

# Consultation



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## Peterborough and Huntingdon Compressor Emissions – Final Preferred Option

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<b>Response deadline:</b>	14/07/2023
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We are consulting on our Final Preferred Option for investment at the Peterborough and Huntingdon Compressor Stations to ensure compliance with the Medium Combustion Plant Directive. We are seeking views from all interested stakeholders in particular, network companies, gas shippers, consumer groups, environmental groups, and the public. This document sets out our proposed Final Preferred Option and seeks responses to several specific questions. The responses we receive will be considered before our final decision is issued.

We want our consultations process to be transparent. So we intend publishing the non-confidential responses received on our website at [Ofgem.gov.uk/consultations](https://www.ofgem.gov.uk/consultations) along-side our decision. If you want your response – in whole or in part – to be considered confidential, please tell us and explain why. Please clearly mark the parts of your response that you consider to be confidential, and if possible, put the confidential material in separate appendices to your response.

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## Executive summary

### **Peterborough and Huntingdon Compressor Emissions - Final Preferred Option**

In our RIIO-T2 Final Determinations we accepted the 'needs case' for investment at the Peterborough and Huntingdon Compressor Stations to ensure compliance with the Medium Combustion Plant Directive. The Directive requires that by 1st January 2030 the Nitrogen Oxide (NOx) emissions of all gas turbines with a net thermal input of between 1MW and 50MW, do not exceed 150mg/m<sup>3</sup>.

However, given the level of uncertainty at the time with respect to both the 'preferred option' and the level of funding required. We decided that this and other similar Compressor Emissions projects, should be funded through our Gas Transmission Project Assessment Process. This two stage process is set out in Special Condition 3.11 Compressor Emissions Re-opener and Price Control Deliverable.

At Final Determinations we provided £9.65m (2018/19 prices) of baseline funding in the form of a Price Control Deliverable for the Peterborough and Huntingdon Compressor Stations project. The required deliverables were a Final Option Selection Report in January 2023 followed by a Re-opener application seeking a funding Direction in June 2025. The Final Option Selection Report must contain a Final Preferred Option along with supporting evidence necessary for the Authority to either accept the Final Preferred Option or approve an alternative as the Final Preferred Option, reject the Final Preferred Option on the basis that no further work should go ahead or ask for more information. The Re-opener application must be based on the Final Preferred Option approved by the Authority.

In compliance with Special Condition 3.11 National Gas Transmission submitted a Final Option Selection Report in January 2023. In the case of Peterborough, five options including the counterfactual 'do nothing' were shortlisted, with the Final Preferred Option being the replacement of the existing Avon with a new gas turbine driven unit. In the case of Huntingdon, three options including the counterfactual 'do nothing' were shortlisted with the Final Preferred Option being retention of the existing Avon and retrofitting with Dry Loe Emissions Technology. The Final Preferred Options were identified using a Cost Benefit Analysis, Best Available Technology assessment and several security of supply case studies.

We have considered the evidence presented in the Final Option Selection Report.

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For both Peterborough and Huntingdon Compressor Stations, we propose rejecting the Final Preferred Options identified in the report and instead approving one of the other shortlisted options. Our proposed Final Preferred Option in both cases is the counterfactual 'do nothing,' with the legacy Avon retained under the 500-hour Emergency Use Derogation allowed for in the Directive, with significant asset health investment to improve unit availability.

Separately, should National Gas Transmission identify a cost effective retrofit, that will permit unrestricted operation of the existing Avon at Peterborough and Huntingdon Compressor Stations, then we would expect National Gas Transmission to implement that solution and seek funding as part of the next price control

## **Next Steps**

We welcome responses to our consultation, in particular, to the specific questions we have included in Chapters 4 and 5. Please send your response to: [graham.craig@ofgem.gov.uk](mailto:graham.craig@ofgem.gov.uk) by 14 July 2023. We expect to publish our decision on the Final Preferred Option no later than 3 November 2023.

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## 1. Introduction

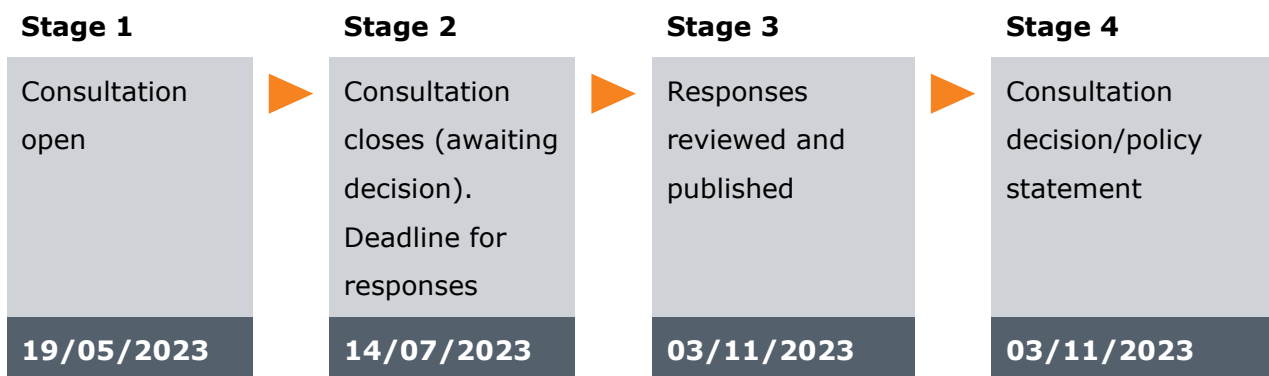
### What are we consulting on?

1.1. This consultation sets out our minded to position on the Final Preferred Options identified by National Gas Transmission in the Peterborough and Huntingdon Compressor Emissions Final Option Selection Report.

1.2. This consultation sets out our assessment of the evidence presented in the Final Option Selection Report and the various factors we have considered when reaching our minded to position. We are seeking views from interested stakeholders on our assessment of the evidence and our minded to position as to the Final Preferred Option.

### Consultation Process

1.3. Figure 1 shows the stages of this consultation process:



### How to respond

1.4. We want to hear from anyone interested in this consultation. Please send your response to the person or team named on this document's front page. We have asked for your feedback in each of the questions throughout. Please respond to each one as fully as you can. We will publish non-confidential responses on our website at [www.ofgem.gov.uk/consultations](http://www.ofgem.gov.uk/consultations).

### Your response, data and confidentiality

1.5. You can ask us to keep your response, or parts of your response, confidential. We will respect this, subject to obligations to disclose information, for example, under the Freedom of Information Act 2000, the Environmental Information Regulations 2004, statutory directions,

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court orders, government regulations or where you give us explicit permission to disclose. If you do want us to keep your response confidential, please clearly mark this on your response and explain why.

1.6. If you wish us to keep part of your response confidential, please clearly mark those parts of your response that you *do* wish to be kept confidential and those that you *do not* wish to be kept confidential. Please put the confidential material in a separate appendix to your response. If necessary, we will contact you to discuss which parts of the information in your response should be kept confidential, and which can be published. We might ask for reasons why.

1.7. If the information you give in your response contains personal data under the General Data Protection Regulation (Regulation (EU) 2016/679) as retained in domestic law following the UK's withdrawal from the European Union ("UK GDPR"), the Gas and Electricity Markets Authority will be the data controller for the purposes of GDPR. Ofgem uses the information in responses in performing its statutory functions and in accordance with section 105 of the Utilities Act 2000. Please refer to our Privacy Notice on consultations, see Appendix 4.

1.8. If you wish to respond confidentially, we will keep your response itself confidential, but we will publish the number (but not the names) of confidential responses we receive. We will not link responses to respondents if we publish a summary of responses, and we will evaluate each response on its own merits without undermining your right to confidentiality.

## **General feedback**

1.9. We believe that consultation is at the heart of good policy development. We welcome any comments about how we have run this consultation. We would also like to get your answers to these questions:

1. Do you have any comments about the overall process of this consultation?
2. Do you have any comments about its tone and content?
3. Was it easy to read and understand or could it have been better written?
4. Were its conclusions balanced?
5. Did it make reasoned recommendations for improvement?
6. Any further comments?

Please send any general feedback comments to [stakeholders@ofgem.gov.uk](mailto:stakeholders@ofgem.gov.uk)

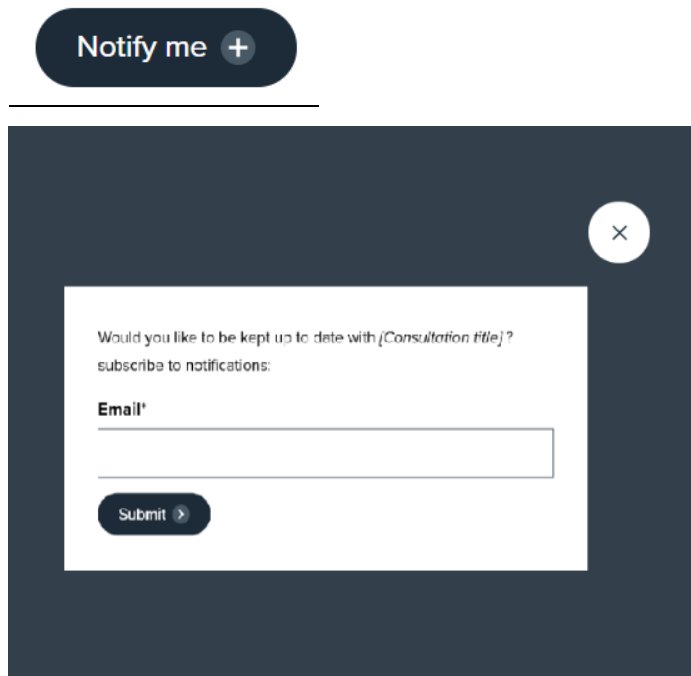


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## How to track the progress of the consultation

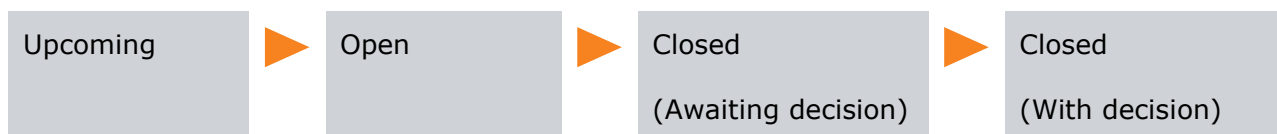
You can track the progress of a consultation from upcoming to decision status using the 'notify me' function on a consultation page when published on our website.

[Ofgem.gov.uk/consultations.](https://www.ofgem.gov.uk/consultations)



The image shows a dark blue button labeled "Notify me" with a plus sign. Below it is a dark blue modal window with a white close button in the top right corner. Inside the modal is a white form with the text: "Would you like to be kept up to date with [Consultation title]?" followed by "subscribe to notifications:". There is an "Email" label above a text input field, and a dark blue "Submit" button with a right-pointing arrow at the bottom left of the form.

Once subscribed to the notifications for a particular consultation, you will receive an email to notify you when it has changed status. Our consultation stages are:



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## 2. Compressor emissions Re-opener and Price Control Deliverable mechanism

### Section summary

This Chapter gives an overview of the RIIO-2 Re-opener mechanism and our assessment process.

### Overview of the RIIO-2 Re-Opener mechanism

2.1. The gas transmission network in Great Britain is owned and operated by National Gas Transmission. Economic regulation of the network follows the RIIO (Revenue = Incentives + Innovation + Outputs) price control framework. The current RIIO-T2 price control period will last five years from 1 April 2021 to 31 March 2026. Prior to commencement of the price control period, we set out in our Final Determinations<sup>1</sup> our policy on the economic regulation of the network during the period. These policy decisions were given effect by new Special Conditions in Part C of the National Gas Transmission gas transporter licence, which came into force on 1 April 2021.

2.2. In our RIIO-T2 Final Determinations we accepted the 'needs case' for investment at a number of sites on the network, including Peterborough and Huntingdon Compressor Stations, to ensure compliance with the Medium Combustion Plant Directive. The Directive requires that by 1 January 2030 the Nitrogen Oxide (NOx) emissions of all gas turbines with a net thermal input of between 1MW and 50MW, do not exceed 150mg/m<sup>3</sup>.

2.3. However, given the level of uncertainty at the time with respect to both the 'preferred option' and the level of funding required, we decided that this and other similar Compressor Emissions projects, should be funded through our Gas Transmission Project Assessment Process. This two stage process is set out in Special Condition 3.11 Compressor Emissions Re-opener and Price Control Deliverable.

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<sup>1</sup> [Final Determinations - NGGT Annex Revised \(10\).pdf](#)

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2.4. At Final Determinations we provided £9.65m (2018/19 prices) of baseline funding in the form of a Price Control Deliverable for the Peterborough and Huntingdon Compressor Emissions project. The required deliverables were a Final Option Selection Report in January 2023 followed by a Re-opener application seeking a funding Direction in June 2025. The Final Option Selection Report must contain a Final Preferred Option along with supporting evidence necessary for the Authority to either accept the Final Preferred Option , approve an alternative as the Final Preferred Option, reject the Final Preferred Option on the basis that no further work should go ahead or ask for more information. The Re-opener application must be based on the Final Preferred Option approved by the Authority.

2.5. Special Condition 9.4 requires that all Re-opener applications must be prepared in accordance with our Re-opener Guidance and Application Requirements Document.<sup>2</sup> This includes guidance on the preparation of Engineering Justification Papers and Cost Benefit Analysis which are the key tools we expect to be used in the identification of a 'preferred option'.

2.6. In addition, we have published an Indicative Re-opener Application Assessment Process.<sup>3</sup> This working document sets out an indicative process for dealing with Re-opener applications

2.7. In January 2023, consistent with Special Condition 3.11, National Gas Transmission submitted a Final Option Selection Report for investment at Peterborough and Huntingdon Compressor Stations to ensure compliance with the Medium Combustion Plant Directive. In accordance with our indicative application assessment process, having determined that a valid submission had been submitted, we proceeded to a detailed assessment of the Final Option Selection Report and the Final Preferred Options. We made our determination on the validity of National Gas Transmission's submission because it was <sup>4</sup>

- Compliant with the requirements set out in Special Condition 3.11.8
- Compliant with the requirement set out in Special Condition 9.4.3 to prepare the submission in accordance with our Re-opener Guidance and Application Requirements Document.

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<sup>2</sup> [RIIO2 Re-opener Guidance and Application Requirements Version 2.0 | Ofgem](#)

<sup>3</sup> [RIIO-2 indicative Re-opener application assessment process: working document | Ofgem](#)

<sup>4</sup> Peterborough and Huntingdon Compressor Emissions FOSR submission in January 2023 - Appendix J – Mapping of Ofgem Requirements

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- Compliant with the requirement set out in our Price Control Deliverable Reporting Requirements and Methodology Document (Appendix 5).<sup>5</sup>
  - Published on the NGGT website within five working days of submission with any redactions in line with our Re-opener Guidance and Application Requirements Document.<sup>6</sup>
  - Accompanied by a letter of assurance that met the requirements set out in our Re-opener Guidance and Application Requirements Document.<sup>7</sup>

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<sup>5</sup> [Price Control Deliverable Reporting Requirements and Methodology Document | Ofgem](#)

<sup>6</sup> [Our RIIO-2 re-opener applications \(2021-2026\) | National Grid Gas](#)

<sup>7</sup> Peterborough and Huntingdon Compressor Emissions FOSR submission in January 2023 - Appendix I Assurance Letter

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## 3. Peterborough and Huntingdon Compressor Emissions Final Option Selection Report

### Section summary

This chapter summarises the option selection process set out in the Final Option Selection Report submitted by National Gas Transmission.

### Context

3.1. The Medium Combustion Plant Directive requires that by 1 January 2030 any gas turbines with a net thermal input between 1MW and 50MW must not exceed a Nitrogen Oxide (NOx) emissions limit of 150mg/m<sup>3</sup>.

3.2. Peterborough and Huntingdon Compressor Stations are two of the most important compressor stations on the National Transmission System. Both are located at strategic multi-junction that convey gas in multiple directions to meet geographical and national demand. If not available alternative strategies involving multiple alternative sites are required to complete the same roles. These are less efficient. The key roles these Compressor Stations perform include:

- Zonal Transfer: the bulk transfer of gas between zones to balance supply and demand, North to South, East to West and West to East / South.
- Linepack Management: maintain sufficient linepack stocks in the south of the network
- Network Capability: maintaining compliance with the 1-in-20 security standard in the southeast and southwest of the network

3.3. By 2030 Peterborough and Huntingdon Compressor Stations will each have three gas turbine driven compressor units. Two newly installed Solar Titans and a legacy Avon. A decision is required on the future of the Avon as it is not compliant with the requirements of the Directive post 1 January 2030.

3.4. The Final Option Selection Report aligns with the Compressor Emissions Asset Management Plan (CE-AMP) published by National Gas Transmission. It summarises the various options available and considers each using several standard assessment tools.

## Peterborough and Huntingdon Compressor Stations

3.5. The three gas turbine driven compressor units at both Peterborough and Huntingdon Compressor Stations, Units A, B and C, are not compliant with the requirements of the Directive post 1 January 2030. Two of these units at each Compressor Station, are being replaced with new Solar Titan gas turbine - driven compressor units during the current price control period RIIO-T2. This will ensure compliance with the Industrial Pollution Prevention and Control Directive. However the remaining Avon units require an intervention by 2030 as they will not be compliant with the requirements of the Medium Combustion Plant Directive post 1 January 2030. Table 1 below summarises the key information about the various units at each Compressor Station<sup>8</sup>.

Unit	Engine	Fuel	Power Base (MW)	Installed	Minimum Operational Flow (mscm/d)	Nominal Capacity (mscm/d)
<b>Peterborough</b>						
A	Avon	Gas	12.34	1973	14	73
B (decom'd)	Avon	Gas	12.34	1973	16	73
C (decom'd)	Avon	Gas	12.34	1978	7	73
D	Solar Titan	Gas	15.3	TBC	-	-
E	Solar Titan	Gas	15.3	TBC	-	-
<b>Huntingdon</b>						
A (decom'd)	Avon	Gas	12.34	1989	12	55
B (decom'd)	Avon	Gas	12.34	1989	12	55
C	Avon	Gas	12.34	1992	17	55
D	Solar Titan	Gas	15.3	TBC	-	-
E	Solar Titan	Gas	15.3	TBC	-	-

Table 1 – Peterborough and Huntingdon Compressor Units

## Option Selection Process & Cost Benefit Analysis

3.6. National Gas Transmission considered a complete suite of solutions to enable compliance with the Directive. The high-level options considered included:

<sup>8</sup> For clarification, Units B and C at Peterborough and A and B at Huntingdon are not yet decommissioned. To be decommissioned in RIIO-T2 following proving period for the new Solar Titan compressors. Funding provided as part of the RIIO-T2 Final Determinations.

- Doing nothing to reduce emissions from the non-compliant Avon units (counterfactual) with the units operated under the Emergency Use Derogation (EUD) i.e. limited to 500 run hours per year beyond 2030
- Retrofitting the non-compliant Avon units with emissions abatement technology to enable compliance using Control System Restricted Performance (CSRP) or Dry Low Emissions (DLE) or Selective Catalytic Reduction (SCR) technologies/<sup>9</sup>
- Replacement of the non-compliant Avon units with a new low-emission high efficiency unit

3.7. Table 2 below summarises the shortlisted options considered in the Final Option Selection Report. As Peterborough and Huntingdon Compressor Stations are operated as if they were a single network asset the options for both have been combined into a single set of options for Peterborough assuming that the legacy Avon at Huntingdon is retrofit such that it is compliant with the Directive with unrestricted running hours. Table 3 below summarises the single set of options used in the Cost Benefit Analysis.

Option Shortlist	Unit A	Unit B	Unit C	Unit D	Unit E	Unit F
<b>Peterborough</b>						
<b>1 – Counterfactual</b>	500Hr EUD	Removed	Removed	Retained	Retained	/
<b>2 - 1 x CSRP</b>	CSRP Retrofit	Removed	Removed	Retained	Retained	/
<b>3 - 1 x 1533 DLE</b>	1533 DLE Retrofit	Removed	Removed	Retained	Retained	/
<b>4 – 1 x SCR</b>	SCR Retrofit	Removed	Removed	Retained	Retained	/
<b>5 - 1 x New Unit</b>	Decom.	Removed	Removed	Retained	Retained	New Unit (Brownfield)
<b>Huntingdon</b>						
<b>A – Counterfactual</b>	Removed	Removed	500Hr EUD	Retained	Retained	/
<b>B - 1 x CSRP</b>	Removed	Removed	CSRP Retrofit	Retained	Retained	/
<b>C - 1 x DLE</b>	Removed	Removed	DLE Retrofit 1533	Retained	Retained	/

Table 2 – Individual site Options summary

<sup>9</sup> Peterborough and Huntingdon Compressor Emissions FOSR submission in January 2023 - CSRP Performance Testing Report, Avon DLE Test Report, SCR Technical Feasibility Study

	Peterborough						Huntingdon
	Unit A	Unit B	Unit C	Unit D	Unit E	Unit F	Unit C
<b>1 – Counterfactual</b>	500Hr EUD	Remove	Remove	Retained	Retained		1533 DLE Retrofit
<b>2 - 1 x CSRP</b>	CSRP Retrofit	Remove	Remove	Retained	Retained		1533 DLE Retrofit
<b>3 - 1 x 1533 DLE</b>	1533 DLE Retrofit	Remove	Remove	Retained	Retained		1533 DLE Retrofit
<b>4 – 1 x SCR</b>	SCR Retrofit	Remove	Remove	Retained	Retained		1533 DLE Retrofit
<b>5 - 1 x New Unit</b>	Decom.	Remove	Remove	Retained	Retained	New Unit	1533 DLE Retrofit

Table 3 – Combined Cost Benefit Analysis Options summary

3.8. Table 4 below provides a breakdown of the various costs that were included in the Cost Benefit Analysis.

Cost Comparison £m (2018-19 prices)	Non FES	FES Related Opex	
	Capital, Asset Health, Decommissioning + Site Operation	Compressor Fuel + Carbon Emissions	Constraint Management
<b>1 – Counterfactual</b>	67.68	17 - 279	0 - 162
<b>2 - 1 x CSRP</b>	71.54	17 - 279	0 - 162
<b>3 - 1 x 1533 DLE</b>	74.26	17 - 279	0 - 175
<b>4 – 1 x SCR</b>	81.84	17 - 279	0 - 162
<b>5 - 1 x New Unit</b>	111.91	17 - 275	0 - 133

Table 4 - Options Cost Data

3.9. Non-Future Energy Scenario (FES) costs have a cost confidence interval of +/- 30% and vary between options. These costs include installation costs and ongoing Asset Health and Site Operation costs. Cost estimates for the installation of new compressor units are



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based on external expert advice.<sup>10</sup> While Asset Health costs are based on a site specific scoping exercise<sup>11</sup> and unit costs from the RIIO-2 Final Determinations.

3.10. FES - related Opex costs are derived using a probability-based forecasting model. They vary between options and between Future Energy Scenarios 2021. The four Future Energy Scenarios, as described in the National Grid ESO FES,<sup>12</sup> provide different pathways to a net zero future. These range from Steady Progression, which falls just short of the net zero target, to Leading the Way which achieves net zero ahead of 2050. Each scenario is dependent on assumptions about changes to government policy and legislation, energy delivery and consumption, consumer behaviour, technological change, and government incentives and investment. The Future Energy Scenarios provide a broad envelope of energy backgrounds against which the merits of alternative investments may be appraised.

3.11. The two lower natural gas usage scenarios (Consumer Transformation and Leading the Way) meet carbon reduction targets via electrification, with changes in consumer behaviour and large improvements in energy efficiency. The use of hydrogen is considered in Leading the Way and System Transformation. Hydrogen is produced entirely using renewable electricity in Leading the Way, whereas in System Transformation gas continues to be used to produce blue hydrogen.

3.12. Compressor Fuel and Carbon Emission volumes are determined by forecast running hours (Table 9 and Table 10) and combined with forecast unit cost (Table 8) to derive four total cost estimates for each option, one for each Future Energy Scenario.

3.13. Constraint management costs, capacity buy backs and locational balancing arise because of the commercial actions the gas system operator takes to match the requirements of network users with the physical capabilities of the network. Constraint management costs are forecast using a network capability analysis model developed by National Gas Transmission to define the capability of the National Transmission System. Further details are

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<sup>10</sup> Peterborough and Huntingdon Compressor Emissions FOSR submission in January 2023 – Appendix C Engineering Report

<sup>11</sup> Peterborough and Huntingdon Compressor Emissions FOSR submission in January 2023 – Appendix D Asset Health

<sup>12</sup> [Future Energy Scenarios 2022 | National Grid ESO](#)

given in the Gas Ten Year Statement (GTYS)<sup>13</sup> and Annual Network Capacity Assessment Report (ANCAR).<sup>14</sup>

3.14. A key factor in assessing network capability is compressor availability. Availability is a measure of how ready a given component in a system is to operate on demand, typically measured over an extended period to smooth out the effects of day-to-day maintenance and faults. An overview of how this availability value is assessed and how it is used when assessing network capability is set out in the Compressor Emissions – Asset Management Plan.<sup>15</sup>

3.15. National Gas Transmission has commissioned the development of a Reliability Availability Maintainability (RAM) model<sup>16</sup>. This assessed availability across the entire compressor fleet as it operates today and evaluated the impact of specific asset health interventions on compressor availability. In addition, a site-specific availability model was developed for both Peterborough and Huntingdon.<sup>17</sup> The results of the availability modelling undertaken for the site is one of the important inputs to the Cost Benefit Analysis model and can often drive the conclusions of the analysis.

3.16. Table 5 below sets out the output from the Cost Benefit Analysis. The option with the highest Net Present Value (in this case the lowest negative) is the one that delivers compliance with the Directive at least cost over the assessment period. The lead option is Option 1 (Counterfactual) under all Future Energy Scenarios.

NPV £me (2018-19 prices)	Steady Progression	Consumer Transformation	Leading the Way	System Transformation
<b>1 – Counterfactual</b>	-£182 m	-£78 m	-£139 m	-£85 m
<b>2 - 1 x CSR</b>	-£185 m	-£81 m	-£142 m	-£88 m
<b>3 - 1 x 1533 DLE</b>	-£187 m	-£84 m	-£151 m	-£90 m
<b>4 – 1 x SCR</b>	-£194 m	-£89 m	-£150 m	-£96 m
<b>5 - 1 x New Unit</b>	-£217 m	-£112 m	-£160 m	-£121 m

Table 5 - Cost Benefit Analysis Outputs

<sup>13</sup> [Gas Ten Year Statement \(GTYS\) | National Grid Gas](#)

<sup>14</sup> [Network Capability | National Grid Gas](#)

<sup>15</sup> Peterborough and Huntingdon Compressor Emissions FOSR submission in January 2023 – Compressor Emissions – Asset Management Plan

<sup>16</sup> Peterborough and Huntingdon Compressor Emissions FOSR submission in January 2023- RAM Study

<sup>17</sup> Peterborough and Huntingdon Compressor Emissions FOSR submission in January 2023- Appendix B – Site Availability Model

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3.17. To help quantify the whole life - cycle environmental impact of each option, a Best Available Technology assessment<sup>18</sup> was carried out. The assessment featured both quantitative and qualitative scoring of shortlisted options against key technical and environmental criteria, as well as whole life - cycle emissions and costs. This assessment concluded that that all options would deliver very similar scores and would be considered Best Available Technology.

3.18. Several Security of Supply Case Studies were also considered. National Gas Transmission argue that, given their critical location and function on National Transmission System, the Cost Benefit Analysis framework does not accurately reflect the value of having unrestricted compression services at Peterborough and Huntingdon Compressor Stations. Three separate benefits were identified as:

- **Gross Value Added:** National Gas Transmission estimated the Gross Value Added of large industrial sites and power generation in the south of England that use gas. A 24 hour interruption in gas supplies to power generation was estimated to reduce electricity production by £14m (wholesale market prices) which could result in an economic loss of £1.5bn (Value of Load Loss).
- **Operational Strategy and Efficiency:** Any unavailability at Peterborough or Huntingdon results in higher operating cost, as multiple network assets are then utilised to deliver the same level of resilience and output. Two examples were provided. The first is during typical winter demands with low Milford Haven supplies. In the absence of parallel running at Peterborough, parallel running at Huntingdon, alongside utilisation of Churchover Compressor Station is required, increasing total running costs by an estimated £330 per hour. The second is during the bulk transfer of gas from north to south. The absence of parallel running at Peterborough would require the utilisation of Carnforth and Alrewas Compressor Stations increasing total running costs by an estimated £3,100 per hour.
- **Peak Day 1 in 20 Obligations:** Modelling under the System Transformation scenario suggests that Peterborough and Huntingdon Compressor Stations, as the first and second stations in operation, will continue to play a role in supporting demand

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<sup>18</sup> Peterborough and Huntingdon Compressor Emissions FOSR submission in January 2023 - Appendix G – Preliminary BAT Report Summary

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capability in South-East England until 2050 and South-West England until at least the late 2030s.

3.19. National Gas Transmission also considered the viability of each of the retrofit technologies included in Options 2, 3 and 4.

- Control System Restricted Performance (CSRP), not previously implemented on the National Transmission System or permitted by the Environment Agency- this option involves the application of an innovative control system modification.
- Selective Catalytic Reduction (SCR), not previously implemented on the National Transmission System or permitted by the Environment Agency - this option involves the use of hazardous substances (ammonia) and is complex to implement
- Dry Low Emissions (DLE), not previously implemented on the National Transmission System or permitted by the Environment Agency - this option involves application of a technology that has not yet been fully proven in commercial operation and is currently undergoing performance testing.

3.20. To determine the Final Preferred Option, the various assessments presented in the Final Option Selection Report were combined into a single assessment matrix as set out in Table 6 Peterborough Compressor Station and Table 7 Huntingdon Compressor Station below.

Option Assessment Matrix Peterborough	Emissions Compliance	BAT Assessment	CBA	Security of Supply / Resilience	Technology Risk	Capital Investment
1 – Counterfactual	Achieves MCPD Compliance through <b>Derogation</b>  <b>Note:</b> No NOx emissions abatement.	Lead Configuration: BAT Back-Up Score: 44% Versatility: 3/15%	Modelling based on FES does not capture key use cases of the site and risks resulting from loss of capability	<b>Ruled Out</b> Unrestricted backup necessary in event of parallel running		
2 - 1 x CSR	Achieves MCPD Compliance through <b>Abatement</b>  <b>Note:</b> No NOx emissions abatement.	Lead Configuration: BAT Back-Up Score: 50% Versatility: 9/15%		Provides Unrestricted Running	<b>Ruled Out</b> Avon exceeds original design life which risks critical site operation.  Additional risk of CSR permit rejection from EA	
3 - 1 x 1533 DLE	Achieves MCPD Compliance through <b>Abatement</b>	Lead Configuration: BAT Back-Up Score: 68% Versatility: 12/15%		Provides Unrestricted Running	<b>Ruled Out</b> Avon exceeds original design life which risks critical site operation.  Additional risk that solution not yet commercially proven.	
4 – 1 x SCR	Achieves MCPD Compliance through <b>Abatement</b>	Lead Configuration: BAT Back-Up Score: 63% Versatility: 12/15%		Provides Unrestricted Running	<b>Ruled Out</b> Avon exceeds original design life which risks critical site operation.  Requires new HSE procedures to handle ammonia on site and introduces new failure mode onto NTS.	
5 - 1 x New Unit	Achieves MCPD Compliance through <b>New Unit Build</b>	Lead Configuration: BAT Back-Up Score: 93% Versatility: 15/15%		Provides Unrestricted Running	New Compressor Technology proven on NTS	

Table 6 – Peterborough Assessment Matrix

Option Assessment Matrix Huntingdon	Emissions Compliance	BAT Assessment	CBA	Security of Supply / Resilience	Technology Risk	Capital Investment
<b>A – Counterfactual</b>	Achieves MCPD Compliance through <b>Derogation</b>  <b>Note:</b> No NOx emissions abatement.	BAT Assessment not performed at Huntingdon however based on PET assessment back-up configuration would not be considered BAT compliant	Modelling based on FES does not capture key use cases of the site and risks resulting from loss of capability	Avon derogation is acceptable based on unrestricted running at Peterborough	Unit condition mitigated by asset health investment & Peterborough support	
<b>B - 1 x CSR</b>	Achieves MCPD Compliance through <b>Abatement</b>  <b>Note:</b> No NOx emissions abatement.	BAT Assessment not performed at Huntingdon however based on PET assessment back-up configuration could be considered BAT compliant		Provides Unrestricted Running	Potential for EA permit rejection mitigated by reversion to derogation, up-front permit pre-application and Peterborough support	
<b>C - 1 x 1533 DLE</b>	Achieves MCPD Compliance through <b>Abatement</b>	BAT Assessment not performed at Huntingdon however based on PET assessment back-up configuration could be considered BAT compliant		Provides unrestricted running	Potential for unit DLE failure mitigated by reversion to derogation and Peterborough support	

Table 7 – Huntingdon Assessment Matrix

## Final Preferred Option

3.21. The Final Option Selection Report identified Option 5 for Peterborough Compressor Station and Option 3 for Huntingdon Compressor Station as the Final Preferred Option for approval by the Authority in compliance with Special Condition 3.11.8

3.22. The Final Preferred Option for Peterborough Compressor Station involves the installation of a new gas turbine driven compressor unit, with approximately 15MW commissioned by 2028. The new unit will be installed on a brownfield site location, plinth F. The option also includes decommissioning of any remaining legacy Avon units down to plinth level once the new compressor has been commissioned. The requirement for Unit B decommissioning will be reassessed following operational acceptance of the new unit.

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3.23. The Final Preferred Option for Huntingdon Compressor Station involves retrofitting one of the legacy Avon units with Dry Low Emissions technology.

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## 4. Our assessment and proposed Final Preferred Option

### Section summary

In this chapter we offer for consideration our assessment of the evidence set out in the Final Option Selection Report and the reasons for our proposed Final Preferred Option

### Questions

**Question 4.1:** Do respondents agree with our assessment of the evidence presented in the Final Option Selection Report?

### Our assessment of the 'needs case'

4.1. In our RIIO-T2 Final Determinations, we accepted the 'needs case' for investment at the Peterborough and Huntingdon Compressor Stations to ensure compliance with the Directive. The Final Option Selection Report aligns with National Gas Transmission's Compressor Emissions Asset Management Plan (CE-AMP), which has been updated since Final Determinations and continues to demonstrate the need for compliance-related investment at both Compressor Stations.

### Our assessment of options considered and shortlisted

4.2. Our assessment is that the Final Option Selection Report considered an appropriate range of available options and shortlisted only those options which would provide a viable solution, given the operational requirements at Peterborough and Huntingdon Compressor Stations. Information on the option evaluation methodology was clearly articulated and applied in a consistent and logical manner.<sup>19</sup> The shortlisted options included the

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<sup>19</sup> Peterborough and Huntingdon Compressor Emissions FOSR submission in January 2023 - Appendix C – Engineering Report and Appendices



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counterfactual 'do nothing' option, against which all other shortlisted options were assessed. While the shortlist of options assessed in the Cost Benefit Analysis does not include a market-based solution, constraint management payments, which is the commercial alternative to providing compressor services at Peterborough and Huntingdon, it is central to the assessment of each option in the Cost Benefit Analysis.

4.3. We sought specific justification as to exclusion of options that included the decommissioning of non-compliant legacy Avons at either or both Compressor Stations. We are satisfied that, given the role of parallel running at both Peterborough and Huntingdon Compressor Stations in facilitating compliance with the 1-in-20 security standard in the southeast and southwest of the network, it would not be appropriate to decommission a third back-up unit at this time. Nor would it be appropriate permanently to rule out the opportunity to pursue several potentially viable options to remove the restriction on running hours at a future date.

4.4. We agree that because Peterborough and Huntingdon Compressor Stations are operated as if they were a single network asset it is appropriate to combine the options for each into a single set of options for both. The Cost Benefit Analysis was based on a set of options where the legacy Avon at Huntingdon is retrofitted such that it is compliant with the Directive with unrestricted running hours (Table 3).

4.5. A comprehensive Cost Benefit Analysis would have included a set of options where the legacy Avon at Huntingdon Compressor Station was operated under the Emergency Use Derogation with restricted running hours. On request, National Gas Transmission justified their approach on the basis that:

- The difference in Non-FES costs between the two sets of options would be marginal (a reduction of £2.7m) and would not affect the outcome of the Cost Benefit Analysis
- The running hours of the legacy Avon at Huntingdon Compressor Station are not predicted to exceed 500 hours under any Future Energy Scenario as set out in Table 10 below. Therefore whether or not the legacy Avon is restricted or unrestricted can only marginally impact predicted running hours at Peterborough Compressor Station.

4.6. Having considered this justification, we are content that this pragmatic approach will not negatively impact the Final Option Selection Report materially.

## Our assessment of key Cost Benefit Analysis parameters

### Base Assumptions

4.7. Our assessment is that all the key parameters used in the construction of the Cost Benefit Analysis and set out in Table 8 below are appropriate with a sound rationale. They were taken from the existing regulatory framework or published Government guidance. National Gas Transmission has clarified that, with respect to Constraint Manage Method, 100% of constraints occur at exit. Locational balancing actions are the only commercial constraint management tool available at exit.

Category	Assumption	Base Assumption	Rationale
<b>CBA parameters</b>	WACC	2.81%	Defined in RIIO-T2
	Social Time Preference Rate	3.5% (Years 0 – 30) / 3.0 % (30+)	Defined in Green Book
	Regulated Asset Life	45 years	Defined in RIIO-T2
	Assessment Period	25 years	Based on lifetime of asset
	Depreciation	SOTYD	Defined in RIIO-T2
	Capitalisation	75.00%	Defined in RIIO-T2
<b>Constraints and Fuel</b>	Gas Price	Annual price 50 – 64 p/th	BEIS reference scenario
	Compressor Fuel Costs	Gas Price	
	Constraint management pricing	Locational Sells: 0 Locational Buys: 1.2 * Price Buy Backs: Gas Price	As defined by Commercial Constraint Price Methodology
	Constraint management method	Enty Capacity 50% buybacks/50% locational actions Exit Capacity 100% locational actions	Reflective of tools available to manage constraints
<b>Emissions</b>	CO2 cost	Annual price 241 – 378 £/tonne	BEIS Valuation of greenhouse gas emissions: for policy appraisal and evaluation: Central Case
	NOx price	£6,199 £/tonne	DEFRA damage costs

Table 8 - Cost Benefit Analysis Assumptions

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### Capital Expenditure & Asset Health Cost Estimates

4.8. Our assessment is that the Capex, Asset Health (including Retrofit), Decommissioning and Ongoing Site Operation cost estimates, included in the Cost Benefit Analysis, have been arrived at using appropriate data sources and assumptions. The level of cost confidence to which these estimates have been made is appropriate for a project at this stage of development and is in line with guidance published by the Infrastructure and Project Authority.<sup>20</sup> This level of cost confidence is appropriate for an option selection process including Cost Benefit Analysis and Best Available Technology assessments.

4.9. In making this assessment, we sought further information on assumptions related to the build-up of Asset Health costs. National Gas Transmission have indicated that they believe that the Asset Health costs provided are in line with the required cost estimate accuracy of +/-30%. They have been generated following visual inspections of the assets. There may be a need for more intrusive inspections during the detailed design phase of the project, but National Gas Transmission have not highlighted any significant issues that put the decision making process at risk at this time.

### Constraint Management, Compressor Fuel & Carbon Emission Cost Estimates

4.10. Our assessment is that constraint management, compressor fuel and carbon emission cost estimates have been derived using the established probabilistic network capability forecasting methodology that underpins both the Gas Ten Year Statement (GTYS) and Annual Network Capacity Assessment Report (ANCAR). It is outside the scope of this consultation to review this methodology.

4.11. The model generates predicted flows of gas through Peterborough and Huntingdon Compressor Stations on an hourly basis using a complex supply and demand model. A set of simple logical rules are then used to determine the total number of hours during which the Peterborough and Huntingdon Compressor Stations are operating under a single unit or parallel running mode of operation. Under Option 1 (Counterfactual) the non-compliant legacy Avon at Peterborough Compressor Station will only be used in situations where there are

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<sup>20</sup> [IPA Cost Estimating Guidance.pdf \(publishing.service.gov.uk\)](https://publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/671112/ipa_cost_estimating_guidance.pdf)

insufficient compliant Solar Titans available due to either planned or unplanned outages. Total running hours are therefore determined by the Future Energy Scenario being considered, whereas the allocation between compressor units is influenced by the shortlisted option.

4.12. In making our assessment we sought further information on running hours under each Future Energy Scenario. Table 9 and Table 10 below display predicted running hours for Option 1 (Counterfactual).

Peterborough Running Hours		Steady Progression	Consumer Transformation	Leading the Way	System Transformation
Solar Titans	2030	3,039	1,556	900	2,190
	2035	2,717	321	93	893
	2040	3,083	4	0	423
	2045	2,623	0	0	342
	2050	2,511	0	0	249
Legacy Avon EUD	2030	450	231	133	324
	2035	403	48	14	132
	2040	457	1	0	63
	2045	389	0	0	51
	2050	372	0	0	37
Total	2030	3,489	1,787	1,033	2,514
	2035	3,120	369	107	1,025
	2040	3,540	5	0	486
	2045	3,012	0	0	393
	2050	2,883	0	0	286

Table 9 – Peterborough - Predicted Running Hours (Option 1) Counterfactual

Huntingdon Running Hours		Steady Progression	Consumer Transformation	Leading the Way	System Transformation
<b>Solar Titans</b>	2030	1,519	778	450	1,095
	2035	1,359	161	46	447
	2040	1,541	2	0	212
	2045	1,311	0	0	171
	2050	1,256	0	0	125
<b>Legacy Avon DLE</b>	2030	225	115	67	162
	2035	201	24	7	66
	2040	228	0	0	31
	2045	194	0	0	25
	2050	186	0	0	18
<b>Total</b>	2030	1,744	893	517	1,257
	2035	1,560	185	53	513
	2040	1,769	2	0	243
	2045	1,505	0	0	196
	2050	1,442	0	0	143

Table 10 – Huntingdon - Predicted Running Hours (Option 1) Counterfactual

4.13. In making our assessment we sought further information on forecast constraint management costs under the Leading the Way Future Energy Scenarios that appeared out of line with what might have been expected. National Gas Transmission reviewed these results and concluded that these were anomalies due to the reduction in gas demand to almost zero in the 2040's that were at the outer limits of current model parameters. We do not consider that this reduces the validity of the modelling that underpins the Cost Benefit Analysis. The four Future Energy Scenarios provide a broad envelope of energy backgrounds some of which are likely to be at the limits of current model parameters. National Gas Transmission should ensure that model parameters align with potential pathways to net zero.

#### Compressor Availability

4.14. Our assessment is that the approach taken to modelling site availability is appropriate and the models have been through a Quality Assurance procedure and have been approved

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by competent professionals. Table 11 below sets out the availability assumptions, following proposed interventions<sup>21</sup> used in the construction of the Cost Benefit Analysis.

<b>Train Type</b>	<b>Availability</b>
<b>Avon 500 Hour EUD</b>	<b>79.50%</b>
<b>Avon CSR</b>	<b>79.50%</b>
<b>Avon SCR</b>	<b>79.50%</b>
<b>Avon DLE</b>	<b>74.50%</b>
<b>New Unit</b>	<b>90.00%</b>

*Table 113 – Compressor Availability Assumptions*

4.15. A penalty of 5% has been applied to interventions that include a Dry Low Emissions technology retrofit to account for the immaturity of the technology. A reduction to the availability of the unproven technology is fair in the analysis but we believe it would be excessive to apply this penalty for the duration of the assessment period as experience should see it dissipate over time.

4.16. The “New Unit” availability figure is based on observed performance of new gas turbine compressors installed at other compressor stations such as Felindre. We believe the availability value used for the new unit is appropriate for this analysis.

#### Future Energy Scenarios

4.17. Our assessment is that the appropriate Future Energy Scenarios have been used in the Cost Benefit Analysis. We note the argument presented by National Gas Transmission that Future Energy Scenarios do not capture certain key use cases for Peterborough and Huntingdon Compressor Station and that consequently the Cost Benefit Analysis should not be relied upon as a decision making tool. We reject this argument. Future Energy Scenarios encompass a range of pathways to net zero, some reaching the target before others after 2050. They therefore provide a broad envelope of energy backgrounds against which the merit of alternative investments may be appraised. We do recognise that, while Cost Benefit

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<sup>21</sup> Both Asset Health and Control Systems, the cost of the former is included in the CBA however the latter is excluded as it is associated with an unrelated system wide upgrade.

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Analysis is a key decision making tool, it should not be used in isolation and that other relevant considerations should be given appropriate weight.

## **Our Assessment of Best Available Technology**

4.18. Our assessment is that the Best Availability Technology methodology used by National Gas Transmission is appropriate for this stage of the project. We are content that given the similarity between Peterborough and Huntingdon Compressor Stations in terms of age and complexity of equipment. It is appropriate to assume that the results from Peterborough can be applied to Huntingdon Compressor Station.

4.19. The key finding from the assessment is that all shortlisted options represent Best Available Technology. This finding is driven by the relatively low run hours required for any back-up unit (Tables 9 and 10).

## **Our Assessment of Project Risk Register<sup>22</sup> and Project Programme<sup>23</sup>**

4.20. Our assessment is that an appropriate Risk Register has been established and maintained. The majority of risks are routine for a project of this type with acceptable mitigations proposed. We have however identified two unique and high impact risks:

- Control System Restricted Performance (CSRP) may not be considered by the Environment Agency as complying with Best Available Technology requirements, resulting in the necessary environmental permits being withheld.
- Avon Dry Low Emissions (DLE) Retrofit technology effectiveness, cost and availability remains uncertain ahead of the final stages of testing being completed.

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<sup>22</sup> Peterborough and Huntingdon Compressor Emissions FOSR submission in January 2023 - Appendix F – Project Risk Register

<sup>23</sup> Peterborough and Huntingdon Compressor Emissions FOSR submission in January 2023 - Appendix E – Project Programmes

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4.21. Our assessment is that an appropriate project programme has been developed for each of the shortlisted options. The differences in scope, types of construction/operating risk in particular periods of plant outage between new build and retrofit options have been recognised in the project programme.

## **Discussion**

4.22. We note the assessment matrix (Table 6 and Table 7) provided by National Gas Transmission. We believe it provides a clear articulation of the various considerations that contribute to the overall decision making process. We agree that, although Cost Benefit Analysis and Best Available Technology assessments are key decision making tools, they are not the only considerations that should be given weight, nor should they be used in isolation. The assessment matrix presented by National Gas Transmission suggests an approach that excludes certain options before all the relevant considerations have been assessed. We believe that a better approach is to subject all options to the full range of assessment as this would facilitate a fully informed decision.

4.23. We broadly agree with the assessments set out in this matrix with respect to:

- Emissions Compliance
- Best Available Technology
- Technology Risk
- Capital Investment

4.24. However, we disagree on several key points.

4.25. We do not accept that the use of Future Energy Scenarios as a basis for the Cost Benefit Analysis renders that analysis an inappropriate decision making tool for investments at Peterborough and Huntingdon Compressor Stations. Future Energy Scenarios encompass a range of pathways to net zero some reaching the target before others after 2050. They therefore provide a broad envelope of energy backgrounds against which the merit of alternative investments may be appraised. As the focus of the Future Energy Scenarios is domestic demand this aligns with the role of Peterborough and Huntingdon Compressor Stations which is to support domestic demand in particular 1 in 20 peak day demand. We do recognise that while Cost Benefit Analysis is a key decision making tool it should not be used in isolation and that other relevant considerations should be given appropriate weight.



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4.26. We do not accept that the Security of Supply Case Studies justify the exclusion of the counterfactual (Option 1) from being identified as the Final Preferred Option. As set out in Table 9 above under the counterfactual (Option 1) the predicted running hours for the legacy Avon do not exceed the 500 hour Emergency Use Derogation<sup>24</sup> limit under any Future Energy Scenario. It is recognised that, under Steady Progression, predicted running hours fall just short of the limit over the entire assessment period. There are therefore plausible situations due to outage or exceeding the 500 hour limit, in which the legacy Avon at Peterborough Compressor Station is not available to fulfil its role as back-up to the two Solar Titans. In these circumstances National Gas Transmission has several options to resolve the issue.

- Commercial Constraint Management through locational balancing actions. The Cost Benefit Analysis indicates that this is a cost effective option with a total estimated cost of between £2.9m and £3.7m over the assessment period for Steady Progression, depending on the option being assessed. These costs are marginal when compared to the capital expenditure required to deliver a new gas turbine driven compressor unit.
- Operational Strategy by operating the network such that other Compressor Stations provide the capability normally provided by Peterborough and Huntingdon Compressor Stations. The two examples provided in the Security of Supply Case Studies section of the Final Option Selection Report indicate that this could increase running costs by between £330 and £3,100 per hour. Increases in operating costs of this magnitude are marginal when compared to the capital expenditure required to deliver a new gas turbine driven compressor unit.

4.27. The Final Option Selection Report includes data on run hours at both Compressor Stations over the period 2013/14 to 2022/23.<sup>25</sup> These data illustrate that the partial outages at Peterborough and Huntingdon Compressor Stations during 2019/20, 2020/21 and 2021/22, requiring the implementation of alternative Operating Strategies, resulted in lower run hours than in the previous five years. This demonstrates that implementing alternative Operational Strategies is a normal part of operating an integrated network. The location of Peterborough and Huntingdon Compressor Stations on the network gives them a central role

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<sup>24</sup> Calculated on a 5 year rolling average with a maximum of 750 hours in a any single year

<sup>25</sup> Peterborough and Huntingdon Compressor Emissions FOSR submission in January 2023 – Main Report Figure 23

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in its operation. It also means alternatives are available if required which will have been a consideration when the network was designed.<sup>26</sup>

4.28. We are therefore unconvinced by the argument that the counterfactual (Option 1) should be excluded because it does not align with the Transmission Planning Code 1 in 20 design standard.<sup>27</sup> Or because it puts at risk National Gas Transmission's peak demand obligations or the Gross Value Added of industry and power generation in the south of England. WE are content that the Cost Benefit Analysis appropriately reflects the costs associated with the various shortlisted options.

4.29. We consider that the Cost Benefit Analysis includes two viable options. These are the counterfactual (Option 1), where the legacy Avon at Peterborough Compressor Station is retained under the 500 hour Emergency Use Derogation, and Option 5, where the legacy Avon is replaced by the installation of a new compressor unit. The Cost Benefit Analysis (Table 4) puts Option 1 ahead of Option 5 under all Future Energy Scenarios.

4.30. We note the risks identified by National Gas Transmission with respect to the age of legacy Avons at Peterborough Compressor Station which will have been installed for almost 60 years by 2030. In assessing such risks unit condition is a more relevant metric than age, condition being a function of past run hours and asset health intervention. We expect that the condition of these legacy Avons will have been reflected in the Best Available Technology Assessment, Site Availability Model and level of Asset Health expenditure included in the Cost Benefit Analysis. None of these indicated a particular issue with the current condition of these units. Investing in the network based on condition and not simply age is an important principal when operating an economic and efficient system.

4.31. Regarding issues relating to long-term operation of an Avon, we believe that the Avon market is sufficient large that suitable support will continue to be available into the future. Should the risks identified crystallise at some point in the future, then there will be sufficient time to take mitigating action.

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<sup>26</sup> National Gas Transmission have highlighted that as it stands only one compressor unit (Cambridge C) downstream of Peterborough and Huntingdon Compressor Stations will operate with unrestricted running hours. However the CE-AMP indicates that assessment is ongoing for units at Cambridge and Chelmsford.

<sup>27</sup> [Transmission Planning Code 6.17.6 Compressor standby and station configuration](#)

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4.32. Based on this assessment we propose that the counterfactual (Option 1), where one of the legacy Avons at Peterborough Compressor Station is retained under the 500 hour Emergency Use Derogation should be the Final Preferred Option.

4.33. The counterfactual (Option 1) assumes the that one of legacy Avons at Huntingdon Compressor Station is retrofit with Dry Low Emissions technology (Option C). As noted above, there is an unquantified risk that this option might not be implementable and so should not be identified as the Final Preferred Option. The retained legacy Avon will provide back up to the two Solar Titans and is predicted to run for a limited number of hours over the assessment period (Table 10) not exceeding the 500 hour Emergency Use Derogation limit in any year

4.34. We therefore propose that the counterfactual (Option A), where one of the legacy Avons at Huntingdon Compressor Station is retained under the 500 hour Emergency Use Derogation, should be the Final Preferred Option.

## **Avon Retrofit Technologies**

4.35. With respect to those options that involve the retrofitting of the legacy Avons, we agree with National Gas Transmission's assessment that it would not be appropriate to determine a Final Preferred Option that may turn out to be undeliverable. There is an unknown level of risk that the various retrofit options, may not receive Environment Agency approval, or may not be viable in practice. Clarity on these risks will develop over coming years.

4.36. The scope of asset health intervention needed to prepare the legacy Avons for continued operation under the 500-hour Emergency Use Derogation is the same as that required prior to any retrofit with either Control System Restricted Performance or Dry Low Emissions technology. Proceeding with counterfactual 'do nothing' option does not therefore create an obstacle to future adoption of these retrofit options. While the Final Option Selection Report assumed an availability penalty for Dry Low Emissions technology, we believe that any such penalty would dissipate over time as operators and manufacturers gain experience.

4.37. The Final Option Selection Report indicates that the additional cost of retrofitting over and above the asset health works associated with the Emergency Use Derogation would be

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under £5m. We believe this additional expenditure could be justified as it would remove the limit on running hours and provide extra resilience at the Peterborough and Huntingdon Compressor Station. While performance will not match that of a new unit, it will be sufficient to materially boost network resilience at a much lower initial cost.

4.38. We expect that, should National Gas Transmission identify a cost effective retrofit that will permit unrestricted operation of the legacy Avons, it will implement that solution and seek funding as part of the next price control

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## 5. Proposed Final Preferred Option

### Section summary

In this chapter we set our proposed Final Preferred Option

### Questions

**Question 5.1:** Do respondents agree with our proposed Final Preferred Option?

**Question 5.2:** Do respondents agree with our proposals approach to potentially removing restrictions on the operation of the retained Avons at both Peterborough and Huntingdon Compressor Stations?

### Our Proposal

5.1. Based on our assessment of the evidence included in the Final Option Selection Report, in accordance with Special Condition 3.11.9, we propose to reject the option identified by National Gas Transmission as the Final Preferred Option (Option 5) and approve one of the other shortlisted options as the Final Preferred Option.

5.2. For both Peterborough and Huntingdon Compressor Stations our proposed Final Preferred Option in both cases is the counterfactual 'do nothing' with the legacy Avon retained under the 500-hour Emergency Use Derogation allowed for in the Directive, with significant asset health investment to improve unit availability.

5.3. Separately, should National Gas Transmission identify a cost effective retrofit, that will permit unrestricted operation of the legacy Avons at Peterborough and Huntingdon Compressor Stations, then we would expect National Gas Transmission to implement that solution and seek funding as part of the next price control

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## Appendix 1 – Privacy notice on consultations

### Personal data

The following explains your rights and gives you the information you are entitled to under the General Data Protection Regulation (GDPR).

Note that this section only refers to your personal data (your name address and anything that could be used to identify you personally) not the content of your response to the consultation.

#### 1. The identity of the controller and contact details of our Data Protection Officer

The Gas and Electricity Markets Authority is the controller, (for ease of reference, "Ofgem"). The Data Protection Officer can be contacted at [dpo@ofgem.gov.uk](mailto:dpo@ofgem.gov.uk)

#### 2. Why we are collecting your personal data

Your personal data is being collected as an essential part of the consultation process, so that we can contact you regarding your response and for statistical purposes. We may also use it to contact you about related matters.

#### 3. Our legal basis for processing your personal data

As a public authority, the GDPR makes provision for Ofgem to process personal data as necessary for the effective performance of a task carried out in the public interest. i.e., a consultation.

#### 3. With whom we will be sharing your personal data

***(Include here all organisations outside Ofgem who will be given all or some of the data. There is no need to include organisations that will only receive anonymised data. If different organisations see different set of data, then make this clear. Be as specific as possible.)***

#### 4. For how long we will keep your personal data, or criteria used to determine the retention period.

Your personal data will be held for ***(be as clear as possible but allow room for changes to programmes or policy. It is acceptable to give a relative time e.g., 'six months after the project is closed')***

#### 5. Your rights

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The data we are collecting is your personal data, and you have considerable say over what happens to it. You have the right to:

- know how we use your personal data
- access your personal data
- have personal data corrected if it is inaccurate or incomplete
- ask us to delete personal data when we no longer need it
- ask us to restrict how we process your data
- get your data from us and re-use it across other services
- object to certain ways we use your data
- be safeguarded against risks where decisions based on your data are taken entirely automatically
- tell us if we can share your information with 3<sup>rd</sup> parties
- tell us your preferred frequency, content, and format of our communications with you
- to lodge a complaint with the independent Information Commissioner (ICO) if you think we are not handling your data fairly or in accordance with the law. You can contact the ICO at <https://ico.org.uk/>, or telephone 0303 123 1113.

**6. Your personal data will not be sent overseas** (Note that this cannot be claimed if using Survey Monkey for the consultation as their servers are in the US. In that case use “the Data you provide directly will be stored by Survey Monkey on their servers in the United States. We have taken all necessary precautions to ensure that your rights in term of data protection will not be compromised by this.”

**7. Your personal data will not be used for any automated decision making.**

**8. Your personal data will be stored in a secure government IT system.** (If using a third-party system such as Survey Monkey to gather the data, you will need to state clearly at which point the data will be moved from there to our internal systems.)

**9. More information** For more information on how Ofgem processes your data, click on the link to our “[Ofgem privacy promise](#)”.