop¹⁸ in RIIO-GD2 (2021), identified the opportunity to plant hedgerows where we have vegetated non-operational land surrounding our gas infrastructure sites. If done strategically and in keeping with the surrounding location, these will encourage biodiversity by providing wildlife corridors, in addition to the aesthetic benefits of screening our sites from view. As a consequence, we have adopted a new target to strategically plant 20,000 saplings to create two miles of new hedgerow on our land during RIIO-GD3. We originally scoped a commitment of planting 1000 metres of new hedgerow but following review and challenge by our ISG during the RIIO-GD3 planning process we have increased this commitment to show greater levels of ambition. Our hedgerows will be scoped based on an ecologist-led design in conjunction with our operational colleagues, planted by specialist contractors and maintained by our own landscape management teams. This will ensure that these hedgerows will thrive into the future and won't compromise our infrastructure. This commitment meets the requirements of our customers who expressed that we should approach our vegetation management by balancing opportunities for biodiversity with maintaining safe conditions (ref: [Customer Perceptions, 2024](#)).

We will continue to comply with biodiversity net gain requirements on all projects where this is required by the consenting planning authority. The requirement for planning authority consent is our materiality threshold for when projects require formal biodiversity reporting. Biodiversity assessments will utilise the prevailing UK Statutory Biodiversity Metric with the findings summarised in our AERs during RIIO-GD3.

For significant, complex projects with multiple options, we will look to assess the options for biodiversity net change as part of the optioneering process by using our established natural capital evaluation tool.

In accordance with the National Parks and Access to Countryside Act 1949 (Section 11A) where relevant we will report on actions taken to assess and remedy the impacts of activities conducted with National Parks. Pertinent information will be provided in our AERs throughout RIIO-GD3.

Land remediation

We will continue our award-winning land contamination management programme into RIIO-GD3 to ensure that our land is retained in a compliant condition and we are meeting our strategic commitment to manage our land to benefit the environment. This £3.2m (in 2023/24 prices) work programme principally comprises risk-informed monitoring of the environmental conditions at each of the 150 sites in our portfolio of former gasworks land. Monitoring will be tailored to the specific characteristics of each site, ranging from regular walkover inspections to groundwater sampling and monitoring.

In RIIO-GD3, we are proposing to assess the quality of the groundwater beneath our recently demolished gas holder sites which are located in settings sensitive to environmental water quality. Each of the nine study sites had below-ground holder tank(s) which were decontaminated as part of our RIIO-GD1 and RIIO-GD2 holder demolition programme. The purpose of this work is to evaluate the environmental benefits of our gas holder decontamination and demolition programme, notably groundwater quality recovery, and thereby evidence delivery of our strategic commitment.

We have also allowed for the completion of remediation works at two of our former gasworks sites in RIIO-GD3. This will be completed at sites where RIIO-GD2 risk assessment works have identified that remediation would deliver environmental betterment. It will reduce the long-term contamination risks associated with the sites in accordance with our strategic commitment and ensure compliance.

We will report our land remediation work programme activities and outcomes within our AER throughout RIIO-GD3.

Our land contamination management programme is compliance driven, with site specific, risk based work programmes to achieve this objective at lowest cost. Whilst ever we hold assets built on land with contamination potential the programme will need to continue to ensure on-going compliance. As such we anticipate that this programme of work will continue beyond RIIO-GD3 at a scale to be determined by our RIIO-GD3 work programme findings.

¹⁸ <https://together.northerngasnetworks.co.uk/events/tree-planting-workshop/>

7. How we will report on progress

7.1 Transparent and consistent reporting

As described in Case Study 9, we continuously review our environmental and sustainability reporting to ensure that it is meeting the needs of our stakeholders.

We will report our performance against all of the commitments and targets referenced in this EAP in an AER throughout RIIO-GD3. Our AER will be prepared in accordance with Ofgem guidance, including splitting the AER into two documents. One will outline a table of key performance indicators (KPIs) and provide metrics by which the networks can be compared side by side. The second will be a more detailed commentary document. This is in recognition of the need for greater transparency and comparability between networks.

Our AER will present historic and current performance analysis, including year to year and over the RIIO-GD3 period. It will present information in absolute terms (such as tonnes of CO₂e) and via relevant intensity metrics to enable performance comparison across different businesses. We propose that the metrics are developed in collaboration with all GDNs to ensure that they are suitable and take into account the fundamental differences in our operating models and business structures.

In a change from our RIIO-GD2 approach, during RIIO-GD3, we will report our GHG emissions split into shrinkage and BCF as required by Ofgem but also by scope and as one total emissions figure. This enhancement will be consistent with feedback that we received from our YIC who told us that they want to be able to clearly understand our total GHG emissions performance. This is challenging when the figure is presented separately as shrinkage and BCF only as in our RIIO-GD2 reporting.

The data presented within our AER will be prepared in accordance with the latest standards and guidance (including the GHG Protocol Corporate Accounting and Reporting Standard for carbon emissions reporting). We will follow Ofgem guidance with respect to the global warming potential utilised in our GHG emissions reporting to ensure consistency with the other GDNs.

As detailed in Section 3.3.4, we commit to working collaboratively with our fellow GDNs and stakeholders to enable the development of the DPLA. This will enable us to deliver more accurate and robust reporting of gas shrinkage and leakage. We will report our progress with respect to this in our AER.

7.2 Assurance

A key insight from our 2024 customer perceptions¹⁹ research was that customers strongly (82%) agreed that company sustainability reports need to be checked by a third-party expert before they are published to ensure that the information is as accurate as possible.

To meet this stakeholder requirement, we are committed to providing independent third-party assurance of our Scope 1 and 2 GHG emissions reported within our AER throughout RIIO-GD3. While customers have demonstrated a willingness to pay for this, we will deliver this commitment at no extra cost to the customer.

CASE STUDY 9: HOW STAKEHOLDERS HAVE SHAPED TRANSPARENCY OF OUR SUSTAINABILITY REPORTING

Back in 2021, when we shared the initial draft of our P&P Strategy with our YIC, they asked how we would be accountable for delivery and how we would communicate performance. These issues have been front of mind for us throughout the development of our RIIO-GD3 EAP.

We commit to clear and transparent reporting of all of our environmental measures outlined in our EAP. They will be presented in KPI tables, but also with narrative to give context. When we asked, 88% of our YIC felt that real-world examples help to build an understanding around complex topics such as carbon emissions, and we will integrate this into any stakeholder-facing communications.

Stakeholders also helped us to ascertain the type of language that we should be using when we talk about sustainability. More information about this can be found on our stakeholder engagement website [here](#). In addition to our AER, we will produce a concise summary document detailing key aspects of our environmental performance each year on our website.

For RIIO-GD3, we have agreed that our Scope 1 and 2 carbon reporting will be checked by an independent third party to provide assurance and credibility, as requested by our stakeholders. The cost for this will not be passed on to our customers.

We commit to check in with our stakeholders on a regular basis throughout RIIO-GD3, to ensure that our reporting is appropriate, understandable and clear.

8. Stakeholder acceptance of our EAP

As part of our RIIO-GD3 planning process, we have tested our RIIO-GD3 EAP with our customers. Informed customers gave our EAP a high level of acceptance:

- **Commitments to reduce our carbon footprint: 76%;**
- **Commitments to reduce our non-carbon related environmental impacts: 83%;**
- **Overall RIIO-GD3 EAP commitments: 77%**

We have engaged with our ISG throughout the development of our P&P Strategy during 2021 and 2022 and more recently regarding our RIIO-GD3 EAP. This included holding a review and challenge deep dive in August 2024. Our ISG were very supportive of our EAP targets and commitments and the rationale used to derive them, including shrinkage and BCF targets.

Percentage of informed customers that consider our RIIO-GD3 targets and commitments acceptable

77%

¹⁹ <https://together.northerngasnetworks.co.uk/events/customer-perceptions-research-2024/>

9. Summary of EAP outcomes

Table A6.21 summarises how our RIIO-GD3 EAP initiatives will reduce our most significant environmental impacts.

Significant environmental aspect	Long-term strategy commitment	Relevant focus area of EAP	Environmental impact without interventions detailed in RIIO-GD3 EAP	Environmental impact with interventions detailed in RIIO-GD3 EAP
Gas transportation and venting of gas	Eliminate emissions – Net Zero business by 2050 and enable affordable, decarbonised heat, power and transport solutions	Shrinkage and biomethane	<p>Air pollution (including greenhouse gases to atmosphere) as gas leaks from the pipes during transport or routine operations in vast quantities.</p> <p>In 2023/24, NGN's carbon emissions from gas shrinkage (leakage plus own use gas and gas stolen by third parties) amounted to 308,973 tCO₂e.</p>	<p>Gas shrinkage will reduce by 22% (leakage by 24%) over the course of RIIO-GD3 as a result of our mandatory and non-maintain metallic gas mains replacement programme and our system pressure management programme. Across RIIO-GD3, we estimate this to save 201,000 tCO₂e.</p> <p>Our RIIO-GD3 network investment programme will save approximately 422,000 tCO₂e during the period based on estimates derived by our cost-benefit analysis procedure.</p> <p>We are also continuing our gas escape repair targets (7/28 days) which we introduced during RIIO-GD2, which although difficult to measure, will deliver real-world gas savings.</p> <p>Changing the composition of the gas that we transport to incorporate more green gas will reduce the impact of our emissions.</p> <p>We will continue to provide excellent levels of customer service to prospective biomethane producers, enabling the connection of green gas into our network, reducing the impact of the gas that does leak.</p>

Significant environmental aspect	Long-term strategy commitment	Relevant focus area of EAP	Environmental impact without interventions detailed in RIIO-GD3 EAP	Environmental impact with interventions detailed in RIIO-GD3 EAP
Purchase of goods and services (including PE pipe)	Spend responsibly and hold our suppliers to high sustainability standards and produce less waste and recycle all of it	Resources and waste and supply chain	<p>Depletion of natural resources and air pollution via manufacture and transport of products.</p> <p>It could also result in damage to ecosystems. Each year, NGN typically purchases over £200m of goods and services. During RIIO-GD2, NGN introduced an SCC to embed sustainability within our supply chain. We have a target to achieve 80% supplier compliance with the code (by value) by 2026, which we achieved for the first time during 2023/24.</p>	<p>By the end of RIIO-GD3, all of our key contracted suppliers will be signed up to our SCC. This will deliver approximately £1bn of spend across RIIO-GD3 with suppliers that share our sustainability principles.</p> <p>Upsizing and upskilling our Procurement Team to enable greater focus on sustainable procurement, including supplier assessment, performance evaluation and assurance.</p>
Use of energy in buildings and infrastructure	Eliminate emissions – Net Zero business by 2050	BCF	<p>Depletion of resources, and air pollution through production and use of energy. NGN used 1,744 GWh of natural gas and 4,442 GWh of electricity (100% renewable) in our premises during 2023/24.</p>	<p>We are targeting investments during RIIO-GD3 to improve the energy efficiency of our offices and depots and strive to make our head office 'Net Zero' with respect to energy use. Our buildings will be more efficient by the end of RIIO-GD3 delivering estimated annual savings of approximately 120 tCO₂e per year. We also plan to continue to purchase green electricity and low carbon gas.</p>
Use of fuel	Eliminate emissions - Net Zero business by 2050	BCF	<p>Depletion of resources and air pollution through production and use of energy. NGN's operational vehicle fleet emissions were 3,848 tCO₂e during 2023/24.</p>	<p>We are aiming to purchase 100 small to medium sized electric vans during RIIO-GD3. Collectively this will save approximately 550 tCO₂e during RIIO-GD3. Due to the limited availability of suitable zero-emission large vans, we will purchase over 300 new large diesel vans to ensure the continued operational resilience and fuel efficiency of our fleet.</p>

Significant environmental aspect	Long-term strategy commitment	Relevant focus area of EAP	Environmental impact without interventions detailed in RIIO-GD3 EAP	Environmental impact with interventions detailed in RIIO-GD3 EAP
Use of virgin aggregate	Produce less waste and recycle all of it	Resource use and waste	Depletion of a finite natural resource. During 2023/24, we used 117,000 tonnes of aggregates to reinstate our excavations.	By achieving our EAP target of using recycled aggregates 99% of the time on planned works, we will avoid the use of approximately 500,000 tonnes of primary (virgin) material, thereby saving over 3,000 tCO ₂ e during RIIO-GD3 compared to using 100% primary aggregates.
Production of waste (including excavation spoil)	Produce less waste and recycle all of it	Resource use and waste	Waste creation and potential disposal to landfill. During 2023/24, we created 237,000 tonnes of waste, over 99% of which was excavation spoil.	By achieving our EAP target of 0% recoverable or recyclable waste to landfill, we will divert approximately 1m tonnes of waste from landfill, thereby saving approximately 7,500 tCO ₂ e during RIIO-GD3 compared to using 100% landfill disposal.
Contaminated land	Manage our land to benefit the environment	Biodiversity and land	Damage to environmental receptors from exposure to historic soil and water contaminants at our asset sites built on land formerly used for gas production and storage.	Continuation of our award-winning land contamination programme which proactively ensures that our sites are maintained in statutory compliant conditions, posing no significant pollution risks. This will include proactive remediation works at two sites to deliver permanent environmental betterment.

Table A6.21: Our significant environmental aspects and impacts and the mitigation measures in place through our RIIO-GD3 EAP

Cumulative carbon emissions saved by our EAP commitments over RIIO-GD3

423,000 tCO₂e