

Asset Health Uncertainty Mechanism Overarching Document

January 2023

As a part of the NGGT Uncertainty Mechanism Submission



nationalgrid

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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 is carefully managed. This document is National Grid Gas Transmission's (NGGT) submission summary to apply for regulatory funding through Special Condition 3.14 Asset Health Re-opener (AHr) of NGGT's Licence, National Grid Gas Plc – Gas Transporter Licence - Special Conditions¹. It is an overarching summary document aimed at providing an overview of all Asset Health related Uncertainty Mechanism (UM) themes. It also summarises additional justification to that afforded at the time of the RIIO-T2 Business Plan Submission in December 2019. A range of no regrets, spend at risk Asset Health Investments at St Fergus and Bacton were identified that were not funded through baseline allowances provided as part of Ofgem's Final Determination in December 2020. Through engagement with Ofgem, NGGT is including these, as part of, and within the overall Asset Health UM submission.

The focus of this document version is on the summary detail of the St Fergus Site Strategy (SS) funding request - comprising five Engineering Justification Papers (EJPs) and Bacton Investment Strategy (IS) - Phase 1 Filtration Needs Case and Options – thus comprising one EJP being submitted in January 2023. This document will be updated and resubmitted in June 2023 and January 2024 with other submission products (including additional St Fergus and Bacton content) to provide the overarching view of our funding request against NGGT license conditions and a summary running total of NGGT's funding request to date.

NARMs categories relevant to St Fergus and Bacton January 2023 submissions are spread over categories A1 to A3², encompassing Baseline and UM funding. Any work against pre-existing Unique Identifiers (UIDs) in A1 will lead to reinstatement of the target. It is proposed that any new UIDs will fall into NARMs pots A2/A3 (volume Price Control Deliverables (PCD) so Long-Term Risk Benefit (LTRB) is not a performance factor). Decommissioning UIDs will be in the redundant assets pot. It is proposed all investments arising from the UMs will be collated from the separate submission windows and one NARMs update provided post the Plant & Equipment submission.

The St Fergus EJPs, summarised within an accompanying Site Strategy paper, cover Actuators, Plant 1 Aftercooler, Avon Operability, Cathodic Protection and Unit Decommissioning for which the total additional allowances requested through the reopener licence terms is **£44.604m**.

NGGT's total funding request covering St Fergus Asset Health investments, as of January 2023, completed at risk including accelerated and medium term – no regrets investments, is **£44.604m**.

The methodologies used to derive proposed unit costs and evidencing of works, covering differing scopes and magnitudes, have been improved based on the Final Determination feedback, largely through progression of funded investments, collation and assessment of surveyed defect data for potential years 4 and 5 interventions and regular bilateral engagement with Ofgem.

To reduce the risk of delayed investment initiation, NGGT proposes to undertake surveys, within the RIIO-T2 period, to identify potential Asset Health works for the next regulatory period covering the Cab Infrastructure & Fire Suppression themes. Survey scope and costs are being developed to enable funding requests to be made to Ofgem to undertake these activities.

¹<https://epr.ofgem.gov.uk/Content/Documents/National%20Grid%20Gas%20Plc%20-%20Special%20Conditions%20Consolidated%20-%20Current%20Version.pdf>

² https://www.ofgem.gov.uk/sites/default/files/docs/2021/02/narm_handbook_v1.3_1.pdf

1. Introduction

- 1.1. This document ('Asset Health (AH_t) Uncertainty Mechanism Overarching Document') is used to provide an overarching regulatory funding request to meet National Grid Gas Transmissions (NGGT's) license obligations (Special conditions 3.1, 3.14 and 3.15). These licence obligations encompass *Cab & Fire Suppression Infrastructure (Cabs)* and *Plant & Equipment (P&E)* Asset Health themes across the National Transmission System (NTS). This document is designed to provide high level clarity of investment across these themes and the many detailed aspects of Asset Health work.
- 1.2. St Fergus and Bacton terminals, which are NGGT's two top tier Control of Major Accident Hazard (CoMAH) sites have Cabs and P&E themes Asset Health concerns. A range of no regrets Asset Health investments at these sites have been identified, which are not funded through baseline funding. The January 2023 submission focuses on the delivery of terminal components of the overall Asset Health UM submission.
- 1.3. This document version focuses on the summary detail of the St Fergus Site Strategy (SS) funding request and Bacton Investment Strategy (IS) - Phase 1 Filtration Needs Case and Options, being submitted in *January 2023*. An overview of the progression of Cabs & Fire Suppression and Plant & Equipment Asset Health Uncertainty Mechanism (UM) themes, scheduled for *June 2023* and *January 2024* submissions respectively, is provided. The document also delivers a summary look ahead to the next regulatory period, post RIIO-T2.
- 1.4. Guidance on the submission structure, the individual products and summary of the overall funding request are included in this document. More detailed information can be found in the individual St Fergus and Bacton products covered by this overarching document.
- 1.5. This document shall be updated and resubmitted in June 2023 and January 2024 with other submission products to provide the overarching view of NGGT's funding request against NGGT license conditions and a summary running total of NGGT's funding request to date.
- 1.6. All costs in this document are at 2018/19 price base.

2. Summary Tables

- 2.1. NGGT's request for regulatory funding through the Asset Health (AH_t) reopener is outlined in Table 1. This is aligned to the Regulatory Reporting Pack (RRP).

Table 1: St Fergus and Bacton Asset Health Summary Table (January 2023)

Name of Scheme/Programme	Asset Health Reopener (AH _t)
Primary Investment Driver	Asset Health
Scheme Reference / Mechanism or Category	SPc 3.14 - Asset health Re-opener (AH _t); SPc 3.1 - Network Asset Risk Metric (NARM) Asset Health Re-opener (NARMAHO _t) SPc 3.15 - Asset Health – non lead assets Re-opener (NLAHOT)
Cost (18/19 price base)	£44.604m
Delivery Year	2021-2026
Reporting Table	3.03b

- 2.2. As part of Ofgem's Final Determination in 2020, the license obligation was for the entire Asset Health reopener to be submitted in January 2023. In early 2022, NGGT determined that the quality and quantity of data to inform the January 2023 submission date would not be sufficient. Through engagement with Ofgem, an agreement was made to convert the one January 2023 submission window into three separate windows in January 2023, June 2023 and January 2024. The AH_t Reopener submission is split into a number of products, each

with supporting Engineering Justification Papers (EJPs), to be submitted over these submission windows. This is summarised in Table 2 and pictorially illustrated in Figure 1. The June 2023 and January 2024 submissions are greyed out throughout the document, as the focus of this version is the January 2023 St Fergus and Bacton asset health components of the reopener.

- 2.3. A list of all the products contained within the submission are shown in Appendix 1 along with their reference number and a short description of the contents.

Table 2: Proposed Product Development and Submission Dates

AH Submission Date	AH Submission Products
January 2023	<ul style="list-style-type: none"> Asset Health UM Overarching Document (Product 1). St Fergus Site Strategy (Product 4). St Fergus EJPs x05 (Product 4). Bacton Investment Strategy (Product 5). Bacton Filtration Needs Case and Options EJP (Product 5).
June 2023	<ul style="list-style-type: none"> Asset Health UM Overarching Document (Product 1) Updated. St Fergus Site Strategy (Product 4) Updated Cab Infrastructure and Fire Suppression EJP (Product 2). St Fergus EJPs x circa 20 and Bacton documentation (Products 4 & 5). Possible additional Cabs and P&E documentation (Products 2 &3) Bacton Filtration Cost Submission EJP (Product 5)
January 2024	<ul style="list-style-type: none"> Asset Health UM Overarching Document (Product 1) Updated. Plant and Equipment Summary Document (Product 3). Plant and Equipment EJPs x04 (Product 3). Possible additional St Fergus and Bacton documentation (Products 4 & 5). Possible additional Cabs and P&E documentation (Products 2 &3).

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 carefully managed. NGGT’s submission through the Asset Health Reopener (AH_t) license condition includes a range of supplementary documents that provide justification for a range of interventions to ensure NGGT 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 AH_t, NARMAHOT and NLAHOT license terms, can be split into four broad investment themes:
- St Fergus Site Strategy** (January 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 AH_t provides certainty on the terminal operation requirements, including minimum compression across Plant 1 and 2, for operation out to 2030. The long-term strategy will deliver the enduring terminal solution, including gas compression, required for operation beyond 2030. The outcome of the AH_t has been the development of several investment needs cases on assets across the site. As a result of engagement with Ofgem through FY21 it was agreed to utilise this Asset Health Reopener Submission to request funding for these investments. A number of these investments could not wait for this submission and have commenced or been completed at risk and the funding request is therefore retrospective in nature. Other investments are forward looking, and funding is requested for these to be undertaken in years 3, 4 and 5 of RIIO-T2. Separate RIIO-T2 funded investments in Asset Health, Cyber Resilience, Physical Security and Redundant Assets are being managed concurrently to ensure consistency and alignment with the wider strategy. Based upon the AH_t are a series of EJPs which will be submitted to Ofgem through

various RIIO-T2 reopeners. These EJPs will cover the investments listed in Table 2 and Figure 1. Based on the anticipated volume of investments at St Fergus it is likely that submissions will be spread across further Asset Health reopener windows.

- **Bacton Investment Strategy - Phase 1** (January 2023 submission) – In understanding the future requirements and developing NGGT’s investment proposals at Bacton Terminal since the RIIO-T2 business plan final determinations, NGGT have adopted a two-phase strategy to ensure clarity between Phase 1 No Regrets Asset Health Investments and Phase 2 Long-term Site Operating Strategies. NGGT’s Phase 1 Strategy is aimed at managing asset risks across the terminal, whilst the clarity on the future terminal solution is developed through the Future Operating Strategy (FOS) Front End Engineering Design (FEED). Within Phase 1 NGGT has split the investments into:
 - **‘Accelerated’** investments have been categorised due to the current impact the needs case is posing to terminal operations.
 - **‘Medium-Term’** investments have been identified as no regrets based on the options under consideration through the FOS workstream.

Through engagement with Ofgem across FY22 it was agreed to utilise this Asset Health Reopener Submission to request funding for these investments. In January 2023 NGGT’s filtration enhancement EJP seeks approval of the needs case and preferred options for asset mitigations to prevent disruptions to security of supply as a result of solid materials entering the terminal. This has been managed in the short term through operational mitigations, however these are unsustainable due to Health, Safety and Environmental impacts. The January EJP will be followed by a funding request through the June 2023 Asset Health Reopener window.

Based on the anticipated volume of investments at Bacton it is anticipated that a number of other submissions will be spread across the further Asset Health reopener windows. The Bacton Investment Strategy Summary provides further details on these investments and submission plans.

- **Cab Infrastructure and Fire Suppression** (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. Funding is requested for investments in years 4 & 5 of RIIO-T2 identified through review of NGGT’s RIIO-T2 Business Plan Submission and additional surveys completed during RIIO-T2. This reopener window will include elements of St Fergus and possibly Bacton asset health requests.
- **Plant & 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 for over their original life of 40 years. Funding is requested for investments in years 4 & 5 of RIIO-T2 identified through review of NGGT’s RIIO-T2 Business Plan Submission and additional surveys completed during RIIO-T2. It is likely that this reopener window will include elements of St Fergus and Bacton asset health requests.

3.3. EJPs are in development for these investments split across the three asset health submission windows.

4. License Conditions

4.1. This section provides a summary explanation of the licence conditions and how this document provides the necessary submission in line with the Licence condition.

- 4.2. Special Condition 3.14 of the NGGT Licence (National Grid Gas Plc – Gas Transporter Licence - Special Conditions), relating to the Asset Health Re-opener (Aht) enables NGGT to seek allowances for a number of licence terms. This licence condition enables the licensee, NGGT, to apply for direction to adjust the value of:
 - SPc 3.14 - Asset health Re-opener (Aht,);
 - SPc 3.1 - NARM Asset Health Re-opener (NARMAHO_t); and
 - SPc 3.15 - Asset Health – non lead assets Re-opener (NLAHO_t).
- 4.3. The Asset Health Reopener (Aht) provides the mechanism for the submission, with the Non-Load Asset Health (NLAHO_t) and Network Asset Risk Metrics (NARMs) Asset Health investment (NARMAHO_t) terms and reopeners directed in accordance with Special Condition 3.14.
- 4.4. Following agreement with Ofgem, funding requests are being made for work that has been undertaken at risk at St Fergus within NARMAHO_t, apart from St Fergus 2C and 2D decommissioning which falls under the wider asset health re-opener term Aht.
- 4.5. In accordance with this license condition NGGT’s Asset Health Reopener submission seeks to modify all three values within the GT2 Price Control Financial Model (PCFM). Table 5 in Section 6 defines NGGT’s funding request in respect to these terms.

5. Overall Asset Health Submission Products and Structure

- 5.1. This document aims at providing consistency across all investment areas, providing the overarching view of funding requested back to the applicable license obligation.
- 5.2. NGGT’s submission for the Asset Health Reopener (Aht) is made up of a series of documents including EJPs, proposed Price Control Deliverable (PCD) Annex and a Re-baselined NARMs Annex. It comprises five main products as summarised in Figure 1, with Table 3 providing a summary of what is included in each of the five main products:
 - **Product 1:** Asset Health UM Overarching Document;
 - **Product 2:** Cabs Infrastructure and Fire Suppression;
 - **Product 3:** Plant and Equipment;
 - **Product 4:** St Fergus Site Strategy; and
 - **Product 5:** Bacton Investment Strategy.

Table 3: Asset Health Submission Structure Summary

Asset Health Submission Structure Summary	
Product: Name (No)	Description
Asset Health UM Overarching Document (1)	Document providing an overarching regulatory funding request to meet NGGT licence obligations (Special Condition 3.1, 3.14 and 3.15) covering all five submission products.
Cabs Summary Document (2)	Document summarising the Cabs AH UM funding request.
Cabs Infrastructure and Fire Suppression EJP (2)	Document summarising the justification for the required investment in Cab Infrastructure Assets.
Plant and Equipment Summary Document (3)	Document summarising the P&E AH UM funding request.
Plant and Equipment EJPs (3)	Document summarising the justification for the required investment in P&E Infrastructure Assets.
St Fergus Site Strategy (4)	Document focusing on the summary detail of the St Fergus Asset Health Submission and funding requests, being submitted in January 2023.
St Fergus Actuators EJP (4)	Paper providing justification for the removal of gas actuating pipework and subsequent replacement of key actuators at St Fergus Gas Terminal.
St Fergus Plant 1 Aftercooler EJP (4)	Paper providing justification for replacement intervention on Plant 1 Aftercooler at St Fergus Gas Terminal.
St Fergus Unit Decommissioning EJP (4)	Paper providing justification for the removal of Units 2C and 2D at St Fergus Gas Terminal.

Asset Health Submission Structure Summary	
Product: Name (No)	Description
St Fergus Avon Operability EJP (4)	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
St Fergus Cathodic Protection EJP (4)	Paper providing justification for replacement of the Cathodic Protection (CP) system at St Fergus Gas Terminal.
St Fergus Plant 2 Aftercooler EJP (4)	Paper providing justification for intervention on Plant 2 Aftercooler at St Fergus Gas Terminal.
St Fergus Coating and Corrosion EJP (4)	Paper providing justification for remediation and prevention of CM4 defects identified through NGGT's non-routine maintenance activities at St Fergus Gas Terminal.
St Fergus Asbestos EJP (4)	Paper providing justification for work to address asbestos on Avon units being retained to 2030.
StF. additional EJPs x 20 (in development).	Originally destined to be included in Emissions UM. Number to be confirmed post January 2023 submission.
Bacton Investment Strategy (5)	Document providing strategic direction for NGGT's short, medium and long-term investment proposals at Bacton.
Bacton Filtration (5)	Document providing justification for interventions to reduce solids being transported through Bacton Terminal.
Possible additional Bacton EJPs	Number to be confirmed post January 2023 submission.

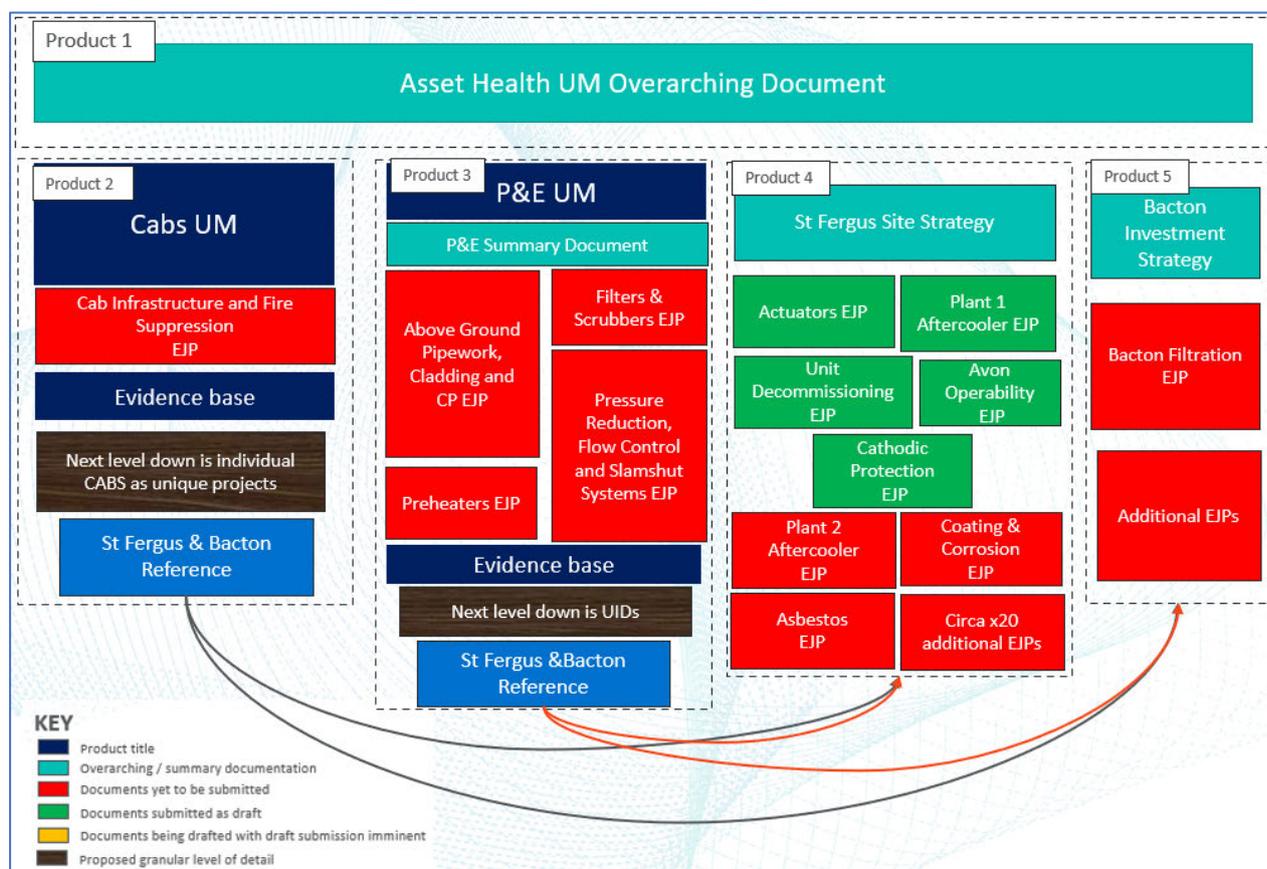


Figure 1: Asset Health Submission Structure

5.3. The submission structure clearly separates the St Fergus spend at risk and Bacton accelerated investments from the forward-looking investments proposed to be submitted from the Cabs and Plant & Equipment (P&E) UM products.

6. January 2023 Submission Products

6.1. This January 2023 submission focusses specifically on St Fergus and Bacton Asset Health EJPs and supporting documentation. Both St Fergus and Bacton have specific summary

Asset Health Re-Opener Submission

documents, EJPs and associated analysis supporting those investments completed at risk and accelerated and medium term – no regrets investments. In addition to their own specific summary strategy documents, the Bacton submission has one EJP whilst the St Fergus submission comprises five EJPs as shown in Figure 2.

6.2. A status summary of the St Fergus and Bacton January 2023 submissions, is provided in Table 4, highlighting what has already been submitted to Ofgem as draft. A more granular cost breakdown is presented in Table 8, with additional details included in Appendix 1.

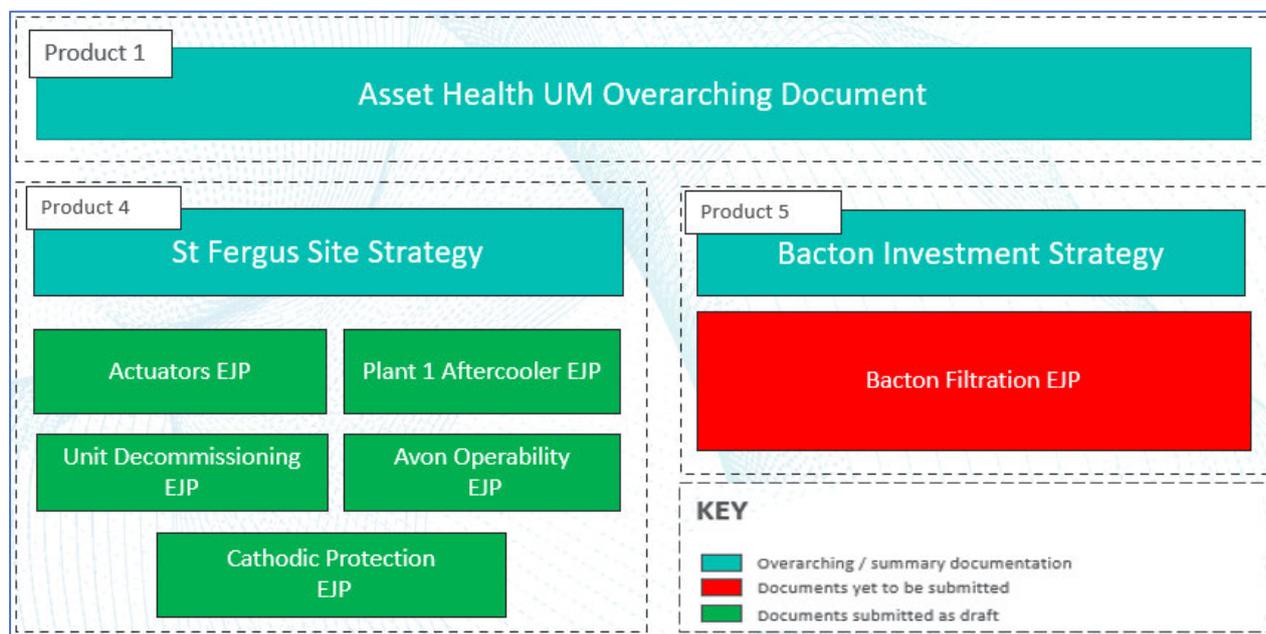


Figure 2: January 2023 Asset Health Submission Products

Table 4: January 2023 Submission Status

Product: Name (No)	Draft submitted to Ofgem prior to January 2023 submission?	Document to be submitted in January 2023	Cost in Draft (£m)	Cost in Final (£m)	Delta (F – D)
Asset Health UM Overarching Document	N	Y	-	-	-
St Fergus Site Strategy (4)	Y	Y	-	-	-
St Fergus Actuators EJP (4)	Y	Y	-	-	-
St Fergus Plant 1 Aftercooler EJP (4)	Y	Y	-	-	-
St Fergus Avon Operability EJP (4)	Y	Y	-	-	-
St Fergus Unit Decommissioning EJP (4)	Y	Y	-	-	-
St Fergus Cathodic Protection EJP** (4)	Y	Y	-	-	-
St Fergus Total (£)	N/A	N/A	47.122	44.604	-2.518
Bacton Investment Strategy (5)	N	Y	-	-	-
Bacton Filtration (5)	N	Y	N/A	N/A	N/A
Bacton Total (£)	-	Y	-	N/A	N/A
TOTAL	N/A	N/A	47.122	44.604	-2.518

6.3. Specific EJPs and associated analysis, including supplementary documents, will be utilised to provide a revised programme of investments across years 4 and 5 for the Cab Infrastructure & Fire Suppression and Plant & Equipment Asset Health Investment themes. These will be addressed in more detail through their subsequent submissions in June 2023 and January 2024.

7. Submission Timings and Spend at Risk

7.1. Whilst there are a range of submission products, NGGT and Ofgem have also agreed multiple Asset Health UM submission windows. Submission products and their respective submission timings are summarised in Table 5. This Asset Health UM Overarching Document will be updated with each submission (January 2023, June 2023 and January 2024) to reflect the current view of NGGT’s funding request taking into account any previous submissions.

7.2. These submission timings have been agreed bilaterally between NGGT and Ofgem and the respective licences amended³.

Table 5: Submission Products and timings

Submission Products	Submission Dates		
	Jan-23	Jun-23	Jan-24
Asset Health UM Overarching Document (Product 1)	Red		
St Fergus Site Strategy (Product 4)	Red		
St Fergus EJPs (x5) (Product 4)	Red		
Bacton Investment Strategy (Product 5)	Red		
Bacton Filtration Needs Case and Options EJP (Product 5)	Red		
Asset Health UM Overarching Document (Product 1) - updated		Red	
Cab Infrastructure and Fire Suppression EJP (Product 2)		Red	
Possible additional St Fergus and Bacton documentation (Products 4&5)		Red	
Possible additional Cabs and P&E documentation (Products 2 &3)		Red	Red
Bacton Filtration Cost Submission EJP (Product 5)		Red	Red
Asset Health UM Overarching Document (Product 1) - updated			Red
Plant and Equipment Summary Document (Product 3)			Red
Plant and Equipment EJPs (x 4) (Product 3)			Red
Possible additional St Fergus and Bacton documentation (Products 4&5)			Red
Possible additional Cabs and P&E documentations (Products 2 &3)			Red

7.3. Due to the nature and criticality of some assets, and the timing of proposed submission windows (June 2023 (Cabs) and January 2024 (P&E)), waiting for the outcome of Ofgem assessments, draft determinations and directions will have an impact on the operability of the NTS. To de-risk this impact NGGT will therefore need to spend at risk to enable timely tenders for Long Lead Items (LLIs), including no regrets intervention activities and those identified as being critical. Focus will be made on identifying higher confidence work, and those works requiring LLIs, to reduce the risk of planned RIIO-T2 asset health interventions not being completed expeditiously. Ongoing bilateral engagement with Ofgem will be used to firm up these plans, with a view of optimising the critical spend at risk interventions.

8. NARMs and Unique Identifiers (UIDs)

8.1. The RIIO-T2 Business Plan Final Determinations set out a number of output metrics. The two main metrics relevant for this submission are:

- Networks Asset Risk Metrics (NARMs) Benefit, and
- Volume Price Control Deliverables (PCDs).

8.2. NARMs, applicable mainly to Plant and Equipment, is a new method created by Ofgem to measure the long-term monetised risk benefits (LTRB) delivered by investments (corresponding to the life of the asset, or intervention). Figure 3 summarises the NARM funding categories and their relationship to the RIIO-T2 Business Plan and Final

³ <https://www.ofgem.gov.uk/publications/direction-and-proposed-directions-under-national-grid-gas-spcs-310-311-and-314>

Determinations. Table 6 summarises the UIDs and NARMs categories identified as being relevant to this January 2023 submission. More detail is provided in Appendix 2.

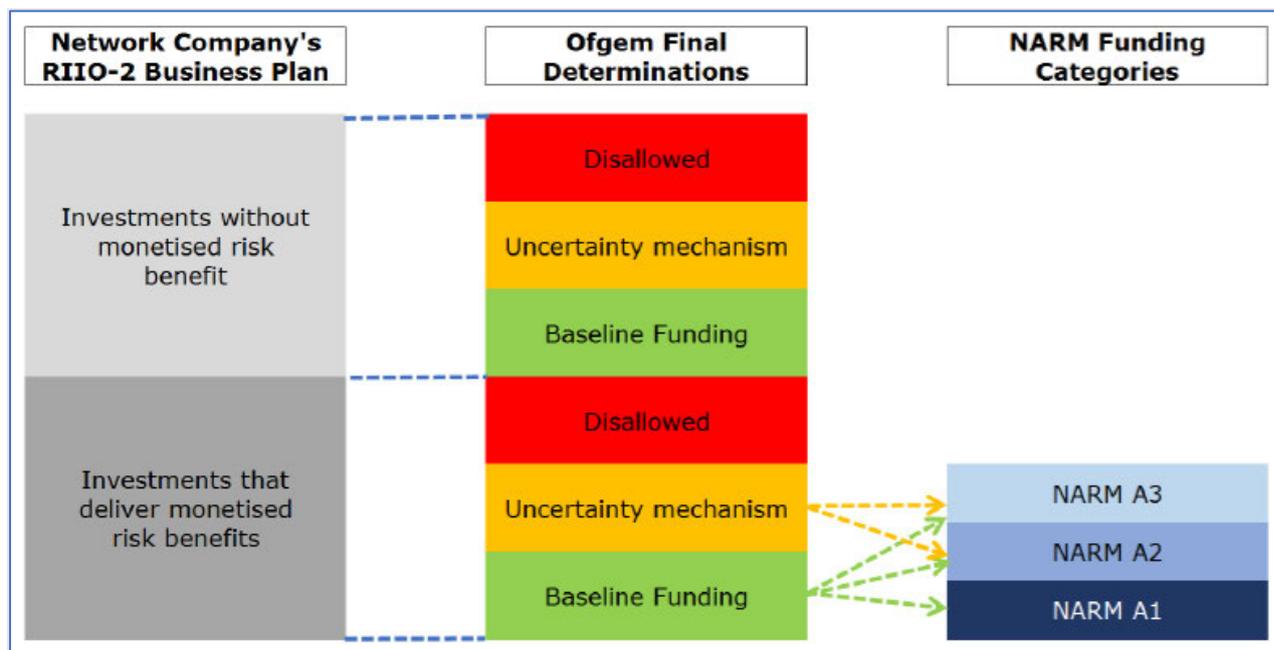


Figure 3: NARM Funding Categories and relationship to RIIO-T2 Business Plans and Final Determinations

- **NARM A1** - work that delivers against NGGT's overall LTRB target and will cause an adjustment to Baseline Network Risk Output (BRNO) and contribute to Oughtum Network Risk Output (ONRO).
- **NARM A2** – New UIDs (work outside of the NARMs funding adjustment)
- **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 company's final ONRO.

8.3. Volume PCDs, applicable mainly to Cab Infrastructure and Fire suppression, have volume targets. The objective for these is to deliver the defined volume of interventions for the least cost.

Table 6: St Fergus and Bacton UIDs relevant to this submission

Summary document	Relevant EJP	NARM Funding Category	New UID?	UID Code
St Fergus Site Strategy comprising the strategy document and x05 Jan '23 EJPs.	St Fergus Actuators	A1	N/A	[REDACTED]
		A1	N/A	
		A1	N/A	
		A1	New	
	St Fergus Plant 1 Aftercooler	A2	New	
	St Fergus Avon Operability	A2	New	
		A2	N/A	
		A2	N/A	
	St Fergus Unit Decommissioning	N/A	New	
St Fergus Cathodic Protection	A1	N/A		
Bacton Investment Strategy comprising the investment strategy document and x01 EJP.	Installation of filters on Feeders at Bacton	A2	New	[REDACTED]
	Installation of filters on incomers at Bacton	A2	New	[REDACTED]

8.4. Following discussions with Ofgem in the NARM Development Monthly Meetings, the initial view, while not finalised, is that any work proposed against pre-existing UIDs in the NARMs A1 pot will lead to a restatement of the target. Any new UIDs will automatically fall into the NARMs Pot A2/A3. Pots A2 & A3 are essentially volume PCDs, and as such the LTRB is not a factor for performance. Decommissioning type work, as outlined in the St Fergus Unit Decommissioning paper, relates to Redundant Assets, which fall within the decommissioning

- pot and therefore are outside the NARMs mechanism. Redundant Assets do not have a reopener, therefore NGGT is requesting funding for this intervention as part of Asset Health.
- 8.5. It is proposed that rather than updating both the NARMs target and the Network Asset Risk Workbook (NARW) following each individual UM Submission, all of the investments that arise from the UMs are collated and one NARMs update is provided. Subject to further development and engagement, this update will be submitted on a date to be mutually agreed, post Ofgem direction on the final Asset Health submission in January 2024.
 - 8.6. Appendix 2 contains a list of current and proposed UIDs for the work outlined in each of the respective engineering justification reports. This includes the definition and proposed pots for any new UIDs. These will be used for reporting in FY23.

9. Funding Requested

- 9.1. This January 2023 submission has focussed solely on St Fergus (Product 4) and Bacton (Product 5). As products 2 (Cabs) and 3 (P&E) are still in development, there are no funding request values – these values will be provided in subsequent updates of this overarching document. Table 7 therefore focuses solely on St Fergus and Bacton January 2023 funding requests, while Table 8 summarises NGGT’s current view of the products that will form the overall Asset Health funding request against the relevant licence terms.

Table 7: St Fergus and Bacton specific January 2023 funding request and spend profile.

Product: Name (No)	FY22 (£m)	FY23 (£m)	FY24 (£m)	FY25 (£m)	FY26 (£m)	Total (£m)
St Fergus Actuators EJP* (4)						
Total Cost						
Baseline						
Funding Request						
St Fergus Plant 1 Aftercooler EJP (4)						
Total Cost						
Baseline						
Costs Excluded						
Funding Request						
St Fergus Avon Operability EJP (4)						
Total Cost						
Baseline						
Funding Request						
St Fergus Unit Decommissioning EJP (4)						
Total Cost						
Baseline						
Funding Request						
St Fergus Cathodic Protection EJP** (4)						
Total Cost						
Baseline						
Funding Request						
St Fergus Total (£)	17.684	13.534	9.624	4.127	-0.365	44.604
Bacton Filtration EJP						
Total Cost	TBC Jun'23	TBC Jun'23	TBC Jun'23	TBC Jun'23	TBC Jun'23	TBC Jun'23
Baseline	TBC Jun'23	TBC Jun'23	TBC Jun'23	TBC Jun'23	TBC Jun'23	TBC Jun'23
Funding Request	TBC Jun'23	TBC Jun'23	TBC Jun'23	TBC Jun'23	TBC Jun'23	TBC Jun'23
Bacton Total (£)	TBC Jun'23	TBC Jun'23	TBC Jun'23	TBC Jun'23	TBC Jun'23	TBC Jun'23
January 2023 Total (£)	17.684	13.534	9.624	4.127	-0.365	44.604

- 9.2. A breakdown of the individual funding requests, totalling the entire Asset Health funding request for RIIO-T2 through the various referenced documents, is provided in Table 8 in 2018/19 price base. The profile of investments, where available, within the RIIO-T2 period are also shown within Table 8. In order to update the licence terms within the Price Control Financial Model (PCFM), the request includes a negative value in the final year to provide the correct net position by year when accounting for baseline funding received⁴.
- 9.3. This document will be revised for each Asset Health submission between January 2023 and January 2024. At this stage, NGGT is not providing an update on all the baseline funding that was provided in the RIIO-T2 Final Determinations. This document version presents the funding request for the EJPs being submitted in January 2023, and how they fit into defined the licence terms.
- 9.4. NGGT is submitting six EJPs in January 2023, which fall under the licence terms NARMAHOt (SpC 3.15) and AHt (SpC 3.14). The figures presented in Table 7 and Table 8 represent the total additional funding required for undertaking the said individual interventions. The table represents a request for funding for the Asset Health works completed at risk at the St Fergus Terminal CoMAH site. For a number of investments, NGGT received baseline funding, however this did not cover the full extent of the works required. In relation to the January 2023 Asset Health submission, only St Fergus Actuators and Cathodic Protection investments received baseline funding as summarised in Table 8. Allowances directed through this submission will see adjustments to the reopener licence terms only.
- 9.5. Currently the three asset health terms of AHt, NARMAHOt and NLAHOt have no associated values within the Licence and Price Control Financial Model (PCFM), therefore the allowances stated within Table 8 represent the complete request for these terms in the January 2023 Asset Health Re-opener submission. The values within Table 8 include both direct and indirect costs relating to the project, as currently NARMAHOt and NLAHOt are not included within the formula contained within Special Condition 3.18 Opex Escalator. NGGT are currently seeking clarity of the application of the Opex Escalator to the asset health licence terms given the principles applied by Ofgem when adjusting the NGGT business plan for uncertainty as part of Final Determinations. As a result, NGGT have provided within the individual EJPs a breakdown of costs into direct and indirect costs as defined by the RIIO-GT2 Gas Transmission Price Control – Regulatory Instructions and Guidance. St Fergus Unit Decommissioning, which does not categorise as either NARMAHOt or NLAHOt, has been included against AHt, and represents a RIIO-T2 unit cost value, which depending on the confirmation of the application of the Opex Escalator may also need to be adjusted accordingly.
- 9.6. The subsequent Asset Health funding request submissions in June 2023 and January 2024, currently flagged as TBC within the table, will contribute to the appropriate licence terms at the time of submission. These include any additional St Fergus and Bacton specific Asset Health EJPs.
- 9.7. Appendix 3 comprises the January 2023 Asset Health Re-opener Assurance Letter while Appendix 4 highlights NGGT’s mapping to Ofgem requirements.

⁴ Baseline funding post T2 BP ongoing efficiency & capitalised Opex adjustment

Table 8: Funding Requested by Licence Term

	21/22	22/23	23/24	24/25	25/26	Total (£m) - 18/19 price base
NLAHO_t (SPc 3.15)						
Cab Infrastructure and Fire Suppression EJP	TBC Jun' 23					
NLAHO_t Total	TBC	TBC	TBC	TBC	TBC	TBC
NARMAHO_t (SPc 3.1)						
Plant & Equipment EJP	TBC Jan' 24					
St Fergus Actuators	■	■	■	■	■	■
St Fergus Plant 1 Aftercooler	■	■	■	■	■	■
St Fergus Plant 2 Aftercooler	TBC Jun' 23					
St Fergus Avon Operability	■	■	■	■	■	■
St Fergus Cathodic Protection Replacement	■	■	■	■	■	■
St Fergus Coating & Corrosion	TBC Jun' 23					
Bacton Filtration	TBC Jun' 23					
NARMAHO_t Total	TBC Jan' 24					
AH_t (SPc 3.14)						
St Fergus Unit Decommissioning	■	■	■	■	■	■
St Fergus Asbestos	TBC Jun' 23					
St Fergus additional EJPs	TBC Jun' 23					
Bacton additional EJPs	TBC Jun' 23					
AH_t Total	17.684	13.534	9.624	4.127	-0.365	44.604

10. December 2020 Final Determination

10.1. Through the determination of NGGT's RIIO-T2 business plan, Ofgem identified a range of elements to be addressed through the UM and reopener process, summarised as:

- *Plant and Equipment (NARMs)* - The methodologies used to derive the proposed unit costs not being sufficiently robust to set a unit cost allowance. In Ofgem's view each unit cost is open to significant variation due to the sensitivity to the assumptions used, specifically:
 - ■ *AGI pipework painting (full/partial/patch)* – the use of planned volumes of intervention to derive a point unit cost from interventions of differing scales;
 - ■ *CM4 defect resolution* – the sensitivity of the method to the assumed relationship between defects and defect categories;
 - ■ *Replacement of failed IJs on CP systems* – the use of bottom-up cost estimate for works rarely undertaken previously on the NTS;

- [REDACTED] *Resolve AGI P2 defects* – the sensitivity of the unit cost to the assumed probabilities of the requirement for pipework excavation.
- *Cab Infrastructure and Fire Suppression* (Volume PCD) – Ofgem were unable to ascertain a unit cost allowance with certainty. The cost evidence provided contained a variety of bundled Cab infrastructure work of differing scopes and magnitude. Ofgem considered that it would be inappropriate to set a unit cost allowance based on this data and therefore proposed to set a proportion of baseline allowance subject to a year 3 reopener. This relates to:
 - [REDACTED] *Exhaust replacement;*
 - [REDACTED] *Cab Structure Major Refurbishment;*
 - [REDACTED] *Cab Ventilation Major Refurbishment;*
 - [REDACTED] *Cab Ventilation Minor Refurbishment;*
 - [REDACTED] *Cab Ventilation Replacement;*
 - [REDACTED] *Cab Structure Replacement;*
 - [REDACTED] *Fire Suppression Major Refurbishment.*

10.2. NGGT is addressing these elements in the following ways:

- Regular engagement with Ofgem throughout the UM reopener development process;
- Undertaking and completing targeted surveys, within years 1 to 3, to inform our years 4 and 5 interventions;
- Progressing inflight funded investment activities;
- Collation of inflight and proposed baseline funded activity information to support unit costing;
- Consideration of treating each Cab as a separate project rather than a combination of UIDs for various assets on site.
- Looking ahead to the next regulatory period beyond RIIO-T2.

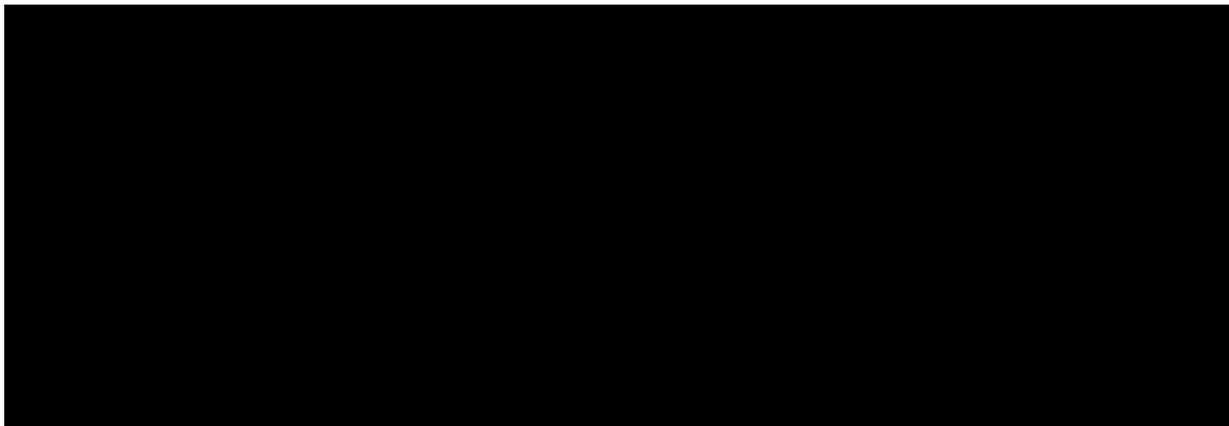
11. Progression of Cabs and P&E AH UM themes

11.1. Data collection, collation and assessment for these two themes is ongoing. Outputs of years 1 to 3 funded investments are being used to collate and assess unit costs.

11.2. Surveys of [REDACTED] cabs across [REDACTED] compressor sites to identify potential years 4 and 5 works have been completed as per RIIO-T2 plan. The subsequent technical and benefits assessments are in flight to support the June 2023 Asset Health UM submission.

11.3. Circa [REDACTED] surveys for year 4 sites for Plant and Equipment have been completed while [REDACTED] year 5 surveys are in flight. The subsequent technical and benefits assessments, for year 4, are in flight to support the forthcoming January 2024 submission. Year 4 and 5 technical and benefits assessments will be commenced once the associated surveys are complete.

11.4. [REDACTED]
[REDACTED] The latest view is an upward reflection of the May 2022 view which was used to support the decision to stagger the AH UM submission across three windows (January 2023, June 2023 and January 2024) supported by tendered/contracted costs being made available for both Cabs and P&E.



- 11.5. Similar to St Fergus and Bacton there are some sites, assets and activities that were not included within the RIIO-T2 business plan but are emerging as pertinent RIIO-T2 activities as this price control period progresses. These include asset health concerns at King’s Lynn AGI, Mickle Trafford to Deeside, Condensate Tank Strategy, Easington High Integrity Pressure Protection System (HIPPS) and several Health and Safety Executive (HSE) Action Legal activities at Bathgate, Wooler and a number of other emerging sites. Separate strategy/decision papers are being developed to support these emerging activities with their associated funding requests.
- 11.6. More granular detail shall be provided as part of ongoing bilateral engagement between Ofgem and NGGT.

12. Next Regulatory Period (RIIO-T3) Lookahead

- 12.1. To reduce the risk of delayed investment initiation, NGGT proposes to undertake, within the RIIO-T2 period, surveys to identify potential Asset Health works (excluding St Fergus and Bacton) for the next regulatory period covering the Cab Infrastructure & Fire Suppression (Product 2) and Plant & Equipment (Product 3) themes. The latest view is that there will be circa [REDACTED] to survey.
- 12.2. The aspiration is for funding to be requested to complete these proposed surveys and associated assessments. As teams are already mobilised to complete RIIO-T2 years 4 and 5 related surveys, it is prudent that these teams are engaged early to proceed with RIIO-T3 related survey activities immediately following completion of the year 4 and 5 UM surveys to avoid unnecessary costs, such as demobilisation and re-mobilisation.
- 12.3. NGGT’s current view of identified sites and assets targeted for survey within RIIO-T2, to inform the initial RIIO-T3 years of work is summarised in Table 9. As this is a developing activity, further information such as proposed costs will be provided in the lead up to, and submission of, the respective Cab Infrastructure & Fire Suppression and Plant & Equipment Asset Health reopeners in June 2023 and January 2024.

Table 9: Current view of funding request for RIIO-T3 focused surveys

Asset Health theme	Current view of number of sites / cabs
Plant and Equipment	[REDACTED]
Cab Infrastructure and Fire Suppression	[REDACTED]

13. Conclusion

- 13.1. This document has summarised the separate products that constitute the Asset Health Uncertainty Mechanism reopener. The list of the individual products is contained in Table 2, Figure 1, Table 5, Table 8 and Appendix 1.
- 13.2. NGGT has submitted the Bacton Filtration EJP to enable Ofgem assess to both the Need Case and preferred options for this investment to mitigate material ingress into the Bacton Terminal. This will be followed by an associated funding request through NGGT’s June 2023 Asset Health re-opener window.
- 13.3. NGGT’s total funding request covering St Fergus Asset Health investments completed at risk, including accelerated and medium term – no regrets investments, is summarised in Table 10.

Table 10: St Fergus and Bacton January 2023 Asset Health funding request

Site and Scope	Funding request (£m) – 18/19 price base
St Fergus Asset Health*	44.604
Bacton Asset Health	TBC Jun' 23
Total	44.604

Appendix 1: Table of Products

Appendix 1: Table of Products			
Product (Name (No.))	Description	Previous Status	Updated View
Asset Health UM Overarching Document (1)	This document providing an overarching regulatory Asset Health funding request to meet NGGT license obligations.	<ul style="list-style-type: none"> Submitting in Jan' 23. 	<ul style="list-style-type: none"> Jan' 23 submission.
Cab Infrastructure and Fire Suppression EJP (3)	Document providing justification for Cab Infrastructure & Fire Suppression interventions across the NTS for years 4 and 5 of RIIO-2.	<ul style="list-style-type: none"> Submitting in Jun' 23. 	<ul style="list-style-type: none"> Plan to submit in Jun' 23.
Plant & Equipment Engineering EJPs (2)	Document providing justification for Plant & Equipment interventions across the NTS for years 4 and 5 of RIIO-2.	<ul style="list-style-type: none"> Submitting in Jan' 24. 	<ul style="list-style-type: none"> Plan to submit in Jan' 24.
Re-baseline 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 all the UMs.	<ul style="list-style-type: none"> N/A 	<ul style="list-style-type: none"> Plan to submit post Jan' 24
St Fergus Site Strategy (4)	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"> Draft submitted. Final being submitted in Jan' 23. 	<ul style="list-style-type: none"> Jan' 23 submission.
St Fergus Actuators EJP (4)	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"> Draft submitted. Final being submitted in Jan' 23. 	<ul style="list-style-type: none"> Jan' 23 submission.
St Fergus Plant 1 Aftercooler EJP (4)	Paper providing justification for replacement intervention on Plant 1 Aftercooler at St Fergus Gas Terminal.	<ul style="list-style-type: none"> Draft submitted. Final being submitted in Jan' 23. 	<ul style="list-style-type: none"> Jan' 23 submission.
St Fergus Plant 2 Aftercooler EJP (4)	Paper providing justification for intervention on Plant 2 Aftercooler at St Fergus Gas Terminal.	<ul style="list-style-type: none"> Submitting in Jan' 23. 	<ul style="list-style-type: none"> Plan to submit in Jun' 23.
St Fergus Avon Operability EJP (4)	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"> Draft submitted. SQ process complete. Final being submitted in Jan' 23. 	<ul style="list-style-type: none"> Jan' 23 submission.
St Fergus Unit Decommissioning EJP (4)	Paper providing justification for the removal of Units 2C and 2D at St Fergus Gas Terminal.	<ul style="list-style-type: none"> Draft submitted. Final being submitted in Jan' 23. 	<ul style="list-style-type: none"> Jan' 23 submission.
St Fergus Asbestos EJP (4)	Paper providing justification for work to address asbestos on Avon units being retained to 2030.	<ul style="list-style-type: none"> N/A 	<ul style="list-style-type: none"> Plan to submit in Jun' 23.
St Fergus additional EJPs	Originally destined to be included in Emissions UM.	<ul style="list-style-type: none"> N/A 	<ul style="list-style-type: none"> Plan to submit in Jun' 23.
St Fergus Cathodic Protection EJP (4)	Paper providing justification for replacement of the Cathodic Protection (CP) system at St Fergus Gas Terminal.	<ul style="list-style-type: none"> Draft submitted. Final being submitted in Jan' 23. 	<ul style="list-style-type: none"> Jan' 23 submission.

Asset Health Re-Opener Submission

Appendix 1: Table of Products			
Product (Name (No.))	Description	Previous Status	Updated View
St Fergus Coating and Corrosion EJP (4)	Paper providing justification for remediation and prevention of CM4 defects identified through NGGT's non-routine maintenance activities at St Fergus Gas Terminal.	<ul style="list-style-type: none"> Submitting in Jan' 23. 	<ul style="list-style-type: none"> Plan to submit in Jun' 23.
Bacton Investment Strategy (5)	Document providing strategic direction for NGGT's short, medium and long-term investment proposals at Bacton.	<ul style="list-style-type: none"> Submitting in Jan' 23. 	<ul style="list-style-type: none"> Jan' 23 submission.
Bacton Filtration (5)	Document providing justification for interventions to reduce liquid and dust being transported through Bacton Terminal.	<ul style="list-style-type: none"> Submitting in Jan' 23. 	<ul style="list-style-type: none"> Jan' 23 - needs case and preferred option submission. June 23 - cost submission

Appendix 2: St Fergus and Bacton UIDs relevant to this submission

[Redacted]										
[Redacted]										
[Redacted]	[Redacted]		[Redacted]							
	[Redacted]		[Redacted]							
	[Redacted]		[Redacted]							
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Asset Health Re-Opener Submission

[REDACTED]										
[REDACTED]										
	[REDACTED]		[REDACTED]							
[REDACTED]										
			[REDACTED]							

[REDACTED]

Appendix 3: Assurance Letter – Asset Health Re-opener January 2023

Appendix 4: Mapping of Ofgem Requirements