To National Grid Gas Transmission PLC (NTS) and other interested parties.

Direct Dial: 020 7901 7295
Email: Craig.Molyneux@ofgem.gov.uk
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Decision on additional requirements for the Price Control Deliverable Reporting Requirements and Methodology Document and the Re-opener Guidance and Application Requirements Document for National Grid Gas Transmission.

Introduction

The Authority is setting out additional reporting requirements for a RIIO-2 Gas Transmission Price Control Deliverables (PCD); as an appendix to the Price Control Deliverable Reporting Requirements and Methodology Document.[1]

This appendix will apply to the following PCD, and the associated licence condition[2]:

- Special Condition 3.11 Compressor emissions Re-opener and Price Control Deliverable (CEPt).

The Authority is also setting out additional requirements for a number of RIIO-2 Gas Transmission Re-openers as an appendix to the Re-opener Guidance and Application Requirements Document.[3]

This appendix will apply to the following Re-openers, and their associated licence conditions[4]:

- Special Condition 3.10 Bacton terminal site redevelopment Re-opener and Price Control Deliverable (BTRt)
- Special Condition 3.11 Compressor emissions Re-opener and Price Control Deliverable (CEPt)

[1] https://www.ofgem.gov.uk/system/files/docs/2020/12/draft_pcd_reporting_methodology_document.pdf
[2] Link to Decision on Licence Conditions: https://www.ofgem.gov.uk/publications-and-updates/decision-proposed-modifications-riio-2-transmission-gas-distribution-and-electricity-system-operator-licences
[3] https://www.ofgem.gov.uk/system/files/docs/2020/10/draft_riio-2_re-opener_guidance_and_application_requirements_document.pdf
[4] Link to Statutory Consultation on Licence Conditions: https://www.ofgem.gov.uk/publications-and-updates/statutory-consultation-riio-2-transmission-gas-distribution-and-electricity-system-operator-licences

- Special Condition 3.12 King's Lynn subsidence Re-opener and Price Control Deliverable (KLSt)

Please send your feedback and comments to RIIO-2@ofgem.gov.uk and craig.molyneux@ofgem.gov.uk.

Craig Molyneux

Senior Analyst, RIIO Gas Networks

The Office of Gas and Electricity Markets
10 South Colonnade, Canary Wharf, London, E14 4PU
Tel 020 7901 7000
www.ofgem.gov.uk

Appendix 3: Supplementary PCD Reporting Requirements for Hatton - Compressor emissions Re-opener and Price Control Deliverable (CEPt)

Paragraph 6.5. of ~~the Price Control Deliverable Reporting Requirements and Methodology Document~~this document requires network companies to submit a Basic PCD Report ~~to demonstrate PCD output is Fully Delivered~~.

With reference to Special Condition (SpC) 3.11 Compressor emissions Re-opener and Price Control Deliverable (CEPt), ~~-~~where the PCD output for Hatton is "an Emissions compliant compressor procured for 41MW mechanical output power," we ~~propose to include~~require that the Basic PCD Report includes the following additional ~~reporting requirements as follows~~information:

~~For Hatton, i~~If the relevant status is Fully Delivered or Fully Delivered With Alternative Specification, the Basic PCD Report must provide:

- An ~~commissioning or operational~~ Asset ~~a~~Acceptance report for the new compressor unit from the National Grid Gas System Operator team[5] in line with NGGT's T/PM/RE/18 process[6].~~with an expectation that the unit is continuously available for operation for at least 12 months or a period of time in line with current TO to SO equipment handover process~~;
- Confirmation of the capacity of the new compressor unit, either via a commissioning report or via specification documents or similar received during the procurement process; and

[5] NGGT acts as both Transmission Owner (TO) and System Operator (SO) for the Gas Transmission sector. In its role as TO, NGGT owns and maintains the network assets. It is responsible for maintaining the integrity of the networks, developing asset replacement schedules and for providing transmission services to the SO. In its role as SO, NGGT is responsible for the day-to-day operation of the national transmission system, including balancing supply and demand, maintaining satisfactory system pressures and ensuring gas quality standards are met.

[6] NGGT's management procedure for NTS Commissioning, Operational and Asset Acceptance.

- Confirmation from the relevant environmental regulator of the acceptance of the new unit as meeting emissions compliance requirements, ideally in the form of an operating licence issued for the site.

Appendix 5: Supplementary Re-opener Reporting Requirements - Final Option Selection Report

With respect to:

- Special Condition 3.10 Bacton terminal site redevelopment Re-opener and Price Control Deliverable (BTRt); and
- Special Condition 3.11 Compressor emissions Re-opener and Price Control Deliverable (CEPt);
- Special Condition 3.12 King's Lynn subsidence Re-opener and Price Control Deliverable (KLSt).

~~We propose to include additional reporting requirements as follows:~~

If the relevant status in each case is Fully Delivered or Fully Delivered With Alternative Specification, NGGT must submit a Final Option Selection Report (FOSR) for the Bacton Terminal Site Redevelopment, Wormington, King's Lynn, St Fergus, Peterborough and Huntingdon and King's Lynn Subsidence projects to enable the Authority to make a determination for re-opener applications under the respective licence conditions. The FOSR should be based on the Engineering Justification Paper (EJP) document templates and guidance issued as part of the RIIO-2 Investment decision pack [7]. The FOSR should incorporate learning taken from the RIIO-2 process ~~and~~ as well as the project specific points noted below in this document.

Bacton FOSR Specific Guidance– SpC 3.10 Bacton terminal site redevelopment Re-opener and Price Control Deliverable (BTRt)

The FOSR for Bacton should build upon the RIIO-T2 EJP and CBA, and must:

[7] https://www.ofgem.gov.uk/publications-and-updates/riio-2-final-data-templates-and-associated-instructions-and-guidance

- Present credible Opex profiles for all options that incorporate efficiencies in site operation realised by the replacement or removal of assets. A document describing how the Opex profiles have been generated and the basis for all assumptions used must be provided as part of the submission.
- Investigate options that minimise the number of valve interventions for all asset health options in line with predicted UKCS decommissioning dates. This work must demonstrate that all of the equipment retained, refurbished or replaced is required to meet the predicted flows from the upstream supplying terminals. This work should be submitted at a "per incomer" level to ensure that all incomer connections are required to meet the predicted flows and should demonstrate the value in retaining the current number of incomers to the site. Use updated FES and Network Capability modelled flows in the CBAs.
- Provide an updated breakdown of the capital costs and associated risk, project management, and other such contingencies in line with the RIIO-T2 EJP guidance, along with the basis of any calculations and details of any assumptions.

It is recognised that the NTS pipeline infrastructure could be repurposed in the future as parts of the system are decommissioned. Currently the belief is that the assets could be re-purposed for use in Hydrogen or Carbon Capture and Storage systems. With the potential for the repurposing of Bacton post Cessation of Production (COP), the project team should consider if low cost/no cost decisions can be made during this phase of the project to help enable future repurposing of the site. For clarity the intention of this guidance is not to change the design intent of the project but where it is possible, attempts should be made to select materials or equipment that are compatible with increased Hydrogen in Methane or CO2 compositions if there is little/no cost or schedule impact on the project.

To help inform the discussion around future re-purposing of the site it is requested as part of the FOSR to deliver the following documents/information to help inform future investment decisions at the site:

- A review of the potential upper concentration limits for Hydrogen in Methane if no changes to metallurgy or equipment are made and the terminal is specified for Methane only service.
- The potential cost implications to increase the Hydrogen in methane concentration from what could be achieved by a standard methane service design to higher purity levels. This

should be completed in a stepwise manner selecting sensible break points based on equipment tolerance.
- The issues that would arise if the terminal is designed for methane service only and subsequently re-purposed to transport CO2.
- A summary of any other potential options identified to allow the equipment onsite to be repurposed post COP.

This work that considers future repurposing of assets should be a "light touch" review of the proposed options -given the unknown future usage case for the site and this activity should not lead to any significant cost increases or schedule challenges for the project. A decision on the project direction and spend associated with equipment changes to support future re-use of the site will be made as part of the options selection review process by Ofgem.

Common Compressor Emissions Requirements - SpC 3.11 Compressor emissions Re-opener and Price Control Deliverable (CEPt)

Each FOSR should build upon the existing material for the RIIO-2 submission in terms of EJP and Cost Benefit Analysis (CBA). The FOSR and supporting documents for compressor project submission must address the items below, alongside any further information provided.

Project Options

- Consider options that look to repurpose existing equipment with the aim of minimising capital costs and improving the CBA. The project should consider as a minimum:
    - options to retrofit a modern engine to the non-compliant units;
    - options that build on unused or decommissioned slots at compressor sites;
    - variations on de-rating and/or applying abatement on the existing non-compliant units.

These items are particularly relevant when future compressor usage is predicted to be marginally above or below the IED derogation limit of 500hrs/yr on a 5 yr rolling average, however as with other options the application of the above options is subject to the approval of the relevant environmental regulator.

- Consider variations on spend for options that derogate the non-compliant units to 500hrs/yr with the aim of minimising overall capex spend and maximising CBA value.

- Consider options that look to boost the availability of the compliant units at or linked to the site to minimise the number of hours the non-compliant unit would have to operate. Improving the availability of the machines at the site may reduce the requirement for the non-compliant units to run andallow derogations to be put in place. This approach could avoid significant new build projects for compressors that would operate close to the derogation limit of 500 hrs.
- Provide a detailed site availability model for each proposed option that can be audited by a third party to ensure that the assumptions built into this key metric are inline with accepted values for Gas Transportation and wider Industrial users of Gas Turbine Compressor units. The availability model should be based on run hour predictions ~~taken from~~ based on the Network Capability Model.
- Provide an updated breakdown of the capital costs and associated risk, project management, and other such contingencies in line with the RIIO-T2 EJP guidance.
- Provide core engineering documents used to build the Capex estimates for the options considered at the site, such as material takeoff for bulk materials, OEM package quotes, Process Flow Diagrams and manpower estimates. A document detailing the cost estimating method alongside the input data, "norms" and calculations must also be supplied to allow the estimates to be scrutinised.

CBA Development

- Use the most recently published ~~FES and~~ Network Capability modelled flows in the CBAs. This must include localised flow predictions for each site as well as information on the wider system impacts.
- Compare and justify the frequency, magnitude, and cost of constraints ~~reported~~ forecast for each option ~~for~~ against RIIO-2 ~~to~~ and RIIO-1 outturn data.

St Fergus Specific Requirements - SpC 3.11 Compressor emissions Re-opener and Price Control Deliverable (CEPt)

St Fergus FOSR must be supported with the following:

- A detailed statement setting out the steps taken by NGGT to ensure a fair outcome for current and future consumers in terms of the impact of the proposed investment on charges, including any modifications to the UNC charging provisions put forward and progressed by NGGT.

- A re-worked constraints model that gives ~~realistic~~ levels of Section I costs incurred ~~when compared~~ that are comparable with the historical operation of the site. This must use the Network Capability Model as the basis to build a view on Section I costs and follow a common method used across the network.
- Provide the core engineering documents (e.g. layout drawings, Process Flow Diagrams (PFDs), Material Take Offs (MTO), manpower estimates etc) used to build the Capex estimates for the options considered at the site. ~~-~~A document detailing the cost estimating method alongside the input data, "norms" and calculations must also be supplied to allow the estimates to be scrutinised.
- A clear breakdown of how the specific works proposed for the compressor emissions, subsidence and asset health projects for the site differ to avoid double-counting between these projects.

It is recognised that the NTS pipeline infrastructure could be repurposed in the future as parts of the system are decommissioned. Currently the belief is that the assets could be re-purposed for use in Hydrogen or Carbon Capture and Storage systems. With the potential for the repurposing of St Fergus post ~~Cessation of Production~~ (COP), the project team should consider if low cost/no cost decisions can be made during this phase of the project to help enable future repurposing of the site. For clarity the intention of this guidance is not to change the design intent of the project but where it is possible, attempts should be made to select materials or equipment that are compatible with increased Hydrogen in Methane or CO2 compositions if there is little/no cost or schedule impact on the project.

To help inform the discussion around future re-purposing of the site it is requested as part of the FOSR to deliver the following documents/information to help inform future investment decisions at the site:

- A review of the potential upper concentration limits for Hydrogen in Methane if no changes to metallurgy or equipment are made and the terminal is specified for Methane only service.
- The potential cost implications to increase the Hydrogen in methane concentration from what could be achieved by a standard methane service design to higher purity levels. This should be completed in a stepwise manner selecting sensible break points based on equipment tolerance.
- The issues that would arise if the terminal is designed for methane service only and subsequently re-purposed to transport Hydrogen or CO2.

- A summary of any other potential options identified to allow the equipment onsite to be repurposed post COP

This work that considers future repurposing of assets should be a "light touch" review of the proposed options given the unknown future usage case for the site and this activity should not lead to any significant cost increases or schedule challenges for the project. A decision on the project direction and spend associated with equipment changes to support future re-use of the site will be made as part of the options selection review process by Ofgem.

King's Lynn Subsidence FOSR Guidance – SpC 3.12 King's Lynn subsidence Re-opener and Price Control Deliverable (KLSt)

The FOSR for King's Lynn Subsidence should build upon the RIIO-T2 EJP and CBA, and must:

- Quantify the rate of deterioration and the probability of failure to demonstrate the need for a major investment rather than mere ongoing monitoring.
- Demonstrate a thorough optioneering process to address the risks posed by the current King's Lynn bi-directional pipework, including reference to the probability of failure. All options considered must have a cost estimate built to an equivalent accuracy to allow a fair comparison to be made.
- Use updated FES and Network Capability modelled flows in the CBAs.
- Include consideration of the probability of failure of the King's Lynn bi-directional pipework.
- The CBA must also consider all key drivers of investment including safety and environmental risks and clearly set out any assumptions.
- Provide an updated breakdown of the capital costs and associated risk, project management, and other such contingencies in line with the RIIO-T2 EJP guidance, and provide the basis of any calculations and key assumptions.