

NGT_AH3_01 Asset Health Overarching Document

Asset Health Reopener

January 2024

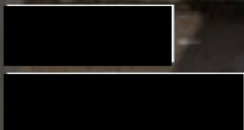


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Executive Summary

To maintain the ongoing safe, secure and reliable operation of the UK Gas National Transmission System (NTS) it is imperative that the health of the assets that constitute the NTS are appropriately managed. NGT is operating assets that are deeply aged with a range of defects that impact on the ongoing operation of the asset systems. Investments in this submission seek to address these issues across the network where doing nothing has the potential to impact on the operation of assets on sites that are critical to meeting security of supply in the UK. This document is National Gas Transmission's (NGT) submission summary to apply for regulatory funding under Special Condition 3.14, Part A and B Asset Health Re-opener (AH) of NGT's Gas Transporter Licence (the Licence)¹. It is an overarching summary document aimed at providing an overview of the funding request and associated outputs relating to asset health investments across the NTS.

As our asset health investment RIIO-T2 plans were being developed it became apparent that an emerging volume of investments were not included within our baseline RIIO-T2 plan that could not wait for RIIO-T3, mainly due to the criticality of investment. To manage this risk, and to ensure cost certainty in the submitted products, NGT and Ofgem have agreed a multi-submission window approach for the Asset Health Re-opener, with one submission window in January 2023, one in June 2023 and one in January 2024.

Our January 2024 submission consists of three Engineering Justification papers (EJP). The first being the Plant and Equipment EJP. The core investment proposal validates the year 1-3 investments for the Plant and Equipment theme to enable true up of the Baseline allowances received, and defines our year 4 and 5 investments. Outputs and allowances shall be set across the full five year period, in line with Special Condition 3.14.

Included within this submission are allowances for an Asset Health project at King Lynn Multijunction, following our assessment of the site as part of the Kings Lynn Subsidence FEED. This projects falls within the Plant and Equipment investment themes and funding is requested as part of the Plant and Equipment EJP.

Most interventions against Plant and Equipment UIIDs at Bacton and St Fergus are not included in our Plant and Equipment EJP, due to them being covered through prior funding requests in the January 2023 and June 2023 reopener windows and our Future Operating Strategy submissions. Two St Fergus intervention have been included in the Plant and Equipment EJP for true up of Baseline allowances received. Section 6 of this document presents an overview of the baseline funding awarded and additional funding requested to assist with true up activities.

The second part of our submission is for Primary Protection Device investment (PPD). This project ensures National Gas complies with a Health and Safety Executive (HSE) Action Legal relating to the potential to bypass Primary Protective Devices on the National Transmission System (NTS). To achieve compliance a range of options have been adopted including installing interlocks, removing bypasses and installing independent Pressure Reduction System (PRS) streams.

¹<https://www.ofgem.gov.uk/publications/direction-and-proposed-directions-under-national-grid-gas-specs-310-311-and-314>

The third part of our submission includes a request for funding to assess the risks of Single Point of Failure on the NTS. In response to the UK Governments Energy Security Plan, NGT mobilised a programme of work to address immediate concerns on network resilience including a focus on supply and demand risk. Through a series a work groups attended by Ofgem and The Department for Energy Security and Net Zero (DESNZ), it has been agreed that NGT can submit this request for funding to further assess the risk presented by single points of failure on the NTS.

Price Control Deliverables (PCD) output categories have been defined for all investments included within this submission. Investments that deliver a Network Asset Risk Metrics (NARMs) benefit against an old or new RIIO-T2 Unique Identifier (UID) have been allocated against the A1, A2 or A3 NARMs asset funding categories as defined by the NARM Handbook². Investments covered by Asset Health re-opener submissions have been allocated against A1, A2 or A3 NARMs asset categories or Non-Lead Assets PCD where Long-Term Risk Benefit (LTRB) is not a performance factor.

NGT’s total funding request within the January 2024 Asset health Reopener submission, across all investment themes, is £49.460m. This includes direct and indirect costs for requested funding under licence terms NARMAHOt and NLAHOt (see section 4 for further detail on how the different funding request have been aligned to the named licence terms). No funding is requested under licence term AHt in the January 2024 submission.

The table below provides a breakdown per license condition and submission product. Further details are included within this document and the cost book for the submission included in Appendix 7.

License Condition / Submission Product			Submission Window		£m - 18/19 prices										
					2022	2023	2024	2025	2026	RIIO-T2 Total	2027	2028	RIIO-T3 Total	Total	
AHt															
N/A															0
NLAHOt															
NGT_AH3_04	Single Point of Failure Feasibility Assessment	Jan-24													0.380
NARMAHOt															
NGT_AH3_02	Plant & Equipment EJP	Jan-24													45.778
NGT_AH3_03	Primary Protection Device	Jan-24													3.302
AHt January 2024 Total															0.000
NLAHOt January 2024 Total															0.380
NARMAHOt January 2024 Total															49.080
Grand Total January 2024															49.460

² <https://www.ofgem.gov.uk/publications/decision-proposed-modifications-riio-2-transmission-gas-distribution-and-electricity-system-operator-licence-conditions-1-apri-2022>

1. Summary Table

1.1 NGT’s request for funding through this document is made against the Asset Health (AHt) reopener license condition 3.14 and is outlined in Table 1. This is aligned to the Regulatory Reporting Pack (RRP).

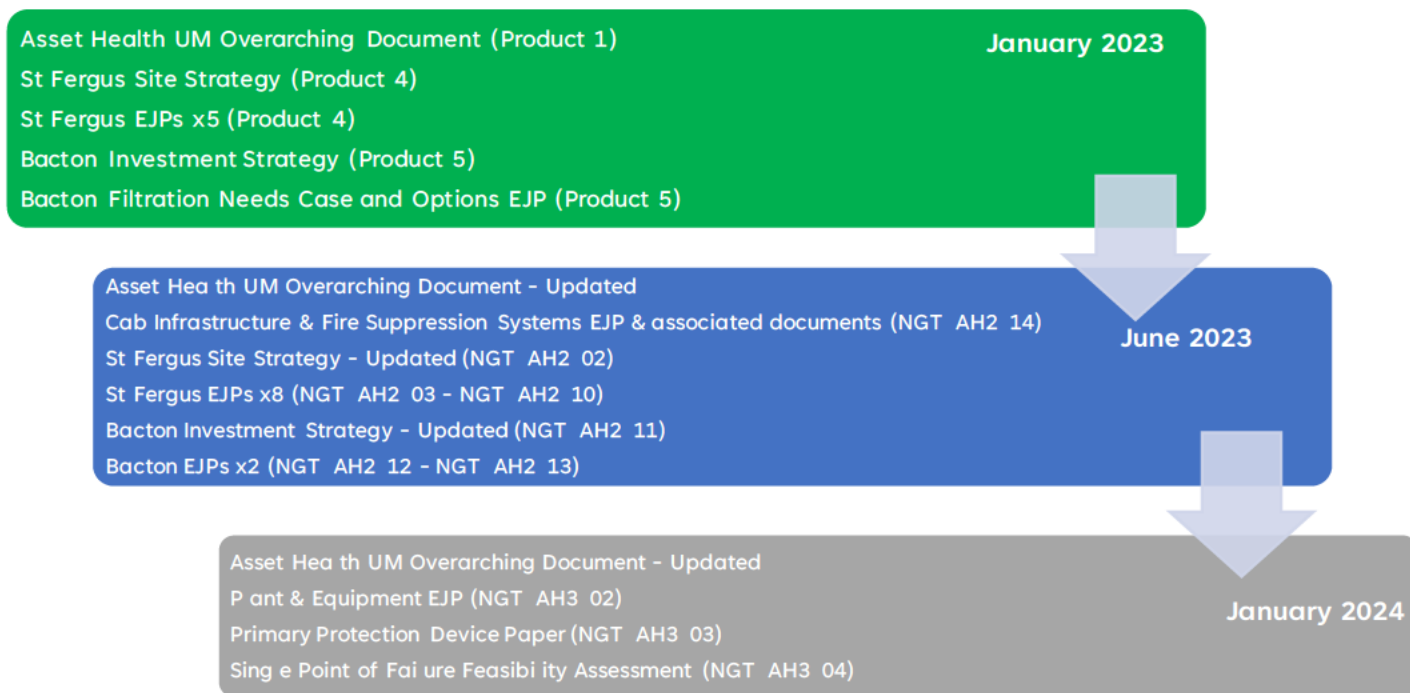
Table 1: Asset Health Summary Table (June 2024)

Name of Scheme/Programme	Asset Health Reopener (AH)
Primary Investment Driver	Asset Health
Scheme Reference / Mechanism or Category	SpC 3.14 – Asset health Re-opener: Adjusting the values of the following terms: <ul style="list-style-type: none"> ○ AH – defined in SpC 3.14 not applicable for the January 24 element of the submissions) ○ NARMAHO – defined in SpC 3.1 – Baseline Network Risk Outputs ○ NLAHO – defined in SpC 3.15 – Asset Health -non-lead assets PCD
Jan 24 Submission Cost (18/19 price base)	£49.460m (Including P&E & PPD cost book Totals and Single Point of Failure Feasibility Assessment (£0.380m))
Cumulative Cost request (18/19 prices)	£236.71m (Across January 23, June 23 and January 24 AH Reopener Windows)
Delivery Year	2021-2027
Reporting Table	RRP Table 6.3 (Asset Health) and Table 6.4 (Asset Health Projects)

2. Introduction

- 2.1 This document ('Asset Health Overarching Document') is submitted to provide the funding request to meet National Gas Transmissions (NGT's) license obligations for Special Condition 3.14 and covers elements to adjust licence terms defined in Special Conditions 3.1, 3.14 and 3.15. These licence obligations encompass Compressor Cabs and Plant and Equipment Asset Health themes across the NTS as well as Asset Health investments at St Fergus and Bacton. This document is an update to the document of the same name submitted as part of our January 2023 and June 2023 Asset Health Re-opener submissions.
- 2.2 Guidance on the submission structure, the individual products and summary of the overall funding request are included in this document, which will be presented in addition to the funding previously requested in our previous Asset Health submission windows. In our package of subsidiary documents further detail and justification for investments and the strategies that underpin these are provided.
- 2.3 Our submission is made under the third of three Asset Health license Re-opener application windows as defined in 3.14, Part B. The first was January 2023, followed by a submission in June 2023. This third submission is made in January 2024. Our reopener submission is split into several products, each with supporting EJPs. This is summarised pictorially in Figure 1 below.

Figure 1 Asset Health Re-opener Submissions



2.4 This document is an updated version of that submitted in January 2023 and June 2023.

2.5 All costs presented in this document are in a 2018/19 price base.

3. Background and Context

3.1 To maintain the ongoing safe, secure and reliable operation of the UK Gas NTS it is imperative that the health of the assets that constitute the NTS is managed. NGT is operating assets that are deeply aged with a range of defects that impact on the ongoing operation of the asset systems. Investments in this submission seek to address these issues across the network where doing nothing has the potential to impact on the operation of assets on sites that are critical to meeting security of supply in the UK. NGT's submission through the Asset Health Reopener (Aht) license condition includes a range of supplementary documents that provide justification for a range of interventions to ensure NGT maintains this position, providing additional justification to that afforded at the time of the RIIO-T2 Business Plan Submission in December 2019.

3.2 The investments, constituting the AHT, NARMAHOT and NLAHOT license terms, are split into six broad investment themes:

- Plant and Equipment
- Primary Protective Device
- Single Point of Failure
- Bacton Investment Strategy
- St Fergus Site Strategy
- Cab Infrastructure

Plant and Equipment (January 2024 submission) – This investment theme covers a wide range of primary assets that contain and control the gas flows at Above Ground Installations on the NTS. These assets are covered by safety legislation and in many cases have been in operation beyond their original life of 40 years. Our strategic approach is to utilise a 10-year proactive corrosion management approach utilising our National AGI Renovation Campaign (NARC) Delivery model. Our funding request is in line with this strategic approach. Where Plant and Equipment interventions (UIDs) at Bacton and St Fergus have been included within EJPs submitted in previous submission windows, true up of these interventions has been requested as part of previous AH re-opener submissions. See section 6 for an overview of the treatment of the Bacton and St Fergus Plant and Equipment UIDs.

Primary Protective Device (Jan 2024 Submission) – In January 2019 a vibration-related failure at Didcot AGI led to an incident investigation by HSE, discovering bypassed slamshut valves onsite. As a result of these findings by the HSE at Didcot, HSE filed an Action Legal against NGT to identify all similar bypassed slamshut valves across the NTS, generate a plan for risk controls and implement them to address the issue. It is NGT's obligation to fulfil HSE's Action Legal by 1 May 2024. NGT identified 18 sites that contain uncontrolled bypasses around slamshuts and solutions at all sites in scope apart from the 4 complex sites have been delivered.

Single Points of Failure Feasibility Assessment (Jan 2024 Submission)– In response to the UK Governments Energy Security Plan, NGT mobilised a programme of work to address immediate concerns on network resilience including a focus on supply and demand risk (areas of the network where only a single transmission asset exists). Through a series a work groups attended by Ofgem and DESNZ, it has been agreed that NGT can submit this request for funding to further

assess the risk presented by single points of failure on the NTS. NGT, using its asset management modelling coupled with sessions with the gas distribution networks (GDN's), have identified eight sections of demand pipeline and one section of supply pipeline that present the most significant levels of risk to downstream connections. This submission covers NGT's request for funding to complete a feasibility assessment on these sections of pipeline which will include a risk mitigation and a pipeline routing study providing an understanding of how we can improve the level of resilience.

St Fergus Site Strategy (January 2023 and June 2023 submission) – A two-phase strategy has been adopted to ensure clarity between short-term asset health and long-term site operating strategies. The St Fergus short-term strategy provides certainty on the terminal operation requirements, including minimum compression across Plant 1 and 2, for operation out to 2030. The outcome of the Site Strategy has been the development of several investment needs cases on assets across the site, however for this January 2024 submission no further EJPs are submitted.

Bacton Investment Strategy - Phase 1 (June 2023 submission) – Progression of our investment plans against our Phase 1 and 2 Investment strategy has resulted in the acceleration of a few no regrets investments at the site. Within phase 1 investments were categorised as 'Accelerated', due to the impact the problem is posing to terminal operations with 'Medium-Term' investments categorised due to problems the asset condition was posing to ongoing terminal operation. Investments are no regret against the long-term site option in development through our future operating strategy workstream³. Funding requests are proposed through both Asset Health Re-opener submissions and our Future Operating Strategy Submission.

Compressor Cabs (June 2023 submission) – This investment theme covers a range of secondary assets fundamental to the safe operation of compressor machinery trains. Investments ensure compliance with environmental and safety legislation in addition to resolving faults and degradation-based defects and ensure that our compressor cab infrastructure meets the changing need from these assets. Following completion of site surveys and optioneering assessments, a programme of additional investments on [REDACTED] cabs across [REDACTED] sites were identified. Our June 2023 submission sought to set and confirm allowances for investments in years 1-3 and agree interventions and allowances for investments in years 4 and 5. To reduce the risk of delayed investment initiation, NGT proposed to undertake surveys within the RIIO-T2 period to identify potential Asset Health works on our Cab Infrastructure and Fire Suppression assets for the next regulatory period (RIIO-T3)

³ This work will be delivered under SpC 3.10 Bacton terminal site redevelopment Re-opener and Price Control Deliverable

3.3 The figure below, provides a summary of the structure and submitted products included within our January 2024 Asset Health Re-opener Submission.

Figure 2 January 2024 Asset Health Reopener Submission



3.4 For this, our Jan 24 submission, each document has been assigned a product number to aid the reconciliation between each of the individual EJPs and this Overarching document. The table below (Table 2) provides further details of these products.

Table 2 Jan 2024 Asset Health Reopener Submission products

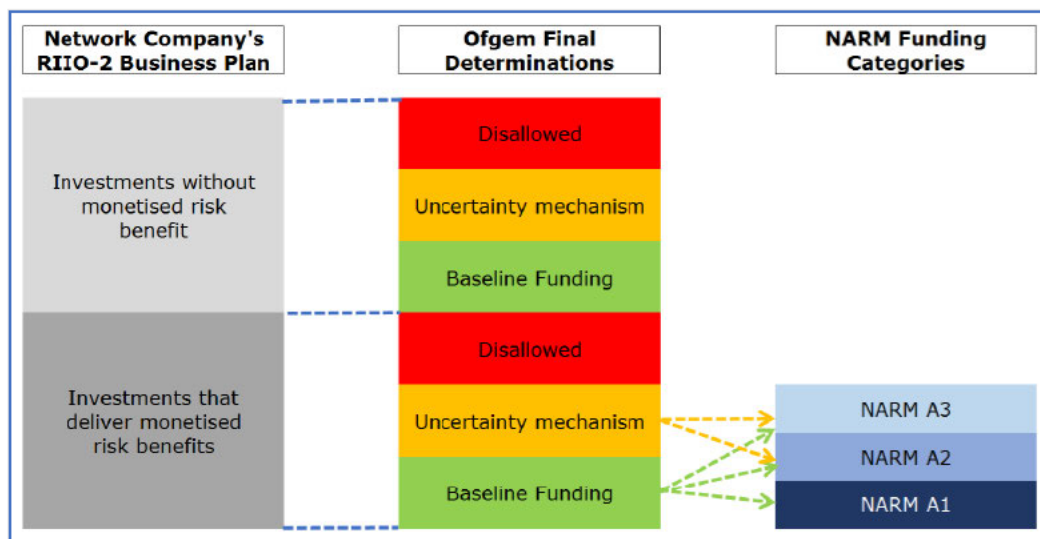
Asset Health Reopener June 2023 Submission Structure Summary		
Product No	Product Name	Description
NGT_AH3_01	Asset Health Overarching Document	Document providing an overarching funding request to meet NGT licence obligations (Special Condition 3.14) covering a five submission products
NGT_AH3_02	Plant and Equipment EJP	Document providing justification for Plant and Equipment interventions across the NTS for years 4 and 5 of RIIO-2.
NGT_AH3_03	Primary Protective Device EJP	Document providing Justification for investment to meet the requirements of an HSE Action Legal to remove uncontrolled bypass across the NTS
NGT_AH3_04	Single Point of Failure Feasibility Assessment	Document providing justification for funding to progress a feasibility assessment for nine feeders on the NTS to address the immediate concerns on network resilience

3.5 A full list of the products submitted across all three Asset Health Reopener submission windows can be found in Appendix 1.

4. License Conditions and Outputs

- 4.1 Special Condition 3.14 of the NGT Licence, relates to the Asset Health Re-opener (AHT) and enables NGT to request adjustment to the value against following license terms:
- AHT;
 - NARMAHOT; and
 - NLAHOT.
- 4.2 The Asset Health Reopener (AHT) provides the mechanism for the submission, with the Non-Load Asset Health (NLAHOT) and NARMs Asset Health investment (NARMAHOT) terms and reopeners directed in accordance with Special Condition 3.14.
- 4.3 In accordance with license condition 3.14 NGT's Asset Health Reopener submission seeks to modify all three values within the GT2 Price Control Financial Model (PCFM).
- 4.4 The RIIO-T2 Business Plan Final Determinations set out a number of output metrics. The two main metrics relevant for this submission are:
- Network Risk Outputs (NARMs), and
 - Non-lead Assets Price Control Deliverables (PCDs).
- 4.5 NARMs is a method created by Ofgem for RIIO-T2 to measure the long-term monetised risk benefits (LTRB) delivered by investments (corresponding to the life of the asset, or intervention). There are three NARM Funding Categories A1, A2 and A3, with the definition of these below:
- **NARM A1** - work that delivers against NGT's overall LTRB target and will cause an adjustment to Baseline Network Risk Output (BRNO) and contribute to Outturn Network Risk Output (ONRO).
 - **NARM A2** - New UIDs (work outside of the NARMs funding). The Network Risk Output associated with this work will not contribute to NGT's final ONRO.
 - **NARM A3** - Ring-fenced Project/Activity: this is work that will deliver Network Risk Outputs, but which is not within the scope of the NARM Funding Adjustment and Penalty Mechanism. The Network Risk Output associated with this work will not contribute to a NGT's final ONRO.
- 4.6 Figure 3, overleaf, summarises the NARM funding categories and their relationship to the RIIO-T2 Business Plan and Final Determinations.

Figure 3 NARM Funding Categories and relationship to RIIO-T2 Business Plans and Final Determinations



4.7 Following discussions with Ofgem in the NARM Development Monthly Meetings, the initial view, while not finalised, is that any work proposed against pre-existing RIIO-T2 baseline funded UIDs in the NARMs A1 category will lead to a restatement of the target (as of SpC 3.1, Part C). Any new UIDs created for investment will automatically fall into the NARMs categories A2/A3 and could result in an update of the Asset Health Non-lead assets PCD Annex (as per SpC 3.14.4).

4.8 It is proposed that all the investments arising from the re-openers shall result in one update to the Network Asset Risk Workbook (NARW) following the process described in Special Condition 3.1, Part C: Rebasng of Baseline Network Risk Outputs. This is to be conducted following Ofgem’s licence direction following the January 2024 Asset health Reopener determination.

4.9 In alignment with the RIIO-T2 submission outcomes Plant and Equipment investments included through EJP NGT_AH3_2 Plant and Equipment EJP of this submission have an associated NARM benefit (and associated NARM funding through category A1) as the investments carry out work on NARM assets (opposed to non-lead assets).

4.10 Detail has been provided within each submission on the specific output and the rationale for this. For each of the submitted products we have undertaken an assessment of the applicable license category (NARMAH0t, NLAH0t or AHt). Table 3, in section 5, summarises this with the associated funding request.

4.11 The table in Appendix 2 provides further details on the January 2024 submission products, the UIDs for associated works and a definition and proposed NARM funding categories for these UIDs. These will be used for reporting in FY24.

5. Funding Request

5.1 This section provides information on the overarching funding request through our January 2024 Asset Health Reopener submission, comprising of the Plant and Equipment EJP, PPD EJP and Single Point of Failure EJP.

5.2 This document version presents the funding request against the aforementioned licence terms. The profile of investments within the RIIO-T2 period are also shown.

5.3 Currently the three asset health terms of AHt, NARMAHOT and NLAHOT have no associated values within the Licence and Price Control Financial Model (PCFM), as the January 23 and June 2023 reopener decisions are still to be finalised. The allowances stated within Table 3 represent the additional request for these terms being made in the January 2024 Asset Health Re-opener submission and do not contain the requests made through the prior windows. The values within Table 3 include both direct and indirect costs relating to the project, as currently both NARMAHOT and NLAHOT are not included within the formula contained within Special Condition 3.18 Opex Escalator.

Table 3 June 2023 Asset Health Funding Request

License Condition / Submission Product			Submission Window		£m - 18/19 prices								Total	
					2022	2023	2024	2025	2026	RIIO-T2 Total	2027	2028		RIIO-T3 Total
AHt														
N/A														0
NLAHOT														
NGT_AH3_04	Single Point of Failure Feasibility Assessment		Jan-24											0.380
NARMAHOT														
NGT_AH3_02	Plant & Equipment EJP		Jan-24											45.778
NGT_AH3_03	Primary Protection Device		Jan-24											3.302
AHt January 2024 Total														0.000
NLAHOT January 2024 Total														0.380
NARMAHOT January 2024 Total														49.080
Grand Total January 2024														49.460

5.4 The table in Appendix 3 provides an overall funding request/determination position, combining the requests from papers previously submitted (January 2023 and June 2023) combined with our request within this January 2024 window.

5.5 Appendix 5 comprises the January 2024 Asset Health Re-opener Assurance Letter while Appendix 6 highlights NGT's mapping to Ofgem requirements.

6. Bacton and St Fergus Plant and Equipment UIDs

Summary

- 6.1 As part of Ofgem's Final Determinations in December 2020, NGT received Baseline funding for no-regrets investments at Bacton and St Fergus Terminals. Included within this were UIDs within the Plant and Equipment theme, subject to the Asset Health re-opener.
- 6.2 The total amount of Baseline funding for Bacton and St Fergus Plant and Equipment UIDs is [REDACTED] for St Fergus and [REDACTED] for Bacton. For St Fergus several of these UIDs have been subject to separate funding requests through the January 2023 and June 2023 Asset Health Reopener windows, totalling an additional funding request of [REDACTED].

St Fergus

- 6.3 For St Fergus we received Baseline funding for five UIDs related to Plant and Equipment assets. The true up and additional funding request for three UIDs⁴ have been submitted as part of the January 23 and June 23 Asset Health re-opener windows and no further update has been included in this submission.
- 6.4 The work planned under Pipework modifications - Minor CAPEX ([REDACTED]) requires true up as part of the Plant and Equipment submission and detail on this is included within the Plant and Equipment EJP.
- 6.5 Work planned under Pipework modifications - compressor surge issues ([REDACTED]) was completed at the end of RIIO-T1, requiring only a minor modification. We have therefore included the return of Baseline allowances in this submission, please see the return referenced in summary tables of the Plant and Equipment EJP. We propose to enact the return of allowances as part of the licence modification to adjust licence terms as described in section 4 following the final determination of all three Asset Health re-opener windows.

⁴ CP Replacement ([REDACTED]), Above Ground Pipework Corrosion ([REDACTED])

Table 4 Plant and Equipment St Fergus UIDs

£m - 18/19 prices							
UID	Submission Window	Funding Request (excl. Baseline allowance)	Baseline allowance	NARM Volumes updated	NARM Funding Category	Comment	
NARMAHOT							
██████████	Replacement of CP system at St Fergus	Jan-23	██████████	██████████	██████████	A1	True up/additional funding requested in January 23 window, no further update as part of this submission
██████████	Resolve CAT4 CM/4 Defects on pipework (St Fergus)	Jun-23	██████████	██████████ ⁵	██████████	A3	True up/additional funding requested in June 23 window, no further update as part of this submission
██████████	Above Ground Pipework Patch Painting	Jun-23	██████████	██████████	██████████	A3	True up/additional funding requested in June 23 window, no further update as part of this submission
██████████	Pipework modifications - compressor surge issues	Jan-24	██████████	██████████	██████████	A3	Work no longer required (work has been completed in R110-T1) - funding to be returned as part of January 24 AH re-opener,
██████████	Pipework modifications - Minor CAPEX	Jan-24	██████████	██████████	██████████	A3	True up is being requested through Plant and Equipment EJP
NARMAHOT Total St Fergus P&E only			██████████	██████████			
Grand total St Fergus P&E only			██████████	██████████			

Bacton

6.7 For Bacton we received Baseline funding for five UIDs related to Plant and Equipment assets. These are summarised in Table 5 overleaf. No true up or additional funding on those UIDs has been requested through any of the Asset Health re-opener windows and we propose that where required this is being progressed through the Bacton Special Condition 3.10 Bacton terminal site redevelopment Re-opener, where the submission is planned following the Final Option Selection Report (FOSR) submission⁶.

6.8 As part of this process, we will review the NARM funding category, this decision should be considered together with the process described in section 4 of this document.

⁵ Baseline allowances for UIDs ██████████ and ██████████ have been quoted wrongly in the St Fergus Above Ground Pipework Corrosion EJP submitted as part of the June 23 Asset Health Re-opener (updated EJP submitted in September 23). We have corrected the allowances per UID in table 4 and have included an updated table 12 in Appendix 4. The total funding request for this EJP of ██████████ has not changed.

⁶ As per Special Condition 3.10 the FOSR will be submitted for Ofgem consideration in February 2024.

Table 5 Plant and Equipment Bacton UIDs

£m - 18/19 prices							
UID		Submission Window	Funding Request (excl. Baseline allowance)	Baseline allowance	NARM Volumes updated	NARM Funding Category	Comment
NARMAHt							
██████████	CP Investigations and Rectification	Bacton FOS Re-opener	██████████	██████████	██████████	A1	Any true and additional funding will be requested as part of the Bacton re-opener submission.
██████████	Replacement of Failed IJs on AGIs	Bacton FOS Re-opener	██████████	██████████	██████████	A1	Any true and additional funding will be requested as part of the Bacton re-opener submission.
██████████	AGI Pipework Painting (Full, Partial or Patch)	Bacton FOS Re-opener	██████████	██████████	██████████	A1	Any true and additional funding will be requested as part of the Bacton re-opener submission.
██████████	Filters PSSR Inspection and Major Overhauls	Bacton FOS Re-opener	██████████	██████████	██████████	A1	Any true and additional funding will be requested as part of the Bacton re-opener submission.
██████████	Preheater PSSR Revalidation, WBH Inspection and Major Refurbs	Bacton FOS Re-opener	██████████	██████████	██████████	A1	Any true and additional funding will be requested as part of the Bacton re-opener submission.
NARMAHt Total Bacton P&E only			██████████	██████████			
Grand total Bacton P&E only							

Summary

6.9 As part of this submission we are proposing adjustment to two UID with Baseline allowances within the Plant and Equipment Theme for St Fergus and any other UIDs specific to those two sites are not included in the submitted Plant and Equipment EJP. As described above for St Fergus we have already made submission to adjust Baseline allowances in the January 23 and June 23 Asset Health re-opener windows.

6.10 The exception is the Baseline allowances received for UID ██████████ (compressor surge issue), where we are proposing to return the Baseline allowances received as part of the Asset Health Re-opener.

6.11 For Bacton we propose that the funding for UIDs which are not being delivered within the RIIO-T2 Baseline allowances received, should be considered as part of the Bacton re-opener.

6.12 The table below, Table 6, provides a summary of the Plant and Equipment UID baseline allowances awarded against the additional funding requested through our Reopener submissions and the net overall funding position.

Table 6 Plant & Equipment UID Summary

	£m (18/19)		
	Base line Allowances	Funding Requested	Total Allowances
Plant and Equipment UIDs	£68.53	£45.78	£114.31
St Fergus Plant and Equipment UIDs	█	█	█
Bacton Plant and Equipment UIDs	█	█	█
Total	█	█	█

7. Conclusion

- 7.1 This document summarises the separate products that constitute our January 2024 Asset Health Uncertainty Mechanism reopener submission and the overall funding being requested through this submission. Ofgem are invited to assess the funding requests against the applicable license terms as defined within this document.
- 7.2 NGTs overall funding request predominantly covers interventions proposed across the NTS on assets classed within the Plant & Equipment Asset Health theme.
- 7.3 NGT’s total funding request within the January 2024 Asset Health Reopener submission, is **£49.46m**, and is summarised in table 7 below, with the cost book for the submission in Appendix 7.

Table 7 June Asset Health Reopener Request Summary

License Condition / Submission Product			Submission Window		£m - 18/19 prices							Total	
					2022	2023	2024	2025	2026	RIO-T2 Total	2027		2028
AHt													
N/A													0
NLAHt													
NGT_AH3_04	Single Point of Failure Feasibility Assessment	Jan-24											0.380
NARMAHt													
NGT_AH3_02	Plant & Equipment EJP	Jan-24											45.778
NGT_AH3_03	Primary Protection Device	Jan-24											3.302
AHt January 2024 Total													0.000
NLAHt January 2024 Total													0.380
NARMAHt January 2024 Total													49.080
Grand Total January 2024													49.460

Appendix 1 – Table of Products

Appendix 1: Table of Products			
Product Nos	Product (Name)	Description	Status
NGT AH2 01 NGT AH3 01	Asset Health UM Overarching Document	This document providing an overarching regulatory Asset Health funding request to meet NGGT license obligations.	<ul style="list-style-type: none"> Submitted in Jan' 23. Resubmitted in June 23 Resubmitted in Jan 24
NGT AH2 14	Cab Infrastructure and Fire Suppression EJP	Document providing justification for Cab Infrastructure and Fire Suppression interventions across the NTS for years 4 and 5 of RIIO-T2.	<ul style="list-style-type: none"> Submitted in Jun' 23.
NGT AH2 15	Plant and Equipment RIIO-T2 Asset Health Surveys and FEED	Paper providing justification to commence Asset Health condition assessment surveys and Front-End Engineering Design (FEED) for identified Plant and Equipment (P and E) assets for the first two years (2026/27 and 2027/28) of RIIO-3	<ul style="list-style-type: none"> Submitted in Jun' 23.
	Re-base line NARMS Annex Special Condition 9.2 Network Asset Risk Metric	Document providing and update of the NARMS target and the Network Asset Risk Workbook (NARW) of the investments that arise from a the UMs.	<ul style="list-style-type: none"> Plan to submit post Jan' 24
NGT AH2 02	St Fergus Site Strategy	Document focusing on the summary detail of the St Fergus Asset Health Submission and funding requests, being submitted in January 2023.	<ul style="list-style-type: none"> Submitted in Jan' 23. Resubmitted in June 23
	St Fergus Actuators EJP	Paper providing justification for the removal of gas actuating pipework and subsequent replacement of key actuators at St Fergus gas terminal .	<ul style="list-style-type: none"> Submitted in Jan' 23.
	St Fergus Plant 1 Aftercooler EJP	Paper providing justification for replacement intervention on Plant 1 Aftercooler at St Fergus Gas Terminal .	<ul style="list-style-type: none"> Submitted in Jan' 23.
	St Fergus Avon Operability EJP	Paper providing justification for works to reinstate Unit 2B at St Fergus Gas Terminal . This is to ensure the site has sufficient short-term reliability due to impact of LCPD deadline of 31/12/2023 and overall reliability up to 2030 at St Fergus Gas Terminal	<ul style="list-style-type: none"> Submitted in Jan' 23.
	St Fergus Unit Decommissioning EJP	Paper providing justification for the removal of Units 2C and 2D at St Fergus Gas Terminal .	<ul style="list-style-type: none"> Submitted in Jan' 23.
	St Fergus Cathodic Protection EJP	Paper providing justification for replacement of the Cathodic Protection (CP) system at St Fergus Gas Terminal .	<ul style="list-style-type: none"> Submitted in Jan' 23.
NGT AH2 07	St Fergus Plant 2 Aftercooler EJP	Paper providing justification and a funding request for intervention on Plant 2 Aftercooler at St Fergus Gas Terminal .	<ul style="list-style-type: none"> Submitted in June 23.
NGT AH2 03	HV Transformers	Paper providing justification and a funding request for the replacement of the high voltage (HV) Transformers at St. Fergus Gas Terminal	<ul style="list-style-type: none"> Submitted in June 23.
NGT AH2 04	St Fergus Above Ground Pipework Corrosion	Paper providing justification and a funding request for the remediation and prevention of CM/4 defects identified through the routine and non-routine maintenance activities at St. Fergus Gas Terminal .	<ul style="list-style-type: none"> Submitted in June 23.
NGT AH2 05	HV Switchgear	Paper providing justification and a funding request for the replacement of the high voltage (HV) switchgear at St. Fergus Gas Terminal	<ul style="list-style-type: none"> Submitted in June 23.

NGT AH2 06	<i>Priority Valves (Phase 1)</i>	Paper providing justification and a funding request for the replacement of valves at the St. Fergus Gas Terminal	<ul style="list-style-type: none"> Submitted in June 23.
	<i>Fuel Gas Heating</i>	Paper providing justification and a funding request to upgrade of the fuel gas heating system at the St. Fergus gas terminal	<ul style="list-style-type: none"> Plan to submit in Jan 24.
	<i>Standby Generators</i>	Paper providing justification and a funding request for the most optimum and cost-effective investment to ensure a balance between cost, risk, and performance of the standby generators	<ul style="list-style-type: none"> Plan to submit in Jan 24.
	<i>Fire Water Ring Main</i>	Paper providing justification and a funding request justification to ensure the required level of availability and reliability of the Fire Water Ring Main assets is achieved	<ul style="list-style-type: none"> Plan to submit in Jan 24.
NGT AH2 08	<i>Cabs Asbestos Mitigation</i>	Paper providing justification and a funding request to address asbestos on Avon units being retained to 2030.	<ul style="list-style-type: none"> Submitted in June 23.
NGT AH2 09	<i>LV Switchboards and MCC</i>	Paper providing justification and a funding request for the optimum investments on LV switchgear and MCCs	<ul style="list-style-type: none"> Submitted in June 23.
NGT AH2 10	<i>Distribution Boards</i>	Paper providing justification and a funding request for the replacement of distribution board assets at St. Fergus Gas Terminal	<ul style="list-style-type: none"> Submitted in June 23.
NGT AH2 11	<i>Bacton Investment Strategy</i>	Document providing strategic direction for NGGT's short, medium and long-term investment proposals at Bacton.	<ul style="list-style-type: none"> Submitted in Jan' 23. Resubmitted in June 23
NGT AH2 12	<i>Overpressure Protection</i>	Paper providing justification and a funding request for investment to improve our overpressure protection systems at Bacton Gas Terminal, following an HSE inspection.	<ul style="list-style-type: none"> Submitted in June 23.
NGT AH2 13	<i>Bacton Enhanced Filtration</i>	Document providing justification for interventions to reduce liquid and dust being transported through Bacton Terminal.	<ul style="list-style-type: none"> Submitted Jan' 23 - needs case and preferred option submission. Submitted June 23 - cost submission
NGT AH3 02	<i>Plant and Equipment Engineering EJP</i>	Document providing justification for Plant and Equipment interventions across the NTS for years 4 and 5 of RIIO-T2.	<ul style="list-style-type: none"> Submitted in Jan' 24.
NGT AH3 03	<i>Primary Protective Device EJP</i>	Document providing Justification for investment to meet the requirements of an HSE Action Legal to remove uncontrolled bypass across the NTS	<ul style="list-style-type: none"> Submitted in Jan' 24.
NGT AH3 04	<i>Single Point of Failure EJP</i>	Document providing justification for funding to progress a feasibility assessment for eight feeders on the NTS to address the immediate concerns on network resilience	<ul style="list-style-type: none"> Submitted in Jan' 24.

Appendix 2 – Table of Products and UIDs

Appendix 2: UIDs relevant to this submission												
Submission Window	Relevant EJP		New UID?	UID Code	UID Name	NARM Funding Category	Secondary Asset Class	Unit of Measure	Proposed Volumes	Proposed Cost (£m 18/19)	Comments	
January 2023 Submission	St Fergus Actuators			██████	Process Valve Actuator Replacement	A1	46 - Process Valves	██████	█	█	N/A	
				██████	Locally Actuated Valve Actuator Replacement	A1	43 – Locally Actuated Valves	██████	█	█		
				██████	Remote Isolation Valve Actuator Replacement	A1	Process Valve Replacement	██████	█	█	This figure excludes baseline funding of ██████.	
		New		██████	Mass Flow Controller	A3	43 – Locally Actuated Valves	██████	█	█		
	St Fergus Plant 1 Aftercooler	New		██████	St Fergus Aftercooler Replacement	A2	02 - Aftercoolers	██████	█	█	We propose use the same UID for Plant 1 and Plant 2's aftercooler despite size differences.	
	St Fergus Avon Operability	New			██████	Air Intake Major Refurb - St Fergus 2B	A2	03 - Air Intake	██████	█	█	N/A
					██████	Cab Ventilation Major Refurb - St Fergus 2B	A2	06 - Cab Ventilation	██████	█	█	N/A
					██████	Exhaust Replacement - St Fergus 2B	A2	04 - Exhausts	██████	█	█	N/A
					██████	Cab Structure Major Refurbishment - St Fergus 2B	A2	09 - Civil Assets (Buildings/Enclosures)	██████	█	█	N/A
	St Fergus Unit Decommissioning	New		██████	St Fergus - Decommissioning of Compressor Unit	N/A	Various	██████	█	█	This work is decommissioning so it is proposed to put this into the decommissioning pot against this UID.	
	St Fergus Cathodic Protection			██████	Replacement of CP system at St Fergus	A1	15 - Cathodic Protection	██████	█	█	This figure excludes baseline funding of ██████.	
June 2023 Submission	NGT_AH2_03	St Fergus HV Transformers		██████	Transformers Replacement	A2	16 - Electrical (Including Standby Generators)	██████	█	█		
	NGT_AH2_04	St Fergus Above Ground Pipework Corrosion		██████	Resolve CAT4 CM/4 Defects on pipework (St Fergus)	A3	32 - Above Ground Pipework	██████	█	█		
				██████	Resolve CAT4 CM/4 Defects on pipework (St Fergus)	A3	32 - Above Ground Pipework	██████		█		
				██████	Resolve CAT4 CM/4 Defects on pipework (St Fergus)	A3	32 - Above Ground Pipework	██████	█	█		

			██████	Above Ground Pipework Patch Painting	A3	32 - Above Ground Pipework	██████	█	██████	
NGT_AH2_05	St Fergus HV Switchgear		██████	HV Switchgear Major Refurb	A2	16 - Electrical (Including Standby Generators)	██████	█	██████	
NGT_AH2_06	St Fergus Priority Valves (Phase 1)		██████	Locally Actuated Valve Replacement	A2	43 – Locally Actuated Valves	██████	█	██████	
			██████	Process Valve Replacement	A2	46 - Process Valves	██████	█	██████	
			██████	Process Valve Actuator Replacement	A1	46 - Process Valves	██████	█	██████	
NGT_AH2_07	St Fergus Plant 2 Aftercooler	New	██████	St Fergus Aftercooler Replacement	A2	02 - Aftercoolers	██████	█	██████	We propose use the same UID for Plant 1 and Plant 2's aftercooler despite size differences.
NGT_AH2_08	St Fergus Cabs Asbestos Mitigation	New	██████	St Fergus - Decommissioning of Compressor Unit	N/A	Various	██████	█	██████	This work is decommissioning so it is proposed to put this into the decommissioning pot against this UID.
NGT_AH2_09	St Fergus LV Switchgear and MCCs		██████	LV Distribution Boards Replacement	A2	16 - Electrical (Including Standby Generators)	██████	█	██████	
NGT_AH2_10	St Fergus Distribution Boards		██████	LV Distribution Boards Replacement	A2	16 - Electrical (Including Standby Generators)	██████	█	██████	
NGT_AH2_13	Bacton Filtration Cost	New	██████	Installation of filters on Feeders at Bacton	A2	18 - Filter / Scrubbers	██████	█	██████	As these are New Additions of Assets there will be no reportable LTRB.
			██████	Installation of filters on incomers at Bacton	A2	18 - Filter / Scrubbers	██████	█	██████	
NGT_AH2_12	Overpressure Protection	New	██████	Over-Pressurisation Logic and Control Implementation	A2	32 - Above Ground Pipework	██████	█	██████	This result in no reportable LTRB due to a lack of available assets to report against
NGT_AH2_14	Compressor Cabs		██████	Air Intake Major Refurb	A3	03 - Air Intake	██████	█	██████	N/A
			██████	Exhaust Minor Refurb	A3	04 - Exhausts	██████	█	██████	N/A
			██████	Exhaust Replacement	A3	04 - Exhausts	██████	█	██████	N/A
			██████	Cab Structure Major Refurbishment	N/A	09 - Civil Assets (Buildings/Enclosures)	██████	█	██████	All Civils SACs are a volume PCD
			██████	Air Intake Minor Refurb	A3	03 - Air Intake	██████	█	██████	N/A
			██████	Air Intake Replacement	A3	03 - Air Intake	██████	█	██████	N/A
			██████	Cab Ventilation Major Refurb	A3	06 - Cab Ventilation	██████	█	██████	N/A

				██████	Pressure Reduction - Flow Control Valve Upgrade	A1	21 - Flow Or Pressure Regulators	██████	█	██████	N/A
				██████	Pressure Reduction Offtakes - Regulator Replacement	A1	21 - Flow Or Pressure Regulators	██████	█	██████	N/A
				██████	Pressure Reduction Skid Replacement - Compressor Stations	A1	21 - Flow Or Pressure Regulators	██████	█	██████	N/A
				██████	Pressure Reduction Streams - Major Overhauls	A1	21 - Flow Or Pressure Regulators	██████	█	██████	N/A
				██████	Pressure Reduction - Flow Control Valve Upgrade	A1	47 - Slamshut System	██████	█	██████	N/A
				██████	Pressure Reduction Offtakes - Regulator Replacement	A2	47 - Slamshut System	██████	█	██████	N/A
				██████	Pressure Reduction Skid Replacement - Compressor Stations	A1	47 - Slamshut System	██████	█	██████	N/A
				██████	Pressure Reduction Streams - Minor Overhauls	A1	47 - Slamshut System	██████	█	██████	N/A
				██████	Pipework modifications - compressor surge issues	A1	32 - Above Ground Pipe Coating	██████	█	██████	N/A
				██████	Pipework modifications - Minor CAPEX	A1	32 - Above Ground Pipe Coating	██████	█	██████	N/A
NGT_AH3_02	Primary Protection Device	New	██████	Installation of Interlocks on Bypass Pipes	A2	47 - Slamshut System	██████	█	██████	N/A	
		New	██████	St Fergus - PPD Bypass - Remove Bypass and Blank Flanges	A2	47 - Slamshut System	██████	█	██████	N/A	
		New	██████	Bacton - PPD Bypass - Remove Bypass and Blank Flanges	A2	47 - Slamshut System	██████	█	██████	N/A	
		New	██████	PPD Bypass - Remove Bypass and Blank Flanges	A2	47 - Slamshut System	██████	█	██████	N/A	
		New	██████	PPD Bypass - Install New Stream	A2	47 - Slamshut System	██████	█	██████	N/A	

Appendix 3 – Jan 23 and Jun 23 and Jan 24 Combined Request summary

License Condition / Submission Product		Submission Window	Allowance Request £m - 18/19 prices								Total	
			2022	2023	2024	2025	2026	RIIO-T2 Total	2027	2028		RIIO-T3 Total
AHt												
	St Fergus Unit Decommissioning	Jan-23										
NGT_AH2_10	St Fergus Cabs Asbestos Mitigation	Jun-23										
NGT_AH2_14	Cabs RIIO-2 Surveys and FEED for RIIO-3	Jun-23										
NGT_AH2_15	Plant & Equipment RIIO-2 Surveys and FEED for RIIO-3	Jun-23										
NLAHOT												
NGT_AH2_14	Cabs Infrastructure & Fire Suppression Systems Yrs 1-3 Additional Request	Jun-23										
	Cabs Infrastructure & Fire Suppression Systems Yrs 4-5	Jun-23										
NGT_AH3_04	Single Point of Failure Feasibility Assessment	Jan-24										
NARMAHOT												
	St Fergus Actuators	Jan-23										
	St Fergus Plant 1 Aftercooler	Jan-23										
	St Fergus Cathodic Protection Replacement	Jan-23										
	St Fergus Avon Operability and Availability	Jan-23										
NGT_AH2_03	St Fergus HV Transformers	Jun-23										
NGT_AH2_04	St Fergus Above Ground Pipework Corrosion	Jun-23										
NGT_AH2_05	St Fergus HV Switchgear	Jun-23										
NGT_AH2_06	St Fergus Priority Valves (Phase 1)	Jun-23										
NGT_AH2_07	St Fergus Plant 2 Aftercooler	Jun-23										
NGT_AH2_08	St Fergus LV Switchgear & MCCs	Jun-23										
NGT_AH2_09	St Fergus Distribution Boards	Jun-23										
NGT_AH2_12	Bacton Overpressure Protection	Jun-23										
NGT_AH2_13	Bacton Filtration	Jun-23										
NGT_AH3_02	Plant & Equipment EJP	Jan-24										
NGT_AH3_03	Primary Protection Device	Jan-24										
AHt Total												9.687
<i>AHt Jan 23 Total</i>												2.770
<i>AHt June 23 Total</i>												6.917
<i>AHt Jan 24 Total</i>												0.000
NLAHOT Total												27.255
<i>NLAHOT Jan 23 Total</i>												0
<i>NLAHOT June 23 Total</i>												27.255
<i>NLAHOT Jan 24 Total</i>												0.380
NARMAHOT Total												199.766
<i>NARMAHOT Jan 23 Total</i>												41.835
<i>NARMAHOT June 23 Total</i>												108.851
<i>NARMAHOT Jan 24 Total</i>												49.080
Grand Total Jan 24												49.460
Grand Total Cumulative												236.708

Appendix 4 – Updated St Fergus Above Ground Pipework Corrosion Table 12

The table below presents an updated position for NGT_AH2_04 St Fergus Above Ground Pipework Corrosion **Table 12 UID Details**. Two corrections have been identified and updated numbers are highlighted in **yellow** below. The funding request as detailed in our submission in June 2023 is unchanged for this element (██████████).

Scope	UID	Base ne vo ume of Intervention (By PP)	Base ne tota fund ng ava ab e	ECC un t cost	Current vo ume of ntervent on	ECC tota fund ng requ red (£m 18/19)	Output Year	UID fund ng requested through UM (£m)
		(by un t of measure)	(£m 18/19)	(£m 18/19)	(by un t of measure)			
Corros on (PAC3419)	██████████	██████████	██████████	██████████	██████████	██████████	██████████	██████████
P t wa trans t ons	██████████	██████████	██████████	██████████	██████████	██████████	██████████	██████████
S te w de pa nt ng and power wash ng	██████████	██████████	██████████	██████████	██████████	██████████	██████████	██████████
Category 4 5 and 6 CM/4 Defects forecast	██████████	██████████	██████████	██████████	██████████	██████████	██████████	██████████
Tota s	██████████	██████████	██████████	██████████	██████████	██████████	██████████	██████████

Appendix 5 - Assurance Letter

Appendix 6 – Mapping of Ofgem Requirements

Appendix 7 – Cost book Plant and Equipment incl. PPD