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4th April 2025

Re: Consultation on a proposal to extend the National Gas Transmission's Network Innovation Allowance funding to support additional hydrogen innovation during RIIO-2

Dear David,

Thank you for the opportunity to provide our views on the above consultation to extend the National Gas Transmission's Network Innovation Allowance (NIA) funding to support additional hydrogen innovation during RIIO-2. This response is on behalf of National Gas Transmission (NGT).

Q1. Do you agree with our minded-to decision to approve additional funding for the projects listed in this chapter under the HYINT licence term, and at the value proposed?

Submission 1: Hydrogen Materials Capability Evidence (£1.6m of £1.6m)

We agree with the minded to position on submission 1; the materials projects in this submission are vital to the delivery of hydrogen into not only the transmission system but also the LTS and could provide benefit to the wider energy system in the UK.

Submission 2: Operational Procedures for Hydrogen (£1.96 of £2.4m)

We partially agree with the minded to position on submission 2; developing the operational approach for delivering hydrogen into the network and maintaining the assets is vital for the transition. Pipeline installation techniques for hydrogen, HyNTS Operational Physical Testing, Hydrogen Ready Recompression and Hydrogen venting and flaring are vital projects to enable the NTS to operate in hydrogen and we agree with the minded to position on these projects.

With reference to the two projects rejected on Submission 2:

Operational tools and equipment – The consultation references 'establishment of specifications for operational tools and equipment' however our view for this project surrounded more novel tools and equipment that would be needed for our Operations staff to maintain a future net zero network. In our submission we detail the need for different ATEX rating of tools and other equipment that will be used for the operation and maintenance of hydrogen pipelines and sites. This work will identify any gaps in tools which fall into this category and develop the tools for site use, understanding the change in risk when operating on hydrogen sites. These tools can have universal benefits not only in Transmission but also across into Distribution with the findings

shared accordingly. This is not considered BAU in our opinion as the tools are not commercially available today for hydrogen use as they need support to increase their TRL.

Skills and competencies and hydrogen awareness training methodologies - This topic is widely considered necessary for the industry to transition. The project we had proposed does not relate to developing training material for the future, which is covered by our BAU teams, but more relating to innovative methods of delivering the material instead. The use of AI tools to support skills and competencies development in an accelerated timeline could enable us to bring the timeline for training new staff down and improve the training approach for staff. Additionally, the use of AI to identify a person's learning style, direct training content as appropriate and assess skill on an ongoing basis is an innovation that could benefit not only National Gas but the wider industry.

Submission 3: Safety Approach for Hydrogen (£0.1m of £1.6m)

We partially agree with the minded to position on submission 3; TD/1 Process digitalisation and Ignition risk projects.

With reference to the projects rejected on Submission 3:

Risk assessment approach (QRA) – The consultation response refers to the fact that National Gas has submitted its risk assessment approach to the HSE over the last 5 years and this is a BAU activity which we agree with, however this has been for a purely natural gas network only. The NIA project that we are proposing is to understand how this risk assessment (RA) approach and the RAs themselves will be different in a future where hydrogen is transported throughout our network. The approach taken for natural gas networks may not be suitable for that of hydrogen and consideration of the additional data points and requirements such as material capability, detailed asset data etc... could make submissions difficult to review and manage. We are unable to complete these studies under BAU activities as the team are required to focus on a methane only network and so NIA is a natural fit for the research and development of a new approach for our future network benefiting consumers through decarbonisation. This project will develop the framework and documentation required for conducting hydrogen pipeline QRAs and review and assessment of them for repurposed and new build networks

PSR / PSSR and GSMR approach for Hydrogen Transmission - The projects associated to PSR / PSSR and GSMR approach are important in ensuring a fast and robust transition to hydrogen. The business today is focused on improving our Safety Case by ensuring it is robust and simple for a methane world, this is a BAU activity. This approach for Project Union under FEED funding will be to directly duplicate the work for Natural Gas into other Hydrogen. We are conscious that we could be in a position where we have multiple documents for various areas of the network on Natural Gas, Hydrogen, Hydrogen Blends and Carbon. This and the associated documents of which there are 100s will need to be managed appropriately to ensure the correct documents are referred to for each section of the network. This level of complexity will need novel digital approaches to minimise risk of incorrect application in the future. We have discussed with the HSE the

opportunity to utilise a more modular digital approach with one core system covering all molecules rather than having multiple papers.

Our proposed project will look to provide an in-depth review of all legislation and their dependencies on all policy, standards and safety case changes we have identified through the innovation programme to return a transformation plan of delivery. It will investigate the people, process, governance and technical innovative approaches needed to deploy changes at pace to align to Clean Power 2030 and blending delivery into the NTS. The current approach will be challenging to deploy for hydrogen especially with multiple molecules in various sections of the network and will increase the resource and time required by the HSE for safety approval and review. Novel approaches to the management and creation of these Safety Case documents using digital tools are important to provide a cohesive Safety Case system to the HSE in a future multi molecule gas network.

Safe Control of Operations (SCO) for hydrogen – The Safe Control of Operations procedures in place today cover a natural gas network only and are designed for methane. This project will review these procedures such as RAMS, permit to work systems and Safety and Technical Competencies (STC) with a future hydrogen network in mind. As an example, we need to look into the speed at which these systems respond as the presence of hydrogen will require faster response times than today. Alignment is needed across the industry as a collaborative programme to review these procedures will benefit the wider gas industry in the UK.

Emergency scenarios management with hydrogen – Our current BAU emergency scenarios are all designed for a natural gas network only. Our proposed project in this area will look at innovative approaches to how we manage emergency scenarios – communications, fleets, training, procedures etc for a multi molecule network. The differences in the failure mode of Hydrogen vs Natural Gas are likely to require faster response times and alternative approaches to resolution. This work cannot be completed by the BAU teams in National Gas as their focus can only be on methane and therefore NIA is the only funding route to develop the understanding and prepare the teams for managing emergency scenarios in the future. This work is beneficial for the wider gas industry in the UK and the findings will be relevant across the distribution networks too.

Submission 4: Measurement and Control (£1.255 of £1.4m)

We agree with the minded to position on submission 4; since the submission of this request, we have begun the first phase of the SCADA solutions project and believe that there is no longer a requirement for the phase 2 activity. The hydrogen AGI pipework integrity monitoring - Phase 2, blending Management Approach - Phase 2 and Variable blends – operational projects are important in ensuring we can monitor and measure our network contents.

Submission 5: Supporting Digital Tools for Hydrogen (£0.2m of £0.5m)

We partially agree with the minded to position on submission 3; we believe that the delivery of the secure comms project is important to enabling Secure and Resilient Connectivity for Operations.

Secure Comms - A vital component of resilient infrastructure is the availability of high-speed and reliable internet access, which allows engineers remain connected with the digital tools required for day to today operations. Our proposed project aims to demonstrate the capability of providing high-speed internet connectivity for engineers using satellite communications which is not considered a BAU activity as the current route is to rely on the 4/5G cellular networks. Digital transformation presents NGT with the opportunity to integrate a variety of digital tools essential for our net zero journey. These tools include digital twins, real-time defect management software, enhanced bandwidth for risk-based condition monitoring through IoT sensors, as well as a lone worker monitoring system and other mobile applications. However, the challenges posed by limited internet connectivity and insecure communication links hinder our ability to effectively implement these digital solutions and maintain resilient critical infrastructure. To enhance the management of our assets, workforce, and documentation processes, it is imperative for NGT to establish a secure and resilient communication link capable of withstanding cyber threats, environmental challenges and dedicated wider bandwidth.

Q2. Do you have any views on the proposed direction for the Project contained in Appendix 2?

We have nothing to add to the proposed direction in Appendix 2.

Yours sincerely



Corinna Jones
Head of Innovation