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RE: RIIO-2 NZASP Re-opener Draft Determinations: East Coast and Hyline Cymru Hydrogen Network FEED Studies

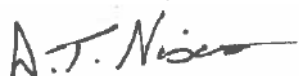
Dear Allan

We welcome the opportunity to respond to the above consultation on behalf of National Gas Transmission (NGT), and I wish to confirm that this response can be published on Ofgem's website.

Please find below our response to the specific questions raised in the consultation document. We have responded to questions where we can make a valuable contribution.

We would like to thank Ofgem for the opportunity to feedback on this consultation and remain open to further dialogue on any of our comments. For queries in relation to our consultation response please contact jennifer.randall@nationalgas.com.

Yours sincerely



Tony Nixon
Regulation Director

RIIO-2 NZASP Re-opener Draft Determinations: East Coast and Hyline Cymru Hydrogen Network FEED Studies

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Introduction

National Gas Transmission

National Gas is the backbone of Britain's energy system today. We are proud of our role in transporting gas to power stations, major industries, storage facilities, more than half a million businesses and around 23 million homes.

We own and operate the high-pressure national gas network (National Transmission System) that transports gas quickly and safely to wherever it's needed in Britain.

National Gas is developing the infrastructure to transport low-carbon hydrogen as a replacement for natural gas. We are building the capability and flexibility required for a clean energy future at the lowest cost to the energy system, while realising value for the UK economy.

Project Union: East Coast Net Zero Pre-Construction and Small Projects (NZASP) Re-opener consultation

Project Union is a pioneering project to create a UK hydrogen backbone, largely through the repurposing of the existing methane National Transmission System, transporting 100% hydrogen, while connecting hydrogen production and storage with end users.

In this re-opener submission, we provided robust evidence for the requirement of additional regulatory funding during the RII0-2 price control period under the Net Zero Pre-construction Work and Small Net Zero Projects Re-opener (NZASP) Re-opener mechanism for the value of £81.829m (18/19 price base) for the next phase of Project Union.

This proposed phase of work will deliver the following outcomes over a 24-month period:

- East Coast FEED (Front End Engineering Design) – Will identify a preferred routing option from the options identified during pre-FEED, where a revised options list will undergo conceptual design, lands and consents activities will be continued, and procurement activities will be commenced.
- Project Union: Essential Enabling Activities – Programme of work critical to ensuring a fully operational and accessible hydrogen transmission network. These packages of work will support the delivery of FEED and ensure a fully operational network through demonstrating the potential to repurpose, defining operating procedures, adapting existing systems and assets for hydrogen, and developing and delivering a transition plan and governance structure to deliver FEED and further phases of Project Union.

We welcome Ofgem's decision to consult on Project Union – East Coast phase. This response is provided by National Gas Transmission (NGT), and we confirm this consultation response can be published on Ofgem's website.

Q1. Do you agree with our Draft Determination not to provide funding for the WWU Hyline Cymru project FEED study?

The Second National Infrastructure Assessment published by the National Infrastructure Commission (NIC)¹ states that a key site for the core hydrogen network includes South Wales.

Through the HyLine Cymru project, WWU is committed to transporting hydrogen to industrial consumers in the South Wales region by delivering Wales' first major hydrogen pipeline by the early 2030s.

National Gas Transmission, through the delivery of Project Union, is looking to develop a 100% UK hydrogen backbone that will connect industrial centres across GB, to hydrogen storage and production whilst providing the capability to export and import hydrogen on the international market. Our aim is to enable a GB wide hydrogen market, supported by a resilient GB wide network. Our hydrogen backbone will connect HyLine to the wider GB hydrogen market and potentially international hydrogen markets.

Q2. Do you agree with our assessment of the Needs cases for the three East Coast FEED studies?

We agree with Ofgem's assessment of the needs cases for why the East Coast FEED studies have been selected for access to interim RIIO2 funding.

- The East Coast region covers 2 out of 6 of the UK's industrial clusters, Teesside and Humberside, which contain a high number of carbon intensive operations
- Therefore, there is a significant decarbonisation potential within the East Coast region, with low-carbon hydrogen and hydrogen infrastructure being able to play a key role in reducing emissions
- The area has existing infrastructure that could be repurposed reducing cost to consumers
- Geological storage is available within the region

East Coast Hydrogen is a collaborative programme between National Gas, Northern Gas Networks (NGN) and Cadent. It will provide the blueprint for the regional roll out of hydrogen across both transmission and distribution.

- As a part of the East Coast Hydrogen collaboration, NGT's Project Union: East Coast (PU: East Coast) has been designed alongside NGN and Cadent's respective East Coast projects. While PU: East Coast is a standalone project in its own right and is not contingent on NGN's or Cadent's projects, the projects have been designed so that they align and fit together. For example, PU: East Coast connects to the proposed NGN network at multiple locations north of the Humber, providing supply, flexibility and resilience. The opportunity for connections

¹ [Final-NIA-2-Full-Document.pdf](#)

at Scunthorpe and Immingham provides both resilience and access to storage options for Cadent's proposed network.

We encourage Ofgem and DESNZ to work with all networks through FEED to ensure an efficient solution that is in the best value to consumers.

We agree with Ofgem's assessment of PU: East Coast needs case.

- The Second National Infrastructure Assessment published by the National Infrastructure Commission (NIC)² states that Teesside and Humberside are key sites for the core hydrogen network, operational no later than 2035. PU: East Coast will connect Teesside and Humberside as the starting point for development of the core hydrogen network which will be delivered through Project Union.
- As stated by the Climate Change Committee (CCC)³ a hydrogen transmission network will be needed to connect production with sources of storage and demand, and to provide system resilience and encourage competition between hydrogen producers. Project Union will deliver this requirement.
- The intention for NGT's PU: East Coast is to provide a transmission level hydrogen pipeline connection between the Humber and Teesside industrial clusters and the geological storage facilities on the East Yorkshire coast. The route has been designed to also facilitate direct connection to other major users in these regions, for example, power generation sites. This connection is planned to be achieved through a mixture of repurposing existing pipelines and equipment where feasible, supplemented with new build where required.
- The British Energy Security Strategy⁴ outlines new business models for hydrogen transport and storage infrastructure to be finalised by 2025. The overarching strategic objectives of the first Hydrogen Transport Business Model (HTBM) allocation round⁵ outlines three overarching objectives which include:
 - To promote net zero by supporting decarbonisation at pace
 - To enable whole energy system benefits, including security of supply and helping manage environmental impacts; and
 - To unlock the development of an economic and efficient hydrogen market that supports wider growth

The outputs of FEED will be critical output for the first HTBM allocation round and aligns with DESNZ strategic objectives.

- Our hybrid solution includes the repurposing of existing infrastructure. There are benefits to repurposing including:
 - Value to consumers; repurposing is cheaper to deliver compared to all new infrastructure

² [Final-NIA-2-Full-Document.pdf](#)

³ [The Seventh Carbon Budget](#)

⁴ [British energy security strategy - GOV.UK](#)

⁵ [Hydrogen Transport Business Model: market engagement on first Allocation Round](#)

- Where elements of the existing methane network can be repurposed, this will extend the economic life of the relevant asset, avoiding the need for decommissioning costs in the near and long term
 - Significant environmental benefits during the construction phase
 - Repurposing has the potential to be delivered faster than all new infrastructure
- Our plans have been developed alongside customer and stakeholder feedback. Across the East Coast area, production, storage and demand projects have been identified. PU: East Coast will provide a connection to these sites providing energy resilience and support the development of the hydrogen market. Customers and stakeholders have shared the importance of the need for PU: East Coast by providing letters of support and case studies during the development of the NZASP reopener which have been shared with Ofgem.
 - There is a clear signal for hydrogen presented through Government policy. Given the considerable length of time required to plan for and deliver critical national infrastructure, if the UK is to achieve its Net Zero targets by 2050, there is a clear need to act now and at pace. A “do nothing” option would prevent the required progress being made. The NPV highlights the benefits of delivering the transmission infrastructure connection between Teesside and Humberside and the critical role that hydrogen is expected to have in the future energy system.

We agree with Ofgem’s assessment of NGN and Cadent’s needs case.

Q3. Do you agree with our proposed approach to protect consumer value by standardising our approach to funding in some areas?

Contingency level

We do not agree with the standard approach for the contingency level.

The decision to utilise a 10% flat contingency seems to be based on Reference class forecasting (RCF) and not Quantitative risk assessment (QRA).

The Infrastructure and Projects Authority (IPA) defines RCF as:

“a top-down approach that uses statistical methods to analyse large samples of projects, to provide a *reliable reference class, which is relevant to the new project’s circumstances.*”

Similarly, the IPA defines QRA as:

“a bottom-up methodology of *identifying specific risks*, costing their impacts (if they were to occur) and *building them into a model of how you perceive the project might work.*”

The recommended approach to Programme/Project risk management from all stakeholders is QRA. QRA is suitable for identifying specific risks (that could have significant cost exposures) especially when there are no reliable references relevant to the new project’s circumstances. The latter is

pertinent in the case of Project Union: East Coast where cumulative summation of several individual risks makes up the overall contingency figure.

In the case of PU: East Coast, RCF method increases the cost exposure especially because the top 5 risks (make up 50% of the contingency cost submitted (23/24 price base). While each of the top 3 risks (as a standalone) make up approximately 12% of the overall contingency cost, and the cumulative contingency cost of the top 3 risks is 35% of the overall PU: East Coast contingency amount. The risk register has been shared with Ofgem alongside the reopener submission.

Hence, the overlapping interconnection, escalating domino effect and aggregation of the top 3 (high probability) risks (which have no reliable reference class) could significantly increase the project cost exposure.

Considering the above, we are of the opinion that the RCF approach to contingency is simplistic and does not adequately consider the impact of ‘specific risks’ in a complex project with several unknowns. This does not provide the necessary confidence level to manage the uncertainties and exposures that could be realised as the project progresses.

It should also be noted that in the Re-opener Guidance and Application Requirements Document⁶ it states that a risk register for the specific project, for any allowances requested for project risk is required. A bottom-up approach has been taken which linked individual risk that relate specifically to the project to determine the appropriate contingency value. The contingency does not include pivoting the FEED study to new build as a holistic application was developed where a hybrid and new build FEED study would commence.

If Ofgem propose to set a contingency that is standard across projects, we believe that the risk allowance should represent RIIO-3 BP principles plus an additional 2.5% to recognise the First of a Kind (Foak) aspect.

The number of FEED studies funded by gas consumers per project

Ofgem’s proposal is to fund only one hydrogen network FEED study per project.

In our initial Re-opener submission, we have proposed to carry out a hybrid FEED study and a new build FEED study in parallel as we believe there are benefits to this approach.

The benefits of repurposing existing infrastructure are clear: lower environmental impact in the supply chain and construction phase, less expensive option and potential for faster execution timeline. Therefore, the consideration of repurposing pipelines was a priority and the preferred option for PU: East Coast is a hybrid solution consisting of both repurposed NTS pipelines and new build pipelines.

Every effort has been made during and prior to the feasibility phase to identify and assess the primary factors which may lead to an adverse repurposing decision. Studies to date show there is high confidence in repurposing in general, however technical feasibility of repurposing can’t be guaranteed until additional evidence from the FEED stage including: (i) ongoing innovation projects

⁶ [Re-opener Guidance and Application Requirements Document](#)

and engineering policy developments, (ii) further asset data collection on condition assessment and technical defects, (iii) transient network analysis findings on the ability to release pipelines from the NTS and (iv) a final sign off from the System Operator (SO) for releasing pipelines from the methane network.

There are benefits to continuing to progress a full new build option including:

- Providing certainty of the delivery timeline, our customers have indicated that a transmission level hydrogen connection is required to support the development of their projects. Certainty on the timing of the delivery of this capability is one of the factors that is critical in providing customers with the confidence to progress their own investment decisions.
- Ability to deliver against Government decarbonisation targets including:
 - Supporting Clean Power 2030 (previously 2035 during the Feasibility Phase)
 - Enabling the 10GW of hydrogen production target by 2030 by providing producers a route to market
 - Achieving interim decarbonisation targets; the recent Seventh Carbon budget highlights the important role that hydrogen plays in the industrial sector but also its role within the electricity supply.
- Alignment with the Hydrogen Transport Business Model strategic objectives

In addition to the above, we have undertaken a simple ‘option value’ analysis to evaluate the case for undertaking a dual FEED study now, accounting for the uncertainty over the viability of repurposing. We find that a dual FEED study minimises costs to society, even if only a low probability (<9%) is assigned to the scenario where a hybrid PU: East Coast pipeline is found to be unviable. This is due to the substantial delay costs that could arise in a scenario where a new build pipeline is needed but construction is delayed.

Possible pathways considered in this analysis are as follows:

- **Scenario A: Accelerated Construction.** Ofgem may take the view that we could delay a new build FEED study by two years, but simply accelerate the construction phase, to ensure the original new build project end date was still met. However, this approach would add an additional 30% - 40% to construction costs.
- Alternatively, if the pipeline was constructed over the original project timeline, this would lead to a two year delay in demand connecting (and therefore decarbonising) to the PU: East Coast pipeline. It is anticipated that 28.3 TWh of power and industrial demand could connect to the pipeline from 2030. We show two scenarios:
 - **Scenario B:** Assume the full 28.3 TWh of demand delays its decarbonisation by two years.
 - **Scenario C:** Assume only a proportion (e.g. 10%) of demand was delayed in decarbonising (i.e. if some demand was able to decarbonise by other means⁷) - which would still have a major societal cost in terms of avoided carbon emissions.

⁷ There are a range of ways in which this could occur such as using natural gas as CCUS, electrification, or connecting to a hydrogen source via alternative means. However, in many cases decarbonisation alternatives will not be technically viable and all will come with additional costs which have not been reflected in this analysis.

The results are shown in the table below. This indicates that, if Ofgem believes there is anything more than a 9% possibility that re-purposing is found to be unviable, then it would be in society’s interest to initiate a dual feed study now.

	Scenario A	Scenario B	Scenario C
Delay cost approach	Accelerated construction	Delayed decarbonisation	Delayed decarbonisation
% of demand that delays decarbonising	0%	100%	10%
Result (minimum % likelihood repurposing <u>is not</u> viable to justify dual FEED)	3%	1%	9%

Note: For accelerated construction we assume that the new build construction period is reduced from 6 to 4 years and construction costs are 30% higher (the lower bound of an estimated 30% - 40% increase). For delayed decarbonisation we assume that the connection of 28.3 TWh/year demand is delayed by 2 years, and that a % of this demand continues to use natural gas as a fuel source, incurring relevant carbon costs.

It should be noted that as an assumption to this analysis, the full dual FEED costs have been used as the “worst case” scenario and therefore there are even greater benefits to be realised by as the intention is to stop work on one of the FEED studies in the early stages of the project.

Our expectation is that a decision on repurposing will be made by winter 2025 subject to the workstreams identified as part of the reopener being funded. Since the Re-opener submission last year, the emphasis on energy security and energy resilience has increased. The change in the landscape needs to be considered in the context of the hybrid FEED study and options for repurposing. We ask Ofgem to consider who is best placed to manage this risk and maintain that, to de-risk the timeline, there is clear consumer value to initiate early FEED phase routing studies on New Build concurrently with the Hybrid preferred option.

In the instance that Ofgem chooses to fund the hybrid option only, there will need to be an appropriate mechanism to pivot the FEED study to assess the new build option should the outcome mean that repurposing is no longer a viable option. In addition, the opportunity to revisit the deliverable as set out in the direction. This allows the project to continue to deliver against its overarching strategic benefits as set out in the needs case and the ability to continue to meet the eligibility criteria as set out in the HTBM AR1 requirements.

Additional costs

Ofgem propose to fund only those costs essential to delivering a standalone FEED study.

We believe the work packages outlined in the PU: East Coast Re-opener are linked to the development of the East Coast FEED study and should be funded. We outline details of this in question 6.

Land, planning and consent costs

We agree with Ofgem’s proposal to fund Land, Planning and Consenting activities in line with our reopener submission.

Regulatory treatment

Ofgem’s Draft Determinations position is that all of the projects will be funded through a slow funded approach which they believe is in the best interest of gas consumers.

We agree with the approach that all of the projects will be funded through a slow funded approach on the basis this is in line with the RII0-2 principles.

Private contributions and TIM impact adjustment

Ofgem is minded to ensure that the 10% minimum private contributions are recovered in full. They outline the TIM mechanism would return a portion of the 10% company contribution to the company. They are therefore minded to apply a correction to the funding Allowance to account for the TIM impact on the private contributions.

We do not agree with the standard approach to contribution and we disagree with the TIM adjustment. It should be noted that the Totex Incentive Strength has not yet been published for RII0-T3. If the Totex Incentive Strength changes, the allowance for 2026/27 will need to be adjusted accordingly. Since the Totex Incentive Strength will not be confirmed until Final Determinations are published (expected December 2025), this may require an update to the final direction for this re-opener (assuming the final direction will be issued ahead of December 2025).

We outline below our points below as to why we do not agree with private contributions:

In the NZASP reopener guidance⁸ it states, *“where a potential NZASP project is substantially innovation related (for example, it could also be eligible for funding under either the Strategic Innovation Fund or Network Innovation Allowance), a contribution should be considered”*.

FEED studies are a standard part of infrastructure project development. Whilst the FEED study is not innovative, we will look at innovative ways to deliver the project.

Through the Network Innovation Allowance and Strategic Innovation Fund, NGT contributes 10% towards a number of innovative projects; many of these projects feed directly into evidence for Project Union. We have made full financial contributions and, in some cases, additional contributions across all of the key phases of the Future Grid Phase 1, Deblending and Compression projects in excess of £6 million, given the substantially innovative nature of those projects. However, given the expected scale of Project Union in comparison to similar activity within distribution networks, we do not think it is either appropriate for Ofgem to expect any further contributions from NGT given the stage of the project, or feasible, as this could immediately become cost prohibitive.

We recognise the importance of driving value for consumers given the scale of investment that will be needed, and our aim is that throughout the programme, we will continue to strive for innovative and efficient delivery. We also note that for the delivery of critical net zero projects of a similar scope and size in Electricity Transmission, there is no precedent of network companies being required to provide a contribution, especially under the Accelerated Strategic Transmission Investment (ASTI) framework, which has been introduced for electricity transmission. Further, in some cases, there is no requirement for an initial or final needs case for developmental / pre-construction activities thus enabling a more rapid completion of critical development activities without mandatory requirements for contributions that could become prohibitive to realising Governments ambition.

⁸ [Net Zero Pre-construction and Small Projects Re-opener Guidance](#)

Q4. Do you agree with our proposal to approve funding for the Cadent East Coast North project under the NZASP re-opener mechanism, and at the value proposed?

We agree with Ofgem's minded-to decision to approve funding for Cadent East Coast North project under the NZASP re-opener mechanism.

Q5. Do you agree with our minded-to decision to approve funding for the NGN East Coast project under the NZASP re-opener mechanism, and at the value proposed?

We agree with Ofgem's minded-to decision to approve funding for NGN East Coast project under the NZASP re-opener mechanism.

Q6. Do you agree with our minded-to decision to approve funding for the NGT PU: East Coast project under the NZASP re-opener mechanism, and at the value proposed?

Yes, we agree with Ofgem's minded-to decision to approve funding under the NZASP re-opener mechanism.

We are pleased to see the inclusion of funding for the Hybrid FEED project costs, Land, planning and consent costs, and four work packages. Ofgem are minded-to fund £30.27m of the £81.83m requested.

We do not agree with the minded-to position to disallow several critical work packages to deliver FEED. In addition, we do not agree with disallowing funding for the new build FEED, reducing project contingency funding and the addition of private contribution.

Hybrid and new build FEED costs and Project Costs

Ofgem propose to only fund NGT's hybrid FEED study based on consumer value for money principles and as per the objectives of the interim funding arrangement. Ofgem is satisfied that a hybrid FEED study only project cost represents value for money for gas consumers.

We agree that hybrid FEED study represents value for money for gas consumers, however we also believe there is value in commencing the new build FEED in parallel.

In the case that only the hybrid FEED study is funded, there should be an appropriate mechanism in order to pivot the FEED study to the new build option should the outcome of the repurposing decision mean that repurposing is no longer viable. We have outlined the detail in question 3.

Land, planning and consent costs

Ofgem propose to make no further adjustments to the land, planning and consent category included in this re-opener application.

We agree with Ofgem's proposed costs.

Enabling activities

We do not agree with Ofgem's proposal to not fund the below enabling activities. It should be noted that several of these work packages were funded in the Feasibility Phase and have contributed key evidence and information required to complete the phase of work and to support the development of FEED.

We outline the importance of these activities below:

Implementation strategy

The Implementation Strategy work package was previously funded in the Feasibility Phase re-opener. This work package is responsible for: (i) delivering the economic analysis and CBA to support to assess and validate the continued need for, and consumer benefit of a hydrogen network and (ii) managing the overall integration and alignment of the project with non-technical and wider work packages.

Part (i) ensures that there is an ongoing assessment of the needs case of Project Union and that the social-economic benefits are understood, providing key evidence to Ofgem and DESNZ for the development of the Project Union network. It will continue to assess the phasing strategy acknowledging any changes to the hydrogen landscape so it can be considered for the timing and delivery of Project Union.

Part (ii) ensures that the development of the deliverables is coherent and aligned with the overarching needs case of the project. This workstream also includes a proportion of the Project Directors activities and includes the team that interfaces with Ofgem and DESNZ to ensure alignment with strategic outcomes and deliverables, and as a minimum, we believe that £0.209m (18/19 price base) is required to continue for PU: East Coast specifically.

Hydrogen Policy

We understand Ofgem's minded-to position, and we will look to consider this under the HTBM AR1 mechanism. We continue to outline why we believe this work package is important.

The aim of the proposed work is to consider other countries that are progressing their hydrogen economy and where there are policy and potentially regulatory developments that we could or should consider for implementation in GB.

By showing where policies have been effective in developing hydrogen, and regulation is incentivising investment, this would provide us with valuable insights into how we could develop our hydrogen market.

Other countries are progressing the development of their core hydrogen network quicker than we are progressing Project Union. With approximately 32 hydrogen PCI / PMI announced in 2024 by the EU, and a higher number being expected to be announced in 2026. Both Germany and the

Netherlands are progressing their core hydrogen networks, with Belgium also looking to start development in 2025. Any information we can learn from how other countries are progressing at pace would be valuable to better understand what measures could be adopted in GB that would deliver at pace whilst managing consumer costs and risks.

Supply Chain

The East Coast Re-opener Supply Chain scope is based on:

1: Securing the right supply chain capability to deliver all FEED studies, leveraging NGT's existing supplier relationships and engaging new suppliers with the relevant Hydrogen and pipeline re-purposing experience.

2: Developing a longer-term supply chain strategy and capability to progress PU: East Coast FEED into delivery and build a long term delivery alliance for future PU phases. This would enable both East Coast and subsequent phases to be delivered more efficiently on a programme basis, mitigating supply chain risk and reducing overall delivery costs.

Ofgem is not minded to fund the enabling Supply Chain scope as it includes development of an overall procurement strategy and procurement model for PU, beyond that required for the East Coast phase.

We maintain that taking a programme level approach to developing the supply chain strategy for East Coast and the wider PU programme concurrently would provide long term cost and delivery benefits. However, if Supply Chain funding is only to support East Coast FEED, additional funding beyond the draft determination allowance is still required to support the Supply Chain activities specific to East Coast which were included in the re-opener Supply Chain scope.

The scope of this work exclusively for East Coast FEED includes:

- Procuring suitably qualified FEED contractors from existing NGT frameworks and engaging new contractors with experience in hydrogen engineering, pipeline re-purposing and Development Consent Orders (DCO).
- Working with manufacturers and suppliers to evaluate and price new hydrogen equipment and materials specifications for input into FEED cost estimates (NGT Project Deliverables #6 – Commercial Package), as well as capturing opportunities for innovation and maximising UK manufacturing content.
- Working with construction partners to optimise construction methods (Early Contractor Involvement), develop robust construction estimates and ensure alignment with DCO requirements, reducing risk and providing greater cost certainty to the FEED cost estimate.
- Working with supply chain partners to identify opportunities for local content, job creation and training to grow industry capacity and drive regional economic and social benefits.

The cost of delivering the Supply Chain scope specific to PU East Coast FEED is £1.326m (2018/19 price base), compared to the £4.742 m requested in the East Coast Re-opener. This provides for a small team of supply chain resources for the duration of FEED.

We request the funding allowance of £1.326m for East Coast FEED to be allowed to deliver this revised Supply Chain scope. We consider this work is essential to the successful delivery of the East

Coast FEED by securing the right FEED contractors, delivering more robust FEED cost estimates, de-risking delivery and ultimately lower devex costs and bills for consumers.

We also add that NGT's separate re-opener applications for North West FEED and St. Fergus to Teesside were based on the overall PU supply chain strategy and contract delivery model being developed up front during East Coast FEED. Removal of this scope from East Coast FEED means additional supply chain activity and funding will be required to support North West and St. Fergus to Teesside FEED studies if these re-opener applications are successful.

System Operations

We do not support the minded to decision to not fund the system operation work package. We believe that while some of the activities within the submission are related to developing wider national system operator frameworks, much of the activity requested will be specifically focused on operating PU: East Coast. These activities are necessary for any engineering design work regardless of any ongoing work to develop national system operator principles.

Activities such as assessing IT and control infrastructure requirements, developing physical and commercial operations, assessing emergency management procedures, and preparing for legal and contractual arrangements are intrinsically linked to the physical design of PU: East Coast system and are required in order to effectively maximise system efficiency and therefore value.

Conducting the proposed activities upfront will maximise the value of the PU: East Coast network by closely linking physical capability and physical and commercial processes. In addition, clarity on system operations process requirements will give certainty for parties wishing to connect to the system and therefore accelerate growth in the Hydrogen market. We believe this approach will give best outcome for the project as a whole and the wider industry.

Given the ambition to have hydrogen networks operating or under construction by 2030 we believe that activities including creating emergency frameworks, standing up new and/or amending IT systems and physical network control facilities, need to be planned for and then begin work immediately based on that plan. Delaying these enabling activities may delay the ability to operate PU: East Coast network. Under this scenario assets may be physically ready to operate however if the operational rules and tools are not finalised / in place then there is a risk that the network remains un-utilised for a significant amount of time. This could then impact the feasibility of both this project and future projects due to there being a risk to recover the investment costs / revenues. Historically, we have seen that major industry changes can take years to develop, approve and implement. As an example, the move to an EU TAR NC compliant, capacity-based, charging regime, began discussion in the context of the GB Market in Jun-2017 and generated a total of twenty-four modifications and alternatives^{9,10}. Ofgem approved the changes in May-2020 and these were implemented in Oct-2020, but even now, five years on, we are still implementing further

⁹ [0621/A/B/C/D/E/F/G/H/J/K/L - Amendments to Gas Transmission Charging Regime | Joint Office of Gas Transporters \(gasgovernance.co.uk\)](#)

¹⁰ [0678/A/B/C/D/E/F/G/H/I/J \(Urgent\) - Amendments to Gas Transmission Charging Regime | Joint Office of Gas Transporters \(gasgovernance.co.uk\)](#)

refinements^{11,12,13,14,15}. More recently, the changes to the Gas Safety (Management) Regulations (GS(M)R)¹⁶ which were originally discussed in 2016, entered into force in Mar-2023 but didn't fully take effect until Apr-2025. The changes required to systems, to processes, to codes, will eventually be wider reaching than any single change implemented since the original UNC was developed.

In addition to this, any development on national frameworks will have to be reflected in the design for PU: East Coast. We believe it is beneficial for the FEED study for us to continue to engage in developing national market frameworks as this will ultimately affect how the PU: East Coast network is operated and therefore should feed into the design, in order for the network to deliver the best value for customers.

The scope of this work exclusively linked to PU: East Coast include:

- assessing IT and control infrastructure requirements
- assessing emergency management procedures
- developing physical and commercial operations
- preparing for legal and contractual arrangements

Based on the advancements made following the formation of the Hydrogen Delivery Council's Working group on Market Frameworks, we have reassessed the works still required to be completed in-house which are required to ensure the safe and efficient Operation of PU: East Coast and revised the costings. In light of industry wide developments, the cost of delivering the System Operation scope specific to PU East Coast FEED is now forecast at £0.794m (2018/19 price base), compared to the £1.485 m requested in the East Coast Re-opener. This provides for a reduced team of system operation resources for the duration of FEED as well as a reduction in the need for external consultancy in relation to economic and technical perspectives. We still expect that the Legal consultancy will be required in fully developing the new Market Frameworks and related codes.

Engineering Policy

Whilst we have an existing framework in place for maintaining and developing existing engineering policies, procedures and specifications related to natural gas this framework was created based on the incremental modification of well-established existing standards.

Current engineering policies are based on well developed technology and approaches which have been standardised over many decades. These have been reviewed to determine the level of impact for a hydrogen network. For hydrogen pipelines the subject matter is changed with extensive research being undertaken by National Gas Transmission and wider industry on its effects. It's critical that the knowledge developed from research is documented within our engineering policies

¹¹ [0670R - Review of the charging methodology to avoid the inefficient bypass of the NTS | Joint Office of Gas Transporters \(gasgovernance.co.uk\)](#)

¹² [0728/A/B/C/D \(Urgent\) - Introduction of a Conditional Discount for Avoiding Inefficient Bypass of the NTS | Joint Office of Gas Transporters \(gasgovernance.co.uk\)](#)

¹³ [0796 - Revision to the Determination of National Grid NTS Target Revenue for Transportation Charging | Joint Office of Gas Transporters \(gasgovernance.co.uk\)](#)

¹⁴ [0847 - Introduction of a Minimum General Non-Transmission Services Charge | Joint Office of Gas Transporters \(gasgovernance.co.uk\)](#)

¹⁵ [0857 - Revision to the Determination of Non-Transmission Services Gas Year Target Revenue | Joint Office of Gas Transporters \(gasgovernance.co.uk\)](#)

¹⁶ [Changes to the Gas Safety \(Management\) Regulations 1996 \(hse.gov.uk\)](#)

which will require additional personnel for writing the procedures and undertaking the associated governance.

To manage the different risks associated with hydrogen transmission system an entirely new set of hydrogen specific technical engineering standards is required to enable the design, construction, commissioning, operation and maintenance of a hydrogen transmission system.

We have included the engineering policy workstream within Project Union FEED because the task to develop a hydrogen safety management system framework, including engineering policies, will be significant and critical to transitioning to a safely operable hydrogen network. In addition, the engineering and technical expertise needed to input on repurposing of existing assets and design of new assets during the FEED stage.

The process of reviewing and creating a whole new set of technical standards specific to hydrogen is on a much larger scale to the volumes and types of document reviews that are currently delivered within NGT under business-as-usual policy reviews. This is work of a type and volume that was not included in National Gas' RIIO-T2 business plan; the need to undertake this work was simply not known at the time the RIIO-T2 framework was set and as such it is not funded under the current RIIO-T2 framework.

The document governance process will require additional steps to provide assurance of the decisions made to develop the standards based on the research available. A review of the current policy framework as part of the feasibility phase has developed a prioritised plan of engineering policies required for the hydrogen transmission system.

Data

Repurposing our existing pipeline infrastructure for hydrogen demands a more granular and specific standard of data than that which has traditionally been required for methane. To support the safety and feasibility assessments unique to hydrogen, such as material integrity under different pressure conditions and susceptibility to embrittlement, existing asset data will need to be digitised, structured, and validated. While much of this data exists in legacy formats, enhancing its accessibility and quality will be key to enabling confident decision-making for hydrogen readiness assessments.

This activity is not Business-as-usual. It is a bespoke, one-time effort to:

- Retrieve and interpret legacy data from archived records
- Fill critical data gaps through targeted capture and enrichment processes.
- Build a structured and reliable evidence base to support cross-functional decision making across engineering, safety, GIS, and planning workstreams.

Importantly, this is not a blanket digitisation of all historic records. The data collection is scoped and specifically aligned to the requirements of the TR/10 hydrogen repurposing specification and is necessary to support PU: East Coast repurposing. We are only collecting the critical data points necessary to assess asset suitability for hydrogen, not conducting a full archival digitisation demonstrating that this is a focused, purpose driven activity and not typical BAU data management.

Furthermore, while some information is already held in systems, much of it has not been cross-referenced with the original documentation for some time. As this data forms part of the evidence

base for safe repurposing, it is essential we confirm its accuracy and integrity. Without doing so, there is a significant risk of relying on outdated or degraded information.

Timing is also crucial. With an estimated 70,000 boxes of archived records stored at Warrington, access to accurate and specific data in a timely manner is key to enabling confident and informed decisions. Without making this data more accessible and trustworthy, we risk delays and gaps in the evidence base that could impact project timelines and safety. Data gaps in particular could potentially drive additional cost and work scope into the project through the need to make more conservative repurposing assumptions requiring additional mitigations. In summary, this work is a foundational enabler of hydrogen repurposing. It is a critical, targeted intervention and not a BAU data storage activity.

Asset Strategy

The repurposing of our existing assets for hydrogen will change the amount of risk carried by the retained methane transmission system and impact upon the RIIO-GT3 plan. This request is a one-off effort to build a model incorporating the effect of hydrogen on probability of failure and to understand the impact on hydrogen on consequence of failure. This will allow us to analyse network risk whilst operating a hybrid transmission system, enabling the assessment of repurposing decisions on risk to the retained methane network. This enables identification of mitigating interventions to protect the methane consumer from intolerable levels of risk post re-purposing. This work will integrate hydrogen into our existing asset decision support tools so that we can measure and optimise portfolios of work to achieve desired levels of risk across the transmission system for the benefit of consumers. An outcome of this piece of work is to understand the interactions between repurposing and the delivery of the RIIO-GT3 plan.

To make informed repurposing decisions, we need to develop our methodology for managing Asset Risk to incorporate a dual hydrogen and methane system. The ability to assess asset risk during FEED will allow us to fully understand the levels of risk exposed to methane and hydrogen consumers to take forward the optimum solution for a dual system.

The piece of work ensures that the methane network is not inadvertently left with significant high risk and enables identification of critical retained assets to identify interventions on the retained methane network to mitigate against risk introduced by repurposing.

Delivery of the RIIO-GT3 plan will interface with the Project Union programme. A piece of work to understand how the two plans interact will allow us to realise opportunities to change, defer or cancel interventions if these are on sections proposed for repurposing and are not required for hydrogen. This will allow us to optimise investment across the dual systems to the benefit of the consumer.

This piece of work is essential to enable hydrogen repurposing within an existing methane transmission system. It is a one-off activity to ensure that the long-term risk to the retained methane network is fully understood to enable repurposing decisions to consider the impact to end-consumers.

People

We understand Ofgem's minded-to position, and we will look to consider this under the HTBM AR1 mechanism. We continue to outline why we believe this work package is important.

A Skills England report¹⁷ outlines jobs in the hydrogen sector need to grow substantially in the net zero transition to meet new demand. This work package is important to understand the skills and workforce required to deliver and operate a hydrogen transmission system ensuring a proactive approach so that it doesn't become a blocker to delivery. Currently, there is a shortage of skilled workers in National Significant Infrastructure sectors including the hydrogen space. Workforce planning is directly linked to project development and understanding the requirements early is critical to support timely delivery to meet demand.

Contingency

Ofgem are minded-to reduce our proposed contingency allowance down from 14.7% to 10%.

We do not agree with the value proposed, for the reasons outlined in our response to Question 3.

Private contributions and TIM impact adjustment

Ofgem propose to require a 10% minimum cash contribution from NGT.

We do not agree with the value proposed or the TIM mechanism used by Ofgem.

Q7. Do you agree with our proposed deliverables for Cadent, NGN and NGT?

For NGT, we agree that the proposed deliverables set out the consultation are deliverable. The dates indicated are subject to a final funding decision being made by May 2025, that relevant recruitment has occurred and that a FEED supplier is in place.

It is expected that project deliverables will move in line with the final funding decision should this go beyond May 2025.

In addition, we would like the opportunity to revisit the deliverable as set out in the direction should repurposing no longer be a viable option.

¹⁷ [Skills England: driving growth and widening opportunities](#)

Q8. Do you agree with our proposed directions for Cadent, NGN and NGT?

For NGT, we broadly welcome the proposed direction under Special Condition 3.9 of the Gas Transporter Licence held by National Gas Transmission plc to add allowances for the Net Zero Pre-construction work and Small Net Zero Projects Re-opener.

We note an error in the NGT draft direction, Annex 1, where Northern Gas Networks plc has been incorrectly named as the network to receive funding.

For point 6, we do not agree with the proposed 10% contribution and we have articulated our concerns in our responses to previous questions.

For the project deliverables set out in Annex 2, we would like the opportunity to revisit the deliverable as set out in the direction should repurposing no longer be a viable option.

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