

Ofgem consultation on frameworks for future systems and network regulation

National Gas Transmission Response

May 2023



Akshay Kaul
Interim Executive Director of Infrastructure
and Security of Supply
Ofgem

Jon Butterworth
Chief Executive Officer
National Gas

Dear Akshay,

Thank you for the opportunity to respond to the consultation on future systems and network regulation: enabling an energy system for the future. This consultation is an important milestone in ensuring that the future systems and network regulation is fit for the needs of all energy consumers over the coming years.

The gas network will perform a critical role in maintaining the secure energy needs of our nation across the transition and beyond. Achieving net zero will require a smart combination of all network assets, gas and electricity alike.

We consider that the principle of plan and deliver for anticipatory activities is positive; a more agile, whole system approach is needed to unlock at pace strategic investment for net zero. We also support the drive to simplify regulation of business-as-usual activities. This can be best achieved by simplifying the RIIO framework to retain the richness of benefits to consumers.

We agree with Ofgem's preferred position that the gas transmission price control should remain on the existing cycle.

The detail of our response expands on these points, and I trust it will support the effective development of the framework. We look forward to further dialogue over the coming months to develop this thinking.

If you have any immediate questions, please do not hesitate to contact our Regulation Director, Tony Nixon (tony.nixon@nationalgas.com), who looks forward to working with you and your team to support the evolution of the framework.

Yours sincerely,



Jon Butterworth
Chief Executive Officer, National Gas

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Executive Summary

National Gas Transmission (NGT) is the backbone of Britain's energy system today. We will play a leading role in the transition to a clean energy future that works for every home and business. We own and operate the gas national transmission network, delivering energy to where it is needed in every part of the country. We keep households warm and underpin their quality of life. For business, we fuel growth and innovation. We are looking to the future by developing the hydrogen transmission system of tomorrow.

We have a significant role to play in delivering affordable energy security for the UK throughout the journey to net zero and beyond and we understand the vital role we can play in decarbonising our own system and providing hydrogen solutions for the UK. This will grow GDP, create skilled jobs and provide export opportunities to meet the economic growth ambition for our country.

We welcome the opportunity to respond to this consultation which is an important milestone in ensuring that the future systems and network regulation is fit for the needs of all energy consumers over the coming years. We trust that the detail of our response will support its effective development.

The gas network will perform a critical role in maintaining the secure energy needs of our nation across the transition and beyond

Delivering the right level of resilience for the natural gas network will ensure we can manage energy security, regardless of how we progress to net zero. The characteristics of our network and the role we play make us unique in the energy sector and means that we will need an individually tailored regulatory model. There is a need to ensure the right investment levels to maintain and replace the assets we have today and, as the use of the network evolves, there is a need to build the resilience levels to match supply and demand patterns consumers depend on. Alongside this, we will need to repurpose the natural gas network to enable the timely and efficient delivery of a hydrogen backbone.

For gas transmission we need to ensure recognition is given to the critical role the network provides in energy security by having the infrastructure to move energy from diverse sources to where it is needed at peak times. Our role as integrated system owner and operator enables this to happen. A far wider view on the level of resilience is needed given the benefits to all energy consumers of having a resilient network that is the only viable and economic power generation solution at these peak times; decoupled from the potential decline in annual demand and changing supply patterns. A resilience standard is needed to provide consensus on the required resilience levels for energy security to ensure the network continues to meet the needs of consumers today and tomorrow.

Achieving net zero will require a smart combination of all network assets, gas and electricity alike

The role of a hydrogen network in ensuring security of supply and optimising network infrastructure is key to delivering a decarbonised power network by 2035¹, lowering emissions from industrial clusters in the later 2020s and beyond and providing low carbon energy for transport and potentially heat, enabling the transition to net zero.

¹ CCC. (March 2023). Delivering a reliable decarbonised power system: [Delivering-a-reliable-decarbonised-power-system.pdf \(theccc.org.uk\)](https://www.theccc.org.uk/publications/delivering-a-reliable-decarbonised-power-system/)

Whilst we recognise the business model for hydrogen transportation is under development, from a whole system perspective, the way we plan for our natural gas network, at the very least, needs to be cognisant of hydrogen. There are significant opportunities to drive value to consumers through leveraging the co-management of natural gas and hydrogen, enabling a balanced position on risk and reward and keeping costs down for consumers today and tomorrow.

The principle of plan and deliver for anticipatory activities is positive; a more agile, whole system approach is needed to unlock at pace strategic investment for net zero

We recognise a whole system approach is needed to unlock at pace strategic investment for lowering energy emissions today and transitioning to net zero. The role envisaged for Future System Operator (FSO) within the consultation goes beyond that under development for ‘day one’. The specific split of accountabilities under this model needs careful consideration for the natural gas transmission network, given:

- The integral nature of ownership and operation of gas network assets
- The need to ensure appropriate obligations with regards to maintaining resilient operation across the entirety of the network
- The need to optimise across assets rather than building significant volumes of new assets

In addition, interim measures will be necessary to bridge the gap as the FSO develops multi-vector capability. We are developing a whole energy network planning approach² centred around deterministic modelling to establish what investments are needed to provide necessary levels of energy security. This work can evolve into a critical component of the new FSO’s toolkit to help mobilise its Gas Strategic Network Planning capability.

We support the drive to simplify regulation of BAU activities. This can be best achieved by simplifying the RIIO framework to retain the richness of benefits to consumers

Incentive based regulation has driven significant value to consumers and a stable and predictable regulatory framework is a positive marker for financeability which in turn keeps costs low for consumers. Complexity has over time been introduced within the RIIO framework in an effort to drive efficiency, incentivise performance and manage uncertainty over what work is needed. We recognise the process places a heavy burden across Ofgem, stakeholders and network companies. We welcome moves to simplify and unlock proportionate regulation of BAU activities.

Working together it should be possible to create a streamlined, simplified version of RIIO that supports needed investment, decarbonisation and delivers efficiently for consumers. We believe the key to this lies in the development of:

- A resilience standard to support the objective delivery of the needs case for investment
- Digitalisation to provide objective information on cost and asset condition.

We agree with Ofgem’s preferred position that the gas transmission price control should remain on the existing cycle

Aligning the framework across transmission networks will enable a whole energy system view for optimal investment at transmission level, recognising the early adoption of a Gas Strategic Network Planning function at transmission level within the FSO. We are working with ESO, Government and Ofgem to develop a toolkit that enables early capability.

In addition, given that the need for a large scale, integrated hydrogen network is not contingent on a decision for heat, the early repurposing activity associated with the gas transmission network is not subject to the uncertainties Ofgem identify as a driver for rolling over.

² NGT. (2023). Common Planning Assumptions: <https://www.nationalgas.com/news/common-planning-pathway>

Question 1: What should the role of the ‘consumer voice’ be and through what institutions and processes should it be channelled?

Key Points

1. The consumer voice is critical, and we have expanded our direct engagement with both domestic and non-domestic consumers.
2. We recognise the burden for consumers and our stakeholders in being involved in the regulatory process and the need to make sure activities optimise their insights and voice.
3. Simplification of the overall framework for BAU activities should support easier consumer engagement, including a consistent and simple presentation of business plans.
4. Transparency on the role of the consumer and stakeholder voice should be established, including a clear line of sight on how views are reflected in Ofgem’s decision-making.
5. There needs to be focus on consumer engagement that adds real value, with flexibility on methods based on sector-specific needs and recognition of the value of qualitative techniques.
6. We agree with Ofgem that negotiated settlement will not work as a standalone regulatory model – the objective should be improving the role of stakeholders vs. RIIO-2.

Full Response

1. **The consumer voice is critical, and we have expanded our direct engagement with both domestic and non-domestic consumers.**
 - Consumers, both domestic and non-domestic such as power generation and major energy users, pay for all network infrastructure; and the network infrastructure is designed to meet their needs today and tomorrow. Therefore, it is fundamental to the process that the consumer voice is fully embedded in the price control review process and more broadly our day-to-day activities.
 - Over recent years our consumer engagement programme has developed significantly, recognising the criticality of ensuring we understand and respond to consumers’ needs.
 - For gas transmission, engagement with domestic consumers brings its own challenges given that the majority of the public is largely unaware of how the energy industry works and of our role within it. We have therefore worked with third parties and with consumers themselves to create simple, clear and unbiased context material that we use at the beginning of any research or engagement activities. Consumers tell us this really helps them to provide a more informed opinion on our activities.
 - During our RIIO-2 business plan build process, the Independent User Group challenged us significantly to enhance our consumer engagement programme. They challenged us to

think about different ways of engaging consumers, particularly when it comes to getting into detail on topics that impact them, but that they may not be very familiar with. Consumer experts on the group gave us specific challenges in this area and we worked with third parties who specialise in this type of work to develop a plan for research and engagement. This included more qualitative research including focus groups, consumer listening, cultural analysis, and deliberative research to add richness to our conclusions. This was combined with quantitative tools such as willingness to pay and acceptability testing.

- We have since embedded a range of consumer engagement into our ongoing stakeholder engagement activities and we have enhanced our directly connected consumer engagement to ensure we truly understand their businesses and their landscape including how they make money, their decarbonisation strategies, current and future challenges and how we can help them.
 - We also have close relationships with trade associations, recognising that major energy users don't always have the time to engage directly, we work with these bodies, attending their conferences and facilitating direct engagement via them to understand their sector effectively.
- 2. We recognise the burden for consumers and our stakeholders in being involved in the regulatory process and the need to make sure activities optimise their insights and voice.**
- Across the industry there is a significant burden placed on consumers and broader stakeholders alike to feed into and effectively influence developments which are critical to ensuring they receive the service they need today and into the future. Gas transmission has a unique mix of consumers covering major energy users and large-scale power generation that make up roughly half of our charges. It is critical that we work collaboratively across the industry to align our engagement activities and ensure that they deliver the maximum value, optimising the input of our stakeholders and drive efficiency through the process by avoiding re-debate on policies and activities driven by other bodies i.e., Government departments.
 - We ran a consultation³ in summer 2022 and explored the voice of consumer and our stakeholders. We heard that there needs to be a clear price control engagement framework: *"...clarity on how stakeholders' views ... reflected in decision making with appropriate explanations is needed at the outset... so that stakeholders can judge if it is worthwhile committing limited resources to engaging. [and] ... understand how the views of stakeholders are weighted...."* (Trade Association).
- 3. Simplification of the overall framework for BAU activities should support easier consumer engagement, with a consistent and simple presentation of business plans.**
- We recognise that it can be challenging for consumers and their representatives to appropriately engage in what is a complex and broad set of regulatory measures as considered and developed through price control reviews. The ambition to simplify BAU regulatory processes should facilitate an easier route to engagement.
 - We note Citizens Advice included a number of helpful suggestions in their Open Letter response for how the process could be made simpler, cheaper, and more readily accessible for consumers and stakeholders to engage with. We would support these proposals:

³ National Gas Transmission. (2022). Evolving the regulatory framework: [NG Gas Transmission RII0-3 - Report - Page 1 \(paperturn-view.com\)](https://www.paperturn-view.com/NG-Gas-Transmission-RIO-3-Report-Page-1)

- Focusing on consumer outcomes as the goals to drive the right strategies and processes.
- Being prescriptive in the information that is required from network companies in the business planning process.
- Ensuring that the information is consistent, simply presented, available to all stakeholders, and that will enable ready comparison across companies or sectors.

4. Transparency on the role of the consumer and stakeholder voice should be established, including a clear line of sight on how views are reflected in Ofgem's decision-making.

- A clear line of sight in terms of how views are reflected in Ofgem's decision making is essential. We need to ensure that we continue to undertake and report on broad engagement so that Ofgem can take account of it in their decision making. We need clarity on how the voice of stakeholders and consumers will be reflected in Ofgem's decision making, so that we frame our engagement appropriately and that it is not too narrowly focused. It is important that there is transparency in decisions for each consumer segment.
- In our 2022 consultation we heard the need to: *"... agree clear minimum requirements for engagement ... so that companies can engage early in order to inform business plan development and ... opportunities for collaboration."* (Network Company)
- We also note in Citizens Advice response to the Open Letter they state: *"At present, it is unclear how Ofgem makes use of consumer views and which areas it is seen of most relevance to. The ways of collating and using consumer views needs to be improved so that Ofgem has confidence in applying their message into decisions"*

5. Focus on consumer activities that add real value, with flexibility on engagement methods based on sector-specific needs and recognition of the value of qualitative engagement.

- We championed enhanced engagement and support its further development.
 - The independent User Group (IUG) drove significant improvements to our business plan.
 - The independent Consumer Challenge Group (CCG) (established by Ofgem) provided challenge to networks' business plans on behalf of existing and future consumers. The role of the CCG was to provide consistent challenge to company decisions. The function of this group should be clarified to enable more comprehensive interaction with network companies if they are to understand and assess business plans.
 - The remit of both IUG and the CCG must be clear, including understanding their role in assessing future business plans and how Ofgem will take account of their activity in decision making.
- Our reflection is that some activities specified for RIIO-2 were costly, complex and did not add sufficient value with regards to embedding the voice of consumers in our plans.
 - By way of example, willingness to pay at transmission level offers an interesting case study.
 - In RIIO-ED1 and water industry willingness to pay exercises, networks were criticised for inconsistencies in their research methodologies and in how they had chosen to interpret the results. For RIIO-2, we commissioned a joint willingness to pay study with the other transmission owners (validated by Citizens Advice) to ensure consistency. This was a nationally representative sample of 1,000 domestic consumers, plus 600 business consumers. The study covered 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. There was positive willingness to pay for all topics amongst domestic and business consumers. Where applicable, the results from the willingness to pay study informed our business plan, but we recognise there are limitations to this type of research for transmission networks, and therefore the willingness to pay values alone were not used to determine our exact levels of spend. It is one useful data set that we can triangulate with other consumer data. Whilst there was some value in this study, it is expensive and complex to design and deliver. Our reflection would be that given the low cost per consumer of the gas transmission network bill, it is no great surprise that a positive willingness to pay value was attained for all values tested. The output value stated for some individual willingness to pay values were in some instances higher than the entire annual bill impact for gas transmission. For gas transmission, it is also challenging to extract individual activities that consumers can directly feel an impact of and therefore able to state if they are willing to pay for a change in service level. We think there may be other more constructive research tools which could be applied, at least to transmission level activity.

- The value of qualitative methods of engagement needs to be recognised.
 - One such technique is deliberative research which, for our RIIO-2 plan build, we undertook to understand views on whether current or future bill payers should pay for investment to support our work on changing regulatory asset lives and depreciation. This is a complicated and technical topic. Yet through deliberative research we were able to access consumer views constructively.
 - Such complex topics will form a very important part of future engagement as we work to understand how best to manage intergenerational fairness.
 - We continue to use this, along with consumer listening, to get close to domestic consumers and engage on key topics where their input is essential.
 - Collaborative research across networks should be encouraged as it reduces costs and creates alignment across networks.
 - For gas transmission it is challenging to draw a line of sight between specific investment requirements and any individual consumer. The focus needs to be on constructive questions where we can gain directional insight. These could be, for example, scope (what additional activities they want us to do, knowing it will cost more), how fast do they want us to undertake activities, what level of quality they want us to deliver, should costs be paid for now/later.
- 6. We agree with Ofgem that negotiated settlement will not work as a standalone regulatory model - the objective should be improving the role of stakeholders vs. RIIO-2.**
- We can see a role for FSO in embedding the voice of consumer in their planning function – but we don’t think this requires full negotiated settlement. This should not detract from licensees undertaking their own critical engagement activities directly with consumers to ensure all our activities continue to best meet their needs today and tomorrow.

Question 2: How detailed could an independent, cross vector view become to determine future plans for periods beyond RII0-2 and support effective use of the ‘Plan and Deliver’ model?

Key Points

1. We fully support integrated whole system planning; this is essential to unlock at pace strategic investment for net zero.
2. Digitalisation is needed to enable the sophistication of cross-vector modelling required.
3. A significant role is envisaged for the FSO to deliver an independent, cross-vector view which is used to determine need and the most efficient delivery model - the specific split of accountabilities within this needs careful consideration for the Gas Transmission network.
4. Establishing full capability of the FSO will take some time; measures will be required to ensure delivery at the pace in the interim before the FSO builds multi-vector capabilities.
5. We are developing a whole energy network planning approach which is centred around deterministic modelling to establish what investments are needed to provide the necessary levels of energy security. This work has the opportunity to evolve into a critical component of the new FSO’s toolkit; to help it mobilise its Gas Strategic Network Planning capability.
6. An agile approach, as envisaged in ‘Plan and Deliver’, will be appropriate for repurposing natural gas assets.

Full Response

1. **We fully support integrated whole system planning; this is essential to unlock at pace strategic investment for net zero.**
 - We recognise a whole system approach is needed to unlock at pace strategic investment for lowering energy emissions today and transitioning to net zero. We are fully supportive of the long-term vision of the FSO producing an independent, cross vector view.

An overarching Strategic System Planning framework is needed

- We note that the ESO carries out Electricity Network Planning (Network Options Assessment (NOA) & Holistic Network Design (HND)). The Government is currently taking forward arrangements for the FSO to be created in or by 2024.
- The FSO, once created, will be responsible for delivering a Centralised Strategic Network Planning function (CSNP) which will provide load related network planning on the electricity transmission network. In addition, the FSO once established, will need to design, mobilise and operate a Gas Strategic Network Planning capability.
- Developing a cross vector model that can predict the specific design of the network will be complicated and there is a huge risk that the model becomes too complex to be

understood and calibrated. Therefore, an overarching strategic planning framework, which includes the gas network, must recognise the specificities for gas transmission in terms of accountability and strike the right balance between a number of key factors.

- Ensuring that the gas network continues to provide critical resilience.
 - Network constraints are not exacerbated due to delay in investment decisions resulting from much wider uncertainties.
 - It must be cognisant of the cost implications of asset stranding and a smaller user base of natural gas consumers over the longer term when proposing investment options.
 - Network planning needs to leverage the opportunity to make decisions for the future by enabling action to be taken now, in a way that delivers value to society by acting now, even if uncertainty means that the future unfolds differently.
- We believe that these key considerations will ensure a strategic planning framework that cuts across energy vectors, is consistent with key elements of Ofgem's Consumer Interest Framework and that the gas network can effectively continue to support low-cost transition to net zero while maintaining high standards of security in a way that continues to be affordable to consumers.
 - The framework needs to find a way to manage uncertainty and unlock decisions given the multiple potential routes to achieving net zero and the long lead times associated with delivery of network investments. This should not shy away from making strategic or anticipatory investment decisions which could deliver the optimal solution for consumers and society. The tools to manage uncertainty need to be more targeted to the future, quicker and more accessible to deal more effectively with a range of possible end states and should ensure the regulatory regime incentivises and enables efficient investment in net zero technologies at pace, helping the country meet its net zero targets whilst lowering costs to consumers.
 - The risk of "over investment" is lower than the risk of not enabling timely delivery of the network infrastructure needed to deliver net zero. Dieter Helm makes this point in a recent publication: *"the consequences of too few networks are much, much worse than having too many; the balance is asymmetric. If the networks are not sufficiently developed, there will be no net zero. If they are slightly over-invested, the costs across the whole customer base are small, and in any event the assets will in due course probably be needed"*⁴.
 - Given the separation between a future long-term strategic planning role of the FSO and the real time and operational planning role of the gas transmission network being retained in NGT, there will need to be much greater exchanges with the FSO who will regularly require input from NGT to ensure that their modelling incorporates the necessary requirements associated with operability and resilience.

2. Digitalisation is needed to enable the sophistication of cross-vector modelling required.

[Developing an NTS Digital Twin will unlock the gas network for the future](#)

- Since RIIO-1, we have been laying the foundations for digitalisation of our network by undertaking a number of important innovation projects using the Network Innovation Allowance (NIA).

⁴ Professor Sir Dieter Helm. (2023). Energy network regulation failures and net zero: <https://dieterhelm.co.uk/regulation-utilities-infrastructure/regulation/energy-network-regulation-failures-and-net-zero/>

- Firstly, in 2013 we carried out a project on the concept of “Building Information Modelling (BIM)⁵” to develop and trial an intelligent 3D modelling process based on Building Information Modelling (BIM) level 2 maturity, within an existing construction project to understand if the intelligent 3D modelling process is fit for purpose within future NGT construction projects and we had already started supporting various projects with undertaking laser scanning, intelligent 3D modelling with 4D modelling under discussion.
- In 2015, we investigated enhanced techniques for Building Information Modelling (BIM)⁶ to further understand the potential cost savings across gas project models in design and construction – both projects looked at how the technology could be used for us to reduce the cost of construction activities.
- In RIIO-2, we are taking that learning further to develop the Collaborative Visual Data Twin (CVDT) using our “FutureGrid Facility” as a test case for how data and NTS digital twins of the future could look [*see Fig.1*], enabling us to provide the groundworks for the digital twin of the FutureGrid facility. Phase 1 of the CVDT project, which is funded through the NIA, will provide a base from which to accelerate the implementation of the digital twin across the NTS applications.
- A digital twin will provide the building blocks to facilitate cross-vector modelling in the future, for example, the introduction of historic and live asset data into network models will help us to understand how an asset is currently behaving and will subsequently behave under altering conditions. Overlaying simulation and data analytics can further improve the understanding of the network and provide insight into how various scenarios will impact its running.
- However, we will need to consider the complexities of delivering interoperability between vectors including issues of data clarity to ensure that we have adequate information to support our investment decisions, as well as navigating any confidentiality issues and all of this can only be achieved by working in a collaborative way with the FSO to provide the intelligence to guide network investment decisions across whole energy systems.

⁵ NGT. (2014). Building Information Modelling: [BIM \(Building Information Modelling\) | ENA Innovation Portal \(energynetworks.org\)](#)

⁶ NGT. (2017). Building Information Modelling (Enhanced Techniques): [Building Information Modelling \(BIM\) investigation into enhanced techniques | ENA Innovation Portal \(energynetworks.org\)](#)

NGT. (2023). Collaborative Visual Data Twin (CVDT): [Collaborative Visual Data Twin Phase 1 | ENA Innovation Portal \(energynetworks.org\)](#)

NG Digital Twin - Collaborative Visual Data Twin NIA Project

"A digital twin is a virtual representation of physical assets, processes, data exchanges within business systems enabling users to understand and model their performance, optimise operations, test scenarios, and manage maintenance regimes of physical assets, systems, and business processes - a 'digital knowledge repository'."

The Digital Twin enables movement of data across all layers whilst providing an interface that can provide contextual direction to key datasets

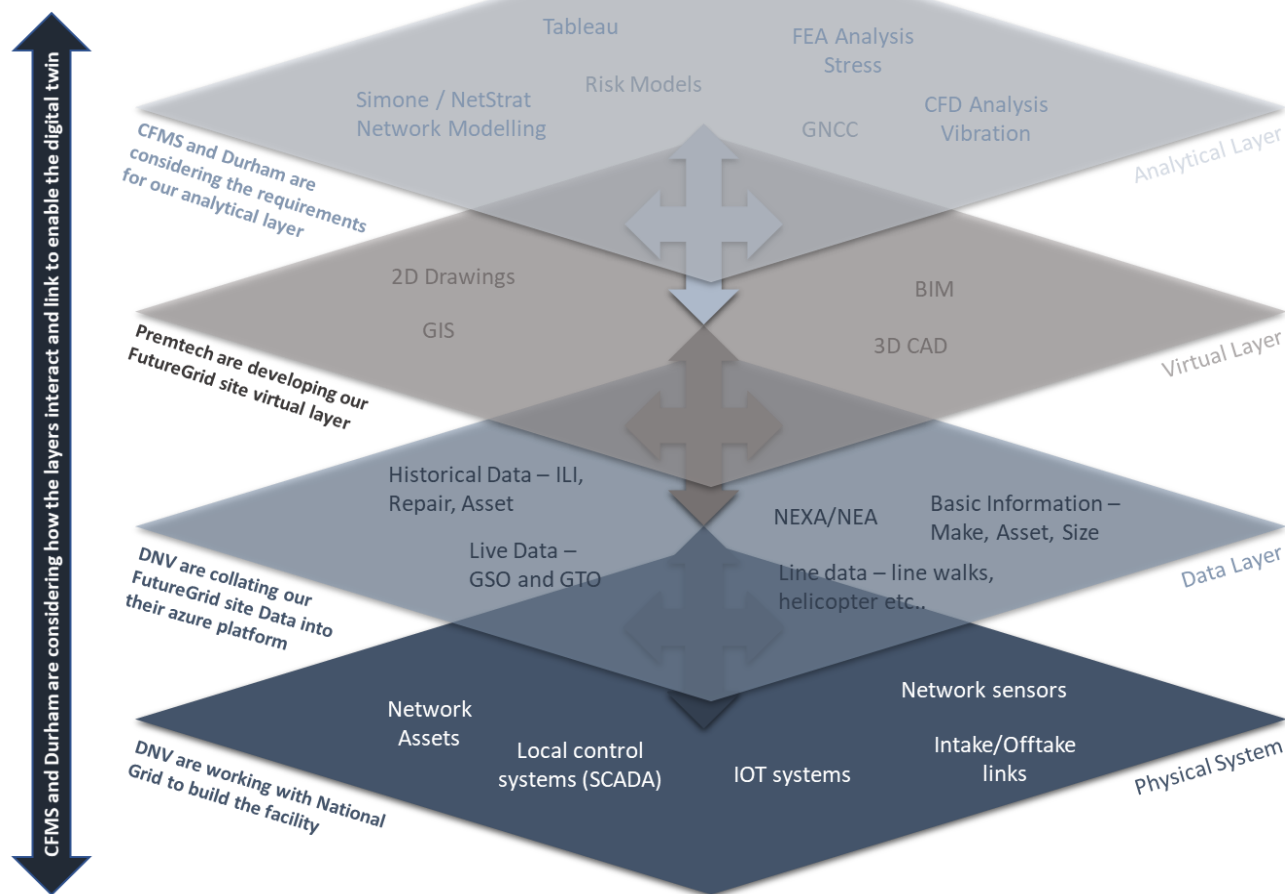


Fig. 1

⁷ CFD – Computational fluid dynamics, GNCC – Gas network control centre, FEA – Finite element analysis, CAD – Computer Aided Design, GIS – Gas Information System, NEXA / NEA – Network Exit Agreement and Network Entry Agreement, IoT – Internet of Things

3. A significant role is envisaged for FSO to deliver an independent, cross-vector view which is used to determine need and the most efficient delivery model, the specific split of accountabilities within this needs careful consideration for the gas transmission network.

- The envisaged ‘day one’ role for the FSO is advisory; recommending investment and picking up some of the current GSO-led activities such as Network Capability and Gas Ten Year Statement.
- The UK Government published a recent policy paper on “Power Up Britain: Energy Security Plan”⁸ where it set out the role of the FSO with respect to delivering a new medium range Gas Security of Supply assessment and further emphasised that it expects “*this new assessment to form the basis of advice from the FSO to government and Ofgem, and information to wider industry. This assessment will inform actions that are needed by NGT, FSO, and wider industry to maintain security of energy supply across the GB system, including investment where needed*”.
- We are working closely with ESO, Ofgem and Government to consider the requirements for FSO with regards to Gas Strategic Network Planning – noting this an area of capability that the ESO will need to build.
- It will take some time for the FSO to reach full capability to undertake this envisaged ‘day one’ activity and effectively plan across gas and electricity network requirements. In addition, it is not envisaged that network planning for natural gas, hydrogen or any other vector will form part of this ‘day one’ activity which, as we understand it, may take several years to develop. To truly deliver a cross-sector view, all of these vectors must be taken into account, and this should start with putting interim measures in place.
- The role proposed in the consultation under ‘Plan and Deliver’ is significantly enhanced to cover more detailed design activity.
- The current framework provides very effective incentives to optimise how we plan for the Gas network. The extension to the FSO’s accountability beyond an advisory role as envisaged in this consultation could remove this and could instead introduce a layer of institutional complexity and unclear accountability.
- There are a number of specificities to gas transmission which mean that careful consideration is required with regards to how accountabilities across planning and design are allocated.

a. The integral nature of ownership and operation of gas assets

For gas, the ownership and operation of the gas transmission network is intrinsically linked, with system operation inherently being an asset-based activity as opposed to market based. This a key reason that NGT remains an integrated transmission owner and system operator with regards to real time and operational planning, unlike electricity. The same principles apply when you consider planning and designing for future investment needs.

b. The need to ensure appropriate resilient operation across the entire natural gas network

Our interpretation of the consultation is that it is envisaged that the planner will determine the need for specific investment and identify the most efficient delivery

⁸ DESNZ. (2023). Power Britain: Energy Security Plan: [Powering Up Britain: Energy Security Plan – GOV.UK \(www.gov.uk\)](https://www.gov.uk/powering-up-britain-energy-security-plan)

model. This suggests a change in accountability for investment design which would require a corresponding movement in resilience accountabilities. We know from recent discussions across Ofgem, Government and ESO there is a reluctance to see movement in these areas given its far reaching implications.

c. *The need to optimise across assets rather than building significant volumes of new assets*

Strategic activity for the gas transmission network is centred around optimising utilisation across existing assets – be this through repurposing, decommissioning or some supporting new build activity. These activities will be very closely linked to achieve the appropriate balance to meet the needs of consumers today and tomorrow. This is very different to the electricity landscape where the activity is centred around delivering significant volumes of new build assets.

- We recognise within the consultation that, for gas, a distinction has been made between decommissioning/repurposing and new build. However, we think all these activities need to be considered collectively as part of this optimisation process. And there is an essential ongoing role and accountability for NGT in planning and design to enable this effective optimisation.

4. Establishing full capability of the FSO will take some time; measures will be required to ensure delivery at the pace in the interim before the FSO builds multi-vector capabilities.

- Whilst we are fully supportive of the long-term vision of the FSO producing an independent, cross vector view we have some concerns with the capability⁹ being there in time to determine future plans for periods beyond RIIO-2.
- We agree with Ofgem’s position in 3.10 that “*The FSO would need to be demonstrably capable of producing coherent whole-system cost-optimised plans*” to identify cost reducing opportunities and this will take time to develop and embed. There is clearly a need in the immediate and interim to bridge this gap.
- It is important for institutional accountabilities to be very clear. The time to develop this and get it right should not be underestimated. We have set out some early thoughts with regards to appropriate accountability as part of our response to question 8 on what we think is the most effective regulation and preferred model for gas transmission.
- Interim measures must unlock the necessary investment at pace – enabling a combination of keeping options open to leverage the opportunity to make decisions in the future and allowing action to be taken now by focusing on the value to society of acting now, even if uncertainty means that the future unfolds differently. It is essential that critical investment decisions are not delayed whilst this time is taken to develop clear institutional roles and the framework under which they will operate. We need to draw on tools such as Real Options Analysis to support uncertain activities where it can be demonstrated that the value of taking the decision faced with uncertainty outweighs the cost of making sub-optimal decisions or delaying the decision.

⁹ Ofgem. (2023). Decision on the initial findings of our Electricity Transmission Network Planning Review [Page 50, Figure A6: Theory of Change]: <https://www.ofgem.gov.uk/sites/default/files/2022-11/Decision%20on%20the%20initial%20findings%20of%20our%20Electricity%20Transmission%20Network%20Planning%20Review%20%28002%29.pdf>

- 5. We are developing a whole energy network planning approach which is centred around deterministic modelling to establish what investments are needed to provide the necessary levels of energy security. This work can evolve into a critical component of the new FSO's toolkit; to help it mobilise its Gas Strategic Network Planning capability.**
- We are currently developing a network planning approach under the Network Innovation Allowance (NIA) to understand what the options are for undertaking whole energy network planning that better manages energy resilience, societal and commercial risks – we call this approach the Common Planning Pathway (CPP)¹⁰¹¹.
 - The CPP's deterministic modelling approach will establish what investments are needed to provide the certainty and necessary levels of energy security at the least cost and risks, factoring in peak demand across the energy vectors.
 - The CPP approach will work alongside the existing energy scenario models, taking a forward-look to the medium term (2030/40) to establish no regret peak capability requirements across energy vectors to deliver resilient and energy secure gas, hydrogen, and electricity networks that will enable Gas System Operation to model network capability requirements and identify the required investments for the next price control period and beyond.
 - Complimentary to FES, CCC scenarios, Network Capability and Gas Ten Year Statement, the CPP will utilise assumptions that are more relevant, more dynamic CBA modelling and real options assessment that will recognise the value of optionality to unlock strategic decisions where it can be demonstrated that the value of taking the decision faced with the uncertainty outweighs the cost of getting the decision wrong or delaying the decision.
 - This work will help to bridge the gap until the full FSO capability is established and could be a useful tool across energy networks, FSO, regulators, and Government and should enhance confidence in delivery of a credible path to net-zero while identifying key requirements for energy security during the transition.
 - We are collaborating across the industry, including with the ESO, on CPP and recognise the value and opportunity the CPP has, to evolve into a critical component of the new FSO's toolkit to help it mobilise and support its Gas Strategic Network Planning capability.

¹⁰ ENA. (2022). Common Planning Assumptions: https://smarter.energynetworks.org/projects/nia_nggt0208/

¹¹ NGT. (2023). Common Planning Assumptions: <https://www.nationalgas.com/news/common-planning-pathway>

Common planning assumptions

Determine key factors that may change plans	Determine whole system scenarios	Determine options to deal with uncertainty	Assessment of options
<ul style="list-style-type: none">• Gas blending decision 2023• T&S regime for hydrogen networks 2025• Industrial cluster build over RIIO-2/3• Heat policy decision 2026• FSO scope from 2024• Local Area planning / DCO process• Cost of carbon• Electricity network/system operation constraints	<ul style="list-style-type: none">• Gov't plan with and without role for hydrogen in domestic heat (range of different scales)• All cases likely industrial role for hydrogen• Could develop the BEIS "System transformation" scenarios to consider whole system impacts and requirements• 2050 end state position, 2035 position of plan to get there and what needed in RIIO-3 timescale• How to incorporate any agreed regional energy plans?	<ul style="list-style-type: none">• Establish core plan with low regrets decisions• Review traditional uncertainty mechanisms (reopeners / volume drivers)• Consider timing of price control• Consider elements of adaptive planning approach (e.g., based on Ofwat PR24 with in-period automatic adjustments)• Develop real option value analysis for hydrogen and methane investment decisions	<ul style="list-style-type: none">• Review CBA models and real option analysis• Determine low regret core plan from assessing real options and new CBA• Build other states and have automatic triggers if heading down that pathway

Fig. 2

6. An agile approach, as envisaged in ‘Plan and Deliver’, will be appropriate for repurposing natural gas assets.

- A smart combination of gas and electricity assets in an integrated energy system will minimise consumer disruption and deliver the lowest cost pathway to net zero. Through a Network Innovation Allowance funded project the Gas and Electricity Transmission Infrastructure Outlook 2050 (GETIO) publication, undertaken by Guidehouse¹², indicates that in all net-zero scenarios, integrated infrastructure planning across electricity and hydrogen transmission can provide energy system savings up to £38bn by 2050, which will be supported by no regret network investments, common across all scenarios, over the next decade.
- We recognise that the business model for hydrogen is currently under development, but once established, it will benefit from the same agile approach to regulation as envisaged through the “Plan and Deliver” model.
- Given the hydrogen transmission network will be delivered through repurposing the existing transmission pipelines, benefitting both existing and future network users, at a fraction of new build costs for the same capability and reliability, it is essential that the natural gas and hydrogen network needs are considered in parallel including avoiding decommissioning costs.
- We believe an opportunity has been missed to include hydrogen from day one to mitigate the long-term bill impacts to natural gas users. See our response to Q8 for more information on this point.

¹² Guidehouse (2023), GETIO: [Gas and Electricity Transmission Infrastructure Outlook 2050 \(nationalgas.com\)](https://nationalgas.com/getio)

Question 3: Under what circumstances would competition, or other procurement models such as open book contracting, have benefits over ex ante incentives as a cost control mechanism?

Key Points

1. We support cost control methods which demonstrably add value and enable the timely delivery of infrastructure investment.
2. It is important to recognise the full spectrum of cost control activities that exist already within the RII framework to encourage cost competition and an efficient focus on costs to benefit consumers.
3. The extent of licensee-led competitive tendering within the existing framework should be recognised.
4. Open book contracting could be combined with effective procurement by licensees to ensure projected costs align with those incurred. Digitalisation can also enable a more transparent and simpler form of monitoring.
5. We have concerns with the practical application of open competitive tendering.

Full Response

1. **We support cost control methods which demonstrably add value and enable the timely delivery of infrastructure investment.**
 - Cost control must remain flexible to enable investment at the pace necessary to deliver net zero – there is no ‘one-size-fits-all’ solution to cost control.
 - In a competitive market, companies are already incentivised to act efficiently and under these circumstances ex-ante regulation may not be required. As the sole gas transmission network company in Great Britain, we are a monopoly and this means that we may often have a very limited supplier base and ex-ante regulation ensures that we are incentivised to act efficiently, where competition is limited so that we can transfer the benefits of economies of scale to the consumer.
 - We note a recent example of where strategic projects which could well have been taken down an open competition route, were exempted from competition following Ofgem’s *decision in December last year, on “accelerating onshore electricity transmission Investment¹³”* to allow for a programmatic delivery of the projects required to deliver the Government’s 2030 ambitions.

¹³ Ofgem. (2022). ASTI. accelerating onshore electricity transmission Investment: [Decision on accelerating onshore electricity transmission investment \(ofgem.gov.uk\)](https://www.ofgem.gov.uk/decision-on-accelerating-onshore-electricity-transmission-investment)

- The gas sector is expected to undergo similar transition in the next few years, and we believe that there is value in retaining some flexibility when identifying the appropriate cost control mechanisms in this sector. Recognising the need for pace and pragmatism in delivery and clear principles will be needed to guide which tool gets used in which circumstance.
- 2. It is important to recognise the full spectrum of cost control activities that exist within the RIIO framework to encourage cost competition and an efficient focus on costs to benefit consumers.**
- Robust cost control and confidence in the efficiency of network activities needs to be a function of all regulatory structures. The RIIO model has effectively reduced costs for consumers through incentives, efficiencies, and innovation mechanisms.
 - Ensuring the most efficient costs for consumers requires enacting competition in the right place in the value chain. A range of cost control activities are already applied through the current RIIO framework, including ex-ante incentivisation coupled with effective procurement by licensees, ex post reporting, open book contracting and review, and the inclusion of both early and late competition.
 - In addition, Return Adjustment Mechanisms (RAM) apply to all network sectors and allows Ofgem to adjust the allowed rate of return to ensure that it remains fair to both consumers and network companies and ensures that companies can still attract investment while maintaining fair prices for consumers. There is no reason why this should not continue to remain an effective mechanism in a simplified framework.
 - There are inevitably trade-offs that need to be managed and there is rarely a perfect solution. For the next price control period, we need to take stock of the range of potential solutions to effectively balance financial and societal risk and cost across generations. When we explored this with our stakeholders, they told us that we need to shift focus from fractions of pence and think about the bigger picture and it is important to avoid missing out on the bigger picture by focusing solely on smaller costs components.
 - In all circumstances, it is important for Ofgem to establish clear principles to guide which tool gets used in which circumstance to support regulatory clarity and certainty.
- 3. The extent of licensee-led competitive tendering within the existing framework should be recognised.**
- We carry out extensive competitive tendering across our activities today.
 - We utilise competitive processes across all external procurement requirements, except where the potential benefits of doing so are outweighed by the costs.
 - A competitive process is followed for purchases above £20,000. For purchases over £100,000 we follow an even more defined sourcing and tendering process. This is lower than the legal threshold set, we choose to do this because we believe we can drive more value.

- We recognise such procurement can involve significant cost and resource burden through processes like evaluating bid, negotiating contract, monitoring performance, reporting and compliance. Depending on whether this is used for repeatable or one-off projects, the scale of costs could vary. So, we ensure that the complexity of the procurement process used is proportionate to the value and time-sensitivity of the project or system need in question. The competition is structured in a way to generate outcomes in the interests of current and future consumers.
 - It is also worth noting that regulated network returns are considered flexibly within the price control framework, resetting periodically to reflect changing market conditions. This has resulted in the returns being significantly reduced over recent years – most notably since the early CBAs were conducted for open competitive tendering – ensuring that the regulated returns are well aligned with any returns that could be achieved under an open competitive process.
- 4. Open book contracting could be combined with effective procurement by licensees to ensure projected costs align with those incurred. Digitalisation can also enable a more transparent and simpler form of monitoring.**
- The Western Gas Network project provides a good case study of how working constructively and transparently with Ofgem using a combination of effective procurement by the licensee and some elements of licensee-led open book to deliver the right outcome for consumers with the least amount of new infrastructure, the least impact on people and the environment, at the least cost¹⁴.
 - We demonstrated that for a large one-off project, especially where the activities were novel and/or difficult to benchmark and the regulator had perceived asymmetric information, it was possible to provide transparency where price /cost volatility was driven by current market dynamics, which was completely out of our control as seen in the last year, so that we can focus on delivering the capacity that the customer needs at pace and at the most competitive cost.
 - In this example, the challenges that were faced with limited supplier base and market dynamics were recognised by Ofgem through those discussions and the balance of risk was addressed in terms of who should be responsible for holding the risk as part of wider constructive dialogue to ensure the most positive risk profile for consumers. This includes recognising that in many cases if the balance of risk sits with the network company, consumers can benefit from any emergent cost reduction – where a supplier would retain this benefit in full.
 - This collaborative approach will hopefully facilitate an accelerated decision timeline with Ofgem to make the earliest delivery date possible as a result of working constructively and iteratively. Digitalisation should further help to streamline any such procurement approach.
 - However, the fact remains that we already use competitive procurement, and it is important to continue to incentivise effective procurement by the licensee (both owning and operating the network in the case of gas transmission) over and above all other non-licensee led options otherwise it underplays an important advantage of the regulated

¹⁴ NGT. Western Gas Project: [About the Western Gas Network project | National Gas](#)

network model. Productive exposure to societal-level risk as opposed to a third party who will almost certainly be protected from any associated societal-level risk gives a network an interest in positive longer-term outcomes for consumers/society and that is valuable.

5. We have concerns with the practical application of open competitive tendering.

- Ofgem already has a well-established set of rules for when it intends to use competition¹⁵. For example, it must be a completely [new] **transmission asset** or a **complete replacement** of an existing transmission asset, it must be [separable] – such that the **boundaries of ownership between these assets and other (existing) assets can be clearly delineated** and it must be [high value] based on a set threshold (greater than £50m for early competition, £100m for late competition under RIIO-2). We applied these criteria across our RIIO-2 business plan to evaluate the suitability of activities to early or late competition.
- Ofgem also recognise within the consultation (3.13) that even with the strongest form of competition, there could be costs that could outweigh the benefits and we must not rule out the need for exemptions where necessary to facilitate earlier, low-cost delivery as has been seen for electricity transmission.
- The inherent benefits of a single regulated entity should not be under-estimated:
 - Able to quickly get projects off the ground quickly due to established process, structure, governance, resource, and capabilities that we can leverage.
 - Leverage long-term relationships with the supply chain, enabling skills retention, apprenticeships etc.
 - Greater ability to pool risk and more likely to support earlier investment decisions.
 - A single party responsible for resilience – this can extend across natural gas and hydrogen networks once the hydrogen network is established.
 - Productive exposure to societal-level risk which drives a positive longer-term outlook.
 - A single provider will also support a clearer and simpler regulatory and commercial structure for market participants, fostering early market development, relative to a more fragmented model that may require market participants to have an interface with multiple infrastructure providers.
- The most material benefit of competitive delivery historically has been cheaper financing cost. However prevailing financial market conditions do not suggest this benefit remains material for two reasons. First, returns allowed to regulated networks have fallen consistently since the early CBAs of competition were conducted, meaning delivery by a regulated incumbent is now available at lower cost. Second, the end of the era of ‘cheap money’ now means that ‘spot’ finance, in particular prevailing debt rates, are no longer materially lower than the cost of debt of an incumbent network.
- The potential benefits of lower build cost through competitive delivery would be maximised through running an ‘early’ competition to ensure competitive pressure on the design phase, but evidence from other sectors (e.g. OFTOs) tells us that the investor community seems to favour ‘late’ competitions. For late competitions, it is not obvious material cost efficiencies are available, not least because delivery is often contracted out

¹⁵ Ofgem. (2019). Guidance on the criteria for competition: [criteria_guidance.pdf \(ofgem.gov.uk\)](https://www.ofgem.gov.uk/criteria-guidance.pdf)

(and hence subject to market testing) anyway. Any savings would need to be weighed against the potential disbenefits, which might include:

- The creation of interface costs between multiple providers.
- Dis-optimisation of costs from inflexible operation.
- Lost synergies from failure to secure scale economies.
- Reduced ability to build the strongest expertise in the delivery entity and risks around delays if new providers lack some relevant expertise (e.g., in negotiating permitting/planning procedures).
- It would also be necessary to factor in the cost and time burden of running multiple competitive processes (on the part of FSO/Government/Ofgem and potential bidders).

Question 4: What is your view on the options identified for simplification of incentive regulation? What would be the benefits and costs by comparison to the approaches used in RIIO-2?

Key Points

1. RIIO has been successful in delivering benefits to consumers and society, but we recognise the complexity and resource burden associated with its application and the need for simplification.
2. We support simplification for Business as Usual (BAU) activities as an evolution of RIIO, which can reduce the burden of submitting and reviewing information and performance.
3. Planning against a clear resilience standard will enable the needs case and costs for one-off and repeatable projects to be more simply identified.
4. Digitalisation has the opportunity to bring simplification benefits through aiding transparency and reducing regulatory burden and information asymmetry.
5. Effective simplification can be introduced to streamline pinch point areas.
6. We do not support enhanced ex post arrangements as they create uncertainty, disincentivise innovation, increase risk aversion and make us less attractive to investors, likely driving up financing costs and cost to consumers.

Full Response

1. **RIIO has been successful in delivering benefits to consumers and society, but we recognise the resource burden associated with its application and the need for simplification.**
 - In Ofgem's assessment of RIIO-2, in 2.24 – 2.26, it acknowledges that RIIO has been successful in attracting low-cost investment, investor appetite has been demonstrated through companies signing up to growth mandates. RIIO allows Ofgem flexibility to re-open the price control to new developments and holds companies to account for delivery. In light of the strong evidence of the benefits that have been delivered by incentive-based regulation, we contend that the case for fundamental change in the way that Ofgem regulates networks has not been made.
 - We believe periodic reviews with ex-ante regulation using the framework is still wholly appropriate for many activities, including a strong incentive package to drive innovation, efficiency, and strong performance in the interests of current and future consumers. The regulatory framework must reinforce stability, clarity, and predictability as far as possible. Maintaining the core principles of the framework is important. Significant changes to the framework could lead to higher risk from an investment perspective and therefore cost more to finance, increasing cost to consumers. See our response to Q10 for more information.

- Complexity has over time been introduced within the RIIO framework in an effort to drive efficiency, incentivise performance and manage uncertainty over what work is needed. We recognise the process places a heavy burden across Ofgem, stakeholders and network companies. We welcome moves to simplify and unlock proportionate regulation of BAU activities – with a focus on reducing the volume of activity that is subject to the most extensive form of regulatory oversight. Identifying activities to take forward under ‘Plan and Deliver’ arrangements should help with this. And working together it should be possible to create a streamlined, simplified version of RIIO for BAU activities that supports needed investment, decarbonisation and delivers efficiently for consumers.
- In our detailed assessment of each of the simplification options proposed by Ofgem under archetype 2, we assessed the options against Ofgem’s “consumer interest framework” and we struggled to see to a reasonable case for fundamental changes to the current RIIO framework even when compared to the simplest form of incentive regulation i.e., RPI-X, given the limitations that exist within different regulatory models.

2. We support simplification for Business as Usual (BAU) activities as an evolution of RIIO, which can reduce the burden of submitting and reviewing information and performance.

- The approach to cost definition within the RIIO framework allows for clear identification and separation of costs, which can allow bespoke regulatory treatment as appropriate. Such cost separation already exists to a good level of granularity within the current framework, with annual regulatory reporting ensuring transparency of performance across the full suite and it can be applied in a way that distinguishes between day-to-day activities and those which are associated with greater uncertainty and/or represent more transformative activities. However, there is always room for simplification if it doesn’t introduce more onerous processes.
- Opting for a simpler form of regulation alone may not always offer the best solution for consumers and could lead to unintended consequences such as loss of value-enhancing aspects and/or inefficiencies over streamlining processes and reducing overall bureaucracy and therefore it is important to strike a balance between simplicity and effectiveness. This was one of the underlying reasons RIIO was adopted over the simpler framework of RPI-X. For this reason, we do not support a return to RPI-X style regulation; this would remove many of the powerful incentives which drives high benefits to consumers enabled by the RIIO framework particularly those associated with driving innovation and efficiency.
- Some of the complexity that was inadvertently introduced into RIIO over subsequent price control periods was really designed to address uncertainty over the work that needs to be done in areas like new “first of a kind” investments (looking forward this is applicable for gas transmission most obviously in hydrogen new build/repurposing activities). It will also affect what we would call “BAU network condition spend”, as there is at least the perception that the needs case for parts of such investment is uncertain and the spend risky, given that natural gas demand is anticipated to decline over the transition.
- Sitting behind both points is a material issue about how Ofgem working with NGT, and stakeholders can agree what investment is needed (i.e., a way to develop the needs assessment that unlocks funding and investment). At the moment, this process is

cumbersome and places a heavy burden on NGT/Ofgem, and often leads to investment being held up.

- A better way forward is needed, to simplify and streamline processes and ensure that detailed processes are applied only where it is proportionate.
- In our assessment of the Ofgem proposed archetypes, we established that a combination of practical measures and process improvements can help to make the RIIO framework more effective.
- We have said earlier that we struggled to see a reasonable case for fundamental changes to the current RIIO framework based on some of the simplification suggestions that Ofgem have made, and we believe that a solution lies in the development of measures that can help to free up the regulatory bandwidth to focus attention on the most material and more uncertain investments. We have set out our proposed approach in **3 key areas, as a combined package of measures. [see Figure 3]**
 - **Measure 1 – Planning to a clear resilience standard:** “Ensuring long-term investment in gas networks” to maintain resilience against increasingly dynamic and unpredictable requirements is a central part of the Government’s Energy Security Plan¹⁶ and therefore it is vital that we introduce clear resilience standards for the gas network. A clear and established set of rules to drive investment needs will significantly reduce the regulatory burden associated with establishing needs cases, supporting timely delivery, transparency, and the removal of subjectivity in assessment. We believe we can achieve a clear resilience standard ahead of the next price control period.
 - **Measure 2 – Digitalisation:** The next price control gives us an opportunity to lay the foundations for cross network collaboration to support cross vector modelling by building Digital Twin capabilities for the NTS. This will help to facilitate whole system planning and further reduce perceived information asymmetry by enabling more accurate and frequent reporting on cost and condition data.
 - **Measure 3 – Simplification of RIIO:** A lot of the challenges of RIIO today are well known and effective simplification of the current framework by streamlining pinch point areas will ensure that we continue to maintain incentives that drive efficiency, innovation and investment at pace while providing adequate protection for consumers and reducing the regulatory burden for all parties involved.
- We believe that with all these 3 measures working together, it should be possible to create a streamlined, simplified version of RIIO that supports needed investment at pace, decarbonisation and delivers for consumers and stakeholders.

¹⁶ DESNZ. (2023). Power Britain: Energy Security Plan: [Powering Up Britain: Energy Security Plan – GOV.UK \(www.gov.uk\)](https://www.gov.uk/powering-up-britain-energy-security-plan)

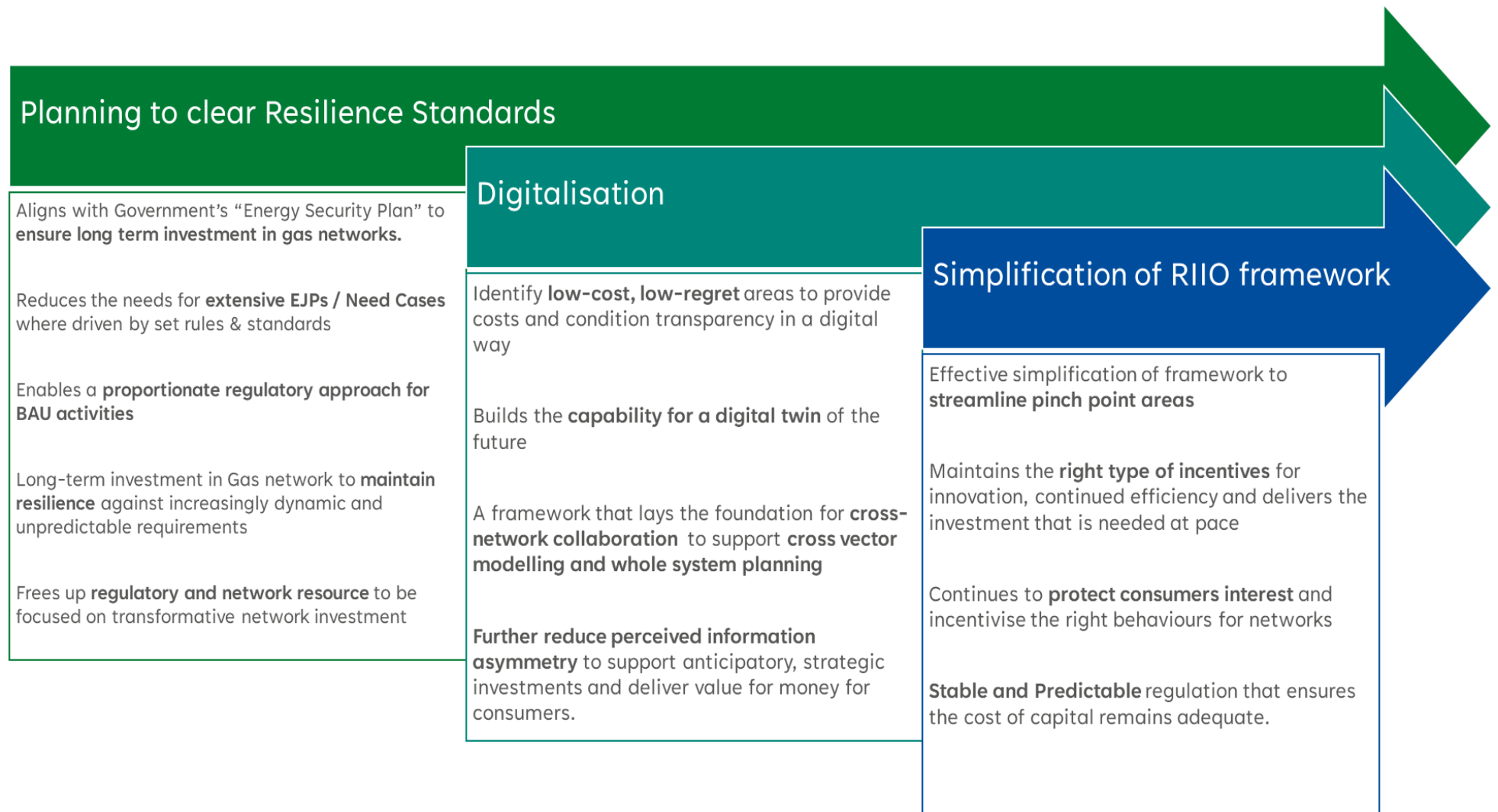


Fig. 3 Package of measures that will facilitate simplification

3. **Planning against a clear resilience standard will enable the needs case and costs for one-off projects to be more simply identified.**
- The gas transmission system plays a critical role in the UK energy system and our infrastructure enables:
 - **43% of the UK primary energy demand** to be met by natural gas.
 - Heat provision to **23 million consumers**, equivalent to **85% of homes**.
 - **62% of the GB electricity peak demand** was met by gas power stations directly connected to the transmission system.
 - The gas transmission network provides the capability to support a **2.5x average seasonal swing in gas demand**.
 - In a single day the gas transmission network has and can provide the equivalent energy of the **entire wind portfolio (28GW)** through linepack swing.
 - Global events have fundamentally changed the energy market and gas supply has tightened.
 - Evolving supply side changes have dramatically changed gas flows on the network. The system was built to deliver North South flows; 98% in 2000. The gas transmission network now accommodates supplies from the North Sea, Norway, Europe and LNG. Gas supplies to the UK are now split approximately 1/3 each from UKCS, Norway and LNG. In 2022 we were almost exclusively an exporter of gas to EU to support European storage needs ahead of winter. Such recent events have dramatically increased the need for flexibility of flows in the gas transmission network. The potential for upwards of 100 new oil and gas licences being granted in the North Sea, needs to be balanced with increased supply from other entry points into the GB market (such as LNG importation terminals and EU interconnectors) and clear Government commitments such as decarbonisation of the continued use of gas in power, including through the deployment of power CCUS. This will require timely investment to transport the flows to centres of demand without creating entry constraints.
 - The interaction between the gas and electricity systems is growing and placing greater stress on the available, but ageing, network assets that will be required to respond more quickly and flexibly to peak and rapidly changing demand requirements from drops in renewable output.
 - It is vital that we ensure the network is resilient and can operate in a range of future uncertain scenarios. As we look forward, supply side could continue to be highly unpredictable, and the network will need to be resilient under a broader range of scenarios. We need to review the approach to asset health investment planning, recognising:
 - The gas transmission network is deteriorating because of its age - our modelling of the network shows the level of risk increasing over time after delivery of agreed investments.
 - Network resilience will decline as we reduce the number of compressors as a result of application of emissions-driven legislation and increase strain on those that remain.
 - Sections of the network are already at low levels of resilience - pipeline risk analysis shows sections of low resilience, where failure can have significant impacts on Security of Supply.

- We need planning assumptions that are representative of the significant need for gas. The FES has been part of the planning process since 2011, but actuals have repeatedly deviated from projections. Network Planning based on FES risks leading to significant capability issues for the gas network. We believe there is a need for an alternative approach, to assess the investment needs in the network. Such a method needs to account for the uncertainty around the continuing need for natural gas, particularly peak capability, together with foreseen and unforeseen events as we have seen in recent years.
- There is also an urgent need to implement a resilience standard for network planning. Given the lack of an operational resilience standard on the gas network, there are consequential risks to energy security where levels of resilience cannot meet the demands from customers/consumers. We believe there is an urgent need to implement a resilience standard, rather than a pure economic approach based on constraint risk, which could be used to assess and agree levels and locations of associated investment which will lead to appropriate levels of risk on network assets and therefore energy system security.
- The combination of appropriate planning assumptions and a resilience standard will support simplification of the needs case process for BAU activities, being particularly helpful in enabling appropriate identification of a needs case for those one-off projects which are inherently more complex and subject to a wider range of options for delivery. It is worth noting that such a standard would also support FSO-led planning activities (captured under the ‘Plan and Deliver’ archetype).
- We believe the resilience standard can be delivered within the next 6-12 months for gas transmission in line with the Government Energy Security Plan.

4. Digitalisation has the opportunity to bring simplification benefits through aiding transparency and reducing regulatory burden and information asymmetry.

- In **Figure 1**, we set out how a digital twin can enable movement of data across several layers to enable us to optimise operation and manage maintenance regimes of physical assets and we said that we will set out more detail in the next business plan. However, one of such areas where we can help to provide cost and condition transparency and confidence today in our asset health investments is through our asset management system called Copperleaf.
- Copperleaf is an asset management and investment planning system that performs decision analytics on the NGT network. The system was introduced to aide end to end investment planning by enabling different investment scenarios to help prioritise projects. The system does this by utilising the NARMs methodology as well as cost and regulatory compliance.
- The NARMs methodology is employed within Copperleaf and the Copperleaf system utilises our Value Framework to assess each asset’s probability of failure, probability of consequence and risk, which is subsequently monetised. By adopting this approach Copperleaf enables a cost-benefit analysis for every intervention leading to sound investment decisions. This risk driven approach brings greater opportunity to provide more transparent visual representation and reduce reporting burden.

- We are in the process of developing asset-specific cost workbooks within Copperleaf that adhere to the ISO 55001 taxonomy and comprehensively capture all investment costs. The Copperleaf system employs this data to determine specific costs for each investment, recognising that a single unit cost is insufficient due to various factors like location, manufacturer, materials, resources, and performance that can influence the final cost. By making these workbooks transparent, both parties can scrutinise and explain the basis of project costs.
- By digitising the vast data outputs generated by the Copperleaf system, NGT can offer enhanced transparency to Ofgem regarding the rationale behind investment decisions, as well as the reasons for not pursuing certain investment options.

5. Effective simplification can be introduced to streamline pinch point areas.

- In **Figure 4**, we set out a high-level approach to simplification improvements across key building blocks to enhance the existing RIIO framework and better meet the pillars of the consumer interest framework. As we state above *“streamlining pinch point areas will ensure that we continue to maintain incentives that drive efficiency, innovation and investment at pace while providing adequate protection for consumers and reducing the regulatory burden”*. We note that all Ofgem’s simplification proposals exist in some form through RIIO, therefore, it is prudent to identify what the key challenges are and focus on addressing them.
- In addition, there are some useful best practice areas that can be extended to other parts of the RIIO framework. For example, a tried, tested, and effective approach to simplifying and reducing regulatory burden for future price controls is in setting out a needs case upfront for our investments in cyber protection which are inter-period investments by nature. We are currently planning for cyber investments and plan to submit three cyber reopeners in January 2024 which will span both the RIIO-2 and future regulatory period (2026-31). This is supported by the cyber function within Ofgem taking a longer-term view, making it easier to consider investments that span multiple price control periods where the needs case has been established as a portfolio of investments and will only be subject to light touch review as a part of the subsequent controls ¹⁷. We welcome this approach and if the principle were to be applied to other long-lived assets it would have the benefit of reducing the regulatory burden for both Ofgem and network companies.

6. We do not support enhanced ex post arrangements as they create uncertainty, disincentivise innovation, increase risk aversion and make us less attractive to investors, likely driving up financing costs and cost to consumers.

- See our response to question 5 for more information.
- It is important to recognise that there is already extensive ex post assessment in our current regulatory framework including detailed regulatory reporting packs, ex post evaluative price control deliverables, and the application of open book contracting for projects.

¹⁷ Ofgem. (2023). Appendix 4 of RIIO-2 Cyber Resilience Re-opener Application Methodology and Requirements v3

Simplification of RIIO-2

Elements to retain	Cost elements	Incentive elements	Regulatory funding elements
	<ul style="list-style-type: none"> Cost baseline setting Overall Efficiency Challenge Real Price Effects Indexation Licence Obligations (currently 4) Pass-through mechanism 	<ul style="list-style-type: none"> Totex sharing factor Output Delivery Incentives (ODIs) Return Adjustment Mechanisms (RAMs) 	<ul style="list-style-type: none"> WACC setting Financial structure and “building blocks” (i.e.PCFM) Network Innovation Allowance (NIA) Strategic Innovation Fund (SIF) Net Zero Use It Or Lose It (UIOL) Fund

Element to simplify	Proposed solution	Element to simplify	Proposed solution
Role of stakeholders	<ul style="list-style-type: none"> Provide more clarity on where/how the Consumer Challenge Group (CCG) / Independent User Group (IUG) feeds into Ofgem decision making. Clarify the role of consumers within the process, including sector specific application of consumer research 	Cost of debt	<ul style="list-style-type: none"> A clear and transparent process on how Cost of debt is to be calculated is needed - to reassure investors that indexation reflects current market dynamics as was done in ED2.
EJPs	<ul style="list-style-type: none"> A new resilience standard to trigger resilience investment need on the natural gas network will significantly cut time spent on developing EJPs / Need cases Higher materiality threshold for EJPs (per ENA gas network proposal) and more streamlined EJPs for BAU driven activities. i.e. legislative, resilience standard, risk driven [like asset condition] 	PCDs	<ul style="list-style-type: none"> Simplify PCD variants and set common design parameters like in ED2 – currently too many different possible treatments Simplify the assessment of efficiency ex post Set a reasonable mix of mechanistic and evaluative PCDs e.g. changes to DESNZ CNI list should trigger mechanistic PCD
Business planning	<ul style="list-style-type: none"> Fewer iterations, possibly make a one –shot game. At a minimum, the draft plan should be more streamlined/targeted (per ENA gas network proposal) Ofgem should publish and “lock down” the business plan guidance much earlier Apply a whole energy network planning approach (Common Planning Pathway) Business plans themselves can be simplified (e.g. reduce the number of chapters / components, keep cost categories at higher level, impose page limits etc) 	Business Plan Incentive	<ul style="list-style-type: none"> Greater proportionality of BP requirements and work with networks iteratively to deal with any perceived asymmetry over time.
Consumer Value Proposition	<ul style="list-style-type: none"> Clarification of requirements and expectations for CVPs Output of IUG, CCG can be used to set baseline for CVP reinforcing the need to strengthen the stakeholder process. 	Annual regulatory reporting	<ul style="list-style-type: none"> Reduce granularity of reporting where it can be done at a higher level and simplified
Cost allowances	<ul style="list-style-type: none"> Fewer levels of disaggregation i.e. simplify large buckets of costs. For example, to determine a baseline allowance via efficiency analysis, OPEX can be treated as a single overall category 	Uncertainty Mechanisms	<ul style="list-style-type: none"> Streamline the UM process through a combination of mechanistic & evaluative processes: <ul style="list-style-type: none"> Establish mechanistic process for lower value UMs Either automate or simplify the process for volume drivers for load related capex & opex Introduce new mechanism to trigger resilience investment need on the natural gas network Limit level of scrutiny to high value reopeners based on defined triggers to limit overall resource burden.

Fig. 4 High Level Approach to Simplification of RIIO Framework [Ex-ante Incentive Regulation] as part of wider package of measures

Question 5: What are the network activities where there would be benefits for a move to an ex-post monitoring regime, and what would be the associated costs?

Key Points

1. Ex post monitoring, with unpredictable future cost allowances, discourages innovation, creates risk aversion, and makes networks a less attractive investment proposition; thus driving up investment and financing costs.
2. This is likely to lead to a worse outcome for consumers in the sense that overall costs will be higher than a counterfactual with stronger efficiency incentives.
3. The overhead of ex-post regulation should not be underestimated, as it shifts the burden from ex-ante to ex-post and can impact revenue charging.
4. For repeatable, risk/policy/legislative-driven activities, ex post monitoring would not introduce benefits when compared to ex ante incentivisation.
5. For One-Off activities (not strategic in nature, but also not entirely repeatable) we recognise there are more complexities associated with identifying a needs case and ensuring cost confidence.

Full Response

1. **Ex post monitoring, with unpredictable future cost allowances, discourages innovation, creates risk aversion, and makes networks a less attractive investment proposition; thus, driving up investment and financing costs.**
 - As we stated in our response to Q4, we urge caution with regards to movement to an enhanced ex-post regulatory landscape. Lack of predictability of future cost allowances creates uncertainty, disincentivises innovation and creates risk aversion in delivery. It is likely to drive up costs in financing and delivering investment. The ability to retain benefits relating to innovation and efficiency throughout the price control encourages companies to implement ideas with a greater payback period and be more radical in their thinking. At a time when we need greater investment at pace and more innovation, we need to ensure the framework does not constrain this. There would also be an increase in workload associated with continuous management of an ex-post regime, including enduring value true ups and revenue charging impacts.
 - For gas transmission, as a sector of one, there is a lack of comparable networks which make effectively calibrating performance across companies impossible for many cost activities. This means any proposed form of comparative ex-post structure cannot be considered for large parts of gas transmission cost categories.

5. For One-Off activities (not strategic or uncertain in nature, but also not entirely repeatable) we recognise there are more complexities associated with identifying a needs case and ensuring cost confidence.

- The Freedom and accountability archetype offers the most comprehensive ex post structure and could be suitable for activities where costs are highly uncertain ex ante or there is optionality with regards to how best to deliver the necessary outcomes for consumers. We can recognise that this could reduce the regulatory resource burden up-front – but arguably this is shifted to the close-out process.
- Even for more complex activities we have concerns that enhanced ex post monitoring is likely to lead to a worse outcome for consumers in the sense that overall costs will be higher than a counterfactual with stronger efficiency incentives. As a network company it also introduces higher asymmetric risk (very limited upside, downside risk only) at least until Ofgem have established an ex-post process that sufficiently protects investors and balances the risks and reward between networks and consumers. This, in its own right, will drive up costs to consumers.
- We do not agree with Ofgem’s sentiments in 3.36 that this archetype might be “suited to situations where there are many small incremental projects for which ex ante benchmarking and cost assessment are idiosyncratic but in which monitoring of outputs and outcomes might be relatively easy”. Gas transmission, as a sector of one, is unique and has naturally had a high volume of ex-post review commitments across nearly all of our PCDs which themselves are bespoke and evaluative and we do not see how this approach will drive any further simplifications without increasing the balance of risk towards the networks.
- Should enhanced ex post monitoring be applied it must be used sparingly and in specific instances. It should have very clear parameters against which the ex-post assessment will be undertaken and, as Ofgem indicates in the consultation, this must be light touch, so the burden of regulatory oversight is not just shifted from ex-ante to ex-post. It should be coupled with an appropriate and fixed cost of capital to reduce the level of risk network companies are exposed to, thereby keeping costs down for consumers.
- In those instances where ex-post allowances with clear parameters are set for highly uncertain cost categories, ex-ante should still be possible as these areas mature. For example, for NGT, building of cost evidence for areas like compressor emissions, cyber and asset health has matured during RIIO-1 and RIIO-2, so there should be high confidence to set ex-ante allowances for these areas.

Question 6: What are the benefits and costs of this approach for Electricity Transmission by comparison to an evolution of the approach in RII0-2, and what are the implementation barriers?

No response

Question 7: What is the potential for Electricity Distribution planning and commissioning to move to an alternative model by the end of RII0-2, and what might be the benefits and costs of doing so?

No response

Question 8: What is your view on the most effective approach to regulation of Gas Distribution and Transmission beyond RIIO-2? What would be the benefits and costs of moving to a simpler approach to regulation of the ongoing costs of operating and maintaining the network?

Key Points

1. Gas transmission as a sector faces a number of unique challenges and opportunities when compared to all other sectors (including gas distribution). This lends itself to unique considerations in terms of optimal model.
2. We broadly welcome that the consultation recognises the difference between BAU and more strategic and uncertain investment activities that enable whole system optimisation.
3. We broadly support Ofgem's desire to drive simplicity across BAU activities – recognising that a significant proportion of our activities can be planned for and executed with a high degree of confidence.
4. An evolution of the RIIO framework for Business as Usual (BAU) activities (including One Off) will retain the richness of benefits to consumers associated with the framework, whilst maintaining stability to help keep costs low.
5. The principle of 'Plan and Deliver' in archetype 1 for anticipatory or uncertain activities is positive; a more agile, whole system approach is needed to unlock at pace, strategic investment for net zero. The specific split of accountabilities within this needs careful consideration for the gas transmission network.
6. A full range of cost control models are applied through the existing regulatory framework, including ex ante regulation and competitive tendering. This optionality should be maintained under 'Plan and Deliver' arrangements to optimise efficiency, innovation, and pace in delivery.
7. Interim arrangements are needed ahead of FSO being established and up to full capability.
8. For gas transmission, significant value can be derived for consumers and society by combining natural gas and hydrogen investment in a single regulatory framework.

Full Response

1. Gas transmission as a sector faces a number of unique challenges and opportunities when compared to all other sectors (including gas distribution). This lends itself to unique considerations in terms of optimal model.

- Delivering the right level of resilience for the natural gas network will ensure we can manage energy security, regardless of how we progress to net zero. There is a need to ensure the right investment levels to maintain and replace the assets we have today and, as the use of the network evolves, there is a need to build the resilience levels to match supply and demand patterns consumers depend on. Alongside this, we will need to repurpose the natural gas network to enable the timely and efficient delivery of a hydrogen backbone.
- For gas transmission we need to ensure recognition is given to the critical role the network provides in energy security in having the infrastructure to move energy where it is needed at peak times. This includes taking a far wider view on the level of resilience needed and the benefits to all energy consumers of having a resilient network that is the only viable and economic power generation solution at these peak times; decoupled from the potential decline in annual demand.
- There are specificities associated with providing the service consumers need from our network which means the optimal model for our individual sector will be unique.
- A significant proportion of our activities can be considered as BAU given they can be planned for and executed with a high degree of certainty and cost confidence, where there is certainty over the needs of our customers and stakeholders and/or the activity is driven by policy, standard, legislative or risk-based requirements.
- Transformative activities will be centred around optimising the natural gas network, including repurposing of the natural gas network to deliver cost saving benefits, instead of being burdened with hydrogen network new build costs or natural gas network decommissioning costs. However, there will be instances where decommissioning and some potential new build could also be part of the required activity. We need to ensure decisions taken on the natural gas network today do not close down options for potential future hydrogen transformation activities.
- The framework needs to consider the longer-term life cycle challenges associated with a reducing natural gas user base: stranding, decommissioning and the potential need to maintain service at extremities of the network. And how this can best be balanced by considering financeability across natural gas and hydrogen investments.
- The gas network, unlike electricity, sees integrated ownership and operation, given that operation of the network is inherently an asset activity (not market). This brings with it a unique role for NGT in terms of enduring planning and design accountabilities.
- It is also important to recognise that gas transmission is a sector of one, so lacks comparability to other GB networks which can open up a number of alternative options for other sectors.

2. We broadly welcome that the consultation recognises the difference between BAU and more strategic investment activities that enables whole system optimisation

- We welcome the principle of distinguishing between BAU activities and those of a transformative or strategic nature that are faced with greater uncertainty and linked to whole system planning activities the FSO will undertake.

- The framework needs to be adaptable to consider which elements of network activity are subject to major uncertainty and what the likely triggers of change are.
- The definition of what is BAU Vs uncertain/transformational activities should be aligned closely with the desired regulatory outcome for consumers. For example, those categorised as BAU the drive should be for simplicity to reduce regulatory burden and enable scope for companies to innovate and drive efficiencies across core activities. In contrast, the more adaptable framework should be applied to those activities subject to major uncertainty.
- The lack of a definition for these distinct activities can lead to varied interpretations, however, we have provided a clear and well-reasoned explanation based on Ofgem's example models on what we believe would be optimal for gas transmission, our stakeholders, and consumers (see **Figure 5, Appendix 1.1**). Within this we have identified the categories of activity we think would be suitable for each regulatory approach.
- There is a need to take a step back and determine clear principles for how we apply different regulatory archetypes across the framework to minimise the risk of unintended consequences and enable clarity and regulatory stability. Equally, the practicalities and realities of applying these archetypes needs to be given serious consideration to optimise value for consumers. Networks will need time to embed and adapt to changes to the existing framework. The regulatory burden that is driven by refining cost control mechanisms should not be underestimated.

3. We broadly support Ofgem's desire to drive simplicity across BAU activities - recognising that a significant proportion of our activities can be planned for and executed with a high degree of confidence.

- The benefits of this are clear: reduced resource burden across industry, the regulator and the networks; greater scope for the networks to act in an agile way, searching for and adopting innovation that benefits consumers, rather than being tied into over-specified delivery requirements; reducing risk of retrospective ex-post interventions; and minimising the unintended consequences associated with an overly complex model that drives behaviour and resource (both in the networks and within Ofgem) away from value-adding activity.
- In some targeted areas, setting ex ante cost allowances can be challenging, and genuine uncertainty exists. In such circumstances, more granular intervention by Ofgem may be merited to protect customer interests.
- Ofgem needs to think carefully about which parts of the price control require more complex arrangements to benefit customers. We would not support an outcome where all three archetypes (and indeed, various sub-options within each archetype) are applied to many different parts of our cost base. In our view, this outcome would only increase complexity vs. RII0-2 and further formalise the downsides for consumers and investors.

4. An evolution of the RII0 framework for Business as Usual (BAU) activities will retain the richness of benefits to consumers associated with the framework, whilst maintaining stability to help keep costs low.

- For activities with certainty, a longer price control can provide scope for innovation and drive efficiencies. Measures such as digitalisation and an evolving approach to risk can make the evolution of RIIO more effective.
 - In our response to Q4 we provide a range of improvements to the RIIO framework which we believe will enhance consumer value. These include process and practicality improvements such as streamlining PCDs as well as more substantial improvements such as digitalisation and planning to a recognised resilience standard.
 - We don't believe a strong case has been made for a more fundamental shift away from the RIIO framework for activities described as BAU.
 - Maintaining an ex-ante approach has benefits over ex-post regulation, which is rife with intervention, creating risk as money is spent and driving cost up to consumers. Unpredictable future cost allowances create uncertainty, disincentivises innovation, increase risk aversion in delivery, and make us less attractive to investors, driving up costs of financing and delivering investment. Ex-post benchmarking would not work in gas transmission as a sector of one, as identified in the consultation.
- 5. The principle of 'Plan and Deliver' in archetype 1 for anticipatory or uncertain activities is positive; a more agile, whole system approach is needed to unlock at pace, strategic investment for net zero. The specific split of accountabilities within this needs careful consideration for the gas transmission network.**
- A smart combination of gas and electricity assets in an integrated energy system will minimise consumer disruption and deliver the optimum pathway to net zero.
 - In our previous response to Ofgem's Open Letter on the Future Systems Network Regulation, we provided some evidence supporting the case for integrated infrastructure planning¹⁸ across electricity and gas which could significantly facilitate a cost-effective transition to net-zero, particularly recognising the gas sector currently caters for a substantially significant portion of today's UK energy demand and can provide energy system savings up to £38 billion by 2050.
 - Net zero cannot be achieved without hydrogen due to the whole energy system role it performs across power generation, storage, industrial decarbonisation, transport and beyond to heat. The recent study by Guidehouse concluded that strategically located investments in hydrogen transmission infrastructure are needed in the next decade to deliver the benefits of integrated system planning. Taking decisions promptly will allow for better network integration. Therefore, whilst we recognise hydrogen is out of scope in this consultation, it must form an integral part of whole system thinking and planning.
 - The agile approach envisaged under 'Plan and Deliver' must enable a pathway through uncertainty to be navigated that isn't overly prescriptive, doesn't prevent flexible and innovative approaches to delivery, does not delay the required investment and delivers security of supply, affordability and net zero. This requires a combination of options to leverage the opportunity to make decisions in the future and enable action to be taken now if it delivers value to society, even if uncertainty means that the future unfolds differently.

¹⁸ Guidehouse (2023), GETIO: [Gas and Electricity Transmission Infrastructure Outlook 2050 \(nationalgas.com\)](https://nationalgas.com/getio)

- As outlined earlier in this question, there are specificities to be taken into account, which makes gas transmission unique and therefore how accountabilities are applied in this model need unique consideration for the gas transmission sector. This specifically includes the need for NGT to have an ongoing role in planning and design across all the activities of new build, repurposing, and long-term decommissioning. We justify this in detail in our response to Q2.
- 6. A full range of cost control models are applied through the existing regulatory framework, including ex ante regulation and competitive tendering. This optionality should be maintained under ‘Plan and Deliver’ arrangements to optimise efficiency, innovation and pace in delivery.**
- In our response to Q4 we consider the different cost control models proposed under ‘Plan and Deliver’. In reality, many of these models are applied within the existing regulatory framework and cost control must remain flexible to enable investment at the pace necessary to deliver net zero.
 - RIIO has been adapted overtime in a carefully calibrated manner to ensure that it delivers a stable and predictable framework that continues to drive investment and innovation while ensuring that networks operate efficiently, and consumers get good value for money. Improvements to the current framework as we have suggested should continue to remain a very credible option.
- 7. Interim arrangements are needed ahead of FSO being established and up to full capability.**
- There is value in optimising. Ensuring all the transmission price controls continue the same timetable seems reasonable as first step towards whole system planning to enable that optimisation.
 - We believe that interim arrangements are needed ahead of the FSO being established. We are developing a whole energy network planning approach called a Common Planning Pathway which will involve all networks across gas and electricity and is centred around deterministic modelling to establish what investments are needed to provide necessary levels of energy security and we cover this in more detail in our response to question 2. We believe this will support interim arrangements whilst the FSO is being established and full capability enabled.
- 8. For gas transmission, significant value can be derived for consumers and society by combining natural gas and hydrogen investment in a single regulatory framework.**
- There is an opportunity to consider financeability (and bill profile) across natural gas and hydrogen investments. The strength of natural gas financeability would absorb the initial standalone market and financing challenges for hydrogen that arise from high upfront costs and low early user base. This should support a lower risk / lower return landscape than alternatives.
 - Any future price control framework will need to move away from the current short-term focus on immediate energy bill impacts and should seek to unlock strategic investments across whole energy system (gas and electricity networks), that ensures networks play a

transformational role, delivers longer-term benefits to the bill payer and economic growth, in a way that is equitable and ensures intergenerational fairness. For the gas network, it is important to consider the longer-term life cycle challenges associated with a reducing natural gas user base: stranding and decommissioning.

- There is substantial unrecovered historical investment and a need to continue to invest to provide the energy security and network resilience. Coupled with a reducing user base, this points to an upwards bill trajectory without intervention. Managing and mitigating future stranding and decommissioning risks requires looking further ahead, but with a need to act now.
- When looking at natural gas investment in isolation through a “steady state” lens, financeability is unlikely to appear as a constraint in the next price control period. However, looking further ahead, changes in the landscape will start to erode revenue recovery certainty and adversely affect the financeability perception. It is therefore important that both bill impacts and financeability are considered with a longer-term lens, and cognisant of the impacts of system transformation on the user base.
- Absent a hydrogen future, the outlook for gas network bill profiles and financeability would look challenging. Network conversion to hydrogen can directly mitigate these life cycle risks through repurposing and the fair value transfer of assets between natural gas and hydrogen RABs.
- Ofgem’s position on its remit with regard to hydrogen in the next review period is clear. However, we think it is important that the framework is cognisant of the transactional effects of hydrogen conversion, and that there is architecture in place which supports the transparent and objective allocation of costs, benefits, and risks between current and future network users. Careful and deliberate consideration is also needed with regards to the risk level on the natural gas network as assets are released for repurposing.
- An approach to determining asset transfer value will be needed to facilitate repurposing of natural gas assets for hydrogen – this is technically complex, but it is clear that the approach should ensure that any transfer results in a corresponding reduction to the natural gas RAB and that investors are not paid twice for the same asset. It is also critical that the approach ensures that the benefits of repurposing are preserved.
- Given the uncertainties and complexities associated with the energy transition, it is important that there is clear transparency of investments across energy vectors, as this will support the most fair and objective intergenerational cost allocation (which could include socialisation across energy vectors if this is deemed appropriate).
- **We will submit more detail of our analysis which underpins this by separate cover.**

Overall conclusion on a preferred model for gas transmission – See Appendix 1.1 for more information.

Activity		Preferred model	Roles within archetype	
Replacement / BAU <i>Repeatable and One Off</i> <i>*such as our existing RIIIO-2 funded decomm activities</i>	<ul style="list-style-type: none"> • Replacement • Maintenance inspection • Remediation • General asset health • Short-term decomm* • Hydrogen ready • Predictable OPEX • IT refresh 	AC2: ‘evolution of RIIIO’ <ul style="list-style-type: none"> • Maintain benefits to consumers of incentive based regulation and stability, but introduce improvements and simplification • Resilience standard would ensure planning to appropriate level • An agreed pathway to plan against should be utilised (an evolution of FES) • Simplifications to include streamlining of Ums, PCDs, reporting requirements 	Interim planning	NGT/Ofgem
			Plan	NGT/Ofgem
			Design	NGT/Ofgem
			Procure and Deliver	NGT
			Maintain [and operate]	NGT
			Review	Ofgem
Decommissioning/ repurposing And New build	<ul style="list-style-type: none"> • Long-term decommissioning (pathway dependent) • Repurposing natural gas assets for alternative use • New build methane infrastructure • New Hydrogen infrastructure Investments 	AC1: ‘Plan and Deliver’ <ul style="list-style-type: none"> • Optimisation across assets rather than building significant volumes of new assets remains a core part of NGT’s role. • Interim arrangements needed ahead of FSO being up to full capability. This should be agreed and developed across NGT/ESO/Ofgem/DESNZ; adopting the Common Planning Pathways work as a toolkit • Digitalisation will lay the foundation for cross vector modelling to supporting whole systems planning led investments • All cost control options should be available; optimal route identified on a project specific basis (as happens today) based on principles established up front • Principles to apply to hydrogen once business model in place 	Interim planning	NGT and ESO, Ofgem/DESNZ
			Plan	FSO/NGT
			Design	FSO/Ofgem/NGT
			Procure and Deliver	Full range of cost control models with individual project assessment
			Maintain [and operate]	NGT
			Review	NGT, FSO, Ofgem

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Fig. 5: Simplified version of roles within the archetypes but the specifics will take some time to develop as we have indicated elsewhere in our response.

****Operate** – This activity needs to be recognised (not included in consultation figure 6)

Interim planning will be needed so we have added this as a role

The detailed accountabilities within each role needs careful consideration

Question 9: Should there be a shorter-term price control in gas distribution and/or gas transmission, and how could this work in practice?

Key Points

1. We support Ofgem's initial view to maintain the existing cycle for gas transmission rather than rolling over for 2 years.
2. Maintaining alignment across Transmission will enable development of a whole transmission-level view to facilitate the optimal network infrastructure to meet net zero - recognising the early role envisaged for Gas Strategic Network Planning at transmission level.
3. The need for a large scale, integrated hydrogen network is not contingent on future policy decisions on heat – so the uncertainty Ofgem presents is not relevant for the initial repurposing activity we need to progress.
4. In the case of a rollover, the focus must be in a simple and light touch approach.
5. We believe that the gas/electricity transmission sector grouping should be limited to price control cycles as each sector faces different challenges. Sector specificities need to be reflected in the framework (including cost of capital).

Full Response

1. We support Ofgem's initial view to maintain the existing cycle for gas transmission rather than rolling over for 2 years.
2. Maintaining alignment across Transmission will enable development of a whole transmission-level view to facilitate the optimal network infrastructure to meet net zero - recognising the early role envisaged for Gas Strategic Network Planning at transmission level.
 - There are significant benefits for consumers and society through taking forward integrated planning across electricity and natural gas. We recognise the early role for Gas Strategic Network Planning at transmission level. And support the ongoing alignment of the transmission sectors to enable early adoption of integrated planning.
 - It should be recognised that the gas transmission network faces very different challenges from electricity networks and to address them any future strategic planning framework must recognise these distinct challenges.
 - For example, the significant investment needs in electricity networks are driven by increasing constraint costs resulting from the integration of variable renewable generation while the future of gas networks will depend on finding a balance between protecting consumer interests and transitioning to a net-zero carbon future.

- This means that the assumptions and parameters for identifying investment needs and assessment of options will be different but will also need to be more reflective of the natural gas network users / stakeholders and consumers who pay the bills.
 - By maintaining the existing cycles between gas and electricity transmission, it lays the foundations for whole energy system planning and supports a more effective transitioning as the FSO develops the capability for multi-vector planning at scale.
 - We have started developing our thinking on an appropriate Common Planning Pathway (CPP) for the gas sector and we welcome Ofgem’s engagement with us in developing a toolkit, in parallel to the Electricity Centralised Strategic Network Plan (CSNP), until the FSO assumes the role of a whole energy system strategic planner. This will ensure that the outcome of both gas and electricity network plans consider the needs within and across sectors.
- 3. The need for a large scale, integrated hydrogen network is not contingent on future policy decisions on heat – so the uncertainty Ofgem presents is not relevant for the initial repurposing activity we need to progress.**
- We note that Ofgem has identified two large uncertainties facing the sector, namely what scale and type of hydrogen conversion to plan for and what heating decarbonisation solutions to envisage on what timetable.
 - The UK Government has indicated that it will make strategic decisions on the role of hydrogen in heating by 2026, but this will only be relevant to the future trajectory of the gas network where it relates to domestic heating solutions.
 - The same document indicates the UK Government’s position, that it *“does not anticipate that the overall need for a large, integrated, and resilient hydrogen transport and storage network will be critically contingent on decisions and developments around hydrogen use in heating, especially given hydrogen’s wider value for flexibility and as a storage solution”*.²⁰
 - We recognise this broad consensus that a large, integrated, and resilient hydrogen network will be needed to support the future hydrogen market regardless of whether hydrogen is used for heating. The early stages of repurposing the natural gas network will be to facilitate transportation from production/storage to industry and power generation, so the uncertainty specified within the consultation is not relevant to the initial repurposing activity we need to progress (we recognise that it is relevant for aspects of further roll-out of the hydrogen transmission network).
 - However, we also note Ofgem’s position that hydrogen is not in scope of the current consultation, but a future framework must be at least cognisant of key policy decisions that sits on its critical path.
- 4. In the case of a rollover, the focus must be in a simple and light touch approach.**
- A 2-year price control rollover could lead to significant regulatory and resource challenges in the medium term, if networks are required to submit another business plan in the 2 years

²⁰ Hydrogen transport and storage infrastructure (2022): [Hydrogen transport and storage infrastructure: consultation on business model designs, regulatory arrangements, strategic planning and the role of blending \(publishing.service.gov.uk\)](https://publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1154442/hydrogen-transport-and-storage-infrastructure-consultation-on-business-model-designs-regulatory-arrangements-strategic-planning-and-the-role-of-blending.pdf)

(by 2026) preceding the start of another price control period in 2028, in parallel to key Government decisions described.

- **BPI & Sharing Factor:** The current BPI incentive cannot simply be rolled over.
 - **OPEX needs to reflect new realities:** Operating costs may need to be adjusted to reflect our evolving role and current market dynamics. For example, the role of the FSO could drive up increased activities for networks and industry.
 - **NIA and SIF funding increase:** The UK government has set ambitious targets for the rollout of hydrogen and the role of gas in the pathway to net zero and in its recent Strategy & Policy Statement²¹, it recognises that *“Innovation funding allowed by Ofgem under the regulatory arrangements for networks has and will continue to be an important enabler of the necessary research and development”*, therefore the framework must continue to incentivise innovation with additional funding to support these targets.
 - **Cost of debt will need to be reviewed:** Cost of debt needs to be reviewed to reflect changes in the market and in the current operating environment.
 - **Complex PCDs** – A true-up mechanism will be needed to promote greater investment in longer lead-time projects and more complex PCDs, allowing us to receive additional compensation or adjust the regulatory framework to reflect changes in the cost or timeline for longer lead-time projects i.e. our cyber IT projects with longer-lead time.
 - **New uncertainty mechanisms (Ums):** There is a need to improve the efficiency of the current UMs regime to support investments at the pace that is needed.
 - **Other Key areas:** We worked with other Gas networks through the Energy Network Association (ENA) to identify 10 key areas where complexity in processes and regulatory burden can be greatly reduced and we shared this collective position with Ofgem in April 2023.
 - We have also assessed that the resource implications in the short to medium term are potentially quite significant when you consider business plan development and submission timelines in parallel to government policy developments which could trigger the implementation of new regulatory design. A roll-over could potentially introduce significant regulatory process burden with very little upside.
- 5. We believe that the gas/electricity transmission sector grouping should be limited to price control cycles as each sectors face different challenges. Sector specificities need to be reflected in the framework (including cost of capital).**
- We describe the specificities for gas transmission in some detail in our response to question 8. This means unique consideration is required for the framework applied, including distinct accountabilities given the intrinsic link between system ownership and operation.

²¹ DESNZ. (May 2023). Strategy & Policy Statement: [Strategy and Policy Statement for Energy Policy in Great Britain: consultation \(publishing.service.gov.uk\)](https://publishing.service.gov.uk/government/consultations/strategy-and-policy-statement-for-energy-policy-in-great-britain)

- In addition, the different nature of investment profile between gas and electricity transmission means that the financial framework needs unique consideration to ensure gas transmission is able to attract the necessary levels of investment to maintain and upgrade infrastructure, to ensure ongoing reliability and keep costs down for consumers. Gas transmission may need to be in a separate cost of capital grouping to reflect its unique risks and characteristics.
- It is essential that investors do not become less willing to invest in the gas transmission sector based on a perception that it has higher risks and lower potential returns due to being grouped with the electricity transmission sector.

Question 10: Would there need to be any changes to maintain a stable and consistent financial framework if we were to make greater use of different regulatory archetypes, and if so, what would those changes need to be?

Key Points

1. We see many benefits to the current financial framework which we would like to see retained in future.
2. In making any changes to the framework the impacts on different groups must be balanced, including long-term efficiency considerations as well as intergenerational fairness and short-term bill impacts.
3. While different archetypes and incentive mechanisms may be employed across different activities, we favour the simplicity of a single allowed return. Whole system considerations must be taken into account to maximise consumer efficiency outcomes, with risks balanced within and between investment types.
4. While we recognise the advantages of different archetypes being employed within a framework, it is critical to have clarity upfront on how these will be implemented in order to maintain investor confidence. There should be opportunities to perform under each archetype, thereby balancing company risks and driving optimal outcomes for stakeholders.
5. Allowed returns should be reviewed on a periodic basis given the criticality of this measure and the number of judgements involved in its calculation.
6. Given that activities under certain archetypes may not align neatly into set control periods, a rolling approach to financeability assessments may be more appropriate than 'one off' assessments in future.

Full Response

1. **There are many benefits to the current financial framework which would be beneficial to see retained in future.**
 - The current financial framework has evolved over time and been tested across different sectors. It is internationally recognised and well understood by both investors and stakeholder groups. This transparency and credibility has driven outcomes in keeping with Ofgem's duties to deliver value while ensuring companies are financeable both now and in future.

- Indexation of metrics allow the framework to respond relatively quickly to changing market conditions, with the surety of periodic review providing reassurance to investors, consumers, and other stakeholders that outcomes will be balanced.
- Additions and evolutions to the framework, such as the introduction of forecasting to allowed revenue calculations, have provided benefits to consumers and show the value of periodic methodological review.
- Since cost of equity is not observable, an inherent downside to any allowed return calculation will naturally be that an element of judgement is involved, arguably making this the most debated part of an allowed return. There are also questions around the relative validity of various cross checks to these numbers, and though we will not explore this in the current response it is important to recognise that evidence surrounding these specifics is likely to evolve both during and beyond the regulatory period.
- There is a cost in terms of resource and flexibility to current reporting requirements, felt by both network companies and the regulator. This should be taken into account when designing the future framework, which ever building blocks are selected as most appropriate.
- Transparency, predictability and simplicity must be at the heart of the framework. This is essential to ensure delivery at pace and the value of our current and future energy networks can be unlocked efficiently, whilst maintaining networks as an investable proposition. Significant changes and uncertainties in the framework are likely to be considered higher risk from an investment perspective and therefore cost more to finance, increasing costs to consumers.

2. In making any changes to the framework the impacts on different groups must be balanced, including long-term efficiency considerations as well as intergenerational fairness and short-term bill impacts.

- It is well recognised that due to the nature of the investments required in the energy sector, with significant up front outlay and long asset lives and investment recovery periods, returns must be attractive enough to draw investment given the relative level of investment risk. Stakeholder priorities must be balanced, with customer requirements taken into account in whole system planning, and the interests of consumers protected. There is little doubt that these must remain key pillars of the framework in the future.
- In light of the rapidly changing energy landscape in Great Britain there is however a powerful argument to move away from the current short-term focus on immediate energy bill impacts. A framework is needed which is able to unlock strategic investments across whole system, including gas and electricity networks. There is an opportunity for networks to play a transformational role, deliver longer-term benefits to the bill payer and economic growth, in a way that is equitable and ensures intergenerational fairness. A strong example of this is the potential impact that the introduction of hydrogen to the network would have on decisions surrounding repurposing and decommissioning.
- There is a significant risk that short-term approach to taking decisions could be detrimental and cost consumers more in the longer term, should holistic policy agreements and associated frameworks across natural gas and hydrogen not be in place. There would

be benefits here to co-managing potential natural gas and hydrogen investments which would support addressing system transformation life cycle issues advantageously for all groups.

- It is agreed that networks must remain financially resilient and able to raise attractively priced capital. Part of this consideration must also be the level of resilience and risk built into scenarios, whether these be macroeconomic or different investment profiles. Sufficient headroom must be allowed for system shocks to protect the interests of all stakeholders, in both notional and actual companies.

3. While different archetypes and incentive mechanisms may be employed across different activities, we favour the simplicity of a single allowed return. Whole system considerations must be taken into account to maximise consumer efficiency outcomes, with risks balanced within and between investment types.

- The current RIIO framework is in many ways a building blocks model, with a range of mechanics consistent with elements of the proposed archetypes employed across price control deliverables, uncertainty mechanisms and incentives. The prevailing framework implies that the risk level is common across the sector, suggesting that historically exposure to systematic risk has been equal between electricity and gas.
 - Over time the landscape has shifted. Given the timing of government decisions surrounding the future of both natural gas and hydrogen, a non-diversifiable risk the electricity sector has far less exposure to, it is arguable that we now see a divergence in these risk levels. Issues around stranded assets and the potential impact on natural gas consumers in particular must be addressed, ideally through the creation of an integrated framework between gas types with the potential for asset transfers. If this is not resolved the relative risk of gas businesses will continue to increase.
 - It is difficult to see that different investment profiles inherently warrant different allowed returns, or that these should necessarily be compensated for differentially. The introduction of different returns for different plan elements would by definition increase complexity, both of calculation and in future rate of return discussions. It is difficult to see a compelling case for this where one of the aims of the framework changes is simplification.
 - The ASTI framework provides an interesting example of where networks have been given a high level of certainty around their future investment profile, with time-based incentives ensuring consumer value but no additional risk allowance provided for operational risk borne by the companies, in keeping with economic theory. However, financeability remains critical, and careful consideration must be given to how new investment could impact notional and actual companies.
 - The reality for network companies is that debt is highly unlikely to be raised for an activity in isolation, it will be raised for the company as a whole based on an overall investment and risk profile. A financial framework that recognises and reflects this reality therefore makes logical sense.
- 4. While we recognise the advantages of different archetypes being employed within a framework, it is critical to have clarity upfront on how these will be implemented in order to maintain investor confidence. There should be opportunities to perform under each**

archetype, thereby balancing company risks and driving optimal outcomes for stakeholders.

- Considering the different archetypes proposed we note that there are wide ranges of options within each, which would alter the potential level of risk and therefore impact investor confidence. However, it may be possible to mitigate these impacts in some instances through clarity on how the archetypes were to be implemented, and through reassurance in each area that performance would remain possible. Given these caveats we are not averse to the use of a mixture of archetypes across business plans, with appropriate treatment bringing relative risks of the different approaches in line overall.
- Rules around how the archetypes are implemented are key in ensuring reasonable certainty for investors, and therefore value for consumers. Without such rules and certainty ex post options, as suggested under archetype 3, could potentially be much riskier for network companies than other options and may therefore prove difficult to raise investment against.

5. Allowed returns should be reviewed on a periodic basis given the criticality of this measure and the number of judgements involved in its calculation.

- Looking back across the evolution of the current financial framework, we note that measures employed in RIIO-2 and those in RIIO-1 looked significantly different. While we do not set out to explore these in detail here, the very fact that there was such variation demonstrates the importance of regular reviews for both companies and consumers as new information and changes in understanding come to light.
- More recently, given the volatility of the markets over the past 18 months, different instrument and adjustments were selected to determine Cost of Debt in ED2 versus what was seen in RIIO-T2 final determinations. This suggests that even given the addition of indexation, a review process for future mechanisms provides additional benefits as new information comes to light.
- Given that Ofgem's view was that the RIIO-1 period of eight years was too long, even with a mid-period review, the current 5-year period continues to appear appropriate in the round even though regular reviews have become part of "fixed" review periods today. We believe that a rolling approach to the framework, with triggers and opportunities to reconsider metrics as new evidence comes to light, may be more appropriate in a dynamic and responsive environment.
- Should there be a period of long-term stability in the markets with no material movements, we see potential for certain elements of the framework to be set for longer periods. The more efficient nature of this approach is appealing, though it is critical that options remain open to reasonable challenge and discussion as necessary, with drivers for review built into the system. Any approach must also be subject to appropriate resilience stress testing.

6. Given that activities under certain archetypes may not align neatly into set control periods, a rolling approach to financeability assessments may be more appropriate than 'one off' assessments in future.

- Should a number of archetypes be adopted across the different activities of a business it may become more appropriate that a more flexible approach to reviewing financeability be adopted. For example, a core baseline of BAU activity could be agreed for a period of time under Archetype 2, with significant additional investment being put in place under Archetype 1 in a different time period.
- While in isolation the investment profiles may be financeable, it is important to test them in combination to ensure that the notional and actual companies overall remain resilient. It also remains important that even where elements may remain fixed for longer, the system retains enough flexibility to change as customer requirements shift.
- There are already elements of company plans which do not align with five-year control periods, for example cyber spend within the NGT plan, and the creation of the ASTI funding framework outside of the usual timetable. In the latter case, Ofgem used work undertaken for the RIIO-2 final determinations to demonstrate that the additional investment required should not cause companies an issue, with a full financeability review to be undertaken for RIIO-3.
- An option to assess financial resilience on an ongoing basis, including the forward-looking view, could be an extension to the current RRP and RFPR process.
- It is notable that credit rating agencies apply significant weight to the properties of a mature regulatory framework that underpins gas network cash flows, looking favourably on the revenue and investment recovery certainty, stability and predictability that this provides. This low-risk investment landscape helps to keep financing costs at an efficient level. Financeability is unlikely to be a constraining factor in the next price control period, but the prospect of a reducing consumer base will start to erode the revenue surety, without intervention.

Question 11: Do you have any views on our proposed analytical approach?

Key Points

1. It is helpful to see the consumer interest framework which Ofgem propose to apply when undertaking the impact assessment.
2. We believe the consumer interest framework captures the spectrum of consumer interests which networks needs to facilitate – across resilience, affordability and net zero. The balance and weighting across these points must be carefully considered to enable a more holistic view of the overall costs and benefits of network activities.
3. We note that the ability to attract sufficient long-term investment to deliver consumer interests is included within the context of resilience. As we look to the investment needed in networks to maintain resilience and enable the transition to net zero, it is essential that Ofgem ensure networks are financeable and investable.
4. It is important also to recognise that when considering what is needed from a regulatory framework, regulatory burden and practicality must also be taken into account.
5. We have applied the framework in our own assessment of the archetypes proposed, the output of which is reflected in our response.
6. The proposed counterfactual for Ofgem’s assessment is “RIIO-2 approach”, potentially with some incremental improvements introduced although these are not specified. We consider the optimal model for gas transmission to be simplification of the RIIO framework.

Appendix

Appendix 1.1

Overall conclusion on a preferred model for gas transmission; may include:

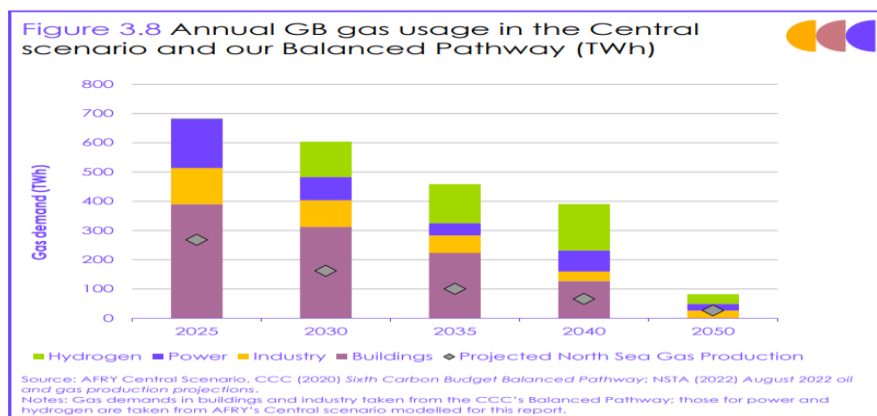
Activity		Preferred model	Roles within archetype	
Replacement / BAU Repeatable and One Off *such as our existing RIIO-2 funded decomm activities	<ul style="list-style-type: none"> Replacement Maintenance inspection Remediation General asset health Short-term decomm* Hydrogen ready Predictable OPEX IT refresh 	AC2: 'evolution of RIIO' <ul style="list-style-type: none"> Maintain benefits to consumers of incentive based regulation and stability, but introduce improvements and simplification Resilience standard would ensure planning to appropriate level An agreed pathway to plan against should be utilised (an evolution of FES) Simplifications to include streamlining of Ums, PCDs, reporting requirements 	Interim planning	NGT/Ofgem
			Plan	NGT/Ofgem
			Design	NGT/Ofgem
			Procure and Deliver	NGT
			Maintain [and operate]	NGT
			Review	Ofgem
Decommissioning/ repurposing And New build	<ul style="list-style-type: none"> Long-term decommissioning (pathway dependent) Repurposing natural gas assets for alternative use New build methane infrastructure New Hydrogen infrastructure Investments 	AC1: 'Plan and Deliver' <ul style="list-style-type: none"> Optimisation across assets rather than building significant volumes of new assets remains a core part of NGT's role. Interim arrangements needed ahead of FSO being up to full capability. This should be agreed and developed across NGT/ESO/Ofgem/DESNZ; adopting the Common Planning Pathways work as a toolkit Digitalisation will lay the foundation for cross vector modelling to supporting whole systems planning led investments All cost control options should be available; optimal route identified on a project specific basis (as happens today) based on principles established up front Principles to apply to hydrogen once business model in place 	Interim planning	NGT and ESO, Ofgem/DESNZ
			Plan	FSO/NGT
			Design	FSO/Ofgem/NGT
			Procure and Deliver	Full range of cost control models with individual project assessment
			Maintain [and operate]	NGT
			Review	NGT, FSO, Ofgem

Replacement / BAU activities [Archetype 2 – Simplified Incentive Regulation]

- We believe that the definition and categorisation of Business-as-usual [BAU] activities should fundamentally be driven by how those activities will be regulated rather than a simple theoretical definition. For example, not every activity that is theoretically considered as BAU is suited to a specific regulatory Archetype i.e., some “theoretically non-BAU activities” may not be appropriate to the application of a “Plan and Deliver” model in the way that it has been described in this consultation.
- Across our core functions, for activities that are risk based, legislative driven, run the business (not transformative), we would consider such activities as BAU where we believe that there is no value in having inconsistent regulatory treatment.
- We view BAU activities as both capital expenditure that is a result of key drivers like the need to maintain a high standard of asset health and supporting infrastructure, the need to manage constraints on the network, activities driven by legislation and direct customer needs in addition to operational expenditure with a high degree of predictability driven by the need to ensure a sustainable level of headcount required to both maintain business resilience and operate the network in a safe and efficient manner.
- A high proportion of our activity can be characterised in this way, therefore it is important to ensure that the framework continues to provide stability and predictability for investors in how such activities will be treated. Such activities are where the focus should be with regards to ensuring proportionate regulatory treatment by simplifying the process.
- We broadly agree** with sticking to an ex-ante incentive model [Archetype 2] for BAU activities. Such activities have greater certainty, stability, and relevance of information from one period to the next, as well as the limited pace of network change which can also keep costs down for consumers.

Decommissioning / Repurposing [Archetype 1 – Plan & Deliver]

- It is clear from Ofgem’s assessment in 2.12 that the case for decommissioning or repurposing of gas network infrastructure is in large parts driven by Climate Change Committee (CCC) projections that natural gas usage is likely to decline by 40 -60%²² between 2020 and 2035 across several modelling scenarios, However, **NGT has to plan for “Peak Demand” on the network including in scenarios where Gas demand could remain high²³.**
- It is essential that recognition is given to the critical role the network provides in energy security in having the infrastructure to move energy where it is needed at peak times. This includes taking a far wider view on the level of resilience needed and the benefits to all energy consumers of having a resilient network that is the only viable and economic power generation solution at these peak times and decoupled from a potential decline in annual demand.
- We also caution that a more recent CCC report²⁴ on delivering a decarbonised power system, provides a more accurate picture of annual demand trajectory. In the CCC’s assessment, natural gas pipelines should be repurposed to hydrogen in order to reduce costs and prevent stranded assets, and *“(across power and hydrogen), there will still be a significant requirement for gas in 2035 for use with carbon capture and storage (CCS), across some combination of post-combustion gas power plants and blue hydrogen production”*.



- In the same vein, the uncertainty within the gas sector is in part driven by the level of policy maturity on hydrogen with the overwhelming balance of evidence including from the latest CCC report suggesting that gas network repurposing will provide a cost-effective pathway in the transition to net zero and can “save 50-80% of the costs of building new pipelines”²⁵.
- There is a unique opportunity to ensure that a “future systems network regulation” is truly future proof for the role that hydrogen will play and the benefits it will have for natural gas network users, and we have set out some key reasons why it cannot simply be dismissed in serious considerations of a future regulatory architecture.
 - For an initial hydrogen backbone to be in place by the early 2030s, hydrogen capital expenditure [CAPEX] must start in 2026 [the same time as the new price control].
 - The FSO will come into place in 2024 and will not be set up or have the capabilities to plan for the gas networks decommissioning and repurposing needs before 2026/2027 regulatory

²² CCC. (December 2020). 6th Carbon Budget – Gas demand decline from 920Twh in 2020 to 470Twh in 2035 in the balanced pathway

²³ FES. (2022). FI.5 tab: <https://www.nationalgrideso.com/document/263876/download>

²⁴ CCC. (March 2023). Delivering a reliable decarbonised power system – Gas demand decline from 952Twh in 2025 to 559 Twh in 2035 in the balanced pathway.: [Delivering-a-reliable-decarbonised-power-system.pdf\(theccc.org.uk\)](https://www.theccc.org.uk/publications/delivering-a-reliable-decarbonised-power-system/) –

²⁵ International Energy Agency [IEA]. (2022). Global Hydrogen Review: [Global Hydrogen Review 2022 \(windows.net\)](https://www.iea.org/reports/global-hydrogen-review-2022).

period, with the Centralised Strategic Network Plan [CSNP] likely to be electricity focused in the early years.

- Net Zero cannot be achieved without a coherent system plan for a sector that caters for a substantially significant part of UK energy demand.
- An interim system planner with comparable capabilities will need to fill an interim role for the gas sector, until the FSO has built the required level of multi-vector capability (natural gas and hydrogen).
- For gas transmission, significant value can be derived for consumers and society by combining natural gas and hydrogen investment in a single regulatory framework.
- We also believe that there is a strong case for splitting decommissioning activity between Archetype 1 & Archetype 2. For example, where decommissioning activity is driven by asset condition or health, it is the responsibility of the asset manager to identify what it considers to be the most optimal course of action and it will be difficult for the FSO or a future system planner to identify where decommissioning activity may be needed in this circumstance. It may be easier to identify decommissioning / repurposing activity driven by customer demand through a strategic planning process.

New Build [[Archetype 1 – Plan & Deliver](#)]

- We recognise within the consultation that, for gas, a distinction has been made between decommissioning/repurposing and new build. However, we think all these activities need to be considered collectively as part of this optimisation process. And there is an essential ongoing role and accountability for NGT in planning and design to enable this effective optimisation.
- We see this category as serving a dual purpose for both transformational & large / significant natural gas investment and future hydrogen network investment where repurposing of the network may not be appropriate or to supplement repurposed assets. The challenges remain the same.
- Given that this consultation, assumes that *“There will be national and regional holistic cross-vector energy system planning”* albeit developing multi-vector capabilities seems unlikely from day 1.
- We cannot see a world where NGT is not involved in these critical planning and design phases due to unique gas transmission specificities described earlier and our accountability to maintain resilience across the network. How accountabilities are applied in this model need unique consideration for the gas transmission sector. This specifically includes the needs for NGT to have an ongoing role in planning and design across all the activities of new build, repurposing, and long-term decommissioning.

Contact:

Tony Nixon

Gas Transmission Regulation

T: +44 (0) 7973 236122

E: tony.nixon@nationalgas.com

nationalgas.com