

RIIO-2 Gas Transmission Annual Report: 2023-24

The energy system's path to achieve the government's Clean Energy Superpower mission, including Clean Power by 2030 and accelerating to net zero by 2050, presents both significant challenges and opportunities for the sector.

Gas is an essential part of a secure energy supply in Great Britain (GB) and will continue to play a vital role in the energy system for many years. However, to achieve net-zero emission targets, the gas networks must navigate the transition to low-carbon alternatives and tackle a projected decrease in natural gas demand. This shift necessitates careful planning to manage the eventual decommissioning of parts of the gas network, and the maintenance of sections of critical network infrastructure for a select number of gas users.

National Gas Transmission Plc (NGT) serves two functions: it owns the high-pressure national gas network that transports gas quickly and safely to consumers in GB (transmission owner, or TO role), and it acts as the gas System Operator (SO role) for GB, responsible for balancing gas supply and demand on the NTS to ensure real-time supply meets demand. Alongside others, NGT has an important role in identifying what changes may be needed to facilitate this complex gas decarbonisation transition at pace.

The current round of price controls (RIIO-2¹) has established a comprehensive investment and incentive package. We² designed the package to enable NGT to deliver gas at a low cost while enabling it to continue to meet regulatory targets and consumer requirements.

The scale of consumers' investments during RIIO-2 is substantial. NGT expect that funding (for both functions) over the five-year price control period will reach £3.2 billion.

Price Control Monitoring

As the sector progresses through the RIIO-2 to the next price control period³, it is crucial that we continuously monitor that NGT is advancing as expected in delivering its agreed investment plans and outputs.

We are committed to rigorous and transparent monitoring, ensuring strong and enduring compliance that holds NGT accountable. Consumers have funded the network investments, and it is essential that NGT continue to provide reliable service and meet the needs of consumers.

NGT has delivered well on many of its outputs and incentive targets. However, there is an ongoing underspend on capital investment, and we will be closely monitoring NGT's delivery of its asset health programme.

This report provides a high-level overview of how NGT is delivering against the outcomes and metrics set through the RIIO-2 framework. It presents our key findings on output delivery and financial performance over the first three years for RIIO-2 and provides an overview of NGT's current total cost (totex) expectations⁴ across the five-year RIIO-2 price control period. Looking ahead, we will use performance data to collaborate

¹ This is the second gas transmission price control using the Revenue = Incentives + Innovation + Outputs (RIIO) model.

² The terms 'we', 'us', 'our' refer to the Gas and Electricity Markets Authority. Ofgem is the office of the Authority.

 ³ New price controls for gas and electricity transmission and gas distribution will be implemented from April 2026.
 ⁴ Three year actual costs incurred and a forecast of the costs to be incurred over the remaining two years of the RIIO-2 period.

closely with stakeholders, learn lessons from RIIO-2, to develop the next set of network price controls.

All financial values in the summary are in 2018-19 prices. This the price base used for RIIO-2 allowance setting and performance monitoring.

Key messages

RIIO-2 Performance: Over the three-year cumulative period of RIIO-2 to date, NGT's actual spend was £1,259m which is £276m (18.0%) below its agreed allowance of £1,535m. The underspend is driven by delays in its Asset Health and IT upgrade programmes. NGT has plans to significant ramp-up delivery and currently forecast total spend to be comparable with allowance across the full RIIO-2 period.

Outputs: NGT has met most of its output targets in the first three years of RIIO-GT2. NGT is missing some targets in the output category 'Delivering an environmentally sustainable network' relating to reducing office and operational waste. It also risks not achieving the operational fleets emissions reduction targets for RIIO-2, which it reports is due to constraints in availability and suitability of alternative electric vehicles.

Annual Delivery Incentives: NGT is performing strongly against annual incentive targets. It has received £31.9m in incentive rewards in RIIO-2.

NGT ownership: NGT fully divested itself from National Grid Plc in September 2024. There was a two year Transitional Services Agreement (TSA) in place with National Grid Plc mainly covering shared IT and back office services. This arrangement expired in January 2025. Currently there is no National Grid plc representation on NGT's board or TSAs in place with NGT.

Structure of this report

- **Chapter One** provides background information on the design of RIIO-2 framework and annual reporting process.
- **Chapter Two** details NGT's performance against its output commitments over the first three years of the RIIO-2 period. It also highlights the incentive payments earned and provides an overview of NGT's expenditure related to innovation incentives.
- **Chapter Three** presents our summary of NGT's five-year totex performance against the price control obligations and incentives, using data and supporting information provided by NGT. The chapter compares annual totex allowance to totex expenditure and also provides a breakdown of performance across cost categories.
 - Appendix one summarises the impact of the Totex Incentive Mechanism (TIM) and the expected value of RIIO-2 performance shared between NGT and consumers across the full RIIO-2 period.
 - **Appendix two** provides a performance summary and anticipated level of delivery for NGT's Price Control Deliverables (PCDs) in RIIO-2.

All financial values in the report are in 2018-19 price base unless stated otherwise. If you require additional performance data, please refer to the supplementary datafile which is published along with this report.⁵

Information on our current assessment of the Return on Regulated Equity⁶ was separately published in February 2025.⁷

⁵ This report does not provide any information on the Network Asset Risk Methodology outputs which is provided through a separate regulatory submission.

⁶ The financial return achieved by shareholders in a licensee during a price control period from its outturn performance.

⁷ This report is separate to the 14 February 2025 publication which provides a view of regulatory financial performance:

https://www.ofgem.gov.uk/publications/riio-2-regulatory-performance-data-2024.

CHAPTER ONE: Introduction

National Gas Transmission (NGT) is the sole operator of the National Transmission System (NTS) in Great Britain with its operation split between Transmission Operator (TO) and System Operator (SO).



Figure 1: Map of NTS in Great Britain

National Gas Transmission (NGT) is the sole operator of the National Transmission System (NTS) in Great Britain with its operation split between Transmission Operator (TO) and System Operator (SO).

NGT was part of National Grid plc but has now fully divested from the group since September 2024.

The TO is responsible for ensuring the reliable and secure delivery of gas across Great Britain while the SO has overall responsibility for ensuring that the supply and demand of gas are balanced within the NTS.

Ofgem regulate NGT through periodic price controls. The price controls we set determine the amount of revenue NGT can earn from consumer bills and stipulate the level of performance we expect NGT to deliver.

RIIO-2

To establish our price controls, we use the RIIO (Revenue = Incentives + Innovation + Outputs) framework. The current price control spans a five-year period from 1 April 2021 to 31 March 2026.

Annual Reporting

NGT is required to report on its performance in relation to its cost allowances and the outputs established under the RIIO-2 price control framework.⁸ This includes an assessment of compliance with the minimum standards and evaluation of progress

⁸ The Regulatory Instructions and Guidance (RIGs) requires gas transporters to provide information to the Authority. The Authority used the information provided in the RIGs in preparation of this Annual Report.

towards pre-agreed targets, and indication of whether activities are on-track and ontime to achieve the anticipated delivery program across the RIIO-2 period.

We analyse this information and examine any variations in performance against its annual and five-year output targets, as well as the expected under and over-spend across specific activities and cost categories. Additionally, we engage with NGT to discuss the technical and financial aspects of its submissions, gaining a deeper understanding of the factors influencing the delivery of the anticipated RIIO-2 settlement plan and views on future performance.

Chapter Two: Outputs, Incentives and Innovation

In this chapter, we examine outputs that are subject to financial incentives, including the value of rewards and penalties where applicable, and provide an overview of NGTs' key innovation programmes throughout the RIIO-2 period.

Output Delivery Incentives (ODIs)

The ODI package for the NGT has been designed to encourage the delivery of outputs and service quality that consumers and stakeholders want to see.

Our assessment for the above ODIs is measured against expectations set out in the licence and/or detailed in the Final Determinations (FD) document, including targets which have associated rewards/penalty or other expectations against which we hold NGT to account.

Table 1 provides an overview of applicable ODIs and an initial summary of NGT's performance against each area.

ODI	ODI Purpose	Output Category	Performance Summary	Cumaltive rewards/(penalties) (£m)
1. Customer Satisfaction Survey	A financial output to incentivise NGT to uphold high standards of customer service.	Meeting the needs of consumers and network users	NGT outperformed its targeted level in each of the three years to date.	10.8
2. Stakeholder Satisfaction Survey	An incentive on NGT to provide high levels of stakeholder satisfaction.	Meeting the needs of consumers and network users	Meeting the needs of consumers and network users NGT has outperformed its targeted level in each of the three years to date.	
3. Quality of Demand Forecast	Deliver accurate day ahead demand forecasting (D-1)	Meeting the needs of consumers and network users	NGT achieved target in 2021/22 and 2023/24 but failed in 2022/23.	0.2
4. Maintenance	Deliver benchmark performance for maintenance outage day, and to minimise NGT driven changes to maintenance planning.	Meeting the needs of consumers and network users	NGT achieved the target in each of the three years to date.	1.5
5. Entry and Exit capacity constraint management	Meet constraint management target	Meeting the needs of consumers and network users	NGT achieved the target in each of the three years to date.	13.5
6.Residual Balancing	To incentivise the residual balancing of supply and demand of the NTS while minimising the impact of any actions on market prices. ⁹	Meeting the needs of consumers and network users	Over the three regulatory years in RIIO-2, NGT has consistently met LPM target	1.4

Table 1: ODIs applicable to NGT (2023/34 performance)

⁹ This output consists of two elements: the Linepack Performance Measure (LPM) and the Price Performance Measure (PPM). NGT failed to achieve - the PPM target in 2021/22 and 2022/23 but achieved in 2023/24.

9. Baseline Environmental Targets	We use a financial incentive with both a reward and penalty element to incentivise NGT to outperform selected RIIO-2 targets in its Environmental Action Plan (EAP).	Deliver an environmentally sustainable network	NGT earned an overall reward of £0.283m in the third Regulatory Year under this incentive. However, we do note that in some of the individual targets NGT have faced difficulties. Performance in the area of Operational Transport has been consistently below the penalty area.	0.3
8. NTS Shrinkage	This is a reputational output, designed to incentivise NGT to reduce shrinkage of gas from the daily operation of the national pipe network.	Deliver an environmentally sustainable network	High NTS shrinkage cost at the start of RIIO-2 driven by high gas market prices following Russian invasion of Ukraine. Shrinkage cost reduced in 2023/24 from market stabilisation.	Reputational
7. Greenhouse Gas Emissions (Compressor Venting)	Financial incentive with both a reward and penalty element. It is designed to encourage NGT to consider environmental impacts when making decisions about venting natural gas from NTS compressors.	Deliver an environmentally sustainable network	NGT has consistently beaten its target and achieved rewards in RIIO-2, including a reward of £1.46m in 2023/24.	4.2

Annual output targets

As part of RIIO-2, we set a range of outputs that the NGT has committed to deliver. If NGT meets its annual output targets they could be eligible for incentive payments, whereas failure to meet its annual output targets could result in a financial penalty.

The outputs are grouped into three output categories:

- Meeting the needs of consumers and network users.
- Maintaining a safe and resilient network.
- Delivering an environmentally sustainable network.

NGT's performance for each output category is summarised in table 3 below.

Table 2: NGT's current view of output performance

Green – Successful achievement/ on track to achieve the annual output Amber – Met annual output but experienced performance issues within individual incentives Red – Missed an annual output

Meeting the needs of consumers and network users	Maintaining a safe and resilient network	Deliver an environmentally sustainable network	
Successfully achieved its objectives except for residual balancing see below	Successfully achieved/ on track to achieve its objectives by the end of the price control	Minor issues see below	

Overall NGT has met its output targets across RIIO-2. They have performed well in output categories concerning meeting the needs of consumers and network users and in maintaining a safe and resilient network.

However, NGT have experienced performance issues in 2023-24 in the output category to 'Deliver an environmentally sustainable network'. These difficulties are largely regarding NGT's performance against elements of its Baseline Environmental incentive targets such as its difficulty in reducing its operational fleets emissions due to constraints in availability and suitability of alternative vehicles. This is covered in output commentary below.

Information on NGTs performance against all its output deliverables can be found in the annual reports accompanying Datafile.

The section below provides an overview of output performance across each of the ODI categories, with a focus on performance in the third regulatory year and states the associated reward/penalty where applicable.

Meeting the needs of consumers and network users:

NGT has performed to a high standard, meeting all its outputs in this area. Two areas to highlight are its continued commitment to customer and stakeholder satisfaction which is reflected in strong scores in both of these areas for this regulatory year and across the other two years of the price control.

In addition, NGT have maintained or improved incentive performance for Residual Balancing, Demand Forecasting, Constraint Management and all facets of the Maintenance incentive relative to the performance in previous years. This represents

improved performance compared to the first two years of the price control where difficult operating conditions created a challenging environment for performance against for outputs such as residual balancing and demand forecasting.

Customer Satisfaction Survey

RIIO-2 included an incentive to encourage NGT to provide high levels of customer satisfaction. This is measured by an annual average of scores from customer satisfaction surveys. These surveys help provide insight on how NGT has satisfied its customers' expectations throughout the price control.

This incentive is financial in nature. The performance target score for each regulatory year is 7.8 out of 10.NGT's performance is detailed in the figure below



Figure 2: NGT customer satisfaction survey

For the third regulatory year, NGT exceeded the performance target score for customer satisfaction.

This overall trend indicates a consistent performance score throughout the price control period, demonstrating stable customer satisfaction.

Stakeholder Satisfaction Survey

RIIO-2 also included a reputational (non-financial) incentive to encourage NGT to provide high levels of stakeholder satisfaction. This was to be measured by an annual average of scores from stakeholder satisfaction surveys. These surveys help provide insights such that NGT can better meet its stakeholders' expectations.

This incentive is an ODI-R, meaning that it is reputational in nature with a performance target of 7.4/10.

NGT's performance is detailed in the figure below.

Figure 3: NGT stakeholder satisfaction survey



For the third Regulatory Year NGT are exceeding its performance target regarding stakeholder satisfaction.

Compared to previous years of this price control period, there has been a steady increase in performance in Stakeholder Satisfaction.

Residual balancing

This financial incentive seeks to encourage and reward effective performance in managing the residual balancing of supply and demand of the NGT while minimising the impact of any actions on market prices.

This output consists of two elements: the Linepack Performance Measure (LPM) and the Price Performance Measure (PPM).

LPM incentivises NGT to minimise the differences in the linepack volumes measured at the start and end of each gas day. PPM incentivises NGT to evaluate the impact it has on the market in its Residual Balancing role by measuring the price range of its residual balancing trading actions compared to the System Average Price (SAP). Both of these elements have reward/ penalty incentives. NGT residual balancing services has proved invaluable in ensuring consistent gas supplies to consumers in the current Russian and Ukraine war. The war is causing volatilities in the gas market with some shippers failing to honour agreed contracts. NGT steps in to ensure the gas stock in the system remains within acceptable operationally range when there is a breach of contract.

For the LPM element, NGT has consistently outperformed the target (<2.8 million cubic meters per day average daily change). In 2023/24, they achieved its best performance

with an average daily change of 1.8 mcm/d. This was an improvement from the previous regulatory years, where the average was 2.5 mcm/d, and 2.0 mcm/d respectively.

The LPM target was met on 287 days (78% of the year), up from 225 days (62%) in 2022/23 and 268 days (73%) in 2021/22. Over the three regulatory years in RIIO-2, NGT has consistently met the required score for a reward of £1.5m.

Meeting the PPM element target, which requires a difference below 1.5% of SAP, has been challenging for NGT. They failed to achieve the target in 2021/22 and 2022/23, recording differences of 1.8% and 4.0% of SAP, respectively. However, in 2023/24, NGT met the target with a recorded difference of 0.9% of SAP. Shipper behaviour remains a primary factor influencing the balancing of the NTS, and NGT confirms it will continue to engage with Shippers to understand the changing drivers behind Shipper imbalance positions and address them. NGT has incurred a cumulative penalty of £0.1m for missing the target.

Maintaining a safe and resilient network

This section provides an overview for how NGT have performed against deliverables that fall within 'Maintaining a safe and resilient network.' The key specific deliverables include:

Safety: There have been no public safety injuries attributable to NGT's operations and assets in RIIO-2. NGT is continuing with its programme of Executive Safety Health and Environment (SHE) Leadership visits to various operational sites to promote Health & Safety culture across the organisation. There was 100% of visits (minimum of four visits per leader per year) completed in 2023/24.

Network Asset Risk Metric (NARM): Network asset risk relates to the consequence of failure of a network asset and the probability of a failure occurring. If NGT does not maintain, replace, or refurbish assets, the probability of them failing will generally increase over time, and so would the risk of the consequence of failure materialising. To keep network asset risk within reasonable bounds, NGT are funded to carry out asset management activities such as replacement or refurbishment. The NARM has been developed to allow Ofgem to quantify the benefit to consumers of NGT's asset management activities and hold NGT accountable for its investment decisions. The Long Term Risk Benefits (LTRB) on the investments for RIIO-2 is set for £201m.

Cumulatively, NGT has delivered £84m LTRB of the £201m RIIO-2 target. The lower delivery is primarily due to delays in commencing projects realising large NARMs benefits. For the remainder of RIIO2, NGT indicate it will be focusing on delivering schemes with larger LTRBs e.g. it is forecasting £104m LTRB to be delivered in 2024/25 and intend to achieve the LTRB target of £201m by the end of RIIO-2. We believe delivery

of the full LTRB is challenging and we continue to monitor its progress. There is a risk some low LTRB projects may be deferred to the next price control (RIIO3).

Asset health non-lead assets: This relate to upgrade work on non-gas conveying assets (e.g. a pipeline support that does not transport gas). RIIO2 plan to deliver of 1,450 Asset Health non-lead volumes and NGT is forecasting achieve the target. Cumulatively, 641 have been delivered by the end of 2023/24. NGT aims to achieve the target with more work covered on civil assets e.g. site access, drainage, ducting, pipe supports, security fences, etc. We believe a ramp up of the civil works may achieve the RIIO-2 volume target but there is a risk the forecast number of electrical infrastructure refurbishment i.e. 53 will be difficult to achieve, cumulatively, only 10 have been delivered by the end of 2023/24.

Deliver an environmentally sustainable network

This section provides an overview for how NGT have performed against deliverables that fall within 'Deliver and environmentally sustainable network'.

While NGT has made good overall progress against its deliverables in this area, they have encountered difficulties in specific areas. Although its greenhouse gas emissions exceeded the incentive target this regulatory year, there was a decrease in performance compared to 2022/23. Regarding its environmental incentives, NGT has exceeded the benefit threshold in four out of seven possible areas but is underperforming in one area.

More details on specific outputs are outlined below.

Greenhouse gas emissions (venting)

The Greenhouse Gas Emissions ('venting') financial incentive is designed to encourage NGT to consider environmental impacts when making decisions about venting natural gas from NTS compressors.

NGT has consistently beaten its target and achieved rewards in RIIO-2, including a reward of £1.46m in 2023/24, with similar performance forecast for the remainder of the price control.

We note however that the volume of venting emissions has increased annually over the RIIO-2 period to date (from 2,061 to 2,287 and 2,324 tonnes of natural gas across 2021-2024 of RIIO-2). The reward figures are the result of the incentive methodology – with the reference price of gas increasing in parallel.



Figure 4: Greenhouse Gas Emissions ODI-F performance

NTS Shrinkage

This output is designed to incentivise NGT to reduce shrinkage of gas from the daily operation of the national pipe network. Shrinkage energy is categorised as the energy used to run compressors (Compressor Fuel Usage), energy that does not satisfy the Calorific Value standards (Calorific Value Shrinkage), and energy that is lost or unaccounted for (Unaccounted for Gas).

NGT is the provider of shrinkage energy across the NTS and is responsible for managing the end-to-end service of forecasting, accounting for, procuring, and supplying energy to satisfy the daily NTS shrinkage components. Reducing shrinkage lowers methane emissions and avoids the cost of purchasing replacement gas.

There is a reputational incentive on NGT to incentivise efficient procurement and management of own use gas and electricity for the operation of compressors and energy that cannot be billed.

NGT have reported an improvement in 2023/24 in the total NTS shrinkage cost of £107m compared to £190m in 2021/22. There was a spike in 2022/23 of £593m driven by high volumes of gas shrinkage and gas market prices rising to unprecedented levels following the Russian invasion of Ukraine.

Baseline Environmental Incentive Targets

We use a financial incentive to incentivise NGT to outperform selected RIIO-2 targets in its EAP. The benefit of this is to further reduce carbon emissions, improve the environment, and reduce resource use for the benefit of existing and future consumers.

NGT earned an overall reward of £283k in the third Regulatory Year under this incentive mainly through achieving the Environmental Value of Non-operational Land target.

There was mixed performance across the six criteria that make up the environmental scorecard. NGT earned a reward in three criteria (Business Mileage, Water Use and Environmental Land Value of Non-operational Land), received a penalty in one (Office Waste Generated) and neither reward or penalty in two (Operational Fleet Emissions and Operational Waste Recycling).

We note that throughout the price control period to date, NGT have performed well in Business Mileage, Water Use and Environmental Land Value. Performance in the area of Operational Transport has been consistently below the penalty area despite challenges such as mileage ranges of electric vehicles and the need to balance its security of supply obligations with reducing emissions from vehicle use.

Regarding activities aimed at reducing office and operational waste recycling, we note that NGT's 2023/24 performance is below the target level. However, we acknowledge that NGT's performance has improved year on year throughout RIIO-GT2.

Cumulative reward and penalties

Table 3 summarises the cumulative revenue rewards and penalties accrued by NGT over the first three reporting years for each incentive area. It confirms that £32.1m of rewards have accrued to date for NGT's performance across five financial incentive areas.

Mechanism	Cumulative Rewards/Penalties - £m
Greenhouse Gas Emissions	4.2
Customer Satisfaction Survey	10.8
Quality of demand forecasting	0.2
 Residual Balancing Linepack Performance measure (LPM) Price Performance Measure (PPM) 	1.5 (LPM) -0.1 (PPM)
Maintenance	1.5
Entry and Exit capacity constraint management	13.5
Baseline Environmental Incentive Targets	0.3
TOTAL	31.9

 Table 3: ODI mechanisms – indicative cumulative revenue rewards & penalties (2021-2024)

Innovation

The RIIO-2 innovation package encourages NGT to do more than business as usual when it comes to finding a better, cheaper, smarter or more agile way of doing things. NGT's focus on innovation have been on projects that can facilitate UK 's achievement of its 2050 Net Zero target.

NGT is in a unique position, as owners and operators of the NTS, to take a leading role in whole system energy thinking. The transition of the energy system is an immediate focus.

NGT's innovation strategy comprises of three strands all relating to decarbonisation:

- Fit for the Future -Preparing and extending life of existing assets to operate towards a decarbonised future (hydrogen blends). This include projects to lower the cost excavation and repair for hydrogen pipelines. Spend on this work is currently forecast to reach £40.3m over the RIIO-2 price control period. The advantages of this initiative include a simpler and more cost-effective transition to hydrogen transportation
- Ready for Decarbonisation This initiative highlights how the NTS will transport net zero gases and expedite the transition to net zero. Key projects focus on providing evidence for safety cases, such as the impact of hydrogen on NTS actuators. Expenditure is forecasted to reach £17.7m over the RIIO-2 period. This work is expected to demonstrate and confirm the health and safety aspects of transporting hydrogen gas.
- Decarbonised Energy System This involves exploring how decarbonised gas will interact with the NTS and its customers. The work includes projects assessing the impact of hydrogen and hydrogen blends on linepack. The forecasted cost for this initiative is currently £40.4m over the RIIO-2 period. Benefits include identifying potential opportunities and challenges of the new NTS on the transport sector and other customers.

The main funding streams of NGT's innovation schemes are outlined below.

Network Innovation Allowance (NIA)

The purpose of NIA funding is designed to enable NGT to take forward innovation projects that have the potential to address consumer vulnerability and/or deliver longer– term financial and environmental benefits for consumers, which they would not otherwise undertake within the price control as business –as- usual projects.

The RIIO-2 FD set NGT an allowance of £25.0m for NIA. This comprises of 82 approved projects and as at Year 3, NGT has completed 49 projects costing £13.6m.

The summary of spent to date across the eligible NIA projects against the relevant allowance is summarised in the table below (expenditure values do not include current GT expectations of forecast spend for known projects).

Table 4: NGT's NIA performance across RIIO-2 period to date

£ million, 2018-19 prices	2021/22	2022/23	2024/25	TOTAL
a. Total NIA Expenditure (NIAEt)	2.0	4.0	7.6	13.6
b. Funding allocated	1.8	3.6	6.8	12.2
c. Performance (a-b)	-0.2	-0.4	-0.8	-1.4
Maximum Allowance provision across RIIO-2		25.0		
Remaining NIA budget		11.4		

Strategic Innovation Fund (SIF)

The SIF is a new mechanism introduced in the RIIO-2 framework which seeks to provide flexibility to respond to innovation challenges as they arise, and potentially secure additional innovation funding for eligible SIF Projects¹⁰.

In RIIO-2, NGT has spent a total of \pm 9.1m of SIF allocations on hydrogen gas development and made progress on:

- Providing technical and safety evidence to enable repurposing of NTS compression assets.
- Demonstrating where potential hydrogen refuelling stations could be connected to the gas network.
- Storage and release of hydrogen within relevant timescales is going to be vital to ensuring a consistent energy source and improved resilience.
- Investigating if the use of waste heat (produced from the transportation of network gases at compressor stations)can be used to improve the efficiency of solid oxide electrolysers for green hydrogen production.

For the remainder of RIIO-2 NGT plan to undertake several more projects from SIF allocations relating to the key challenges set by Ofgem such as ways to decommission assets quicker and alternative uses of decommissioning assets.

Network Innovation Competition (NIC)

NIC was used during the RIIO-1 price control period to fund innovative low carbon or environmental projects. Although it stopped from 1 April 2021, a condition exists in the RIIO-2 framework to make provision for arrangements relating to the administration and governance of projects in receipt of NIC funding.

NGT was awarded £9.7m in November 2020 from NIC to construct of an offline hydrogen test facility at Spadeadam as part of the **FutureGrid** programme (a project providing vital insights into hydrogen transportation and blending).

¹⁰ Details on the fund and project decisions can be found here: <u>Strategic Innovation Fund (SIF) | Ofgem</u>

This project is the first of many steps towards a full-scale conversion of the existing NTS to transport hydrogen.

By the end of RIIO-2 NGT plan to complete the sanctioned FutureGrid programme. The forecast spend for RIIO-2 is £8.81m, almost £1m below the funding awarded.

Looking forward

The network companies are responsible for enabling innovation, which will help to drive down costs and result in new products and services for consumers. It is important that the right regulatory regimes are in place to encourage innovation and support investment in the most efficient solutions. We are continuing to consider improvements to how networks report on their innovation work.

Chapter Three: NGT cost and allowance performance

This chapter considers the NGT's cumulative total expenditure (totex) against the current view of totex allowance. It provides a high-level overview of NGT's performance, distinguishing between the TO and SO activities to provide transparency and understanding of drivers of the current forecast of under- and over-spend across the RIIO-2 period.

Totex

The table below summarises NGT's current view of total cost (totex) cost expectations against adjusted totex allowance position through to the end of the current price control period. This is broken down by its function i.e. TO and SO.

Table 5: Forecast totex performance by function (five-year)

Note: Figures ir	n brackets relates to	ounderspend on allowand	e.
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£ million, 2018-19 prices	то	SO	RIIO-2 TOTAL
a. Current forecast of RIIO-2	2,751	429	3,180
expenditure			
b. Current forecast of RIIO-2 allowance	2,727	496	3,222
Performance (a-b)	24.05	(66.3)	(42.2)
(Under)/over spend %	0.9%	(13.4%)	(1.3%)

We set out NGT's view of adjusted totex performance, starting with TO and then SO, across two different timescales: a comparison of the three-year actual costs incurred against allowance from April 2021 to March 2024, and a comparison of the entire five-year RIIO-2 period (i.e. includes NGT's current expectations of forecast expenditure and allowance for the remaining regulatory period). It then presents a further breakdown of each cost component of NGT's expected performance category.

NGT: TO performance

The TO overall actual Totex for the first three years of RIIO-2 is $\pm 1,042$ m compared to an allowance of $\pm 1,243$ which is an underspend of ± 202 m (16.2%) against its allowance.



Figure 5: NGT TO totex performance (2021-2024)

Table 6 below provides additional breakdown of the three-year actual costs incurred against allowance captured by cost category.

£m, 2018/19								
prices	2022	2022	2023	2023	2024	2024	Total	Total
	Actual	Allowance	Actual	Allowance	Actual	Allowance	Actual	Allowance
Capex - Load								
Related	7.5	4.4	10.9	10.0	10.7	9.8	29.1	24.1
Capex - Non								
Load Related	121.6	135.8	154.5	200.3	161.0	212.7	437.1	548.7
Capex - Non operational &								
other capex	63.1	70.5	68.2	106.4	104.0	152.2	235.3	329.1
Opex - Direct	41.2	42.4	42.8	42.1	41.1	42.0	125.2	126.5
Opex - Indirect	59.6	70.0	69.1	74.7	86.2	70.1	214.8	214.8

Table 6: NGT TO totex performance: 2021-2024

	Total	293.0	323.0	345.4	433.5	403.1	486.7	1041.5	1243.2
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The cumulative underspend is mainly driven by delays in the Asset Health upgrade programme, compressor emissions and IT investments.

The next section provides further detail on NGT TO's performance across the first three regulatory years under each of the cost categories.

Load related capital expenditure (LR capex)

This is investment required to connect gas loads coming to, and off, the NTS from customers and to ensure that the NTS can cope with the changing pattern of flows on the network.

Table 7: NGT TO LR capex performance: 2021-2024

Note 1: Load related offtakes are customer funded so no RIIO-2 allowances are applicable. The costs in the offtakes section are offset by a corresponding credit in the Customer Contribution section.

£m, 2018/19 prices	2022	2023	2024	Total spend	Total Allowance
Entry	6.6	8.0	9.0	23.6	16.9
Exit	0.0	0.0	0.0	0.0	0.0
Net zero	0.7	1.9	0.6	3.2	5.0
Network capability	0.1	0.9	1.2	2.2	2.3
Offtakes [Note 1]	0.7	1.4	5.0	7.1	0.0
Customer contributions					
[Note 1]	-0.7	-1.4	-5.0	-7.1	0.0
Grand Total	7.5	10.9	10.7	29.1	24.1

The cumulative spend across the three year period is approximately £5m higher than allowance for the same period. This is driven by higher than planned investment in entry points to the NTS mainly Western Gas Network Upgrade (WGNU)¹¹ programme driven by higher materials cost. The overspend is partially offset by savings on net zero expenditure.

There have also been investments on network capability i.e. upgrade metering assets to provide greater accuracy in the measurement of gas flows and ensure that customers are charged correctly.

NGT's forecast spend could increase across the remainder of the RIIO-2 period, driven by design studies for the <u>Project Union</u> (PU) hydrogen network, a project to create a national transmission network to facilitate the transport of 100% hydrogen gas. Ofgem has an interim funding arrangement in RIIO-2 for hydrogen feasibility studies that may allow access to RIIO-2 funding mechanisms for some projects on a case-by-case basis. The feasibility stage of PU commenced in April 2023 and completed in July 2024. There is a phased approach for the Front End Engineering Design (FEED) applications for each section of the PU project, starting with East Coast (Section 1), St. Fergus to Teesside &

¹¹ Part of NGT's work to enable the transition to net zero by increasing the capacity on the western part of its network to accommodate more Liquefied Natural Gas.

Northwest (Section 2 – 4). RIIO-2 funding applications for these three FEED projects are currently being assessed and consulted on by Ofgem.

NGT currently forecasts total LR capex across the entire RIIO-2 period to reach £502m, which is in line with NGT's estimate of funding provision across the RIIO-2 period.

Non load related capital expenditure (NLR capex)

This principally comprises of expenditure required to replace or refurbish existing primary (e.g. pipelines, compressor sites, entry/exit points, etc) and secondary (e.g. gas generators, exhausts, pig traps, isolation valves, etc) assets on the network. It also include expenditure relating to areas such as the reduction of direct emissions from the operation of the NTS, network resilience, and physical security.

£m, 2018/19 prices	2022	2023	2024	Total Actual	Total Allowance
Asset health	61.3	81.7	101.0	244.0	340.2
Compressor emissions	16.8	26.5	32.5	75.7	107.2
Other non-load	43.5	46.4	27.5	117.4	101.3
Total	121.6	154.5	161.0	437.1	548.7

 Table 8: NGT TO NLR capex performance (2021-2024)

There is consistent underspend across each cost sub-category. The main driver of underspend relates to delays in commencing planned investments.

NGT's forecast spend is expected to increase significantly across the remainder of RIIO-2 period (circa £580), driven by a ramp up of assets health upgrade programme.

Across the full RIIO-GT2 period, NGT is currently forecasting NLR capex to reach £1,016m, which represents an overspend of £20.6m (2.1%) against the expected allowance across the period of £996m.

NGT's performance against each cost sub-category is discussed in the section below.

Asset Health programme

Asset Health (AH) is an investment programme to upgrade assets across NGT and to develop them to maintain a safe, reliable and secure network.

The outputs of AH investment will be measured through NARMs (Network Asset Risk Metric) methodology, which measures the long-term monetised risk benefits (LTRB) delivered by investments (corresponding to the life of the asset, or intervention). While the AH programme is made up of hundreds of individual interventions, RIIO-2 outputs is based on two high level Price Control Deliverable (PCDs) i.e.

- NARMS PCD target of £201m of LTRB and
- Non-Lead Asset PCD target of 1,450 intervention volumes.

Refer to Maintaining a safe and resilient network section of this report for cumulative performance, RIIO2 forecast and associated risks in delivering the above targets.

The programme has a total allowance value of £653.8m across the RIIO-2 period. The Cumulative spend across the three year period is expected to reach £244m, which is below the allowance of £340.2m for the same period (i.e. 28% underspend). NGT explains that the underspend is mainly driven by delays in implementing investment schemes (longer planning & design stages).

NGT is currently forecasting total spend Asset Health of £616m across the five-year RIIO-2 period, which is £37m (5.7%) below allowance.

Compressor emissions

These works ensure NGT assets are compliant with the Medium Combustion Plant Directive (MCPD) and Large Combustion Plant Directive (LCPD) elements of the Industrial Emissions Directive (IED) at the following sites: Peterborough, Huntingdon, Hatton, St Fergus, Wormington, and King's Lynn.

The cumulative spend across the three year period is $\pounds75.7m$ which is 29.4% below the allowance for the same period. This underspend is predominantly driven by NGT decisions to rephase spend to align with revised delivery and contract strategies. NGT currently forecast spend to rise over the remaining price control period and anticipates that the total spend will be $\pounds167m$ an overspend of $\pounds11.8m$ (7.6%) of the full allowances of $\pounds155m$ at the end of RIIO-2.

Other non-load

These costs mainly consist of RIIO-1 carry over costs for the works at Peterborough and Huntingdon which include asset upgrade, complying with IED, Integrated Pollution Prevention and Control (IPPC) legislation and investment in security resilience. Other non-load cost also include redundant assets decommissioning and Front End Engineering Design (FEED) for Bacton Site Redevelopment and Kings Lynn Subsidence.

The cumulative spend across the three year period is £117.4m which is 15.9% higher than the allowance for the same period. The cumulative overspend is driven by continued spend on Peterborough and Huntingdon, largely offset by lower spend in redundant assets decommissioning, Bacton site redevelopment, etc.

NGT currently forecast total costs to reach £233m across the RIIO-2 period, which is above the allowance of £187m. NGT explains that the higher spend is due to project delays and higher material costs.

Non-operational & other capital expenditure

Non-operational capex are investment in assets that does not directly relate to transmission operations. Costs in this area include IT projects, costs associated with vehicle fleets and property expenditure.

For other capital expenditure the key costs relates to cyber and physical resilience investments.

£m, 2018/19 prices	2022	2023	2024	Total Actual	Total Allowance
Non-operational capex	31.4	8.6	20.8	60.8	79.6
Other Capex	31.7	59.6	83.2	174.5	249.4
Total	63.1	68.2	104.0	235.3	329.1

Table 9: NGT TO non-operational capex and other capex performance: 2021-2024

NGT have underspent (approximately £94m) against allowance against its nonoperational capex and other capex cost categories. The cumulative underspend on nonoperational capex is driven by delays in IT and cloud computing related spend being expensed as indirect opex under Software as a service (SaaS) accounting rules (IFRS 16) where investments in SaaS cannot be capitalised. NGT forecast the underspend to continue to the end of RIIO-2 still driven by the impact of SaaS accounting rules.

The cumulative spend for Other Capex over the first three reporting years was £174.5m, which is £74.9m below allowances. The underspend against allowances largely relates to lower cyber and physical resilience costs. Cyber and physical resilience cost arises from introducing controls alongside strategic asset replacement projects. However, with strategic asset replacement works behind plan, cyber cost are also currently behind. This gap is forecast to narrow over the remainder of RIIO-T2 as outage mitigations are employed to deliver the works.

Operating expenditure (Opex)

There are two main categories of opex i.e. direct and indirect. Each are discussed in turn below.

<u>Direct opex</u> relates to expenditure directly impacting operational performance such as maintenance (planned and unplanned) and operational property costs. Table 10 below

provides an overview of the annual direct opex costs incurred versus set allowances across the first three reporting years.

£m, 2018/19 prices	2022	2023	2024	Total Actual	Total Allowance
Faults	6.6	8.1	9.2	23.9	15.1
Planned inspections &					
maintenance	22.4	19.8	17.1	59.3	77.8
Operational property	7.1	8.8	9.5	25.3	15.0
Physical security	5.1	6.2	5.4	16.7	18.5
Grand Total	41.2	42.8	41.1	125.2	126.5

 Table 10: NGT TO opex performance: 2021-2024

The cumulative spend associated with TO direct opex across the three-year period is broadly comparable to the allowance for the same period. However, cost variances in the sub-categories are evident. This includes higher fault costs driven by higher unplanned Line-walking, higher operational property costs due higher electricity costs. These overspend are offset lower planned inspections & maintenance NGT driven by labour and procurement cost savings.

NGT is currently forecasting TO direct opex to increase over the remaining RIIO-2 period due to anticipated higher costs in security. The forecast spend over RIIO-2 is £268. i.e 27% higher than planned.

<u>Indirect opex</u> is the ongoing cost of running the business. The highest contributor to indirect opex is business support costs comprising of expenses such as shared group costs (e.g. group management, finance, regulation, etc) and support services; for example, various engineering services.

Table 11 below provides an overview of the annual direct opex costs incurred versus set allowances across the first three reporting years.

£m, 2018/19 prices	2022	2023	2024	Total Actual	Total Allowance
Business support costs	29.1	27.3	41.6	98.0	93.6
Closely associated indirects	21.8	26.2	25.8	73.8	80.9
Other	8.6	15.7	18.8	43.0	40.2
Grand Total	59.6	69.1	86.2	214.8	214.8

Table 11: NGT TO opex performance: 2021-2024

Business Support: These are costs that support the business functions of the organisation.

The cumulative spend was £98.0m compared to allowances of £93.6m. This marginal overspend is attributable to higher IT costs due to SaaS and cloud-based solution that is required to be classified as opex under accounting rules (IFRS 16) rather than being capitalised.

For RIIO-2, NGT is forecasting to overspend on Business Support i.e. £178m against an allowance of £151m.

Closely associated indirects: These are costs that support the operational activities such as network policy (including research and development), health and safety functions.

There is cumulative underspend of £7.1m driven by backlog of work within pipeline reporting. NGT plan to increase staff to eliminate the backlog work and additional cover for long term absence on critical roles. This additional spend drives forecast RIIO-2 spend to £128.6m which is 6.6% overspend against an allowance of £120.6m.

Other indirect costs: These costs include are cash payments and provision movements relating to quarry and other loss of development claims. Opex resilience costs are also captured in this cost category. The cumulative spend is higher than planned mainly driven by increased quarry cost. The overspend is expected to be maintained for the rest of RIIO-2.

RIIO-2 TO Totex forecast (2021-2026)

The TO Totex forecast for RIIO-2 is \pounds 2,751m which represents \pounds 24m (0.9%) overspend on allowances. Refer to Table 12 for breakdown.

Table 12: NGT TO performance: RIIO-2

Note: For variances brackets represents underspend

	Total actual /	Total		Variance
£m, 2018/19 prices	forecast spend	Allowance	Variance	%
Capex - Load Related	502.3	494.6	7.6	1.5%
Capex - Non Load Related	1016.4	995.8	20.6	2.1%
Capex - Non operational & other capex	583.9	683.1	(99.2)	(14.5%)
Opex - Direct	267.5	210.4	57.0	27.1%
Opex - Indirect	380.7	342.7	37.9	11.1%
Total	2750.7	2726.7	24.1	0.9%

The forecast overspend is primarily driven by higher spend on:

- Various upgrades at NGT sites to ensure its compressor emissions are compliant with future environmental regulations.
- Asset upgrades in Peterborough and Huntingdon, Bacton site redevelopment and Kings Lynn subsidence.
- Business support costs due to IT costs on SaaS and cloud-based solution classified as opex rather than capitalised.

This is offset by underspend in non- operational capex from the changes in the IT costs on SaaS and cloud-based solution referred above which has been moved to business support and lower forecast costs on cyber and physical resilience.

NGT SO performance

SO cumulative totex cost for RIIO-2 is £217m which is an underspend of £75m (26%) against an allowance of £292m. The underspend is primarily driven by savings from key IT investments.





Table 13 below provides additional breakdown of the three-year actual costs incurred against allowance captured by cost category.

£m, 2018/19								
prices	2022	2022	2023	2023	2024	2024	Total	Total
	Actual	Allowance	Actual	Allowance	Actual	Allowance	Actual	Allowance
Capex - Non operational &								
Other Capex	17.9	27.9	17.0	32.1	26.1	47.0	61.0	107.1
Opex - Direct (NOCs)	24.7	29.3	22.8	29.6	22.4	29.4	69.9	88.3
Opex - Indirect	28.7	33.5	26.2	33.0	31.6	30.2	86.6	96.7
· ·	1	1		1	1	1	1	1

Table 13: SO totex performance: 2021-2024

Total 71.4 90.7 66.0 94.7 80.1 106.7 217.5 292
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NGT SO have realised underspends against every cost category across the first three years of RIIO-2. Below are the key underspends driving each cost category:

Capex Non-operational & Other capex

The cumulative underspend is principally driven by lower spend in IT Capex from savings realised on the Gemini programme (this is a suite of online applications for managing the transportation of gas through the NTS in Great Britain and used for Capacity Management (Entry and Exit Capacity), Capacity Trading, Commercial Balancing, etc). The Gemini programme underspend is partly due to a lower volume of regulatory changes than originally planned and efficient delivery of Gemini upgrade platform. Additional underspend has occurred in IT resilience, and NGT plan to ramp up IT resilience investment in the remainder of RIIO-2.

Opex-NOCs

Cumulative spend is lower than allowance, primarily due to net staff cost savings as a result of vacancies. The vacancies were primarily in specialist areas such as, Markets, Commercial and Incentives and Energy Resilience. There are additional savings arising from lower Xoserve (the Central Data Services Provider for Britain's Gas Market) costs. The underspend trend is expected to continue for the rest of RIIO-2.

Opex Indirect

This mainly consist of Business Support and Closely associated indirects costs:

Business Support: Cumulative cost is £60.1m which is lower than £63.6m planned. The underspend is driven by savings from reduced headcount but partially offset by higher IT costs due to SaaS and cloud-based solution that is required to be classified as opex under accounting rules (IFRS 16) rather than being capitalised.

Closely associated indirects: Cumulative cost is £21.1m which is lower than £26.7m planned. The underspend a made up of reduction in Operational IT & Telecoms costs and Health, Safety and Environment costs.

SO Opex indirect underspend is expected to be maintained to the end of RIIO-2. Forecasts spend is expected to be £149m against allowance of £159m

RIIO-2 SO Totex forecast (2021-2026)

Across the five-year period, NGT SO is forecasting that totex spend will reach £429m, which is an underspend of £66.3m i.e. 13.4% of allowance.

Table 14: SO performance, RIIO-2

Note: For variances brackets represents underspend

	Total actual /	Total		Variance
£m, 2018/19 prices	forecast spend	Allowance	Variance	%
Capex - Non operational & Other Capex	136.5	163.2	(26.8)	16.4%
Opex - Direct (Network operating costs)	143.9	173.5	(29.6)	17.1%
Opex - Indirect	149.1	159.0	(9.9)	6.2%
Total	429.4	495.7	(66.3)	13.4%

The forecast underspend is primarily driven by lower spend on:

- IT project i.e. Gemini programme driven by lower volume of changes required than originally planned.
- Savings on IT resilience.
- Business support holding vacancies and reduction in Operational IT & Telecoms costs and Health, Safety and Environment costs.

Appendix One: Totex Incentive Mechanism (TIM)

TIM is designed to incentivise NGT to outperform its totex allowance. Any underspend or overspend compared to totex allowance is shared between NGT and consumers. NGT is exposed to 39% of any underspend or overspend and consumers are exposed to the remaining 61% (subject to tax).

The table below provides an overview of the cumulative impact of TIM across the first three reporting years only.

Cumulative Yr3	Transmission Owner	System Operator	Total	
(21/22-23/24)	(£m)	(£m)	(£m)	
Total allowed expenditure	1,243	292	1,535	
Actual expenditure	1,042	217	1,259	
Overspend (underspend)	(202)	(75)	(276)	
Totex incentive mechanism (company share)	(79)	(29)	(108)	

Table A3.1: Impact of TIM on performance

Appendix Two: Capital Projects – Price Control Deliverables (PCD)

The purpose of PCDs is to hold NGT to account for the delivery of specifically funded capital projects. The PCD mechanism allows for funding to be returned to customers if the output is not fully delivered by the end of the period.

A performance summary and anticipated level of delivery for NGT's Price Control Deliverables (PCDs) in RIIO-2 is below.

Project name: King's Lynn subsidence PCD

Licence Special Condition - 3.10 King's Lynn subsidence Re-opener and PCD

Description of anticipated Output: This PCD is to ensure NGT delivers a Final Options

Selection Report and Re-opener submission.

Delivery date: April 2022

Total Allowance: £1.2m

Status: Completed

NGT info: The PCD has now been delivered with alternative specification. The FOSR was submitted and stated that no further work was required.

Project name: Bacton terminal site redevelopment PCD

Licence Special Condition - 3.8: Bacton terminal site redevelopment Re-opener and PCD

Description of anticipated Output: PCD to ensure NGT delivers a Final Options

Selection Report (FOSR) and Re-opener submission.

Delivery date: February 2022

Total Allowance: £10.8m

Status: Final Option Selection Report (FOSR) completed in February 2024 and cost reopener was submitted in in October 2024.

NGT info: PCD delivery is currently on track with no concerns.

Project name: Asset health - non-lead assets PCD

Licence Special Condition - 3.13: Asset Health Non-lead assets PCD

Description of anticipated Output: Delivery of set volumes of intervention on non-lead asset types across the network e.g. Pipe support refurbishments

Delivery date: 31 March 2026

Total Allowance: £48.9m

Status: Currently forecasted to be fully delivered with alternative specification.

NGT info: Following site surveys, the work mix has deviated slightly from the original business plan volumes to address actual asset condition. The forecast workbook is broadly equivalent to the original business plan.

Project name: Redundant Assets PCD

Licence Special Condition - 3.14: Redundant assets PCD

Description of anticipated Output: Decommission 80 redundant assets/asset

sites, five customer sites and four compressors.

Delivery date: 31 March 2026

Total Allowance: £81.9m

Status: Currently forecast to be partially delivered.

NGT info: NGT forecast numbers of outputs for RIIO-2 has reduced to 70 largely due to customer activity driving ongoing need for assets previously identified as redundant.

Project name: Compressor Emissions PCDs

Description of anticipated Output: PCD to ensure NGT delivers a Final

Options Selection Report, long lead items and Reopener submission.

Delivery date:

- Wormington: May 2022
- King's Lynn: Oct 2022

- St Fergus: Dec 2022
- Peterborough: Apr 2022

Total Allowance:

- Wormington: £15.20
- King's Lynn: £15.20
- St Fergus: £21.22

Peterborough: £10.2m

Status: St Fergus and Warmington contracts awarded in Q4, 2024

NGT info: On track to submit Cost Re-Opener to Ofgem in June & September 2025

Project name: Hatton PCD

Licence Special Condition - 3.9: Compressor emissions Re-opener and PCD

Description of anticipated Output: PCD to ensure NGT deliver emissions

compliance at Hatton with a new unit scoped and procured to deliver 41MW mechanical output power.

Delivery date: 31 March 2025

Total Allowance: 74.51m of which £5.38m is RIIO-1 and £69.12m for RIIO-2

Status: Programme has experienced delays with commissioning now forecast to be completed by June 2025

NGT info: Risk exists on commissioning programme with planned introduction of gas in early 2025. The ability to undertake test runs however will depend on network conditions during winter 24/25.