

28. Our plan is efficient and affordable, providing value for money

What is this stakeholder priority about?

One of our key priorities is keeping energy affordable. We strive to keep our impact on domestic and industrial consumer bills low and we work with our customers to keep energy affordable. We have a strong cost focused culture but are fully aware of the requirement to balance this with the service we deliver. The current RIIO framework gives us a strong incentive to deliver our outcomes as efficiently as possible but we can't cut costs at the expense of long-term consumer outcomes. We've shown how we continually balance this challenge during RIIO-1 by overspending our allowances for asset health investment as we believe this is the right thing to do to maintain a safe and reliable network today and into the future.

What have you told us?

We must help to keep energy affordable for domestic and industrial consumers and this is one of our priorities. We work hard to keep our impact on bills low – the services we provide adds less than £10 to the average annual domestic energy bill.

Being more efficient to deliver value for money

To deliver our proposals as cost-effectively as possible we have challenged ourselves to drive efficiencies across our activities. We have done this by:

- building in the future benefits of our stretching UK efficiency programme, **saving £150m** over the full RIIO-2 period
- making an ambitious commitment to further **reduce our operating costs by £22m**. This represents a further 5.6% improvement in our operating productivity by the end of RIIO-2. This is nearly three times the government's forecast of UK productivity growth. The outcome of our total operational cost efficiencies will mean our RIIO-2 costs are 13% lower by the end of RIIO-2 than they are today
- building in the benefits of our past successful engineering and asset management innovations to include a 4% efficiency on our direct capital investments, **saving £80m**.

In addition to the efficiency improvements and commitments we have applied, we have challenged ourselves to focus on the most effective and efficient activities that will deliver the network capability needs of our stakeholders. We have proposed a plan on future compressors against RIIO-2 and RIIO-3 that will result in 16 compressors being decommissioned or derogated at a cost that's significantly lower than replacing these units. This has the potential to save consumers over £300m in RIIO-2 and £263m in RIIO-3.

Overall, we are reducing the costs of delivering your priorities by £552m. This will keep our impact on the household gas bill at or below RIIO-1 level.

In RIIO-1 we have completed transformation programmes to improve capability and drive efficiency in our activities. For example, investing in our data and our data analysis capabilities so we can build a modern asset management capability. We have set up a project to deliver better asset management. It is about enabling the business, removing some of the problem handovers, making data, information and decision-making more central. Through unified planning we'll be more agile when workload volumes change, more efficient through project lifecycles and it will be easier to optimise work and minimise disruption to our stakeholders.

We have driven value for money during RIIO-1 through greater competition in contracting to achieve lower tender prices and greater innovation in both procurement and delivery. It has been necessary to develop our own capability in contract and project management excellence so that we are well-positioned to realise the contracting efficiencies in the delivery phase of our projects.

We have worked hard to streamline our activities by developing twenty mandatory standards. They set guidelines for the business by defining the minimum requirements that are expected in working for National Grid. These standards allow us to focus on the way we deliver for our customers. They allow us to be clearer on what's important and enables everyone to challenge the things that get in the way.

Outputs and costs are linked to ensure accountability for outcomes

Over the last decade we have seen more uncertainties affecting our activities. During RIIO-1 uncertainty has been driven by emerging legislative requirements and a better understanding of the condition of our assets.

Uncertainty mechanisms have been in place to adjust our allowed revenue during the period to reflect uncertainty of directed requirements, solutions and associated costs. This manages the risk to consumers by ensuring we are undertaking expenditure when the right level of certainty and cost justification is reached.

An example was the Avonmouth pipeline output designed to help manage the consequences of the Avonmouth LNG storage facility closure. Working collaboratively with key stakeholders we found this was not necessary and we returned the relevant allowance to consumers.

Decisions we make now will affect the outputs and the costs of the network for many years and we have

had to balance current and future consumer requirements in coming to our plan. These decisions cover the spending we are proposing in RIIO-2, the recovery of historic costs and the financial framework used to calculate our revenue.

The returns delivered by many networks in the RIIO-1 period have been heavily scrutinised over the last few years. Our returns have not been to the same level because we have been spending over allowances. We do, however, recognise that there are economic reasons why the base return due to shareholders (called the 'cost of equity') should be lower in the RIIO-2 period.

We have delivered a service that our stakeholders value

Reliability has been maintained, playing our role in allowing consumers to use gas as and when they want. This has not been easy given some of the challenges we have faced. Including the trend of our customers using the network in different and more flexible ways and the periods of extreme weather conditions we have experienced.

We have delivered timely customer connections, flexing the network to avoid the need for deeper reinforcement. And we have exceeded our targets for customer and stakeholder satisfaction, although we acknowledge we have more to do in this area.

We contribute 1.6% to the average household energy bill

In RIIO-1 our costs contribute around £10 (1.6%) of the average annual household bill of £569. We have delivered value for money for all consumers through the outputs we have delivered.

3. What are our stakeholders telling us?

You tell us that we have a part to play in keeping energy affordable for domestic and commercial consumers. You expect us to manage costs and risk in the interest of our direct customers and wider consumers.

We invest to make sure that our network provides the service that our stakeholders need and expect. Stakeholders see us as the experts managing the gas transmission system. You are also clear that we must do this economically and efficiently. More broadly, stakeholders want us to build both transparency and trust.

Direct stakeholder feedback:

“All the consumer cares about is the impact on their bill and security of supply”

“I couldn’t believe how, to be honest, how low your percentage was, you know, if somebody had asked me I’d have said that actually it would have been a lot higher, 20%, sort of 20%, but actually it’s very low in comparison to what you do really.”

Consumers care about keeping their energy bill affordable. They see energy networks as dependable. This reflects well on how we have

managed risk on consumers’ behalf in the past. We must continue to do so in the future.

4. Our proposals for RIIO-2

The total controllable cost of delivering the key stakeholder priorities in this draft plan is £3.1bn including real price effects. This is the overall totex for RIIO-2, including our business support costs. They are described in this chapter and appear as costs against this stakeholder priority.

The total RIIO-2 spend for this area, is £326m, with an annualised spend of £65m compared to an annualised spend of £79m in RIIO-1. This equates to around 11% of our total business plan.

Stakeholder Priority	Forecast cost
I want the gas transmission system to be safe	£72m
I want to take gas on and off the transmission system where and when I want	£1441m
I want you to protect the transmission system from cyber and external threats	£617m
I want you to care for the environment and communities	£361m
I want you to facilitate the whole energy system of the future – Innovating to meet the challenges of an uncertain future	£103m
I want all the information I need to run my business, and to understand what you do and why	£64m
I want to connect to the transmission system	£12m
I want you to be efficient and affordable	
Business support	£326m
Real Price Effects	£144m
Grand Total	£3140m

Capex • Market tested • Benchmarked	£1983m*	Opex • Pay benchmarked • IT benchmarked • Business support benchmarked	£1012m*
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*excluding real price effects

We have tested stakeholder willingness to pay

As we build our business plan, we are making sure it delivers what consumers need at a price they are willing to pay. To do this we are using a mixture of methodologies. We have been speaking with organisations with previous consumer experience to help build our approach and we have asked our independent stakeholder user group and Citizens Advice to challenge our proposals at appropriate points in the process.

Working with the other transmission networks¹¹⁵ we've appointed consultancy firms, ██████████ to deliver a joint study into willingness to pay (WTP). Their research took place in early 2019 and has been incorporated in our July 2019 submission. Within this research, we covered the topics of risk of supply interruptions, improving the environment around transmission sites, supporting local communities, investing in innovation projects to create future benefits for consumers and supporting consumers in fuel poverty.

The nature of the willingness to pay methodology means that some topics are not appropriate for this type of research. For example, anything safety-related tends to generate an inflated willingness to pay value, which can also impact results for other topics. It is also not appropriate for topics where there is already an established value, such as carbon pricing.

Willingness to pay research has some other drawbacks, including that it can sometimes produce high valuations across a range of service levels. We mitigated this as far as possible by providing context within the study. By focusing on more than one topic, respondents were able to think more holistically about the impact on their bills, and how they trade off against priorities. Willingness to pay is useful in providing information on a range of consumer values for changes in service levels but is not designed for testing the overall acceptability of a business plan. We are using other ways to check consumer acceptability of our plans.

Findings

Domestic customers:

- On average, are willing to pay for improvements in all attributes presented to them
- Are willing to pay less for improvements to highest level of service

Non-domestic consumers:

- Are willing to pay, on average, for most attributes presented to them

A full report on our willingness to pay research can be found in annex A28.01

We have not used these findings to set the size of our plan – their magnitude is greater than our proposed costs and they are a sole data point. Instead, we have used them as an indication of where we may or may not have consumer support, and for topics where there are options, as an indication of priorities. They will also be triangulated with the output of other research and stakeholder engagement.

Following our July 2019 draft submission, we will be carrying out two additional pieces of nationally-representative quantitative research with the specific aim of testing the acceptability of what we're proposing.

Our capital costs are efficient

Our capital costs are the costs we spend on our assets. Whether building new ones or replacing or extending the lives of old ones. The capital costs in this draft business plan will be £80m less than if we delivered them in RIIO-1. This is because we are committing to a 4% efficiency during RIIO-2.

We are efficient as we enter RIIO-2

We use market testing and benchmarking evidence to demonstrate the efficiency of our costs.

100% of our asset health capital expenditure during RIIO-1 was subject to competitive tendering. We utilise this form of competition to extract value from our supply chain. We follow a competitive tender process for any external spend over £100,000 and so 82% of all external expenditure during RIIO-1 has gone through a competitive process. We continue to develop these processes to extract as much value as possible from the supply chain. This ensures and

¹¹⁵ National Grid Electricity Transmission, Scottish Hydro Electric Transmission, Scottish Power Transmission

validates that we are delivering our outputs at the best value to consumers.

Competition could also be introduced to specific new, large and separable investment projects as has been developed in the Electricity Transmission sector. We will work with Ofgem to determine any changes required. We have identified that the proposed project at our Bacton terminal meets the criteria of competition as defined by Ofgem in their May 2019 decision document.

Benchmarking

We undertake benchmarking and best practice sharing activities across a wide range of our business activities. We do this to identify best practices and where we need to find further business improvements. We focus innovation in these areas to unlock potential benefits or improvements.

We invest time and effort to understand how other businesses perform and how we can adopt approaches that will allow us to drive benefits for consumers.

We participate in various industry associations which allows us access to joint research, innovation projects, benchmarking studies and direct relationships with other similar organisations. We also engage external benchmarking consultancies to further bolster understanding of our cost base.

We are in a unique position of being the only gas transmission business in Great Britain. This means for asset management costs we need to take a different benchmarking approach than that followed by gas distribution networks, where they can look across the four separate network owners. Our approach covers;

- How we build our asset health costs which allows comparisons from previous schemes
- Benchmarking across European transmission system operators for specific spend areas
- Implementing strategic sourcing approach and using various contracting and procurement strategies
- Wider benchmarking initiatives and bespoke activities to identify comparators, such as project management review of our Feeder 9 project and external challenge group reviewing our future asset management project to learn from best practice.

Gas transmission benchmarking initiative (GTBI)

This is a long-standing collaboration of European TSOs, started in 2004, with voluntary participation designed for co-operation and performance comparison. Over the past 14 years, 13 different transmission companies have participated. Our participation is unbroken over that time frame and we are a highly-regarded member of the collaboration. The aims of GTBI are to improve companies' overall performance and identify best practices in gas transmission activities. One activity of the GTBI is a confidential annual cost and performance comparison involving only member companies.

We will stay efficient throughout RIIO-2

We are committing to a four percent efficiency across the capital cost of our draft business plan. This will keep us efficient throughout RIIO-2 for the benefit of energy consumers. We will achieve this through rigorous use of our investment process to ensure efficiency through the lifecycle of our projects. And by extracting value from the supply chain with our contracting strategy.

Our investment process locks in efficiency

All capital investments follow our governance process. This assures that we manage capital investment in line with the delegated authority provided by our board to the gas transmission investment committee. The purpose of the governance process is to assure that investments deliver the best value, fit for purpose solutions to identified problems or opportunities, which meet the needs of ourselves, customers and stakeholders. It manages and defines the project lifecycle from inception through to closure for all gas transmission investments in the regulated business.

It includes six stages with 'gated' progress to ensure minimum requirements are met for each phase, formalises the delegation of authority for gate keepers and sets out mandatory questions to be completed before onwards progression.

It defines the requirements of an investment needs case, which will include cost benefit analysis as required. The needs case is confirmed at every stage before project delivery. We have increasing cost certainty as we move through the stage gates. We appoint FEED contractor at stage 4.3 and a mains works contractor at stage 4.4 in figure 28.1.

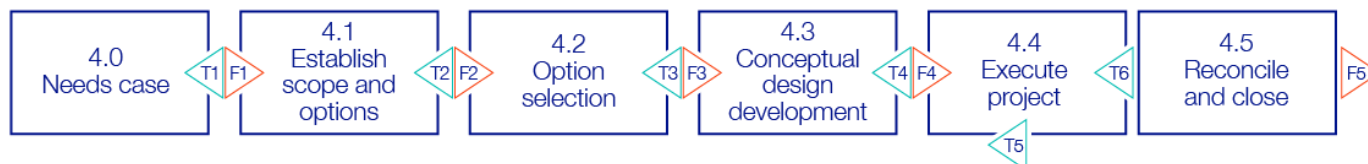
It also sets out the option evaluation and selection process to ensure all reasonable options are considered. These can include do nothing and commercial options in addition to build options.

Our investment process is interlinked with our Governance Code which provides the means for financial approval and commits the investment to time, scope and cost parameters.

There are three possible drivers and routes of entry into the investment process:

- network capability and legislation-driven
- asset health driven
- customer driven (change in need or load related).

Figure 28.1 our investment process



Our delivery model and contracting strategy extracts value from the supply chain

We know that leveraging market forces and utilising native competition will help us get the best deal for consumers from our supply chain. To ensure we maximise this potential we have identified that the following principles are key to our contract and delivery models:

- **Collaboration** - more collaboration with our supply chain to drive greater value and innovation in construction
- **Capable owner** – provide greater transparency about upcoming work, working closely with the supply chain to deliver value over the whole asset life
- **Long term supplier relationships** – select and retain capable, flexible suppliers who deliver what they promise.
- **Simplify tendering** – streamlined tendering process to reduce tendering timescales and costs to the supply chain
- **Early supplier involvement** – two-stage contracts for large projects to allow greater opportunities to increase innovation, simplify the tendering process and reduce whole life costs
- **NEC4** –adopt the New Engineering Contract (NEC4) forms with minimal amendments, to ensure a collaborative approach to contracting with appropriate allocation of project risk
- **Construction supply chain payment charter (CSCPC)** – adopt CSCPC standards, and ensure these principles are cascaded through all levels of the supply chain
- **Providing trusted tier 2 support** – enable our supply chain to utilise our frameworks to purchase equipment and services from experienced suppliers
- **Value from equipment** – procure fit for purpose plant and equipment from global suppliers to enable delivery of our works more economically

- **High performing delivery teams** – we will continue to develop the capability of our teams to ensure effective collaboration, working to become recognised as ‘best in class’ in infrastructure project delivery and contract management
- **Digital strategy** – a digital strategy and framework to maximise the use and benefit of the new technology

In line with ongoing pre-process planning activities the current view of our procurement strategy for the RIIO-2 is as follows:

- **Emissions compliance (compressors)** –Retain the use of the Original Equipment Manufacturer (OEM) Framework established in RIIO-1 and implement an Engineering, Procurement and Construction (EPC) Framework, awarding multiple sites wherever possible.
- **Asset health** – Increased use of our Pipelines Maintenance Centre (PMC) for initial asset condition assessment and repair where possible. Opportunity to commit to a portfolio of works using a more collaborative commercial model with the supply chain (Strategic Partnership/Enterprise) to drive value engineering, planning optimisation and innovation through outperformance of unit costs via an appropriate incentivisation model.
- **Cyber (control and protection)**– Expected increase in the programme of work. Opportunity to commit to a portfolio of works using a more collaborative commercial model with the supply chain (Strategic Partnership/Enterprise) to drive value engineering, planning optimisation and innovation through outperformance of unit costs via an appropriate incentivisation model.
- **Pipelines** –Key is agility to react to customer demands. Use of framework with competitive tendering
- **Physical security** – Likely framework for calling off smaller projects.

Information Technology is at the heart of our business

Information Technology (IT) underpins the safe and reliable operation of our transmission business. Our IT applications and the IT infrastructure that supports those systems are fundamental to the running of our operations and keeping our IT systems maintained and updated is critical to ensuring that we continue to deliver efficiently and reliably. Like any organisation, our employees expect to be able to use technology to support their day job, in line with their use outside of work. However, as a transmission business our reliance on IT is greater than other utility businesses. Our role in managing whole system means we have greater and more complex data handling requirements and are at higher risk of the growing cyber threat. Through RIIO-1 we have invested over and above our allowances for IT infrastructure to help ensure our people can work more collaboratively, and to extend our cyber monitoring.

At the start of RIIO-1, we responded to the challenge from Ofgem to reassess our IT asset health policies by extending the technical lives of our IT infrastructure assets, accepting higher levels of risk whilst maintaining levels of availability. However, as we continued through RIIO-1 our employees fed back that IT was becoming a significant blocker to their effectiveness at work. Over the same period, the escalating threat of cyber-attack on our IT systems meant that we had to look again at how we managed our infrastructure so that we could proactively monitor and remediate cyber threats. Considering this, we have revised our IT asset health policies, which have been reviewed by independent IT experts Gartner, who confirmed that they are in line with industry practice.

We have recently implemented a series of investments in new systems to support our HR, purchasing and financial transactional processes, in response to analysis that showed that we had more manual process steps than “world class” functions. These investments will support better controls and lower costs of function as we start the RIIO-2 period.

Our IT investment portfolio for the RIIO-2 period continues the work we have begun in RIIO-1 to bring our IT infrastructure assets in line with asset health policies. Giving our people have the right tools and equipment to work effectively and allowing cyber monitoring to extend across our IT assets and data.

The cost of our plan for the RIIO-2 period is £77m, including £23m of investment costs to support future application implementations and upgrades on behalf

of our business support functions. These costs are in addition to the IT expenditure driven by the gas transmission business and to keep our networks cyber resilient, which we have included in our key stakeholder priority chapters. Our IT investment plan can be found in annex A28.03.

Our IT investments are in line with external benchmarks

We have submitted our IT investment plans, including those investments relating to gas transmission applications, for independent review by Gartner – a recognised IT benchmarking organisation. They found that the mix of investment areas, the individual project costs and our project rate cards were all in line with their expectations, formed from their knowledge of IT investments made by other utility companies.

Our operating costs are efficient

Our operating costs (opex) are the costs we incur on a daily basis to maintain and operate our business, as such they contribute to almost all of the stakeholder priorities in our RIIO-2 plan with only business support opex not included elsewhere in this submission. Collectively they make up 30% of our totex expenditure for the RIIO-2 period and because they relate to the day to day running of our business and occur year after year it is particularly important that we can demonstrate that these costs are efficient.

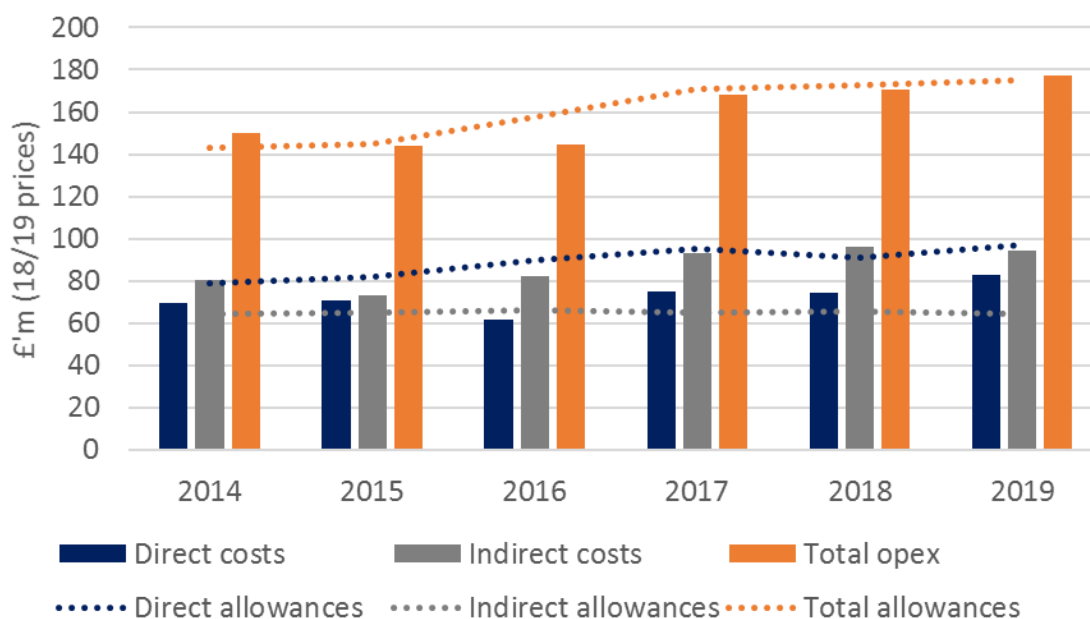
Our plan for RIIO-2 shows that the costs of the activities we do today will be 13% lower by the end of the RIIO-2 period. However, we will have to do more than ever to keep our assets resilient and protected from increased external cyber threat in the RIIO-2 period.

Our RIIO-2 plan learns from our experiences in RIIO-1

We have delivered opex efficiencies in our asset maintenance activities throughout the RIIO-1 period without compromising on delivering outputs. We have, however, cumulatively overspent our allowances due in part to low business support allowances, which were set with reference to overly simplistic benchmarks.

The graph below shows our opex trajectory over the RIIO-1 period (including forecast to the end of RIIO-1), split between direct and indirect costs and allowances.

Figure 28.2 RIIO-1 opex costs and allowances



Ofgem ask us to split our opex costs into direct and indirect categories, with direct expenditure relating to activities that directly impact our assets such as maintenance and the indirect category including both business support and closely-associated indirect (CAI) opex. Business support represents the costs of support functions such as HR and Finance, with CAI costs including more network-specific support costs such as those related to planning network changes and IT support costs for our asset management systems. The running costs of the Gas Control Suite and associated applications used by the system operator are also classified as business support costs. From a business plan data table perspective, the business support and direct expenditure categories are shown separately, however the CAI opex is included in the table along with capitalised internal resource.

As we entered the RIIO-1 period, we were facing growing maintenance requirements from an ageing asset base as well as a shortage of adequately trained workers. The level of opex allowances received for the RIIO-1 period did not fund these upward pressures and consequently gave us a dual challenge of delivering the increasing workload whilst reducing our costs.

Against this backdrop, we reset our operating model at the start of the RIIO-1 period and restructured our business to realign accountabilities, introducing performance excellence (lean) capabilities and optimising our support functions for additional operational workload. This allowed us to mitigate

some of the upward pressures in workload and reduce our workforce by over 100 roles.

As we started to deliver our asset health programme in RIIO-1 we found that we needed to get a greater understanding of our asset condition and take more interventions than anticipated. We invested in asset and asset condition data management systems, as well as the resources and capability to analyse and assess the data we collected. This enabled more informed decision making around asset interventions, reducing capex costs.

From an indirect opex perspective, IT costs increased because of the IT systems we invested in to support our asset condition data. Additionally as we developed our capability in identifying and managing the increasing cyber threat to our operations. We also needed to increase the scope of our financial control activities to respond to increasing compliance requirements and focus. The benchmarks that set our allowances did not take these increased activities into account and we were not able to contain these costs within our allowances. We take these lessons and others into our business plan.

Our opex costs are in line with or better than external benchmarks

In line with our position as the only gas transmission business in Great Britain, we need to use a variety of approaches to assess the efficiency of our opex costs.

In areas where there is high comparability, such as across our shared support functions, or employee

pay, we regularly use external benchmarking data to assess our cost and identify areas for improvement. Where there is less comparability, such as our asset maintenance and running costs, benchmarking our costs is more challenging. Our membership of GTBI enables us to share and learn from the best practice in how we run and maintain the Gas Transmission network, keeping our costs efficient.

In preparing our business plan for RIIO-2 we assessed our opex costs against available benchmarking data to assess the efficiency of our opex plan.

Our employees’ pay is in line with other companies in our sector

We test our pay deals against our peer group and regularly benchmark our employee remuneration to ensure it remains in line with the market. Our annual pay awards are benchmarked against those of network companies and other competitors in the skills market. We ensure that any deal we put in place with our trade unions or annual pay rise for managers is in line with our peers so that we do not fall out of step with the market but equally so that we do not become a higher than market payer.

From a broader benchmark perspective, with the latest review completed in 2018 by [REDACTED] (a people and organisational consultancy). We adopt a single pay framework across our UK regulated businesses. This means that all of our employees’ (both direct and support function) costs have been

recently benchmarked. In summary, total cash remuneration was in line with median pay for a comparator of 130 entities in the Utilities, Oil & Gas and Chemical sectors.

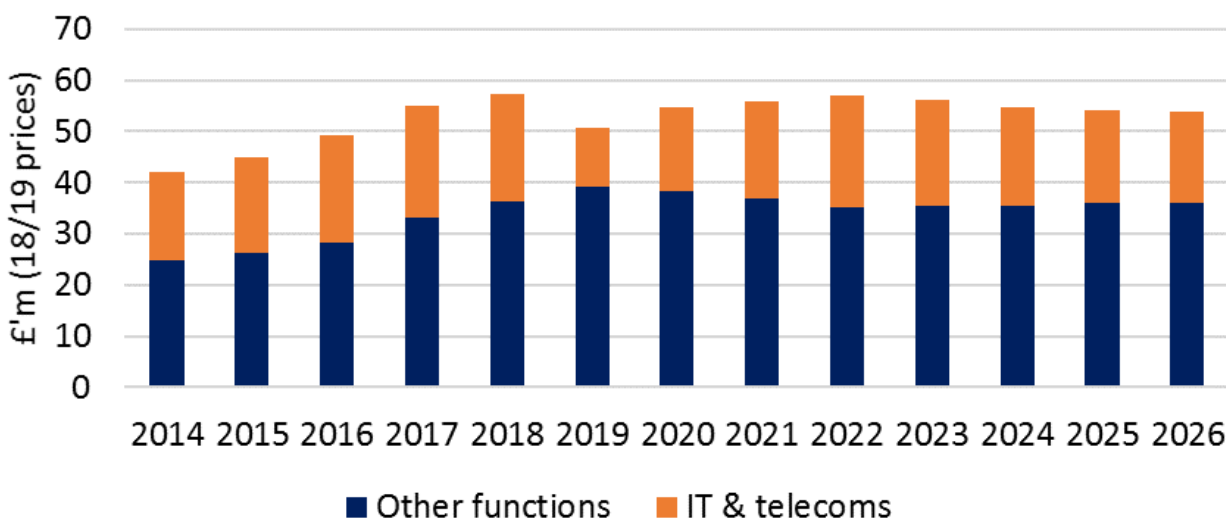
Our business support costs are efficient

Our business support functions provide services such as IT, property management, HR and finance to all the National Grid businesses. They help with the delivery of our core activities, for example by procuring materials, helping us to find and retain our people, and managing IT systems. Our support functions also perform key business activities such as financial control, health and safety and legal compliance.

We operate a shared services model for these functions, where a single function provides services across the National Grid group of businesses. Each business takes a proportion of the shared costs and in doing so benefits from economy of scale efficiencies.

Figure 28.3 shows Gas Transmission’s share of the business support costs for the RIIO-1 and RIIO-2 periods. The chart shows that business support opex is broadly flat for the RIIO-2 period, with IT costs growing in the first part of the period as new IT systems become operational and require ongoing support, then reducing as we target efficiencies in line with our opex efficiency ambition of 1.1% per annum.

Figure 28.3 our business support opex for the RIIO-1 and RIIO-2 periods



Benchmarking of our business support costs provides some information about the level of efficiency of our costs, however this approach does not wholly

determine the efficient cost of the activities our support functions undertake to support our transmission business. For example, our IT spend as

a percentage of revenue or number of IT users in the business will be higher than many companies. Our IT systems are integral to our operations, and because we face a higher cyber threat due to our role as a gas transmission business. In setting the RIIO-1 price control Ofgem recognised this and provided network companies with the opportunity to submit evidence to support where costs differ from benchmark averages. A pure benchmarking approach to determining efficient costs does not consider the different extents in which businesses invest in support functions in order to drive lower cost in other cost areas. We are forecasting our total opex costs to be broadly in line with allowances by the end of RIIO-1, however this will be through spending higher levels of indirect opex to make efficiencies in our direct opex. Nevertheless, in preparing our plan we wanted to understand how the business support costs in our RIIO-2 business plan compared with those of similar-sized companies.

We asked The Hackett Group, a global business benchmarking organisation, to compare the costs of our support functions with those of similar-sized companies. We provided Hackett with the costs of shared services functions supporting our electricity transmission, gas transmission and electricity system operator businesses. Using Ofgem's business support function definitions, Hackett identified comparable activity categories within their database. We asked Hackett to compare our costs to as many non-regulated companies from the group Ofgem had used for RIIO-1 business support benchmarking for which Hackett still had current data, 19 companies from across multiple sectors formed the comparison group. Hackett performed the comparison to peer group using a single metric for each business support area, such as costs as a percentage of revenue, or cost per full-time equivalent (FTE). Although this is a simplistic approach that averages out key differences (for example, how embedded IT is into an organisation's operations), it provides a reasonable foundation to start analysing and adjusting for more complex areas of our support costs.

Where Hackett identified differences between our costs and those of the comparison group, we asked them to perform more detailed comparisons on an activity-by-activity basis so that we could understand what explained the differences. For our IT costs, we engaged Gartner (an industry-recognised specialist in IT benchmarking) to perform this further analysis, comparing our costs for each of the key activities (e.g. application support, networks, storage, end-user computing) with those of other companies in their database, adjusting for workload (i.e. number of applications, number of services, number of users).

Hackett found that our procurement costs were in line with the upper quartile of their comparison group. So too are the costs for property management after adjusting for our additional Critical National Infrastructure related activities (for example, operating our gas and electricity control centres on a 24-hour basis, and the enhanced physical security measures needed to protect our sites).

Other areas had more differences to benchmark. After adjusting for £2m of employee costs that are held in our HR budget on behalf of the business, our HR costs were lower than peer median but higher than peer upper quartile. We know we must work harder in the energy sector to create an inclusive working environment, and our HR function supports these actions. Our Finance, Audit and Regulation function costs are lower than peer average, but higher than upper quartile companies. Some of this difference is because we were comparing to non-regulated businesses, and the benchmark must be adjusted for additional costs of regulation activities. We also maintain strong financial controls which enable us to operate at the right levels and underpin our strong efficiency. We have seen more focus on our control environment over the RIIO-1 period which has meant we have had to work harder in this area, we also undertake controls work in line with Sarbanes-Oxley requirements (i.e. additional controls around financial information that companies who are listed in the US must comply with). This focus adds more costs of compliance – but better governance and assurance – than companies that do not have requirements that are so stringent.

Our CEO and group management costs are lower than peer median but higher than upper quartile. There appeared to be some outlier cost companies within the upper quartile as costs dropped significantly. We are working to understand the data better, particularly as this function groups together different activities (such as legal support, employee and external communications, and the executive manager of the company) that will vary widely with the nature of business risk each company faces.

On a cost per end user basis, Hackett found our IT costs to be higher than those of similar sized organisations. This is consistent with the extent to which we use and are reliant on IT systems to operate and monitor the gas transmission system which is independent of the number of IT users in our organisation.

Gartner's more detailed analysis found that, after adjusting for levels of workload, our IT costs were in

line with peers whilst delivering higher levels of system availability. In some areas, such as our WAN network and servers, our costs were best in class efficiency defined by Gartner as within the 50th and 25th centiles of cost. In other areas, Gartner found we spend more than our peers on maintaining our networks (LAN) and in supporting applications and end users. The proposed IT infrastructure investment plan for RIIO-2 will support us in achieving best in class efficiency across our IT costs, as well as improving cyber security and will bring our IT costs to upper quartile efficiency by the end of the RIIO-2 period.

We are continuing our work to understand how our costs compare to external benchmarking data and we will use this work to inform our submission as our draft plan evolves.

Our insurance costs are 23% lower than commercial market premiums

We insure our businesses through our captive insurance company, wherever it is efficient to do so. Under this arrangement, insurance is provided by a licenced insurance company owned by the group, set up specifically to underwrite insurable risks of our business operations. We periodically use external consultants to review the premiums considered achievable in the commercial market for our risks, to compare these against the premiums charged and forecast by the captive. We last did this in 2019, using Aon Global Risk Consulting and RKH Specialty, who estimated the commercial market premiums would be over 23% more than our proposed premiums for RIIO-2. This equates to around £6m of savings to consumers for the RIIO-2 period.

Our embedded opex efficiencies make us fit for the RIIO-2 period

Building on the experiences and capabilities we developed in the first half of RIIO-1, we have recently reshaped our business in readiness for the changing needs of our customers over the next five years. We have undertaken an ambitious, bottom up review of our business which enables us to bring in new skills and capabilities and reduce costs to our customers. We have identified a suite of co-ordinated initiatives which will deliver the savings including realigning processes using lean techniques, replacing our financial systems to improve and streamline controls and introducing more flexible field force arrangements.

The resulting re-shaped organisation and cost base make us fit for delivery in the RIIO-2 period. Our pay is comparable with peer companies and savings bring

our business support costs in line with or better than benchmarks. We are forecasting to deliver annual opex savings of £30m by March 2021, which will flow into all years of RIIO-2 making a total saving of £150m.

On top of these savings, we are challenging ourselves to find more efficiencies in RIIO-2. We have embedded 1.1% per annum of productivity into our underlying opex cost base. This is nearly three times the current UK trend for productivity and a reduction of £22m across RIIO-2. This means overall our underlying opex cost base will reduce by 13% between 2018 and the end of the RIIO-2 period.

We will have to manage key cost drivers in our plan

We expect the opex pressures we have experienced in the RIIO-1 period to continue into RIIO-2, and they will offset the forecast underlying savings. The three main drivers relate to:

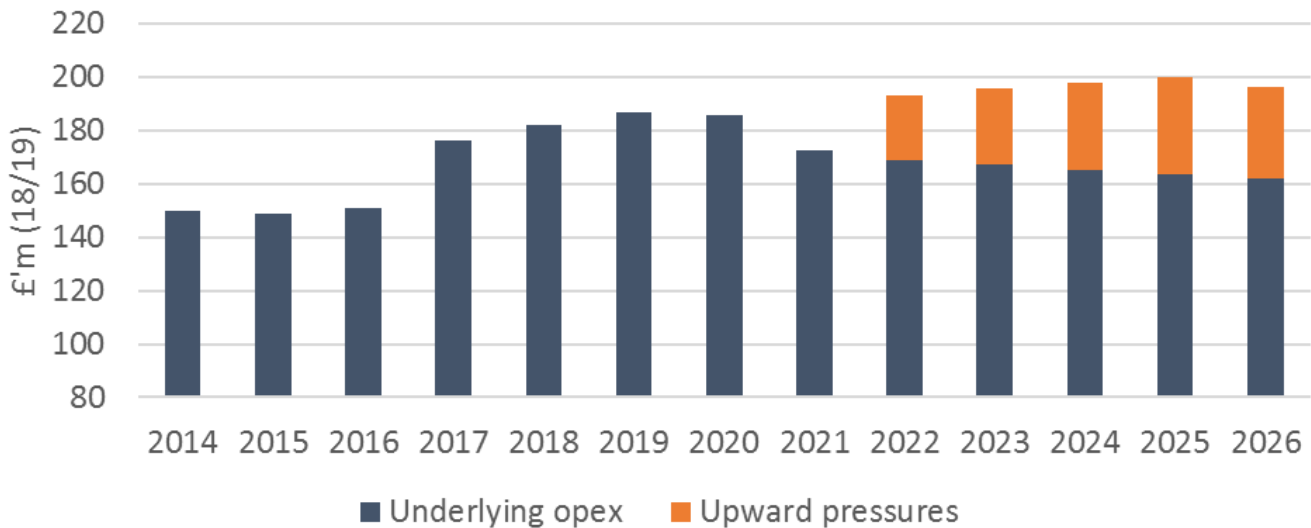
- Our ageing asset base. We forecast an additional £4m opex as we flex our organisation to deliver our RIIO-2 asset health plan and ensure we have the right skills and capabilities to deliver our work now and in the future. Most of these costs will be capitalised but there is some opex impact related to training and other non-capitalisable activities. We are also forecasting an increase of £3m in our insurance costs because of bigger insurance premiums across the infrastructure sector in response to recent wildfires and other major events. Our captive insurance approach means that our premiums are still 23% lower than if we had sought insurance through a commercial arrangement.
- Maintaining cyber resilience. We need to respond to the emerging threat around deliberate cyber and physical interference with our operational assets. We have invested in cyber resilience during RIIO-1 but there is more to do as we enter RIIO-2. Government bodies are guiding our requirement which will call for both investment and ongoing operating costs. Our additional base RIIO-2 opex in this area is ■■■ per annum and this will be subject to uncertainty mechanisms, so that our response is not constrained by funding and we will only spend what is required by external compliance bodies.
- The related impact on IT support costs. We are investing in new systems to grow capability in our business and reduce cyber threat. Our IT

infrastructure modernisation programme, set up in response to the increasing threat of cyber-attack, offers us opportunities to rationalise our IT architecture to lower running costs in the future. We are targeting IT cost savings of £6m a year by the end of RIIO-2, which more than offsets the increased running costs of our new systems. However, we expect to take up cloud-based IT solutions which add opex costs but reduce capex costs and deliver more scalability and flexibility. Overall, our IT opex costs will increase by £2m in total from the start to the end of RIIO-2.

RIIO-2 due to us targeting an efficiency level that is almost three times that of the UK economy over the RIIO-2 period. However, we will have to work harder than before to keep our assets maintained and resilient against the increasing external cyber threat.

Figure 28.4 shows the profile of our opex costs over the RIIO-1 and RIIO-2 period. The costs of the activities we do today will be 13% lower by the end of

Figure 28.4 total opex profile RIIO-1 and RIIO-2



We will be subject to above inflation impacts on our plan

Real Price Effects (RPEs) occur where input prices are anticipated to move differently to the inflation measure which our allowances adjust by annually. This is because the mix of goods and services in the inflation calculation differ to the good and services we purchase. The main areas where this applies are labour costs and the materials we use in our capital works

Independent forecasts and long-term trends highlight that both labour costs and capex material costs are forecast to grow at a quicker rate than inflation over the RIIO-2 period. We will therefore be exposed to above-inflation RPEs in our plan. Whilst both are anticipated to grow, the level of control we have differs, as does the potential volatility in the annual price movements.

Our staff costs track the directional trend of the relevant indices but do not fluctuate with short-term changes due to our long-term pay deals and longer-term approach to workforce resilience. The underlying indices are also less volatile than those related to commodities. Following the RIIO principle of aligning risk to the party best placed to manage it, we are therefore proposing a fixed allowance for labour RPEs based on independent forecasts of 0.3% above RPI (1.3% above CPIH).

In comparison, we have limited ability to control how capex material prices impact our cost base. Changes in input prices will be factored into all goods we purchase, and the related indices aligned to these costs are inherently more volatile than labour, with for example 20% annual cost swings in the last ten years. Although these impacts can be partially mitigated through contracting strategy, we cannot

control the risk and underlying cost trend. We are therefore proposing an index approach for capex materials which will ensure our customers pay no more or no less than the relevant indices for these costs.

5. How will we deliver?

The planned increase in work on the network has required us to think very differently about how we manage system access whilst ensuring we can deliver the service our customers need. It is important that the RIIO-2 incentive arrangements on maintenance, capacity constraints and customer satisfaction are aligned to minimise the impact our work can have on our customers.

The application of innovation projects developed in RIIO-1 such as GRAID and Shallow Dig as discussed earlier and other projects such as composite pipe supports and 3D Modelling (BIM) will be critical to successful and efficient delivery of our programmes of work. We will also continue to develop our campaign approach to work delivery alongside our procurement contract approach to drive successful and efficient delivery of work.

We have developed our plan over a 10-year period to accommodate network outages in RIIO-2 and RIIO-3. However, we have demonstrated that we can manage the network outages required by this plan while minimising constraints and costs for our customers. Bringing workload forward or deferring into RIIO-3 is likely to influence the capability of the network during that period.

The building blocks of our outage plan are:

- pipeline inspection outages – we have defined when we need to internally inspect our pipelines (between five and 15 years). Remediation outages are scheduled following inspection and our plan is designed to deliver as many works as possible during outages for pipeline inspections, to avoid any more down-time.
- prioritising delivery of legislative work – to manage external threats and reduce the emissions at our compressor sites we have prioritised the associated outages over the 10-year period. Deadlines for these programmes mean we need to ensure we meet the compliance date. These activities have then been scheduled alongside our asset health plans.

- non-routine maintenance – over time we will need to carry out non-routine maintenance that requires outages. We can't plan for this but our plan provides flexibility to schedule additional outages.

To ensure we deliver the plan as currently expected we will rely on our people, processes and practices.

People

Our most important assets are our people. Workforce resilience is about having a workforce with the right number of people with the right skills, the right, healthy mindset and work-life balance, and the right representation to reflect the society we serve.

We are forecasting significant levels of retirement and increased non-retirement attrition over the RIIO-2 period and the following 10 years. At the same time, entrants to science, technology, engineering and maths (STEM) careers, from which we would expect to replace our workforce, are becoming increasingly scarce. In response, and to ensure that the people we bring in represent the diversity of the communities we serve, we are committing to expand our HR activities in supporting STEM engagement, inclusion and diversity and the wellbeing of all our people.

We already have in place many things to help ensure the resilience of our workforce. Through RIIO-1 we have seen employee engagement levels in line with high performing companies and have higher proportions of key diversity metrics in our critical workforce relative to the UK engineering sector.

We are proposing to maintain the resilience of our critical roles within a range of 105-115% coverage (that is the percentage of people who could perform in a critical role with a six-month handover). By doing this we can maintain the resilience of our networks, contribute to the UK STEM talent pool and protect consumers from having to fund premium labour costs in the future. We will track our progress on developing the diversity of our critical role workforce by reporting key diversity metrics for this workforce within our annual regulatory reports.

We are a socially responsible employer. We passionately believe that having an inclusive and diverse workforce and culture is the right thing to do to ensure everyone can thrive. In 2018 we were ranked among the top 50 employers for social mobility by the Social Mobility Foundation¹¹⁷.

¹¹⁷ <http://ournationalgrid.com/uk/we-are-ranked-in-top-50-for-social-mobility/>

During RIIO-1 we have significantly increased our black, Asian and minority ethnic (BAME) diversity to 14.4% across our employees. We have done this by running internal initiatives including reverse mentoring, employee resource groups and a development programme for diverse leaders. For the second year running, we made Business in the Community's (BITC) Best UK Employers for Race Top 70 list¹¹⁸ and were also a finalist in BITC's Race Equality Awards.

We have increased the total proportion of our female employees across all roles by 3.6 percentage points in the last four years from 22.6% to 26.2. We have also secured a place in The Times Top 50 Employers for Women¹¹⁹. We have increased the population of female employees by running several initiatives including female-focused training programmes (Spring Board and Spring Forward), our UK women's network, Women in National Grid (WiNG), and ensuring that our roles attract female staff by targeting organisations such as the Women's Engineering Society. In line with other UK employers of over 250 people, from 2017 we reported our gender pay gap. Our latest data shows that our median pay gap is 0.4%

Further detail can be found in the sustainable workforce planning annex A28.02.

6. Risk and uncertainty

There is some risk around the level of external cost that we face which are outside of our control. We are proposing to pass through these costs which cover things like licence fees and business rates.

To manage the risk of above inflation cost impact we are proposing an index approach for capital materials which will ensure our customers pay no more or no less than the relevant indices for these costs.

¹¹⁸ <https://race.bitc.org.uk/awards-benchmarking/best-employers-race-2018-0>

¹¹⁹ <http://ournationalgrid.com/uk/were-named-in-top-50-employers-for-women-list/>

7. Our proposed costs for RIIO-2

This chapter demonstrates the value for money and deliverability of the entire business plan. The costs shown here are not mapped separately to other stakeholder priorities, including business support cost and non-controllable costs.

Non-controllable costs such as licence fees and business rates are outside of our control. As in RIIO-1 we propose these be passed through. Our current forecast of these costs not shown in other chapters is £752m.

Table 28.5 activity spend 'I want you to be efficient and affordable'

Activity Spend (£m in 18/19 prices)	2022	2023	2024	2025	2026	Total RIIO-2	Annualised RIIO-2	Annualised RIIO-1
Total controllable costs	88.2	89.8	85.0	81.5	83.7	428.2	85.6	78.5
Total non-controllable costs	170.0	171.4	143.6	133.2	133.7	751.9	150.4	183.2
Total Spend	258.2	261.2	228.6	214.7	217.4	1180.1	236.0	261.7
Capex efficiency commitment	-11.6	-13.2	-16.1	-17.1	-21.9	-79.9	-16.0	
Productivity efficiency commitment	-1.8	-3.1	-4.4	-5.7	-7.0	-22.0	-4.4	

Business Plan Data Templates

Our business plan is accompanied by a set of spreadsheet business plan data templates (BPDT) in a format required by Ofgem. The following table shows how our business support costs feed into the BPDTs.

Table 28.6 business plan data template spend 'I want you to be efficient and affordable'

RRP Category (£m in 18/19 prices)	2022	2023	2024	2025	2026	Total RIIO-2	Annualised RIIO-2	Annualised RIIO-1
Business support	63.7	62.8	61.9	62.0	61.7	312.2	62.4	57.9
Closely Associated Indirects	1.7	1.7	1.8	1.8	1.8	8.8	1.8	4.8
Direct costs	0.2	0.2	0.2	1.0	0.2	1.9	0.4	6.0
Load Related	0.1	0.1	0.2	0.1	0.0	0.5	0.1	0.8
Non-load related	-11.6	-13.2	-16.1	-17.1	-21.9	-79.9	-16.0	0.0
Non-operational capex	20.6	21.9	16.5	10.9	13.0	82.9	16.6	10.3
Total Non-Controllable Costs	170.0	171.4	143.6	133.2	133.7	751.9	150.4	182.1
Grand Total	244.8	244.9	208.1	191.9	188.5	1078.2	215.6	261.7

8. Next steps

We are continuing with our consumer engagement programme, including acceptability testing and 'slider' research on consumers' views on the trade-offs in our plan.

We are still reviewing the benchmarking and efficiency evidence we have collected. The results and the implications for our plan could change. The forecasts for real price effects (RPEs) may change. We will carry out acceptability testing for this plan.