St Fergus MCPD Compressor Emissions Re-opener

New Units EJP

December 2025

UPDATED October 2026



National Gas | [redacted]

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1 Summary table

Name of Project	**St Fergus Compressor Emissions – New Units**					
Scheme Reference/ Mechanism Category	[redacted]					
Primary Investment Driver	Compliance with MCPD Legislation					
Project Initiation Year	FY19					
Project Close Out Year	FY30					
Submission Estimate at Completion (EAC) £m	**Price Base (2018/19)**		**Price Base (2023/24)**			
	[redacted]		[redacted]			
Funding Request (CEPOt), £m	**Price Base (2018/19)**		**Price Base (2023/24)**			
	[redacted]		[redacted]			
Cost Estimate Accuracy (%)	[redacted]					
Project Spend to date as of 30 June 2026 (£m)	**Price Base (2018/19)**		**Price Base (2023/24)**			
	[redacted]		[redacted]			
Current Project Stage Gate	ND500 (4.4) Project Execution					
Relevant Investment Code	[redacted]					
Reporting Table Ref	RIIO-T2 RRP Table 6.2 (Projects) and Table 6.1 (CAPEX Summary) (RIIO-GT3 tables to be confirmed)					
Output PCDs	See Table 3					
Spend Apportionment for EAC (£m)	**RIIO-T2**		**RIIO-GT3**		**RIIO-GT4**	
	2018/19	**2023/24**	**2018/19**	**2023/24**	**2018/19**	**2023/24**
	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]

Table 1: Summary table for St Fergus New Units Compressor Emissions Cost reopener

2 Executive summary

Document purpose

2.1.1 National Gas Transmission (referred to in this submission as 'NGT, we, us and our') submits this application under the RIIO-T2 Compressor Emissions Re-opener and Price Control Deliverable, in accordance with RIIO-T2 Licence Special Condition 3.11 (Parts D and E) and the Re-opener Guidance and Application Requirements Document[1].

2.1.2 The submission seeks Ofgem approval of an Estimate at Completion (EAC) of [redacted] (2018/19 prices) for delivery of the approved compressor replacement solution at St Fergus Gas Terminal and associated funding allowances of [redacted] (2018/19 prices) under Compressor Emissions Re-opener Term (CEPOt).

2.1.3 This submission updates the draft provided to Ofgem in December 2025 and reflects the outcomes of procurement, engineering development, cost validation and project maturation activities completed since Ofgem's Final Option Selection Report (FOSR) decision in October 2023.



Figure 1 : Timeline of St Fergus Compressor Emissions Submissions

2.1.4 This submission supports implementation of the option approved through Ofgem's October 2023 FOSR determination, ensuring compliance with the Medium Combustion Plant Directive (MCPD), maintaining long-term operational resilience, and supporting the continued safe and reliable operation of the National Transmission System (NTS).

2.1.5 This submission should be read in conjunction with previous St Fergus submissions and Ofgem decisions summarised in Figure 1 which collectively establishes the strategic and regulatory context for the proposed investment.

2.1.6 Unless otherwise stated, all costs are presented in 2018/19 prices.

Needs case

2.1.7 [redacted]

[1] As discussed as part of our pre-application engagement with Ofgem, this October 2026 submission provides an update to the December 2025 submission made under RIIO-T2 Special Condition 3.11. Special Condition 3.11 no longer applies in RIIO-GT3, but under Part D of its successor RIIO-GT3 Special Condition 3.10 (Compressor emissions Price Control Deliverable (CEPt)) Ofgem may modify the term CEPOt and the Price Control Deliverables specified in Appendices 1 and 2 of RIIO-GT3 Special Condition 3.10 following a re-opener submission under RIIO-T2 Special Condition 3.11 where a decision has not been made before 31 March 2026. Further regulatory background is detailed in the accompanied Cover Note.

2.1.8 In October 2023[2], Ofgem approved the final preferred option to install three new compressor units for commissioning by 2030 and to retain one existing Avon unit[3] with targeted asset health investment[4]. The remaining four existing gas-powered units, excluding the retained Avon, will be decommissioned following operational acceptance of the new units. Decommissioning activities do not form part of this funding request.

2.1.9 Updated technical, operational and economic assessments continue to demonstrate that the approved solution provides the highest overall consumer value while maintaining the compression capability required to support future network requirements. The Cost Benefit Analysis confirms that Ofgem's approved Final Preferred Option[5] remains the highest-value solution across all scenarios and sensitivities assessed.

Project development

2.1.10 The project has progressed through procurement, engineering and delivery development activities. We have completed competitive procurement processes, awarded contracts for the Main Works Contractor (MWC) and Original Equipment Manufacturer (OEM) scopes, and placed orders for long-lead equipment. Project expenditure to date totals [redacted]. The project is now at the Project Execution stage (NDP500[6] 4.4).

2.1.11 The new units will be installed in existing compressor locations, minimising operational disruption and reducing the extent of new site works. Delivery of the new units remains coordinated with the [redacted]. We are managing both programmes through aligned planning and governance arrangements.

Efficient cost

2.1.12 Engineering development, contractor engagement, supplier quotations and detailed planning have substantially increased project maturity. Consequently, estimate confidence has improved from [redacted] supported by awarded contracts, detailed engineering and procurement outcomes. This provides a more robust basis for delivery and regulatory funding approval.

2.1.13 Cost efficiency is demonstrated through competitive procurement, value engineering, cost challenge, benchmarking and independent assurance activities. The project is benchmarked against previous estimates and comparable compressor replacement projects, while independent assurance undertaken through [redacted] provides additional confidence that the proposed costs are aligned with market expectations and represent an efficient basis for delivery.

Funding request and determination sought

2.1.14 We seek re-opener direction to modify the relevant Compressor Emissions PCD and associated allowances, with a total funding request of [redacted] across RIIO-T2 and RIIO-GT3.

2.1.15 To maintain the delivery programme and achieve MCPD compliance by 2030, timely regulatory certainty is required to support contractual commitments, supply-chain activities and progression to the next stage of project delivery. We therefore request Ofgem to assess this application under the Standard Assessment Tier (indicative assessment period of three to six months from

[2] Decision St Fergus Compressor Emissions Final Preferred Option

[3] Unit 1A at St Fergus is the retained unit. Existing Avon units at St Fergus are equivalent to the currently marketed [redacted]

[4] Re-opener request for Asset Health investment was submitted to Ofgem in December 2025

[5] FOSR Option 14

[6] NGT stage gate process for delivery of capital projects

submission) with provision of a Draft Determination by 1 February 2027 and a Final Determination by 30 April 2027[7].

2.1.16 We will work proactively with Ofgem throughout the assessment process supporting a timely conclusion. Delayed regulatory decisions would increase delivery risk and potentially impact consumers by reducing system resilience and increasing overall project risk.

2.1.17 Approval of this funding request will enable delivery of a compliant, resilient and efficient compression solution at St Fergus, supporting security of supply, operational resilience and compliance with environmental obligations while continuing to deliver value for consumers.

[7] aligned with Ofgem re-opener guidance, Version 4, paragraph A11.21

3 Project status and request overview

3.1 Submission structure

3.1.1 Figure 2 shows how this submission relates to the wider programme of investment at St Fergus.

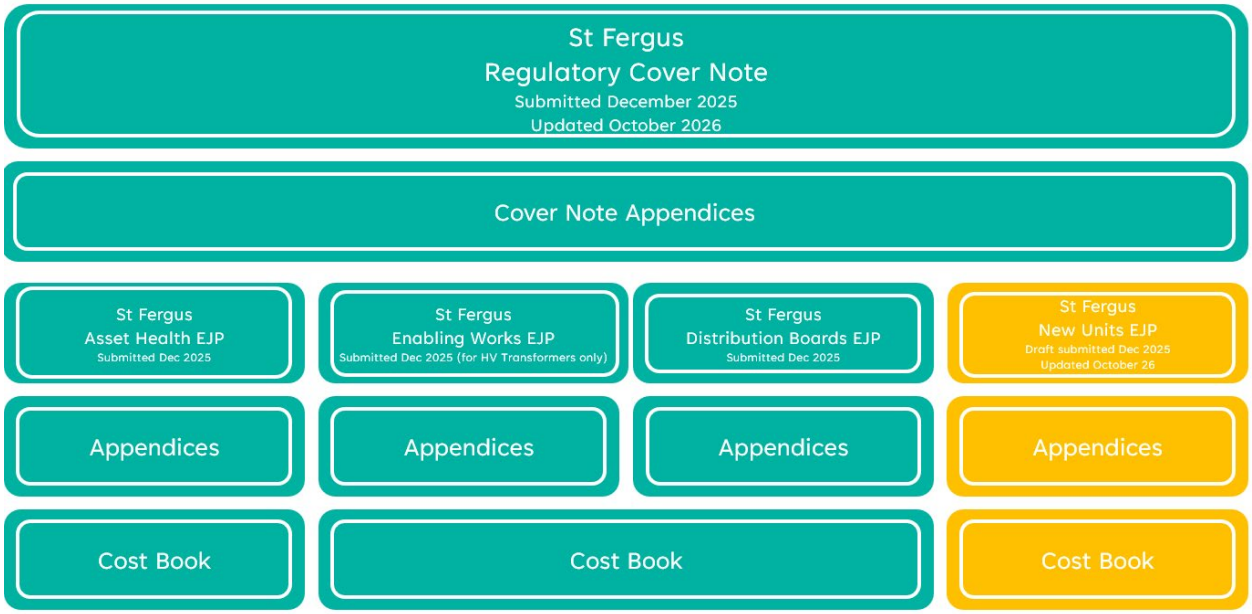


Figure 2 : St Fergus Compressor Emissions New Units submission coverage highlighted and outlined

3.2 Project status

3.2.1 Since Ofgem's FOSR determination, we have completed pre-feasibility and feasibility studies to develop the preferred solution and improve cost certainty. The pre-feasibility study was a critical step in ensuring readiness for the feasibility study, which was conducted as an Early Contractor Involvement (ECI) for the installation of three new units. Additionally, this work identified the scope required to enhance the availability of a fourth unit, supporting improved reliability across the site.

3.2.2 We completed competitive procurement processes for both the MWC and OEM.

3.2.3 Each stage of project development has progressively increased engineering maturity, procurement certainty and confidence in the efficient delivery cost associated with the Ofgem-approved solution. These activities established the delivery strategy and informed the cost estimate presented in this submission.

Commercial process and contracting approach

3.2.4 We began developing the project's commercial and contracting strategy in February 2023 through the issuance of initial Invitation to Tender (ITT) and market engagement activities. Following the market engagement and strategy development, the competitive tender process was undertaken between June 2024 and February 2025.

3.2.5 Following market consultation with [redacted] we selected a two-stage ECI model to improve design maturity, reduce delivery risk and increase cost certainty. It leverages the [redacted] to enable early collaboration and engagement with the MWC ahead of this re-opener submission with progression to Stage 2 subject to Ofgem's determination for this funding request.

3.2.6 The two-stage ECI contract model comprises:

- Stage 1A – Feasibility study to define the scope and to establish the cost estimate to deliver the project to [redacted] accuracy for this re-opener submission.
- Stage 1B – Detailed engineering activities, procurement of long lead items and site setup. This stage may also have a degree of Construction Enabling works and early construction activities subject to programme deadline attainment and alignment to regulatory funding clarity.
- Stage 2 – Remainder of detailed engineering and the main project delivery covering construction and commissioning.

Main works contract

3.2.7 Following a detailed and thorough tender process, we awarded the project to [redacted] as the MWC under a two-stage New Engineering Contract – 4th Edition (NEC4) Engineering and Construction Contract (ECC), based across a broad range of criteria within the tender, detailed in Appendix H- MWC Tender Award.

3.2.8 [redacted] as the selected bidder, bring the following to the project:

- Prior experience in delivering engineering, construction, and commissioning for similar compressor projects such as [redacted].
- Experience working at St Fergus through delivery of the Asset Health works over the last six years. This experience provides familiarity with Terminal's Control of Major Accident Hazard (COMAH) obligations, operational constraints, stakeholder interfaces, and access requirements associated with delivering works within a live compressor station environment.
- In addition, [redacted], acting as the Design Team in support of [redacted] brings experience from various NGT projects on which it has previously been engaged.

3.2.9 Further details on St Fergus delivery strategy are highlighted in section 6.

OEM Contract

3.2.10 [redacted] was selected through a competitive tender as the OEM for the delivery of three [redacted] machinery train packages, including Compressor, Local Equipment Room (LER) and all associated peripheries and controls; with the purchase order aligned to a signed Framework Agreement. See section 5.6.

Current progress and delivery

3.2.11 The project feasibility (Stage 1A) has been completed, and the project is currently in the detailed engineering phase (Stage 1B), which commenced in October 2025 with on-going engagement across all stakeholders, operations and interdependent projects.

3.2.12 This project is being delivered alongside, as well as being dependent upon, the Terminal-wide [redacted] with both programmes progressing through overlapping phases of design, construction and commissioning.

3.2.13 This scenario creates a complex delivery environment, requiring close coordination of shared interfaces including control system integration, cabling infrastructure and outage planning. An integrated programme plan is in place and is being continually refined to manage these interdependencies.

3.2.14 Given the evolving nature of the [redacted] scope and programme, there remains inherent uncertainty in the precise sequencing of commissioning and integration activities. We continue to actively manage this through joint governance and programme alignment across both projects.

[redacted]

Stakeholder Engagement

3.2.15 We engage regularly with our stakeholders including the Terminal's local community[9], Aberdeenshire Council, emergency services, neighbouring operators and Local Resilience Forums. We also engage with Ofgem as part of the pre-application engagement on a regular basis to ensure they are informed of project milestones and timescales.

3.2.16 Details of such engagements are summarised in Table 2 below.

Stakeholder	Purpose of Engagement	Frequency
Aberdeenshire Council	Planning, consents and CAB design development	Ongoing during design development
Ofgem	Pre-application engagement and programme updates	Regular engagements take place between NGT and Ofgem
Emergency Services	Emergency planning and site awareness	Quarterly engagement last held on 8th September 2026
Local Resilience Forums	Resilience and project coordination with neighbouring operators	Quarterly engagement last held on 8th September 2026
Industry Stakeholders	Charging impacts and network implications	NTS Charging Methodology Forum was last held in 2024

Table 2: Summary of ongoing stakeholder engagement activities

3.2.17 The project design has progressed to a level of detail that supports engagement with the local council, particularly regarding layout and Compressor Acoustic Building (CAB) structure. This progress facilitated the detailed and confirmed sizing and positioning of the new unit installations required to advance levels of approval and consents from the local council (refer to section 5.2.21). Figure 3 provides a schematic of the new CAB Structure. Value engineering of the CAB has reduced the overall building height from the MWC's original proposal of [redacted] to approximately [redacted] (stack height now aligned to the existing units).

3.2.18 This has reduced costs and strengthened our engagement with Aberdeenshire Council. The outcomes of this engagement and the supporting rationale are outlined further in section 5.2.21.

3.2.19 These efficiencies were achieved by optimising OEM assumptions, while retaining a small, elevated roof section to accommodate and maintain access specifically to support the requirements for emissions monitoring surveys conducted periodically during the life of the installed units.



Figure 3: 3D representation of the proposed CAB design for a New Unit at St Fergus

[9] External stakeholders wanting to find out more about the project can visit our website and/or contact our community relations team at contact@communityrelations.uk.com.

Charging update

3.2.20 As part of the FOSR submission in January 2023, we provided a detailed statement outlining the steps taken to support a fair outcome for current and future consumers regarding the impact of the proposed investment on transportation charges. This reflected Ofgem's RIIO-T2 Final Determination requirement for NGT to take reasonable steps to ensure an appropriate balance between consumer and terminal user interests prior to submitting a St Fergus re-opener application.

3.2.21 Since Ofgem's FOSR decision, potential charging impacts associated with the St Fergus investment have continued to be communicated through established industry charging governance arrangements, including the NTS Charging Methodology Forum.

3.2.22 While no changes to the charging methodology or cost recovery approach have been agreed to date, continued engagement through these forums ensures transparency of potential charging impacts, enables stakeholder challenge and feedback, and allows industry participants to remain informed as project costs and delivery assumptions develop. Following submission of this re-opener, National Gas will continue to provide updates through the NTS Charging Methodology Forum in line with this established approach.

3.3 Request summary

3.3.1 This submission is an update to the draft December 2025 submission as discussed in our pre-application engagement with Ofgem. This submission was made in accordance with RIIO-T2 Special Condition 3.11, Part D and Part E. Special Condition 3.11 no longer applies in RIIO-GT3, but under Part D of its successor, RIIO-GT3 Special Condition 3.10 (Compressor emissions Price Control Deliverable (CEPt)), Ofgem may modify the term CEPOt and the Price Control Deliverables specified in Appendices 1 and 2 of RIIO-GT3 Special Condition 3.10 following a re-opener submission under RIIO-T2 Special Condition 3.11 where a decision has not been made before 31 March 2026.

3.3.2 Requested modification to outputs, delivery dates and allowances are detailed in Table 3 and Table 4. The total funding request (CEPOt) to deliver the new units works at St Fergus is [redacted]. Ofgem is invited to assess and approve this cost proposal in line with RIIO-GT3 Special Condition 3.10, Part F. The funding request for RIIO-T2 considers RIIO-T2 Baseline allowances received; detail on how we applied this is detailed in the Cover Note.

3.3.3 Further details on Table 3 data below are included within the cost book (see Appendix B- NGT Cost book). For RIIO-T2 the direct costs aligned to CEPOt represent the allowances requested, as this project is subject to the Opex Escalator (RIIO-T2 Special Condition 3.18). For RIIO-GT3 funding request under CEPOt includes direct and indirect cost aligned to Ofgem's published Final Determination for RIIO-GT3.



Table 3: Phased St Fergus Compressor Emissions EAC, Actual spend and Re-opener Funding Request

3.4 Price control deliverables

3.4.1 We are seeking two PCDs for St Fergus capturing the new build scope across Plant 1 and Plant 2, summarised in Table 4. The outputs will deliver three new gas driven compressor units as



Table 4: Proposed update to RIIO-GT3 Special Condition 3.10, Appendix 2 – Compressor Emissions Price Control Deliverable – St Fergus

4 Problem Statement and Options Considered

4.1 Opportunity statement

4.1.1 We are legally obligated to ensure our compressor fleet is compliant with MCPD legislation by 1 January 2030. The St Fergus Terminal currently includes four operational [redacted] units which can generate NOx emissions in excess of the limits imposed by the MCPD (Units [redacted] and [redacted]). These units support flows outside the range of the lead [redacted] units and provide resilience when the VSDs are not available (due to planned or unplanned outages). This is further detailed in the FOSR, St Fergus Site Strategy and our May 2026 CBA submission.

4.1.2 These documents demonstrated the strategic importance of the Terminal and the enduring need for compression at the site until at least 2050, as well as the need for significant investment to re-life ageing assets in the Terminal. Failure to comply with the MCPD legislation would result in the need to restrict or cease the operation of these units which would not provide the necessary site capability and required service for our customers and would have significant implications for Security of Supply to the UK.

4.2 Project boundary and related projects

Project boundary

4.2.1 This project comprises the design, procurement, installation, commissioning and operational acceptance of three new MCPD-compliant compressor units at locations [redacted], including associated controls, electrical integration, CABs, foundations, pipework and commissioning activities. Activities excluded from this submission include Unit 1A Asset Health works, decommissioning of operational Avon units following commissioning, wider Terminal Asset Health investments and [redacted] scope funded through separate mechanisms.

4.2.2 St Fergus Gas Terminal's physical site boundary remains consistent with the NGT ownership boundary. No additional land take is planned to support the compressor emissions project. The temporary construction area for this MCPD project will be facilitated using current St Fergus Terminal land as part of the existing Construction Village and through expansion of the available space within the Construction Village.

4.2.3 The project will utilise existing construction and laydown areas where practicable, supplemented by additional temporary welfare, storage and logistics facilities required to support delivery. To meet storage needs, a designated laydown area has been created for this project's use. Storage sheds have been purchased and will be situated in this area. These requirements have been incorporated within the project scope and cost estimate and will be managed in accordance with established site governance, health and safety requirements and environmental controls.

Related Projects

4.2.4 Several projects are being delivered at St Fergus alongside the compressor emissions programme. Understanding these interfaces is important because they influence project costs, delivery schedules and operational risk.

4.2.5 Any risks arising from the related projects described here, and activities within those projects that do not deliver successfully in line with expectations and requirements of the new units, whether due to lack of availability, suitability, or capacity are captured in our project's Risk Register (see Appendix B- NGT Cost book). This also includes dependencies and considerations outlined in the Table 5 below.

Project	Status	Scope	Impact	Project Boundary
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
RIIO-T2 Decommissioning	Completed, including provision of information on condition of existing equipment remaining.	Decommissioning and removal of all existing structures of the original units in positions [redacted]: entire CABs, all associated equipment from CAB and PCB and all supporting systems, capping off of all tie-ins to the plant and Terminal (including but not limited to the suction and discharge lines, fuel gas supply lines, lube oil pipework and control and instrumentation cabling).	Initial MCPD design basis relies on assumptions derived from decommissioning findings. Following completion of decommissioning in March 2026, assumptions were reviewed and refined impacting design choices and direction. Although decommissioning removed [redacted] cabling and cabinets	Decommissioning excluded removal of the existing foundations and concrete base from [redacted]. At MCPD FOSR, the expectation was that the original concrete base and piling could be used for the new unit installation. Subsequent examination and inspections have identified they are not adequate to meet the life requirements for the new MCPD units. The quality and integrity cannot be guaranteed to the required standards for new unit installation. Further detail is provided in section 5.

Project	Status	Scope	Impact	Project Boundary
			within the PCBs, due to the age and condition of the PCBs, additional issues may be identified during MCPD delivery that were not evident during decommissioning, and the work will require continued monitoring to assess its impact on retrofit options for MCPD. A risk remains, recorded in the project risk register and will remain until retrofit works are complete. Further details are provided in Section 7.3.25.	
RIIO-T2 Distribution Boards	Completed, subject to Ofgem's draft and final determinations on the December 2025 re-opener submission	Replacement of [redacted] urgent priority Distribution Boards and one enabling workshop switchboard.	No impact on new unit delivery or commissioning.	Project closed awaiting Ofgem decision on funding as part of the Compressor Emissions re-opener.
Enabling Works	[redacted]	[redacted]	[redacted]	[redacted]

[10] NGT submitted a funding request under the Compressor Emissions re-opener for HV transformers to Ofgem in December 2025. As indicated as part of our pre-application engagement, we will re-submit updated costs and describe this design impact in more detail.

Project	Status	Scope	Impact	Project Boundary
			[redacted]	
RIIO-GT3 Electrical Interventions	In Progress	Asset Health Re-opener: [redacted] Switchboards, [redacted] Distribution Boards. Baseline: Consists of targeted replacement and refurbishment of ageing electrical and building services assets, including lighting, HVAC, standby power generation, protection relays, UPS systems, and power factor correction equipment. The works are focused on addressing obsolescence, maintaining operational reliability, improving energy efficiency, and ensuring compliance with modern safety and engineering standards across the terminal.	Asset Health Re-Opener: No impact on the New Units. Baseline: The asset replacement and refurbishment activities described are primarily driven by asset condition, obsolescence, and compliance requirements, rather than being direct enablers of the New Units themself.	The MCPD scope assumes that all RIIO-GT3 activities, as part of the Terminal's infrastructure readiness, will be completed ahead of commissioning commencement and ultimate operational acceptance of the new units.
RIIO-GT3 Asset Health – Mechanical Works	In progress	Site-wide valve replacements, replacement of the Plant 2 aftercooler, Cathodic Protection (CP) design and modifications wider site upgrades required to support the operational demands of the new MCPD units, such as electrical switchgear and pipework enhancements.	MCPD assumes suitable Terminal infrastructure is available to support new unit programme and will be impacted through outage scheduling to maintain Terminal availability and resilience whilst ensuring suitable timely availability of each asset health project to align with the	The MCPD scope assumes that all RIIO-GT3 Asset Health activities, as part of the Terminal's infrastructure readiness, will be completed ahead of commissioning commencement and ultimate operational acceptance of the new units.

Project	Status	Scope	Impact	Project Boundary
			expectation of its availability within the MCPD programme.	
Unit 1A MCPD Asset Health	This work remains subject to Ofgem's draft and final determinations on the December 2025 submission and upcoming planned re-submission.	Valve replacements, Motor Control Centre (MCC) replacement, a Pressure Reduction Skid (PRS), pipework replacement and other upgrades required to maintain unit availability in future regulatory periods and support terminal operational requirements.	The detailed interface between this project and the Unit 1A Asset Health programme continues to be assessed. Potential impacts are currently limited to outage coordination and Plant Control Building activities. These risks are captured within the project risk register. This risk potential is covered within Risks discussed in section 6.3.20 namely Outage scheduling (Risk T-87506) and PCB retrofit (Risk T-86735).	MCPD new units project will not execute any activities aligned to Unit 1A.
RIIO-GT3 Decommissioning[11]	In progress	Decommissioning of redundant assets at St Fergus as identified within RIIO-GT3 plan	Once scopes are fully defined impact may occur through area designation/zoning changes and outage scheduling (discussed within section 6.3.20).	MCPD new units project will not execute any decommissioning activities funded within RIIO-GT3 business plan.
Other MCPD Projects	In progress	New unit installations at Hatton, [redacted] and Wormington Compressor Stations	The Delivery Programme in this submission is concurrent with compressor unit investment at other MCPD impacted sites, namely [redacted] and Wormington, and key technical support and direction is being shared across the portfolio, including lessons learnt and consistency of approach.	MCPD New units project does not share any costs with other emission compliance projects.

[11] The decommissioning of the existing units (1B, 1D, 2A and 2B) is out of scope and will be re-assessed once new units will been commissioned and are operationally accepted. Any funding pertaining to decommissioning of these units will be requested through the next price control submission.

Project	Status	Scope	Impact	Project Boundary
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]

Table 5 : Related Projects and boundaries

[12] [redacted]

4.3 Project Definition

4.3.1 The project comprises installing three new gas-driven compressor units. All three new units will be installed in the locations of the previously demolished units (i.e. Units [redacted]).

4.3.2 Additionally, peripherals (e.g. control units, monitoring systems) required for controlling these new units will be housed within individual Plant Control Buildings (PCB1 and PCB2) ensuring robust operational control and integration.

4.3.3 The new units will improve reliability, increase operational flexibility and ensure compliance with MCPD requirements beyond 2030.

4.4 Business case outline

4.4.1 This chapter builds on the previously submitted FOSR and the May 2026 CBA. It does not revisit the underlying needs case or option selection.

4.4.2 The FOSR (January 2023) identified Option 14 (3 x new 15MW GTs (Brownfield) and 1 x 500 hours Avon (15MW)) as the preferred configuration.

4.4.3 To validate the conclusions of the FOSR, the assessment was revisited as part of the May 2026 CBA submission. All credible options were re-evaluated using updated cost estimates informed by contractor engagement, and the CBA was re-run on this basis. The refreshed analysis confirmed that Option 14 continues to deliver the highest NPV across all scenarios and remains the most efficient, proportionate and value-for-money solution.

4.4.4 Separately, an updated indicative BAT assessment was submitted in September 2026 to reassess the preferred option against a range of credible alternatives. The objective of the BAT assessment is to identify the option which represents the optimal balance of environmental performance, technical capability, deliverability and whole-life cost. The initial result of this updated assessment concluded that the preferred remained the most appropriate solution and would represent BAT. Work is ongoing to response to additional questions realised by SEPA following their initial assessment of this submission.

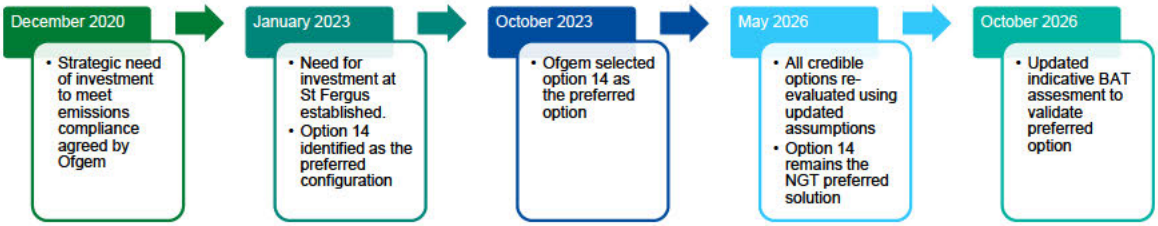


Figure 4: Timeline of submissions and subsequent results obtained

4.5 Needs case

4.5.1 St Fergus remains a critical entry point to the NTS and therefore requires resilient and flexible compression capability to manage a wide and increasingly variable range of flow conditions.

4.5.2 As set out in our May 2026 CBA submission, while long-term forecasts indicate a decline in peak volumes, system analysis demonstrates that material flows persist across all Future Energy Scenarios (FES) through to 2050 and beyond. These scenarios continue to require compression capability across low, mid-range and peak flow conditions. In particular, the projected increase in operation at lower flow ranges reinforces the ongoing importance of Avon-sized units within the overall compression strategy.

4.5.3 Our latest BAT assessment continues to support a four-unit configuration across Plant 1 and 2 at St Fergus, providing the reliability, operational flexibility and resilience necessary to meet system requirements under all credible future scenarios while maintaining compliance obligations.

4.5.4 Accordingly, the requirement for a resilient compression solution capable of managing variable flows and operating conditions remains unchanged.

4.5.5 Therefore, the operational and strategic need for compression at St Fergus remains unchanged from that set out in the FOSR and May 2026 CBA submission.

4.6 Option selection

4.6.1 At the time of the May 2026 CBA, no viable new technologies or alternative approaches had emerged. We therefore retained the original FOSR option set and progressed the same shortlisted options for assessment shown in Table 6.

Option description and configurations[13]
Option 0 - Retain 4*Avon units on 500 hours (Counterfactual)
Option 7 - A4 (Brownfield) 4 x new 15MW GTs
Option 12 - AD1 2 x new 15MW GTs (Brownfield) and 2 x 500 hours Avon units (15MW)
Option 14 - 3 x new 15MW GTs (Brownfield) and 1 x 500 hours Avon (15MW)

Table 6 : Option description

4.6.2 Following the CBA in September 2026, we completed a BAT assessment to confirm that the preferred solution also represented the Best Available Technique from an environmental, technical and operational perspective. The assessment considered a broader range of technology solutions, including Selective Catalytic Reduction, Control System Restricted Performance, Dry Low Emissions (DLE) technology and hybrid configurations, before applying BAT evaluation criteria covering resilience, constructability, deliverability, futureproofing, maintenance, environmental performance and cost.

4.6.3 The BAT assessment concluded that the configuration comprising three new gas turbine (GT) units and one retained Avon unit operating under the 500-hour derogation represented the Best Available Technique for St Fergus. This is equivalent to the preferred option identified through the May 2026 CBA.

4.7 Updated CBA inputs

Cost updates

4.7.1 The primary purpose of this assessment is to update the CBA using the latest contractor-informed cost estimates, which have been completed for Option 14 only. Costs for all other options are based on the assumption of a single unit cost of [redacted][14] (taken from the [redacted] project), with multipliers for two and four new unit options.

4.7.2 As requested by Ofgem, compressor fuel costs previously omitted in the May 2026 assessment, have been added in line with the FOSR CBA. Consequently, the May 2026 CBA has been re-run including fuel costs so as to provide a consistent comparison between submissions.

4.7.3 The addition of these fuel costs, compared against the May 2026 paper, result in a comparable percentage increase of costs across all options, therefore the NPVs have fallen compared to the May 2026 CBA but the ranking between options remains unchanged.

4.7.4 All other key assumptions remain unchanged from the May 2026 CBA submission.

[13] Unlike the FOSR, the option descriptions do not include mention of Avon retrofit DLE as it is established that this is not yet commercially available - see Avon DLE position paper (appended to our May 2026 CBA submission).

[14] Costs as of March 2026 funding request update for the [redacted] Compressor Emissions re-opener

CBA rates

4.7.5 The fuel cost source has been added to Table 7, the most up to date values have been used taken from the February 2026 update of DESNZ Annex M. In line with the May 2026 CBA, we have used the GT2 CBA Template v6 and all inputs utilised remain unchanged, these are included in Table 7 for reference.

Category	Rates	Base Assumption	Rationale
Financial Parameters	WACC	2.81%	Defined in RIIO-T2
	Social Time Preference	3.5% (years 0- 30)	Defined in Green Book
	Regulated Asset Life	45 years	Defined in RIIO-T2
	Assessment Period	25 years	Based on lifetime of asset
	Depreciation	SOYTD	Defined in RIIO-T2
	Capitalisation	75.0%	Defined in RIIO-T2
Compressor Fuel	Electricity Reference price	6.2-11.4 p/kWh	DESNZ Fossil Fuel Prices as per Annex M (February 2026)
	Gas Reference Price	71-66 p/th	
	Electricity High Price	7.9-11.3 p/kWh	
	Gas High Price	120.0-108.1 p/th	
Constraints	Constraint Management Pricing	DESNZ gas price	As defined in CBA Constraint Pricing section
	Constraint Management Method	UNC Section I	Reflective of tools available to manage constraints
Emissions	CO2 Cost	Annual price £280 – £408 /tonne	DESNZ Valuation of greenhouse gas emissions for policy appraisal and evaluation: Central Case
	Nox Price	£6,199/tonne	DEFRA damage costs

Table 7: CBA Rates and assumptions

CBA project boundaries (from FOSR)

4.7.6 The CBA uses costs associated with construction of new gas driven compressor units, the decommissioning of units in these berths and Asset Health investment on the remaining Avon units. Other costs, such as ongoing asset health costs and maintenance costs for the existing units and site, are excluded from the CBA.

4.7.7 Related projects and investments which were funded as part of our RIIO-T2 business plan are also not included, such as Asset Health, station and existing unit [redacted] and decommissioning of redundant assets (decommissioning of the Avons to be replaced by new units is included in the relevant options). This assessment also does not include unfunded asset health investments which could be submitted through the Asset Health re-opener in RIIO-GT3.

4.8 CBA results

4.8.1 The total capital costs have remained comparable to our May 2026 estimates and therefore do not affect the relative performance of the options.

4.8.2 The tables below set out the absolute NPV for all options across Holistic Transition[15] (HT) and Falling Behind[16] (FB), and for Section I and high gas/electricity prices; all values are in £m.

[15] Leading the way (LW) is equivalent to HT
[16] Steady progression (SP) is equivalent to FB

	FOSR			May 2026 CBA[17]			October 2026 CBA		
Option	LW	SP	Rank	HT	FB	Rank	HT	FB	Rank
Option 0	[redacted]	[redacted]	4	[redacted]	[redacted]	4	[redacted]	[redacted]	4
Option 7	[redacted]	[redacted]	3	[redacted]	[redacted]	2	[redacted]	[redacted]	2
Option 12	[redacted]	[redacted]	1	[redacted]	[redacted]	3	[redacted]	[redacted]	3
Option 14	[redacted]	[redacted]	2	[redacted]	[redacted]	1	[redacted]	[redacted]	1

Table 8: Section I Price NPV (£m)

	FOSR			May 2026 CBA			October 2026 CBA		
Option	HT	FB	Rank	HT	FB	Rank	HT	FB	Rank
Option 0	[redacted]	[redacted]	4	[redacted]	[redacted]	4	[redacted]	[redacted]	4
Option 7	[redacted]	[redacted]	3	[redacted]	[redacted]	2	[redacted]	[redacted]	2
Option 12	[redacted]	[redacted]	1	[redacted]	[redacted]	3	[redacted]	[redacted]	3
Option 14	[redacted]	[redacted]	2	[redacted]	[redacted]	1	[redacted]	[redacted]	1

Table 9: High Price NPV (£m)

4.8.3 Table 8 and Table 9 present a direct comparison between the NPV outcomes from the updated CBA re-run and the corresponding NPV ranges and rankings reported in the FOSR.

4.8.4 The current and May CBA re-runs demonstrate a clear and consistent change in the relative performance of the options compared to the FOSR. Across all four FES 2025 scenarios, and under both Section I and high gas/electricity price sensitivities, Option 14 delivers the best NPV, followed by Option 7 and Option 12. This consistent ranking across all scenarios demonstrates that the preferred option is robust and that the CBA outcome is not materially sensitive to the choice of FES 2025 scenario.

4.8.5 Options 7 and 14 benefit from a higher proportion of new gas-turbine capacity which improves operational resilience and reduces reliance on derogated units. Investment in new units delivers lower expected constraint costs across all scenarios, offsetting the higher upfront capital investment. The combination of three new units and one retained Avon [redacted] for Option 14 results in the strongest overall NPV performance in the latest re-run.

4.9 Efficiency benefits

4.9.1 Replacing aging aero derivate Avon GTs with modern industrial GTs provides benefits to consumers through increased efficiency of the new units. This results in reductions in fuel gas use and both Carbon and NOx emissions. These benefits are included within the CBA and are presented in Table 10 below for the HT Section I price scenario by way of example.

	Total Fuel & Emissions (2030 to 2055)					Annual Average per Option (4 Units)				
Option	Gas Fuel Cost £m)	CO2 (£m)	CO2(t)	NOx (£m)	NOx(t)	Gas Fuel Cost (£m)	CO2 (£m)	CO2(t)	Nox (£m)	NOx(t)
Avon Unrestricted	[redacted]		3,833,506	[redacted]	2,455	[redacted]	[redacted]	147,443	[redacted]	94
New GT Unrestricted	[redacted]		1,376,744	[redacted]	655	[redacted]	[redacted]	52,952	[redacted]	25

[17] As requested by Ofgem, compressor fuel costs previously omitted in the May paper, have been added in line with the FOSR assessment

New Unit Savings	[redacted]	[redacted]	2,456,762	[redacted]	1,800	[redacted]	[redacted]	94,491	[redacted]	69

Table 10: HT Reference Price Savings

4.9.2 Using an unrestricted operating profile, running the four Avons for the same amount of hours as would be required if we installed four new units (using the running hours from Option 7), the four new units deliver annual savings of approximately [redacted] in fuel costs, [redacted] in carbon emissions costs and [redacted] m in NOx emissions related costs, equivalent to total average annual benefits of [redacted].

4.9.3 In addition to the financial benefits, the newer units significantly reduce emissions when compared directly with the Avons. Four new units would reduce CO_2 emissions by an average of 94,491 tonnes annually, representing a 64% reduction compared with existing Avons. NOx emissions would be reduced by an average of 69 tonnes per year, equivalent to a 73% reduction.

4.9.4 Across the assessment period from 2030 to 2055, based on an average of [redacted] running hours each year per new unit, each unit is forecast to deliver cumulative benefits of approximately 614,190 tonnes of CO_2 and 450 tonnes of NOx. These benefits arise from the materially improved efficiency and environmental performance of modern compressor technology relative to the existing Avon fleet.

4.9.5 The continued operation of the Avon units would lock in higher fuel consumption and emissions over the remaining asset life. Replacement will reduce fuel costs and support delivery of decarbonisation and environmental objectives while maintaining required network capability.

4.10 Preferred option

4.10.1 Across both scenarios evaluated in the updated CBA, Option 14 remains ranked first. Importantly, successive reassessments using updated FES assumptions, updated constraint modelling and contractor-informed cost estimates continue to support Ofgem's original 2023 final preferred option decision. The updated assessment therefore reinforces the conclusions of the FOSR.

4.10.2 It provides the optimal balance between capital cost, operational resilience and constraint reduction, delivering the highest overall consumer value.

4.10.3 No changes to the preferred option are proposed as part of this submission.

4.10.4 The key change since the May 2026 CBA submission is an increase in cost certainty. The updated CBA demonstrates that Option 14 remains robust and delivers the best outcome for consumers. The September 2026 BAT Assessment (Appendix K) also confirmed this configuration as the preferred solution.

5 Engineering and Costs

5.1 Introduction

5.1.1 Since Ofgem's approval of the preferred option in October 2023, the project has progressed through procurement, engineering development and detailed cost validation. This has increased estimate maturity from [redacted], established via more up-to-date contractor pricing, and provided a robust basis for the requested funding allowance. The figure below gives the evolution of cost maturity from FOSR submission in 2023 through to this submission.



Figure 5: Cost evolution, 2023 FOSR to 2026 Cost submission

5.1.2 This section sets out the development of the EAC for this Project. It explains the methodology used to develop the estimate, the contracting strategy adopted for project delivery, and the contribution of the MWC, OEM, NGT, and specialist suppliers.

5.1.3 The section demonstrates how value for consumers has been achieved through competitive procurement, supplier engagement, cost assurance, benchmarking, and structured cost challenge activities. Section 6 summarises the key project risks, opportunities, and assumptions that have informed the final estimate.

5.1.4 The MWC is responsible for the detailed engineering, procurement, construction, and commissioning of the new compressor facilities. Its scope is delivered through a two-stage ECI model comprising:

- Stage 1A: Feasibility and estimate development.
- Stage 1B: Detailed engineering, procurement, enabling works, and construction preparation.
- Stage 2: Construction, commissioning, and project completion.

5.1.5 The OEM scope includes the design, manufacture, testing, and delivery of three [redacted] gas-turbine driven compressor trains together with associated support systems. Additional commissioning support and specialist services are provided through separate contractual arrangements where required.

5.1.6 We retain the responsibility for overall project delivery, governance, operational integration, safety compliance, and management of interfaces between the MWC, OEM, and specialist contractors. Figure 7 below provides a diagrammatic view of deliverables and responsibilities as split across MWC and OEM.



Figure 6: Division of responsibilities between OEM and MWC

5.1.7 Unless otherwise stated, all figures presented in this chapter relate to the total EAC. Funding request values are presented separately in section 3.3.

5.1.8 Throughout project development, a structured value engineering and cost challenge process has been applied to optimise scope, improve delivery efficiency, and ensure that the final estimate represents an efficient and deliverable solution. (see section 5.8.27).

5.2 Progress since the final option selection report (FOSR)

5.2.1 Since receipt of Ofgem's FOSR determination in October 2023, the project has progressed through pre-feasibility, feasibility, procurement, contract award, environmental assessment, and detailed engineering activities. This progression has increased design maturity, improved cost certainty, and established the basis of the current EAC. Figure 8 provides a summary timeline of this progression.



Figure 7: Timeline of activities from

Pre-feasibility and Feasibility Development

5.2.2 Following completion of the optioneering study, a pre-feasibility study was undertaken to further develop the selected solution, refine project scope, and prepare for the feasibility stage.

5.2.3 The study assessed compressor locations, site integration requirements, programme risks, and operational interfaces. It also identified any supporting asset health investments required to maintain operation of the existing compressor fleet, although these activities are outside the scope of this submission.

5.2.4 Assessment of potential installation locations concluded that berths [redacted] represented the preferred solution. These locations minimise site modifications, reduce operational impacts, simplify tie-ins to existing infrastructure, and avoid unnecessary routing through congested areas of the Terminal.

St Fergus contract strategy

5.2.5 We adopted a two-stage ECI design-and-build strategy to maximise design maturity, improve programme certainty, and reduce delivery risk.

5.2.6 Under this approach:

- Stage 1 comprises feasibility, detailed engineering development, procurement preparation, and target-cost development.
- Stage 2 comprises detailed engineering completion, construction, commissioning, and project handover.

5.2.7 The strategy allows design and construction planning to be developed collaboratively while maintaining flexibility prior to full project commitment. It also provides the opportunity to reassess contractor performance before progressing into the construction phase.

MWC Award

5.2.8 Following a competitive procurement process, we awarded the main works contract to [redacted] under an NEC4 ECC contract with Early Contractor Involvement provisions. Ultimate total expected contract value provisioned within EAC, including Stage 1 and 2 (including mitigated risk) is [redacted].

5.2.9 The procurement attracted significant market interest, with the Prior Information Notice (PIN) reaching 591 organisations. Nine suppliers submitted pre-qualification applications, of which [redacted] were shortlisted to participate in the Invitation to Tender (ITT) stage. [redacted] compliant tenders were subsequently received, from [redacted] and [redacted], on 13 September 2024.

5.2.10 In compliance with the Utilities Contract Regulations (UCR) spot tender process, the tenders underwent a detailed evaluation. NGT subsequently conducted negotiations with both bidders. Following completion of the evaluation and negotiation process, [redacted] was selected as the preferred tenderer and awarded the contract in accordance with the agreed procurement strategy.

5.2.11 Tender evaluation and comparison were based on three key criteria: the technical offering, commercial offering, and contractual compliance against the requirements of the Request for Quotation (RFQ). The pre-negotiation assessment ranked [redacted] as the leading bidder in all three categories. This position was further improved upon through the final negotiation stage.

5.2.12 To align regulatory and commercial commitments, full Stage 2 award will not be made until Ofgem's Determination has been issued. Appropriate contractual arrangements will be used to maintain programme continuity while limiting financial commitment ahead of regulatory confirmation.

OEM Award

5.2.13 A separate contract was awarded to [redacted] for the supply of three [redacted] gas turbine-driven [redacted][18] compressor trains. Contract value, as identified within EAC is [redacted].

5.2.14 The equipment will be supplied directly by National Gas and fee issued to the MWC for installation and commissioning. Selection followed a competitive technical and commercial assessment process, with the [redacted] solution offering the best overall balance of compliance, performance, emissions performance, lifecycle value, and project delivery requirements. Section 5.6.4 details the process of OEM selection and BAT scoring used in this selection process.

Division of responsibility (DoR)

5.2.15 The interfaces between the OEM and MWC scopes are defined within the Division of Responsibility (DoR) document, which establishes ownership of all supply, installation, testing and commissioning activities.

5.2.16 DoR Workshops were undertaken with NGT, the MWC and each OEM during the tender process. This ensured a clear understanding of package interfaces and facilitated accurate comparison of competing solutions.

5.2.17 These workshops resulted in the development of a comprehensive DoR document covering equipment supply, installation, commissioning, functional safety, noise compliance, transportation, foundations and all major system interfaces. The document formed a key input to both the OEM and MWC contract scopes.

5.2.18 Following Contract award, a final interface workshop was conducted with [redacted] and [redacted] to confirm responsibilities and enable prompt progression of design and interface management activities.

5.2.19 The DoR document remains the primary reference for scope ownership, interface management and the assessment of future compensation events and scope changes.

5.2.20 This document is now used as a clear reference against which all activities can be viewed in terms of their assignment and ownership, as well as providing the basis for potential Compensation Event evaluation and scope management and control.

Planning Consents

5.2.21 Figure 9 below provides a schematic of the process we adopted to obtain local authority consent.

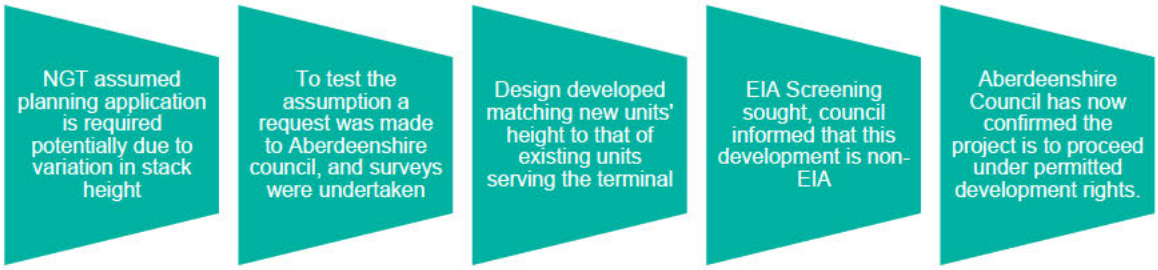


Figure 8 : Aberdeenshire Council engagement and consent process

5.2.22 Environmental coordination activities have been supported by specialist consultants throughout project development [redacted].

5.2.23 Ecological surveys and environmental assessments were completed to support engagement with Aberdeenshire Council and to establish the planning requirements for the project. Environmental consultants [redacted] were engaged to carry out the required ecological surveys throughout 2024 and 2025.

[18] [redacted]

5.2.24 Initial assumptions indicated that a full planning application may be required. However, as the design developed and equipment heights were refined to match existing installations, it became possible to pursue a permitted development route.

5.2.25 An Environmental Impact Assessment (EIA) screening request confirmed that the development is non-EIA. Aberdeenshire Council have now confirmed the project is to proceed under permitted development rights, avoiding the need for a full planning application.

NGT spend to date

5.2.26 Project expenditure to 30 June 2026 totals [redacted]. This expenditure has supported:

- Option development and selection activities.
- Feasibility and pre-feasibility studies.
- Environmental assessments and consenting activities.
- OEM and MWC procurement and activities.
- Detailed engineering design.
- Site surveys and enabling works.
- Programme, commercial, risk and project controls activities.

5.2.27 Actual costs incurred to date have been incorporated into the current estimate, increasing cost certainty and reducing forecast uncertainty across the remaining project scope. A summary of actual expenditure is provided in the Cost Book under “Actual Costs”, with further detail by Work Breakdown structure (WBS) available in the NGT Cost and Risk Report. (Appendix C- NGT Cost and Risk report)

5.2.28 The above spend figure does not include:

- Committed expenditure to OEM, yet to be invoiced contractual liability, of [redacted].
- Potential demobilisation costs that may be incurred through MWC and their subcontractors.

5.2.29 Prior to this re-opener submission, the St Fergus MCPD project received approval from our Transmission Investment Committee (TIC) to enter the Project Execution phase (NDP Stage 4.4)

5.2.30 The incurred cost profile is provided in the cost book.

5.3 Summary of the Estimate at Completion

Estimate at completion

5.3.1 The current EAC for the St Fergus MCPD Project is [redacted] (2018/19 price base), comprising costs associated with the MWC, OEM, NGT resources and support activities, and project risk allowances. (Figure 10).



Figure 9: EAC and spend profile

5.3.2 The estimate has been developed through a progressive design and cost assurance process since Final Determination of the FOSR. Scope definition, engineering maturity, procurement activities, supplier engagement, and cost challenge exercises have increased confidence in the estimate while improving value for consumers.

5.3.3 The EAC has been subject to independent review by [redacted][19], which benchmarked contractor estimates against market data and project-specific quantities. Its assessment confirmed broad alignment with independently derived costs and provides additional confidence in the efficiency of the proposed expenditure. This assessment is detailed in Section 5.8.

5.3.4 The MWC's scope has been developed to support integration of three new gas turbine-driven compressor units within the existing St Fergus infrastructure. As design development progressed, lessons learned from recent compressor delivery projects were incorporated into the scope, construction methodology and programme. This improved the maturity of the estimate and reduced uncertainty associated with delivery. Further detail on this process is provided in Section 5.4.

5.3.5 Following completion of Stage 1A, the MWC's initial cost proposal underwent a structured review and challenge process, [redacted] detailed in Section 5.5.22). These challenges drove estimate maturity and provided greater confidence in the deliverability of the proposed scope. Subsequent updates have aligned the estimate with actual expenditure incurred to 30 June 2026 and the latest delivery assumptions.

5.3.6 The OEM contract was awarded to [redacted] for the design, manufacture, testing and delivery of three compressor machinery train packages. Subsequent engineering development has refined the scope to improve operability, reliability and compliance with project requirements. These refinements are reflected within the current EAC and provide greater confidence that the

[19] Independent Consultant with large portfolio of experience across the industry and on NGT projects

equipment will meet operational and environmental requirements throughout its design life. Further details are provided in section 5.6.

5.3.7 NGT costs have been developed using the refined delivery programme and reflect the resources, specialist support, governance activities, and risk management required to deliver the project safely and efficiently. Cost forecasts have been informed by lessons learned from comparable compressor delivery projects, benchmarking, actual expenditure, and ongoing cost assurance activities (refer to section 5.7).

5.3.8 NGT risk allowance is based on a Quantitative Cost Risk Analysis (QCRA) and provides contingency for risks that remain under National Gas ownership. This approach is intended to complement, rather than duplicate, contingency allowances included within contractor estimates. Further information on the risk methodology is provided in the NGT Cost and Risk Report (Appendix C- NGT Cost and Risk report) while analysis of the principal project risks is presented in section 6.3.15.

5.4 Project cost breakdown

5.4.1 Table 11 provides a breakdown of the final EAC costs for the project split by several categories.

	Cost Category	Costs (£m) 2018/19 Price Base	% of EAC
Direct	Engineering Design	[redacted]	[redacted]
Indirect	Project Management	[redacted]	[redacted]
Direct	Materials	[redacted]	[redacted]
Direct	Main Works Contractor	[redacted]	[redacted]
Direct	Specialist Services	[redacted]	[redacted]
Direct	Vendor Package Costs	[redacted]	[redacted]
Direct	Direct Company Costs	[redacted]	[redacted]
Indirect	Indirect Company Costs	[redacted]	[redacted]
Direct	Risk/Contingency (NGT and MWC)	[redacted]	[redacted]
	TOTAL EAC	[redacted]	[redacted]
Direct Cost Total		[redacted]	[redacted]
Indirect Cost Total		[redacted]	[redacted]
FUNDING REQUEST RIIO-T2 DIRECT COST ONLY (CEPOt)		[redacted]	
FUNDING REQUEST RIIO-T3 DIRECT + INDIRECT COST (CEPOt)		[redacted]	
TOTAL FUNDING REQUEST (CEPOt)		[redacted]	

Table 11: Final Cost EAC Breakdown

5.4.2 The cost breakdown presented below is set out in the following order: MWC costs, OEM costs, and NGT costs. This structure reflects the dependency of NGT costs on the scope defined by the MWC and OEM packages, which establish the boundaries and extent of the NGT cost allocation.

5.5 Project cost breakdown - Main Works Contractor Costs

5.5.1 This section provides a detailed breakdown of the project's MWC costs. It also summarises the assurance activities undertaken to demonstrate that the estimate represents an efficient and economical solution for consumers.

5.5.2 The MWC scope includes the installation of three new gas turbine-driven compressor units within the existing Plant 1 and Plant 2 footprints (Units [redacted]). As described in Section 5.2.13,

the [redacted] compressor packages are being procured directly by NGT and free-issued to the MWC for installation as part of the overall works package.

5.5.3 Since Ofgem's approval of the final preferred option in October 2023, the project scope has matured, and several changes have been incorporated into the MWC package. These changes are summarised below.

Foundation Works

5.5.4 The original assumption was that existing foundations, plinths and piles could be retained, although this was noted to be subject to inspection and verification. This verification was undertaken during design development, and it was identified that the existing foundation arrangements are incompatible with the footprint and loading requirements of the new compressor units.

5.5.5 The project therefore includes:

- Removal of existing concrete foundations and pile heads.
- Cutting back existing piles to ensure structural separation.
- Installation of new piling.
- Construction of new foundations and plinths designed specifically for the replacement equipment.

Controls Integration

5.5.6 The FOSR assumed that existing terminal systems had sufficient capacity to integrate the new units and therefore did not include additional electrical and controls infrastructure.

5.5.7 Subsequent engineering assessments identified the need to interface the new compressor units with the plant and terminal control systems, [redacted] The scope has therefore evolved to provide the necessary links:

- [redacted]
- [redacted]
- [redacted]
- [redacted]

MWC scope summary

5.5.8 In summary, the MWC scope includes:

- New foundations and concrete plinths for all new equipment.
- Installation and commissioning of OEM supplied equipment, [redacted] gas turbine driven Compressor drivetrain and associated systems.
- CABs for environmental noise compliance and weather protection.
- Suction and Discharge pipework, valves and tie-ins to the existing terminal systems, including provisions for Project [redacted] connection
- Air intake and exhaust systems including emissions monitoring provisions.
- Anti-surge systems and instrumentation.
- Integration of the new units into the Plant and Terminal [redacted]
- Tooling Storage facilities.
- [redacted] are provided in Sections 5.5.7 and 6.3.32.

5.5.9 The following inspections are considered under the MWC's scope and form a part of MWC costs:

- Corrosion Protection System Testing (CIPS)

- Construction Design Management (CDM) Inspection ([redacted])
- Pre-Construction Surveys ([redacted])
- Sensible Monitoring ([redacted])
- Civil Inspection (T[redacted])
- Supplier assurance for MWC's supply chain ([redacted])
- Compressor performance test (by OEM)
- Pre-Construction Vibration study (desktop study to be performed by MWC)
- FSA-1 and FSA-2 (Functional Safety Assessments)

MWC cost summary

5.5.10 The MWC prepared a detailed cost estimate methodology report (Appendix F) describing the estimating approach, cost maturity, assurance processes, risk management methodology and handover requirements. This was supported by open-book pricing information and supply chain quotations.

5.5.11 The total MWC cost, for Stage 1 and 2 works is [redacted]. This reflects the negotiated Revision 2 position and includes unlet scope aligned to [redacted] recently identified as being within MWC scope, and actual costs incurred to 30 June 2026, with the remaining value representing forecast costs to project completion. Section 5.8.27 sets out the detailed challenge and optimisation process undertaken to ensure the proposal represents an efficient cost for consumers. The MWC costings are assessed according to National Gas' work breakdown structure and contractual position (under NEC Option C) and are allocated accordingly within the cost book. This leads to occasional differences in allocations between MWC documentation and the submission cost book, although the totals reconcile.

MWC Cost appraisal approach

5.5.12 We adopted a structured cost assurance approach focused on validating scope, testing cost assumptions, reviewing risk allocations and confirming alignment with contractual requirements.

5.5.13 This cost appraisal approach was shaped through benchmarking using [redacted] analysis and other NGT projects (see section 5.8), supporting a robust commercial challenge and detailed technical review. This approach enabled the identification of efficiencies while maintaining project scope, quality, and delivery objectives. The resulting estimate reflects efficient delivery rather than simple cost compression (Figure 11).



Figure 10: Cost Appraisal and Challenge Process

5.5.14 The assurance process began with a detailed review of scope and the Basis of Estimate to confirm that all activities were clearly defined, necessary and fully supported by the engineering design. Duplicate, non-project-specific or unsupported allowances were removed.

5.5.15 [redacted]

[redacted]

5.5.16 Commercial rates and allowances were benchmarked against market data and comparable projects. Costs that could not be justified through evidence or market comparison were challenged and adjusted where appropriate.

5.5.17 [redacted]

5.5.18 All agreed adjustments were recorded through a structured reconciliation process, ensuring a clear audit trail and full traceability back to the original submission.

5.5.19 The assurance outcomes were subject to governance review and senior oversight to confirm that all adjustments were evidence-based and consistent with best practice. [redacted]

5.5.20 The final cost position represents a realistic and well-defined estimate, with risks appropriately allocated and costs aligned to market-tested benchmarks.

5.5.21 Cost assurance was applied as a continuous process throughout estimate development. This provides confidence that the final cost position is robust, transparent and reflects efficient delivery of the agreed scope.

MWC Cost proposal transparency

5.5.22 After initial cost submission from MWC in September 2025, NGT undertook a detailed review over the following months, supported by a series of structured workshops with the MWC. The primary objective was to ensure the estimate aligned with the contractual requirements, including rates, scope, risk allocation and optimisation opportunities. These sessions focused on validating engineering assumptions, estimating methodologies, scope definition, productivity assumptions, risk allocation and key commercial provisions.

5.5.23 The outcome was a Revision 2 submission issued in December 2025, which forms the basis of this re-opener application, updated based on specific known changes communicated by the MWC. The MWC FEED (Stage 1A summary) report (Appendix D) still identifies the pre-negotiated cost submission (Revision 1).

5.5.24 The review process delivered an optimisation of the cost proposal equivalent to [redacted] between the initial estimate and resultant Stage 2 forecast submission, as identified in Table 12, [redacted].

Resource Type[20]	Revision 1 £m 2018/19 prices	Revision 2 £m 2018/19 prices	Delta %
STAGE 1B FORECAST(Subtotal)	[redacted]	[redacted]	
STAGE 2 FORECAST(Subtotal)	[redacted]	[redacted]	[redacted]
Total	[redacted]	[redacted][21]	

Table 12: MWC's Cost Submission revision breakdown including risks

MWC programme review

5.5.25 We conducted collaborative planning reviews with the MWC to identify [redacted].

5.5.26 The programme was subsequently aligned with terminal operations, the [redacted] Asset Health activities, statutory inspections and planned customer outages. Key outcomes of the review included:

[21] MWC Estimated cost to completion inclusive of mitigated MWC risk as per Revision 2 shown in Appendix C (Cost Book tab 'Contractor Costs') which does not account for the update of known changes communicated by the MWC since December 2025.

- [redacted]
- [redacted]
- [redacted]
- [redacted]
- [redacted]

5.5.27 The programme shown in Figure 12 reflects the optimised delivery strategy and is designed to maximise unit availability ahead of the legislative compliance date of 1 January 2030.



Figure 11 : MWC's Delivery Programme

Assumptions and exclusions review

5.5.28 As part of the overall process to challenge and review the MWC's estimate, the Assumptions and Exclusions were reviewed. This was to ensure that the full scope was covered in the cost submission provided, ensuring no gaps or overlap with NGT costs.

5.5.29 Clarity was gained on ensuring that both the NGT and MWC's risk registers matched assumptions in terms of identifying risks where assumptions may have a potential to be proven inadequate or incorrect. For example, [redacted]. See below and section 6.36.3 for further detail.

Risk register review

5.5.30 The MWC risk register was reviewed throughout its development to ensure compliance with the NEC4 contract. This included validating the appropriate allocation of risk ownership, preventing duplication of entries between the MWC and NGT risk registers, and ensuring risks were assigned to the correct owners.

5.5.31 NGT challenged these classifications and worked with the contractor to establish clear ownership and accountability for all identified risks.

5.5.32 Through multiple review cycles, the overall risk position was reduced and refined (see Table 12, and preceding wording). The MWC risk level now represents [redacted] of total EAC.

5.5.33 Proactive risk management will continue throughout project delivery, supported by NEC4 Option C target cost mechanisms and ongoing review of mitigation measures, emerging issues and realised risks.

MWC cost conclusion

5.5.34 Our review of the MWC submission resulted in an overall [redacted] between September and December 2025. The principal sources of savings are summarised below (Table 13). [redacted] (see section 5.8).

[redacted]

Table 13: [redacted]

5.6 Project cost breakdown – Original equipment manufacturer

OEM Scope

5.6.1 The design, procurement, manufacture and delivery of new compressor machinery packages are being provided by [redacted] The equipment will be procured directly by NGT and free issued to the MWC for installation. The total OEM contract value is [redacted].

5.6.2 The scope comprises three compressor machinery packages, each including:

- [redacted] gas turbine and [redacted] compressor train.
- Dry gas seal system, including seal gas boosting and conditioning equipment, with future-proofed provision for seal gas capture and recompression.
- Gas turbine exhaust system, including noise attenuation and emissions sampling provisions.
- Gas turbine air intake system, including turbine preservation and dehumidification equipment.
- Gas turbine and compressor enclosure, incorporating noise attenuation, ventilation, fire and gas detection systems.
- Fuel gas conditioning system.
- Auxiliary utility systems, including lube oil cooling.
- Water wash system.
- Anti-surge valve and associated instrumentation.
- Fire and gas protection systems.
- Local Equipment Room (LER) containing control, protection, UPS, motor control and HVAC systems.

5.6.3 The [redacted] compressor package was selected following a BAT assessment, supported by NGT's environmental consultant, [redacted], as described in section 5.6.11 onwards.

OEM Technical and Commercial Assessment

5.6.4 We conducted a seven-month technical and commercial evaluation of [redacted] OEMs: [redacted] The assessment included detailed reviews of the technical submissions, compliance matrices, deviations, Requests for Information (RFIs), Request for Proposal (RFP) responses and BAT analysis.

5.6.5 The evaluation confirmed each OEM's ability to meet project requirements relating to safety, operational performance, cyber, environmental compliance and quality. Combined with the DoR workshops, this established the basis of the final solution evaluation.

5.6.6 The BAT assessment formed the primary basis for shortlisting and final selection. The evaluation considered:

- Power and Performance including envelope maps
- Emissions
- Efficiency
- Maintenance requirements and life cycle costs

5.6.7 Commercial assessments were undertaken at both RFP and Best and Final Offer (BAFO) stages. The competitive tender process enabled robust cost challenge and value comparison across all suppliers.

Operational Scenarios Assessed

5.6.8 Three operating scenarios were assessed to reflect varying availability of the existing VSDs at St Fergus Plant 3: (see Figure 13 below, as discussed in Section 3)

- **Case 1:** Both VSDs unavailable, e.g. if loss of common electricity supply. Requires the new units to deliver the full Process Duty Specification (PDS).
- **Case 2:** One VSD unavailable, e.g. if maintenance outage for VSD. New units required to meet PDS that can't be met by a single VSD as the gas flows are too low or are required to load share to meet PDS running in parallel with available VSD.
- **Case 3:** Both VSDs available, with new units required to meet PDS that can't be met by a single VSD as the gas flows are too low.

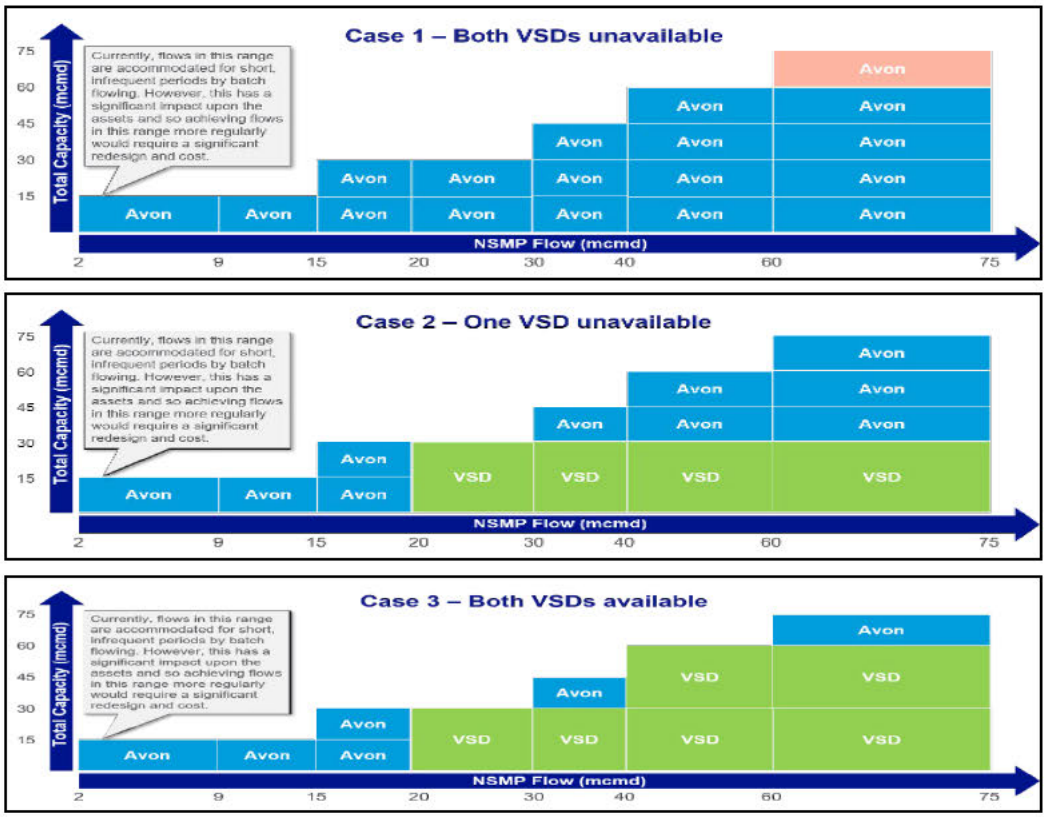


Figure 12: Case by case description of flows handled by St Fergus Gas Terminal[22]

BAT assessment Outcomes

5.6.9 OEM submissions included BAT assessments for each operating scenario, responses to supplementary technical questions and commercial proposals. We assessed each tender response across all three operating scenarios.

5.6.10 Figure 14 and Figure 15 present the comparative BAT assessment and whole-life cost evaluation undertaken during both the RFP and BAFO stages.



Figure 13: BAT Cost Benefit Chart (Price base 2025/26) – St Fergus all Cases



Figure 14: Whole Life Costs, RFP v. BAFO, Case 1

[22] Avon can be read as 'New Unit' in the figure above.

5.6.11 BAT evaluation followed a set of criteria pre-agreed with SME engagement and weighted as shown in Table 14.

Technical Criteria	Issues that will be considered in the evaluation	Weighting
Versatility - emissions compliant envelope	[redacted]	[redacted]
Future proofing - emissions limits headroom	[redacted]	[redacted]
Ownership	[redacted]	15%
Constructability	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
	Total	100%

Table 14: BAT Criteria

5.6.12 Figure 16 shows the resultant scoring for the above technical criteria for each OEM. These scores are explained in more detail in the following section.

[redacted]

Figure 15 : OEM Technical Criteria Comparison

5.6.13 Across both technical and commercial assessments, [redacted] achieved the highest overall score and was subsequently selected as the preferred supplier.

Versatility and future proofing

5.6.14 While Baker Hughes demonstrated the broadest operating flexibility, the [redacted] offered the best overall balance of load range, emissions performance and future adaptability. The unit can operate down to approximately 30% load while maintaining emissions performance of 18 mg/Nm³ NOx.

5.6.15 The [redacted] demonstrated the narrowest operating range and highest emissions across the required operating envelope.

5.6.16 The [redacted] package achieved higher emissions levels than [redacted] and offered a more limited low-load operating range.

Ownership and constructability

5.6.17 Ownership and support assessments considered maintenance requirements, service support arrangements, fleet experience, package footprint and constructability.

5.6.18 [redacted] achieved the highest ownership score due to:

- Extensive operational fleet experience.
- Established UK support capability.
- Rapid field service mobilisation.
- Comprehensive maintenance strategy.
- NGT operational experience with [redacted] units elsewhere on the network.

5.6.19 The [redacted] package also achieved the highest constructability score due to its compact footprint and reduced space requirements compared with the alternative solutions.

Environmental criteria

5.6.20 Environmental assessment confirmed that [redacted] delivered the lowest lifecycle emissions across all operating scenarios.

5.6.21 Compared with alternative suppliers, [redacted] demonstrated:

- Lowest total NOx emissions.
- Lowest total CO emissions.
- Lowest CO_2 emissions across the primary operating cases.
- Improved performance through deployment of enhanced DLE combustion technology.

5.6.22 As a result, [redacted] consistently ranked highest within the environmental component of the BAT assessment.

Supplementary BAT validation and support

5.6.23 Additional evaluation factors included:

- Reliability and availability performance.
- Mean Time Between Failure (MTBF).
- Operational references and fleet experience.
- Future emissions reduction pathways.
- Hydrogen blend capability.
- Manufacturing and assembly arrangements.
- String testing and factory acceptance capabilities.

Plant noise compliance

5.6.24 Noise compliance formed a key element of the procurement process. [redacted] supported NGT in reviewing OEM submissions against the site's anticipated environmental noise limits.

5.6.25 Assessment of acoustic performance identified [redacted] as the most cost-effective compliant solution. The [redacted] package met the required [redacted] design criteria within its standard offering and did not require significant additional acoustic mitigation measures.

5.6.26 Given the expected noise plant level limits required at the Terminal (based on current known local Aberdeenshire Council requirements for this facility), mitigation of noise from compressor equipment was required to be considered as part of the tender.

- A review was undertaken considering potential total project cost and performance improvements aligned to local plant noise level compliance. Table 15 shows a comparison of noise compliance offers by [redacted] OEMs.

[redacted]

Table 15: Noise offering assessment by different OEMs

Additional Selection Considerations

5.6.27 The evaluation also considered:

- Package footprint and enclosure design.
- Controls system compatibility with existing and future site systems.
- Gas turbine start-up performance.
- Storage and logistics requirements.
- Country of origin and local support arrangements.

5.6.28 These factors further reinforced the selection of [redacted] as the preferred supplier.

Post OEM contract - Additional scope

5.6.29 Following a competitive procurement process, [redacted] was awarded the OEM contract on 28 March 2025 for the supply of three [redacted] compressor drive trains.

5.6.30 As the design matured, additional scope valued at [redacted] (FY18/19) was identified. Despite these additions, the [redacted] solution remains the most economically advantageous and technically compliant option, as detailed below.

5.6.31 Key enhancements introduced during design development include:

- [redacted]
- [redacted]
- [redacted]
- [redacted]
- [redacted]
- [redacted]

- [redacted]
- [redacted]
- [redacted]

5.6.32 These improvements reflect lessons learned from other NGT compressor replacement projects and ensure alignment with operational and safety requirements.

5.6.33 Early OEM engagement during the feasibility phase was critical to securing programme certainty and enabling coordinated development of the overall terminal solution.

5.6.34 All additional post-contract OEM costs are defined in the Cost Book (Appendix B- NGT Cost book), see "OEM Costs" tab. Additional OEM costs [redacted] are included in the overall Unit price. Additional context on these services is provided below.

Post project support services and Warranty

5.6.35 All post-award OEM costs are included within the Cost Book under the OEM cost category.

Post project support

5.6.36 The OEM package includes:

- [redacted]
- [redacted]
- [redacted]
- [redacted]
- [redacted]

Commissioning service support

5.6.37 Commissioning service allowances have been developed using current programme assumptions and experience from comparable projects. These allowances will continue to be refined as detailed planning progresses.

Extended warranty

5.6.38 The enhanced warranty and Delivered Duty Paid (DDP) arrangements have been secured to transfer delivery, logistics, and early-life performance risks from NGT to [redacted] This reduces the likelihood of consumers bearing the cost of equipment defects, transportation issues, importation delays, or remedial works following commissioning. This approach increases cost certainty, improves risk allocation, and helps ensure consumers only fund efficient project delivery costs. Equipment will be supplied on a DDP basis, transferring transportation and importation risks to [redacted]

5.6.39 The warranty enhancements provide coverage through to operational acceptance and support the long-term reliability of the supplied equipment (Table 16).

[redacted]

Table 16 : OEM Warranty Comparison

5.7 Project cost breakdown – National Gas

5.7.1 NGT is responsible for overall project governance and delivery, including the effective management of interfaces between the MWC and OEM. This includes ensuring that all design, construction and commissioning activities comply with applicable safety, quality and technical standards. Total NGT costs covering spend to date, unlet scope and overheads, excluding risks and contingency, are [redacted].

5.7.2 Project delivery is supported by a dedicated team comprising project management, design coordination, engineering, construction, commissioning and operations personnel. Specialist third-party support is also utilised where required, including environmental coordination, air quality modelling, acoustics, welding and coating inspection, ATEX compliance, vibration monitoring and emissions testing.

5.7.3 NGT retains responsibility for a range of project risks that sit outside the MWC's contractual scope. These risks are managed through the NGT Risk Register and are reflected within the project cost estimate (refer to the Cost Book QRA and Risk Register tabs in Appendix B - NGT Cost book).

5.7.4 This section provides supporting information for NGT cost elements, including internal resource requirements, external specialist support, risk allowances and project expenditure incurred to date.

Resource costs

5.7.5 The resource build-up forecast identifies a direct staffing cost of [redacted], as defined within the Cost Book - NGT Costs (Appendix B), excluding the project overheads. This provides a breakdown of all delivery unit and site operations staffing to support project delivery, planned for Operational Acceptance in 2029 and project close out by 2030.

Resource build-up approach

5.7.6 NGT resource requirements have been developed using the latest MWC delivery programme, which defines the timing of key project milestones and enables resource needs to be aligned with each delivery phase.

5.7.7 The resource assessment was informed by:

- Applicable NGT standards and specifications and quality management system.
- The NEC4 ECC scope and associated allocation of responsibilities.
- Benchmarking against comparable compressor projects, particularly [redacted].
- Lessons learned from previous projects, including [redacted] activities.
- Engagement with key internal stakeholders such as those across Asset Management, Terminal Operations, Construction, System Operations and Engineering functions.

5.7.8 Resource requirements were further validated through detailed review of:

- The MWC Master Document Register (MDR).
- Planned HAZID, HAZOP, CHAZOP and LOPA workshops.
- Construction and site supervision requirements.
- OEM and MWC commissioning programmes.

- Interface management and operational readiness requirements.

5.7.9 This process produced a comprehensive resource forecast covering all activities required to oversee project delivery, manage contractor performance and ensure compliance with NGT, HSE and SEPA requirements.

Resource Assurance and Optimisation

5.7.10 Project staffing requirements have been subject to detailed internal challenge and optimisation throughout estimate development. Reviews were conducted across all project phases to ensure resource allocations were appropriate and proportionate.

5.7.11 The review process included:

- Assessment of individual role requirements and utilisation levels.
- Benchmarking against comparable roles within the MWC and OEM organisations.
- Limiting management oversight time to only that required for governance and quality assurance.
- Restricting extended site attendance outside standard working hours to essential personnel.
- Multi-disciplinary review by engineering, asset integrity, functional safety, health and safety, operations, procurement, commercial and project controls teams.
- Continuous comparison of actual versus forecast resource utilisation.

5.7.12 Resource requirements associated with the Ofgem funding submission have been time-bound to the anticipated consultation and assessment period, reducing as project assurance activities conclude.

5.7.13 Our staffing forecasts have been developed using a bottom-up methodology based on project-specific delivery requirements. Historical projects have been used for benchmarking and validation rather than as the primary basis of estimate development.

5.7.14 Application of lessons learned and economies of scale enabled several previously forecast resource requirements to be reduced or removed during estimate refinement.

5.7.15 **Project Owner Representative (POR):** this role was initially expected to be absorbed within existing terminal operations resources. However, experience gained during project development confirmed that a dedicated POR is required to effectively coordinate site interfaces, permits and operational support activities.

5.7.16 To minimise cost, appointment of the role has been deferred until mobilisation of the main construction phase in late 2026. This approach balances operational requirements with efficient resource utilisation.

5.7.17 While a dedicated POR remains necessary due to the scale and complexity of activities at St Fergus, additional support will be provided through existing terminal operations resources and the Authorising Engineer function. This approach reduces the overall resource requirement while maintaining operational oversight.

5.7.18 **Project Supervisor:** the requirement has been optimised to three assuming a degree of supporting resource through Terminal personnel.

5.7.19 Resource deployment has been aligned with the construction programme:

- One supervisor during surveys and enabling works.
- A second supervisor from commencement of foundation removal activities.
- A third supervisor mobilised for the main construction phase.

5.7.20 This phased approach optimises resource utilisation while maintaining safe project delivery.

5.7.21 Figure 17 illustrates the planned distribution of resources throughout the project lifecycle, with staffing levels reducing significantly following completion of construction activities and transition into commissioning and project close-out.



Figure 16 : NGT Full Time Equivalent (FTE) and Full Time Actual (FTA) Resources[23]

5.7.22 The detailed engineering phase has been delivered using only those resources essential to progressing design maturity and preparing for construction. Resource levels increase progressively as the project moves into construction and commissioning.

5.7.23 Construction activities are expected to operate on a [redacted] aligned with existing terminal working arrangements. Any requirement for additional shifts or amended working patterns will be managed through the project risk process and is reflected only where specifically included within identified risk allowances. No generic delay allowance has been included within the staffing forecast.

5.7.24 **Graduate Resource**: Graduate engineers and project professionals form an important part of the delivery team and provide a cost-effective means of supporting project activities while developing future organisational capability.

5.7.25 Across the MCPD programme, graduates support project management, design coordination and site supervision activities, including:

- Technical query management.
- Contractor document reviews.
- Data analysis and reporting.
- Project controls support.
- Site-based delivery activities.

5.7.26 Their involvement supports efficient project delivery while helping address future skills requirements across the business.

Overheads

5.7.27 Total forecast project overheads are [redacted], comprising overheads already incurred and capitalised, together with forecast overheads for the remainder of the project lifecycle. These costs are allocated according to annual project expenditure.

5.7.28 The overhead allocation model takes all the gross costs for all construction departments and expected charges from shared function (Procurement & Technical Assurance/Finance). The next stage of the model considers what proportion of the department costs will be directly charged via

[23] Full-Time Actuals (FTA) represent the number of resources assigned to the project. Full-Time Equivalent (FTE) represents the total effort contributed by those resources, expressed as the equivalent number of full-time employees.

timesheets and removes that from the calculation. This then leaves the amount of costs that need to be allocated via the overhead rate. See Appendix C- NGT Cost and Risk report.

Other NGT Contracts

5.7.29 Third-party specialists from the supply chain are required to support us in delivering our safety, quality and environmental obligations and include the following scope elements:

- 100% Welding, Coating and NDT Inspection (as per Site inspection requirements [redacted])
- 100% ATEX Inspection (as per ATEX / DSEAR standards - [redacted])
  - Post Compressor Installation
  - During OEM and Fuel/Seal Gas Skid Factory Acceptance Tests (FAT)
- Functional Safety Assessment 3 (FSA-3) Independent Adjudicator
- Earthing System Pre/Post Survey (as per [redacted] Inspection requirements)
- PSSR Inspection (as per [redacted] Inspection requirements)
- Vibration Monitoring (as per [redacted])
- Noise Monitoring (as per [redacted])
- Emissions Monitoring (as per [redacted])

5.7.30 All specialist packages have been subject to NGT's procurement requirements to ensure value for money and market competitiveness.

5.7.31 Where practical, at least three quotations were sought. In cases where market availability or programme constraints limited competition, budgets have been based on the most commercially advantageous compliant proposal available.

5.7.32 Estimated costs have been benchmarked against comparable NGT projects, including [redacted], and independently reviewed by [redacted] as part of the project's wider cost assurance process (see section 5.8). In addition, estimates have been updated using actual expenditure to 30 June 2026, improving cost certainty through increased design maturity and procurement progress. Residual market pricing risk remains and is captured within project risk allowance T-85860.

Let Scope allowances

5.7.33 Certain specialist services are being delivered more efficiently through directly appointed consultants, with cost breakdown shown in Figure 6. This includes support from organisations such as:

- [redacted]
- [redacted]
- [redacted]

5.7.34 These costs are included within the let-scope allowances identified within the Cost Book.

Unlet Scope allowances

5.7.35 As part of the NGT cost estimate, an amount has been included for unlet scope, covering activities that are known to be required but have not yet progressed sufficiently to enable contract award or allocation. The majority of these activities will be further defined as the project develops and key requirements are confirmed, including inspection scope, detailed design selections, construction methodology and schedule, and commissioning requirements. One specific item (line 14 below, [redacted]) is for [redacted] that at the time of MWC stage 1A submission had not been clarified. This is now confirmed to be part of the MWC scope with activity costs developed utilising information available through [redacted] for materials and resource duration cost developed using known MWC project rates.

5.7.36 The current estimates are summarised below:



Table 17: Unlet scope estimates

5.7.37 This allowance will be refined and allocated to specific contracts as the project scope and execution strategy mature.

NGT estimating uncertainty

5.7.38 A Monte Carlo Simulation (MCS) comprising 10,000 iterations was undertaken to quantify estimating uncertainty and generate confidence-based cost outputs in accordance with IPA guidance.

5.7.39 The simulation produced a P50 estimating uncertainty value of approximately , which represents the expected value of estimating uncertainty based on the applied range and EAC value.

5.7.40 Consistent with the Infrastructure and Projects Authority (IPA) cost estimating framework[24], the project estimate distinguishes between base cost, estimating uncertainty and risk contingency structured around the fundamental equation as shown in Figure 18.

[24] IPA_Cost_Estimating_Guidance.pdf

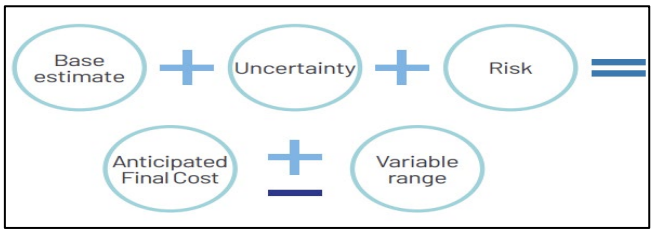


Figure 17: Cost Estimating Process - Infrastructure and Projects Authority (IPA) Cost Estimating Guidance 2021

5.7.41 Estimating uncertainty represents the potential variation associated with estimate maturity, scope definition and information availability. It differs from risk contingency, which addresses discrete risk events with defined probabilities and impacts.

5.7.42 Estimating uncertainty was assessed at Level 4 of the Work Breakdown Structure using a structured maturity assessment aligned with Association for the Advancement of Cost Engineering (AACE) International recommended practice. The assessment considered:

- Scope maturity.
- Quantity definition.
- Cost estimating methodology.
- Benchmarking quality.
- Data reliability.
- Project complexity.

5.7.43 Based on this assessment, a Class Estimate uncertainty range of [redacted] was adopted. This reflects the current maturity of the estimate and remaining market and delivery uncertainties.

5.7.44 The use of Monte Carlo analysis provides a transparent and evidence-based assessment of estimate confidence, supporting investment decision-making and ensuring clear separation between estimating uncertainty and risk contingency. This approach aligns with recognised industry good practice and provides greater confidence in the robustness of the submitted cost estimate.

5.8 Efficient cost

Cost movement since FOSR

5.8.1 The FOSR identified the final preferred option investment to be [redacted] ([redacted] cost confidence, P50 total installed cost) for three new units. The three shortlisted investment options (1, 12 and 14) were costed to [redacted] accuracy to support option evaluation and comparison.

5.8.2 As part of the cost assurance and update exercise we contracted [redacted] an independent consultancy used consistently across NGT, and most recently the MCPD portfolio, to evaluate the original FOSR compilation and then the December 2025 MWC cost submission.

5.8.3 [redacted] along with NGT conducted a staged assurance to assess cost movement since FOSR followed by an assessment of the MWC's cost submission.

5.8.4 To update the FOSR cost estimate against market conditions and assess the project scope (December 2025), [redacted] performed this cost verification using the latest MWC's Material Take Off (MTO) data and market price information. Use of the latest MTO data ensured that any new scope elements were included in the revised estimate.

5.8.5 Since the FOSR submission, substantial progress in procurement, contractor engagement, engineering development, and detailed cost validation has enhanced project maturity and reduced estimating uncertainty from [redacted].

5.8.6 The original FOSR estimate, developed by [redacted] and benchmarked against a similar project at [redacted], served as an appropriate cost baseline based on the level of definition and information available at that time.

5.8.7 As the project has matured, additional delivery requirements and cost elements have been identified and quantified, including prefabrication, indirect site labour, site establishment and contractor fees, which were not fully reflected in the FOSR estimate. Furthermore, compliance requirements, lessons learned from comparable projects and ongoing technical development have driven refinements to both the delivery scope and the associated cost estimate.

5.8.8 The final MWC's estimate provides a significantly more robust and mature assessment of the efficient cost required to deliver the approved solution. The key factors contributing to the movement in costs are summarised in Table 18.

Factors impacting costs	Scope change impact	Market Change impact	Industry impact	Total Impact
%[23] impact since FOSR	[redacted]	[redacted]	[redacted]	[redacted]

Table 18: Factors impacting costs

5.8.9 For real-world benchmarking, [redacted] rebuilt the project estimate by using its own cost norms and estimating methodology.

5.8.10 This exercise indicates that the FOSR estimate was broadly consistent with industry expectations. However, fabrication and installation costs were assessed to be below typical benchmark levels.

5.8.11 Genesis's revalidation closely aligned with comparable MWC's estimates.

5.8.12 Based on the FOSR baseline, [redacted] derived estimate forward escalated[24] to December 2025, indicates a projected cost of [redacted] (FY26) for the original FOSR scope, representing an [redacted] (subject to amendment following revision of the FY18/19 conversion factor) compared with the original [redacted] (FY22/23) FOSR estimate.

5.8.13 It should be noted that these figures are based on the original FOSR scope. (See Table 19)

Estimate Basis	Price Base	Cost (£m)	% Movement
Original FOSR Estimate	FY23	[redacted]	[redacted]
Original FOSR Forward Escalated	FY26	[redacted]	[redacted]
[redacted] Rebuild Forward Escalated	FY26	[redacted]	[redacted]

Table 19 : Summary of [redacted] estimates

5.8.14 As part of the next stage of [redacted]'s works in assuming the position of the MWC submission, they completed a comparable independent rebuild estimate using its internal cost database, estimating procedures and benchmarks.

5.8.15 This produced a forecast P50 installed cost of [redacted] (FY26) for the original FOSR scope, approximately [redacted] than the original FOSR estimate.

5.8.16 The review concluded that the original FOSR estimate remains a useful reference point but requires adjustment to account for identified omissions and scope evolution. The revised estimate provides a more realistic baseline and includes appropriate contingency allowances. This comparison excludes any significant changes to the original project scope.

5.8.17 Key omissions identified during the review included:

- Prefabrication allowances.
- Freight costs.
- Indirect site labour and supervision.
- Site establishment costs.
- MWC fees.

5.8.18 Additional adjustments were identified in relation to:

- Material cut and waste allowances.
- Growth allowances for critical procurement items (including valves, steelwork and civils).
- Material Take-Off (MTO) allowances.
- On-site fabrication costs.

5.8.19 Based on the above, the approximate distribution of these movements is summarised in the table below



Table 20 : FOSR revalidation position

5.8.20 The revalidation exercise identified approximately [redacted] (FY26 price base) of additional [redacted] (see Figure 6), primarily associated [redacted]. These increases also drove corresponding [redacted]

5.8.21 The principal drivers of the increase identified by [redacted] were:

- Scope development and refinement since the original estimate.
- Updated MTOs and current bulk material procurement costs.
- Increased labour rates for construction and commissioning activities.
- Electrical and instrumentation interface scope required external to the compressor vendor package.
- Increased civils scope associated with buried pipework, valves and replacement foundations.
- Allowances for engineering, project management and MWC indirect costs.
- Application of the contractual MWC fee of [redacted].

5.8.22 In addition to cost validation, [redacted] identified several project risks that could affect cost and schedule performance, and which have been incorporated into the project risk register (see section 6.3)

- Construction and commissioning activities occurring concurrently across multiple work areas, creating potential Simultaneous Operations (SIMOPS) and resource constraints.
- Potential additional electrical and instrumentation demolition requirements associated with integration into existing site infrastructure.

5.8.23 The analysis compared the original [redacted] FOSR estimate against the more mature [redacted] MWC estimate. While appropriate for comparative option assessment, the FOSR estimate had several limitations:

- Limited design maturity and incomplete instrumentation definition.
- Reliance on high-level MTOs and benchmarked estimating techniques.
- Significant project scope and specification development since January 2023.
- Exclusion of several cost elements, including spend-to-date and risk contingency.

5.8.24 Conversely, the MWC estimate was supported by vendor quotations, detailed MTOs and developed in accordance with AACE International standards, providing a more robust estimate basis.

5.8.25 Despite the differences in estimating maturity, [redacted] review found strong alignment between its independent estimate and the MWC cost submission, with only minor differences arising from cost allocation methodologies. Overall, the [redacted] estimate was marginally higher.

Estimate Basis	Price Base	Cost (£m)	% Difference
[redacted] MWC contractor rebuild estimate	18/19	[redacted]	[redacted]
Actual MWC cost	18/19	[redacted][25]	[redacted]

[25] Stage 2 forecast only, excluding stage 1A actuals and stage1B actuals and forecast.

Table 21: [redacted] Cost Review

5.8.26 The MWC cost submission is approximately [redacted] than the [redacted] revalidated estimate.

Contractor cost challenge and Efficiency activities

5.8.27 Following receipt of the MWC Phase 1A Feasibility Report and Cost Book submission, a structured programme of cost review and challenge was undertaken. This built on the ongoing scrutiny applied throughout design development, with a particular focus on optimising design solutions while minimising whole-life cost. Notably, the CAB design was subject to three dedicated workshops prior to the initial cost submission in September 2025. Further reviews were subsequently undertaken to identify cost reduction opportunities, clarify commercial assumptions, reduce delivery risk and mitigate future cost escalation, thereby improving value for consumers.

5.8.28 The principal areas of efficiency focus were:

- [redacted]
- [redacted]
- [redacted]
- [redacted]
- [redacted]

Value engineering

5.8.29 Value engineering has been embedded throughout the feasibility and preliminary design phases. Prior to the Phase 1A cost submission, this process had delivered approximately [redacted] (FY26) of [redacted].

5.8.30 [redacted] (Table 22)

[redacted]

Table 22: Value Engineering Opportunities

Scope optimisation and lessons learnt application

5.8.31 Following agreement of the project scope through the FOSR, tender process and contract award, the delivery approach continued to be challenged throughout feasibility and detailed engineering. This included design reviews, technical workshops, benchmarking against comparable projects and peer review activities.

5.8.32 Design reviews involved subject matter experts (SMEs), Operations personnel and project teams from comparable compressor station developments, including [redacted] Existing [redacted] installations across the fleet were reviewed to optimise operability, maintainability, constructability and commissioning performance.

5.8.33 Experience from recent compressor projects has informed planning, resourcing, technical solutions and commissioning strategies. Lessons learned continue to be incorporated as the project progresses.

5.8.34 Key lessons applied include:

- [redacted]
- [redacted]
- [redacted]
- [redacted]

[redacted]

Table 23: Summary Lessons Learnt topics

5.8.35 The Formal Process Safety Assessment (FPSA) process has been applied from the early stages of design and will continue throughout detailed engineering. This approach ensures that Safety Integrity Level (SIL) requirements and NGT safety standards are achieved while avoiding the cost and schedule impacts associated with late-stage redesign.

Commercial challenge and review

Inflation review

5.8.36 The MWC identified a potential mismatch between the inflation recovery provided through the contractual [redacted] mechanism and the forecast increase in project costs. [redacted].

5.8.37 To mitigate this risk, CPIH-based inflation indices were adopted in line with the Price Control Deliverable Uncertainty Mechanism. This ensured that forecast inflation more accurately reflected anticipated market conditions, reducing the risk of actual labour, plant, material and subcontract costs exceeding the inflation allowance recoverable under the contract.

Strategic sourcing

5.8.38 We assessed opportunities to leverage our purchasing power where direct procurement would provide better value than procuring through the MWC. This approach has principally focused on OEM equipment and supports improved warranty management and long-term operational support arrangements.

5.8.39 In addition, selective use of third-party specialist contractors is being adopted where it provides a more efficient delivery model and enhances resource capability.

5.9 Comparison to [redacted] project

5.9.1 As part of the total approach to project cost assurance, consideration against other MCPD projects has been made, specifically [redacted] as detailed below. Much as this is a useful benchmark in many respects in that it is the installation of a new unit on an existing site, it must be acknowledged that, the two projects are not directly comparable on a like-for-like basis due to several differences in scope, site conditions and execution environment. These differences have a material impact on project complexity, risk and cost and should therefore be considered when assessing the respective project outcomes:

- **Lessons learned**: St Fergus has benefited from lessons learned from previous turbine replacement projects, including [redacted] This has enabled improvements in planning, execution strategy and design optimisation, providing opportunities for greater efficiency than earlier projects.
- **Site preparation requirements**: The new units at St Fergus are being installed in locations previously occupied by existing units that have recently been demolished and removed. Consequently, significant enabling works are required, including removal of existing concrete plinths and extensive site preparation activities. In comparison, [redacted] had already been partially prepared for a future unit installation during earlier phases of work, reducing the scope of preparatory activities required.
- **Project interfaces and coordination**: St Fergus has a more complex interaction with other live projects, including the [redacted] and a substantial programme of Asset Health works. These interfaces increase execution complexity and have contributed to higher costs across multiple areas, including risk allowances, management of work coordination and construction activities.
- **Operational environment**: St Fergus is located within a [redacted]. Delivering the project within a live operating environment requires extensive planning, coordination and control measures to ensure safe execution alongside ongoing operations, resulting in increased complexity and associated costs.
- **Noise attenuation requirements and design differences**: [redacted] is located adjacent to a populated urban area and is therefore subject to more stringent noise attenuation requirements. As a result, the design incorporates close-fitting acoustic enclosures around both the gas turbine and compressor packages, together with an additional CAB. At St Fergus, the less onerous noise requirements permit a close-fitting enclosure around the gas turbine only, with the compressor housed within the CAB. This reduces the extent of acoustic infrastructure required and provides a cost benefit while maintaining compliance with site-specific environmental and regulatory requirements. Collectively, these factors demonstrate that, while St Fergus benefits from certain efficiencies and design advantages, it also faces additional site-specific constraints,

interfaces and execution challenges that materially influence project complexity, risk and cost when compared with [redacted]

5.9.2 [redacted] were commissioned to benchmark the St Fergus MWC proposal and associated cost estimate against the [redacted] project.

5.9.3 [redacted] is well positioned to undertake this comparison, having previously supported the 2022 option selection studies for the [redacted] projects, providing a consistent basis for assessment.

5.9.4 Since completion of the 2022 study, we progressed the [redacted] project through concept selection and into delivery. The [redacted] project comprises the installation of a single gas turbine-driven compressor on an existing plinth, with [redacted] contracted to supply the compressor drivetrain package and [redacted] appointed under a two-stage ECI contract to deliver feasibility, detailed engineering, construction and commissioning activities.

5.9.5 Factors listed within Table 24 differentiates St Fergus and [redacted] and should be noted for comparison.

[redacted]

Table 24: Comparison factors between St Fergus and [redacted]

5.9.6 Table 25 presents a comparison of the St Fergus and [redacted] project cost estimates. Benchmarking against the [redacted] project indicates that the St Fergus cost estimate reflects a larger and more complex scope, with cost differences arising from complexities of the site and interface tie ins, competitive tender procurement approach, and other project-specific risk considerations.

[redacted]

Table 25: Comparison of this project with [redacted]

5.9.7 A comparison of project schedules also demonstrates a strong degree of alignment. The overall duration for St Fergus is [redacted] reflecting differences in scope, site readiness and the installation of three compressor units across two plants. Despite this, efficiencies have been achieved through economies of scale, parallel execution of activities, reuse of engineering information from the [redacted] project and other St Fergus developments, and the replication of design across multiple units.

5.9.8 Construction durations are broadly comparable across both projects. The principal schedule increase at St Fergus relates to commissioning activities, which are [redacted] to accommodate the additional units and operational interfaces. Conversely, engineering durations have been reduced through standardisation of design and leveraging existing project information, demonstrating effective application of lessons learned across the MCPD portfolio.

[26] Cost figure based on June 2025 re-opener submission



Figure 18 : Top level Schedule comparison – [redacted] v. St Fergus

6 Project delivery and key risks

6.1 Key milestones

6.1.1 The below Table 26 provides details of the Key Milestones throughout the Project.

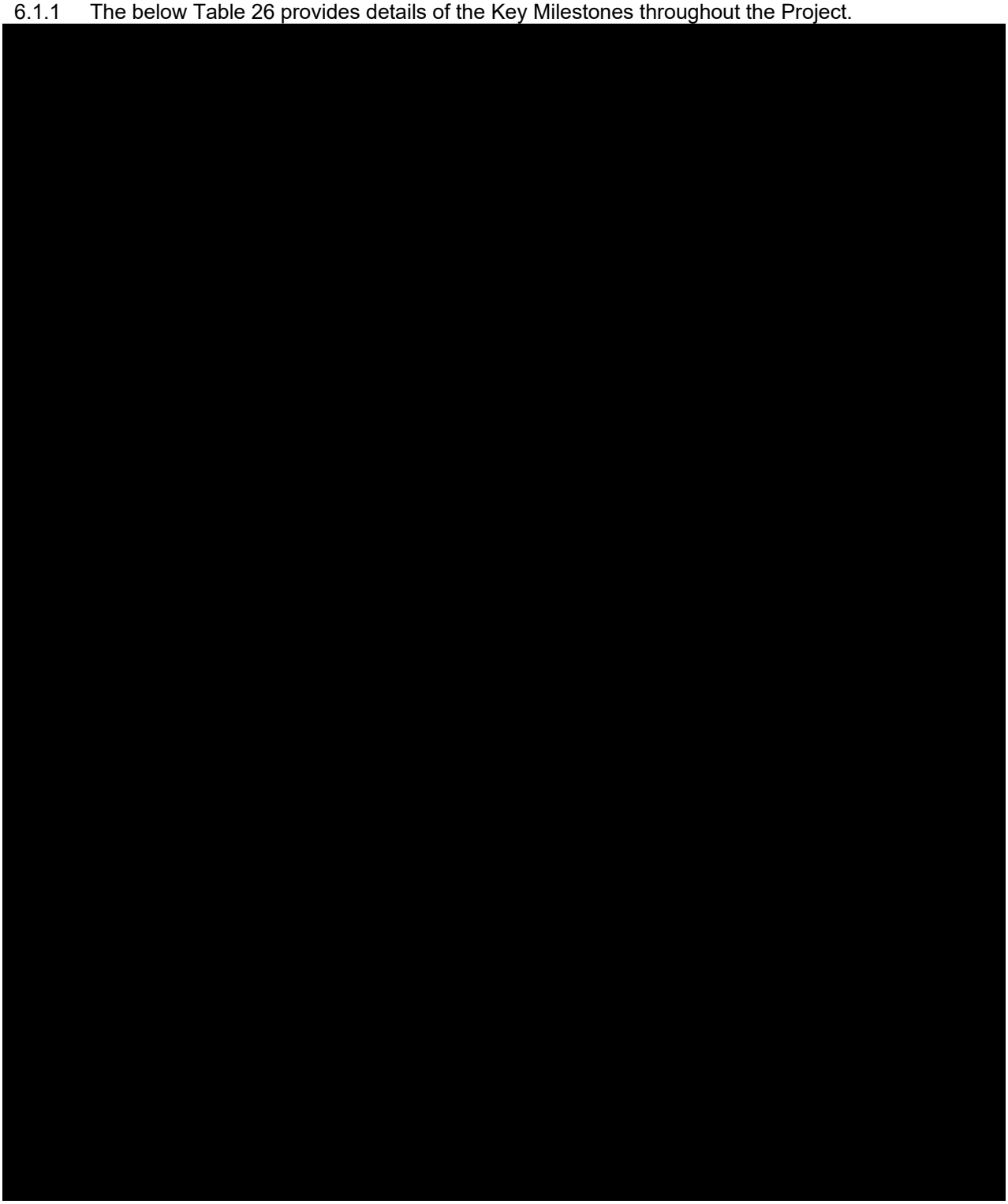


Table 26 : Key Milestones and Key dates for the Project

6.1.2 As programme reviews continue to mature and the design progresses towards finalisation, a more detailed assessment of commissioning activities and the associated Acceptance Certificate completion is being undertaken. This is being delivered through a series of workshops involving

teams from related AH and [redacted] projects, incorporating lessons learned and expertise from both the [redacted] Compressor Project and the [redacted] commissioning programme.

6.1.3 The reviews are also evaluating how project outages can be coordinated and utilised in the most efficient and effective manner across the portfolio, while maintaining an appropriate level of operational availability at the Terminal.

6.1.4 The new units being installed in Plant 2 ([redacted]) are scheduled for "Gas-Up" by [redacted], with Plant 1 ([redacted]) scheduled for [redacted].Ongoing programme optimisation is focused on aligning MCPD scope with Terminal maintenance activities to maximise efficiency and minimise plant outage utilisation. This strategy provides a favourable opportunity to secure the availability of at least the Plant 2 units for Terminal operations ahead of the winter months, even if formal handover and final acceptance are not achieved until later in the year. This is subject to the units being demonstrably safe to operate and having successfully completed emissions testing. As St Fergus is a continuously manned 24/7 facility, there may be opportunities to utilise the units prior to OAC, where limited manual intervention is required. Any such operation would be subject to Human Factors considerations, with appropriate measures in place to ensure manual intervention are minimalised, controlled and managed safely.

6.1.5 The programme is also recognising that the Terminal is unlikely to commence Plant 1 outage until sufficient confidence has been established in the availability of the Plant 2 units. This dependency has the potential to impact the current programme and remains under active review.

6.1.6 Gas Up of the new units can only occur following the completion and obtaining of Commissioning Authorisation Certificates (CACs) for all Systems and Sub Systems. Following which, Performance Tests are planned to occur in [redacted].

6.1.7 Information provided earlier in the document (Table 26) gives a view of the overall programme to Operational Acceptance across the three units. Full details are provided in Appendix G - Project Programme.

6.1.8 In line with management of the total project programme realisation, the OEM package and peripheries delivery schedule is being managed in conjunction with discussions and programme confirmation from the MWC.

6.1.9 OEM equipment deliveries are being carefully coordinated with overall project progress to ensure components arrive in line with installation and construction requirements. This approach minimises the risks and costs associated with extended on-site storage where equipment arrives ahead of need, while also ensuring that delivery schedules remain aligned with project milestones and do not adversely impact the critical path.

6.1.10 The OEM packages are due to start being delivered from [redacted]. Ahead of delivery, we will attend Factory Acceptance Test (FAT) at the [redacted] facility in [redacted] currently expected [redacted].

6.1.11 The basic order of activities aligned to the Compressor packages includes:



Table 27: Order of activities with timelines

6.1.12 All new units within [redacted]. Further work is ongoing to optimise the delivery schedule, including coordinating with interfacing project programmes. Further details are provided the commissioning strategy presented in the following section.

6.2 Commissioning

6.2.1 [redacted]

6.2.2 The integration test activities included within the programme are defined by two NGT documents:

- [redacted]
- [redacted]

6.2.3 Performance testing is undertaken to demonstrate that the compressor units and gas turbines can operate safely, reliably and in accordance with the required operating envelope. These tests validate performance whilst integrated with the relevant plant control systems and interacting with other operational units on site, with full integration through to the Terminal Control System.

6.2.4 The performance testing requirements are primarily driven by Section 10 of [redacted]. In addition, Section 11 defines the environmental testing required to demonstrate compliance with both contractual performance guarantees and the SEPA environmental permit. Section 12 further requires completion of a 24-hour integrity run to confirm stable and reliable operation prior to handover to the Terminal and issuance of the Operational Acceptance Certificate.

6.2.5 Collectively, the requirements defined within [redacted] establish the testing, commissioning and verification activities necessary to demonstrate the safety, functionality and performance of the new units prior to operational acceptance. Throughout Stage 1A of the MWC contract, extensive engagement has been undertaken with the MWC to validate activity durations, sequencing and programme logic. This collaborative process is continuing through Stages 1B and Stage 2 via workshops and ongoing engagement with the Terminal stakeholders to ensure commissioning durations remain aligned with operational expectations, while also supporting the delivery of legislatively compliant compressor capacity at St Fergus by 1 January 2030.

6.3 Key risks and opportunities

6.3.1 This section provides a high-level summary of the risk approach for the St Fergus MCPD project and outlines the key risks identified through a structured, multi-step assessment process involving broad stakeholder engagement.

6.3.2 The methodology used to identify, prioritise and quantify risks is detailed in the NGT Cost and Risk report, with summary values and spend profiles available in the "QRA" tab in the Cost Book (Appendix B- NGT Cost book). The full risk register including descriptions, three-point estimate (min/most-likely/max costs), cost ranges, quantification rationale and proposed mitigations is provided in the "NGT Risk Register" tab.

6.3.3 As projects progress from concept through to detailed design, it is important that the risk profile remains aligned with the evolving scope and delivery strategy. Risks have therefore been identified and developed through a robust process incorporating structured workshops, subject matter expert input, and scenario-based analysis.

6.3.4 The assessment draws upon lessons learned from recent compressor delivery projects at [redacted], together with experience gained from the St Fergus Decommissioning Project. It also incorporates emerging insights from [redacted] activities.

6.3.5 As the design has matured, the risk register has been systematically reviewed and refined. Risks that are no longer considered relevant have been removed, while others have been transferred into the project cost estimate where the associated activities have become sufficiently defined. Since December 2025, several previously identified risks have been incorporated within the unlet scope allowance as the underlying activities were confirmed. Unlet scope represents known and partially defined activities that has not yet been contractually awarded.

6.3.6 MWC risks were produced using a comparable methodology, as described within their Cost Methodology document (Appendix F - MWC Cost Methodology). Working collaboratively, NGT have reviewed their register and removed duplications to ensure clear delineation between parties, as explained in section 5.5.17.

6.3.7 In line with the IPA guidance[27], risk values have been quantified at the P50 confidence level, representing a 50% probability of spending above or below the allowance. Although NGT experience with complex multi-year compressor delivery projects indicates that P50 is often insufficient, evidenced by shortcomings in the [redacted] project contingency, Ofgem continues to require P50 as the basis for risk calculation. NGT have therefore followed this approach for St Fergus MCPD, while adopting additional measures to manage exposure to time and cost impacts throughout delivery.

6.3.8 Consistent with historic funding submissions, the risk contingency does not assume the benefit of mitigation measures at this stage, due to the uncertainty surrounding their effectiveness and previous evidence of the underestimation of the cost of mitigation. This conservative stance ensures that contingency fully reflects potential impacts until detailed engineering allows for a more refined, evidence-based assessment of mitigation benefits.

6.3.9 Accordingly, NGT have identified both NGT and MWC risk contingencies on a pre-mitigated basis. To maintain transparency, the Cost Book ("Unlet Scope" tab) presents the difference between the MWC's pre- and post-mitigation positions, valued at [redacted]m for MWC. The total NGT pre-mitigated risk value is [redacted]. It should be noted that the sum does not include duplication of any risks identified within the NGT risk register and excludes risks already resolved or retired at the end of Stage 1A.

6.3.10 NGT have identified a total project contingency of [redacted] (this includes the Pre mitigated risk positions for both MWC of [redacted] and NGT of [redacted]), representing [redacted] of the EAC. Given the scale and complexity of modern multi-year compressor projects, characterised by extensive supply chains and a volatile economic environment, NGT consider this level of contingency justified. Past delivery experience reinforces that a standard, percentage-based risk allocation approach is inappropriate; instead, contingency should be tailored to the specific characteristics and challenges of each project.

[27] IPA Cost Estimating Guidance Document (dated 17 March 2021)

6.3.11 The contingency for St Fergus MCPD compared to that of Hatton reflects lessons learned and comparable challenges observed by the MWC who previously assumed the MWC role at [redacted] with industry evidence supporting this position. For example, the Oil and Gas Authority[29] review of 58 major projects (2011-2016), found that fewer than 25% of these types of projects were delivered on time, with an average delay of 10 months and a cost overrun of approximately 35%; results broadly consistent with Hatton. Additional research, including "Mapping Delay Risks of EPC[30] Projects[31]" and Columbia University study [32] on systematic optimism bias in infrastructure planning, highlights similar trends.

6.3.12 NGT's portion of the total project contingency is [redacted] which illustrates the distribution of NGT's total risk value and the resulting P50 value based on 10,000 Monte Carlo iterations. The NGT MCPD project is exposed to a broad range of risks outside the MWC's scope, including:

- OEM and subcontractor performance
- Interfaces with NGT operational teams and other live projects
- Terminal and network planning, outage scheduling, customer dependencies, access constraints, and interactions with other site works
- Local council engagement and working hours restrictions
- Regulatory interactions with Ofgem, HSE and the Scottish Environment Protection Agency
- Ecological/environmental constraints
- Adverse weather events (below 1-in-10 probability)
- Geopolitical factors, legislative changes, extraordinary inflation, tax shifts, and national import/export disruptions
- Limitations within subcontract pricing



Figure 19 : Output from Monte Carlo Simulation indicating NGT risk contingency value (26/27 figures)

6.3.13 Throughout the iterative development of our risk register, several risks were excluded on the basis that they cannot be accurately quantified at this stage. These include:

- Delays in funding approval

[28] [redacted]
[29] Lessons Learned from UKCS Oil and Gas Projects 2011-2016, dated 3 March 2017
[30] EPC refers to Engineering, Procurement and Construction
[31] Mapping Delay Risks of EPC Projects: A Case Study of A Platform and Subsea Pipeline of An Oil and Gas Project (2019)
[32] Cost Overruns and Schedule Delays of Major Projects: Why We Need Reference Class Forecasting – J.E.Park (2021)

- Theft and Vandalism
- Geopolitical events with unclear cost or schedule implications, including most recent conflict situations
- A new pandemic
- Terrorist activity
- Insolvency of the MWC or OEM

6.3.14 Further to the above, increases in project cost related to estimate confidence are covered separately through estimating certainty.

6.3.15 The following risks were initially considered at project kick-off but have been removed following maturity of design and project scope finalisation:

- Consents and planning permission delays, based on now secured Permitted Development approval from Aberdeenshire Council.
- OEM equipment noise compliance which is covered within the OEM contract through 'make good' clause, and in the now detailed CAB design providing a high degree of assurance on resultant OEM noise emissions detected outside the CAB.
- Commissioning programme extension, now more fully detailed within the programme based on lessons learnt from other projects and worked in conjunction with other projects at St Fergus Terminal, with funding covered in Unlet scope.
- Ecological and environmental constraints were identified as a potential risk to the programme due to the possibility of delays in the decommissioning works preceding the commencement of the MCPD build. However, the decommissioning project was completed within the timeframe required to support MCPD construction activities and has had no impact on the project schedule. In addition, the existing ecological and environmental management measures in place at the Terminal are expected to continue supporting programme delivery and help maintain the build schedule.
- CAB and overall balance of plant design and tie in constraints dictating CAB design options. Now site surveys have been completed, the decommissioned state has been confirmed, and design options have been confirmed through SME assessment and review. This includes the options on the PCBs as discussed later in the opportunities section and also covered within the electrical, controls and instrumentation scope identified within the unlet scope section and due for award to the MWC.

Most significant NGT risks

6.3.16 A Monte Carlo Simulation was undertaken using Predict! Risk Analyser, a proprietary Electronic Risk Management (ERM) system from Lumivero. It was used to determine the relative significance of all identified risks. This probabilistic approach models a range of potential cost outcomes, taking account of uncertainty in both likelihood and impact. The P50 values presented below represent the 50th percentile of the cost distribution for each risk.

6.3.17 Figure 21 illustrates the five highest-sensitivity risks through a Tornado chart, highlighting those where small variations in assumptions generate the largest changes in overall project exposure.



Figure 20 : MCS indicating the top NGT risks by sensitivity.

6.3.18 Table 28 summarises the top five risks by value, providing justification for their inclusion in the funding submission, their assessed probability and their P50 cost impacts.

6.3.19 The table is followed by more details on the top five risks, followed by more information on other key risks where further explanation was felt to be necessary.

Risk ID	Title	Description	Probability Value (%)	P50 Value (18/19)	Mitigation Measure Proposed
T-87506	Outage Scheduling	Outage critical works are not completed during the planned outage windows due to Contractor and NGT delays or operational constraints. Further details in 6.3.21.	[redacted]	[redacted]	Work with other projects at St Fergus and with MWC, to see how restricted operation timelines can be used and how MCPD work can piggyback on other outages available from other projects. Dynamic process of review with ongoing mitigation actions until all commissioning activities have been completed and units are handed over to terminal (OAC).
T-87498	Pipework Vibration	Pipework design results in unacceptable vibration signature with unit(s) not able to be run within required envelope of flow ranges for the Terminal. Further details in 6.3.22	[redacted]	[redacted]	[redacted] conducting a pulsation review during detail design phase to secure the optimum solution and review against data and experience at [redacted] Develop action plan from lessons learnt ([redacted] predominantly) to investigate pipework vibration levels across full range of flow conditions during the commissioning programme. This risk will remain until commissioning is completed across all operating conditions.
T-87500	Existing Structures / Assets	Condition of existing buildings/structures north of Plant 2 is inadequate to support new unit integration. More details provided in 6.3.23	[redacted]	[redacted]	Full condition and integrity survey for all relevant existing infrastructure, during design phase, to determine current condition and fitness for reuse. Resultant technical report used to identify and confirm remediation requirements. This action should address majority of concerns with any remaining requiring redress through installation programme into [redacted]. Condition surveys are underway or completed already.
T-87499	Suitability of Existing PCBs	Further deterioration or potential for undiscovered issues encountered during PCB retrofit activities and cabling installation and resultant commissioning programme; leading to inability to install required controls cabinets and other EC&I (Electrical Control & Instrumentation) hardware including cable routing as designed. Further details in 6.3.24	[redacted]	[redacted]	A sitewide cable routing survey and site assessment of all remaining cables, trenches, ducts and optioneering into potential solutions has been conducted with final design options due to be confirmed by [redacted] This action should address majority of concerns with any remaining requiring redress through installation programme into [redacted].
T-87504	Dry Gas Seal Failure in Commissioning	DGS (Dry Gas Seal) does not perform as required which will not be	[redacted]	[redacted]	A vendor-led pre-commissioning review and SAT (Site Acceptance

Risk ID	Title	Description	Probability Value (%)	P50 Value (18/19)	Mitigation Measure Proposed
		discovered until start-up with the leakage of gas. Further details in 6.3.27			Test) will be scheduled and completed no later than 4 weeks before start-up, covering seal assembly verification, instrumentation health, seal gas system readiness, and preservation records. (Mitigation works have not yet begun, however [redacted] are aware of how high National Gas place this risk on the project.)

Table 28 : Justification of Top Five Risks by Value

6.3.20 Outage scheduling (T-87506)

- The St Fergus MCPD project operates within a highly active site environment, with several other major initiatives underway in parallel. This creates a range of interface risks that could affect cost, schedule, or access if not managed effectively. Concurrent activities (such as the [redacted] works and ongoing operational priorities) may require shared resources, access to common work areas, or alignment of outage windows. These overlaps increase the potential for conflicting schedules, competing resource demands, and constraints on plant availability. Any delays or changes within adjacent projects could have a consequential impact on the MCPD programme.
- To manage these risks, the project team is maintaining close coordination with all St Fergus projects and Terminal operations. This includes regular integration meetings, shared outage planning, early notification of potential conflicts, and joint review of interfaces to ensure that programme dependencies are clearly understood and proactively managed. This collaborative approach is intended to reduce rework, minimise disruption, and safeguard critical-path activities.
- [redacted] The schedule and its achievement are discussed in section 6.1.2.
- It is noted that any slippage in outage availability will impact final tie-in and commissioning but not the main construction programme which will be able to be maintained. (Also see notes in 6.3.40 onwards below).

6.3.21 Pipework Vibration (T-87498)

- Taking lessons learnt from other projects, specifically where new equipment is tied into existing networks within a Compressor Station or Terminal, there have been situations where excessive pipework vibration due to internal flow conditions has led to unacceptable conditions with regard to system life and resultant noise emissions.
- As part of the design phase, both through feasibility and now into detail design, steps have been taken to consider appropriate routings of pipework and interface point locations. This has been supported by the completion of dynamic modelling assessments and flow assessments across the proposed operating ranges. These studies use calculated boundary conditions and operating parameters and provide the opportunity to optimise a design with this concern in mind. However, the accuracy of the chosen boundary conditions and the actual flow behaviour cannot be confirmed until the units are operated as part of the commissioning and resultant operational acceptance achievement programme. Consequently, this risk will remain a concern until actual data can be obtained during the commissioning and early operation phases.

- Supporting the need to secure as accurate a position on potential pipework vibration as possible a specialist contractor, [redacted], has been secured, to complete detailed vibration surveys on current pipework, providing more accurate real data for input into the studies. This has been guided by most recent work on both [redacted] Compressor Stations.

6.3.22 Existing Structure / Assets (T-87500)

- The St Fergus MCPD project involves the installation and integration of new equipment within an existing operational facility and its aging infrastructure. This includes existing unit foundations; pipework; anti surge line; recycle and anti-surge valve; ducts; instrument air skid (if reused); Terminal UPS (Uninterruptible Power Supply) system; condensate tank; existing trenches and switchboards.
- As discussed previously (section 6.5.4), the foundations situation has largely been averted through the need to install new foundations, however it must still be acknowledged that new piling will be installed in an area occupied by existing piling with limited ability to completely remove all existing piling.
- The decommissioning project has been completed and provided a substantial amount of information to guide the MCPD project with regards to interface conditions, where the new installation is required to connect into existing systems. However, this was limited to the extent of activities in decommissioning and did not provide guarantees into the suitability and integrity of these interfaces.
- As part of the activities through the detailed design phase (stage 1B and early stage 2) various detailed surveys will be conducted to assess interface conditions and infrastructure suitability to support the new units. To date this includes:
  - [redacted]
  - [redacted]
  - [redacted]
- This risk will remain whilst detailed design progresses and will continue through to construction and commissioning as the new equipment is incorporated into the existing site systems.
- [redacted]

6.3.23 Suitability of existing PCBs (T-87499)

- As currently defined, project scope requires installation of the new unit controls I/O connections, cabinets and associated cabling into the existing PCBs for both Plant 1 and Plant 2. Due to the significant risks associated with this approach, further scope development and optioneering are being undertaken to assess alternative methods of integrating the new equipment within the existing infrastructure, particularly regarding the routing of additional cabling through already congested cable trenches.

- This work is being progressed through the detailed design phase with the objective of delivering value for the consumer while maintaining asset reliability, operational integrity and long-term maintainability. This routing challenges remain within unlet scope and are linked to an optioneering study reviewing the suitability of the existing PCBs. This matter is currently captured under Risk T-86735. Detailed design activities are progressing with a particular consideration of the following key challenges:

6.3.24 Accessibility and Asbestos Constraints

- Access to required cable routes and connection locations is restricted in several areas by the known presence of asbestos- containing materials. The [redacted] project has already encountered asbestos in multiple locations, requiring extensive management measures to ensure personnel safety and maintain programme delivery.
- The management of asbestos represents a significant undertaking and cost burden. To date, [redacted] has completed minor asbestos remediation works in three major locations to provide access for cable installation into PCB 1, PCB 2, PCB 3 and the Main Terminal Building (MTB). Additionally, asbestos-wrapped cables remain in situ and will ultimately require full removal during a future outage due to both their quantity and location. The cost of minor remediation works completed to date is approximately [redacted] (Price base FY26), excluding associated management and project overhead costs.

6.3.25 Capacity of Existing Cable Routes and PCB

- The available capacity within existing cable trenches, trays, transits and PCB connection points, particularly for Plant 1, presents a significant concern. During the decommissioning project, difficulties were encountered when removing obsolete cabling associated with Unit 1C. In several instances, redundant cables were entwined with live cables, preventing their removal and limiting the anticipated recovery of cable routing capacity.
- [redacted]
- [redacted]
- [redacted]
- Notwithstanding the alternative routing options under development, the requirement for a new PCB remains a potential solution should the existing facilities prove technically unsuitable or result in unacceptable operational, safety or maintainability risks for Terminal operations.

- [redacted]

6.3.26 Condition of existing Infrastructure

- The condition of the existing infrastructure should be considered:
    - The condition of the existing PCBs and associated cable infrastructure reflects the age of the assets. Detailed surveys have identified:
    - The presence of asbestos containing materials (ACMs).
    - Collapsing cable trays and degraded support structures within cable trenches.
    - Corroded cable management systems.
    - Seized and damaged cable cleats.
    - General deterioration of legacy cable routing infrastructure.
    - These asset condition issues increase installation complexity and further challenge the suitability of the existing PCBs as the long-term interface point for the MCPD project.
- Risk associated with the above points is currently being managed through interfacing activities associated with the suitability of the existing PCBs, discussed above (Risk T-86735) and coordination with the [redacted] project (Risk T-85872), detailed below.

6.3.27 Dry Gas Seal Failure in Commissioning (T-87504)

- The Dry Gas Seal (DGS) assembly forms an integral part of the main compressor train. The assemblies are manufactured and factory acceptance tested at the OEM facility prior to shipment; however, due to transport and installation requirements, the assembly must be dismantled into modules before delivery and subsequently reassembled and installed on site.
- Operational experience across the fleet, most recently at [redacted], has demonstrated that these assemblies are highly sensitive to contamination introduced during transportation or site reassembly. Consequently, the final assembly process requires stringent cleanliness controls and precision execution to ensure reliable performance.
- Failure of the Dry Gas Seal assembly would render the compressor inoperable. Protective instrumentation is provided to safeguard the equipment and minimise the risk of hydrocarbon release arising from seal degradation or failure.
- Site installation and reassembly will be supported by the OEM using specialist tooling and prescribed cleanliness verification processes throughout the installation activity. While these controls are intended to mitigate contamination and assembly risks, their effectiveness can only be fully validated following successful commissioning and operational testing.

Other Risks

6.3.28 Beyond the top five risks identified above, in terms of sensitivity ranking, there are some other pertinent risk topics that it is felt should be clarified further due to their current probability, namely: Gas Flow suitability to commission, Resource availability, RE/18 and G35 completion and Interface with other projects.

6.3.29 Gas Flows Not Suitable to Commission (T-85863)

- There is a risk that insufficient gas flows may be available to support the commissioning and testing activities required to demonstrate compliance with the Planning Data Sheet (PDS) performance requirements. This could affect the ability to complete commissioning within the planned timescales necessary to achieve the project's Operational Acceptance Certificate (OAC) milestones.
- The St Fergus Terminal operates across a wide range of gas flow conditions, with throughput levels influenced by factors outside the direct control of the Terminal, including customer requirements and network demands, as discussed in Section 3.
- Successful commissioning requires the units to be tested across their full operating range and flow capacity. The availability of the required gas flows may not always align with the commissioning schedule or incoming terminal flows. While the terminal piping arrangements provide some flexibility to direct flow towards specific units, such measures must be balanced against the overall operational requirements and integrity of the terminal system.
- This risk is being actively managed through close collaboration with Terminal Operations, interfacing projects, and key stakeholders. The commissioning programme continues to be developed and refined in detail, with regular engagement and updates provided to the customer, NSMP (North Sea Midstream Partners) Operations Limited. This will remain a key project risk until commissioning is complete and OAC has been successfully achieved.

6.3.30 Resource availability (T-85861)

- There is the potential for demand to outpace supply across the UK construction sector. This could constrain the availability of skilled resources within NGT, particularly SMEs in specialist engineering disciplines, leading to increased costs and potential programme delays. With substantial capital investment anticipated across the UK to meet legislative targets, a shortage of technical expertise is a credible risk across all infrastructure projects.
- Skilled resources take time to source, onboard and become familiar with the project. While short term absences can be managed, long term resource gaps need to be filled by agency staff (additional cost to project) or staff recruitment processes which can take 3-6 months, potentially delaying project approvals (i.e. G/35, RE/18, etc.).
- In addition to NGT's own investigations, NGT have also consulted with the MWC on this risk to help understand their position. The MWC has highlighted that the wider energy market is becoming increasingly competitive, with multiple large-scale projects progressing during the same period as St Fergus. This is expected to create significant pressure on labour availability and may drive up market rates. NGT consider this a sector-wide risk that cannot be fully controlled or mitigated by the project team.

6.3.31 RE/18 and G35 completion (T-85862)

- A common risk in projects involving multiple stakeholders, thousands of documents and a strict internal approval process is the potential for time delay caused during documentation submission and the achievement of appropriate compliance. Whether this be via the G/35 (management of change) process, RE/18 (commissioning) process or any other document approval process on the critical path of the project delivery programme, it will be more complex for St Fergus considering the scale of changes and the range of other projects ongoing in parallel. This can result in multiple document review cycles above that anticipated within baseline programme, creating a compounding effect in delaying key project activities.
- We propose to mitigate this risk through greater engagement in workshops to set expectations ahead of time, while working with the MWC to ensure they have adequate resourcing and time risk allowance within their programme to manage data book development (and not leaving this activity until the end, when project resources have been reduced) and ensure there is sufficient float should document delays occur.

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6.3.32 Interface with Other Projects (T-85872)

- Across the Terminal over the next four years there are various other projects being executed, as already detailed in section 4.2. Regarding the AH activities on Transformer and Switchboard replacements the MCPD project is directly impacted by their completion and required the activities in those projects to be completed enabling the new units to be operated safely within the demands of the Terminal. [redacted]
- [redacted]

6.3.33 To help understand the sensitivity of our programme risks to our delivery programme, we have conducted an informal Quantified Schedule Risk Assessment (QSRA) using the top five NGT and MWC risks.

Opportunities

6.3.34 In addition to identifying and implementing effective risk mitigation strategies, we recognise the importance of proactively identifying and capitalising on opportunities to enhance project value and achieve a successful project outcome, meeting core project objectives whilst maximising potential for long-term benefits.

6.3.35 Through ongoing collaboration with the MWC and OEM, we have identified and are pursuing opportunities through design refinement, with each opportunity assessed for its impact on project cost, programme or both.

6.3.36 Further opportunities have been identified working in conjunction with the site operations team, utilising their expertise and knowledge to guide and direct design decisions. Some of these have already been detailed in section 6.3.36 onwards as part of lessons learnt opportunities with the list below providing details of these additional opportunities:

- New PCB options
- Utilisation of operational staff to support project execution

- Cross project resource and data utilisation across [redacted] and AH Design development
- Construction approach
- Commissioning duration
- Asset Acceptance achievement

6.3.37 New PCB Option Assessment

- An optioneering study has been completed to assess the provision of new PCBs as an alternative solution to the current retrofit plans. This study included obtaining budgetary cost estimates from [redacted] and assessing potential installation locations across the Terminal. At the time of writing the retrofit option remains the basis of the current cost estimate. However, the information presented below, including budgetary costs, will continue to be reviewed to ensure that the selected approach remains the most practical and cost-effective solution.
- The current budget estimate indicates a cost of approximately [redacted] (Price base FY25/26) per PCB, including design, procurement, enabling works, civil infrastructure, cable routes, foundations and installation activities, with two buildings required as part of the St Fergus development.
- Six potential installation locations have been assessed. The currently preferred option is a location adjacent to the existing PCBs. This arrangement including:
    - Minimise interface distances to existing live systems
    - Facilitate a phased transition from the legacy control buildings to the new facilities
    - Enable eventual decommissioning of the existing PCBs.
- Despite these advantages, the preferred option presents several implementation challenges, including:
    - Interaction with existing buried services.
    - Extensive enabling works and service diversions.
    - Hazardous area compliance considerations.
- Hazardous area constraints remain a key consideration and continue to influence both the feasibility of a new PCB solution and the associated implementation strategy.

6.3.38 Utilisation of operational resources

- During construction Operations play a critical safety role and there is an opportunity to further strengthen their involvement to support project execution. The points below highlight areas where their engagement in vital. It should be noted that the MCPD project is supplementing site resource with additional staff to support efficient delivery of the project, reference Cost Book details and notes within section 5.8.
- Under T[redacted], Operations must tightly control access to sensitive areas such as locations above live pipework and/or immediately adjacent to operational equipment – conditions that apply throughout the St Fergus MCPD project, particularly noting this is [redacted].
- In order to provide effective control of access to sensitive areas, the site controller is required to be briefed by the Project Supervisor on the works planned and safety controls in place as per the Risk Assessments and Method Statements (RAMS) for the works. The authorising engineer also has a part to play in the review and approval of RAMS alongside the Project Supervisor. A Permit to Access (PTA) is then issued to the

MWC and their works can start. Depending on the severity or sensitivity of the works, representatives from the Operations team (authorising engineer or discipline technicians) must perform checks daily to ensure adherence, such as the gas checks. This activity must be performed daily.

- It is also required that Operations play an active role in carrying out all isolations on mechanical, electrical and instrumentation equipment to ensure Contractors can undertake work safely. Only NGT personnel are permitted to perform isolations. The technicians are also responsible for the review of all supporting paperwork, test results, and certificates to authorise the de-isolation of new mechanical equipment once installation is completed.
- Furthermore, Operations support the preparation and review of NROs (Non-Routine Operations), ensuring all procedures are followed correctly and safely. Non-Routine Operations Procedures (NROs) are used to safely plan and control complex or unusual activities that are not covered by standard operating procedures. NROs on this type of project would typically be required for:
    - Plant commissioning, start-up, or decommissioning.
    - Non-routine process operations.
    - Complex purging activities.
    - Live gas works (e.g. hot tapping or stoppling).
    - Plant isolation.
    - Activities that could affect gas flow through the Terminal
    - Non-routine control system, software, telemetry, or electrical works that could impact monitoring or control of the Terminal.
    - During commissioning Operations lead the Permit to Work (PTW) process and are required to issue permits daily. Their role intensifies as asset ownership progressively transfers to them. They also support testing of the new compressor in co-ordination with the Terminal Control Room, securing the gas flows and operating conditions required.

6.3.39 Construction approach

- The project has carefully reviewed how Construction Design Management (CDM) areas are defined and arranged to support continued enabling works through to final construction. Each CDM area must be led by an MWC-appointed SCO91-qualified and approved individual and must be fully mechanically and electrically isolated from the Terminal and surrounding plant.
- An opportunity to combine certain CDM areas has been identified, particularly around the adjacent Units 2C and 2D. This is now in place as part of the enabling works phase. However, this may not be feasible throughout the full construction and commissioning period. Once gas-up occurs and commissioning begins, it may be necessary to carry out commissioning on one unit while installation works continue on the other, limiting the ability to merge areas.
- CDM area planning is also influenced by site infrastructure constraints and interactions with other ongoing projects. Certain interdependencies may affect the sequence of activities, especially where outage windows must be coordinated with AH and [redacted] works, as discussed earlier. The project will therefore consider whether altering CDM area boundaries mid-construction would introduce more cost, delay, or safety risk than establishing fixed areas at the outset. This will be reviewed regularly to minimise rework and optimise the effective use of resources.

6.3.40 Commissioning duration

- The commissioning phase is scheduled to begin in late 2028 and currently through to January 2030. Despite this duration, the project is focusing on maximum unit availability for use by the Terminal by 1 January 2030, with a target of achieving Operational Acceptance by 20 December 2029, with priority on Plant 2. (refer to section 7.1)
- Based on experience from previous projects (refer to section 6.8.32 regarding Hatton), commissioning activities can extend beyond planned outage periods. This is due to the iterative nature of system proving, where the number of required cycles is highly variable and influenced by system complexity and site conditions. These challenges are intensified at St Fergus, where the MCPD project must integrate with a live operational site and manage interfaces with other ongoing works, including [redacted] and Asset Health projects.
- The current commissioning programme and resource plan establish the baseline delivery approach, incorporating OEM supervision and Operations team participation based on lessons learned from Hatton and other compressor projects. These activities are supported by a detailed Inspection and Test Plan (ITP) covering inspection, testing and data validation requirements. The programme and associated resource requirements will continue to be reviewed and refined as commissioning planning progresses.
- In the lead-up to Phase 2 (construction), a series of focused commissioning workshops are being undertaken. These review critical activities, validate the critical path, embed opportunities for parallel working, and potentially identify tasks that can be eliminated or streamlined that may have otherwise escalated costs beyond planned. An amount has been identified within unlet scope [redacted] based on the planned breadth and depth of activities to be conducted assuming efficiencies and effectiveness of manpower usage is controlled tightly. The workshops will draw on expertise from across NGT, the OEM and the MWC to produce a programme that meets required delivery dates while optimising both schedule and cost.
- Once agreed, the commissioning programme will be continually refined as construction progresses, incorporating learning from emerging site conditions and identifying areas where activities can be brought forward.
- Through the assessment of the commissioning programme and the key activities it is planned to deliver commissioning with an increased use of NGT resources. There will be ongoing reviews and workshops aimed at optimising this usage to remain within the limited cost assigned. The SGT-400 units are well understood within NGT, providing a strong internal knowledge base that could reduce reliance on OEM and MWC personnel. However, the St Fergus units are equipped with the newer E-DLE variant, incorporating three fuel streams rather than the two-stream configuration used at King's Lynn, Cambridge and Nether Kellet. This results in different fuel system configurations, controls software, and supporting systems. As such, certain commissioning activities will still require direct OEM involvement to ensure compliance and performance.

6.3.41 Asset acceptance and project close out

- The cost book provided by the MWC currently takes the project through to Asset Acceptance including the completion of all Operational Drawings as part of the handover to the Terminal.
- In parallel to the MCPD project the St Fergus Terminal is also undergoing a range of other project executions covering the breadth of the Terminal all having a direct impact on the Terminal's operational drawings. As such there will be requirement across many different projects, potentially all at the same time, to access these drawings and provide the updates aligned to the project concerned.

- An opportunity, and NGT's preferred option, has been identified to remove this phase of work from the current MWC and instead appoint a dedicated contractor to deliver the complete portfolio of Operational Drawing updates across all projects. This approach could provide greater control over cost and schedule performance, while supporting a coordinated and efficient close-out process across the wider programme.
- This option introduces potential issues, which will require redress if this is to be pursued. The transfer of information and knowledge from the outgoing MWCs to a newly appointed contractor may create opportunities for errors, omissions or misinterpretation of project-specific requirements. In addition, any anticipated cost or programme benefits could be reduced by the time required to procure a new contractor, establish interfaces, and complete comprehensive handover activities to ensure the necessary project information is accurately transferred and understood.

7 Conclusion

7.1.1 This re-opener submission has set out the continued need, engineering justification, detailed project scope, delivery plan, cost efficiency measures and funding requirements associated with the installation of three new MCPD-compliant gas turbine compressor units at the St Fergus Gas Terminal.

7.1.2 The need for investment at St Fergus remains unchanged from that established through the FOSR and subsequently confirmed through the May 2026 CBA. St Fergus continues to play a critical role in transporting UKCS and Norwegian gas supplies into the NTS, and resilient compression capability remains essential to maintaining network capability, operational flexibility and security of supply.

7.1.3 Successive rounds of option assessment, engineering development, procurement activity and cost refinement have consistently reinforced the original investment decision and that the Ofgem selected Option remains the highest-value, delivering the greatest overall consumer value whilst ensuring compliance with the MCPD.

7.1.4 Since Ofgem's October 2023 FOSR decision, the project has progressed through detailed engineering, environmental assessment, competitive procurement and cost assurance activities. MWC and OEM contracts have been awarded following robust competitive tender processes, providing increased cost certainty and delivery confidence compared to the assumptions available at the time of the FOSR.

7.1.5 We have applied a comprehensive value-for-money approach throughout project development. Costs have been challenged through competitive procurement, value engineering, benchmarking against comparable compressor replacement projects and independent assurance activities. These assessments have confirmed that the proposed costs are efficient, market-tested and appropriate for delivery of the Ofgem-approved solution.

7.1.6 The project estimate includes a risk and contingency allowance of 11.7% of the EAC. This provision has been developed through a detailed quantitative risk assessment and reflects the complexity of delivering a major brownfield infrastructure project with significant operational, construction and programme interfaces. The allowance is evidence-based, proportionate and informed by lessons learned from comparable projects across the compressor replacement portfolio.

7.1.7 We have already incurred substantial project expenditure and entered into significant contractual commitments to support delivery of the approved solution. As of 30 June 2026, project expenditure totals [redacted] (2018/19 prices). In addition, long-lead equipment orders, detailed engineering activities and delivery contracts have been progressed to maintain the programme required for MCPD compliance by 2030. The project has therefore advanced beyond concept selection and is now firmly within execution planning and delivery.

7.1.8 Failure to deliver this investment would introduce significant compliance, operational and consumer risks. Without compliant compression, St Fergus would face increasing operational constraints beyond 2030, reducing compression capability at one of the UK's most strategically important gas entry points and increasing the likelihood of consumer-funded constraint management costs.

7.1.9 While delivery remains dependent upon effective coordination with the [redacted] and other related investments at St Fergus, these interfaces are well understood and are being actively managed through integrated planning, governance and programme controls. Associated risks have been appropriately reflected within both the delivery strategy and project cost estimates.

7.1.10 We therefore request that Ofgem approve a re-opener direction to modify outputs, delivery dates and associated allowances (CEPOt) totalling [redacted] to enable delivery of the approved solution.

7.1.11 To maintain the programme, Stage 2 contract award and key supply chain commitments must be secured by April 2027. Timely regulatory certainty is therefore critical to maintaining delivery milestones, protecting procurement commitments and avoiding additional project risk and cost.

7.1.12 We request that Ofgem assess this application under the Standard Assessment Tier and targets a Draft Determination by 1 February 2027 and a Final Determination by 30 April 2027. These

dates align with key programme and procurement milestones and are required to support efficient project delivery.

7.1.13 Our request remains fully aligned with Ofgem's October 2023 FOSR decision. The updated assessment confirms that the approved solution continues to deliver the highest consumer value across all assessed scenarios, while providing the compression capability required to maintain compliance, system resilience and security of supply. Approval of this funding request will enable delivery of a compliant, resilient and efficient compressor fleet at St Fergus, protecting consumers and supporting the safe and reliable operation of the NTS.

8 Appendices

1. Appendix A – Cost Benefit Analysis
2. Appendix B - NGT Cost book
3. Appendix C - NGT Cost and Risk report
4. Appendix D – MWC Stage 1A Summary Report (FEED report)
5. Appendix E - MWC Stage 1A Cost Estimate Report
6. Appendix F - MWC Cost Methodology
7. Appendix G - Project Programme
8. Appendix H - MWC Tender Award
9. Appendix I - OEM Tender Award
10. Appendix J - OEM BAT Report
11. Appendix K – BAT Summary Report
12. Appendix L - Division of Responsibility Schematic
13. Appendix M - Pre-feasibility Study

9 Glossary

Glossary	
AGI	**Above Ground Installation:** Above ground gas assets (including but not limited to; pipework, valves, pig traps, meters and regulators) located within a fence line for the safe operation and maintenance of the National Transmission System.
Avon	Rolls Royce gas turbine engine, (currently known commercially as the [redacted] [redacted] which forms part of the compressor machinery train and is subject to the MCPD.
Barg	Bar gauge is the pressure gauge reading.
BAT	Best Available Techniques (BAT) means the available techniques which are the best for preventing or minimising emissions and impacts on the environment. It is a legal requirement to use BAT on NGT's gas compressor installations. 'Techniques' include both the technology used and the way the installation is designed, built, maintained, operated and decommissioned.
Brownfield	Construction within the existing site perimeter fence.
Capability	The physical limit of the NTS to flow a volume of gas under a given set of conditions; this may be higher or lower than the capacity rights at a given exit or entry point.
Carbon Dioxide (CO_2)	A naturally occurring chemical compound composed of two oxygen atoms and a single carbon atom. If there is not enough oxygen to produce CO_2 during combustion, (CO) is formed.
Carbon Monoxide (CO)	A colourless, odourless and tasteless gas produced from the partial oxidation of carbon-containing compounds. It forms when there is not enough oxygen to produce carbon dioxide (CO_2), such as when operating an internal combustion engine in an enclosed space.
CEPOt	Compressor Emissions Baseline allowances term in appendix 1 within NGT's RIIO-GT3 Gas Transporter Licence Special Condition 3.10.
Compressor Station	Equipment used to compress gas to high pressure for transport through the NTS. Each compressor station consists of one or more compressor units as well supporting equipment such as meters, filters, valves and pipework. Compressor units can be driven by gas turbines or electric drives.
[redacted]	[redacted] **refers to either as would be defined locally within the section** **Control System Replacement Project:** project to upgrade obsolete Terminal control system. OR **Control System restricted performance:** Control System Restricted Performance ([redacted] typically refers to a control system modification or operating mode that intentionally limits equipment performance to remain within safe, reliable, or environmental operating parameters.
CBA	**Cost Benefit Analysis:** A mathematical decision support tool to quantify the relative benefits of each site option.
Counterfactual	The counterfactual option represents current network with minimum interventions to comply with emissions legislation.
DD	**Draft Determination.**
DLE	**Dry Low Emissions** is a gas turbine combustion technology that reduces NOx and other harmful emissions through advanced burner and control system design, without requiring water or steam injection.
EAC	**Estimate Cost at Completion** The total cost of the project at completion.

ECC	**Estimate to Complete Cost** The remaining cost to complete the project.
ECI	**Early Contractor Involvement.**
EUD	**Emergency Use Derogation:** Compressor unit derogated under the MCPD limited to run 500-hours per year on a rolling 5-year average, with a maximum limit of 750-hours in any one year. This removes the use of the compressor from standard operation, where they can only be run to prevent commercial constraints (Essential Use) or exit constraints (Emergency Use) on the network.
Emission Limit Values (ELV)	Limits set for industrial installations by the LCP directive and IPPC under the umbrella of the IED and MCPD.
Emission Abatement	Includes technology that reduces the emissions from a gas-driven compressor.
Entry Capacity	Holdings give NTS users the right to bring gas onto the NTS on any day of the gas year. Capacity rights can be procured in the long term or through shorter term processes, up to the gas day itself. Each NTS Entry point has an allocated Baseline which represents a level of Capacity that National Grid is obligated to make available for delivery against on every day of the year.
ERP3	**Emissions Reduction Phase 3** – Project to install two new Solar Titan 130 driven compressor trains at [redacted] as part to replace the capability of two of the three Avon's at each site under and IPPC emissions driver.
Exit Capacity	Holdings give NTS users the right to take gas off the NTS on any day of the gas year. Capacity rights can be procured in the long term or through shorter term processes, up to the gas day itself. Each NTS Exit point has an allocated Baseline which represents a level of Capacity that National Grid is obligated to make available for offtake on every day of the year.
FOSR	**Final Option Selection Report.**
FES	**Future Energy Scenarios:** An annual industry-wide consultation process encompassing questionnaires, workshops, meetings and seminars to seek feasibility back on latest scenarios and shape future scenario work. The Future Energy Scenarios document is produced annually by National Grid ESO and contains their latest scenarios.
Greenfield	Construction on land that is outside of the existing perimeter site boundary, where there is no need to demolish or rebuild any existing structures.
IPPC	**Integrated Pollution Prevention and Control:** A regulatory system that employs an integrated approach to control the environmental impacts of certain industrial activities.
Intrusive Outage	Significant outage works impacting the whole station and where the station cannot be returned to service until the scheduled works are completed.
LCPD	**Large Combustion Plant Directive:** An EU directive to reduce emissions from combustion plants with a thermal output of 50 MW or more. Combustion plant must meet the emission limit values (ELVs) given in the LCP directive for NO_x, CO, SO_2, and particles.
MCPD	**Medium Combustion Plant Directive:** A directive to reduce emissions from combustion plants with a net thermal input between 1-50 MW.
MTO	Material Take Offs.
MWC	Main Works Contractor.
NTS	**National Transmission System:** The high-pressure system consisting of terminals, compressor stations, pipeline systems and offtakes. Designed to operate at pressures up to 85 barg. NTS pipelines transport gas from terminals to NTS offtakes.
NDP	**Network Development Process:** The process by which National Grid identifies and implements physical investment on the NTS.
NGT	National Gas Transmission.

Nitrogen Oxide (NO_x)	Oxides of nitrogen which are a by-product of combustion of substances in the air, such as gas turbine compressors.
OEM	**Original Equipment Manufacturer:** The company that originally produced the equipment e.g. [redacted] which produces the [redacted] gas turbine.
Ofgem	**Office of Gas and Electricity Markets:** The regulatory agency responsible for regulating Great Britain's gas and electricity markets.
Re-opener	Re-openers are a type of RIIO uncertainty mechanism. Depending on their design, they allow Ofgem to adjust a licensee's allowances (in some cases up and in some cases down), outputs and delivery dates in response to changing circumstances during the price control period.
RIIO	**Revenue = Incentives + Innovation + Outputs:** RIIO-T2 is the second transmission price control review to reflect the framework; it sets out what the transmission network companies are expected to deliver and details of the regulatory framework that supports both effective and efficient delivery for energy consumers.
RRP	**Regulatory Reporting Pack:** Annual submission to Ofgem on 31 July as per RIIO-T2 reporting requirements Standard Special Condition A40: Regulatory Instructions and Guidance.
SEPA	**Scottish Environment Protection Agency:** Scotland's environment regulator and flood warning authority.
Selective Catalytic Reduction (SCR)	A means of converting nitrogen oxides (NO_x) with the aid of a catalyst into diatomic nitrogen, N_2, and water, H_2O. A liquid or gaseous reductant, typically anhydrous ammonia, aqueous ammonia or urea, is added to a stream of flue or exhaust gas and is adsorbed onto a catalyst. Carbon dioxide (CO_2) is a reaction product when urea is used as the reductant.
UAP	Unallocated Provision.
Uncertainty Mechanism	Uncertainty mechanisms exist to allow price control arrangements to respond to change. They protect both end consumers and licensees from unforecastable risk or changes in circumstances.
Unit Outage	The temporary removal of a Gas Compressor Unit from availably for use for a period of time (the outage period). Required in order to enable significant works impacting one or more compressor units on a compressor station. The unit cannot be returned to service until the scheduled unit works are completed, however, the station can still operate with any other available units.
United Kingdom Continental Shelf (UKCS)	The region of waters surrounding the United Kingdom, in which the country claims mineral rights.