



Driving performance through innovation and competition

In this chapter we describe how innovation and competition link to our vision and underpin our efficiency and the commitments we have made to our customers. We explore what our RIIO-1 approaches have been and what we have learned and achieved so far. The focus areas for RIIO-2 are explained, including the benefit areas we are targeting for our customers. The level of innovation funding that we are seeking is explained and we also set out our competition plan.

This chapter has the following structure:

- 8.1 Innovation is core to our purpose, values and vision
- 8.2 The way we look at innovation
- 8.3 Building on the success of RIIO-1
- 8.4 Key learnings from RIIO-1
- 8.5 Financial benefits from innovation
- 8.6 Our strategy for RIIO-2
- 8.7 Our competition plan.

Key messages

Innovation:

- We will place a greater emphasis on customer outcomes (especially those in vulnerable situations), reducing disruption, and energy system transition.
- Third party collaboration will remain key to the success of our innovation.
- We request a total RIIO-2 NIA budget of £40m across our networks.
- We have a structured approach to achieve this and are changing our organisational structure, contracting model and culture.

Competition:

- We already procure 71% of our totex through competitive processes, but we will continue to challenge ourselves to go further, encouraging 'native competition' by opening our activities and processes to add greater value for our customers.
- We will look for opportunities to apply 'late' competition, particularly for our clean gas projects.
- We will further extend native competition by embracing the thinking that underpins Ofgem's desire to see more examples of 'early' competition.

8.1 Innovation is core to our purpose, values and vision

Our innovation strategy is driven by our company purpose to 'Keep the Energy Flowing' and our vision to 'set standards that all of our customers love and others aspire to'. Our purpose not only describes the outcomes we are aiming to deliver, (the 'what') of safe, reliable and sustainable energy, but also 'how' we want to deliver this through our four values of curiosity, courage, commitment and community.

Two of our four company values are specifically aimed at embedding an innovative approach to all the work we do – '**Curiosity**' to seek out new ideas and ways of working and '**Courage**' to make changes, try new approaches and deliver for our customers. These values are an integral part of our managerial and staff performance assessments, which are linked to pay and reward.

Our approach has been to work towards a culture of innovation and learning to improve the service we offer to all our customers. We have done this by building capability in our central teams to manage complex technical and process improvement projects, and by implementing our Performance Excellence programme to drive continuous improvement (innovation) in all our activities. This includes technical and process improvements to data collection, communication, engagement and planning. This is an ongoing and continuously evolving journey to reflect changing customer priorities, technological advances and the business climate.

As a newly formed independent company we have the ambition to build upon our progress in RIIO-1 by being a leader in energy system transition, through whole system solutions, by driving projects to safely minimise disruptions and interruptions to supply, and improving the service we deliver to all our customers with particular emphasis on those in vulnerable situations. We have already embarked on this journey and are seeing benefits as a result.

8.2 The way we look at innovation

Innovation can be defined as executing a new or novel idea which addresses a specific challenge and achieves value for both the company and customer.

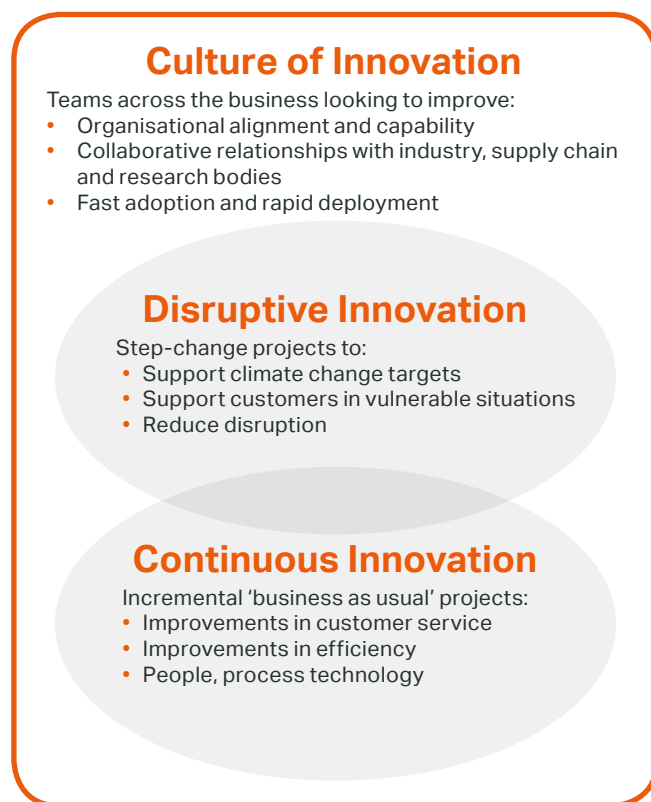
It is not just restricted to technology, as it can also take place through the provision of more effective products, processes, services, business models or environments.

Innovation can be split broadly into two categories:

1. **Disruptive innovation** is the practical implementation of an idea that creates a step-change for the industry or market, government or society and is usually associated with high risk
2. **Continuous innovation** is brought about by many incremental advances

Our strategy seeks to implement both continuous innovation (by building on our Performance Excellence and business as usual activity) and disruptive innovation (through our response to the climate change challenge and our focus on improving customer service and reducing disruption). We also recognise the need for cultural change to enable both to happen.

Figure 08.01: Innovation definition



8.3 Building on the success of RIIO-1

Our strategy focuses on doing the right thing for our customers now and into the future by building on the key successes and learning from our approach to innovation in RIIO-1. Our RIIO-1 strategy saw some significant progress in collaborating with our innovation supply chain to exploit new ideas (through a concentration on research and development investment), in collaborating with other network operators within and outside our sector (e.g. the creation of the Energy Innovation Centre) and by leveraging the skills and ideas of our employees (through our Performance Excellence training and approach).

8.3.1 What we have achieved

Disruptive innovation

We have delivered a step-change in identifying pathways to the role gas can play in delivering an affordable, secure and sustainable response to the **Net Zero challenge**. Our HyNet North West and HyDeploy flagship projects are building a great foundation at scale to demonstrate how the **decarbonisation of heat** and transport can be supported by clean gas and the use of hydrogen. We will continue with both initiatives through RIIO-2. For more information see **Chapter 7, Our commitments** and our **Environmental Action Plan in Appendix 07.04.00**.

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In addition, we have seen groundbreaking industry projects in the use of robotics in the RIIO-1 period through the collaborative work with other gas distribution companies. This work is used in core gas distribution services to minimise disruption to customers and reduce congestion in urban areas. **Appendix 08.00 'Minimising disruption and delivering a safe and reliable network: CISBOT'** illustrates some of the work we have been doing in Central London using robotics and 'Our journey to reduce disruption and interruptions' demonstrates how we have worked with other companies and have developed our learning to innovate further.

We have worked hard to deploy innovations which have delivered improvements in **customer service**. We are transforming the service we provide to customers connecting to our networks and have deployed innovations to influence customers' behaviours including those in **vulnerable situations**. Some examples of this, such as locking cooker valves, are given in **Appendix 08.00**, together with a more detailed case study explaining how we are leading the utilities industry in our work with the Energy Innovation Centre (EIC), to identify existing and future technologies that can help utilities and other service organisations safeguard people living in vulnerable situations. It also explains how we are engaging our people, customers and external stakeholders to mobilise the industry in this area.

Continuous innovation

We have also recognised the opportunity to harness the many ideas created by our employees to improve our overall business performance and customer service, and have implemented our Performance Excellence programme. Performance Excellence encourages a bottom-up approach for employees to understand their team's performance and customer priorities, and drive incremental innovation at a local level and deliver process or technological change at a network or business level (see later **section 8.3.2** for how this was done).

This approach has delivered some significant benefits that are now consolidated into our business as usual plans (see examples in **Appendix 08.00** and **section 8.5** later in this chapter).

We have also looked to use continuous innovation to improve our IT, digitisation and data. Our focus in RIIO-1 has been to automate, partly for efficiency, but primarily because of our volume of data, the complexity of our operating environment and the criticality of the decisions we need to make. For the remainder of RIIO-1 and into RIIO-2 we will be building data foundations as part of a broader Technology, Data and Digitisation Strategy. (See **Appendix 07.02.02 Data and Digitalisation strategy** and **Appendix 09.30 Technology – IT and Telecoms**).

Table 08.01 below illustrates some of the projects we have implemented, the benefits they delivered, the approach to funding and how we collaborated with third parties to build the capability and share learnings across the gas industry supply chain during RIIO-1.

Table 08.01: Examples of RIIO-1 projects

	Project	Funding			Benefit	Collaboration			
		NIC	NIA	BAU totex		Internal network	SMEs	University	Network operators
Climate change	HyNet	✓			Decarbonising through using 100% hydrogen for industry and transport, including carbon capture and storage.	✓	✓	✓	✓
	HyDeploy	✓			Understanding our ability and opportunity to use blends of natural gas with hydrogen to reduce carbon intensity.	✓	✓	✓	✓
	H21	✓			Understanding the network changes and impacts of transition to hydrogen energy.	✓	✓	✓	✓
Disruption and interruption	Serviboost		✓		Reducing customer disruption and time off gas during pressure problem events.	✓	✓		✓
	CISBOT		✓		Mains remediation with reduced disruption to customers.	✓	✓		✓
	Cryogenic Pipeline Cracking Technology		✓		Reduced customer disruption during mains replacement delivery programme.	✓	✓		✓

	Project	Funding			Benefit	Collaboration			
		NIC	NIA	BAU totex		Internal network	SMEs	University	Network operators
Safe and reliable network	Multi-occupancy Building CIP (HTC Serline)		✓		Improved customer safety and reduced disruption for MOB alternative riser replacement materials.	✓	✓		✓
	Phased Array Cable Avoidance		✓		Improved safety when working around buried high voltage cables.	✓	✓		✓
	In pipe drone feasibility		✓		Reduced risk of interruption associated with failure of buried pipeline asset.	✓	✓	✓	✓
Customers (inc. consumer vulnerability)	Easy assist Emergency Control Valve		✓		Improved safety for customers with reduced dexterity and hand strength.	✓	✓		
	Call for action on dementia		✓		Reduce the impact of energy supply interruptions for customers living with dementia.	✓	✓	✓	✓
	No power hot water		✓		Reduce customer hot water impact during energy supply outages.	✓	✓	✓	✓
Performance Excellence	Asset location data			✓	Right first time data capture – £1.6m rework cost avoidance.	✓			
	Complaint handling process			✓	Improve response time – £1.5m efficiency improvement.	✓			
	Connections transformation			✓	Improve customer satisfaction performance.	✓			

8.3.2 How we achieved this

Disruptive innovation

Our approach in RIIO-1 has evolved over time as we have learnt more about the issues facing our customers and the industry, and as we have built collaborative partnerships with the supply chain and our gas distribution networks (see **Appendix 08.00 'The development and evolution of our approach to innovation'**). We have found the work we have done with the Energy Network Association (ENA) and the other gas networks to develop the Gas Network Innovation Strategy (GNIS)¹ particularly beneficial. Through this we have established a joint approach that seeks to address some of the industry-wide challenges facing all our assets, how we operate them and the customers we serve. The themes outlined in the GNIS enable us to create specific challenge statements that then help us focus our innovation ideas to tackle specific issues. In latter stages of RIIO-1 and into RIIO-2, the GNIS will broaden to include partners in the electricity sector and so provide a **whole system** approach to improving the services delivered to our customers. We are currently working with the ENA and gas and electricity partners to engage with industry around this.

We are also keen to learn from ideas external to our business both nationally and internationally. **Appendix 08.00** outlines our approach and partnerships to enable this.

Continuous innovation and a culture of innovation

Not only has Performance Excellence delivered improvements to our business as usual totex, but the bottom-up approach has acted as a 'vehicle' to start a journey towards a culture of innovation. Examples of how this has been done include:

- Implementation of 'performance hubs' across the business
- Training our employees in problem-solving tools and techniques
- The development of our 'Change Management Framework' as an approach to innovation through process, people or technological change

- The sharing of innovations across our networks through **best practice** conferences and our communications channels
- 'Cadent Congratulates' to recognise and reward outstanding innovation
- Entering our employees into external awards, with some notable wins

Appendix 08.00 adds more detail to the points above, which together with 'The development and evolution of our approach to innovation', illustrates our innovation journey so far (of which Performance Excellence is a part). We will build upon this in RIIO-2 (see **Section 8.6.4**).

Our Data Strategy has been developed to address a need to modernise energy data as highlighted by the Energy Data Taskforce report. It is a key part of our transformation programme and, to enable improved data competency, we have implemented policies to provide leadership in the future. To facilitate this we have implemented policies to review our performance (e.g. data quality, engagement and architecture) as well as facilitating engagement with our data stakeholders (**Appendix 07.02.02 Data and Digitalisation Strategy**).

¹ For more information on the Gas Network Innovation Strategy visit www.energynetworks.org/gas/futures/gas-network-innovation-strategy.html

Driving performance through innovation and competition continued

8.4 Key learnings from RIIO-1

We have identified the key lessons learned from RIIO-1:

LESSON LEARNED

Culture is King

HOW WE ARE APPLYING THIS LEARNING

Continue to build a culture of innovation to improve our customer service

Although we have made a step-change in some aspects of our customer service and have improved the culture of our business, we believe there is much more we can do in these areas.

The GNIS is updated every two years with the next review scheduled for March 2020. In this review we will be looking to work with our colleagues from other gas network companies to put an even greater emphasis on using innovation to improve our **customer service** with particular attention to those in **vulnerable situations**.

We are also looking to further embed a **culture of innovation** in our business as part of our transformation journey (as outlined in **Chapter 9, 'Costs and Efficiency'**). The first step is to align our organisation to move decision-making closer to the assets and customers, and then to build upon our Performance Excellence programme and create the environment to further enable engineers to quickly deploy technology and techniques to improve customer service (see the section titles **'How we plan to innovate in RIIO-2 – extending and developing our culture of innovation'** later in this chapter for more information).

LESSON LEARNED

Partner and collaborate

HOW WE ARE APPLYING THIS LEARNING

Develop our partnerships and collaborate to find the best solutions and benefits

The **importance of partnerships and collaboration** has been demonstrated in multiple areas. Most notably, we have seen the importance of engaging and developing a mature supply chain of different national and international innovators (as seen for example, through our work with the Energy Innovation Centre and from the implementation of CISBOT from the USA) and working closely with a wide base of customers and stakeholders to develop innovation ideas (as seen in our HyNet North West project). We intend to build upon this further in RIIO-2 to include collaboration at both a regional and national level and also include partnering across sectors and with innovators from across the globe. (See **Appendix 08.00 'Our journey to reduce disruption and interruptions'** for more examples).

We will continue to work with the EIC to broaden idea generation from small and medium enterprises and work with the other GDNs to better share **best practice** throughout the project life cycle.

LESSON LEARNED

Project controls can undermine delivery pace

HOW WE ARE APPLYING THIS LEARNING

Improve the speed of our deployment centrally and locally

We need to **improve the speed of our deployment** both with our supply chain and within and across our regional networks. In doing this we need to define optimal project governance to ensure pace and simplicity, and this needs to include working to understand and develop utilisation of the relevant regulatory mechanisms such as NIA/NIC and their governance requirements. In addition, the balance of centrally driven innovation versus local innovation and being clear about where accountability lies for deployment is critical.

Through our recent application of the new Innovation Measurement Framework ('IMF') we have a benchmark for this lesson. Our IMF indicates that we currently take 255 working days to deploy an innovation project as business as usual.

We believe that our transformation journey to develop a culture of innovation will support this change, which together with a shift towards business as usual and totex funded innovation will make significant improvements in this area. We will also monitor our performance through the deployment of the 'Innovation Measurement Framework' (see **section 8.6.4** later in this chapter).

LESSON LEARNED

Think outside the box

HOW WE ARE APPLYING THIS LEARNING

Drive innovation in all its forms – people, process and technology

We must **consider innovation in all its forms** and avoid focusing too heavily on technological solutions. For example, we need to look for process and cultural solutions, and innovative ways of using data and engaging with our customers to address the challenges we face. We have made progress to broaden our perspective that innovation applies to far more than hard technology, but we have more to do to extend that broad perspective throughout Cadent, and build upon the progress made through our Performance Excellence programme.

LESSON LEARNED

What gets measured gets done

HOW WE ARE APPLYING THIS LEARNING

Measure the effectiveness of our overall innovation activity and our project benefits

We need to develop and apply a **robust measure of the benefits** of innovation, both in terms of individual projects and from our overall innovation activity.

For individual projects we plan to more clearly articulate, review and make visible the benefits of an innovation at key stages of the project by making better use of our 'Change Management Framework' (see later). This will encourage a greater level of interest and collaboration in the project (or encourage 'spin-off ideas') and potentially encourage better uptake of technology as business as usual.

For our innovation as a whole, as discussed above and elsewhere in this chapter, we recognise the importance of collaboration and in creating a culture of innovation, but we are unable at present to quantify how good we are at it.

This is a common challenge for the energy networks and the work carried out by the EIC to develop the Innovation Measurement Framework is key (see section **'Measure our performance'** later in this chapter).

8.5 Financial benefits from innovation

We expect to spend **£53m** (18/19 prices) during RIIO-1 on NIA projects, including those collaboration projects for which we have taken the lead. Against our innovation themes, the make-up of this spend is as follows:

Table 08.02: NIA spending by 2018 GNIS Theme

GNIS theme	RIIO-1 NIA spend
1. Future of gas	£12m
2. Safety and emergency	£5m
3. Reliability and maintenance	£16m
4. Repair	£4m
5. Distribution and mains replacement	£15m
6. Environment and low carbon	£1m
Total	£53m

Research into near and long-term service to gas distribution customers accounts for 65% of NIA funds (Themes 1, 2, 3 and 6 in **Table 08.02**). The 'Repair' and 'Distribution and mains replacement' themes include research into new technologies that may deliver cost, customer or safety benefits in the future. Of this, £8m has been associated with potential use of robotics in support of the replacement activity, however these had a high risk of failure set against high rewards associated with them, and so have delivered varying degrees of success in operational environments see '**Appendix 08.00 Our journey to reduce**

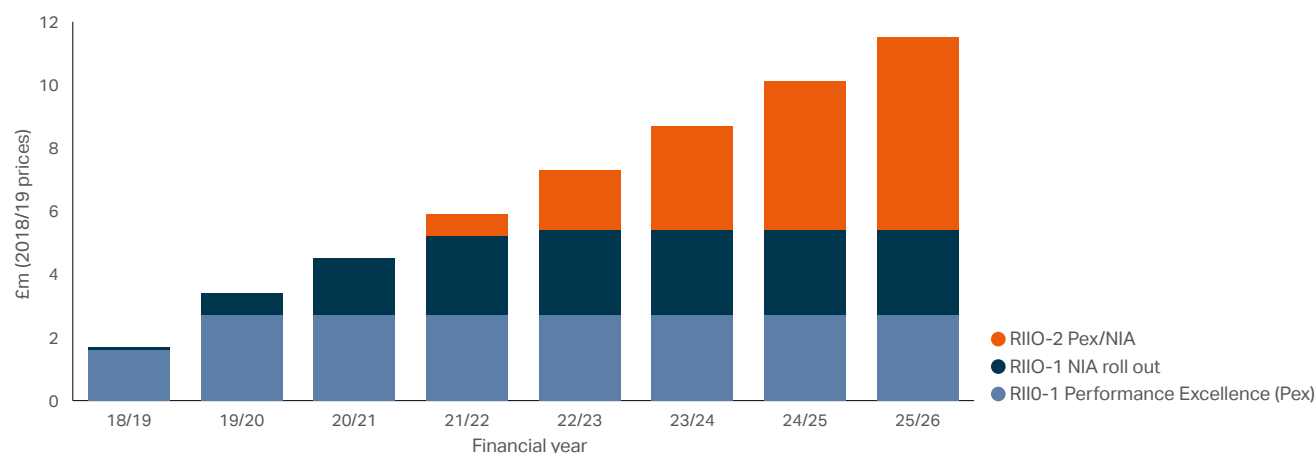
disruption and interruptions' for more detail. In RIIO-2 we will look to move forward the use of robotics for potential roll out into RIIO-3.

We are using £9m of NIA funds to deliver projects that are now being rolled out and are forecast to deliver £16m of benefit over an eight year period to 2025/26. By 2022/23 we forecast benefits will be realised (and sustained until the end of RIIO-2) at a rate of £2.7m per year. 65% of these annual benefits (a rate of £1.75m p.a.) will be realised by the end of RIIO-1.

Figure 08.02 below shows the benefits of the RIIO-1 NIA projects; the dark blue blocks show projects expected to be cost beneficial. The figure also shows the benefits being achieved through our performance excellence investment (light blue blocks).

The transformational change programme referenced elsewhere in our plan capitalises on the benefits of performance excellence, but these benefits are not included in these figures. We do not know specifically what improvements will be found to achieve these further savings, coloured in orange, but as is referenced in our **Appendix 09.20 Resolving our benchmarked performance gap**, we are forecasting ongoing improvements throughout RIIO-2 which will seek to deliver £7m of benefits per year by 2025/26 as part of the 0.94% p.a. efficiency assumption that runs through our plan, described in **Chapter 9, Costs and Efficiency**. This incorporates any benefits we can realise from introducing best practice techniques from; potential further roll out of our NIA projects, other gas distribution networks' RIIO-1 NIA projects, and other industries, which will be facilitated by our performance excellence process and therefore are stretching and ambitious.

Figure 08.02: Cost efficiencies through innovation roll out



8.6 Our Strategy for RIIO-2

As discussed in **Chapter 5, Enhanced engagement** we have engaged extensively with our customers and stakeholders to determine their priorities. Reviewing this feedback, we identified key aspects that can be supported by innovation and then carried out further engagement around specific areas (e.g. use of robotics). In general terms, the outcome of this further engagement is that our customers expect us to innovate, will value the outcomes of innovation in several areas and are willing to pay for it. From this insight, we have identified '**Innovation Themes**' where innovation will be key to support the delivery of the four customer priorities. See **Appendix 08.00 What our customers said about innovation**.

These themes build upon work done in RIIO-1 and continue to address the key industry and UK challenges. We will work with ENA and our gas network partners to build the sentiment of the themes into the Gas Network Innovation Strategy (GNIS) in March 2020 and seek to influence across other sectors as part of a joint gas and electricity strategy beyond that, thereby ensuring customer priorities are met.

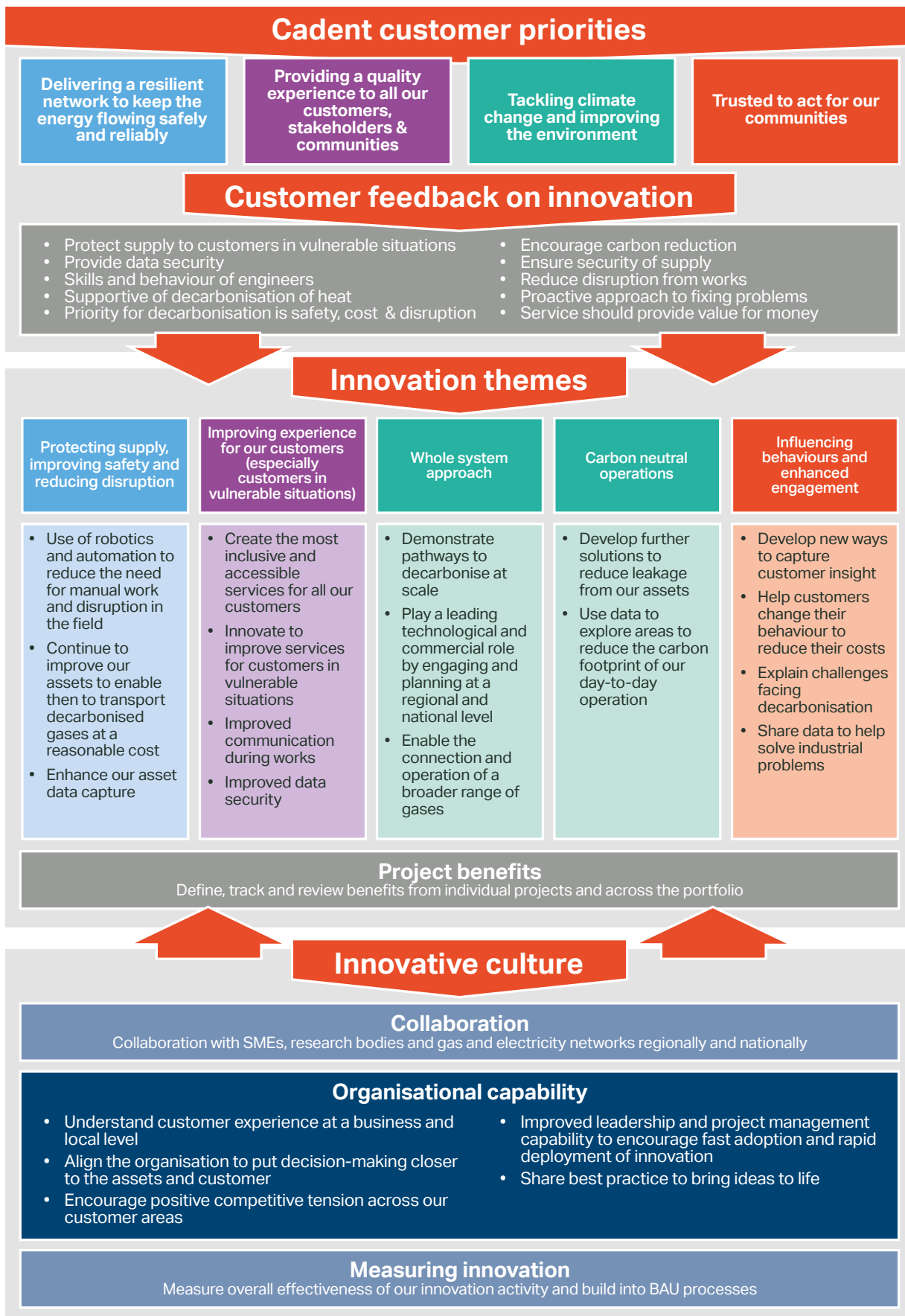
Furthermore, we will take a wider perspective on innovation to move beyond traditional technology innovation to embrace cultural, behavioural and commercial innovation (see also **Appendix 08.01 Our Competition Action Plan**).

The importance of engagement, partnership and collaboration remains key to the delivery of our RIIO-2 strategy and we will implement more effective ways of measuring the benefits of our individual projects and the impact of our innovation as a whole.

Driving performance through innovation and competition continued

Figure 08.03 below looks to summarise our innovation strategy onto one page by translating our customer priorities into our innovation themes.

Figure 08.03: Summary of our innovation strategy



8.6.1 What we plan to do – our RIIO-2 themes

The innovation themes outlined in **Figure 08.07** above, and in more detail in the paragraphs below, not only align to our customer priorities but also to our company purpose to **Keep the Energy Flowing** and our vision to 'set standards that all of our customers love and that others will aspire to'. The themes include both disruptive and continuous innovation and are underpinned and enabled by a culture that encourages innovation.

As a business we are mindful that we must spend our customers' money wisely and continuously improve the service we are offering them at a reasonable cost. Therefore, all our innovation activity will continue to have a clear benefit associated with it whether that is financial, environmental, safety, service, community or for protection of our assets.

We recognise that risk is part of innovation and so some projects may fail, therefore effective project management is key (using our Change Management Framework) so that we can balance the level of risk of continuing the project against the potential benefit. We will take learnings from both success and failure and share them with other networks because this may act as a spur to future innovations. We also recognise the importance of measuring the effectiveness of our innovation as a whole, and this is covered later on in this chapter.

Our Data Strategy outlined in **Chapter 7** and in detail in **Appendix 07.02.02** and approach to Technology (IT and Telecoms) detailed in **Appendix 09.30** are intertwined with our innovation strategy (e.g. Improving experience for all our customers, protecting supply and safety and reducing disruption) and should therefore be considered in conjunction with this chapter to demonstrate our ambition in this area.

Similarly, our plans to improve our support for customers in vulnerable situations (See the '**Supporting customers in vulnerable situations' commitment in Chapter 7**) and to whole system solutions (See **Chapter 6, Net Zero and a whole system approach** and **Appendix 07.04.00 'Environmental Action Plan'**) feature heavily throughout this business plan and so should be referenced for more detail and information.

In this section it should be recognised that we are seeking to illustrate the purpose and direction of the theme and, as is the nature of innovation, this will evolve and change as we learn more. Therefore, there is expected to be some change to these areas during RIIO-2.



1. Protecting supply, improving safety and reducing disruption

This theme links very closely with four of the themes in the 2018 Gas Network Innovation Strategy (reliability and maintenance, safety and emergency, mains repair and excavation and service and mains replacement).

Delivering a reliable and safe supply of gas at an affordable price continues to underpin expectations from our customers and stakeholders. We need to continue to innovate to leverage the best use of digital technology and continuously update the tools and techniques we use out in the field. This includes enhancements to our asset data and capture of data from operational activities and the innovative use of techniques emerging from behavioural science.

Examples of innovations in the capture of data include:

- Our current 'eyes in the sky' project looking at developing satellite imagery to detect activity near our pipelines (as a potential alternative to helicopter surveying and walking routes).
- We will continue to explore the use of drones and virtual reality.
- Use of advanced analytics and artificial intelligence to optimise the appropriate intervention periods for assets.
- Creation of a digital reproduction of the network to simulate real world scenarios to plan maintenance, asset performance and optimise the distribution of gas.

See our **Data Strategy** in **Chapter 7** for more details.

In the area of behavioural techniques, we will continue to innovate through continuous improvement from our teams, best practice from different sectors on work management as well as exploring behavioural innovation such as work on human factors and improvements in Personal Protective Equipment ('PPE') and work methods. Our employee recognition scheme sponsored by the CEO highlights the contribution this innovation can make.

We will also continue the work initiated in RIIO-1 to develop automated processes and robotics to reduce the need for manual and more disruptive solutions in the field. In a similar way to the developments of keyhole surgery in the health industry, we are looking at ways in which to undertake work in a way that minimises disruption, reduces waste and drives operational efficiency and a better customer experience (e.g. against the status quo requirement to excavate to get eyes on and work on our assets).

The next stage of development in this area is to continue to develop tethered robots which can work cost-effectively at scale for customers, and to move developments onto the potential for untethered robots which could sit in pipes all the time to undertake repairs or carry out data condition surveys as required. This could have a material impact on disruption and in the cost effectiveness of asset management.

As this technology is at the very early stages of maturity, benefits are likely to be aimed for RIIO-3 and beyond and hence we plan to utilise the Network Innovation Allowance for this innovation.

Driving performance through innovation and competition continued



2. Improving experience for all customers (especially customers in vulnerable situations)

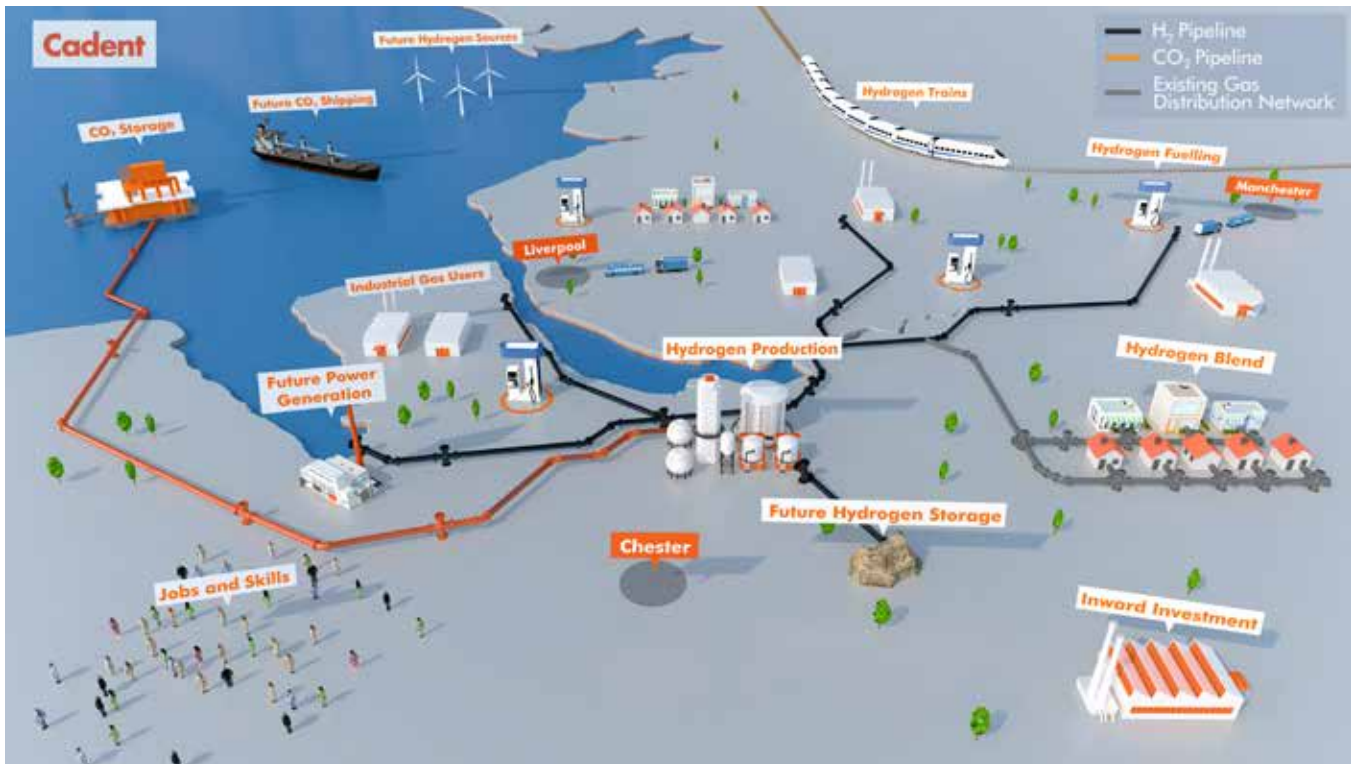
Delivering a quality experience to all our customers is one of the key outcomes of RIIO. Customer and society expectations continuously change and it is important to innovate, both in how experiences are created and delivered to customers, and also in ongoing engagement and analysis of the insight into customers' behaviours and motivations.

This theme will see us explore a number of key areas:

- Service improvements to our customers living in multi-occupancy buildings to deliver their energy needs in a reliable and safe way. For example, the creation and use of more live repair techniques to minimise the number of buildings isolated from the network.
- How we create the most inclusive and accessible services for all our customers, recognising there is no such thing as an average customer (in particular looking at the role digital technology can use to support customer segmentation analysis).
- Innovate to identify who will qualify for 'fuel poverty' and seek ways to support them by going beyond the gas connections to develop whole-house solutions.
- Better communication pre-work and during works (using technology to drive better solutions, visibility and interactivity).
- How we best innovate to improve services for customers in vulnerable situations.
 - Using the Priority Services Register ('PSR') to support the personalisation of services.
 - Implement technology to specific groups of vulnerable customers (e.g. those living with dementia or who are blind).
- Developing best practice ideas from other sectors (through our work with the Quality of Experience expert group).
- Use more channels to engage with customers.
- Provide a more efficient and customer-friendly quotation process.
- Invest in data security architecture to ensure customers' data is stored securely and to protect from cyber attacks.

This area will span business as usual continuous improvement, funded through totex allowances as well as work with other sectors through the Network Innovation Allowance.

HyNet: Delivering a blueprint for the UK hydrogen economy





3. Whole system approach

As set out by the Committee on Climate Change, it is critical that momentum is increased – action must be taken now and over the next decade. We are proposing to fund our plans predominantly through the use of the strategic innovation stimulus as this is a UK wide challenge that will extend well beyond RIIO-2. We plan to work in collaboration with other networks, regional bodies, customers and research and technology partners to support the energy system transition and whole system solutions.

As part of this we are currently partnering with the other gas networks on setting out the pathways to a decarbonised future through our work with Navigant, as described further in [Chapter 6, Net Zero and a whole system approach](#) and in [Appendix 07.04.00, Environmental Action Plan](#). We have set out some ambitious plans for demonstrating pathways to decarbonisation at scale in RIIO-2 and beyond, through our HyNet North West project. This project shows a way to decarbonise industry in the region. In parallel, our HyDeploy project looks at blending hydrogen to reduce emissions without any disruption to customers. Successful combination of these projects can deliver emissions reductions for domestic customers (please see our [improving the environment and tackling climate change output commitments and our Environmental Action Plan](#)).

This theme will also support innovation in creating the right commercial and operating framework for new and lower carbon resources, building on RIIO-1 projects such as the Future Billing Methodology.

In addition to these projects, we also intend to:

- Explore ways to support the Gas Pathways work to set out a clear route to Net Zero using the gas networks.
- Use of different and more detailed data collection and analytics to understand the impact of operating a more diverse gas system given the new resources being connected, such as biomethane, power generation and compressed natural gas filling stations.
- Develop new methods to facilitate the connection of new resources and to remove any perceived barriers to access to the networks.
- Develop new commercial and operating frameworks for a more distributed grid, hydrogen blending and hydrogen conversion.
- Support off grid communities wanting to connect to an increasingly low carbon gas supply (see [Appendix 07.04.09 Supporting off grid communities](#)).
- Establish improved demand and supply forecasting and modelling.
- Support public engagement based upon large scale trials of alternative low/zero carbon gases.

We expect to utilise different innovation stimulus areas for this theme, with some items included in our base totex plan, some proposals for work using the Network Innovation Allowance and the larger industry-wide work done through the Strategic Innovation Stimulus as well as utilising other funding from outside of the sector (such as the Carbon Capture and Utilisation competition).

We will continue to work with the ENA and the gas and electricity networks to develop a joint planning function to respond to climate change adaptation, whole system solutions and local area plans as discussed in [Chapter 6, Net Zero and a whole system approach](#).



4. Carbon neutral operations

As well as innovating to support the wider UK challenges, we also need to innovate to reduce our own carbon footprint. Whilst we will continue to work hard to reduce the volume of gas that escapes from our pipes, we will not be able to reduce leaks to zero in RIIO-2. However, we can set an ambitious target to reduce the footprint of our other activities. We have set out a stretching goal for our business operations: to reduce leakage by 14% to 17% and become carbon neutral in our other operations by 2026 (please see [Our commitments, Section 7.4 of Chapter 7](#)). The major contributor to our own footprint is leakage from the remaining metallic pipes in our network. Whilst this is less than 0.5% of throughput, it is still our biggest contributor to emissions. We will continue to reduce this through the ongoing mains replacement programme and through our innovation projects to tackle leaks in more challenging areas (e.g. multi-occupancy buildings and road junctions).

In addition, we will look to innovate to support the reduction of our wider business carbon footprint by reducing waste and energy use from our operations (see [Chapter 7, Our commitments](#)). We plan to use innovation to investigate into (for example):

- Use of renewable energy to meet our operational needs
- Promoting the use of renewable gas to meet the needs of thermal plant
- Zero-emission vehicles for our First Call Operatives
- Reductions in business mileage emissions
- Zero avoidable waste to landfill (including diverting excavated soil)

We will fund this innovation activity through our business as usual activity.

Driving performance through innovation and competition continued



5. Influencing behaviours and enhanced engagement

This theme will build on our customer strategy and explore how changes to customer behaviour can support us in delivering the most effective services over the long term. This will build on the innovations that we have made in developing new ways to capture insight, and look at how we can influence customer behaviour to reduce costs to them and provide better service. For example, we saw the power of different communication methods to educate customers on what to do in the event of a frozen condensate boiler in the 'Beast from the East' cold snap in 2018. This enabled us to protect the emergency service for genuine emergency cases and enable customers to self-help to solve their supply problems within their properties.

We will explore the following areas:

- Where can we work with customers to reduce their costs or improve experience.
- How can we gather better customer insight.
- Improving our communication channels with our customers.
- Creation of new data interactions with customers' homes and appliances.
- New ways of engaging and enabling customers to understand what we do.
- Increasing engagement with consumers, industry and government to explain the challenges facing decarbonisation.
- Innovating to influence customer behaviours.
- 'Open data' so that there is two-way sharing of information to support transformational solutions to industry problems.

We are committed to train our frontline staff on identifying customers' needs and improving our service, particularly for those in vulnerable situations. This type of 'soft skill' development will help us broaden our view of customers and what they will value.

This area will span (business as usual) continuous improvement through our customer insight teams and operational teams.

8.6.2 What we plan to do – collaborate to best support our customer priorities

As outlined above, a key learning from RIIO-1 is the importance of partnership and collaboration to support the delivery of our five innovation themes, and so, our customer priorities. Effective engagement with our customers and stakeholders helps us develop ideas. Building our supply chain maturity helps us deliver them.

Although we have our innovation strategy to support delivery of our customers' priorities, we will continue to work closely with the other GDNs to collectively work to best serve the interest of all gas customers. We will share project selection and progress, collaborate on key projects, share best practice learning, and most importantly make the benefits the project delivers visible.

We anticipate the extent of the collaboration for individual projects will vary, dependent upon the level of challenge faced, the customer outcome, the industrial/supply chain capability and the maturity of the technology/idea (see **Appendix 08.00** for more details on our plans to collaborate).

8.6.3 How innovation should be funded – our proposal

We have made ambitious efficiency and output commitments in our plan and this is partly enabled by the innovations we have delivered in RIIO-1 through our Performance Excellence approach and the roll out of key projects such as our connections service transformation. Our Consumer Value Proposition (set out in **Chapter 7, Our commitments**) requires us to deliver on our innovation strategy to create outcomes well beyond minimum requirements and to develop whole system solutions during RIIO-2.

Innovation funded through business as usual totex

Our plan includes an overall continuous efficiency improvement of 0.94% p.a. over the RIIO-2 period and this will require us to continue to innovate to deliver this level of efficiency.

We are supportive of Ofgem's expectations that totex allowances are used to fund business as usual innovation work that pays back within the RIIO-2 period, and this forms part of our plan to achieve the cost efficiency set out in the **Chapter 9, Costs and efficiency**. We envisage the projects will address **regional** issues relating to our **customers or assets** and will use technology that already exists to drive process, cultural or commercial improvement. We will continue to collaborate with third parties to support these innovations and work with other individual distribution networks if they face similar challenges.

Community funding on innovation

We are earmarking a proportion of our community fund (Cadent Foundation) to support innovation within our communities. We will seek ideas to support regional growth and the local economy. We will look to support small start-up companies to innovate in the key themes set out in this chapter.

Innovation funded through Network Innovation Allowance

We recommend a 'use it or lose it' fund from the Network Innovation Allowance (NIA) to enable the delivery of our innovation themes and so the customer priorities.

We plan to use NIA funding when the innovation project delivers a return on investment that extends beyond the RIIO-2 period and if the technology/solution has not previously been used in the UK gas industry. Therefore, research and development will be required before the innovation can be used for our networks and customers.

Our proposal is that NIA spending is similar to RIIO-1 to reflect the critical UK priority to accelerate the process of decarbonisation and **energy system transition**, to support **customers in vulnerable situations** and to reduce **disruption** through the use of robotics.

We recommend using a NIA funding mechanism in these areas because:

- Our engagement clarifies that these areas are valued by our customers and also affects their willingness-to-pay.
- Financeability will be tighter in RIIO-2 and this will reduce our ability to self-fund projects that are not economical within the period RIIO-2.
- Low technical readiness projects deliver a slow return on investment and so may not be financeable (in light of the point above) without a separate funding mechanism.
- The supply chain may not respond positively to innovation projects if the funding mechanism is not seen as dependable for the duration of long lead time projects.

We believe an allowance for the length of RIIO-2 (as opposed to annual allowance) is the best approach to provide flexibility around project phasing. We also believe the 90%:10% funding split between NIA/company continues to be the right approach in these higher risk areas with limitations on the supply chain capability and relatively low technical readiness levels. The 10% funding by the company focuses activity on credible projects and drives interest internally and is also reflective of our customer feedback. Therefore, we believe this funding split has been shown to be effective during RIIO-1 and see no evidence to change it.

Table 08.03 below outlines the allowance type and, for NIA, the approximate amount of funding we are proposing, to deliver the benefits of the innovation themes. It should be recognised that the benefits will be shared across all the GDN customers and the costs may also be shared across the networks. We believe improved visibility and tracking of benefits and cost (through the Innovation Measurement Framework and business measures – see later in the chapter) is key in driving better transparency of outcomes for our customers. As mentioned earlier in this chapter

we recognise the importance of spending customers' money wisely and so have not spent all the NIA allowance available in RIIO-1. We will enhance this discerning approach through careful and continuous cost-benefit analysis at key stages of project delivery for the remainder of RIIO-1 and throughout RIIO-2.

The funding calculation outlined in the table is based upon historical evidence from a representative sample of projects delivered in RIIO-1 to take them through each technical readiness level (i.e. research, development, field trial, market readiness). The split across each theme is reflective of the types of project we expect to deliver, recognising we will only request NIA funding for projects with a payback period that extends beyond RIIO-2 where the technology or solution is not currently available in the UK.

By the nature of innovation, we can only forecast the types of projects we expect to deliver because the political, economic and business climate will change, and similarly, the cost associated with projects is dependent upon the technical readiness level which is an unknown. Therefore, the costs below should be treated as indicative.

Table 08.03: Innovation funding

Innovation Theme	Key Benefit	Strategic Innovation stimulus (and outside sector)	NIA	BAU totex	NIA funding £
1. Improving experience for our customers (especially customers in vulnerable situations)	Create the most inclusive and accessible services to all our customers				
	Innovate to improve services for customers in vulnerable situations				
	Improved communication during works		✓	✓	£13m
	Improved data security				
2. Whole system approach	Demonstrate pathways to decarbonise at scale				
	Play a leading technological and commercial role by engaging and planning at a regional and national level	✓	✓	✓	£3m
	Enable the connection and operation of a broader range of gases				
3. Carbon neutral operations	Develop further solutions to reduce leakage from our assets				
	Use data to explore areas to reduce the carbon footprint of our day-to-day operation		*	✓	–
4. Protecting supply and safety and reducing disruption	Use robotics and automation to reduce the need for manual work and disruption in the field				
	Continue to improve our assets to enable them to transport decarbonised gases at a reasonable cost		✓	✓	£24m
	Enhance our asset data capture techniques				
5. Influencing behaviours and enhanced engagement	Develop new ways to capture customer insight				
	Help customers change their behaviour to reduce their costs				
	Explain challenges facing decarbonisation		*	✓	–
	Share data to help solve industrial problems				

* Possible areas for NIA funding during RIIO-2 if projects linked to customer priority themes are identified that meet NIA criteria.

Therefore, we are proposing an **NIA allowance of £40m** across Cadent with the split between networks shown in the table below.

Table 08.04: NIA funding allowance proposals

EoE	NW	Lon	WM	Cadent
£12m	£9m	£12m	£7m	£40m

This is based upon our current knowledge and a 'use it or lose it' criteria to implement the projects that support delivery of our innovation themes and customer priorities.

In addition to NIA and totex funding for innovation projects, we also look to utilise other sources of funding for research and development, where this is available. Examples of such funding include: supplier funding (where development of a solution may create a benefit that a third party is willing to invest in); local authority funding (for example, Transport for London's fund that Lane Rental receipts have generated, for projects that benefit the streetworks environment); and Innovate UK, the government scheme for R&D, innovation and collaboration.

Driving performance through innovation and competition continued

8.6.3.3 Strategic innovation stimulus

We are proposing to continue to use the strategic innovation stimulus funding (or a revised version for RIIO-2) for the larger UK wide challenge on tackling **climate change**. The scale of the challenge on decarbonising heat and transport will require some significant development work at a **national level**, in commercial and technical solutions, and also in the development of regional energy solutions. To keep the momentum going on these pathways, we would envisage a much more significant investment will be required than seen in RIIO-1 and more akin to the RIIO-1 Low Carbon Network incentive fund levels.

The funding mechanism should be capable of dealing with large asset-based projects (e.g. HyNet) funded over the life of the assets and should be flexible enough to fund additional streams such as local and central government (see **Appendix 07.04.00 Environmental Action Plan** for more details. We have also set out a timeline of how these projects may be developed in **Chapter 6 "Net Zero and a whole system approach"**).

As the funding mechanism has not been confirmed we have proposed uncertainty mechanisms to support this work.

8.6.4 How we plan to innovate in RIIO-2 – extending and developing our culture of innovation

To support the delivery of innovation themes and so our customer priorities, we have developed a simple improvement cycle that builds upon our Performance Excellence approach in RIIO-1 in creating a **culture of innovation**. The cycle is underpinned by best practice methodologies and is designed to broaden our innovation approach beyond the technical to behavioural and cultural.



Continuing to develop a culture of innovation

Figure 08.04: Innovation improvement cycle



Understand how to improve our customers' experiences

Our business plan is based on customer engagement and our commitments in **Chapter 7** include ongoing customer engagement and measurement of our customers' and stakeholders' satisfaction. This feedback and insight will be a key enabler for us to take this first step in understanding what the focus areas for change and innovation ought to be. Further to this we want our employees to have the flexibility to drive improvements and we recognise the need to set the right environment and support to give employees the freedom to drive bottom-up change in our company.

Throughout RIIO-1 we have been working with external experts to apply a best practice approach known as **'perpetual experience'**. The perpetual experience 'toolkit' helps us understand customer behaviours and their experiences and understand the challenges facing our employees in delivering for customers.

We have tested this toolkit by working with our teams to map the customer journey of our connections service.

We are now rolling out this approach and have set some ambitious commitments for the RIIO-2 period (see **Chapter 7, Our commitments**).

This approach also underpins a number of our other output commitments, particularly in the outcome areas of **delivering a quality experience to all of our customers** and **establishing and raising the bar for all of our customer and stakeholder experiences** and **measuring and enhancing accessibility and inclusivity**.

Align the organisation and build capability to improve

As part of the broad cultural transformation ongoing across our business, and outlined more fully in **Chapter 9, Costs and efficiency**, we are creating an environment to enable a more **innovative and collaborative culture** throughout our organisation. We are bringing decision-making much closer to the customer which, together with a better understanding of our customers' experiences, helps teams identify new ways of delivering or improving outcomes. This will reduce the bureaucracy that can slow projects down and lead to a sense of frustration in our employees, as well as improve our agility.

To support this, and as discussed throughout this chapter, we recognise the importance of working across industry and different sectors. This requires us to continue to build strong **collaborative** relationships with our **supply chain and industrial and research partners**, aligning them to our organisation at both a national and regional level. (See the **section 8.6.2**).

We are therefore transforming our operating model, creating **'customer operations areas'** which are designed around the experience of our customers at a local level. These areas are naturally aligned to customer communities which will allow us to gain complete visibility and control over the work of our teams and also allow us to look closer at our assets.

At the heart of this customer-centric operating model are front-line engineers who will lead innovation, generate requirements and bring ideas to life, with **fast adoption and rapid deployment** of new techniques and technology with the support from our external partners.

In order to deliver the customer outcomes we require from this transformation, we recognise we need to make better use of the capability of our engineers, the teams they work in and the organisation as a whole, and build upon our RIIO-1 Performance Excellence programme thereby driving **continuous innovation** as part of our business as usual activity. **Appendix 08.00** provides more details about this approach.

For **disruptive innovation**, we will continue to develop our expertise internally and across our supply chain, to effectively manage low technical readiness projects and either see them through to implementation or close them if they are not viable, whilst ensuring learnings are shared internally (through our performance hub process) and externally (through the Smarter Networks Portal and the ENA Gas Innovation Governance Group).

One of our key areas of learning from RIIO-1 is to improve the speed and consistency of our deployment of innovations both working with our supply chain and within our organisation. To address this we are reviewing our innovation governance and aligning it to our Change Management Framework to identify where there are any blockers to timely deployment of proven innovations, as well as the testing process. Whilst safe deployment will continue to be our number one priority, we are gathering insight to identify the areas where we may be able to accelerate the process and we are working with the EIC to apply these processes in the supply chain. We see our revised operating model as key to this as it creates ownership at a local level.

Measure our performance

We will measure the performance of our innovation activity by directly tracking the **benefits** of individual projects and through the use of an innovation effectiveness measure ('**The Innovation Measurement Framework**').

Project benefits trackers

Although we have always created a cost benefit analysis for each of our projects, the Change Management Framework encourages the establishment of a project tracker with the benefits case to be reviewed throughout the project.

This enables us to continuously prioritise our resource across the project portfolio, balancing benefits versus risks versus speed of deployment. Should we find that the cost-benefit case reduces during the project or if the technology is not working as we envisaged, thereby increasing the risk, we can re-deploy our resource. Similarly, if we identify a low risk innovation that can quickly deliver benefits we can rapidly respond.

This approach therefore enables us to balance our portfolio and optimise the short and long-term benefits by looking at our projects together as a whole.

A key aspect of **continuous innovation** is that it predominantly involves our employees driving many small incremental improvements. The management focus is on providing support and encouragement rather than hindering activity with unnecessary governance, therefore we do not expect a project tracker for this type of activity.

At a regional level we want to leverage the move to a more depot-centric operating model to drive a competitive tension into the identification and deployment of innovation across our regions and within them. Greater comparative performance monitoring between regions and more stretching ambitions on **output delivery** will drive a real 'pull' for innovations from the regions. We are already seeing this through our four regional pilot depots where operational efficiency and customer satisfaction scores are improving at a rate higher than any other depots across our networks. Similarly, we are also seeing this with the pull for innovation at a network level to address operational issues (e.g. the use of CISBOT to support mains remediation in congested areas and Microstop and EZ Valve for repairs to high-rise buildings).

Overall innovation effectiveness – The Innovation Measurement Framework

Throughout RIIO-1 we have recognised that measuring the effectiveness of innovation across the business and the industry has remained a challenge. Through the EIC, we have supported a collaborative project with gas distribution networks to develop and test a new **IMF** as a common solution to this problem.

Figure 08.05: Innovation Measurement Framework



We have recently used the IMF to benchmark our innovation effectiveness with some insightful results. The details are in **Appendix 08.00**, and we have taken the learning and incorporated it into this business plan.

This initial benchmarking has highlighted some strengths, but more importantly some opportunities. Over the next few months we will develop a more detailed plan of action and use the IMF to help us focus our activity and improve our ways of working.

It should be recognised that the IMF is still in the early stages of deployment across the industry and we are early adopters of this approach. Therefore, there is still much to learn and we have identified some opportunities to improve the IMF itself, and so will work with the other energy businesses to develop a common approach to benchmarking.

Drive performance improvement and best practice

To help us drive improvements in performance and address shortfalls in our measures we are adopting an innovative model known as Commitment-based Management™ ('CbM'). CbM is driven by the quality and fulfilment of commitments made between 'performers' and their 'customers' and it can be applied within the organisation as well as where our operations connect directly with customers. It is focused on helping teams across our business make the right decisions with clear accountability on the delivery of improvement activity.

As mentioned above, our move to a more depot-centric operating model will look to leverage the improvement activity, and any resultant **best practice**. We are looking to support this by building on the annual innovation sharing showcases and provide additional best practice sharing methods to enable our regions to identify and share their ideas.

The move to a depot-centric model also breaks down the traditional barriers between corporate functions by providing the capability at a regional/depot level. This enables the **cross fertilisation of ideas** through an end-to-end process.

We are also setting up '**innovation laboratories**' to identify **proven innovation** that can be used to solve a particular customer or business issue. This involves inviting the suppliers to 'pitch' their solution to regional representatives and then working with the regions to develop and deploy a solution. This is already being tested with support from the EIC (see **Appendix 08.00 Case study - Leading the industry to support customers in vulnerable situations**).

At business level we will take the outcomes of the **Innovation Measurement Framework** and build them into our business as usual processes to ensure that we are delivering the **maximum benefit to our customers** through our innovation activity.

Driving performance through innovations and competition continued

8.7 Our competition plan

Our full competition plan is contained in Appendix 08.01 and is summarised in this chapter.

8.7.1 We have been longstanding advocates of competition

We have been proactive and at the forefront of using competition wherever it is feasible and beneficial. Our commitment to competition is borne out by the way we work hard to support the entry of new, competitive network companies to the gas market.

Competition runs through all that we do. We deliver value for our customers through rigorous, transparent and targeted contracting and procurement. We continually assess our contracting approach to ensure we can deliver best value for our customers.

When we are contacted by parties who want to connect to our network, we proactively direct them towards other connection providers. This has delivered tangible success – 90% of large housing developments and industrial and commercial connections are now provided by independent connection providers. Customers who want to connect to the gas network can already benefit from competition.

We are proud that we are the only GDN to offer the facility for competent third parties to undertake greater than seven bar (>7 bar) pipeline design and construction activities (with us undertaking assurance activities during the design, construction and commissioning process). This has increased competition and the number of projects we have been able to connect to the higher pressure tier (see case study).

Facilitating third party design, build, ownership and operation for new connections (>7 bar)

Since 2012, we have seen a demand for biomethane injection into the gas grid. To facilitate competition and third party involvement, we have put in place an engagement framework with our customers pre and post connection. This creates an opportunity to share relevant connection information and ensure parties understand their operational obligations and compliance requirements.

Through this engagement with customers we recognised that they were interested in designing and building, as well as owning and operating the major elements of their connections. We moved from a model where we own and operate network connections, to a model where we only provide an assurance role to ensure the safety and technical proficiency on commissioning. This approach facilitates third-party market entry whilst maintaining network standards and ensures interoperability between all network assets.

8.7.2 We already have a mature approach to 'native competition'

Ofgem uses the term 'native competition' to refer to the home-grown initiatives that network companies take to run competitive processes to deliver projects.

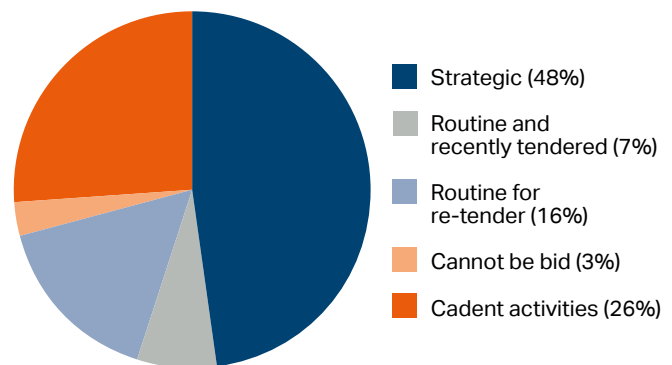
Our business relies on the services that we procure through competitive processes. We already procure the vast majority of our totex from competitive sources.

Our totex spend profile can be categorised as follows:

1. Large spend areas that have been subject to a business wide strategic review and tendering during RIIO-1 (48% of totex), e.g. mains replacement, IS.
2. Routine spend areas that have been subject to recent review and tendering (7% of totex).
3. Routine spend areas that will be subject to future review and re-tendering (16% of totex).
4. Activities which we are not planning to subject to tendering (26% of totex).
5. Fixed items that cannot be tendered (3% of totex).

In total, 71% of our totex spending is contracted out and sourced through competitive tendering. The remaining totex relates to fixed item spend that cannot be tendered (3%) or spend on activities that we conduct ourselves (26%). These activities include Emergency Response and Repair, the operation of our call centre, system control (the network control centre) and reactive maintenance.

Figure 08.06: Breakdown of our totex



We use the Official Journal of the European Union ('OJEU') to maximise transparency in our tendering. During financial year 2017/18 we ran a total of 139 tenders of which 43 were above the OJEU thresholds.

We are improving our already strong, established approach to procurement as we implement new IT systems. Our approach:

- Recognises the way that our supply chain can foster innovation, delivering value for our customers and underpinning our commitments.
- Establishes a 'Governance Gate Process' to make sure we make decisions at times that have the most material impact on results.
- Strengthens our alignment with customer needs.
- Ensures we gather data to inform future decisions.

We procure in line with Ofgem's best practice guide:

- We utilise competitive processes for the majority of our procurements and projects.
- We always aim for our competitive processes to be robust, transparent and to ensure the equal treatment of potential bidders. Information is provided equally to all parties.
- We protect the commercially sensitive information provided by our suppliers.
- We adopt a range of different procurement processes, proportionate to the value and time-sensitivity of the project or system need in question.
- Where relevant, we ask our suppliers to establish arrangements to manage any conflicts of interest.
- Whilst there will be instances where we are looking for suppliers who deploy a particular technical solution (for example, when we are looking for support to implement a particular IT software solution), as far as practicable, we are agnostic to technology and bidder type.
- We set high standards for our suppliers. When appropriate, we require our suppliers to prove further compliance around health and safety, quality, environmental capabilities and corporate social responsibility. We also expect our suppliers to adhere to a Supplier Code of Conduct. This Code spans: business ethics, health and safety, data protection, protecting the environment, resilience and business continuity, work and human rights, the use of community and supplier diversity, monitoring and reporting, and their subcontracting and supply chain. Our Supplier Code of Conduct, and the criteria that we use to select suppliers, address the wider interests of existing and future consumers.

We continue to look at best practice to ensure that we are challenging ourselves to think differently about how we apply this form of competition across our business. We are considering how we can further open up our activities and our business processes to encourage 'native competition' in all its forms and to deliver value for our customers. We are taking forward three initiatives, which are discussed further below:

- We are **unlocking markets** by removing barriers to entry to increase supplier competition.
- We are promoting **competition within**, delivering value through competition across our four network regions.
- We have considered **novel approaches to extend competition**.

8.7.3 Unlocking markets

We are opening up activities that are already outsourced, to facilitate greater levels of market competition. By thinking differently about how we procure, package and deliver our activities, we believe we can promote further competition by opening up new markets. This will deliver greater value for our customers (for example on mains replacement).

For example, we are seeking to strengthen our ability to utilise competition by re-orientating our contracting model. We have found that large multidisciplinary work packages limit the potential supplier pool to the larger Tier 1 construction companies, very few of whom are actively seeking work on gas distribution networks.

We want a larger pool of available contractors for this work. We plan to transition towards a model where smaller, geographically defined work packages allow for a broader range of partners, including more localised specialist contractors.

By being able to draw on a wider range of suppliers, we expect to be able to secure greater savings for our customers through the competitive process.

We will need to increase our internal capability to manage the greater number of smaller delivery partners but we anticipate that the savings from this approach will outweigh the costs. We have built cost savings into our efficiency forecasts because of this revised approach. We have trialled the new approach through our Construction Services North West initiative.

We have also included proposals in our Plan for the way we will encourage greater competition in entry and exit markets. To enable this, we will be undertaking a charging and access review to explore how capacity for new renewable resources can be facilitated in the most economical way and considering the best apportionment of costs. This includes supporting new entrants to the market as they input their ideas and innovations on entry enablement. (see [Chapter 7, Our commitments](#) and our [Environmental Action Plan](#)).

8.7.4 Competition within

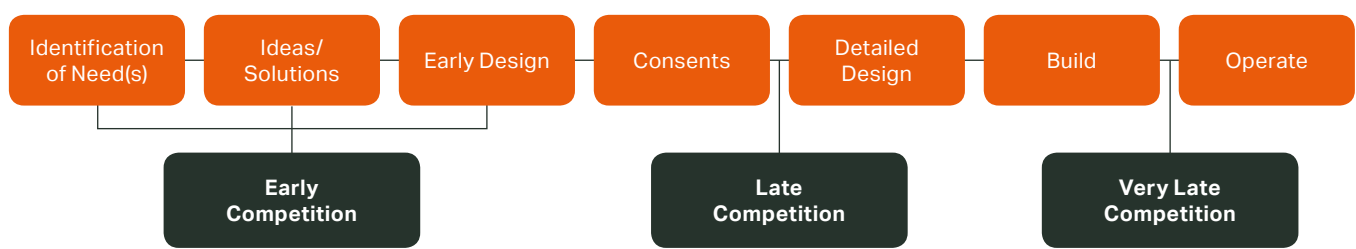
We aim to enhance internal competitive tension by utilising the diversity of our four network regions. As we discovered from our review of best practice, creating competitive tension within a business can result in new innovations, technologies and ways of working. Examples of this philosophy include our move to a depot-centric operating model. Given our unique position as an owner of four gas distribution networks, and with the right performance framework in place, this will deliver significant value to customers whilst also making our business a great place to work.

8.7.5 Extending the scope of competition

Drawing on the success of introducing competition in other markets, Ofgem has asked us, along with all network companies, to consider in our Business Plan how extending the role of competition, where appropriate to do so, could provide better value for our customers. Ofgem defines two forms of competition – 'late competition' and 'early competition'.

Driving performance through innovation and competition continued

Figure 08.07: Ofgem’s perspective on ‘early’ and ‘late’ competition



We have used Ofgem’s criteria for ‘late’ and ‘early’ competition to help to categorise the activities in our Business Plan and consider the scope to use ‘late’ and ‘early’ competition. Ofgem has proposed the following criteria to help identify projects that might be procured and/or delivered through these processes:

Table 08.05: Ofgem criteria for early and late competition

Late competition	Early competition
High value – the expected capital expenditure of a project which is over £100m.	High value – the expected capital expenditure of a project which is over £50m.
New – the project involves a new asset or the complete replacement of an existing asset.	Contestable – there is the potential for alternative solutions to the activity of service.
Separable – the boundaries of ownership between the assets and other (existing) assets can be clearly delineated.	

We consider that the strict application of Ofgem’s criteria may limit the candidates for competition. In particular, there are lower value projects and activities that could be candidates for further competition. Therefore, we extended Ofgem’s criteria. These extended criteria are set out below.

Table 08.06: Our extended competition assessment criteria

Criteria	Description
Value	Exceeds £100m (in the case of ‘late’ competition) or £50m (for ‘early’ competition). In the case of ‘extended-native’ competition, we have considered projects and activities with a value that is less than £50m.
New, separable and therefore contestable	Assets do not form part of the integrated network and are new network assets. There is a reasonable alternative solution to the system need and the market is sufficiently deep to facilitate meaningful competition.
Certain need	If the system need is uncertain, the value of competition may not be realised.
Not time critical	If the need is urgent, competition may delay the solution, therefore reducing customer benefits.
Safe for our customers	We look for opportunities where third party involvement would not increase the risk to customer safety.
Non-business critical	We seek to apply competition in situations that would not result in unacceptable risks or liability.
Legislation	We ensure there are no legislative barriers (including network code and licence requirements) that would prevent us from outsourcing the project or activity.
Expected benefits outweigh costs	We look for opportunities where the costs of running the competition are lower than the expected benefits.

We applied our competition assessment criteria to our full Business Plan. We did this to explore opportunities to aspects of **early and late competition** to deliver value for our customers. As part of this exercise we also identified potential opportunities to further extend our use of native competition across our business. We defined these as opportunities for **‘extended-native’ competition**.

Our opportunities for ‘late competition’

As we move into RIIO-2 there is the potential for a number of exciting projects aimed at demonstrating decarbonisation at scale, with a specific focus on hydrogen. Of the projects we have set out in our Plan, we have only one where the capital expenditure is likely to exceed £100m – the HyNet project.

The HyNet project is being progressed by a consortium made up of a number of parties and each party is progressing their part of the solution. This project is at an early stage and, working with our partners, we are currently exploring funding mechanisms for the various parts, including Carbon Capture and Storage in the Mersey bay and for the detailed design. We believe that the hydrogen pipeline element of the project could cost in the region of £200m.

We applied our competition assessment criteria to the HyNet project and conclude that it is likely to be a good candidate for late competition. We are already committed to exploring market solutions for this project and will continue to actively consider the best use of competition. We have committed to report on our progress with the project, especially our use of competitive delivery, as part of our Annual Competition Progress Report (see **Appendix 08.01**).



Our opportunities for 'early competition'

Our work takes place on an integrated network. With the exception of HyNet, we have been unable to identify projects that are of a significant cost and meet Ofgem's eligibility criteria.

For example, the most significant area of spend in gas distribution is the Mains Replacement Programme. However, this work consists of thousands of individual projects that fit within a wider integrated programme. This work is already subject to 'native competition' – the vast majority is delivered by our engineering partners.

Whilst there are a number of projects and activities that meet the value threshold for early competition, these projects are not readily contestable. For example:

- Although our HS2 diversion and Lower Thames Crossing work is the right size to pass Ofgem's thresholds, these projects are paid for by third parties, who have appointed us to undertake the work.
- The cost of the London Medium Pressure project is substantially below Ofgem's £50m threshold and is hard to separate from other replex activities.

Our opportunities for 'extended-native competition'

We continue to challenge ourselves to identify opportunities to further introduce competition. We relaxed the Ofgem value criteria for late and early competition. This opened up a wider set of projects which we assessed against our criteria.

We have identified three candidates for extended-native competition which we plan to explore further through RIIO-2. The three projects or activities we have identified are:

Table 08.07: Opportunities for extended native competition

Area	Description
Metering services associated with assessment of Flow Weighted Average Calorific Value ('FWAC')	We think there are likely to be a number of organisations who can offer these services, which may help to secure savings for customers.
Activities associated with assessing and maintaining Civil Structures	We think it worth exploring whether the maintenance and upkeep of these assets could be undertaken through a contracting arrangement. There might also be an opportunity for a new owner and operator to repurpose the assets that are no longer needed to support our gas network assets.
National Security Interventions	We want to explore whether a third party could provide these interventions and services in an innovative way and also offer these services regionally or even nationally, to groups of network owners, resulting in economies of scale for all network customers.

For each of these projects and activities we propose to initiate an initial market test to explore market demand. The precise approach we take will depend on the characteristics of the project. Some may require consideration of licence and Uniform Network Code obligations. However, conceptually, our approach could take the following steps:

Figure 08.08: Our high level approach to market testing



8.7.6 Keeping our stakeholders informed of our progress

We will keep our stakeholders informed about our progress against our competition plan throughout RIIO-2. We propose to do this through an **Annual Competition Progress Report**. This report will summarise three key elements of our activity:

- Progress against our competition plan over the past year
- Milestones reached and lessons learned
- Planned competitive activities for the following year

Our competition report will include an update on our role developing the HyNet project, our progress in market testing exercises, and a summary of our wider native competition activities.

We provide further detail on our competition strategy and competition plan in **Appendix 08.01**.