



Cost Assessment and Benchmarking Approach

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RIIO-GT3 NGT_A12

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1. Executive Summary

Our baseline plan forecasts £4.0bn of totex expenditure across RIIO-GT3 with a further £0.4bn totex requiring decision under RIIO-T2 uncertainty mechanisms. This gives total expected baseline expenditure of £4.4bn, an increase of 37% over RIIO-GT2. Our best view totex scenario identifies £0.9bn which due to the level of uncertainty we have assigned to Uncertainty Mechanism re-opener spend. Total baseline and Uncertainty Mechanism spend is forecast at £5.3bn across RIIO-GT3. We also include £1.7bn of costs which sit outside of the totex framework (pass-through, directly remunerated services, consented and de minimis costs).

We have carefully considered the outcome of our RIIO-T2 business plan and have enhanced our approach and processes used in building a robust RIIO-GT3 plan. Our plan is primarily built using outturn costs and estimated cost at completion, which are now monitored at a more granular level. Whilst becoming a separate company in 2023 requires adoption of some additional activities, it also provided the opportunity to reset our planning processes and market test our cost base.

We have introduced a Scope, Volume and Cost Data Confidence Standard (SVC), the cost confidence element of the data standard is developed in line with the re-opener guidance published by Ofgem in February 2023. The SVC provides guidelines to assess our data confidence, identify where we have low confidence in our data and where data needs to be improved. Aggregate SVC confidence ratings inform the inclusion and funding mechanisms proposed within our business plan. We have invested resource in IT solutions to facilitate better justification and risk modelling of our Asset Management Plan

We have embedded £261m of efficiencies in our plan, equivalent to 7% of totex, as result of actions undertaken in the current price control. We demonstrate efficiencies in our opex cost base and propose a further ongoing efficiency challenge of 0.5% per annum supported by external evidence and benchmarking against observed productivity data. This results in total (embedded and ongoing) efficiency target of £319m.

NGT is a sector of one; we are the only company to own and operate a national transmission system (NTS) for gas within the UK and are the only company focusing on net zero from a Gas NTS perspective. NGT's unique position presents a challenge in external benchmarking due to lack of direct comparators and proves a challenge to perform well under Ofgem's business plan regime which highly values comparative costs, as described in our letter of 6 September 2024. We are however committed to submitting an efficiently costed plan and have performed external benchmarking where our costs can be fairly compared to other companies.

This annex describes the salary benchmarking, tender and market processes we operate as business-as-usual. We also summarise results from external benchmarking through consultant assessment of our IT plan, our Asset Management Plan costing process and support functions size and cost base. All external reports validated our cost base being in line with market expectations. Furthermore, our plan includes cyber and non-load projects already assessed by Ofgem through RIIO-T2 re-opener submissions.

The Real Price Effect framework is crucial in protecting interests of customers and networks and faced a strong test in the RIIO-T2 period. Our plan highlights the need to maintain this regulatory mechanism whilst suggesting the further improvements to scoping and forecasting to improve cost reflectivity.

NGT's RIIO-GT3 business plan delivers the outcomes identified through stakeholder engagement, is tested through deliverability assessment and benchmarking and builds in ambition through a 8% efficiency target.

2. Introduction

2.1 Purpose and Structure

As part of our RIIO-GT3 Business Plan submission, a Cost Assessment and Benchmarking Approach Annex has been requested by Ofgem. This document fulfils that request and details our investment and expenditure plans for the 5-year RIIO-GT3 period.

The way we explain and categorise our forecast expenditure is dependent on the framework being applied. For example, the regulatory definitions of spend differ from operational activity terminology and from statutory account categories. Within this annex we present the regulatory classifications of spend as defined in the Business Plan Data Table Guidance and reported to Ofgem in the Business Plan Data Tables (BPDTs).

Regulatory expenditure can also be classified in other ways, such as the method of funding. Much of this annex focuses on totex. Totex consists of all expenditure relating to a licensee's regulated activities with certain defined and limited exceptions and represents 70% of our RIIO-GT3 baseline plan. Regulatory totex cost categories within this annex are aggregated or disaggregated dependent on nature of cost, cost driver, business unit or cost assessment and benchmarking approach. These groupings are aligned to where there is commonality across categories to enable similar costs and drivers to be discussed and assessed together.

Later sections of the annex include our projections of non-totex spend. This includes:

- Costs which are funded by mechanisms outside of the Totex Incentive Mechanism (Section 13.1);
- Non-controllable costs which are typically passed directly through to customers such as business rates and licence fees (Section 13.2); and
- Investment in activities outside of the RIIO framework (Chapter 14).

2.2 Assumptions

RIIO-GT3 network plans are aligned to prescribed assumptions and presentation requirements as set out by the regulator. This ensures consistency across energy sector submissions and enables direct comparison of expenditure levels.

The expenditure we present in our narrative documents and data tables is therefore based on:

- The RIIO-3 Business Plan Guidance issued by Ofgem sets out the requirement that "All companies should develop their Final Business Plans (to be submitted in December 2024) using the FES 2024 Holistic Transition pathway"¹. The Guidance provide further sector specific guidance that gas companies may use alternative data values to those in the FES 2024 Holistic Transition pathway for the purpose of RIIO-3 business planning if the necessity and appropriateness of the alternative value can be justified². The guidance further specifies the "macro approach" proposed by NGT and agreed by Ofgem³. Each key macro area and key zones (Scotland, South East and South Wales) is assessed based on FES 2024 data, whilst the underlying data in the probabilistic model will use FES 2023 data with adjustments to account for compliance obligations to meet 1-in-20 peak demand.
- Our December business plan submission will be supplemented by an update to the probabilistic modelling on the basis of the FES 2024 Holistic Transition pathway and FES 2024 counterfactual to be submitted to Ofgem by 31 March 2025 through resubmission of BPDT 11.1b FES – March Submission.

¹ RIIO-3 Business Plan Guidance, Ofgem, 30 September 2024, para 4.4

² RIIO-3 Business Plan Guidance, Ofgem, 30 September 2024, para 4.6

³ RIIO-3 Business Plan Guidance, Ofgem, 30 September 2024, paras 4.11 – 4.13

- Expenditure included in the baseline plan line is the spend we consider necessary to be funded through ex-ante allowances. This expenditure may be adjusted through the RIIO-GT3 price control period through Uncertainty Mechanisms such as re-opener, volume drivers and Use It Or Lose It funding. Where directed by the RIIO-GT3 Gas Transmission Price Control – BPDT Guidance, our current forecast of the expenditure falling under re-opener Uncertainty Mechanisms is included in the appropriate BPDT.
- Values are stated in real prices. Expenditure presented in our plan narrative and BPDTs is stated in today's prices (2023/24 price base) and excludes the impact of inflation.
- Values included in this document are rounded to the nearest million unless stated otherwise. As such the total presented in the tables within this annex may not match the sum of individual rows or columns due to rounding to the nearest million.
- Values included in this document relate to our baseline plan, unless otherwise stated. Where applicable, we have used our best view plan to explain drivers of activities and cost, this is relevant where use of the uncertainty mechanisms framework is proposed.

2.3 Overview of our RIIO-GT3 business plan

NGT has a unique role in delivering the energy transition

In developing our business plan, we are required to meet legal obligations, regulatory requirements, environmental targets and to incorporate feedback from stakeholder engagement. We have deliberately constructed and aligned our business plan to the four Ofgem regulatory outcomes. These outcomes, consumer priorities and our own strategic priorities drive everything that we do. Delivery against these priorities has been embedded in our plan through 12 regulatory commitments which set out delivery objectives for our consumers. The commitments individually map through to the four Ofgem regulatory priorities (NGT_Main_Business_Plan_RIIO_GT3). The activities and costs which enable us to deliver against these commitments are dispersed across our business plan.

This document discusses business plan costs in their regulatory categories as presented in the BPDTs. The commitments can also be mapped across these regulatory cost categories as illustrated in Table 2.1. A tick mark denotes alignment of a commitment to a regulatory cost category. As many cost categories can support a single commitment, the major contributing cost categories are shown.

Commitment	Load related capex	Non-load related capex	Non-op capex – IT	Non-op capex - excluding IT	Resilience totex	TO – Network operating costs	SO – Network operating costs	Closely associated indirects	Business support costs	Innovation
Meeting our critical obligations every hour of every day	✓	✓					✓		✓	
Ensuring world class safety levels for our workforce and the public	✓	✓	✓					✓		
Delivering a resilient network fit for the future	✓	✓		✓		✓		✓		
Ensuring our network is resilient to climate change		✓								
Keeping our critical systems secure					✓					
Transforming our activities through IT and data			✓	✓		✓		✓		
Leading the energy transitions to Clean Power and Net Zero		✓								
Caring for our environment and communities									✓	
Investing in our people and capability for the future								✓		
Drive relentless performance and service							✓			✓
Operating the system safely, reliably and efficiently							✓			
Innovating now and for future generations							✓			✓

Table 2.1 : Mapping our commitments to regulatory cost categories

Our business plan is designed to meet the challenges faced in RIIO-GT3

In our RIIO-T2 business plan, we focused our plan on delivering stakeholder priorities of maintaining a safe and resilient network that is environmentally sustainable and meets the needs of consumers and network users. In RIIO-T2 we will spend £3.2bn (23/24 price base) delivering this plan.

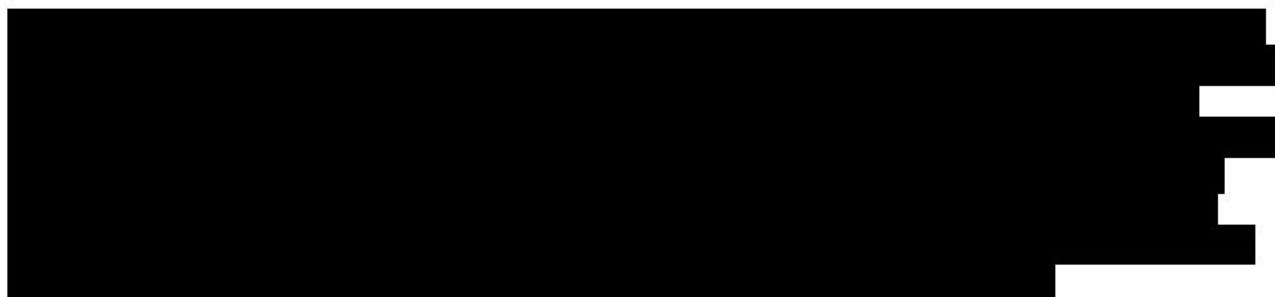
Our totex baseline spend forecast in RIIO-GT3 is £4.0bn. A future £0.4bn totex requires decision under RIIO-T2 uncertainty mechanisms and £0.9bn is included under an uncertainty mechanism in RIIO-GT3 (Table 2.2). Our RIIO-GT3 business plan builds on what we have delivered in RIIO-T2, incorporating more stretching targets to deliver our commitments, and ensuring we deliver the energy needs for society today and tomorrow within a safe and resilient network.

£m 23/24 price base	FY27	FY28	FY29	FY30	FY31	GT3 Total	GT2 Total	GT3 Annual Average	GT2 Annual Average
Baseline	801	830	861	763	732	3,987	3,221	797	644
Uncertainty Mechanism (UM)	321	357	335	164	135	1,313	0	263	0
Best View plan	1,121	1,187	1,197	927	867	5,300	3,221	1,060	644

Table 2.2 : Comparing our RIIO-GT3 business plan to our RIIO-T2 forecast expenditure

Our plan is broken down into four main operational categories: our Asset Management Plan, cyber strategy, IT investment plan and the supporting operational expenditure.

Our **Asset Management Plan (AMP)** forms £1.5bn (37%) of our baseline plan. The AMP is a long-term optimised plan to manage network risk and performance, aligned to our business priorities and asset management strategies. The AMP is continually updated to adapt to the evolving energy landscape and changing asset risk and performance. More information can be found in NGT_A1_Asset Management Plan (AMP)_RIIO_GT3.



Our **IT investment plan** (10% of baseline plan) is led by the need to maintain or improve business capabilities. Our IT investments are informed and driven by the business, regulatory and stakeholder priorities which define the outcomes (“why do it”) and complemented by the triggers for change (“why do it in the coming period”). To make the drivers easier to understand, we have used three overarching categories which reflect the level of change:

- Keep our systems healthy, secure and compliant – keep Britain’s gas network running safely and securely;
- Deliver Outcomes – enabling enhanced capabilities which deliver key business outcomes;
- Deliver innovation — transformation of a capability driven by new external requirements or new technology opportunities.

Further detail on our IT strategy and plan can be found in our NGT_A11_IT and Telecoms Strategy_RIIO-GT3 annex.

Operational expenditure (34% of baseline plan) is integral to the running of our business. Operational activities such as maintenance and fixing faults ensures that the network operates in the way our customers would expect and that gas flows to where it is needed. Business support teams (such as finance and HR) focus on delivering efficient management and administrative activities to support our operational activities and an increasing capital program.

Our RIIO-GT3 capital program is 30% more than in RIIO-T2 with operational expenditure and FTEs increasing to support this larger workload. We are also committed to ensuring effective maintenance and HSE policies. For example, RIIO-GT3 will include changes to maintenance strategy, including alignment to international

standards and new scrub clearance procedures. We are planning the introduction of new training centres to build and maintain our highly skilled workforce and future proof against skill shortages due to retirement and a competitive market.

Figure 2.3 summarises the variances between RIIO-GT3 and RIIO-T2 expenditure setting out the key drivers in each business area.

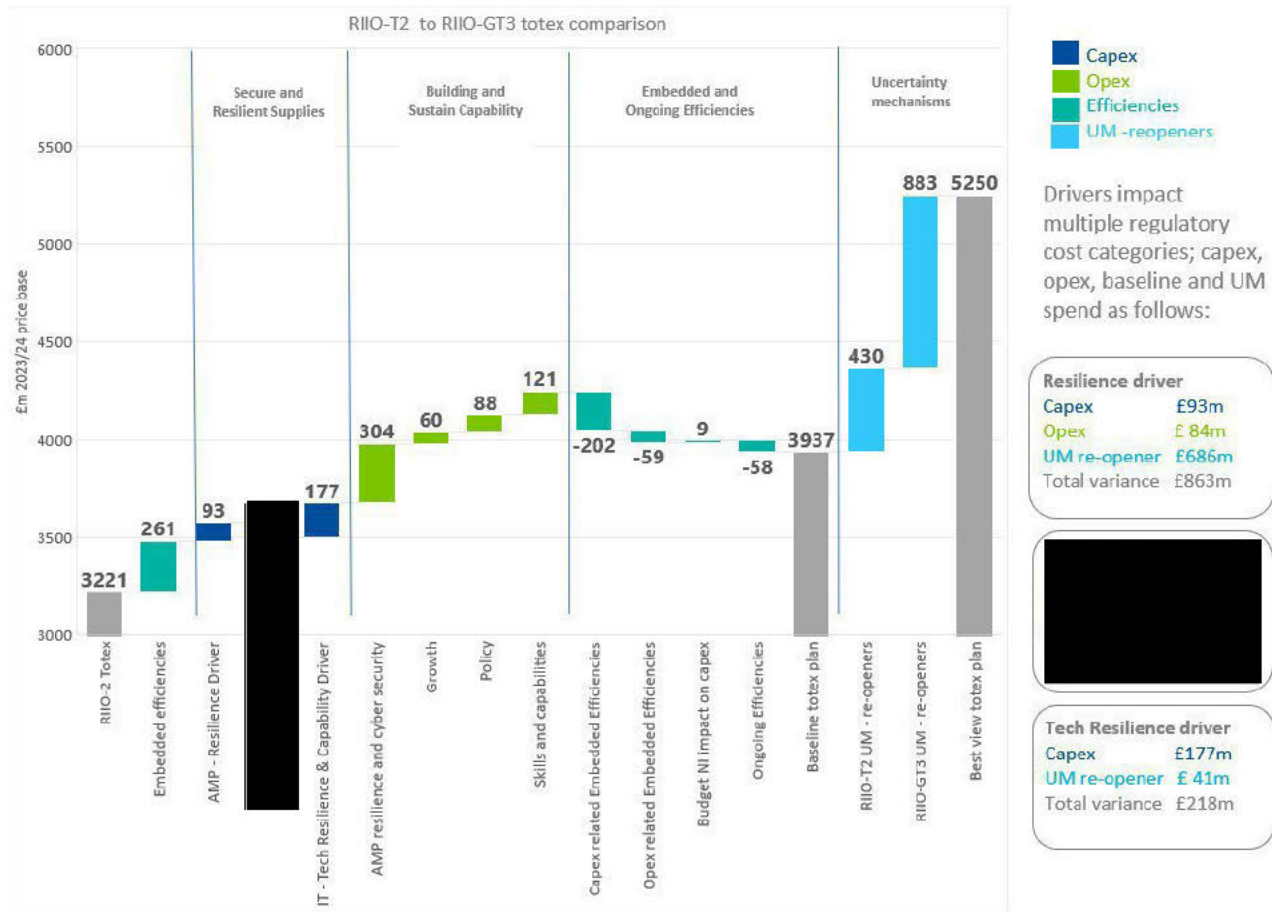


Figure 2.3 : Comparison of RIIO-GT3 and RIIO-T2 by key driver

3. Cost Assessment and Benchmarking

3.1 Building our business plan

We will learn from and build on our successes in RIIO-T2

We have a strong track record in delivering our business plans. Our performance remains on track to deliver our regulatory outputs for RIIO-T2. We forecast £2,489m (18/19 prices) of investment against an allowance of £2,528m (18/19 prices) through the 2024 regulatory reporting process and continue to prioritise investment that delivers best value and removes risk on the network. We have also sought to agree additional allowances through Uncertainty Mechanisms where optioneering has concluded and preferred solutions have become known.

We have facilitated the delivery of 100% of network reliability gas requirements for customers by ensuring that our regulatory commitments to industries and Gas Distribution Networks have been fulfilled. We have also performed well against the three consumer priorities:

- maintaining a safe and reliable network (e.g., RIIO-T2 forecast to meet PCD targets);
- meeting the needs of consumer and network users' (e.g., through continually exceeding performance target for customer and stakeholder satisfaction); and
- delivering an environmentally sustainable network (e.g., through performance in venting and shrinkage)

Our delivery in RIIO-T2 started slower than anticipated, partly due to low regulatory confidence (i.e. weak investment signals) in our business plan, leading to limited preparatory works. Delivery was further impacted by the unforeseen global events, including the aftermath of the COVID pandemic and Russia's invasion of Ukraine. This created volatility in the gas market, necessitating a focus on energy security both for Britain and our European neighbours, and disruption to our supply chains with increased lead times on critical materials and equipment. We therefore took steps to rephase our delivery programme, recognising that this would result in an increase in activity during the final years of RIIO-T2.

Our RIIO-GT3 plan builds on lessons learnt during RIIO-T2. We have taken the opportunity to prepare for the increased investment proposed for our plan (e.g. ordering long lead items now reducing the risk of undue delays to the start of project delivery.) We are enhancing our ways of working and improving accountability and flexibility by putting decision making into the areas where work is taking place. We have also brought forward targeted surveys to improve the confidence in our plan, the information from these surveys has helped us to improve outage scheduling, bundling opportunities, cost forecasts and procurement strategies.

We are committed to delivering a robust and ambitious plan

Our business plan is built on a bottom-up basis using the most robust and reliable information available for each cost category. Where work is repeatable or activities are directly comparable, we base our costs on historical outturn and estimated cost at completion values with direct linkage to our most recent performance. Where there has been a change in delivery approach or we are engaged in a new activity, our costs are built up using alternative methods such as tenders. When building the business plan we ensure the methods of costing are consistent, coherent and cohesive. Throughout our plan we consider different options and alternatives and where relevant these are included in our Cost Benefit Analysis and Engineering Justification Paper submissions.

Lessons learnt from RIIO-T2 have enhanced our business plan submission, we have better cost data to inform future costs and our data confidence standard (Section 3.3) has been discussed with Ofgem and used to assess confidence in our capex plan. External benchmarking has been undertaken where possible and where not possible, alternative cost assessment methods have been deployed. We have tested our plan

through several challenge and review iterations, each time ensuring that the plan is logical, consistent across all business functions and its interdependencies fully understood. Our executive team is fully embedded in this process, ensuring deliverability and alignment with strategic objectives.

Our cost assessment and benchmarking activities have been designed to test our plan and ensure it is robust, appropriate and delivers the value for our consumers. We have also tested our plan to ensure that it is affordable and can be financed, by a combination of debt and equity, as efficiently as possible by meeting investor expectations (NGT_A09_Finance Annex_RIIO_GT3).

Our plan embeds stretching and realistic efficiency targets

We are targeting an overall totex efficiency of 8.0% across the RIIO-GT3 period.

Table 3.1 summarises efficiencies embedded within our submission as a result of our actions to reduce cost and drive better performance. These embedded efficiencies result in our RIIO-GT3 totex base being £261m (6.5%) lower than they would otherwise have been. We have proposed a further ongoing efficiency saving of £58m (1.5%) of totex, as discussed in Section 15.2, reinforcing our commitment to delivering a stretching plan.

Operational Category	High level description	RIIO-GT3 benefit (£m)	Reference within this annex / submission references
Asset Management Plan	Operations delivery model <ul style="list-style-type: none"> Unit cost efficiencies of ~16% Alternative solutions e.g. double block and bleed 	146	Chapter 6
	More capex delivered per FTE <ul style="list-style-type: none"> Copperleaf impact New taxonomy Bundling of similar works 	32	Chapter 6
IT Projects	Investment in improved solutions <ul style="list-style-type: none"> Modernisation of Finance systems 	2	Section 8.1
Operational expenditure	CAI cost improvements	3	Section 11.1
	SO Gemini	10	Section 10
	Vehicle and transport strategy <ul style="list-style-type: none"> Earlier replacement reducing maintenance costs 	5	Section 11.5
	HR strategy <ul style="list-style-type: none"> Increase in managed vacancies per FTE Investment in leadership and development courses reducing attrition rate 	5	Section 12.2 NGT_A13_Workforce and Supply Chain Resilience Strategy_RIIO_GT3
	Improvements in procurement systems and flexible workforce	2	Section 12.2
Total		261	

Table 3.1 : Summary of the efficiencies embedded within our plan

3.2 Cost assessment

Our business plan is developed using a bottom-up forecast approach for scope, volume and input costs. The availability of this information varies according to cost type and activity. Intervention activities on our network involve a wide range of activities, from repeatable, standard jobs with low levels of differentiating factors, through to those that are more bespoke with standard unit costs being less applicable.

The remainder of this Cost Assessment section focuses on the unit cost methodology and cost confidence assessment applied to the asset health element of the business plan. For costs not part of the unit cost methodology, the basis of the activities and cost are detailed within the relevant sections of this annex.

Overview of unit cost methodology

We continually test and hone our unit costs to improve our abilities as an Asset Manager and deliver efficiencies to consumers. As such, our unit costs figures are subject to refinement and we have engaged with Ofgem, sharing working calculations early in and throughout the business plan process to support a transparent and constructive view of our plan. In developing our RIIO-GT3 business plan, we have applied the same methodologies as adopted in our RIIO-T2 Uncertainty Mechanism submissions, which have been assessed and scrutinised by Ofgem through the current price control period.

In developing our RIIO-GT3 capital schemes, we forecast costs at an early stage using assumptions on scope and work mix (work mix is the anticipated blend of activities required to deliver the work, such as deep versus shallow excavation and minor refurbishment versus complete replacement of an asset). As a capital scheme progresses through the investment process, we are able to verify these assumptions (volume, work mix and cost) through detailed survey and design work, which feeds into the tender process appropriate for the selected procurement strategy. As such, all our delivered programme costs are market tested prior to committing to work.

We articulate the cost of intervention on “standard units” of assets and are building insight as we deliver programmes built up in the language of these standard units. Through this approach we are constantly improving our ability to estimate costs prior to completion of survey or design work. At the start of RIIO-T2, we implemented new processes using the ISO14224 standard to define asset hierarchy. This is used to capture outturn cost of completed works and forecast costs of work-in-progress to a higher level of granularity and accuracy in a standard and comparable way. This approach enables us to interrogate costs and identify reasons for anomalies and outliers leading to better forecasting and more informed cost analysis. As a result, our cost forecast in our RIIO-GT3 plan is far better than we have ever been able to complete in the past.

Regardless of where an asset health activity sits across the spectrum from repeatable, standard works to bespoke interventions, we have employed a hierarchical approach to forecasting unit costs (consistent with re-opener guidance published by Ofgem in February 2023 stating historical outturn for similar projects should be used). Most value is placed on historical outturn and estimated cost at completion of works-in-progress as the strongest indicator of future unit costs. Where such costs are not available, we have used the next set of strongest indicators which consists of combinations of supplier quotations or estimation techniques.

To determine the level of accuracy we have in our cost proposals, we consider the type and quality of cost data available, the quantity of data points captured and the scope similarity of these historical data points against our RIIO-GT3 investment programme:

- Cost accuracies of +/-10% are determined when historical outturn costs are predominantly used and where the scope of these historical data points directly align to the investments proposed. When these are not available, we have used estimated cost at completion or tendered rates. This generates a good level of cost forecast accuracy.

- Cost accuracies of +/- 30% are defined where there is a limited number of historical data points that directly align to the investment proposed. We have therefore used a balanced mix of assumptions and real data, applying a mix of tendered rates, supplier quotes and first principles to derive costs. Historical complexities have been provisioned and outliers identified with suitable adjustments made. This generates a moderate level of cost forecast accuracy.
- Cost accuracies +/- 50% are defined where there are limited sources of credible data and many assumptions have been applied to derive cost. This generates a low level of cost forecast accuracy.

Through the development of the Asset Management Plan (AMP) interventions are compared to our RIIO-T2 Unique Identifiers (UIDs) and split into one of 3 categories:

- **Comparable scope to RIIO-T2 Intervention**
Interventions in the plan directly align to an existing RIIO-T2 UID
- **New Bespoke Intervention**
An intervention that cannot be mapped to a RIIO-T2 UID and is a single 'one off' bespoke activity.
- **New Repeatable Intervention**
An intervention that cannot be mapped to a RIIO-T2 UID and is a 'repeatable' activity.

For interventions that are comparable to RIIO-T2 interventions, historical data points are assessed including outturn costs, estimated cost at completion and tendered prices. For new interventions, costs are developed through our in-house estimating teams, using first principles estimation (bottom-up estimation). This process is illustrated in Figure 3.2.

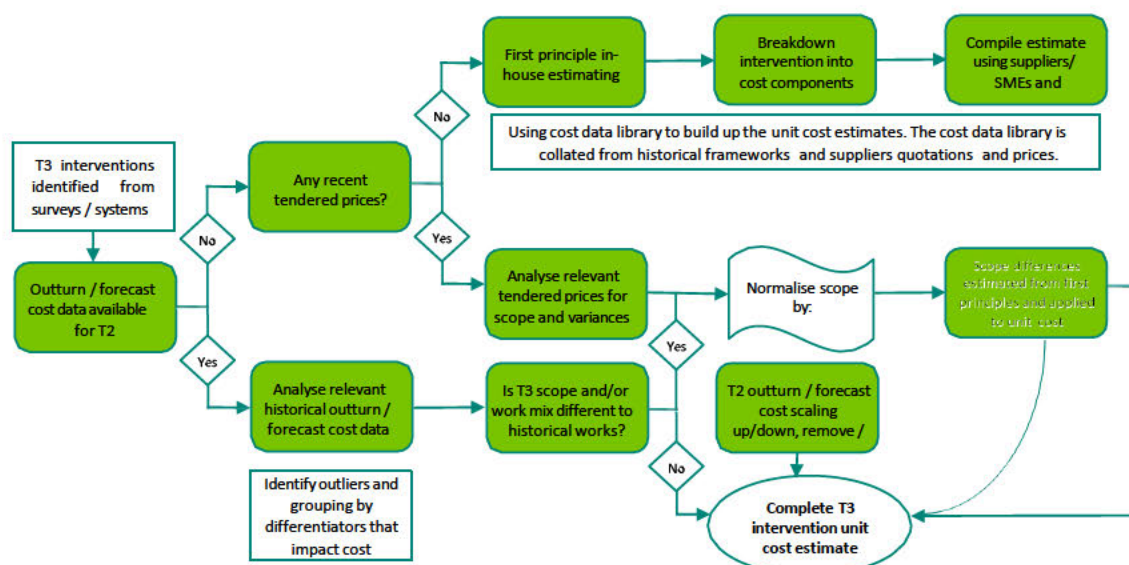


Figure 3.2 : A schematic of our cost estimation process

Where available, outturn costs are used to inform the unit cost of an intervention. For bespoke interventions, the availability of representative cost information is more challenging given the specific scope of activities. This usually results in a low number of directly relevant external reference points being available due to limited levels of historical asset interventions. In these cases, we have performed bottom-up estimates using a standard set of principles and utilising robust and reliable information.

Figure 3.3 shows the proportion of each estimating methodology across unique intervention categories within the AMP.

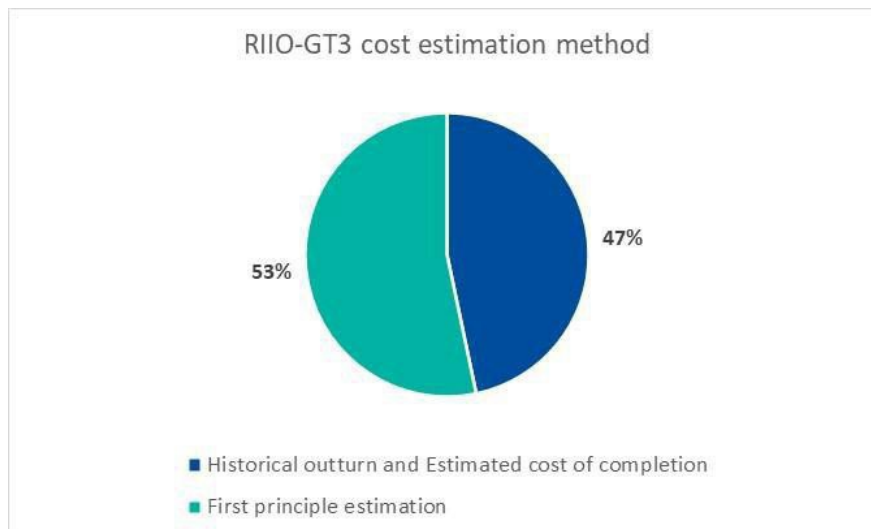


Figure 3.3 : Percentage of baseline plan costed by Historical Outturn/ Estimated cost at completion and first principle estimation methods.

Comparable scope to RIIO-T2 Intervention

Where RIIO-GT3 interventions can be mapped to interventions and activities in RIIO-T2, cost data from completed works and works-in-progress in 2021/22 to 2023/24 has been used to develop unit cost forecasts.

Since the start of RIIO-T2, a new internal process has been in place to capture actual cost data using ISO14224 asset hierarchy at asset and intervention levels. The Unit Cost Schedule (UCS) was introduced as a contractual requirement for all NGT suppliers and internal delivery teams. The UCS is an excel template embedded in the supplier activity schedule, mapping actual costs as collated on site into asset intervenable units with associated cost differentiators. It is completed by the supplier or contractor and NGT's management team according to a guidance document to ensure consistency of approach enabling interrogation of costs for similar interventions on different sites or assets.

Information for each intervention is grouped from all UCSs and analysed using a principle-based approach according to internal standard operating procedures. Cost information is grouped by maintainable items (item that constitutes a part, or an assembly of parts, that is normally the lowest level in the equipment hierarchy during maintenance), interventions and cost differentiators. Only differentiators that have a considerable impact on the cost differential are considered alongside any additional qualitative information, such as site-specific activities and factors that may have impact on cost variations.

Any anomalies identified are investigated. Erroneous outliers and costs unique to a particular site and unlikely to be encountered again are discounted from the data set. Cost outliers likely to be encountered again in future remain with unit cost analysis.

The scope and complexities of RIIO-T2 and RIIO-GT3 interventions are compared and normalised by considering the costs associated with factors such as volume/size, engineering difficulties, location, access, complexities and asset condition. Costs are then adjusted by the difference in scope normalisation.

For RIIO-GT3 interventions that so far have no associated historical works completed or in progress in RIIO-T2 but are included in an investment that is tendered or contracted, tendered/contracted prices are used to develop the unit cost for RIIO-GT3. The same methodology as using outturn/forecast cost data is adopted using the UCS process but using tendered/contracted prices instead of actual and forecasted costs.

First principles estimation methodology

New interventions whether bespoke or repeatable have no associated historical works completed, in progress or planned in RIIO-T2. Therefore, methodologies using outturn, forecasted data and tendered/contracted prices are not applicable. For such interventions a first principles estimation approach is used, based on tried, tested and robust processes.

In a standard project development cycle, these interventions would be classified as at the concept stage, with high level description based on surveys and studies with varying level of detail in accordance with our estimating quality standards. Where gaps in the scope are found, assumptions are made, and estimates produced based on these assumptions.

We use a standard process to develop an estimate for a unit cost based on the initial scope. The scope is expanded and tested utilising subject matter experts, engineers and project managers. The scope is then broken down into sub activities focusing on cost drivers.

Materials for each subcategory are identified from boundary diagrams and detailed drawings where available. Due to scope development being in the early stages, where required, assumptions are made based on experience and knowledge for any gaps identified in the scope or measure. Labour and plant resources are allocated to each sub activity based on the expected duration to complete the works. Any efficiencies are accounted for when calculating the resource cost associated with the scope.

Labour, materials and plant rates used in the development of the estimate are sourced from our internal cost database. The cost data is collated from framework agreements, recent tenders, recognised industry publications and supplier quotations. The rates most relevant to each sub activity are used in the estimate.

The cost estimates for the sub activities are compiled and indirect costs such as project management, design, development and overheads for both the contractor and NGT are applied to the direct costs. Indirect costs are estimated using the most appropriate observable information such as historical outturn for overhead rates and supplier framework agreements for contractor and sub-contractor fees.

Figures 3.4 and 3.5 illustrate our internal cost database which has been developed throughout RIIO-T2 to store information on materials, labour, plant and overheads from delivered projects, tenders and supplier quotations. The database collects and stores information and adds data points as more work is delivered and tendered, which provides an accessible and reliable source to estimates works.

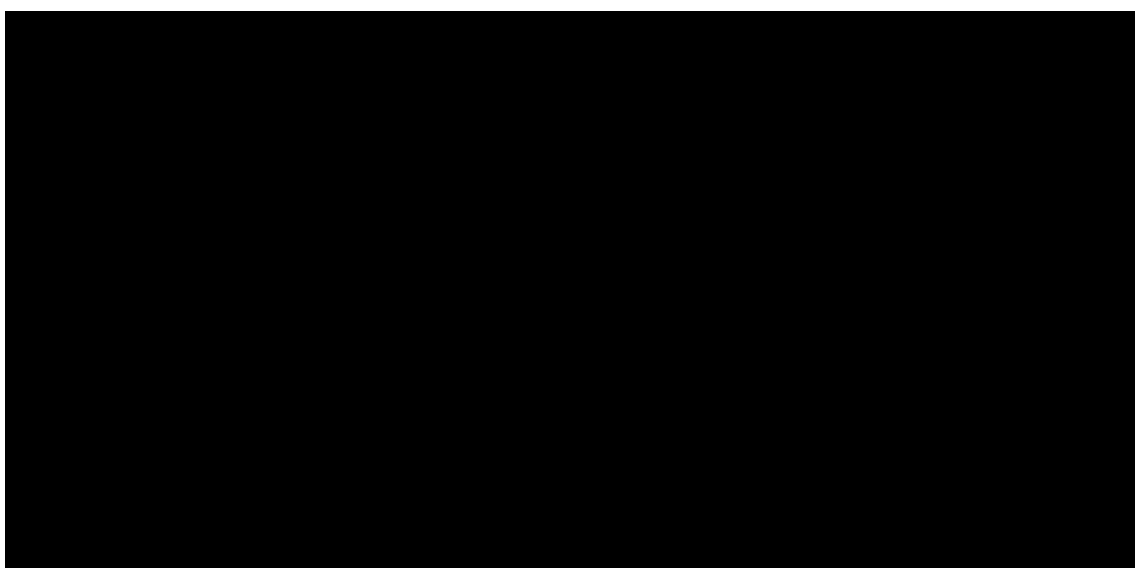


Figure 3.4 : An example of materials data within our internal cost database

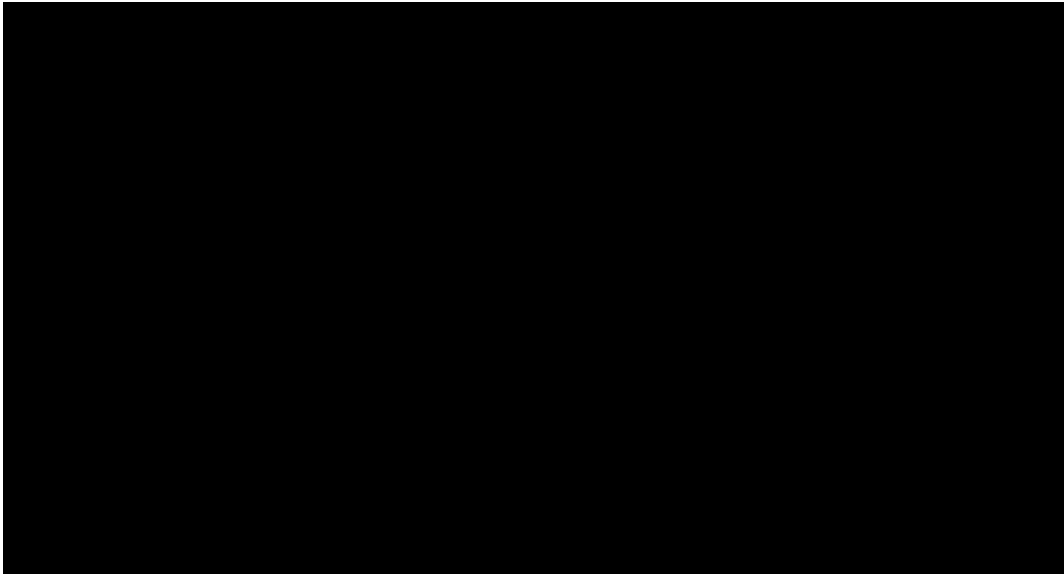


Figure 3.5 : An example of labour data within our internal cost database

As these interventions are in the early stages of development, prior to reaching the delivery stages, more extensive surveys, site investigations and detailed designs are undertaken. The outcome of such activities may uncover additional scope or site-specific complexities such as access to the assets. For this reason, where appropriate, contingency has been applied to the unit cost estimates, in accordance with our internal Risk Quality Standard.

All contingencies are derived in accordance with our risk management process. If more detailed surveys have been carried out, the contingency value or percentage is the output from our risk and opportunity registers. The risk register is developed through a series of workshops with relevant team members including but not limited to, subject matter experts, estimators, development engineer, design engineer, health and safety officer and environmental officer.

Approach to risk and contingency

Our cost estimating approach aligns to Ofgem's expectations of best practise by following Infrastructure Planning Authority (IPA) cost estimating guidance. Our approach to contingency depends on how advanced the scope of work is and the level of detail available. We determine whether application of the full risk management process, inclusive of workshops and detailed risk register, is justifiable and beneficial.

When using outturn or forecast cost data for completed works and works-in-progress in RIIO-GT2 and where detailed surveys and some conceptual design is available, a high-level portfolio risk register including probabilities and cost of impact is developed through risk workshops. The risk register may include, when known, specific intervention risk and opportunities. The output of the risk register is a contingency percentage applied to interventions within the portfolio, if relevant.

When estimating on a first-principles basis where scope details are more uncertain, a simplified approach is adopted. We undertake a risk scoring methodology whereby the factors of criticality, complexity and cost are scored resulting in an overall risk classification of low, medium, and high. Project criticality is based on the number of dependencies, internal and external stakeholders and delivery of time-critical business benefits. Complexity scoring is assessed against level of instability in scope, assumptions, resource availability and HSE (health, safety and environment) implications. Risk associated with cost is based on overall size of cost for each intervention. The three factor scores are combined to achieve an overall risk score and a resulting risk percentage applied to the intervention. The risk rating is reviewed and assessed as part of the estimation assurance process.

3.3 Cost assurance process

We have developed a Data Confidence Standard to assess the level of confidence associated with the costs submitted in our plan. This standard applies to scope, volume, and cost (SVC) with defined criteria for high, medium, and low confidence.

Our RIIO-GT3 Asset Management Plan (AMP) has been assured under our SVC Data Confidence Standard. The SVC Data Confidence Standard was developed in line with the re-opener guidance published by Ofgem in February 2023. The scope and volumes are extensively covered within the submitted EJPs (NGT_EJP01-NGT_EJP032), while cost is covered within this annex. All RIIO-GT3 interventions have been assessed against the standard and categorised as either low, medium or high. Aggregate SVC confidence ratings have helped to inform the type of funding mechanisms proposed within our business plan. Figure 3.6 is an extract from the cost section of the SVC and demonstrates the level of detail underpinning the classification of low, medium and high cost confidence.

Low	Medium	High
1	2	3
Methodology for intervention cost derivation does not have transparent formulae.	Methodology for intervention cost derivation has transparent formulae.	Formalised methodology demonstrates intervention costs have been derived in a way that can be easily replicated, including the use of transparent formulae.
Not derived using EAC or tendered rates.	Mix of tendered rates/ supplier quotes / first principles used to derive costs, may include new component activities with unknown costs.	Historical outturn costs are predominantly used, where not achievable, then EAC and/or tendered rates must be used and be transparent in the unit cost derivation.
Many assumptions applied to derive cost.	Limited data points supporting cost derivation.	A unit cost is built up from first principles using known rates / activities.
Gaps in trace to source data.	A balanced mix of assumptions and real data used.	Robust justification in support of the volume of data points used.
Price base of data used not documented.	Trace to source data exists, not all datasets held on central databases.	Assumptions applied to intervention cost data are logical and supported by a well-documented rationale.
Sensitivity analysis has not been performed.	For uncertainties, sensitivity analysis has been performed and accompanying rationale produced.	A fully auditable trace to source data is documented and available.
Complexities of interventions not fully understood (assumptions unsubstantiated in the absence of relevant data).	Historical complexities have been provisioned and outliers identified with suitable adjustments made; with accompanying rationale.	The application of any price base adjustments, RPEs and other inflationary factors detailed.
Few intervention options considered (where other viable options exist), reducing ability to demonstrate efficient levels of cost.	Moderate level of optioneering performed, demonstrating that the optimal solution delivers efficient levels of cost; some innovative techniques considered.	Few uncertainties exist in cost derivation, where they do exist, sensitivity analysis has been performed and accompanying rationale produced.
No innovations have been factored into solution.	Outturn and forecast costs can be reconciled to the cost evidence submitted in the relevant price base.	Any complexities and outliers identified within historical data has been identified and suitable adjustments made with accompanying rationale.
Limited reconciliation to the cost evidence submitted in the relevant price base.	Where cost information does not exist, demonstrate we have performed appropriate levels of due diligence.	Extensive optioneering performed demonstrating that the optimal solution delivers efficient levels of cost.
	Supported by an external validation/ benchmarking.	Supported by an external validation/ benchmarking.
		Innovative solutions applied and efficiencies baked in.
		Outturn and forecast costs can be reconciled to the cost evidence submitted in the relevant price base.

Figure 3.6 : An extract from the SVC and demonstrating the confidence classification of cost data

Figure 3.7 illustrates the proportion of baseline AMP characterised as high, medium and low cost confidence. We have 85% of interventions in the high cost confidence category and only 5% in low cost confidence. Low cost confidence interventions are of low value and low volume which wouldn't have an efficient means of funding if not included in the baseline business plan. Overall SVC ratings take into account scope (which cannot be low in an instance of low cost confidence) and volume and therefore will differ from the cost confidence rating included in Figure 3.7.

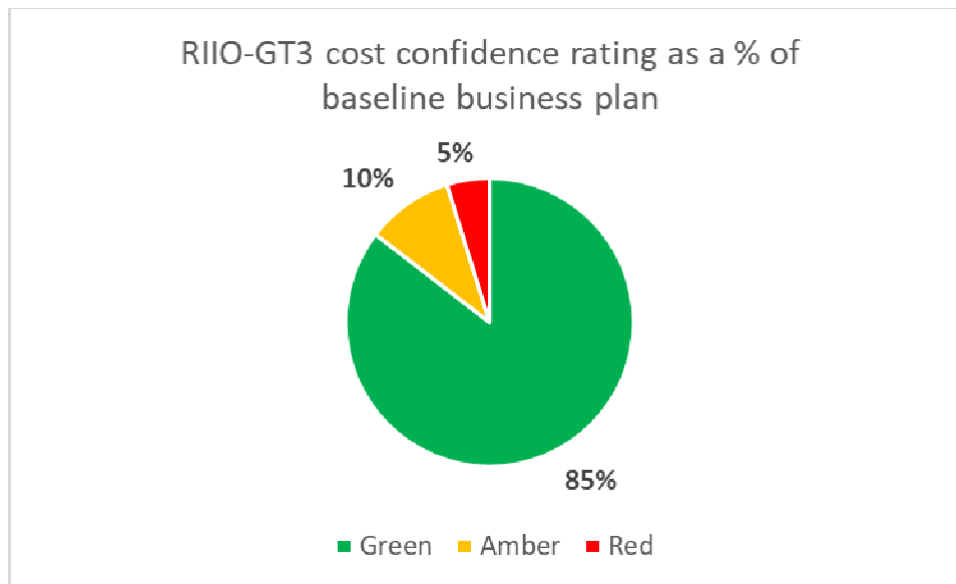


Figure 3.7 : Cost confidence profile of the AMP

After initial estimation and application of the SVC, we have focused on the low and medium confidence interventions with material impact on the value of the AMP in RIIO-GT3. These interventions are grouped into themes and reviewed in regard to the overall cost confidence. Where considered beneficial, further benchmarking is obtained by either bottom-up estimation or supplier quotes.

We undertake a governance and assurance process as part of our cost assessment of the AMP which involves assurance and sign off through multiple levels to test the accuracy and robustness of the unit costs.

3.4 Benchmarking approach

NGT represents a unique entity within the UK. As the sole UK Gas Transmission Owner (TO) and Gas System Operator (SO) of the UK there is no direct comparator from a geographical, network or regulatory perspective against which we can benchmark our cost base. However, a direct comparator is not always required where our cost base can be fairly compared to that of other companies. We are committed to undertaking this external comparison as a first choice methodology. Where external benchmarking proves inappropriate or not possible, we have deployed other methodologies to challenge the RIIO-GT3 business plan, ensure the efficiency of costs and so deliver value for our stakeholders:

- External Assessment**
 We have appointed external consultants to perform benchmarking of our SVC standard and associated methodology and practices. Positive feedback on the methodology used to build our unit cost base for the AMP supports cost confidence in our plan.
- External Benchmarking**
 We have appointed consultancy firms to perform external benchmarking through assessment of our cost

base and size of function to assess alignment with industry standards and best practice. Due to the nature of our costs and operating in a sector of one, external benchmarking can be challenging. However, we are committed to benchmarking where our costs can be fairly compared to other companies. The results of this benchmarking are summarised in the relevant section of this annex.

- **Salary Benchmarking**

Our salary costs are externally benchmarked on an individual job role basis against a market reference point. This is applicable across all business areas and is covered in more detail later in this section.

- **Historical Outturn Cost**

Outturn cost is the cost at which we have previously delivered a particular service. Throughout our business plan, for both capital works and operational expenditure, we have used outturn cost for the starting point as the basis to what we can expect to incur in the future. For capital works where we have forecast unit costs based on outturn data, associated with completed and in progress works in RIIO-T2, the unit costs are naturally internally benchmarked against actual costs.

- **First principles estimation**

This methodology utilises elements of costs which are based on outturn, tenders, supplier quotations and framework agreements and therefore proportions of these costs are internally benchmarked against market rates and previous experience.

- **Tendering**

We have sought to obtain tenders and supplier quotations to enhance robustness of costs where applicable, effectively market testing the unit costs via prices obtained by third party vendors.

- **Trend analysis**

We have undertaken trend analysis to demonstrate how costs move with key drivers. This has been used as supplementary analysis to evidence the costs are in line with expectations versus key cost drivers.

- **Scope, Volume and Cost data confidence standard (SVC)**

The SVC is an internally developed framework that ensures all our investment proposals within our Asset Management Plan (AMP) are well evidenced, based upon robust good-quality data and can withstand high levels of external scrutiny. The standard is used to assess confidence in the data used to build our business plan. Within the build of unit costs historical outturn, tendering and salary benchmarking are used to build robust unit costs. We have followed SVC principles when building our plan for IT, FTEs and Other Materials Goods and Services.

Table 3.8 shows the benchmarking and cost assessment of our baseline plan⁴ undertaken across each regulatory cost category; each assessment method may cover a proportion rather than the total category.

⁴ Our best view of RIIO-GT3 expenditure is £5.3bn; a total of our baseline plan and forecast of spend under uncertainty mechanisms.

Regulatory Cost Category	Baseline business plan (£m)	External assessment and benchmarking	Salary benchmarking	Historical outturn	Tenders	Trend analysis	SVC Standard	Cost annex reference
Load related and non-load related capex	1,328	✓	✓	✓			✓	Chapters 5 and 6
Resilience capex	402	✓	✓	✓			✓	Chapter 7
IT & Telecoms capex	413	✓	✓	✓				Section 8.1
Non-operational capex – Vehicles	15			✓	✓	✓		Section 8.3
Non-operational capex – STEPM	48			✓		✓		Section 8.4
Non-operational capex – Net zero	10	✓	✓	✓	✓			Section 8.5
TO Network operating costs – Faults / Planning inspection and maintenance	214		✓	✓	✓			Section 9.1
TO Network operating costs – Operational property	52			✓	✓			Section 9.2
SO Network operating costs	178	✓	✓	✓				Chapter 10
Closely associated indirects - IT & Telecoms	68	✓	✓	✓				Section 11.3
Closely associated indirects – excluding IT & Telecoms	304		✓	✓		✓		Sections 11.2, 11.3, 11.4 and 11.5
Pension scheme admin / PPF levy	23			✓	✓			Section 11.6
Quarry and loss	20			✓				Section 11.7
Resilience opex	401	✓	✓	✓		✓		Chapter 7
Business support	479	✓	✓	✓		✓		Chapter 12
Total baseline totex	3,987							

Table 3.8 : Cost assessment and benchmarking techniques applied to each regulatory cost category

The specific techniques; external assessment, salary benchmarking and trend analysis are explained in the remainder of this section. Where applicable, the outcome of the assessment is included in the section covering the relevant cost category.

External assessment

We previously noted that NGT is a sector of one, being the only owner and operator of the UK's gas NTS. Our costs and activities are unique making unit cost benchmarking against other similar organisations challenging and potentially resulting in misleading outcomes. For example, even though some activities such as valve replacement can be considered common with similar works carried out by gas distribution networks, the level of normalisation required for cost drivers such as size, pressures, site constraints and site-specific

complexities prevents direct benchmarking limiting conclusions which may be drawn.

We engaged Arcadis (UK) Limited to carry out independent benchmarking of the unit cost estimating approach and processes (NGT_C04 Arcadis_NGT_Cost_Assurance Final Report (AMP)). Arcadis assessed our unit cost methodology and processes, including a review of the SVC. Unit cost values have not been specifically benchmarked by Arcadis, due to lack of comparable data.

Arcadis' in-depth examination of our unit cost estimating process encompassed review of unit cost definitions, input source data, estimating methodologies and associated governance procedures. The review focused specifically on Asset Health related cost estimates and assessed the two cost estimation processes (historical outturn and first principles estimation) developed in RIIO-T2 and used for cost estimation in our business plan.

Arcadis regards the enhanced cost estimation processes implemented during the RIIO-GT2 period as comprehensive, well-structured, and capable of producing reliable asset health related cost estimates at a more granular level than has been achieved previously.

Coordination and management of cost estimation through a centralised team ensures the consistent application of the new processes and operating procedures, whilst simplifying the development and roll-out of standardised approaches in future.

The top-down and bottom-up processes that have been implemented for early-stage and more detailed project cost estimates are regarded as complementary and a pragmatic way of managing business-as-usual cost estimation requirements, where scope definitions can vary in completeness.

Arcadis included recommendations within their report which we have considered while building our RIIO-GT3 plan:

- We have created a robust quality assurance and governance process with multiple layers of review and sign off;
- Workload planning and forecasting established to review baseline and peak workload requirements and assess team staffing levels; and
- Templated and checklists produced for estimation stages such as kick-off meetings and final estimate review.

Overall, Arcadis regard our enhanced Asset Health related cost estimation processes as robust and consistent to produce reliable cost estimates, suitable for use by internal and external stakeholders.

Salary cost benchmarking

NGT operates a robust process for ensuring salary levels within the organisation are fair and competitive as part of our business-as-usual activities. Through job evaluations and market pricing, we track where our salaries sit against other organisations for equivalent roles. Ensuring that job roles have fair salaries which are competitive with other employers or sectors helps with both attraction of new talent and retention of the existing workforce.

We employ two methodologies to evaluate salary levels against the wider market.

- **Job evaluation**

We employ the Korn Ferry Hay methodology for job evaluations. A point-factor rating system is employed which analyses and scores factors within a job. The methodology is globally the most widely used job evaluation process and has been utilised to evaluate thousands of jobs in all organisational sectors. The key elements of each job, known as factors, are identified by the organisation and broken down into components which may also be weighted (Figure 3.9). Each factor is assessed separately and points allocated according to the level needed for the job. The higher the points value, the more

demanding the role.



Figure 3.9 : Korn Ferry Hay job evaluation components

Jobs are evaluated based on their specification and requirements. The incumbent within the role is not considered, ensuring a fair rating based on normal performance expectations. Only the current job state is taken into consideration, that is, the existing requirements within the role as opposed to its future evolution. Job revaluations are undertaken in circumstances where job roles have changed.

The final job score is compared to Korn Ferry Hay reference levels. The reference level obtained is then compared to the market data to obtain a 'market reference point' for the role.

- **Market data and benchmarking**

We use leading pay benchmarking providers [REDACTED] to give a robust basis for our job evaluation and market pricing approach. Their General Industries and Energy & Natural Resources Sector pay databases, to which we submit our own data, provide an indication of pay in the market for role types and levels and where possible, against similar workforces and industries, revenue sizes and skills sets.

A survey is carried out by [REDACTED] to collect salary information across many organisations. A salary benchmarking and compensation data report is provided detailing salary information in percentiles with number of incumbents and organisations included in the data set.

Using reference levels and job families, NGT jobs are mapped to an appropriate category within the data set enabling comparison of NGT salaries to a benchmarked data set. An average of [REDACTED] data is used to obtain the market reference point (MRP) for an NGT role.

All NGT roles are compared to the MRP and a Compa-ratio calculated. A compa-ratio is a measurement of pay that compares an employee's salary to the median compensation for a similar position with a company or target market. A ratio of 100% shows an employee is paid exactly the midpoint or MRP for that position.

In line with industry standards, we aim to have employee's salaries within a compa-ratio range of 80% to 120%. Figure 3.10 shows that 96.8% of employee salaries currently fall within this range. Generally, employees new to role would be at the lower end of the range with the ratio increasing in line with time in role. A small number of outliers do exist; these are usually specialist roles which lack of comparability to the wider data set.

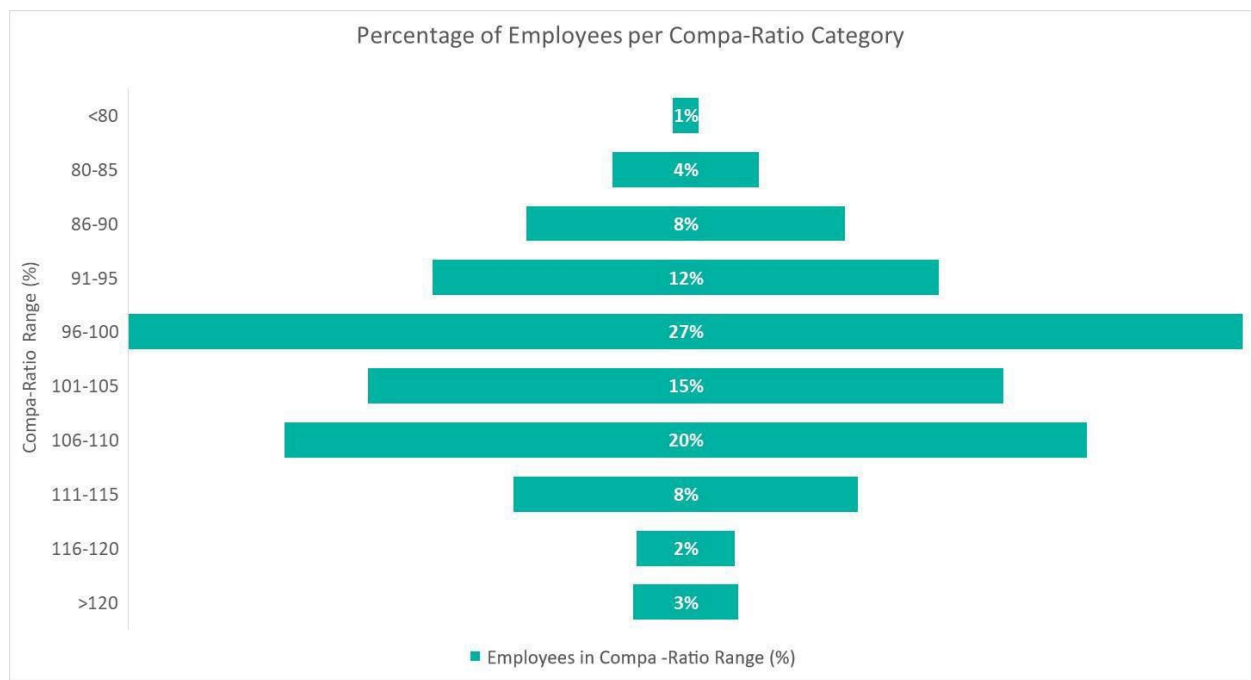


Figure 3.10 : The current distribution of NGT roles against the compa-ratio

NGT staff grades (non-manager grades) pay ranges, remuneration and annual pay awards are agreed through trade unions and therefore subject to an additional level of market fairness assessment.

Volume of FTEs, movement from RIIO-T2 and the requirement for size of workforce in RIIO-GT3 is discussed within the NGT_A13_Workforce and Supply Chain Resilience Strategy_RIIO_GT3.

Trend Analysis

Trend analysis is a useful technique to demonstrate and understand how our costs move over time in relation to an appropriate cost driver. This type of cost assessment is applicable to our indirect cost base where operational support can be directly linked to business size or activity. In most cases, our costs have multiple drivers which means trend analysis against a single component may only explain an element of a cost category movement. We have conducted trend analysis on elements of our cost base in circumstances whereby a visible and relatively simple relationship is expected.

We have also evaluated our indirect costs using regression models similar to those used by Ofgem in the assessment of our RIIO-T2 business plan. However these models do not have significant enough explanatory power (insufficient R-squared values) to be of practical use. This is to be expected given the relatively small number of historical data points, the multi variate nature of driver / cost relationships and non-stationary effects such as becoming a stand-alone company and regulatory and policy changes. We have also reviewed the RIIO-GT2 sector wide regression models and concluded that widening the data pool to other networks does not overcome the complexity and non-stationary effect challenges.

Whilst it is not possible to produce statistically robust regression models, we still view the relationships to key cost drivers as an important tool in assessing cost changes and have conducted trend analysis to establish that cost changes are reasonable based on underlying drivers. As trend analysis is by nature less specific than regression modelling this has been complemented by detailed cost reviews and external benchmarking where available to ensure costs are thoroughly assessed.

4. Totex Expenditure

The majority of this annex focuses on our totex plan. Totex consists of all expenditure relating to a licensee's regulated activities with certain defined and limited exceptions⁵. Totex can be broken down further into capex and opex.

Capital expenditure (capex) is the investment in existing and new fixed assets to maintain or grow the network. There are different ways to express the various types of capital investment depending on whether regulatory, operational or statutory definitions are adopted. For the purpose of this annex we use the regulatory definitions, consistent with the way our data is presented in the Business Plan Data Tables which also form part of our submission.

There are 4 primary categories of capex (which are then further described by sub-categories):

- **Load related capex**
Installation of new assets to accommodate changes in the level or pattern of gas supply and demand.
- **Non-load related capex**
Replacement or refurbishment of assets which are either at the end of their useful life due to their age or condition, or need to be replaced on safety or environmental grounds.
- **Other capex**
Expenditure on Cyber Information Technology (IT), Cyber Operational Technology (OT) and Physical Security. For the purpose of this annex and aligned to security related re-opener submissions made to Ofgem in RIIO-T2, security capex and opex are combined within a single chapter (Chapter 7).
- **Non-operational capex**
Expenditure on new and replacement assets which are not system assets.

Operating expenditure (opex) is the cost of the day-to-day operation of the network such as staff costs, repairs and maintenance expenditures and overheads. Allocation and categorisation of opex activities is dependent on the framework being applied. For example, the regulatory definitions of opex differ from the operational activity terminology which in turn differs from statutory account categories.

Regulatory opex is defined as controllable or non-controllable. Costs deemed not controllable by the transmission business, such as transmission licence fees and network rates have been and, we agree with Ofgem's proposals in the Sector Specific Methodology Decision to continue to treat these costs as pass through (outside of totex) under the regulatory price control. These are covered in Section 13.2.

Controllable opex is differentiated further across regulatory categories:

- **Direct opex**
Direct costs (also referred to as network operating costs) relate to the activities required to maintain and operate the transmission network and involve physical contact with system assets. Direct opex can be divided into planned work largely associated with maintenance tasks driven by asset management policies and technical standards, and unplanned work driven largely by faults on the network.
- **Indirect costs**
Indirect costs are incurred in supporting work being physically carried out on gas transmission network assets, but could not, on their own, be classed as a direct network activity. Activities do not involve physical contact with system assets. Indirect opex costs are sub-divided into four regulatory categories⁶; closely associated indirect (CAI), business support costs, quarry and loss and pension costs.

⁵ RIIO-GT3 Gas Transmission Price Control – BPD Guidance: Version 3.0, Ofgem, 1 October, Appendix 1

⁶ Cyber opex is categorised separately for regulatory purposes.

5. Load Related Capex

Load related expenditure relates to investment in our system assets when we provide additional connections, capacity and enable changing gas flows on the network to accommodate changes in gas demand and supply.

Our Asset Management Plan (AMP) covers both load and non-load related (Chapter 6) investments. The AMP provides a long-term optimised plan to manage network risk and performance, aligned to our business priorities and asset management strategies. It provides a rolling ten-year value-based plan. It has been developed to enable us to optimally manage our assets, to align with our business needs and to deliver our social responsibilities now and in the future.

This plan allows us to deliver our key asset management obligations, including the development and maintenance of a safe and efficient, coordinated and economic system of gas transmission, which supports competition in the supply of gas, whilst having a regard for the effect of our activities on the environment.

All investments have been loaded into our decision support tool, Copperleaf. The Ofgem-approved Network Asset Risk Metric (NARMS) Methodology is embedded within Copperleaf, allowing for consistent valuation across investments. Each investment has been assessed using the NARMS Methodology, which calculates both the monetised risk reduction and the Long Term Risk Benefit.

The resulting plan is then taken through a deliverability assessment to ensure we can secure the required outages and resources to deliver the work producing a final recommended plan. Further information can be found in NGT_A01_Asset Management Plan (AMP)_RIIO_GT3.

In our main business plan document, we set out future expectations of the gas transmission network. Although overall natural gas demand is expected to decline over the coming decades, peak demand is expected to remain high with gas-fired generation expected to provide required back-up power for intermittent renewable generation throughout the transition to net zero. This is reflected in the stability of connections requirements with no new connections anticipated. Therefore, our baseline plan contains nil values for load related capex (Table 5.1).

£m 23/24 price base	FY27	FY28	FY29	FY30	FY31	GT3 Total	GT2 Total	GT3 Annual Average	GT2 Annual Average
Load related capex	0	0	0	0	0	0	11	0	2

Table 5.1 : Baseline load related capex as included in BPDT 6.1

We are also proposing volume drivers to increase the number of re-wheels proposed in our plan based on the changes on network capability. Further information can be found in NGT_A01_Asset Management Plan (AMP)_RIIO_GT3.

6. Non-load Related Capex

Non load related capex investment covers investment that is required to maintain our existing network to fulfil its current role. This includes replacement or refurbishment of assets which are either at the end of their useful life due to their age or condition or need to be replaced on safety or environmental grounds.

In Chapter 5, Load Related Capex, we provide an overview of our Asset Management Plan (AMP), referencing the embedding of Ofgem's Network Asset Risk Metric (NARMs) Methodology into our process. By using the NARMs Methodology, we can quantify the impacts of each investment across Service Risk Measures: Health & Safety, Availability & Reliability, Environmental, Societal, and Financial outcomes, all of which are reported in the NARMs Business Plan Data Table. Our long-term objective is to reach a monetised risk which is at or below the risk position seen at the start of the RIIO-T2 price control period. We will work toward this objective throughout RIIO-GT3 and beyond. The initial, unconstrained AMP aimed to maintain RIIO-T2 starting risk levels throughout RIIO-GT3, as agreed with the Department for Energy Security and Net Zero (DESNZ). After reviewing deliverability, supply chain constraints and site access, we removed some undeliverable work from the plan. We now expect the absolute monetised risk by the end of RIIO-GT3 to be 3.2% higher than at the start of RIIO-T2 and, with ongoing investment, we anticipate bringing risk levels back below the levels seen at start of RIIO-T2 by 2032.

All investments are allocated a tier as part of the AMP development and utilised through our deliverability and optimisation process.

- Tier 1 – Deliver our legal obligations with a clear volume and scope, for example, driven by legislation, evidenced defects on gas containing assets and our RIIO-T2 Uncertainty Mechanism funded investment obligations (Bacton FOS, Emissions Compliance, Cyber Compliance).
- Tier 2 – Deliver policy aligned investment, NIS Compliance (Control), redundant assets, resolve evidenced defects on non-gas-containing assets (for example, compressor cabs).
- Tier 3 – Deliver investments which are required, but we have more potential to defer timings past RIIO-GT3, for example, investments required to stabilise risk, address climate resilience and net zero.

The deliverability assessment of our plan ensures we can secure the required outages and resources to deliver the work producing a final baseline non-load expenditure plan as shown in Table 6.1.

£m 23/24 price base	FY27	FY28	FY29	FY30	FY31	GT3 Total	GT2 Total	GT3 Annual Average	GT2 Annual Average
Non-Load Related capex	219	239	319	278	273	1,328	1,146	352	229

Table 6.1 : Non-load related capex expenditure as included in BPDTs 6.1 to 6.4b

Our non-load related expenditure is broadly categorised into three regulatory categories:

- **Asset health**
Our RIIO-GT3 plan includes £1,143m funding for asset health investments within BPDT 6.3 and 6.4.
- **Projects**
In line with the BPDT categorisation, our RIIO-GT3 plan includes £559m investment within the Project category. This includes investment to assess and mitigate the impact of climate change on our network, the completion of asset modifications to improve their maintainability and investment to re-wheel compressor turbines to meet changes in network capability. Our BPDT 6.2 includes our funding request for these investments.

- **Redundant assets**

Our RIIO-GT3 plan includes £56m for investment to decommission redundant assets and sites across the NTS. BPD 6.5 includes our funding request for these investments.

6.1 Asset health

Ofgem has identified “secure and resilient supplies” as a RIIO-GT3 priority which is echoed in commitments to:

- meet our critical obligations every hour of every day;
- ensuring world class safety levels for our workforce and the public;
- keep the gas flowing; and
- adapt to climate change.

Our plan must ensure we deliver gas safely and reliably to the consumer under our Gas Transporter License. There are also legislations with which our assets must comply.

Within the asset health programme, there are several drivers which influence decision making such as obsolescence, defects and asset deterioration, age, external interference and climate change. Deciding which specific interventions to manage asset health requires input and data from various teams across the business including asset engineering and operations.

Understanding the assets we have, their condition and the challenges that affect them is critical to building a robust plan that delivers the overall network capability needed. Asset Health Grade is collected for each Level 3 asset as part of maintenance work orders. It is assessed using a grading system of AH Grade 1 to 5, 1 being the best and 5 being the worst. For assets with AHG 1 to 4, an age-based with consequence approach is mainly adopted to inform condition of the asset and its associated monetised risk. Whilst asset age alone is not a driver for investment, condition and defect data suggests that there is a correlation between age, defects and deterioration. Asset age data is captured within our asset repository Maximo. Copperleaf uses this data, alongside condition data, to assess our top-down asset management decisions. Our assets are modelled under the NARMs Methodology, which calculates the probability and consequence of failure for both pipeline and site assets. For more information on our NARMs methodology is contained within NGT_A08_Network Asset Management Strategy_RIIO_GT3.

Cost-benefit analysis (CBA) has been carried out on proposed options to support our decision making and to understand what service levels and benefits can be expected from an option’s outcome. While CBA supports economic justification based on net present value, external factors like deliverability and legislation may ultimately influence the final decision.

The CBA uses a 20-year assessment period from the end of RIIO-GT3, a WACC of 3.99%, and a discount rate of 3.5%, all based on a price base of 2023/24 and central case carbon costs from the HMRC Green Book and supplementary guidance provided in the Ofgem CBA template.

We schedule asset health work to be self-delivered by our Construction and Operations Teams, through National Gas Services (NGS) or tendered to external parties. The preferred approach depends on the size and nature of the project and ensures that we optimise timing and cost efficiencies.

The single-value framework allows for the monetisation of risks and benefits, enabling a comparison with delivery costs. This comprehensive approach considers various factors, including:

- NARMs Risk Benefit;
- investment cost;
- opex;
- carbon emissions; and
- supply demand scenarios

Asset health CBAs were conducted using Copperleaf, which incorporates NGT's approved NARMs methodology. Condition is a key metric, and interventions aim to improve asset condition, with benefits quantified using NARMs methodology. Different interventions have different intervention lifetimes and costs and hence, have different benefits.

Our planning process delivers Asset Health baseline investment for RIIO-GT3 of £1,143m. Table 6.2 provides the RIIO-GT3 spend profile for this investment category.

£m 23/24 price base	FY27	FY28	FY29	FY30	FY31	GT3 Total	GT2 Total	GT3 Annual Average	GT2 Annual Average
Asset health	190	215	275	236	228	1,143	636	229	127

Table 6.2 : Asset health investment as included in BPDTs 6.3a, 6.3b, 6.4a and 6.4b

Our RIIO-GT3 asset health investment plan is 180% larger than our forecast RIIO-T2 spend. We have developed our programme or investment to deliver against our legislative obligations and stabilise network risk to the levels seen at the start of RIIO-T2. For two investment themes (Valve Bypass and Pipelines CP), we are proposing volume drivers to manage the proposed increase in investments to protect consumers. Further details of our proposals can be found within the relevant Investment Decision Pack.

Our proposals are designed to allocate risk to whoever is best placed to manage it. We have protected end consumers and shareholders from anticipated risks or change in circumstance, by proposing Uncertainty Mechanisms where we have reduced scope and / or cost certainty. This ensures that if customer or consumers' needs change so do our allowances. Further details of our proposals can be found within our NGT_A01_Asset Management Plan (AMP)_RIIO_GT3.

6.2 Projects

Projects includes investment to assess and mitigate the impact of climate change on our network, the completion of asset modifications to improve their maintainability and investment to re-wheel compressor turbines to meet changes in network capability. Our climate change investment is aligned to the principles set out within our NGT_A06_Climate Resilience Strategy_RIIO_GT3, for investment against the seven climate hazards identified in our Adaption Reporting Power 3(ARP3) report and one additional driver included in our upcoming ARP4 report.

£m 23/24 price base	FY27	FY28	FY29	FY30	FY31	GT3 Total	GT2 Total	GT3 Annual Average	GT2 Annual Average
Projects	118	136	111	69	55	559	418	112	84

Table 6.3 : Project investment as included in BPDT 6.2

Of the £559m, £430m relates to projects funded under RIIO-T2 uncertainty mechanisms (£158m in RIIO-T2).

As well as the operational safety, reliability and efficiency drivers which underpin investment in our network, we also have a responsibility to society to reduce the impact of our activities on the environment. Investment within the Project category seeks to address these challenges.

Engineering Justification Papers (EJPs) and Cost Benefit Analysis (CBA) set out our assessment of available options to deliver the project outcome and conclude on the most appropriate approach. Further information can be found within the following EJPs, NGT_EJP03_Cabs_RIIO-GT3, NGT_EJP10_Electrical Infrastructure: Switchgear and Transformers_RIIO-GT3, NGT_EJP21_Network Decarbonisation_RIIO-GT3, [REDACTED] and NGT_EJP17_Pipeline_RIIO-GT3

There are anticipated changes in supply and demand patterns which mean we are proposing investments to alter the network's capability and also to increase its resilience for the future. For example, we are proposing a new pipeline in the south west of England; West Import Resilience Project. Under our licence, we are required to plan and develop the pipeline system to meet the peak aggregate daily demand. Declining gas flows from the UK continental shelf are increasing the import dependency of Great Britain. This demand is met through an increase in gas supplies enter the transmission system at Milford Haven [REDACTED]

6.3 Redundant assets

Assets that are no longer required for NTS operation are considered to be redundant assets. This could be because they have been replaced due to condition, performance or obsolescence. It could also be that they have become surplus to requirements. Redundant assets range from whole Above Ground Installations (AGIs) redundant due to a change in customer requirements to individual assets on operational sites. These assets have a range of operational status, some are already disconnected from the NTS and isolated from all sources of energy, others are located on operational flow paths.

Included within our RIIO-GT3 plan we have requested £56m to disconnect and remove these assets to [REDACTED]

[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]

Redundant assets are identified through site assessments and known changes in customer requirements.

Investment in RIIO-T2 sought to decommission a range of redundant assets and sites, in total 80 projects. Several of these projects were the completion of disconnections undertaken in RIIO-GT1 where decommissioning could not be facilitated due to funding constraints within the RIIO-GT1 allowances. Other investment sought to address a range of legacy issues that had not been resolved in prior price control

periods, such as condensate tanks.

Our decommissioning strategy for RIIO-T2 aligned to the polluter pays principle whereby customers and stakeholders who have had the benefit of the assets and connected services pay for the decommissioning, resulting largely in not deferring this work.

We continue to adopt this strategy, however due to our RIIO-T2 investment addressing a large proportion of legacy issues, a smaller volume of redundant assets requiring decommissioning in RIIO-GT3. As part of our RIIO-GT3 submission we have identified ■ specific decommissioning projects, have proposed the retention of a disconnection provision for customer offtakes and have requested funding to complete the demolition of these sites. Our redundant asset intervention decisions are identified within the relevant IDP for the asset in scope, e.g. Valves decommissioning is included within our EJP NGT_EJP22_Valves: Valves_RIIO-GT3.

6.4 Non-load capex cost confidence

Price Control Deliverables (PCDs) are defined by Ofgem as a mechanism “to capture those outputs that are directly funded through the price control” and where the funding provided is not transferrable to a different type or project. The purpose of a PCD will be to ensure the conditions attached to the funding are clear up-front.

Ofgem has established a framework for RIIO-GT3 with three ways in which companies are held to account for delivering outputs, set out within Ofgem’s RIIO-GT3 sector specific methodology decision; Licence Obligations, Output Delivery Incentives (ODIs) and Price Control Deliverables.

In line with Ofgem’s RIIO-GT3 Sector Specific Methodology document, we have proposed PCDs to cover the largest areas of our capital expenditure. These PCDs are retained from our RIIO-T2 submission:

- NARMS PCD
- Non-Lead Asset PCD
- Redundant Assets PCD

We know the UK energy industry is undergoing a significant period of transformation and we consider that this mix of funding driver protects the UK consumer from avoidable cost. Using our single value framework and the principles of our NARMS methodology we can forecast cost, risk and service performance of the assets. We can also deliver a target level of risk reduction on the network, by reprioritising our asset health investment mix as required though the period.

Our non-load capex investments have progressed through our cost assessment processes (Section 3.2), utilising historical outturn and estimate at cost of completion costs. As part of this process we have assessed the suitability of these historical data points against the RIIO-GT3 programme of works. Where investment scopes are different to those reflective of our historical data points a first principles estimation has been conducted.

6.5 Non-load capex benchmarking

Investments in the UK’s National Transmission System assets are unique to National Gas with no other direct comparator against which costs can be benchmarked. A direct comparator is not always required, where our cost base can be fairly compared to other companies, we are committed to undertaking this comparison and has been our first choice in cost assessment methodology. Where external benchmarking proves inappropriate, we have deployed other types of cost assessment.

The cost base for non-load investment consistent of labour, materials, plant and indirect costs.

Our asset health work involves a wide range of activities, from repeatable, standard jobs with low levels of differentiating factors, through to those that are more bespoke and are therefore naturally harder to apply standard unit costs to. Regardless of where in this spectrum an activity sits, we have employed an approach that considers historical outturn and forecast cost data of works- in-progress as the strongest indicator of future unit costs (historical outturn estimations.) Where outturn costs are not available, we have used the next set of strongest indicators which may consist of combinations of outturn costs, supplier quotations or estimation techniques (first principal estimation), as referenced in Chapter 3.

Our RIIO-GT3 Asset Management Plan (AMP) has been assured under our Scope, Volume and Cost Data Confidence Standard (SVC). The SVC is our internal standard for data confidence and was developed in line with the re-opener guidance published by Ofgem in February 2023 (Section 3.3).

We are committed to benchmarking where possible and have approached Arcadis (UK) Limited to carry out independent benchmarking exercise of the unit cost estimating approach and processes (NGT_C04 Arcadis_NGT_Cost_Assurance Final Report (AMP)). Arcadis have carried out benchmarking and assessment on our methodology and processes regarding unit cost, including a review of SVC. Unit cost values have not been benchmarked by Arcadis, as they do not possess unit costs for comparable works. Overall, Arcadis regard our enhanced Asset Health related cost estimation processes as robust and consistent to produce reliable cost estimates, suitable for use by internal and external stakeholders (Section 3.2).

Labour costs that relate to capitalised Full Time Employee (FTE) expenditure are also benchmarked (Section 3.4). The non-load related plan includes capitalised labour costs from our Construction, Operations and Asset Management functions. Supporting functions, such as Finance and HR also contributed but have significantly smaller elements of capitalisation for FTEs that contribute to the interventions.

The NGT_A13_Workforce and Supply Chain Resilience Strategy_RIIO_GT3 Annex details FTE movements and key drivers over each business functions.

6.6 Non-load capex efficiencies

We have recently reorganised our business with our operational function delivering more asset health work, in particular high volume, repeatable interventions. Internal delivery through this route is forecast to improve cost efficiency on the relevant project by circa 16% compared to current unit costs. This equates to a £146m cost saving in RIIO-GT3.

We have also identified an efficiency through increase project value delivery per construction FTE. By creating discrete bundles of work and aligning them with decommissioning activities, we will achieve cost savings and maximise the utilisation of network outages. Introduction of Copperleaf combined with the use of new asset health taxonomy will also result in efficiencies in planning and delivery activities. We have embedded an estimated £32m cost saving within our plan.

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]

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[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
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8. Non-operational and other capex

Non-operational capex refers expenditure on new and replacement assets which are not network assets including:

- IT and telecoms;
- Vehicles;
- Non-operational Property being land and buildings used for administrative purposes;
- Small tools, equipment, plant and machinery; and
- Net zero related development.

In absolute terms, non -operational capex spend has increased from an average of £60m in RIIO-T2 to £104m in RIIO-GT3 (Table 8.1).

£m 23/24 price base	FY27	FY28	FY29	FY30	FY31	GT3 Total	GT2 Total	GT3 Annual Average	GT2 Annual Average
Non-operational capex	139	134	89	79	76	518	300	104	60

Table 8.1 : Non-operational capex as included in BPDTs 6.7, 6.8 and 8.9.

The main driver for change is increased IT investment to maintain and improve business capabilities, including keeping our systems healthy, secure, compliant and delivering key business outcomes.

However, relative to the overall totex plan, non-operational capex expenditure remains broadly stable at 13% in RIIO-GT3 compared with 9% and 13% in RIIO-T2 and RIIO-GT1, respectively.

The sub categories of non-operational opex are covered in more detail in the remaining sections of this chapter.

We have also include the Net Zero Use It Or Lose It funded element of our plan within this chapter (as other capex).

8.1 IT and Telecoms

IT and Telecoms (IT&T) expenditure is allocated across non-operational capex, closely associated indirect cost and business support regulatory cost categories according to the operational activities under consideration. The non-operational capex element reflects expenditure on new and replacement assets which are not system assets such as laptops, field devices, network devices, routers and software systems.

We remain on target to fully deliver our RIIO-T2 business plan demonstrating our ability to keep pace with a growing volume of technical change. This has taken place against the backdrop of separation of the IT function and systems to become a stand-alone function, bringing independence of IT planning with its associated risks and opportunities. There are risks from the loss of economies of scale but these are outweighed by the opportunities to develop new digital capabilities and upgrades to existing systems that come from sole focus on the needs of National Gas customers and stakeholders.

The key drivers of scope for IT&T investment are set out in detail in the NGT_A11_IT and Telecoms Strategy_RIIO-GT3 Annex. Our IT&T capex plan (Table 8.2) is driven by two key commitments; ensuring the safety of our workforce and public and enabling our activities through IT and data

£m 23/24 price base	FY27	FY28	FY29	FY30	FY31	GT3 Total	GT2 Total	GT3 Annual Average	GT2 Annual Average
IT & Telecoms	108	109	70	64	63	413	236	83	47

Table 8.2 : Non-operational IT&T capex as included in BPDTs 6.7, 6.8 and 6.10

Our RIIO-GT3 forecast spend is £413m over 89 investment projects (18 TO, 25 SO and 46 shared between TO and SO), compared with 44 projects during the previous price control. Projects costs are forecast to increase by 75% compared with RIIO-T2 due to digitalisation, compliance work and replacing assets which are approaching the end of their supported life. Consideration of alternative options, scope and costing are discussed with the IT EJPs (NGT_IJP02 to NGT_IJP05) and the NGT_A11_IT and Telecoms Strategy_RIIO-GT3).

The increased costs reflect the changes in drivers for security of supply and ageing asset replacement. Separation has led to a number of systems requiring upgrades and enhancements, with the majority of projects commencing at the beginning of RIIO-GT3. Programme testing and implementation costs are incurred during the initial stages of the project and resources required are higher for an average of 18 to 24 months post project commencement resulting in a reduction in cost profile from 2028/29.

We also need to right size our systems for a stand-alone business. An example of this is our back-office systems which were historically based on a large complex Enterprise Resource Planning (ERP) system which will be replaced with a solution which reflects our needs , the cost of this system is forecast to be £45m across RIIO-GT3.

The applications inherited from National Grid are 'on-premises' version of [REDACTED], which are approaching the end of their supported life. In RIIO-GT3, we will transform our systems by moving 'on-premises' solutions to the cloud, integrating our finance systems with our asset management applications, simplifying processes, remove workarounds and enable application flexibility and scalability to support new products and changing business needs. If NGT were to remain with the current 'on-premises' system, annual licence and maintenance costs would be expected from [REDACTED] per annum to [REDACTED] due to [REDACTED]'s strategy to drive customers to the cloud. Asset updates of anywhere between £6 to 10m would be required to remain supported and the 22% discount previously provided (based on inclusion within a larger organisation) would be reduced. [REDACTED] newest innovations and capabilities are only available on cloud-based solutions. Furthermore, the system is reaching the end of its support life. By modernising we introduce new SaaS services, reduce complexity, enhance our existing applications and support our objective to simplify our systems to meet NGTs post separation requirement.

A second area of focus is to enable the capabilities required to deliver the wider RIIO-GT3 plan, using technology for smarter tools, whilst handling larger volumes of data and improving the productivity enabling expanded capacity in areas such as procurement and asset delivery. Innovative technologies such as drone-based technologies allowing cameras to capture asset conditions and maintenance plans, allow for smarter decisions through better visibility and reduced need for regular site visits. Analytical and decision-making support such as data orchestration, modelling, simulation and digital twins optimise network outages and maintenance work and is required for a larger capital and maintenance plan.

All IT Investments in our business plan are aligned to our Digitalisation Strategy published in March 2024⁷, of which 67% (RIIO-T2: 83%) relate to asset health and compliance work for assets which are approaching the end of their supported life, ensuring we operate secure and compliant systems in line with evolving legislation and industry codes. Asset health investments benefit from digitalisation through upgrading to

⁷ [Digitalisation strategy | National Gas](#)

newer or more appropriate technology including use of systems new innovative solutions. Our Digitalisation Strategy focuses on five key themes:

- **Data foundation (£49m)**
Developing the governance and tools necessary to make safe use of Artificial Intelligence (AI);
- **Data Sharing Platform (£53m)**
Extending the breadth and ease of use of information provided externally through our new information provision investments;
- **Enhanced decision making (£121m)**
Enhancing our network modelling capabilities through the application of AI to network models, enabling more frequent and smarter operational forecasts;
- **Efficient Enterprise Essentials (£190m)**
Increasing digitalisation of procurement processes to increase capacity to support the capital plan and ensuring our IT infrastructure and IT operational tools are secure and provide high levels of service.

These investments are critical to the efficient delivery of a larger Asset Management Plan (AMP), managing the network under increasing risk and supporting whole energy system management. New technologies such as Artificial Intelligence which is becoming increasingly mainstream in recent years allow us to become more resilient to constant technology change whilst maintaining robust systems.

Project costs have been externally benchmarked with 98% of cost being within Gartner's market range

IT&T non-operational capex costs comprise project cost and FTE cost elements, both of which are externally benchmarked.

We engaged Gartner to carry out a benchmarking exercise on our IT plan with the benchmarking approach dependent on investment characteristics. All, except for 6 projects, fell within the benchmarking range and are assessed as high cost confidence within the SVC parameters (Section 3.3). Each of the deviations has clear justification based on evidence such as supplier quotes or similar recent project cost profiles and score medium under our SVC assessment.

For asset refresh investment we provided Gartner with information regarding the technology, scale and scope of investments. Gartner assessed component costs of comparable upgrades within its database (hardware, software, people costs). For new products, the scale and scope was determined based on Gartner's database of project implementations and benchmarks against known analogous projects, normalised where relevant for the actual size of the requirement. For new and emerging technologies with little or no precedent and for which an appropriate proxy type of project could not be identified, Gartner modelled the estimate using benchmark component data providing an expert opinion to assess the estimates.

Labour costs within the forecasts relate to capitalised FTEs. As noted in Section 3.4 of this annex, we regularly benchmark our salary costs using leading benchmarking providers, whereby we compare salary costs by role to the market reference point. The NGT_A13_Workforce and Supply Chain Resilience Strategy_RIIO_GT3 details FTE movements and key drivers over each business function.

8.2 Property

Non-operational property is defined by Ofgem as land and buildings used for administrative purposes. That is, the use of the property is not directly related to the operation of system assets but may be situated on an operational site. Costs associated with these properties include expenditure incurred under a planned

schedule of work as well as projects required to maintain the resilience of the Emergency Control Room.

The RIIO-GT3 non-operational property portfolio consists of five office locations used for administrative purposes and eight depots used for storage and logistics activities.

Despite changes from our property portfolio in comparison to RIIO-T2 there has not been no change to our cost base.

Costs comprise capital works required to maintain the buildings such as building fabric works, (replacement roof, windows, access paths and walls, mechanical and engineering works) lighting, air conditioning, access control and ventilation and capitalised FTE expenditure. The baseline and UM elements of the non-operational property costs are included in Table 8.3.

£m									

The timing and nature of investments and planned schedule of works in RIIO-GT3 is dictated by the results of condition surveys, currently being undertaken throughout RIIO-T2. The planned schedule of works consists of safety and productivity projects. Productivity projects deliver modern working facilities to the occupied estates through delivery of smart workspace solutions to provide inclusive facilities and enable high performing teams with improved productivity, improved workplace conditions and higher utilisation of offices. These projects have also been well supported by the Unions who were engaged as part of the planning process.

We have also identified the need for Investment across three new training centres:

- Logistics and operations training centre ()** invested across RIIO-GT3)
 The centre will provide technical training and assessment for our staff to maintain competencies, develop our trainees, and safeguard our capabilities and expertise. We currently have no training centre following exit from after separation. The investment repurposes an existing building at , including installation of our replica above ground installation (AGI) training site.
- Rotating machinery training centre ()**
 We will create a world class training centre with expertise to ensure resilience and reliability of our compressor fleet through vastly improved inhouse capability requiring investment in essential tooling, equipment and facility fit out costs.
- Welding centre of excellence ()**
 With skill shortages being experienced across the industry a centre of excellent safeguarding future welding capability will help mitigate a significant risk. Investment is required to carry out a complete refurbishment of the fabrication shop including, new LED lighting, fume extraction, hydraulic power supply, gas storage and associated areas.

availability of appropriate vehicles is crucial for our workforce to maintain security of supply. Our fleet size is projected to be [REDACTED] by the end of RIIO-T2 and [REDACTED] by the end of RIIO-GT3, with the [REDACTED] additional vehicles required to meet the needs of the growing workforce.

Our plan (Table 8.4) reflects our strategy to purchase and own outright all commercial vehicles, allowing us to undertake considerable vehicle modification to incorporate racking, lighting, and power thus ensuring vehicles are fit for purpose. Hiring or leasing vehicles would present a more costly option due to the requirement to reverse modifications before vehicle return.

[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]

Table 8.4 : Non-operational vehicles capex as included in BPD 6.7

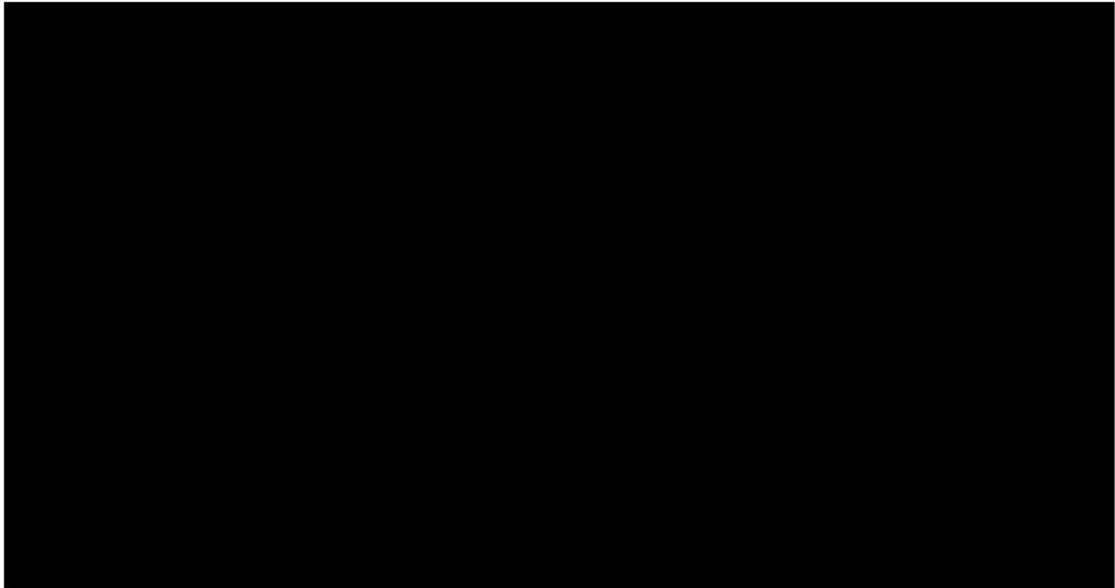
A vehicle is purchased for two reasons: the requirement for an additional vehicle or replacement of an existing vehicle. [REDACTED]

Timing of replacement of our existing fleet is dictated by vehicle age. Our RIIO-GT3 policy is to replace vehicles every [REDACTED], consistent with our RIIO-T2 policy. Replacements in RIIO-T2 were delayed due to long-lead times impacted by COVID19 such that the average age of our fleet in 2024 is [REDACTED]. In order to realign with our policy, spend is weighted to the early years of RIIO-GT3.

The replacement policy takes into account the clean air and low emission zones being implemented in some of the larger cities across the country, which can impact older vehicles. Daily charges may be incurred, or fines should the charge not be paid within the correct time frame. Charges are not forecast within our RIIO-GT3 plan.

The RIIO-GT3 cost profile increases in line with the onboarding of additional staff in our operations function coinciding with the planned rise in operational workload. [REDACTED]

[REDACTED]. Once the initial expansion of the fleet is in place, costs are maintained at fleet replacement levels.



[REDACTED]

Our fleet will [REDACTED] electric vehicles (EVs) by the end of RIIO-T2. While, we do not have any specific vehicle related environmental targets within the RIIO-GT3 framework, we are currently assessing alternative vehicle options for the commercial fleet to determine suitability of EVs for the operational workforce. Initial replacement vehicles in RIIO-GT3 are expected to be Internal Combustion Engine (ICE) vehicles until Alternative Fuel Vehicles (AFVs), such as Hybrids and EVs, become suitable for our operational performance requirements. Currently the range available on many larger AFV vans is not suitable given the often remote locations technicians travel to in order to maintain our assets. EVs purchased in RIIO-T2 are smaller panel vans where the range is compatible with requirements. Incorporating further EVs into the fleet will depend on infrastructure development. Improvements in technology increasing vehicle range and decreasing charging times would make EVs a more viable option for our engineers.

We are also using telematics to provide data and analytics to inform on vehicle usage, ensuring the fleet is used more efficiently in future. Currently we have 18 months of data and, by the start of RIIO-GT3, we anticipate availability of meaningful information to support future fleet strategies.

Vehicle costs are market tested against recent tenders

An external tender process is used to determine preferred suppliers who meet our strategic requirements. Our RIIO-GT3 cost forecast is based on most recent data from 2023/24 which therefore includes any diseconomies of scale post separation.

Efficiencies

Realigning the fleet profile to our 5-year replacement strategy, post the delays caused by the pandemic, will drive an efficiency in our opex costs for the fleet. Vehicles require significantly more maintenance after 5 years, therefore replacing at this time rather than using vehicles for longer limits the maintenance costs incurred. The efficiency is further referenced in Section 11.5 Vehicles and Transport and Stores and Logistics.

8.4 Small tools, equipment, plant and machinery (STEPM)

Small tools, equipment, plant and machinery (STEPM) costs cover a broad range of equipment used by our operational fieldforce to undertake network maintenance and respond to faults (Table 8.6). STEPM purchases are high volume, low value items used by engineers and technicians daily, such as drills, spanners, testing equipment and gas analysers. Costs are also incurred for minor site investment such as replacement fences and replacement roofs where local delivery is the most efficient option.

[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]									

STEPM costs can be further disaggregated into activities performed as business-as-usual (BAU) activities and one-off projects planned for RIIO-GT3 (Table 8.7).

The BAU cost profile is directly related to both the FTEs and capex delivery (Figure 8.8). In RIIO-T2 all spend relates to BAU activities with increase between price controls attributable to increased investment and workforce in RIIO-GT3. An increase in technicians and engineers impacts the level of tooling required as each field operational employee needs the necessary tools and equipment to undertake their jobs to high standards. Higher workload across network maintenance and capital delivery leads to higher usage of tooling and equipment and accelerates wear and tear, impacting speed of replacement profiles.

The remaining relates to one-off projects planned for RIIO-GT3 with no one-off projects being performed in RIIO-T2:

-

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

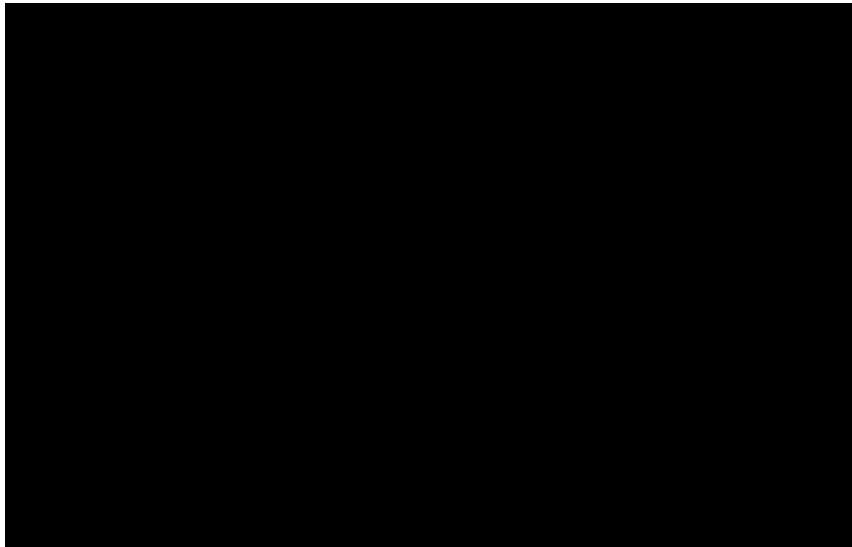
- **Double Block and Bleed Solution**

We will [REDACTED] to develop a solution to perform flow stopping through a single full bore hot tap without the need for additional fittings or hot tapped vent ports. This solution enables flow stopping during major projects, scheduled maintenance and alterations. Currently, we use stopple equipment which is labour intensive, time consuming and could potentially leave leak paths on the pipeline.

The double block and bleed solution reduces risk taking away the potential leak paths when fittings are installed onto the pipeline. A further benefit arises to with the process being less labour-intensive, our expectation being time savings of 3 to 5 days dependent on the pipe diameter.

Costs are based on historic outturn reinforced by supplier and expert input

Costs associated with BAU activities have been developed using historic outturn, as tools and equipment are standard repeatable high volume, low value purchases. Figure 8.9 illustrates a crosscheck of operation function FTEs against STEPM costs demonstrating the underlying relationship between operational staff undertaking work on the network and the level of tooling and equipment required. The relationship is non-linear as not all staff require their own tooling.



Costs in relation to one-off projects have been assessed and developed separately due to the individual nature of each project:

- The development of the double block/ bleed solution is a unique project based on historic data for similar projects sourced by an industry expert.

One-off projects will deliver safety, quality of service and financial benefits

We have already mentioned the benefits offered by double block and bleed solution. As well as safety benefits, reducing risk of pipeline leakage has a potential cost savings of between [REDACTED] per single entry (dependent on pipe diameter). We estimate between thirty and sixty projects could benefit in RIIO-GT3, with savings estimated to be between [REDACTED], further savings are expected in RIIO-GT4.

Investment in innovative surveillance projects is weighted to initial set up and operational costs in the early years of RIIO-GT3. As the new ways of working generate improved data and the technology is fully optimised, we anticipate savings within our operational budgets with the main financial benefit of this strategy realised in RIIO-GT4. In the meantime, our customers will benefit from reduced risk and improved speed and quality of our response to pipeline maintenance and faults.

8.5 Other capex – net zero

In December 2023, National Gas made a commitment to achieve net zero for scope 1 and scope 2 emissions by 2050, with an ambition to deliver the hydrogen network by 2045, enabling our site activities to be decarbonised by 2040. During RIIO-GT3, we will continue to work with external parties to develop understanding of the gas transmission business in a net zero future.

The net zero use it or lose it mechanism (UIOLI) provides a route for developing and delivering energy transition projects through to sufficient maturity to trigger a re-opener submission. Net zero costs forecast through this mechanism remain consistent with RIIO-T2 allowances as we expect to fully utilise the allowance within the current price control (Table 8.10).

The driver continues to be to fund small net zero facilitation projects and early development work; in the case of RIIO-GT3, the development of pre-feed strategy work for regional projects working towards meeting the 2050 net zero target. Further details on the net zero roadmap to 2050 can be found in Section 2.3 of the NGT_A04_Innovation Strategy_RIIO_GT3 Annex. The UIOLI mechanism is also further discussed in Section 6.1 of the NGT_A04_Innovation Strategy_RIIO_GT3 Annex.

Net zero project spend has been phased equally across the price control period with phasing determined as we project specific details, timings and costings evolve. As part of the process of bringing the investment to maturity, alternative options will be considered to develop the most effective solution.

Costs are tested through tender exercises and comparison within similar projects across the industry

The National Gas Innovation team carry out benchmarking on the cost of a standard innovation project by assessing the cost of the project versus similar completed projects. Whilst each innovation project is unique in its content, the delivery of desktop research or demonstration is similar across projects. NGT ensures value for money by carrying out mini tender exercises for each project and benchmarking the commercials against similar projects that have been completed. The team also benchmark NGT's portfolio with other gas distribution innovation projects and whilst the nature of transmission work can lead to higher prices (niche topic, higher pressure, different materials) we ensure that the comparison is carried out.

9. TO Network Operating Costs

9.1 Faults and Planned Inspection and Maintenance

NGT maintains, repairs and upgrades 8000 km of pipeline, more than 60 compressor units, over 20 compressor stations, more than 500 above ground installations and 8 connected distribution networks through a highly skilled team of over 600 technicians and engineers across Great Britain. We also provide 24-hour emergency response, 365 days a year, to a large and complex regional asset base, ensuring security of supply is always maintained.

Our direct opex costs relate to our field-based workforce who are responsible for delivering asset steward responsibilities, in line with our ISO5500 compliant asset management-based organisational structure.

Our maintenance and fault operational activities cover two areas:

1. Policy Driven Maintenance

Directly aligned to maintenance policy requirements which are specific to the asset, original equipment manufacturer (OEM) recommendations and broader legislation. Work is scheduled based on these outputs through our planning and scheduling processes.

2. Reactive Maintenance / Repair

Aligned to defects identified through normal activities or where asset condition is not as expected and further maintenance or repair activities are required. Dependent on the scale of the defect found, different processes are followed, some delivered directly through our Operations function while others will fall into Asset Health and be delivered through a project.

We have out of hours standby rotas for compressors and pipelines, filled by Supervisor and Technician roles responsible to responding to:

- **Compressor Trip / Breakdown**

Based on network operational requirements and asset issues. Response is to make safe and make available, if possible.

- [REDACTED]

- **Aerial Sightings**

Investigation of reports of third party interference and asset protection. Based on categorisation this drives an immediate or next calendar day response.

- **Third party request / complaint**

Response determined by the categorisation of the request, from emergency to planned works and minor work requests.

- **Contractual requirements**

Network Exit Agreements (NExA) which have contractual obligations to respond and report.

[REDACTED]

faults, by their nature, are non-standardised and require immediate rectification. However, where activities have been performed previously, cost is based on historic run-rate using outturn data being the most robust indicator of future costs.

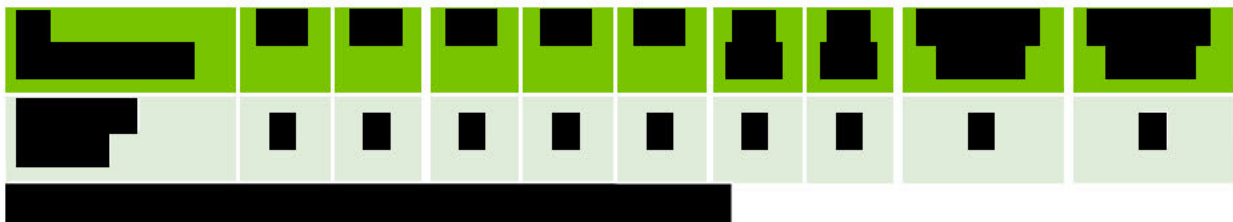
We regularly benchmark our salary costs using leading benchmarking providers through comparison to the market reference point as detailed in Section 3.4.

A proportion of our operations function FTE costs are allocated against the faults and planned inspections and maintenance categories in line with the type of work undertaken. The NGT_A13_Workforce and Supply Chain Resilience Strategy_RIIO_GT3 Annex details key drivers and movements of FTEs.

As noted in Section 8.4, the surveillance strategy has been through a detailed costing process as part of the Innovation Business Case that has been created taking into consideration quotes and historic data to generate accurate costs.

9.2 Operational Property

Operational sites are directly associated with the transmission of gas. We operate a portfolio of 31 operational sites, which includes over 60 compressors at over 20 compressor stations, 7 gas terminals and 3 international interconnectors. The running costs of these sites, including rent, maintenance and own use electricity fall within the operational property costs category (Table 9.2).



Of the RIIO-GT3 cost base, 62% [REDACTED] arises from own use electricity usage and running costs similar to 2023/24 levels. Each compressor station comprises [REDACTED] pressurising and directing gas through the NTS at speeds of up to 25 mph (40 km/h). We use electricity to power our compressor units. Our electricity costs are directly related to compressor running hours and the unit price of electricity. Our annual compressor running hours are relatively consistent. However, we are subject to market rates and conditions for the unit price of electricity which has recently seen high levels of volatility. It is challenging to fully mitigate the risk of volatility in our own use electricity costs; hedging techniques were used in RIIO-T2 to help reduce risks and maintain a clearer, more accurate future forecast. Similar techniques will be utilised in RIIO-GT3 to ensure we are not unduly exposed to market fluctuations. A flat phasing based on recent run rates provides our best view of future electricity prices.

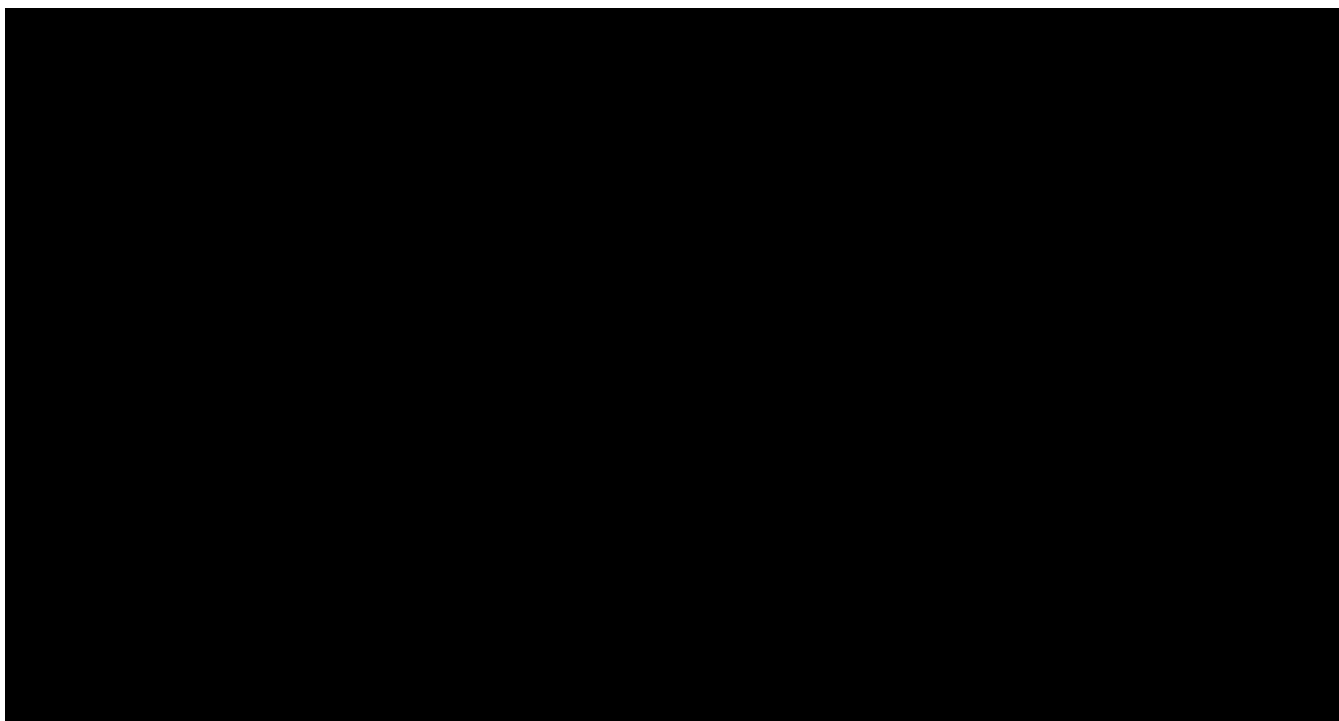
Ongoing running costs associated with our operational property sites account for £20m of RIIO-GT3 expenditure. Our sites are party to lease agreements and have maintenance requirements to ensure the site is operating safely and effectively. Lease and maintenance costs represent consistent cyclical annual spend; leases have a fixed annual cost and maintenance works are carried out routinely as part of a maintenance schedule.

Cost assessment and benchmarking

Activities within operational property generate costs which are typically observable and comparable within the wider market.

To ensure leases are secured at the best available terms and market rates, we appoint real estate consultants who provide recommendations based on comparisons with market evidence and negotiations with landlord representatives. Our services, such as maintenance, have been through recent tender processes, ensuring our services are at market tested rates.

Own use electricity has been included at outturn rates and usage levels. Both rates and usage are obtained from third party information and meter readings. Figure 9.3 shows most recent historical data demonstrating market rate volatility as the driver of total own use electricity cost with usage remaining relatively consistent.



10. SO Network Operating Costs

As the National Gas System Operator (GSO), we are the sole operator of the gas NTS in Great Britain. The GSO is responsible for operating, controlling, and monitoring the Gas NTS in real-time, making gas available when and where our customers across Great Britain (GB) need it, playing an essential role in keeping Britain's homes warm and its industry moving. The GSO also facilitates the efficient operation of the GB gas market.

We operate the NTS in line with our 'Primary Gas Transporter Safety Case' ensuring that pressure is maintained in the NTS within safe limits and that the quality of the gas we transport complies with the Gas Safety Management Regulations (GSMR). We deliver value for our customers by providing the required transmission capacity and flexibility when it is safe to do so. We also provide critical information and data to allow customers to make effective and efficient decisions for their businesses.

We undertake various activities to fulfil these responsibilities:

- Planning and operating the high-pressure gas transmission network in real time to balance supply and demand, ensuring gas consumers can safely access the energy they need, when they need it.
- Facilitating an efficient GB gas market through the provision of information and systems that underpin the commercial regime in GB and raise proposals to improve GB gas market arrangements.
- Coordinating access to the NTS to enable the delivery of maintenance and capital works whilst ensuring the network has sufficient capability to meet the needs of our customers.
- Optimising our commercial and operational activities to create business and consumer value through our regulatory incentives and minimise our impact on the environment.
- Working closely with other UK energy institutions and European TSOs to safeguard GB Energy Security and are responsible for the industry wide arrangements to manage a National Gas Supply Emergency.
- Acting as trusted advisors to Government and Ofgem, helping to protect and enhance GB energy security whilst enabling the transition to Net Zero.

We incur costs over various regulatory categories to carry out these critical activities (Table 10.1).

[illegible]

Table 10.1 : SO Network operating costs as included in BPDT 5.4

In RIIO-T2, the gas system operating environment has been particularly volatile with the continued evolution of operational challenges, such as the coronavirus pandemic, global gas price crisis and the war in Ukraine. Despite these challenges we have continually adapted to facilitate 100% of gas requirements for our customers, whose use of the NTS has changed, needing more flexibility than ever before to respond to unprecedented conditions in the global gas market.

Our RIIO-GT3 business is detailed in NGT_A10_System Operator Annex_RIIO_GT3 annex. Our strategy builds on our RIIO-T2 progress and performance to deliver our commitments to meet our critical obligations every hour of every day, drive better performance and service and enable efficient gas market operations through our data. We will deliver this through actions aligned to our regulatory priorities:

- **Infrastructure fit for a low-cost transition to net-zero**

We will pave the way to net zero by facilitating the evolution of Hydrogen blending along with understanding the impact on the natural gas network of repurposing assets to transport alternative gasses. We will evolve our approach to Strategic Network Planning and long-term forecasting, working with the National Energy System Operator (NESO) to ensure a whole system approach is adopted.

- **Secure and resilient supplies**

We will continue to operate the network safely, efficiently, and reliably in an increasingly volatile environment. We will enable access to the network to deliver a bigger AMP in RIIO-GT3. Identifying opportunities to maintain and enhance operational resilience by growing our capability to understand the impact of changes within the energy market will be vital; as will working closely with NESO in the continued establishment of the Office of Resilience and Emergency Management (OREM).

- **High quality of service from regulated firms**

We will facilitate the transformation of the energy industry through evolving natural gas commercial market frameworks, working with the NESO in developing future market strategy and enhancing our capability to provide data and information to the gas market.

Activities undertaken by our GSO to support these priorities span multiple regulatory categories, overall increasing the GSO's network operating costs have increased by [REDACTED] from RIIO-T2 to RIIO-GT3.

- **Hydrogen blending**

RIIO-T2 has been the start of a period of transition towards net zero as we have continued to support the fundamental changes occurring across the industry. Volumes of hydrogen blending are expected to grow within RIIO-GT3 along with diversity of supply and locationality. To enable the expected growth, we will carry out the network analysis for blended connection requests as we anticipate the volume of connections to increase. Further refinement to market arrangements is likely to be needed to facilitate the operability of a blended gas network. Additionally, engagement with connected TSOs, EU TSOs, and Ireland will continue within RIIO-GT3 to understand the evolution of blending plans and impact of blending in GB. Incremental resource requirements are required in RIIO-GT3 to undertake these activities.

- **Energy Resilience**

Within RIIO-T2 geopolitical events had a profound impact on the gas industry, bringing greater focus on the resiliency of energy supply and transportation. Within RIIO-T2 we worked closely with DESNZ and Ofgem on a combination of measures to improve the resilience of the NTS, recognising the need for its durability in the longer-term. This includes providing further clarity in our Transmission Planning Code on our proposed network investments, ultimately leading to a fuller review of the way we do Transmission planning; reviewing and analysing the single points of failure on the NTS and agreeing with Ofgem the needs case for investment upfront to enable the regulatory decision to be around cost efficiency. We have also been developing a methodology to ensure a stable risk profile is maintained and implementing tools and strategies to ensure gas commodity security of supply. To deliver DESNZ resilience

requirements, we have created an energy resilience team, which has been stood up part way through RIIO-T2. This team will be in place for the full term of RIIO-GT3 and further capability added to support delivery of emergency response legislative requirements and enhance market modelling capability.

- **National Energy System Operator**

Following the Energy Act 2023, NESO will be established within the RIIO-T2 period. As outlined by Ofgem the NESO will play an important role in coordinating and ensuring strategic planning across the sector. The Future System Operator (FSO) will adopt a 'whole system' approach within the energy system through responsibilities in operating, strategic network planning, long-term forecasting, and market strategy. NESO will be established with the remit to undertake gas market strategy and delivery functions. Although we are yet to understand the scale of NESO's market development activities within RIIO-GT3, we anticipate this to be significant based on the size of the gas market development function in the organisation. Within RIIO-GT3 we will also continue with a significant programme of gas market strategy activities, supporting the business as it evolves and to provide benefits to our customers, stakeholders and ultimately end consumers. We have increased resource and capability within Markets and Commercial & Incentives to manage market changes expected as part of NESO's market development activity and the move to a whole-system approach to the energy network.

- **Network Access**

Our customers need unrestricted, flexible access, and utilisation of the NTS which requires a resilient network with reliable assets. In RIIO-GT3 we will deliver an increased capital program to ensure the resilience of our network; to achieve this level of investment an increased volume of shutdowns (including scheduling and undertaking safety responsibilities for delivery of the shutdown) will be required. Our GSO works with our GTO to form the AMP delivery plan, working to align activities and identify delivery timescales to maximise efficiency and minimise disruption to our customers. To expediate the delivery of the volume increase in the AMP and maintain network reliability for our customers, we intend to utilise a longer timeframe for shutdown periods (). We will form a shutdown plan which covers a longer period in the year, plan for more shutdowns, define the short-term operational risk and strategy and deliver network access safety obligations over a longer period.

At the beginning of a price control, we assess the deliverability of the proposed AMP over the forthcoming years, including the ability to schedule the required shutdowns, this will inevitably change and evolve as time progresses and requires constant refinement and validation. In RIIO-T2 this has been largely reactive, in RIIO-GT3 we need to do this more proactively to deliver the increased level of investment. The shutdown program will inform the AMP delivery; we can take a more flexible and agile approach to planning shutdowns, making adjustments where it is optimal to do so; we can work more closely with our customers to give greater visibility of when shutdowns impacting them may occur; and enable the supply chain to ramp up to deliver materials required for the investment with greater certainty on timing.

- **Xoserve**

e have a reduction in costs for historic Xoserve investments that have been depreciated over the asset life in previous price controls (all future investment is treated as being funded in the year it is incurred).

We have market tested costs against NESO, market reference points and through external benchmarking

Previous studies of our GSO have attempted to benchmark against European System Operators but have ultimately found this to be challenging and to not yield any relevant comparisons due to there being significant variations across the European SOs such as differing definitions and roles, different regulatory regimes and difficulty in producing comparable cost information.

In Great Britain, we are the only GSO, there is however a National Electricity System Operator (NESO) which operated as the ESO under the same regulatory regime until 1 October 2024. NESO fulfils a similar role to the GSO, albeit transporting different energy sources and through cables rather than pipelines. The GSO has a similar network length to the ESO (~8,600 km of overhead and underground cable) but transports more than three times as much energy (1018 TWh vs 342 TWh) and has less than a third of the workforce.

As the ESO and GSO perform comparable activities, workforce skill sets and role requirements are similar across organisations. Comparing the average employee cost in 2023/24 shows ESO's net employee costs per FTE were [REDACTED] NESO is going through a time of transformation through set up and separation from National Grid. We have therefore also considered a pre-separation period (2021/22) observing the ESO workforce remains [REDACTED].

While benchmarking our SO at function level is challenging, we are committed to market testing our costs, where possible. The majority of our SO costs are labour costs (86% labour and 14% mainly related to third party services, excluding Xoserve). Our salary costs are benchmarked using leading benchmarking providers, where we compare salary costs by role to the market reference point (Section 3.4). SO functional workforce movements, drivers and justification are detailed within our NGT_A13_Workforce and Supply Chain Resilience Strategy_RIIO_GT3 Annex.

Third party service costs are based on historical outturn and contracted prices, reflecting recently obtained market prices.

Xoserve costs are subject to a commercial agreement with Xoserve and covers a 5-year period from year 2024/25. Periods after the contract end rate have been assumed at the same annual rate. Xoserve is regulated by Ofgem and we have limited control over costs incurred. For cost assessment purposes we have relied on contracted rates as market tested prices.

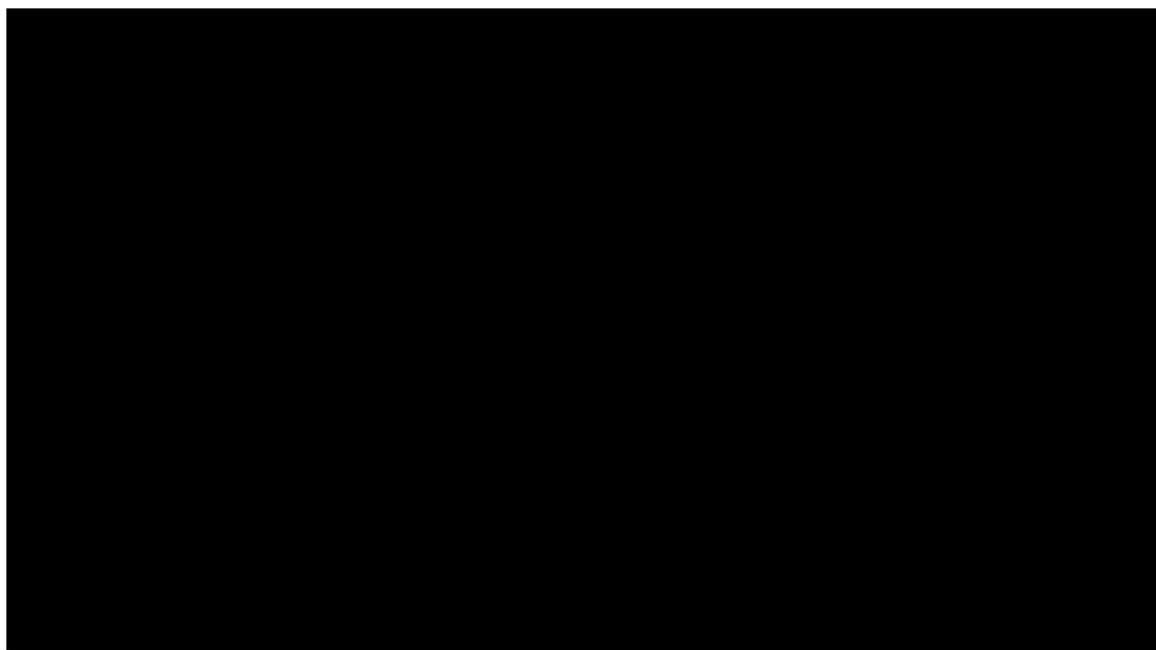
11. Closely Associated Indirects

11.1 Overview of closely associated indirect costs

The Closely Associated Indirects (CAI) regulatory cost category relates to activities which support the load and non-load work we carry out on the Gas NTS but are not directly carried out on system assets. This includes asset management, engineering support, health, safety, and environment (HSE), network related information technology and telecoms (IT&T) and operational fleet support.

CAI expenditure comprises labour costs (60%) and other materials, goods and services such as those sourced from third parties (40%). The proportion of labour costs directly supporting capital projects are capitalised into our unit cost base. The costs referred to in this chapter cover opex, the non-capitalised element of the indirect costs.

CAI total expenditure in RIIO-GT3 reflects the scale of work required to deliver our network resilience strategy (Chapter 6), changes in policy such as HSE and risk assessment (Section 11.2) and future proofing such as increasing apprentice intake (Section 11.4). Our CAI cost base has risen in absolute terms from an annual average cost of [REDACTED] reflecting the increased interventions on the network. However, shown in Figure 11.1, in relative terms, the CAI cost in comparison to total capex (best view capex used, to provide comparability to RIIO-T2 and recognise requirements to plan delivery of full business plan) decreases across the RIIO price control periods as we deliver and embed more efficient ways of working.



We have effectively embedded an efficiency of [REDACTED] in business as usual (excluding changes in policy), like for like (aligning regulatory mapping of apprentices) CAI costs.

For the purpose of this annex, we have aggregated CAI regulatory cost categories based on business units, key drivers, commitments and benchmarking or cost assessment activities. Closely associated direct costs are discussed in the following sections:

- **Section 11.2 – asset related**
Costs related to our asset management function which share the common cost driver of network

intervention and investment and are core to delivering our commitments to ensuring the safety of our workforce and public and keeping the gas flowing.

- Section 11.3 – operational IT&T**
 Costs relating to our IT Function with a commonality of being benchmarked by Gartner and in supporting our commitment to enable our activities through IT and data.
- Section 11.4 – operational training**
 Costs incurred in providing training and apprenticeships to our workforce support our commitment to investing in our people.
- Section 11.5 – vehicle and transport and stores and logistics**
 Cost incurred in support of our fleet and logistics activities within our operations function.

11.2 Asset related

Continuous investment and optimised asset management decision making is required to ensure the reliable and safe operation of the network meeting tolerable risk criteria and compliant with all relevant legislation. Data is imperative to the comprehensive operation of critical asset management, operational and construction processes. We ensure our vast amounts of asset data are of the highest possible quality, accessible and trustworthy. Asset data flows through all of our core processes and correct management of that data underpins many of our business processes and legislative obligations.

Investment in RIIO-GT3, in the form of CAI costs, informs future intervention decisions and addresses process safety risks. Activities within our asset CAI seek to understand the extent of safety and reliability concerns on the network and to provide robust scope, volume and cost forecasts for capital funding projects. Therefore, there is a direct relationship between the Asset Management Plan (AMP) capex and the CAI spend in the regulatory categories shown in Table 11.2.

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Asset Management Plan (AMP) opex										

Our asset function is responsible for developing the strategy and plans to optimise the investment and maintenance of current and future assets. [REDACTED]

Our core focus is on future state asset management, engineering business planning and real-time defect assessment and mitigation. We have a highly skilled engineering team who ensure our assets are set up, operated, maintained and calibrated. They have ownership of technical standards and processes, including high risk defect monitoring and mitigation.

Our asset function owns and manages the asset modifications process (G35), project quality assurance (QA) and project engineering support as well as other critical integrity processes that support compliance with electrical and mechanical legislation and supplier quality assurance. Undertaking a large capital program requires diligent investment planning and reporting to facilitate and co-ordination a successful delivery of the capital program. Our AMP is translated into a workbook of deliverable projects which the asset team hand over to our delivery units in the construction and operations functions for delivery whilst maintaining responsibilities of tracking, reporting on progress and holding delivery teams accountable for ensuring that projects deliver the agreed outcomes.

In RIIO-GT3, our larger capital programme enhancing the resilience of our network requires increased capacity and capability required of our asset function [REDACTED] mainly impacting network design and engineering, engineering management and clerical support and network policy. As our asset function are integral through the end-to-end process; from planning and co-ordinating project delivery, providing engineering support and ensuring asset data is captured correctly once works are complete, the higher number of interventions and projects lead to the requirement for a larger workforce and higher level of support. Included within Engineering management and clerical support are additional requirements within our operations function which relate to our larger capital program:

- [REDACTED]
- **Planning capability** [REDACTED]
An increased volume of projects and complexity of network access needs requires additional planning capability in each region. This will be critical in mitigating delivery risks across capex, maintenance and non-routine works.
- **Compliance support** [REDACTED]
We ensure safety and compliance across the network in the context of an ageing asset base and Increased capital investment plan. Additional compliance officers are required for compliance support for system operation and safe delivery of the capital plan.

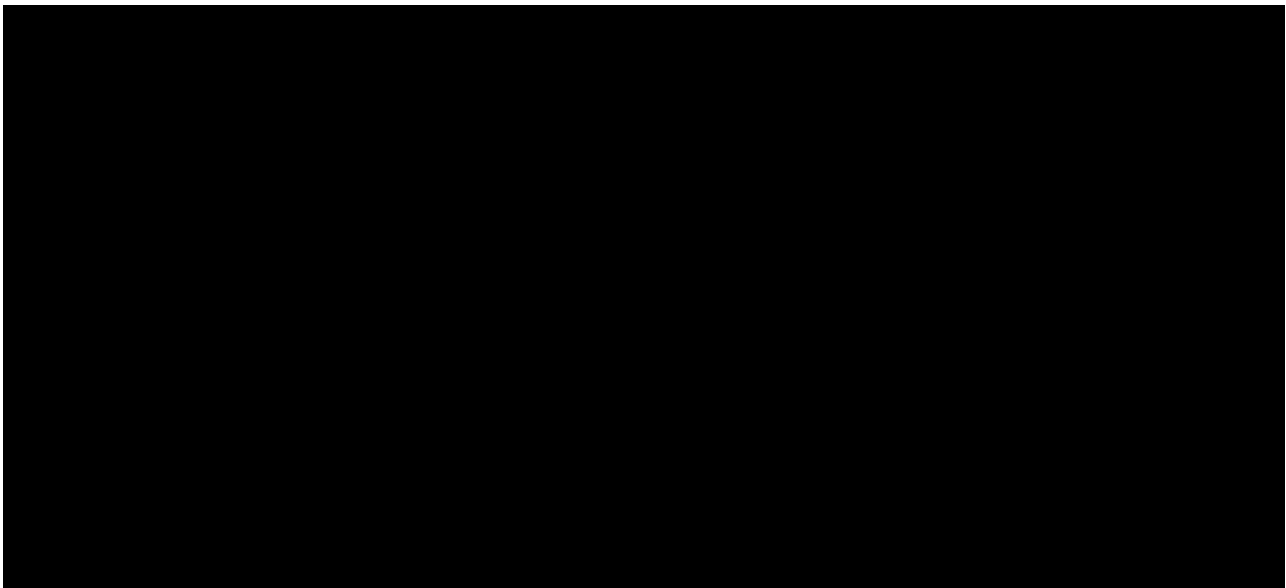


Figure 11.3 : Waterfall between RIIO-T2 and RIIO-GT3 asset related CAI cost

HSE is imperative in everything we do; requirements are continually evolving, and we strive to make continual improvements as one of our top priorities. We deliver our HSE responsibilities through robust Management System frameworks that are aligned to ISO45001 and certified to ISO14001. Our HSE team set these frameworks and help the organisation to consistently identify and control risks, reduce the potential for incidents, support compliance to legislation and drive continual improvement. Our RIIO-GT3 HSE costs are impacted by enduring maintenance policy changes and one-off projects:

- **Maintenance policy changes**

Additional technicians and operatives are required to deliver an increase in maintenance activities driven by enhanced safety and environmental standards. Our internal policy team also identified changes required to comply with other standards including functional safety, pipeline maintenance and Dangerous Substances and Explosive Atmospheres Regulation (DSEAR) compliance. Examples of policy changes and enhancements are:

- Alignment to international asset maintenance standards resulting in proof testing procedures (PTP).
- Enhanced diagnosis of valve faults supporting existing defect management processes and producing better intelligence to inform justification of interventions. Through use of diagnostic and remediation techniques, we will better demonstrate values are end-of-life and all options prior to replacement have been exhausted.
- Guidance on scrub and vegetation clearance linked to a scheduled task.
- Targeted and regular marker post vegetation clearance, particularly at crossing points.
- Additional cathodic protection technicians to undertake routine maintenance and remedial works. Improving cathodic protection compliance will reduce number of In Line Inspection (ILI) runs and resources required, as well as the outages required to undertake the remedial works.

The HSE cost increase in the first 3 years of RIIO-GT3 is partially due to the inclusion of one-off projects at the start of the price control to ensure our network risk is managed at appropriate levels. The projects inform future re-openers on capex investment (for each one-off project a “do nothing” scenario has been considered) and mainly relate to surveys to understand safety risk assessment and determine strategy for mitigation:

- [REDACTED]

- [REDACTED]

- [REDACTED]

- **Process safety information** [REDACTED]

- **Safety improvement initiatives** [REDACTED]
 - [REDACTED]
 - [REDACTED]
 - [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

External cost sources and trend analysis support the increase asset related CAI

The asset related element of our CAI cost base comprises [REDACTED] labour costs with an increase in 81 FTEs (from 2023/24 to 2030/31) required to deliver the increased capex workbook. Our NGT_A13_Workforce and Supply Chain Resilience Strategy_RIIO_GT3 Annex details movements and key drivers for our FTE requirements.

Salary costs are benchmarked using leading benchmarking providers, whereby we compare salary costs by role to the market reference point (Section 3.4).

The Customer and Stakeholder Team with our Commercial function has also been benchmarked against the energy industry and a wider comparator set as detailed in Section 12.2.

Historical outturn information is used to inform non-labour costs. There are a limited number of cases where management adjustment to the outturn costs leads to a more robust forecast. An example of this is river crossings which have been built using a bottom-up build based on volumes across the RIIO-GT3 period.

One off safety project costs are provided by external consultants based on quotations of previous works and time required at each site or activity.

We have crosschecked our asset management CAI against the AMP. As discussed previously, CAI costs move broadly in line with the AMP. However, this is not the only causal cost relationship and multiple underlying drivers impact the cost base such as risk appetite and regulation and policy decisions. Figure 11.3 illustrates movement in the asset function related CAI against movements in our asset management plan (specifically for load related and non-load related capex). Whilst there is not a direct linear relationship between these variables, a relationship is evident. Costs within these regulatory categories tend to increase in periods preceding an increase in capex spend on the network as CAI activities are typically initiated in the build up to works on an intervention.

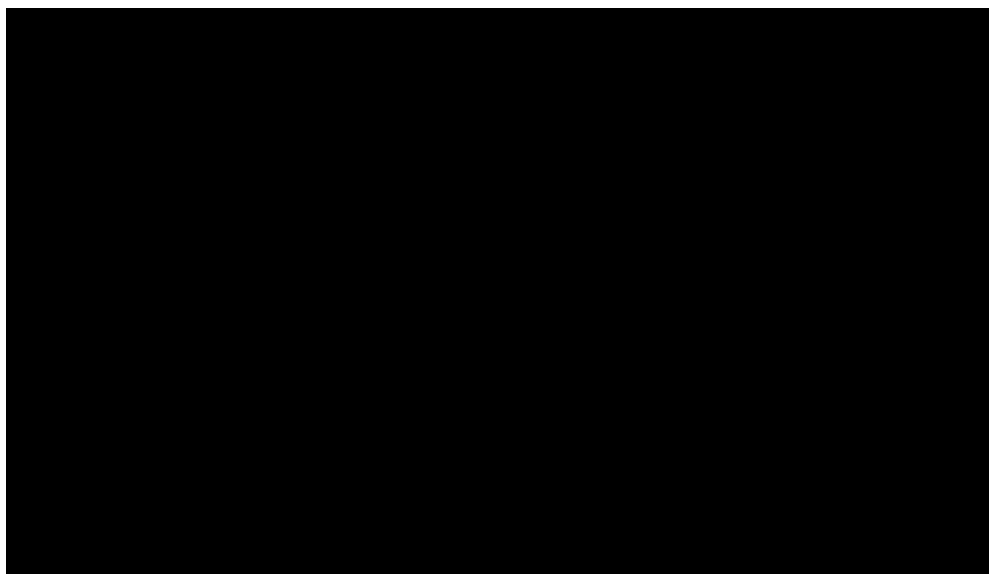


Figure 11.4 : Comparison of trends in asset related CAI and asset capex

Efficiencies

Figure 11.5 illustrates the average cost per annum for these CAI categories for each price control the percentage of these CAI categories compared to load and non-load capex (including control system uncertainty mechanisms to provide comparability to RIIO-T2). While costs have increased in absolute terms in RIIO-GT3, costs in percentages terms to a key driver have remained reduced compared with RIIO-T2.

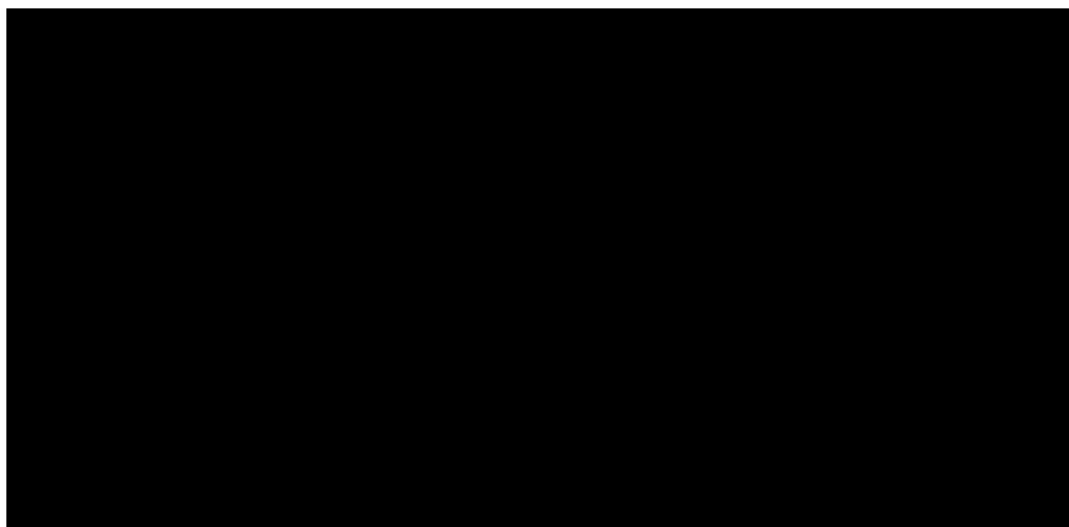


Figure 11.5 : Average annual CAI cost over each price control

11.3 Operational IT & Telecoms

Our Operational IT and Telecoms enhance and are essential to the delivery of our NGT-wide work programmes by providing highly available, secure, cost effective, reliable, and resilient systems that are aligned with our priorities (regulatory, customer and internal) and our commitments.

These run-the-business costs (RTB) are categorised across CAI and business support regulatory opex dependent on the specific activity. Categorisation of IT RTB costs between regulatory categories has been assessed on a contract-by-contract basis and non-project people costs are fully attributed to business support. The CAI element of RTB costs is shown in Table 11.6.

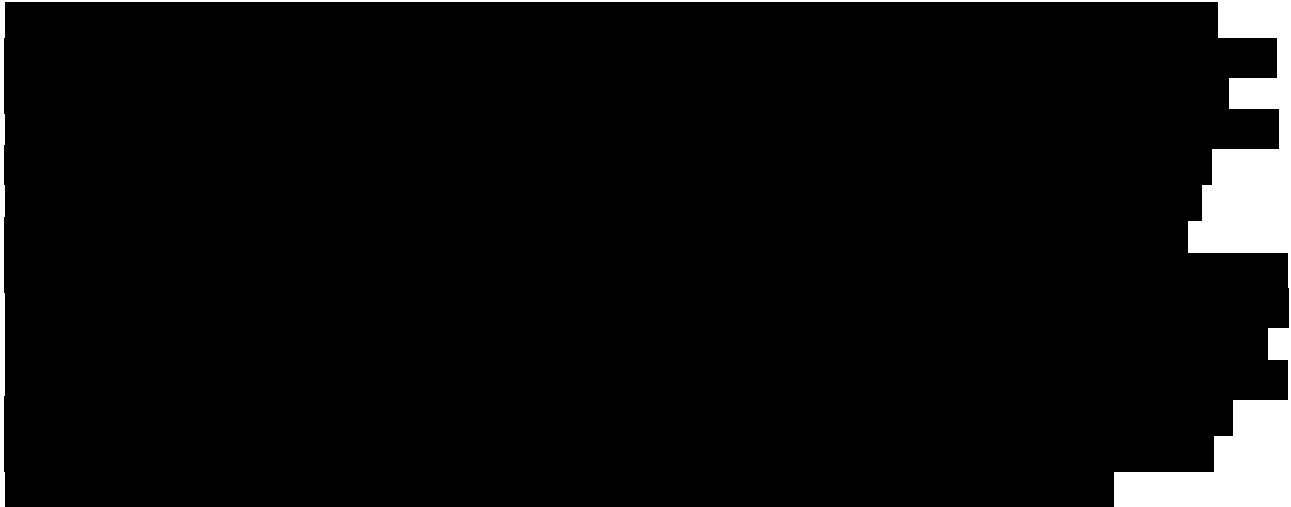
£m 23/24 price base	FY27	FY28	FY29	FY30	FY31	GT3 Total	GT2 Total	GT3 Annual Average	GT2 Annual Average
Operational IT & Telecoms	13	14	13	14	14	68	55	14	11

Table 11.6 : Operational IT&T costs as included in BPDTs 5.1 and 5.2

Prior to 1 February 2023, NGT was part of National Grid Group with costs allocated from an IT function providing services across all group companies. From 1 February 2023 until 31 January 2025, National Grid Group continue to provide IT services to NGT under a Transitional Services Agreement (TSA); a fixed price commercial agreement. From 1 February 2025, NGT will operate its own IT function providing all services as a stand-alone business. The RTB costs included in this submission are based on the target operating model proposed for the stand-alone function and associated market prices for all the non-people costs.



The cost increase of £13m between RIIO-T2 and RIIO-GT3 is driven by two main factors. The IT cost base has been reallocated between CAI and BSC to better reflect the underlying activities (resulting in [REDACTED] reallocation of RTB costs to CAI compared to RIIO-T2), mainly in relation to data centre, asset management and other support costs. The reallocation between CAI and BSC has been offset with lower IT project opex spend within our investment plan, with a higher proportion of project being capitalised within IT & Telecoms Non-Operational capex (section 8.1).



Our market tested costs have been benchmarked by Gartner

Our RTB costs are based on re-contracting events undertaken across the period of operation under the TSA from February 2023 to January 2025 as part of our setting up as a stand-alone business. Costs are therefore based on market tested prices and contracted rates giving a high degree of cost confidence.

We are committed to submitting an efficiently costed plan and have therefore performed external benchmarking where our costs can be fairly compared to other companies. This is the case for our IT function, given the activities are comparable to other energy networks and industries. We appointed Gartner, an external consultancy firm, to benchmark our IT RTB costs through independent assessment and benchmarking against a group of similar UK-based peers.

Gartner benchmarked RIIO-GT3 IT opex in totality (combining CAI and business support elements) removing the regulatory constructs not applicable to the majority of UK-based companies and assessing the IT function in its entirety.

We have been benchmarked against standard IT RTB metrics such as spend as a percentage of revenue and spend as a percentage of operating expenses. Revenue is used to calibrate size and is the standard global industry benchmarking approach. As regulation is designed to simulate industry competition, application of industry approaches can be considered a reasonable approach, although it may disadvantage regulated infrastructure companies given pace of recovery of investment via allowances.

The outcome of the benchmarking placed us between the peer average and 75th percentile against standard industry metrics suggesting a high degree of service provision and quality and consistent with the higher security classification of our infrastructure compared to some peers. This may also be reflective of our accelerated move towards cloud-based solutions as part of our separation from National Grid Group, with such solutions spend being more heavily weighted to opex than capex.

Further details on Gartner benchmarking can be found in the Gartner benchmarking report (NGT_C01_Gartner Review of IT Costs and Benchmarking of comparable costs).

11.4 Operational Training

Operational training is the activity of training, up-skilling and onboarding our operational staff. Training of new recruits as part of an onboarding process ensures our workforce performs safe and competent works on our network. Refreshing and up-skilling experienced staff members through operational training keeps our workforce up to date with new procedures and ensures their skill sets are maximised.

We have made the commitment to invest in our people recognising we face multiple challenges across RIIO-GT3 in building and maintaining workforce capability required to deliver our capital plan, perform against our commitments and improve efficiency of delivery.

Attracting and retaining young people with STEM qualifications continues to be a challenge. STEM roles account for 18% of the UK's total workforce and it is estimated that the UK economy suffers a loss of £1.5bn per year due to STEM skills deficits. With 20% of the UK's engineering workforce due to retire by 2026, a major factor driving shortages is an ageing population, coupled with a lack of STEM skilled students moving into correlating disciplines post-education as noted by Engineering, Construction Industry Training Board.

Specific skills shortages highly relevant to NGT such as project and cyber engineers and electrical and instrumentation technicians are mirrored across the industry, as well as cross sector disciplines such as quantity surveyors, data scientists, cyber security experts, and project managers. We therefore need to ensure we are building the pipeline of future talent as well as competing for current talent.

Our plan reflects the measures we will take to address these issues including maintaining a higher level of recruitment and investment in training, expansion of our apprentice intake and setting up a new training facility. The operational training costs shown in Table 11.7 also reflect re-categorisation of all apprentice related spend (████) from RIIO-GT3 in line with the RIIO-GT3 Gas Transmission Price Control – BPDT Guidance⁸.

£m 23/24 price base	FY27	FY28	FY29	FY30	FY31	GT3 Total	GT2 Total	GT3 Annual Average	GT2 Annual Average
Operational Training	11	12	13	13	13	61	18	12	4

Table 11.7 : Operational training costs as included in BPDts 5.1 and 5.13

Our costs within operational training comprise training courses and materials (████), FTEs aligned to delivering training (████) and labour costs for apprentices through our apprentice scheme (████).

As of September 2024, we have 120 graduates and apprentices (6% of total company employees) in the organisation participating in our entry level talent programmes (graduates and apprentices) against a sector average of 4.4% of total company employees (EUS). The skills we need in our organisation can be specialist given the nature of managing critical national infrastructure and being responsible for transporting high pressure gas through our network. We recruit apprentices and graduates into the organisation as part of our trainee programmes. Intake during separation from National Grid was around 30 people per year while we built our brand and offering. With a more established organisation and insight into our longer-term needs, we have increased our early talent intake number to over 80 for our September 2024 cohort and are predicted to recruit 91 for 2025, with the intent to maintain recruitment and investment in trainees for the foreseeable future to address the capability issues seen in the industry workforce (further details included within NGT_A13_Workforce and Supply Chain Resilience Strategy_RIIO_GT3 Annex).

Through our apprentice scheme, we will recruit 40 operational apprentices per annum in RIIO-GT3.

⁸ RIIO-GT3 Gas Transmission Price Control – BPDT Guidance, Ofgem, 30 September, Table 5.1 and 5.2 – Transmission Owner and System Operator Indirects

Increased apprentice intake (31 per annum average over RIIO-T2) will mitigate skill and resource shortages across the industry and the loss of skill and expertise from an experienced workforce whose distribution is currently biased towards retirement age. Providing more apprenticeship opportunities necessarily impacts our training strategy with increased investment required to train this next generation of industry operatives. We expect our lower than average attrition rate (Section 12.2) to lead to a higher than average apprentice retention rate maintaining the skillset within NGT. However, we appreciate some apprentices will leave NGT for other opportunities benefiting the wider industry and mitigating whole industry skill shortages.

Figure 11.7 illustrates the current age profile of our operations function workforce against projected age profile by the end of RIIO-GT3. The profile without the apprentice scheme assumes no changes to our workforce other than aging. The age profile with an apprentice scheme assumes an apprentice intake of 217 from 2024/25 to 2030/31 (net of 10% attrition) over RIIO-GT3 and these apprentices replace existing roles in the same proportions as our current age distribution. Our apprentices are school leavers and join the 4-year apprentice scheme at 16 to 17 years old providing a consistent influx of talent in an area with skill shortages, as well as impacting the operational workforce age profile significantly.

Currently, 101 FTEs are in the 55+ category, which will increase to 180 by the end of RIIO-GT3 if no action were taken to attract and train new employees. We require a gross apprentice intake of 200 FTEs over RIIO-GT3 (260 FTEs between 2024/25 and 2030/31, 217 net of attrition) to reduce the projected percentage of workforce within 10 years of retirement (assuming 65 year retirement age) from 27% to 18%, providing continuity in skill set. Further to Figure 11.8 which assumes no other changes to workforce other than aging and apprentice intake, we would expect a reduction in the 65+ category through retirement and a more even profile of aging as time progresses and apprentices move through their career at NGT.

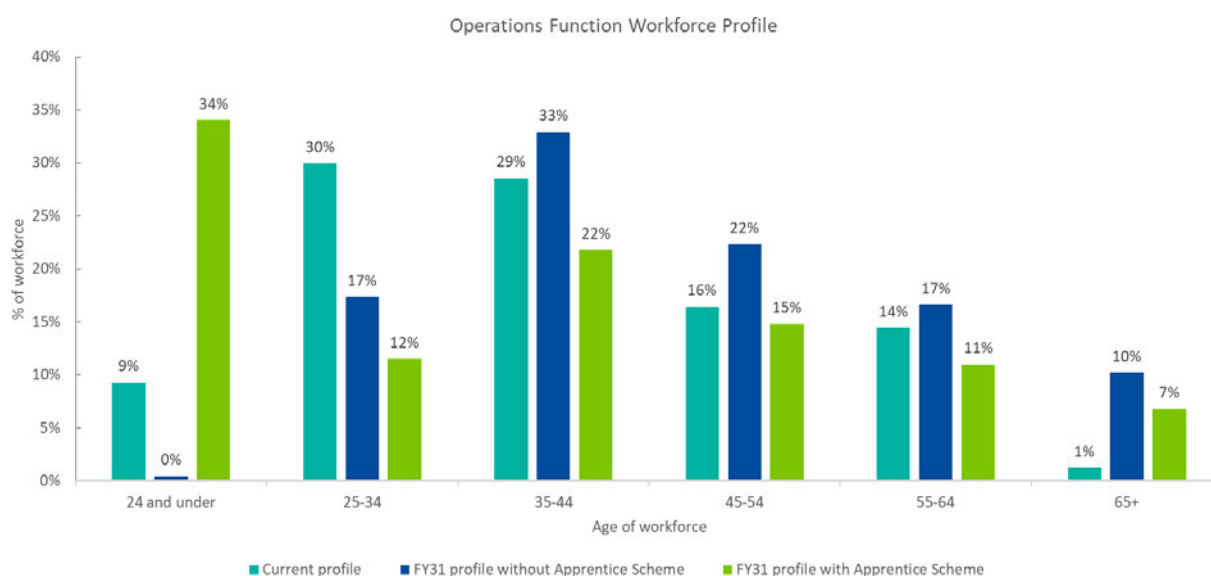


Figure 11.8 : Impact of timeframe and apprentice scheme on the operational workforce profile

Our training courses for operational staff focus on four key areas; mechanical gas, electrical and industrial, general plant and engineering and health, safety and environmental. These training courses are imperative to safe, efficient and effective works on our gas network, ensure our experienced workforce remain highly skilled and our new apprentices develop the skills required to perform their roles. The increase in the number of apprentices impacts operational training costs, as apprentices have a higher training requirement through a structured apprentice scheme, compared to more experienced staff members.

We will invest further in our workforce by building a multifunctional and industry leading centralised training facility [REDACTED] supporting new and existing staff (including apprentices) to build world class skills and

capabilities to deliver planned and emergency works across our gas NTS (Section 8.2 and 9.2).

Cost assessment and benchmarking

Operational training costs related to training courses have been forecast using training course prices from historical outturn data and volume of FTEs undertaking each course, leading to a market tested cost base.

Salary costs within operational training, including salaries relating to apprentice intakes, are benchmarked using leading benchmarking providers, whereby we compare salary costs by role to the market reference point (Section 3.4). FTE and apprentice scheme intake strategy is detailed further within the NGT_A13_Workforce and Supply Chain Resilience Strategy_RIIO_GT3 Annex.

Figure 11.9 demonstrates the relationship between the increase in our operational training costs and growth in our operational workforce through analysing cost per FTE. Apprentice FTE costs are excluded to allow a fair comparison between price controls. Cost per operations function FTE increases from £7k in RIIO-T2 to £8k in RIIO-GT3 mainly due increased trainers and course leaders forming part of our new training centres (Sections 8.2 and 9.2).

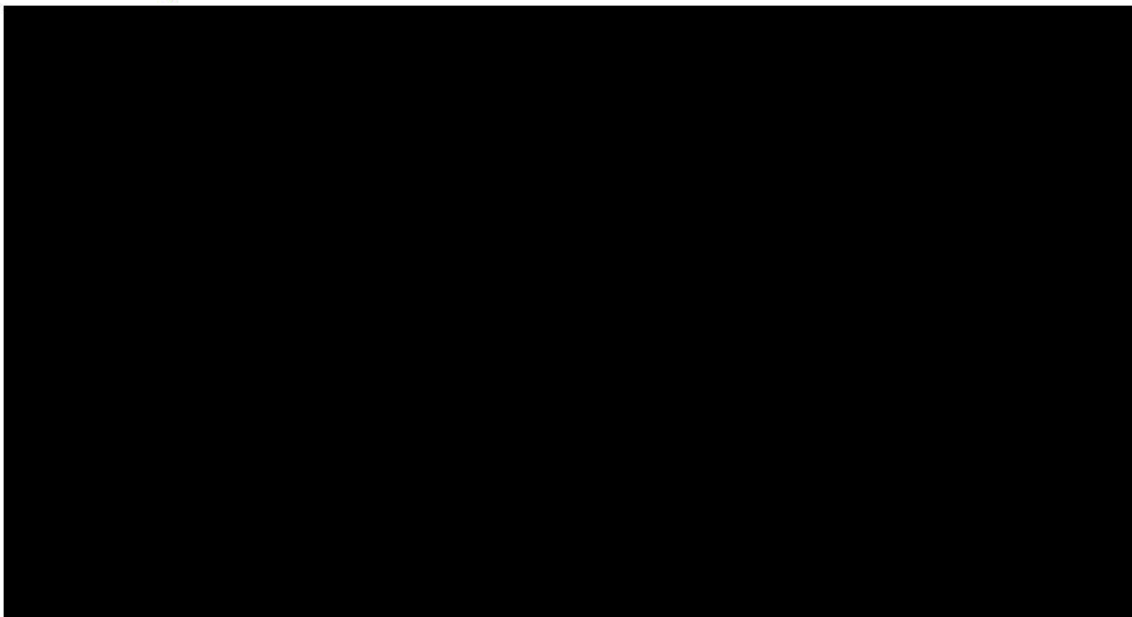
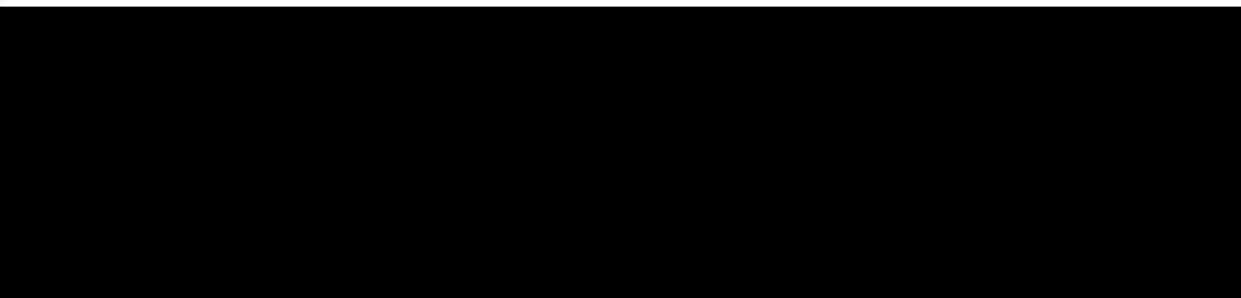


Figure 11.9 : Total operational training costs compared to £k per operations function FTEs.

11.5 Vehicles and Transport and Stores and Logistics

Vehicles and transport costs are related to fuel, maintenance and hire costs associated with our vehicle fleet. Stores and logistics costs relate to the coordination, movement, and storage of goods. We consider these together (Table 11.10) as both categories provide logistical support in delivering our operational activities.



We maintain, repair and upgrade our network through a highly skilled team of over 600 technicians and engineers across Great Britain. Our vehicle fleet allows our workforce to access our network, often in remote locations, to undertake required activities. Our growing workforce required to deliver our capital programme, leads to a [REDACTED] increase in vehicles required ([REDACTED]), with a corresponding increase in associated fuel, hire and maintenance costs.

Due to our internal policy to replace vehicles every 5 years we will see an efficiency in our opex running costs for our vehicle fleet as vehicles typically require significantly more maintenance after 5 years. We have embedded a saving of approximately [REDACTED] per vehicle per annum amounting to [REDACTED] across the RIIO-GT3 period.

Our current fleet contains [REDACTED] EV vans, growing to [REDACTED] by the end of RIIO-T2 (Section 8.3). The limited mileage range of EVs provides a challenge due the need to access remote locations. Initial EVs purchased are small panel vans which currently have a longer mileage range better suited to our requirements. Should these vehicles prove successful, we will continue to purchase EVs in RIIO-GT3. Fuel costs are forecast to contain the same mix of fuel type ([REDACTED] in RIIO-GT3, as observed in RIIO-T2).

Labour costs in managing our dedicated logistics centre and running an effective logistics solution fall within the stores and logistics regulatory cost category. Prior to separation, these activities were managed by a central function within National Grid with costs allocated to the regulated businesses. Since separation we have our own stand-alone logistics centres at various locations across the country (our main logistics centre based in [REDACTED]), employing 13 FTEs to effectively deliver our capex and maintenance strategy. We forecast only a marginal increase in costs despite delivering high quality services as a stand-alone function.

Our logistics plan is based on outturn costs and market data

Salary costs within stores and logistics are benchmarked using leading benchmarking providers, whereby we compare salary costs by role to the market reference point (Section 3.4).

Vehicle and Transport costs are forecast using latest historic outturn and flexed for fleet size based on the increase in operational workforce (NGT_A13_Workforce and Supply Chain Resilience Strategy_RIIO_GT3 Annex). Figure 11.11 illustrates the relationship between vehicle and transport cost and operations FTEs as the key cost driver.

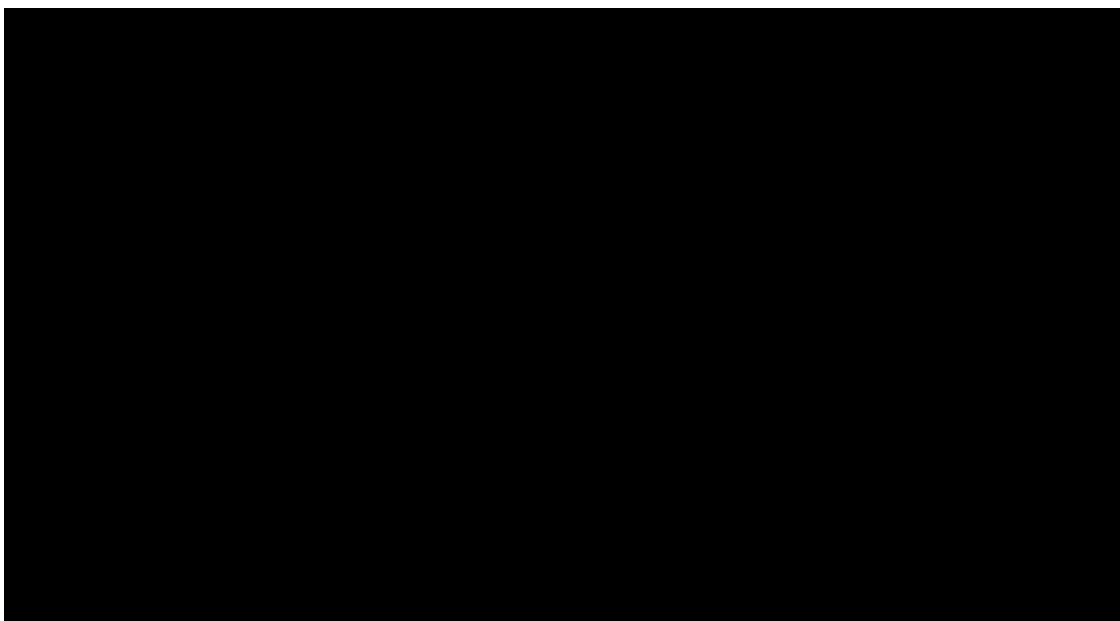


Figure 11.11 : Comparison of vehicle and transport costs to operational FTE numbers

11.6 Other indirect costs – Pension scheme admin and PPF levy

At National Gas we operate two main pension schemes; a defined benefit scheme for employees who joined the pension scheme before 1 April 2002 and a defined contribution scheme for employees enrolled after 1 April 2000. Pension scheme admin and PPF levy costs (Table 11.12) relate to the administration and protection of beneficiaries of our defined benefit scheme.

NGT's defined benefit pension scheme is a separate legal entity run by a trustee. Whilst NGT do not directly control the associated costs, we do provide a degree of oversight via our internal pension team. After separation from National Grid, the trustee undertook tenders to market test costs for pension schemes of similar size and complexity.

Average costs for the operation and administration of our defined benefit scheme are based on historical experience. Non-annual costs such as the costs associated with the triennial actuarial valuation are based on an average cost spread over an appropriate timescale.

For the business-as-usual element of our defined benefit scheme administration, we expect the activities being performed and therefore the cost to be similar to that observed in RIIO-T2.

Additionally in RIIO-GT3, the Trustee have a requirement to equalise guaranteed minimum pension (GMP) benefits following a court ruling in 2020. This is a complex process that most UK defined benefit pension schemes (including those of other network operators) are required to undertake. Costs of [REDACTED] have been included for carrying out an exercise to equalise these benefits, which primarily relates to the third-party advisor and implementation costs the Trustee are likely to incur. These costs have been established using technical expertise of internal pension experts and industry knowledge based on costs incurred by other pension schemes which are of comparable size and complexity to our own defined benefit pension scheme. Due to the complexity, unique nature and challenges of the GMP project, full details will not be fully uncovered until commencement of the assessment.

The profile of spend for RIIO-GT3 is relatively flat over the price control period with the timing of the GMP related costs uncertain and therefore currently flat phased. Pension scheme admin & PPF levy costs are not expected to fluctuate significantly from period to period due to the consistent nature of work required by the Trustee to manage the defined benefit scheme.

11.7 Other indirect costs - Quarry and loss

Quarry, crop loss and loss of development claims arise from losses suffered by landowners due to the presence of a gas transmission pipeline affecting the productivity or limiting utilisation of their land. These cover a range of land uses, including farming, quarrying and property developments.

Costs for Quarry and Loss are incurred when successful claims are made by landowners, at which point we have a requirement to compensate landowners for any justifiable losses that are incurred caused by the presence of the gas pipelines. The timing, value and quantity of claims are unknown and therefore costs for quarry and loss are challenging to forecast.

We have, however, incurred relatively consistent costs throughout RIIO-GT1 and RIIO-T2, averaging [REDACTED] per annum between 2013/14 and 2023/24. Costs naturally fluctuate from period to period, as these are non-regular costs, but have been observed to not fluctuate significantly from the average with historic annual costs falling within the range of [REDACTED].

We have therefore forecast our RIIO-GT3 costs (Table 11.13) using an historic run rate with specific predictions on where likely claims are expected to materialise. We have included more full and final settlements in RIIO-GT3 than incurred in RIIO-T2. We adopt this approach as the initial increase in costs (less than [REDACTED] per annum) results in a reduction in subsequent years through reduction in the level of longer ongoing claims.

[REDACTED]

Regional differences are observed in claims, and we expect these to remain consistent across the RIIO-GT3 period. Loss of crop has historically shown low volume of annual claims in the west of Great Britain (West). The east of Great Britain (East) typically contains some higher value claims that are not seen in the West and Scotland. This reflects a greater number of newer pipelines concentrated in the east of the country that are connected to on-shore gas terminals serving the North Sea Fields, and that the east of the country has highly productive arable land capable of growing horticultural crops. For Drainage claims, the West has the higher volume, particularly due to historic issues in South Wales often consisting of large schemes. Scotland has reasonable volume, but these are usually much lower in value, consisting of smaller schemes or minor repairs. The East has low volume but can often be larger schemes.

Quarry and loss of development claims arise from evidence-based claims submitted by landowners or their advisors to compensate for lost revenue due to the presence of a pipeline affecting the productivity or limiting utilisation of the land. As these claims originate with the landowners and are unique to the circumstances of each claim, they are not necessarily benchmarked, however, comparable evidence is used when assessing each claim to ensure consistency and market rates at the time of the claim.

12. Business Support Costs

12.1 Overview of business support costs

Business support functions are required to support our operational activities without being core to provision of the gas network services. They include IT and telecoms, property management, human resources, finance, legal services, procurement and executive functions and are particularly critical to delivering our commitments to meet our critical obligations every hour of every day and caring for our environment and communities.

The Gas Transmission business has undergone a change in ownership in RIIO-T2, with National Grid selling a 60% equity stake on 31 January 2023, (a further 20% equity stake on 11 March 2024 and completion of final 20% in September 2024). Prior to this date, all business support functions operated from a single central function within National Grid Group plc and were allocated across the individual entities according to the Unified Cost Allocation Methodology as agreed between National Grid and Ofgem.

After separation of NGT from National Grid, Transitional Service Agreements (TSAs) were set up with National Grid for the continuation of key services; these services mostly related to business support functions. The TSAs run for a maximum of 2 years, during which time business support functions have been established on a stand-alone basis having full control and responsibility for their own cost base.

Business support costs comprise labour costs (51%) and other materials, goods and services (49%) sourced from third parties. A proportion of labour costs directly support our capital projects and are treated as capex via unit costs. The costs referred to in this section cover only the opex element of the indirect costs. All values are stated net, post capitalisation.

Business support functions are required to support reporting, monitoring and efficient delivery of operational activities. Therefore, the size and associated cost of the functions reflects the size of the overall business and level of activity on the network. Our best view of totex spend in RIIO-GT3 is £5.3bn incorporating baseline activities and our current forecast of uncertainty mechanism expenditure. Use of an uncertainty mechanism does not relate to uncertainty of needs case but reflects current uncertainty of cost, business support functions are required to scale up preceding the delivery phases and therefore are based on our best view totex plan. Our Business Support Cost base has risen in absolute terms from an annual average cost of £72m in RIIO-T2 to £96m in RIIO-GT3 reflecting the 65% increase in operational activity. As shown in Figure 12.1, business support costs as a proportion of best view totex (used as a scaling factor for business size) decrease across the RIIO price control periods as we deliver and embed more efficient ways of working.

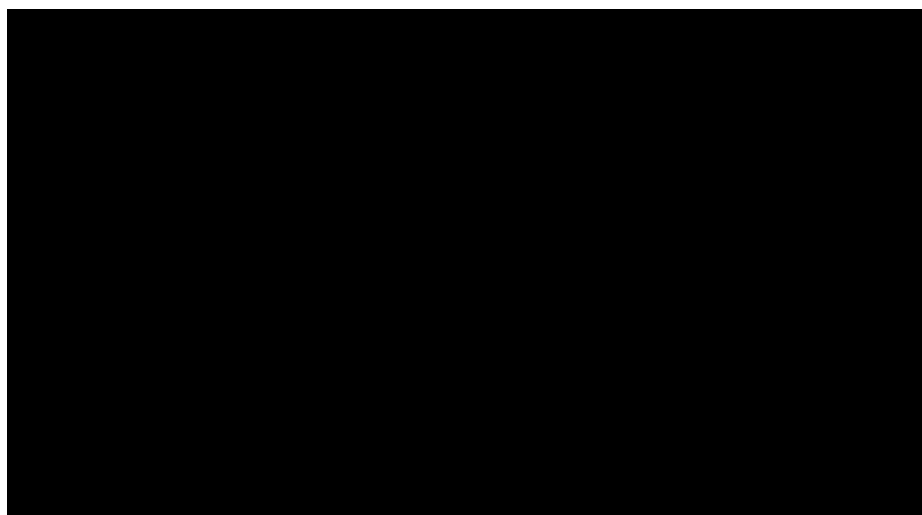


Table 12.2 shows how NGT's functional business support costs are mapped to regulatory business support categories. For the purpose of this annex, individual business support cost categories are aggregated and discussed together based on business units, key drivers and benchmarking and cost assessment activities.

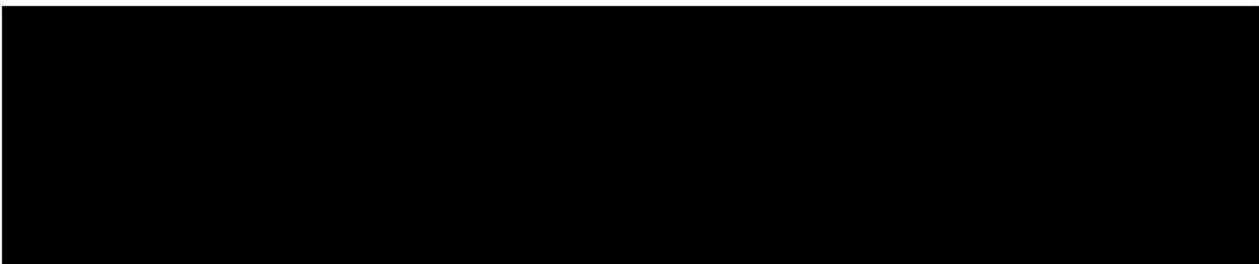
Section reference	Regulatory cost category	NGT functional category
Section 12.2 Costs related to management and administrative functions, benchmarked by an external consultancy firm, Accenture.	Property management	Commercial – Property
	HR and non-operational training	Human Resources
	Finance, audit and regulation	Finance General Council – Audit Commercial – Regulation
	Procurement CEO and group management	Procurement Corporate Affairs General Council – Excluding Audit Human Resources (Internal Communications and Environmental, Social and Governance)
Section 12.3 Costs relating to our IT Function with a commonality of being benchmarked by Gartner.	IT & Telecoms	IT
Section 12.4 Insurance costs market tested via NGT's insurance broker.	Insurance	Insurance

Table 12.2 : Mapping of functional operations to regulatory cost categories

12.2 Management and administrative functions

Business support costs include central supporting functions such as finance, regulation and human resources. These support functions undertake management and administration responsibilities so that operational functions can focus on undertaking operational duties such as capital works and maintenance on the gas NTS.

We appointed Accenture to perform an independent external benchmarking assessment of the categories and cost base shown in Table 12.3. IT and Telecoms and Insurance costs were excluded from scope and are discussed separately in sections 12.3 and 12.4 respectively.




Our management and administrative function costs are underpinned by a higher capital delivery plan for network resilience in RIIO-GT3 (Chapter 6) to support customers' requirements through the energy transition.

Whilst there are increased requirements on our support functions, where possible these will be absorbed within our existing resources, through process improvements and efficiencies. This is evidenced by the reduction in business support costs as a proportion of totex (Figure 12.1) demonstrating our ability to deliver increased workload for a smaller proportional support function cost.

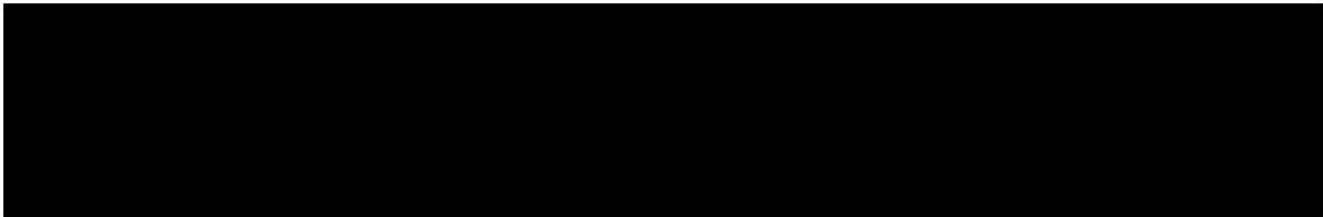
Our spend profile across RIIO-GT3 period is relatively stable and preparation for increase capability and capacity in RIIO-GT3 are undertaken within the RIIO-T2 period, consistent with a ramp up in activities in RIIO-T2 and ensuring we are prepared for day one of RIIO-GT3.


Property Management

Our property management function oversees the running of our non-operational property. Costs comprise rent, maintenance and services charge for buildings and the cost of the team managing the service. Our main non-operational property is the 

NGT was previously part of National Grid having access to a network of buildings including shared office facilities, which housed employees and shared services such as business services, IT and pensions teams. Established separation rules were in place to ensure the autonomy of each business unit and prevent any entanglement with third parties.

The change in ownership resulted in an element of rationalisation, with teams migrating from shared sites to dedicated buildings and service areas. This shift triggered a complete re-evaluation of property-related location, activities and costs. The head office, once the heart of the National Grid operation, has faced a transformation into a building of multiple tenants. The allocation methodology, previously spread across a diverse range of entities, underwent a full recalibration. The goal was twofold; to support the newly independent businesses and to maintain the stringent separation mandated by the regulator.






The change in ownership has paved the way for a more streamlined and simplistic model. The head office allocation, which was previously based on a headcount methodology, now reflects the occupied area of each business, more focused on the independent business' requirements. The financial impact of this change in methodology is cost neutral, as any saving is offset by diseconomies of scale. The benefit here is gaining greater control of the property management, dealing directly with suppliers and service providers.

We are also capitalising on a business having a sole focus on the gas network. Our plan includes setting up a rotating machinery training centre to improve resilience and reliability of our compressor fleet (Sections 8.2 and 9.1). Initial set up costs of █████ (section 8.2) and running costs (████ business support costs per annum). The centre will also be utilised for our logistics strategy as we look to move stock from third party storage solutions into this centralised facility.

The non-operational property cost base has also undergone a number changes, each have a small financial impact, such as inclusion of Land Rights team (reallocated since RIIO-T2), the re-tender of all property contracts to be carried out every 5 years (previously a cost incurred centrally by National Grid), and the introduction of partnership agreements and management programmes implemented to increase biodiversity and net gain.

HR and non-operational training

Human resources (HR) expenditure (Table 12.5) covers costs associated with the function including development of policy and procedures, employee relations, recruitment, reward and learning and development.



HR provides a pivotal role in the recruitment of critical skill sets and the retention of experienced employees through ensuring our employees are productive and valued. The function has a significant role in developing a positive business culture, improving employee engagement and productivity and taking the lead on employee wellness and personal development.

Our future success is dependent on our ability to attract, recruit, develop and engage a capable and diverse workforce. We proactively encourage development for all employees, have market leading benefit packages and encourage inclusive working arrangements. These factors contribute to a more satisfied workforce keeping NGTs low attrition rate (10%) compared to the national average (16%). A low attrition rate has the positive impact of keeping skills and experience within NGT and also reduces time and cost spent on recruitment and onboarding activities. In 2023 we launched our new Employee Value Proposition (EVP) which is described as a clear statement of what our employees should expect from NGT in exchange for their

effort and loyalty making NGT an employer of choice.

With the increase in the amount of capital delivery work towards the end of RIIO-T2 and into RIIO-GT3, we are planning an increase in resources across the whole organisation to be able to deliver against our commitments. With the increased workforce, increased pressure will be placed on our HR function to fill vacant roles, ensure onboarding and training is performed and staff welfare is maintained. Supporting a larger workforce requires an increase in HR function size.

Utilising our experienced and highly reputable talent acquisition team, the HR function will absorb a proportion of the 18% increase in companywide FTEs through managing additional vacancies per head of the function. Combined with investment in leadership and development courses resulting in a reduced attrition rate, this delivers an efficiency saving of [REDACTED] across RIIO-GT3.

Finance, audit and regulation

Finance activities include statutory and regulatory accounting, management reporting, business partnering, transactional finance, controls and compliance, taxation and treasury. As a regulated company, we are also subject to additional obligations and processes including regulatory reporting, price control and re-opener submissions which require a specialist regulatory team.

The finance function delivers a robust and controlled financial environment and acts as a trusted partner to our operational business. Its purpose is to record transactions, ensure ledgers are accurate and adhere to financial regulations, provide financial insight via trends and forecasts and to craft the overall financial strategy of our company. Our internal audit function ensures NGT has appropriate controls and process in place to mitigate operational and financial risk, while regulation teams ensure compliance with regulatory obligations and processes. The total cost of these activities is shown in Table 12.6.

[REDACTED]

In RIIO-T2, we have transitioned from a company being part of the wider National Grid Group to a stand-alone entity, in RIIO-GT3 we will deliver a larger capital program, have increased complexity, more transactions and set up a more effective team for the future through on-shoring and our graduate and apprentice scheme. Finance, audit and regulation costs will increase by [REDACTED] in RIIO-GT3:

- **Increased size and complexity of our RIIO-GT3 business plan ([REDACTED])**

Our business is increasing in size and complexity bringing higher demands on supporting teams such as internal audit, corporate finance, treasury, and business partnering. Operational teams require a higher level of support from finance, audit, and regulation to provide insight for decision making and ensuring the right level of control and assurance. The requirement for finance continues to grow through enhanced reporting, more stringent audit requirements and tighter control environments, each leading to a higher level of control, while delivering more valuable insight. In RIIO-GT3 we are delivering a larger, asset health focused, capital programme ensuring a resilient gas NTS, we will deliver a higher number of lower value interventions and interact with a higher quantity of suppliers (NGT_A13_Workforce and Supply Chain Resilience Strategy_RIIO_GT3 Annex) increasing the complexity, capacity and capability of finance support ([REDACTED] of internal labour).

Our Finance labour costs also reflect increased rates recently observed as capability and topic specialism

requirements grow ().

In RIIO-GT3, we will see an increase in requirements () for external services for both support and compliance activities such as external audit fees. A larger and more complex program leads to additional requirements for external support from professional service firms and outside services to provide specialist support to internal teams such as treasury and taxation. For example, services such as credit rating agencies, Bloomberg, treasury systems and support for taxation submissions.

Our Internal audit function will be required to undertake more testing to ensure policies and procedures are being followed and risk is being mitigated accordingly (). Our Regulation team ensures that the work we carry out is in line with regulatory obligations and any associated compliance activities are delivered, an increased workbook over RIIO-GT3 brings increased requirements for regulatory processes ().

- **Separation from National Grid and operation as a stand-alone company ()**

In RIIO-T2, we transitioned from operating under National Grid through receiving services under a transitional service agreement (TSA) to operating on stand-alone basis. In some cases the stand-alone model is more expensive than under the TSA (). Loss of economies of scale where activities could be absorbed more easily under a larger National Grid Group, such as detailed system knowledge and experience need to be replicated (). We continue to shape and optimise our Finance Operating Model to ensure high quality outputs are consistently delivered, we are adaptable and agile in responding to increasing business needs and complexity, whilst demonstrate customer value through regulatory requirements.

- [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

Procurement

Our procurement function (costs shown in Table 12.7) ensures we have the goods and services we need to operate reliably through finding the right suppliers, negotiating contracts and managing relationships.

We operate large infrastructure projects in an environment where only a few suppliers and main work contractors are able to complete the works from a technical perspective. Regulated companies across the energy and water sectors are also planning significant capital programmes using similar suppliers and contractors creating a competitive environment for costs and time scales. Therefore, a robust supply chain and our procurement strategy is critical to delivery of our RIIO-GT3 business plan.

The increased capital delivery plan has a direct impact on capability required from the procurement function; more capital works will be undertaken leading to higher number of suppliers, contracts and relationships to manage. The regulation change (Procurement Bill) has also created an increased requirement for capability and procurement (NGT_A13_Workforce and Supply Chain Resilience Strategy_RIIO_GT3 Annex).

In light of these external and internal factors, we have developed a new strategic and operational model within procurement to drive performance improvements throughout the business. The new model focuses on the strategic nature of requirements using category management, strategic planning, and analysis. The model aims to use a wider variety of contractors to reduce reliance on a few major contractors and reduce bottle necks within the supply chain. The benefits to NGT will be greater capacity, a more resilient supply chain and having right size contractors more appropriate for the work required.

Our strategic model utilises a flexible pool of resources which can be called upon during peak workload where we require very specific expertise without the need to maintain permanent staffing level required to deliver these peaks levels. We explored the option of utilising a flexible resource pool across a broader skillset but due the current highly competitive procurement employment market, day rates for these roles were significantly higher than expected and led to this approach being more costly. The flexible resource pool will be used for very niche areas of knowledge where this proves to be cost effective. In turn this will free up capacity for less specialist procurement needs aligned to a growth in the capital delivery programme and will have greater long-term benefits for NGT through enhanced skills and knowledge for permanent employees gained through training and development. The RIIO-GT3 cost impact of adopting a strategic procurement operating model is considered in the Accenture benchmarking narrative later in this section.

Investment into procurement systems and data is pivotal to enable delivery of our RIIO-GT3 plan. Our current source-to-contract systems inherited from National Grid require numerous interfaces, beginning a tender event on one platform, transferring to second and awarding a contract on a further system, creating a heavy admin burden. These systems are too complex for the size and requirements for NGT as stand-alone business. By streamlining processes, we can reduce the time required to run each tender by approximately 20%, better utilise staff time and focus our resource on driving value. There is also an added benefit that our supply chain is not having to invest additional time following the same steps across multiple systems which will benefit NGT by improving the quality of data received by creating a single source of the truth, facilitating better analysis and decision making. We have embedded a £2m efficiency within our plan in relation to more efficient working practices achieved via investment in procurement systems.

Our procurement strategy is detailed within our NGT_A13_Workforce and Supply Chain Resilience

CEO and Group Management

The CEO and Group Management regulatory cost category (Table 12.8) is combination of internal business functions including Corporate Affairs, General Counsel and non-functionally aligned executive costs (CEO and COO roles).

In RIIO-T2, after separation from National Grid, NGT undertook a review of reporting which resulted in CEO and associated costs (██████ impact over RIIO-GT3) being moved from a combination of CAI and Direct Opex into CEO and Group Management business support costs from 2023/24. The increased cost base from 2023/24 within CEO and Group management is offset by a similar reduction within CAI and direct opex.

In April 2024, NGT appointed a Chief Operating Officer to oversee all aspects of operational delivery, bringing planning and delivery under one functional head. The creation of the role ensures alignment from inception of work through to completion allowing for a smooth ramp up of works to deliver a larger capital plan for network resilience.

Corporate Affairs was previously a shared services function across the National Grid group. On separation from National Grid, only 2 Corporate Affairs FTEs transitioned to NGT causing reduction of several critical support services activities and resulting in the much needed recruitment of a corporate affairs leadership team. It is critical to have a well-resourced corporate affairs team with the energy system regularly featuring in frontpage media headlines, politicians recognising the immense opportunity of the energy transition and communities being integral to our ability to operate as a gas industry. We aim to have a team which can bring the connections, insight and persuasive power to engage with a vast range of stakeholder groups at this critical time for the gas sector and the future of our industry.

Our corporate affairs teams will grow by 7 FTEs (██████) in RIIO-GT3 across the 3 main missions:

- (i) External Affairs orchestrates senior civil service engagement and community affairs ensuring a coherent set of policy asks across the business to guide our civil service engagement and community engagement throughout the development process of key projects. An additional 2 FTEs will enable engagement at a national and regional level and support a civil service and wider industry engagement programme.
- (ii) Media and Digital leads our media engagement, ensures readiness in terms of crisis communications and delivers high-impact digital channels. The RIIO-GT3 plan includes 3 FTEs covering the creation of a staffed press office which is currently an outsourced service. The team will deal with day-to-day press enquires, the placement of stories, identification of inaccuracies within the media and effective execution of public appeal in times of crisis management.
- (iii) Public Affairs own our political engagement as a business and navigate key political moments, such as the general election, re-shuffles, and political opportunities for National Gas to influence the debate. Due to the complex stakeholder landscape involving governments, parliaments and civil service, we will grow the team by 2 FTEs with essential 'local' knowledge to deliver targeted political engagement in devolved administrations (Scotland and Wales).

General Counsel includes legal and risk and assurance team whose role is to ensure legal compliance and reduce risk within our organisation. A larger capital delivery plan increases the level of work and complexity with our organisation. The legal team advise on prevailing legal matters and the risk and assurance team ensure risk mitigating controls and internal processes and procedures are followed.

CEO & Group Management includes [REDACTED] incremental costs in RIIO-GT3 for the lowering of employer National Insurance contributions threshold to [REDACTED] per annum and increase in the rate of employer National Insurance contributions to 15%, announced in the UK Government budget on 30 October 2024. Whilst these costs will fall across all cost categories NGT has included them in a single category due to the change occurring late in the submission process.

Our benchmarking shows we deliver more output for proportionately less cost

For network based activities, NGT's position as a sector of one presents a challenge in external benchmarking due to lack of direct comparators. We are however committed to submitting an efficiently costed plan and have therefore performed external benchmarking where our costs can be fairly compared to other companies. This is the case for the majority of our business support functions given the activities they perform are comparable to other energy networks and indeed other industries.

We appointed Accenture to perform an independent external benchmarking assessment of the following business support functions at a business unit level:

- Finance
- General Counsel
- Human Resources
- Procurement
- CEO Office
- Corporate Affairs
- Commercial including Property, Regulation and Customer and Stakeholder (customer and stakeholder included within CAI Engineering and Clerical and Market Facilitation, section 11.2)

These business units map into the regulatory cost categories as shown in Table 12.2. The benchmarked business support function costs (excluding UK budget employer NIC adjustment, due to comparability with peer dataset) represent £245m (14%) of the RIIO-T3 opex plan.

Accenture employed two complementary benchmarking methodologies:

- **Cross-Industry Benchmarking** (Figure 12.9)
NGT is compared against a range of comparators, focused on network and asset-intensive businesses (such as energy, utilities and telecommunications) across multiple regions. Revenue is used to calibrate size and cost of function as the standard global industry benchmarking approach. Accenture note this can be considered a reasonable metric as regulation is designed to simulate revenues under a competitive market, although it may disadvantage regulated infrastructure companies given pace of recovery of investment via allowances.
- **Sectorial Benchmarking** (Figure 12.10)
NGT is compared to other RIIO-regulated networks using RIIO-T2 final determinations as representative of Ofgem directed efficient levels of expenditure. This method has fewer comparators, but these are more directly comparable. Each benchmark is scaled by totex, as the most reflective indicator of network

size and business activity.

Activity-based analysis was also undertaken to better understand the key drivers behind the results.

Full results from Accenture's business support cost benchmarking exercise are within NGT_C09 Accenture Benchmarking Business Support Services costs (summarised in Figures 12.9 and 12.10). The position in Figure 12.9 and 12.10 demonstrates the four qualities, the left-hand side quadrant position (leaner cost) is the upper quartile.

Function	Benchmark	Position	NGT Score
Finance	Cost as % of Revenue		
	FTEs per £bn of Revenue		
HR	Cost as % of Revenue		
	FTEs per £bn of Revenue		
	Company Employees per HR FTE		
Procurement	Cost as % of Revenue		
	FTEs per £bn of Revenue		
	Procurement spend per FTE		
General Counsel	Total Lawyers per £bn Revenue		
	FTEs per £bn Revenue		
Corporate Affairs	FTEs per £bn Revenue		
Commercial (Regulation)	FTEs per £bn Revenue		
Commercial (Customer, Stakeholder and Business Development)	FTEs per £bn Revenue		

Figure 12.9 : Accenture cross-industry benchmarking results

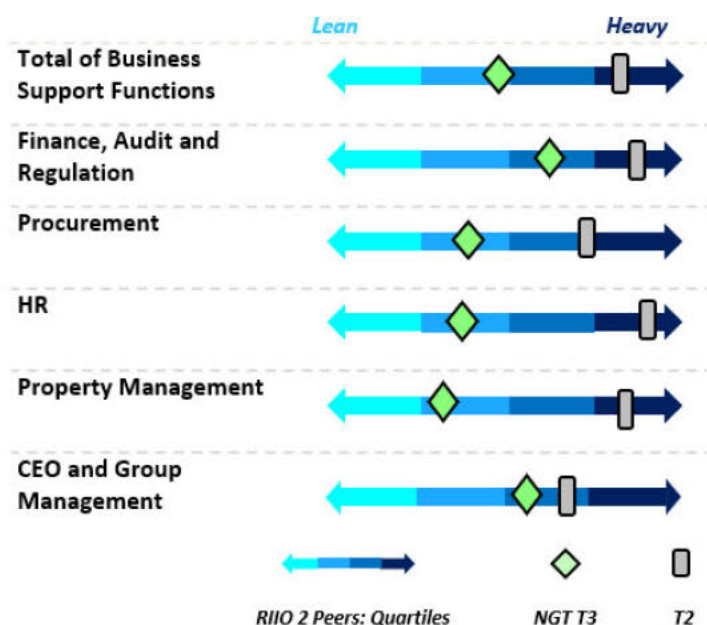


Figure 12.10 : Accenture sectorial benchmarking results

Our business support function costs broadly align to the median for RIIO-regulated firms and have significantly improved as a proportion of totex since RIIO-T2 (as demonstrated by Figure 2 in the Accenture executive summary). For finance and procurement functions, sectorial benchmarking shows consistency with the RIIO regulated comparator set but deviation from the cross-industry comparators as may be expected from the activity-based analysis.

- Finance is larger in terms of function size (number of FTEs) and cost (cost as a percentage of revenue) when compared to cross-industry peers. We position our finance function to best support the business, having finance professionals fully embedded in business units ensures cohesive model and efficient working practices. Our finance function includes teams wholly resourced to fulfil regulatory requirements and many teams across finance contribute to regulatory submissions. The finance function maintains two sets of financial accounts, one for statutory purposes and one for regulatory purposes, and therefore it is within expectations for finance to be larger than a non-regulated peer set. Our finance function also has a high degree of focus on internal control and risk which aligns to operation within a regulatory environment.
- Procurement is larger in terms of function size (number of FTEs) and cost (cost as a percentage of revenue) when comparing to cross-industry benchmarks but below median when compared to RIIO peers. RIIO regulated companies' procurement functions are likely to be more strategic due to the nature of activities undertaken, such as procurement of long lead items and items not in abundant supply compared to more transactional procurement functions. Our procurement functions new operating model focuses heavily on strategic activities and utilises flexible resources to meet peak demand. A procurement business partnering approach, brings our procurement function closer to the business for more effective outcomes which are better for the consumers.

Whilst cost has increased across all business support functions in comparison to RIIO-T2, as a proportion of Totex all functions' costs have reduced. We are delivering a larger plan and the proportion of business support function costs are smaller, which in part, demonstrates the on-going efficiency achieved. Costs proposed for functions in our business plan are therefore considered efficient and appropriate.

Property and FTE costs are subject to additional market testing

Property and FTE costs are based on values which are market tested as part of our business-as-usual activities. Leases are secured at the best available terms and market rates through appointment of real estate consultants who provide recommendations based on comparisons with market evidence and negotiations with landlord representatives. All services recently went through a rigorous tendering process; Facilities Management in September and October 2023 and Land Rights in November and December 2023.

Section 3.4 sets out the methodologies we use to ensure our salary costs are comparable by role to the market reference point.

FTE volume requirement and justifications are detailed within the NGT_A13_Workforce and Supply Chain Resilience Strategy_RIIO_GT3 Annex. Our strategic workforce plan annex covers full function FTEs which are then allocated to opex/ capex through capitalisation rates according to types of works performed.

12.3 IT and Telecoms function

Operational IT and Telecoms enhance and are essential to the delivery of our NGT-wide work programmes by providing highly available, secure, cost effective, reliable, and resilient systems aligned with our priorities (regulatory, customer and internal) and commitments.

IT and Telecoms run-the-business costs (RTB) are categorised across CAI and business support regulatory

opex dependent on the specific activity. Categorisation of IT RTB costs between the regulatory categories has been assessed on a contract-by-contract basis and non-project people costs fully attributed to business support costs. The business support element of RTB costs is shown in Table 12.11.

£m 23/24 price base	FY27	FY28	FY29	FY30	FY31	GT3 Total	GT2 Total	GT3 Annual Average	GT2 Annual Average
IT and Telecoms	35	35	35	36	36	177	156	35	31

Table 12.11 : IT and Telecoms business support costs included in BPDT 5.8

Prior to 1 February 2023, NGT was part of the National Grid Group with costs allocated from an IT function which provided services across group companies. From 1 February 2023 until 31 January 2025, National Grid Group will continue to provide IT services to NGT under a Transitional Services Agreement (TSA), which is a fixed price commercial agreement.

From 1 February 2025, NGT will operate its own IT function providing all the services required by the stand-alone business. RTB costs are based on the target operating model proposed for the stand-alone function and associated market prices for all the non-people costs expected to be incurred. People costs (24% of IT and Telecoms business support costs) cover key areas such as service operations, vendor management, architecture, engineering, reporting and performance. Resources are appropriately allocated to capital projects based on nature of activities undertaken.

Non-people costs (76%) cover the elements of recurring IT spend associated with enterprise applications, support and maintenance, application hosting, enterprise networks, telephony and printing, and service and operations including end user computing. Our cost base in RIIO-GT3 reflects:

- An average increase of 51% in end users in RIIO-GT3 (compared with RIIO-T2) in line with our capital programme requiring a 50% increase in our workforce compared to FY24 (when our existing licenses were procured). Our company wide workforce planning is detailed within our NGT_A13_Workforce and Supply Chain Resilience Strategy_RIIO_GT3 Annex.
- The loss of some supplier discounts when re-contracting as a stand-alone business. For example, previous National Grid contracts were on a Rate D+ discount for Microsoft (attracting a 12% discount) but based NGTs lower volumes we are likely to move to Rate B discount of 6%.
- An increase in our consumption charges for Azure and GCP cloud platforms as a result of increasing FTEs, investment spend and project volumes over the RIIO-GT3 period.
- Efficiencies inherently embedded within maintaining people costs at current levels despite the growth in the wider business (both in terms of investment and FTEs, over this period).

Costs are subject to external benchmarking by consultants, through tendering and market testing

Our RIIO-GT3 business support RTB people costs are based on our target operation model. Salary costs are benchmarked using leading benchmarking providers, where we compare salary costs by role to the market reference point (Section 3.4). Our NGT_A13_Workforce and Supply Chain Resilience Strategy_RIIO_GT3 Annex includes justification of FTE movements and key drivers for our IT function.

We have undertaken re-contracting events as part of our recent separation from National Grid Group. Non people costs are therefore based on market tested prices and contracted rates giving a high degree of cost confidence.

Gartner benchmarked RIIO-GT3 IT opex in totality (combining CAI and business support elements) removing the regulatory constructs not applicable to the majority of UK-based companies and assessing the IT function in its entirety (Section 11.3). Full details of Gartner benchmarking are including within NGT_C01_Gartner Review of IT Costs and Benchmarking of comparable costs.

12.4 Insurance

Insurance is a necessary financial product reducing financial uncertainty and mitigating against financial risk. protects us, our stakeholders and customers against this uncertainty and risk. Where possible, we choose to insure major insurable risks via an annual insurance program which encompasses the insurable risks of damage, injury, and legal liabilities our business may face.

Prior to separation from National Grid, insurance was managed centrally by National Grid with policies managed through a combination of National Grid's captive insurance companies and external insurance.

Post separation National Grid policies have been mirrored for business continuity but in a conventional insurance programme with no captive involvement. This means that whilst costs at a total Insurance level are comparable there will be underlying differences at a policy level where captive companies were used.

During RIIO-T2, our major capital construction projects have been assessed on a case-by-case basis to determine if project specific policies are required. As the value of capital construction increases this evaluation will become increasingly difficult to manage and ensure appropriate cover is in place. To address this we are planning a change in policy to provide general cover across all capital construction projects.

Project specific insurance during RIIO-T2 for major capital construction projects was treated as capex against individual projects, on the basis that the insurance cost is directly attributable to the project cost. Projects of lower value were insured under a general construction insurance policy and treated as opex. In RIIO-GT3, all insurance costs for capital programs are treated as opex, as these will be insured under a general insurance policy. The combination of an increased capital program and the change in policy results in a [REDACTED] increase over RIIO-GT3 for insurance opex.

All other policies assume continuity with existing RIIO-T2 policies, adjusted for forecasted changes in key cost drivers. This primarily affects third party liability where assumed growth in employees results in higher employer liability and motor vehicle liability costs. All existing policy costs used as a basis for forecasting RIIO-GT3 costs have been commercially negotiated through [REDACTED]

Insurance costs are impacted by market rates and are therefore subject to a level of uncertainty in forecast periods, largely out of our control. Market rates are impacted by a variety of factors such as previous claims, wider market factors such as losses suffered on projects by other similar industries, companywide metrics (e.g. FTEs, revenue, vehicle numbers) and insurance/ re-insurance rates. Each insurance policy cost is driven by a variety of factors depending on the specific policy.

Insurance costs are renewed via an annual insurance program and represent an annual recurring cost. Insurance costs are subject to market rates and any future fluctuations are challenging to forecast, we have therefore assumed a flat insurance cost profile across the RIIO-GT3 period.

Cost assessment and benchmarking

Insurance costs have been forecast by using recent policy costs, all existing policy costs used as a base have been commercially negotiated through [REDACTED]. These are therefore reflective of the current market tested rates.

13. Non-Totex expenditure

Within the regulatory funding framework, expenditure can be broadly categorised across three classifications:

i. Totex

Opex and capex expenditure within the control of the network company incurred on regulated business activities funded through the RIIO price control framework.

ii. Non-totex

Expenditure which is funded through the RIIO framework through mechanisms other than totex funding. This includes costs such as innovation spend and those which are not within the network's control such as business rates.

iii. Costs outside of the RIIO price control

Certain costs are funded directly by our customers and so fall outside of the RIIO funding framework.

Chapters 4 to 12 of the cost assessment and benchmarking annex focus solely on our totex expenditure. The remainder of Chapter 13 and Chapter 14 cover the non-totex part of our plan and those elements which sit outside of the RIIO- framework, respectively.

13.1 Innovation

Investment in innovation delivers value for consumers and NGT creating new opportunities that save time and cost, deliver value and adhere to both safety and regulatory compliance. We commit to driving better performance and service for our customers and communities by being more agile, flexible, responsive, and maximising value.

Collaboration is at the heart of how we innovate. It allows us to branch out into wide-ranging innovation projects and develop a safe, reliable and efficient gas network for the future. We are always on the lookout for new ways to engage with colleagues, stakeholders and the wider gas industry. Our RIIO-GT3 NGT_A04_Innovation Strategy_RIIO_GT3 Annex sets out our innovation vision for the future.

The RIIO-T2 framework funds innovation investment through two primary mechanisms; the Network Innovation Allowance (NIA) and the Strategic Innovation Fund (SIF). Ofgem has concluded in its RIIO-3 Sector Specific Methodology Decision that similar mechanisms will continue into RIIO-GT3⁹.

£m 23/24 price base	FY27	FY28	FY29	FY30	FY31	GT3 Total	GT2 Total	GT3 Annual Average	GT2 Annual Average
NIA	4	8	10	10	8	40	35	8	7
SIF	BPDT 8.8 does not include values as per BPDT guidance which does not require values for projects not yet started						40		8

Table 13.1 : Innovation costs included in BPDTs 8.5 and 8.8

Through the NIA mechanism we undertake research and project development, stakeholder engagement and challenge identification, drive dissemination and collaboration whilst completing reporting and compliance

⁹ RIIO-3 Sector Specific Methodology Decision – Overview Document, Ofgem, 18 July 2024, paras 12.13 and 12.18

activities (annual summaries, reports, process & strategies). Through RIIO-T2 we are spending approximately £7m per annum and have ambition to increase our innovation activities in RIIO-GT3 forecasting spend of £8m a per annum, phased according to our RIIO-T2 spend profile. The additional investment aligns to the ramp up of activities through the RIIO-GT3 period surrounding the hydrogen backbone and repurposing of the UK NTS assets to hydrogen and carbon transportation, whilst also supporting innovative proposals from third parties.

Currently SIF is used for demonstrating energy transition technologies and systems, taking research and development projects and showcasing their capability in application. Project scope and approaches are assessed by a third-party assessor to ensure robust project delivery. This funding is competition based and therefore an estimate of projects won across Discovery, Alpha and Beta phases is made when building RIIO-GT3 costs. At this stage we do not have specific details, timings, or costings for the projects. Various project options will be considered to develop the most effective solution.

Innovation project costs are benchmarked to those of other networks

The National Gas Innovation team carry out benchmarking on the cost of a standard innovation project by assessing the cost of the project versus similar completed projects. Whilst each innovation project is unique in its content, the delivery of a piece of desktop research or demonstration is similar to each other. NGT ensures value for money by carrying out mini tender exercises for each project and benchmarking the commercials against similar projects that have been completed.

The team also benchmark NGT's portfolio with other gas distribution innovation projects and whilst the nature of transmission work can lead to higher prices (niche topic, higher pressure, different materials) we ensure that the comparison is carried out.

13.2 Pass through costs

Pass through costs are those over which a network has limited or no control. The RIIO framework enables allowances to be adjusted to reflect the actual costs incurred. We have assumed that the items treated as pass through costs in RIIO-T2 will continue to be treated as pass through costs in RIIO-GT3.

The following pass through costs are based on the latest PCFM forecast through to 2025/26 and use an annualised growth rate to forecast 2026/27 to 2030/31:

- Ofgem licence fees which are calculated for the year ahead based upon an estimate of Ofgem's net costs allocated according to the number of customers for each licence holder.
- Prescribed rates are defined in the Gas Transmission licence as business rates in England and Wales and non-domestic rates in Scotland. These are subject to periodic review by government with the most recent revaluation coming into effect on 1 April 2023. We have a licence obligation to engage with the Relevant Valuation Agency using reasonable endeavours to minimise the liability for all revaluation exercises.
- [REDACTED]
- HyNet is the allowance adjustment for Cadent Gas Limited's Hynet FEED study.
- The bulk price differential cost is the marginal cost of LPG conveyed to consumers who are connected to independent systems.

We have assumed no pension deficit payments relating to established deficit (in line with RIIO-T2) as we expect the pension scheme not to have a deficit at the next (or subsequent) triennial actuarial valuation, based on the current position of the scheme. As such, we do not expect there to be a need for any contributions into the scheme in relation to an established deficit.

Xoserve Central Data Service Provider (CDSP) includes Service and Operate running costs and an allocation to NGT of Xoserve project costs. Values are from Xoserve's latest available forecast with Service and Operate costs flat at [REDACTED] p.a. and project costs phased in line with expected project timing.

Bad debt costs are commercially sensitive and inherently difficult to forecast. We therefore assume nil cost.

The Net Zero Pre-construction Work and Small Net Zero Projects Re-opener is currently included at nil values across RIIO-GT3 as it will relate to Hydrogen spend.

Operating margins gas refers to gas used to maintain system pressures under certain operational circumstances such as sudden loss of supply or increase in demand and protects against the need to declare emergency conditions. Forecast costs for RIIO-GT3 are reduced compared to RIIO-T2 based on expectation of a marginal fall in gas prices and more LNG coming online.

System costs (GC and ECC) are forecast based on NTS shrinkage volumes and Argus gas prices as of 28 June 2024 for each quarter within each year 2027 to 2029. For 2030 and 2031 the seasonal price for 2030 is utilised. For Electricity, the Argus price from 28 June 2024 is utilised for each quarter up to 2028 with 2028 prices are used for 2029 to 2031. No adjustment has been made for reconciliations or third-party adjustments. General Electricity costs for 2024/25 have been rolled forward to RIIO-GT3 and this method also repeated for general gas costs.

Residual balancing refers to our System Operator and its role as residual balancer, balancing supply and demand each gas day and to minimise impacts on the market when it is necessary to trade gas to balance the network. Residual balancing costs for RIIO-GT3 are forecasted as a 5 year historical average.

Costs are expected to be incurred by the National Energy System Operator (NESO) as part of their role as Great Britain's independent system planner and operator. We have obtained a forecast of costs from NESO as the basis of our RIIO-GT3 submission.

Table 13.2 summarises the pass through costs included in the business plan.

£m 23/24 price base	FY27	FY28	FY29	FY30	FY31	GT3 Total	GT2 Total	GT3 Annual Average	GT2 Annual Average
Total Pass-through costs	302	296	290	286	282	1456	2290	291	458

Table 13.2 : Pass through costs included in BPDTS 5.1, 5.2, 9.1, 9.2 and 9.3

14. Activities outside of the RIIO Framework

14.1 Directly remunerated services

Directly remunerated services (DRS) are specific activities outside of the normal regulatory price control where network companies are allowed to charge their customers directly for certain services performed. This framework ensures that consumers do not pay for a service where the network has already been remunerated by the customer. In practice, this policy is enacted by deducting net DRS revenue from calculated revenue. DRS activities fall within prescribed categories which are forecast in our plan as per Table 14.1.

£m 23/24 price base	FY27	FY28	FY29	FY30	FY31	GT3 Total	GT2 Total	GT3 Annual Average	GT2 Annual Average
Diversionary works revenue	22	17	26	23	23	109	127	22	25
Diversionary works costs	22	17	26	23	23	109	122	22	24

Table 14.1 : DRS revenue and costs included in BPDT 5.15

The activities included within diversionary works relate to diversionary works under a licence obligation. When a customer requests a diversion, NGT provide the service and the cost is directly reimbursed by the customer (leading to both cost and revenue for NGT). The forecast is built using data available from customer requests to provide a forecast of activities we expect to undertake in RIIO-GT3, however as works are determined by customer requirement and are not initiated by NGT, forecasting volume and costs is challenging.

14.2 Consented services

Consented activities are those which fall outside of the RIIO price control and to which the regulator has given its consent in writing.

The costs included in the business plan for consented activities are shown in Table 14.2.

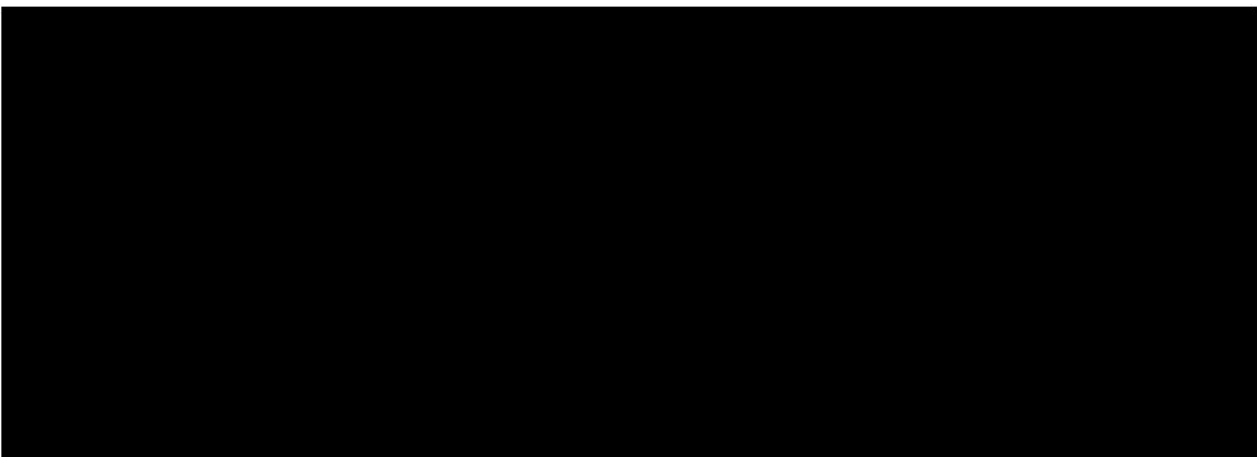


Table 14.2 : Consented income and costs included in BPDT 5.15

Shared Services/ Business services within consented services relates to cost incurred for services provided to our non-regulated business, National Gas Metering (NGM). These services are provided under a general service agreement (GSA) and recharged accordingly. Forecasts are based on the expected costs and FTEs in 2025/26, as the best indication of expected future costs within RIIO-GT3.

Service for IDNs and Other 3rd Parties relates to costs incurred within our National Gas Services (NGS) business for works in relation to third parties. The underlying cost base is based on historic actuals, the cost increase compared to RIIO-T2 is due to an increase in apprentice costs in line with the increase within our regulatory business (section 11.4).

14.3 De-minimis activities

De minimis activities fall outside of transmission activities and are limited to a financial cap under the Gas Transmission licence. The costs included in the RIIO-GT3 business plan for De-minimis services are Table 14.3.

Table 14.3 : De minimis revenue and costs included in BPDT 5.15

The property category relates to costs for land rental. Costs increase within RIIO-T2 and remain consistent throughout RIIO-GT3 due to additional properties purchased in 2023/24. No costs are forecast within Other items <£500k in RIIO-GT3. In RIIO-T2 costs mainly related to running compressors at enhanced pressure due to high levels of transit gas at the start of Russia/ Ukraine conflict. Enhanced pressure compressor running is not a standard activity and not forecast for RIIO-GT3.

15. Real Price Effects and On-going Efficiency

15.1 Real Price Effects

Real Price Effects (RPEs) capture the difference between input price inflation and consumer price inflation and is a crucial tool in ensuring inflation protection for efficiently incurred spend. NGT's costs are subject to input price inflation but changes in these inputs' prices may differ from the consumer price inflation index used to index our revenues. This gives rise to an RPE.

In its Sector Specific Methodology Consultation Ofgem has indicated it will retain the same approach to the RPE framework for RIIO-GT3. Given the importance of the RPE mechanism in ensuring that risks of changes in prices are being appropriately allocated between networks and consumers, NGT, in conjunction with the ENA and gas distribution networks, appointed KPMG to assess how the RIIO-T2 RPE framework has performed and form proposals on how the RIIO-GT3 RPE framework should be structured. Full detail on points raised by KPMG is included in the executive summary and associated full report (NGT_C14 KPMG Potential Improvements to RPE framework at RIIO-3).

In RIIO-T2, three labour indices and two material indices are used to assess RPE's movement relative to consumer price inflation index. These indices are weighted equally, to form a composite index. The materials and labour composite index are then weighted in accordance with the actual cost structure of NGT. Figure 15.1 shows the indices and associated weighting at RIIO-T2.

RPE Index			2029/30	2030/31
Labour	ONS	AWE: Private Sector Index: Seasonally Adjusted Total Pay Excluding Arrears	33%	33%
Labour	ONS	AWE: Construction Index: Seasonally Adjusted Total Pay Excluding Arrears	33%	33%
Labour	BCIS	4/CE/01 Civil Engineering Labour	33%	33%
Materials	BCIS	3/S3 Structural Steelwork – Materials: Civil Engineering Work	50%	50%
Materials	BCIS	FOCOS Resource Cost Index of Infrastructure: Materials FOCOS	50%	50%

Table 15.1 : RPE index weighting in RIIO-T2

While the material and labour indices provide some protection to inflation on specific cost categories, not all costs in the RIIO-T2 period are included in the mechanism and as such, are exposed to inflation.

At RIIO-T2 Ofgem included "accuracy" as a criterion for selecting appropriate indices, but it is unclear to what extent this was fully assessed. KPMG assesses the accuracy of RIIO-T2 indices through comparing the selected input price indices with the representative costs of the company (NGT_C14 KPMG Potential Improvements to RPE framework at RIIO-3, section 3.2.4). RIIO-GT1 and RIIO-T2 data is observed due to the instability of data in RIIO-T2, stemming from the economic and supply chain shocks seen in that period. For both materials and labour, the analysis concluded that the composite index had success in explaining costs and with greater success than CPIH. However, the degree of explanatory power is greater when periods significantly impacted by supply chain constraints and other factors are removed (factors other than increase in efficient costs) and there is less success in explaining the costs in the TO and SO separately. While the indices perform better than CPIH in the explaining movements in NGT cost base, the correlation coefficient demonstrates the indices are not explaining the full movement.

Certain characteristics of NGT and the sector it operates in can make it challenging to fully account for

inflationary pressures:

- Gas Transmission operates in a sector of one and even specific construction indices are calculated on all relevant sectors (not just gas transmission). As such, there is a risk that construction cost indices do not fully account for the specific issues faced in performing work on NGT's assets.
- As indices are calculated on a wider sector selection than the sector in which NGT operates, events that impact Gas Transmission significantly may only have a small impact on the sector included in the index.
- The costs of specialist equipment (such as valves) which impact NGT's specific sector have significantly increased, which in the absence of a specific index is not fully reflected in the RPE mechanism.
- Global volatility is impacting on supply chain of major infrastructure projects which are already heavily constrained on specialist resources (such as the Ukraine war impacting raw material prices). Such cost pressures are reflected in general inflationary measures and in certain specific indices, but given the specialist nature of certain NGT products and the limited number of niche suppliers available to it, there can be cases where NGT is more exposed than general construction or infrastructure entities. A few examples to illustrate this are as follows:

Per metre price of pipe:

Valves:

Labour Pipeline Inspection: there is a limited supply of labour across the construction skillsets, there is an aging workforce and increased recruitment and training of new talent (through apprenticeships and other means) is not filling this supply gap. A bottle neck has occurred due to a quick increase in resource requirements (East Anglia Water and other overseas major projects) paired with limited construction in pipelines over the last 5-10 years. The escalation in cost has been seen through requirements for weekend working () a higher level of subsistence () and increased rates (). The likelihood of construction wage growth being higher relative to the whole economy in the RIIO-GT3 period is also reported on by KPMG. KPMG's analysis suggests a higher wage growth is expected relative to the whole economy and higher than OBR forecasts. However, as demonstrated by the example, subsets of the workforce could be impacted much more significantly which specifically impacts NGT over and above the construction industry.

Such characteristics make it important to consider whether the RIIO-T2 RPE framework has operated effectively in guiding potential changes to the RIIO-GT3 framework. Whilst the RIIO-T2 period only provides limited evidence at this stage, that time period covers a period of significant volatility and as such is considered a strong indicator as to the strengths and weaknesses of the framework in place.

Materiality Thresholds

In RIIO-T2 for an input category to receive an RPE allowance, one of two materiality criteria had to be met: 1) The cost represented at least 10% of totex; or 2) the cost represented at least 5% of totex and the expected real price movements in the category represented at least 0.5% of totex.

The materiality thresholds have been perceived arbitrary and subjective and indeed other regulators have removed thresholds defined in this manner. Cost categories can be excluded on a materiality basis and then

later become material without the appropriate RPE allowance, this has been a particular risk in recent periods of high volatility in prices. Cost categories which are below the materiality thresholds will still have an impact on the cost base and when aggregated could be significant.

Other sectors and jurisdictions in the UK have avoided using materiality thresholds, with two approaches adopted being:

- (i) Any input category with an identified price index (Utility Regulator of Northern Ireland's approach)
- (ii) Any input category with an expected large or volatile wedge (Ofwat approach)

Both options are potentially viable for the selection of RPE input categories for RIIO-GT3 but the trade-off between simplicity and preciseness of the approach needs to be considered. The balance of guarding against the arbitrary exclusion of cost categories or indices and retaining an approach that can be practically implemented is best served by the first option presented above. A higher number of indices may be included in the mechanism but ultimately once included in the mechanism and appropriately weighted, the calculation of allowances can be performed in the same manner as in RIIO-T2.

Index selection

A wider assessment should be performed for RIIO-GT3 to assess whether there are more representative or additional relevant indices which can be included in the RIIO-GT3 RPE framework. KPMG includes within their report a selection criteria and shortlist which can be assessed to conclude on the appropriateness of the additional indices suggested.

KPMG notes a greater explanatory power in certain lagged material indices compared to the equivalent same-year indices. This is logical based on contracting terms which will often be fixed for a period, after which inflationary pressures are reflected in prices and suffered by the network. As such, the adoption of lagged indices should be considered in RIIO-GT3 when calibrating and forecasting RPE allowances.

Evidence also suggests that the RIIO-T2 assumption of indices reverting to long-term growth rates in the following years was flawed and inflationary pressures have been sustained for longer than such an assumption envisages. As such, a degree of "stickiness" should be assumed when forecasting allowances, particularly in periods of higher inflation.

As noted below, the existing framework includes an ex-post true up mechanism, whereby allowances are re-calibrated considering outturn data each year, which has been essential in the RIIO-T2 period. A degree of forecasting risk in the mechanism is therefore mitigated but this should not detract from the importance of refining the forecasting methodology in place. Price volatility and often significant retrospective true ups have exposed networks to allowance shortfalls and consumers to changes in prices driven by retrospective changes to allowances.

Successful elements of the framework should be continued in RIIO-GT3

True ups

Given the challenges caused by differences in outturn prices and allowances during RIIO-GT1, for RIIO-T2 Ofgem introduced ex-post true-ups that allows for RPE allowances to be revised, taking into account both outturn differences in previous or current years and a revised forecast. As noted by KPMG, the wedge between forecasts and outturn has been significant in recent years and as such, the existing true up mechanism reduces risk and allows RPEs to be true-up to actual observed indices and should be continued in RIIO-GT3.

Input category weights

At RIIO-T2 input categories are weighted by the actual cost structure of NGT. This provides accuracy over the associated impact of each cost category index into the structure of the company and should be continued in RIIO-GT3.

Table 15.2 shows the weightings as included in BPDT 10.10 by regulatory category:

Percentage (%)	Load related capex	Non-load related capex	Non-operational capex	Other capex	Direct opex	Indirect opex
General Labour	0%	2%	0%	0%	12%	20%
Specialist Labour	0%	15%	21%	15%	37%	34%
Materials	0%	40%	19%	7%	7%	8%
Plant and Equipment	0%	9%	9%	0%	0%	0%
Transport	0%	0%	0%	0%	0%	2%
Other	0%	34%	50%	78%	44%	37%
Total	100%	100%	100%	100%	100%	100%

Table 15.2 : Weightings of RPE cost categories included within BPDTs

The weighting included in the above table have been identified by analysing the constituent parts of our RIIO-GT3 business plan.

In line with the BPDT guidance, table 15.2 and BPDT 10.10 only includes internal labour within general and specialist labour RPE categories, sub-contracted labour therefore forms part of the other category. Sub-contracted labour forms a high proportion (e.g., approximately a third of our AMP cost relates to main works contractor labour) of NGT cost base and is subject to the same market conditions and pressures as internal labour, being consistent with RIIO-T2 we would expect sub-contracted labour to receive an RPE allowance.

15.2 On-going efficiency

Ongoing Efficiency (OE) is the improvement in cost efficiency (or productivity) that even the most efficient company in an industry can achieve. All companies therefore have scope to make OE gains over time and as such, it is established practice for regulators to set an OE challenge when determining price control allowances.

Our OE proposals are included in the Table 15.2 and are aligned to the figures proposed within the BPDTs:

£m 23/24 price base	FY25	FY26	FY27	FY28	FY29	FY30	FY31	GT3 Total	GT2 Total
Original Totex (%)	1.000	1.000	0.995	0.990	0.985	0.980	0.975	N/A	N/A
Revised Totex (%)	1.000	1.000	0.997	0.992	0.987	0.982	0.978	N/A	N/A
Original Totex impact (£m)	0	0	4	8	13	15	18	58	108
Revised Totex impact (£m)	0	0	2	7	11	13	16	50	108
Employer NIC Budget impact (£m)	0	0	(1.7)	(1.7)	(1.7)	(1.7)	(1.7)	(8.5)	N/A

Table 15.3 : OE proposal included within the BPDs

Typically, Ofgem and other regulators set this OE challenge by using a range of productivity benchmarks, EU KLEMS (EU level analysis of capital (K), labour (L), energy (E), materials (M) and service (S) inputs) being a common source. At RIIO-T2, Ofgem set an OE challenge of 1.25% and 1.15% per year for opex and capex respectively and proposed the same again for RIIO-GT3 in its Sector Specific Methodology Consultation. Given the inherent link to most likely productivity gains over the RIIO-GT3 period, it is important to re-assess this level of OE challenge to ensure the right balance is struck between networks challenging themselves to lower costs for consumers and networks being held to account for an OE consistent with the characteristics of the sector they operate in and the wider conditions of the UK economy.

As part of our RIIO-GT3 business planning process, NGT has, in conjunction with the ENA and gas distribution networks, commissioned Economic Insight to produce a report on OE and a range of reasonable estimates for it. The report has been used to inform the level of OE included within our business plan for RIIO-GT3. Full details of points raised by Economic Insight are included within the April 2024 report and executive summary (NGT_C17 Economic Insight Ongoing Efficiency for Gas Networks at RIIO-3) and the October supplementary report (Further evidence on NGT_C18 Economic Insight Further Evidence on Ongoing Efficiency for Gas Networks at RIIO-3).

It is important to recognise the difficulties in estimating OE: it cannot be directly observed in the available data, as OE is not the only factor driving productivity growth; measuring productivity, even in the first instance, is challenging; there are complex choices between measures of productivity; and selecting any point estimate in the OE range requires a degree of judgement. Establishing a set of robust and transparent principles deployed in calibrating expected OE is therefore crucial.

In its report, Economic Insight (EI) demonstrates a wedge between UK productivity trends and levels of OE set by regulators, when broadly a reflection of productivity trends would be expected. Furthermore, it identifies issues surrounding the volatility of certain datasets. Aiming to establish an approach governed by clear principles that can be applied consistently going forward, it assesses the following points in concluding on the suggested range for OE at RIIO-GT3:

- The use of Total Factor Productivity (TFP) for all costs. Analysis and evidence demonstrate that TFP is more reflective of networks' actual costs and more reflective of how productivity can be obtained, compared with a combination of TFP and other metrics.
- Gross Output (GO) is used as opposed to Value Add (VA). Academic research and OECD recommendations support GO as a conceptually superior measure, GO accounting for intermediate inputs (which are a material proportion of costs) and being a better measure of productivity than VA at an industry level.

- Comparator industry selection has used the following criteria: similarity of activities; extent of competition; similarity of scope to benefit from economies of scale, while also accounting for the importance of not selecting too few comparators.
- Time period selection considers the utilisation of full data available and ensures the use of full business cycles.

Economic Insight reports that the relevance of UK productivity growth to gas networks must be considered. It notes that regulators have in the past argued that less weight is applied to the post-2008 time period, representing the factors resulting in low UK productivity growth are less relevant to regulated industries. Based on extensive evidence and drawing on academic research, EI finds limited reasons to suppose gas networks are materially shielded from the causal factors of the slowdown. The main factors causing the UK productivity growth slowdown are largely economy-wide (being an insufficiency of investment, infrastructure quality and human capital/management quality), are unlikely to fully unwind over RIIO-GT3 and regulation logically cannot mitigate all factors causing the slowdown.

In August 2024, the Bank of England (BoE) raised its 2024 GDP growth forecast to 1.1% (up from 0.4% in February), however shortly after (11th September) ONS released data showing GDP growth was zero in June and July 2024, casting doubt on the plausibility of the BoE forecast. ONS flash estimates also report insignificant output per hour (labour productivity) growth at -0.2% and 0.3% in the first two quarters of 2024. Overall, this data demonstrates that we are not seeing a significant improvement in the UK productivity growth.

The OE applied at RIIO-T2 is at odds with the broader pattern of productivity growth across most industries in the UK. Whilst the productivity growth slowdown appears pervasive across many Western countries, and most sectors of the UK economy, variation across industries is observable. The most important factor identified as explaining variations in productivity growth across sectors is the scope for technological change. Industries which have performed more strongly in the UK in relation to productivity growth are high tech industries. Conversely, the gas sector is not particularly able to achieve large productivity gains from technology. Most evidently: its main input factors are not 'high-tech' assets; it does not have to constantly develop and introduce new products or services; and it is characterised by long-lived assets. The OE level applied at RIIO-T2 would put the gas sector in the same region of productivity improvements as high-tech industries' (section 3B of NGT_C17 Economic Insight Ongoing Efficiency for Gas Networks at RIIO-3) such as the pharmaceutical industry, however the gas sector is not able to benefit from productivity gains in the same manner. Previous OE targets have been partly based on expectations that UK productivity growth would improve, this has not materialised and UK productivity growth has remained at near-zero for 15 years. With OE targets being consistently significantly higher than actual productivity, gas networks have been underfunded due to OE targets being set too high at previous price controls.

Economic insight report that regulatory innovation incentives and funding will likely not have any material impact on industry productivity for three main reasons (section 3B of Ongoing efficiency at NGT_C17 Economic Insight Ongoing Efficiency for Gas Networks at RIIO-3): Firstly, the scope for industries to benefit (in productivity terms) from new technology is primarily a function of industry characteristics. Secondly, the introduction of regulatory incentives contradicts the conclusion that these incentives would allow regulatory companies to outperform the UK economy on productivity, at best in could bring innovation in line with what would occur without the market failure.

Finally, the materiality of innovation investment (in total, and under regulatory incentives) for gas networks is simply too low, relative to other industries, to have any meaningful effect on industry productivity.

The range of OE proposed by Economic Insight is 0.2% to 0.8%. The lower bound of 0.2% represents the productivity growth in the most recent business cycle (2010-2019) on the basis that productivity growth is considered unlikely to deteriorate further. The 0.8% upper bound is provided by a weighted average of 1995-2019 & 1970-2007 on the basis that it is unlikely the structural break in productivity growth will fully unwind in RIIO-GT3. It is critical that the approach for setting the OE challenge for RIIO-GT3 considers the slowdown in productivity growth since 2008. Since the 2008 financial crisis UK economy-wide productivity has been

flat. The decline is broad-based across industries, widely observed across most Western countries, has been well documented in literature and recognised by public bodies (including the CMA). The productivity slowdown is a structural problem, has been ongoing for 15 years, and current forecasts of the UK's economic outlook do not indicate any material improvement in the near future. TFP growth for gas networks has reflected the structural break in productivity growth exhibited by the wider UK economy (data from the productivity Institute's study (2022) shows that TFP growth for the combined GD and GT sector has fallen significantly in the post crisis period). This is further strengthened by a survey of independent academic experts, who conclude they do not expect an improvement in UK productivity in the near future and they consider the drivers of low productivity to be mainly economy-wide.

Post benchmarking adjustments are not advised or proposed. Economic Insight states that there may be factors which mean the OE estimate derived from benchmarks are under or overstated but it cannot be determined what the net impact of these factors are and therefore cannot support a specific post benchmarking adjustment. Furthermore, post benchmarking adjustments have in the past made up a significant proportion of the overall OE estimate, calling into question the validity of the benchmarking approach.

Economic Insight does not advocate a particular point estimate within the range but proposes a point towards the middle of the range and advises against any selection towards the extremes. The mid-point of the range is 0.5% and is the proposed OE percentage for inclusion in our RIIO-GT3 business plan. This is also supported by academic survey evidence which shows most experts expect UK productivity growth to be 0.5% pa or below over the next five years and these expert academics do not expect the energy industry to outperform the UK, with regards to productivity growth. Further to this, when using CEPA's benchmarking approach at RIIO-T2, with the benefit of more up-to-date EU KLEMS data, the upper bound of the resultant range for OE is 0.5%. This OE number is inclusive of productivity gains realised through improvements in quality/output. Therefore the 0.5% OE p.a. should be allocated between reduced costs, improved quality, and output.

Our proposal for OE within our business plan starts from the first year of RIIO-GT3. RIIO-T2 productivity has outturned significantly lower than RIIO-T2 OE targets and productive forecasts for the remainder of RIIO-T2 do not show any significant improvement. Starting a RIIO-GT3 OE challenge from any earlier than 2026/27 would further exacerbate the underfunding observed in RIIO-T2 through double counting OE from both price controls.

The impact of OE challenge over RIIO-GT3 is £58m to baseline totex (excluding RIIO-T2 reopeners), we have reduced this by £9m to reflect the impact of lowering the employer National Insurance contributions threshold to £5,000 per annum and increasing the rate of employer National Insurance contributions to 15%, announced in the UK Government budget on 30 October 2024. The budget announcement impacts both capex and opex costs, for opex costs we have included an adjustment with CEO and Group Management (Section 12.2). The impact to capex affects all unit costs and due to the late stage in the submission process we have included the capex impact (£9m) as a reduction to OE.

Table 3.1 includes the efficiencies we have embedded within our RIIO-GT3 business plan through various efficiency improvement, innovation and strategic decisions. The total value of embedded efficiencies is £261m and represents 7% of our baseline business plan and will be delivered as we undertake known activities within RIIO-GT3. The OE challenge is additional to efficiencies already embedded and amounts to £58m and at this stage we do not know how this will be delivered but will likely be through activities such as improved technology and data. Total efficiencies (embedded and OE) amount to £319m and 8% of our baseline business plan.