UNC Modification	At what stage is this document in the process?

UNC 0667:

Inclusion and Amendment of Entry Incremental Capacity Release NPV test in UNC

01 Modification
02 Workgroup Report
03 Draft Modification Report
04 Final Modification Report

Purpose of Modification: This Modification seeks to insert the Net Present Value test required for Non-IP Entry Incremental Capacity Release into UNC, and amend the mechanics of the test to ensure that it works effectively with the current GB system.

The Proposer recommends that this Modification should be:

- Assessed by a workgroup

This modification will be presented by the Proposer to the Panel on 17 October 2018. The Panel will consider the Proposer's recommendation and determine the appropriate route.

High Impact:

Shippers, National Grid NTS

Medium Impact:

None

Low Impact:

Contents

Timetable

The Proposer recommends the following timetable:	
Initial Consideration by Workgroup	04 October 2018
Workgroup Report presented to Panel	21 March 2019
Draft Modification Report issue for consultation	21 March 2019
Consultation close-out for representations	11 April 2019
Final Modification Report available for Panel (short notice)	15 April 2019
Modification Panel decision	18 April 2019

Any questions?

Contact:
Joint Office of Gas Transporters

enquiries@gasgovernance.co.uk

0121 288 2107

Proposer:
Adam Bates
South Hook Gas Company Ltd

abates@southhookgas.com

07787 524 566

Transporter:
National Grid

Malcolm Montgomery
malcolm.montgomery@nationalgrid.com

01926 653991

Systems Provider:
Xoserve

UKLink@xoserve.com

1 Summary

What

An issue has been discovered with the Incremental Capacity Release NPV test that impacts any potential PARCA applicant's ability to pass the NPV test, and subsequently reserve or allocate incremental capacity.

For Incremental Capacity to be reserved and allocated as part of the Planning and Advanced Reservation of Capacity Agreement (PARCA) process, a series of net present value (NPV) tests are required to be passed (one at the end of PARCA Phase 1 using indicative prices and an additional test at the end of PARCA Phase 2 using updated prices). The intention of the NPV test is to ensure user commitment and to provide sufficient assurances that the costs of any incremental investment associated with PARCA Works are recovered. The PARCA applicant is deemed to have passed the NPV test if the test signals 50% of the Estimated Project Value.

South Hook Gas Company Ltd. ("South Hook Gas") is the applicant under an existing PARCA Phase 1 process in respect of incremental entry capacity at the Milford Haven Aggregated System Entry Point (ASEP) as an integral part of an upstream project investment. South Hook Gas understands that this PARCA application is the first to be processed in respect of incremental NTS entry capacity.

The methodology for the NPV test is currently defined in the Entry Capacity Release Methodology (ECRM) Statement rather than the UNC. South Hook Gas believes the current NPV methodology is unclear and unfit for purpose in the context of a PARCA application in respect of incremental entry capacity.

Therefore, this Modification Proposal seeks firstly to insert the NPV test into the UNC and secondly to make the changes set out in this proposed Modification to the mechanics of the test to resolve significant structural issues that could currently be reducing the number of PARCA entry capacity applications and therefore disincentivising future investment in natural gas supply projects.

Why

There is a lack of clarity over the extent of the signalling obligation under the NPV test, which creates uncertainties as to the required threshold for compliance. As noted above, this is in part attributable to the potential move from a fixed to a floating price regime and a change to the charging methodology. The prescribed process for the NPV test appears to require the PARCA applicant to signal excessive amounts of unsold capacity (as well as incremental capacity) at the relevant Entry Point, due to the unconstrained nature of the network and the resultant general reliance on short term capacity products. The required compliance threshold is so onerous that maintenance of the present approach may have the unintended consequences referenced above in respect of PARCA applications and project investment. By way of example, South Hook Gas would not be able to pass the PARCA Phase 1 NPV test without signalling incremental capacity, and any required unsold capacity, at the Milford Haven ASEP for 20 quarters. South Hook Gas believes the NPV test threshold in its current form is disproportionate to the commitment required for the PARCA Works (and therefore does not achieve the intended objectives of the test), excessively onerous and could be a disincentive for investment in GB.

The South Hook Gas PARCA application was submitted on 24 April 2018 and the Phase 1 PARCA Works are forecast to complete in October 2018. Therefore a timely solution is required for the identified issues, while allowing appropriate space for discussion and consultion in order to provide the certainty needed for long term investment.

If the approach currently prescribed is adopted in this case, with South Hook Gas acquiring all unsold and incremental capacity over the required period, there will be a number of consequences, for which there does not seem to be any economic or technical justification, including:

1. South Hook Gas having to signal more capacity that it can physically use (including once the incremental capacity is delivered by NGG);
2. South Hook Gas signalling capacity that would lead to revenues to NGG well in excess of the Estimated Project Value;
3. Dragon LNG not being able to purchase long term capacity in those quarters (only the 95GWh/day that is withheld for short term could be available) once capacity is allocated; and
4. A commitment to higher revenues than necessary being made because of changes to both Estimated Project Value and prices immediately prior to the second NPV test, if there is a restriction on changing the incremental capacity profile.

The current ECRM methodology is not clear on whether there is an opportunity to reprofile the incremental capacity ahead of the second NPV test (end of PARCA phase 2). Furthermore if the applicant is deemed to have failed the second NPV test (i.e. by signalling less than 50% of Estimated Project Value) then NGG can terminate the PARCA application, resulting in the PARCA termination fee having to be paid by the applicant and/or potential disruption and delay in the context of a larger project.

As noted above, this Modification Proposal seeks to insert the NPV test into the UNC. The NPV test is currently defined in the ECRM Statement, which is not subject to the UNC code governance process. Therefore, if the NPV test is not inserted into the UNC, then it cannot be modified without a full review of the methodology statements. The UNC would be the more appropriate location for the NPV test to allow for a clear statement of the NPV test as amended and the provision of a more efficient review and refinement process to address both the issues noted above and future required changes, ensuring the test remains fit for purpose.

One key objective of the PARCA framework is to provide certainty for investment by allowing both the PARCA applicant and NGG to progress their projects in parallel. However, allowing the estimated project cost (currently Estimated Project Value from the LRMC methodology) to change unpredictably between the two NPV tests could undermine this objective by significantly changing the revenue required from the applicant.

How

This Modification Proposal seeks to insert the NPV test into the UNC TPD, Section B to allow it to be modified via the UNC governance process, and subsequently change the mechanics to allow for:

- An “Incremental Capacity Premium” to be applied should the estimated reference price not generate sufficient revenues for a positive NPV test outcome. This concept is based on the IP Mandatory Minimum Premium that is part of the Incremental Capacity Release at Interconnection Points within UNC, European Interconnection Document, Section E. The Incremental Capacity Premium is an additional quantity that is added to the applicable payable price, calculated to be the minimum value required to allow the NPV test to be passed in the case where the allocation of all offered incremental capacity at the estimated reference price would not generate sufficient revenues for a positive NPV test outcome.

  - For example, if capacity totalling £50m on a NPV basis is required to be signalled but only £30m of Incremental Capacity sales are available using the estimated reserve price, then the additional £20m required would be divided by the Incremental Capacity denominator to create the Incremental Capacity Premium in p/kWh/d, which is then applied on top of the reserve price.

- Incremental Capacity must be signalled in a minimum of 4 separate years over the 8 year PARCA period. This is to guarantee there is a sustained incremental signal to ensure efficient investment in the system and is aligned with the principles for Exit Incremental Capacity Release and IP Incremental Capacity Release. For the avoidance of doubt this can be a minimum of 1 quarter in each of the 4 separate years.

- Submission of an incremental capacity profile ahead of the second NPV test at the end of PARCA Phase 2 as per Phase 1 NPV test, to either avoid unnecessary termination of the PARCA application or excessive revenue being collected. This also provides an opportunity for the Incremental Capacity Premium to be recalculated. The Incremental Capacity Premium is fixed at this point and paid in addition to any capacity charges as they become due.

- The estimated project cost to be initially set at the first NPV test (prior to reservation at the end of PARCA Phase 1). At the time of the second NPV Test (prior to allocation at the end of PARCA Phase 2) the estimated project cost will be adjusted in line with the Retail Price Index (RPI). This is inline with NGG Gas Transporter Licence which currently uses RPI.

2 Governance

Justification for Authority Direction

This Modification Proposal is recommended to be sent to the Authority for direction as it seeks to change the User Commitment rules associated with the release of Entry Incremental Capacity, and therefore could have an impact on the commercial activities relating to investment in the NTS.

Requested Next Steps

This Modification Proposal should:

- be considered a material change and not subject to self-governance; and
- be assessed by a workgroup

3 Why Change?

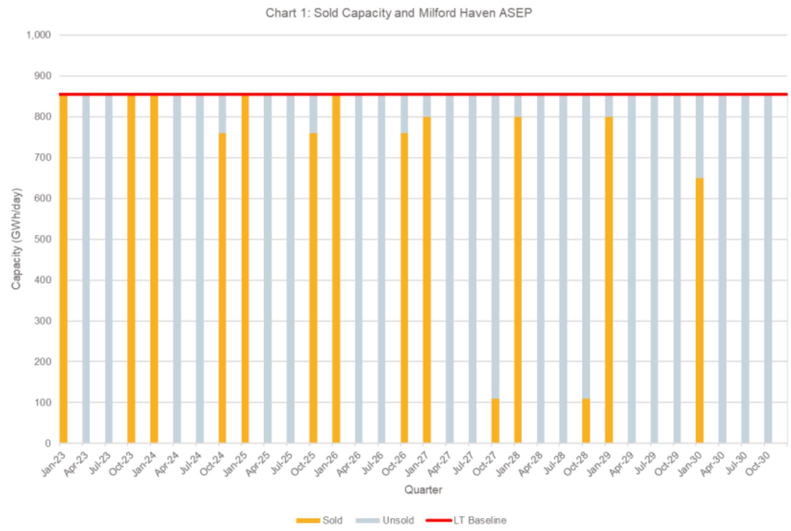
Background to Incremental Capacity NPV Test

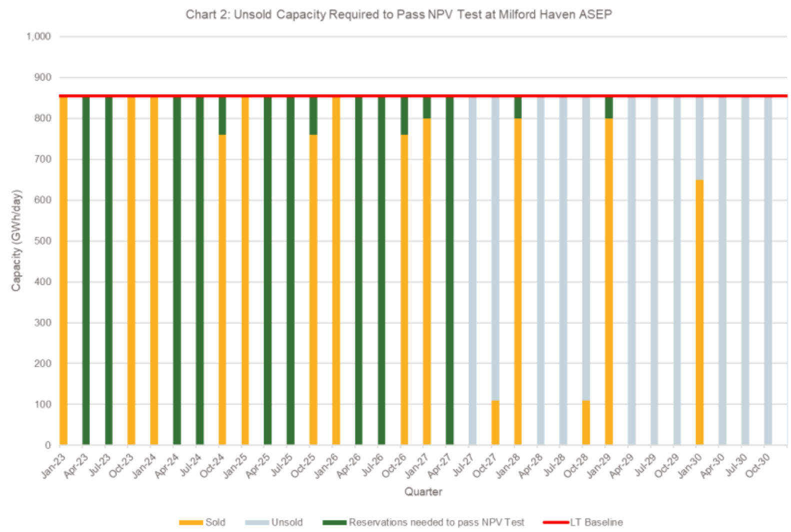
Incremental Capacity is additional capacity that is made available above the prevailing level of Obligated Entry Capacity. For the Incremental Capacity to be reserved and subsequently allocated, a NPV test needs to be passed to ensure user commitment and provide sufficient assurances that the costs of any incremental investment associated with PARCA Works are recovered. The revenues required to be recovered are from the Estimated Project Costs, which are calculated through the Long Run Marginal Cost methodology, and 50% of this must be collected for the NPV test to be passed. The mechanics of the NPV test are included within the ECRM statement[1].

The ECRM was first issued in 2002 and included the current NPV test. Since then there has not been a comprehensive review of the NPV test[2] (other than project costs and price steps which have been changed alongside charging methodology developments). The NPV test was implemented when there was an expectation that capacity would be acquired on a long-term basis, via the QSEC auctions, allowing for incremental capacity to be signalled. Since 2002, capacity booking behaviour has moved almost entirely towards the purchase of short term products which are discounted (up to 100% for within day and interruptible products). This has caused difficulties for incremental capacity to be signalled within the current methodology.

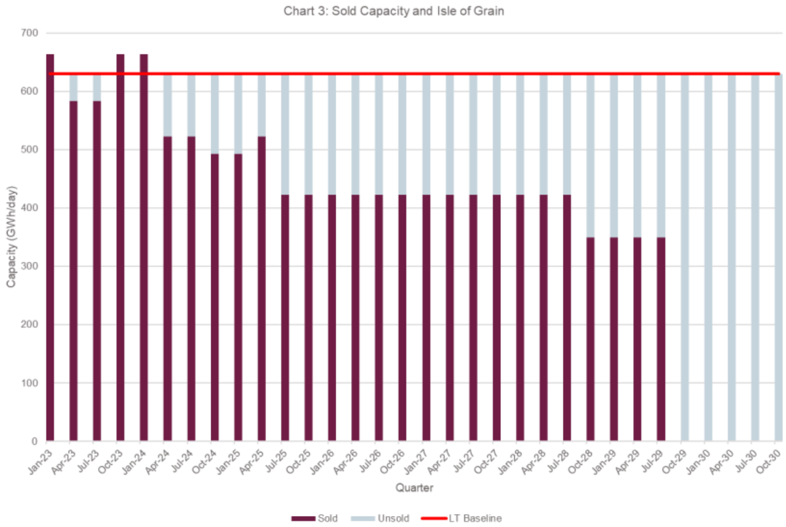
Chart 1 shows the amount of sold and unsold capacity that is available at Milford Haven within the Long Term auctions at the current time and incremental capacity would only be available without purchasing any unsold capacity in 5 of the 32 quarters (i.e. where sold amounts are equal to LT baselines). Chart 2 indicates, in green, the amount of unsold capacity that would need to be signalled for incremental capacity to be signalled using the Price Step 7 Estimated Project Value of £140m. At the highest current price step for Milford Haven (which would be required in this example) the unsold capacity would cost £211m with the £70m cost of incremental capacity on top of this. Unsold capacity that is purchased does not contribute to the NPV test despite being priced as such (noting that this capacity would also be subject to the same price step as incremental capacity). This would result in total costs of £281m which is significantly higher than the required incremental revenue signal (NPV test) of £70m, and even the total Estimated Project Value of £140m. In addition, it would also result in one of the parties at the ASEP holding all the Long-Term capacity rights at the ASEP for the single purpose of passing the NPV test meaning other participants would be unable to purchase Long-Term products at the ASEP. It is also worth noting that 855GWh/day unsold capacity required to be purchased is more technical capacity than either of the current individual Milford Haven Entry Terminals can utilise, even when the Incremental Capacity is brought on-line.

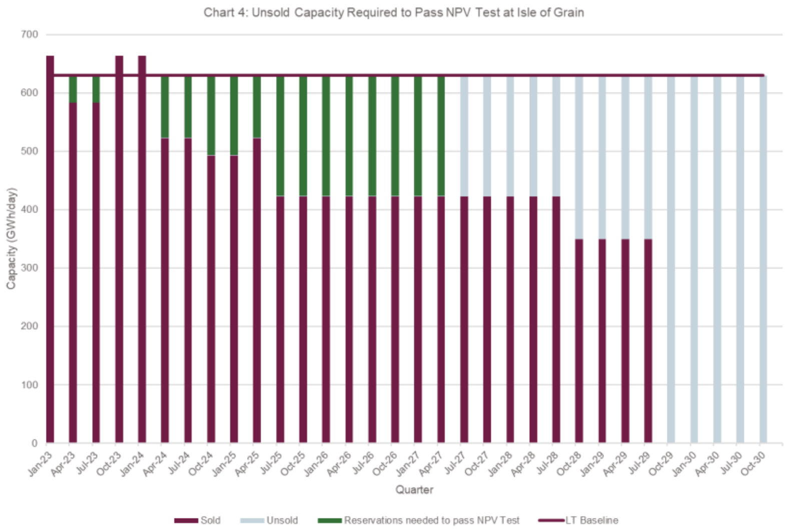
[1] https://www.nationalgrid.com/uk/gas/charging-and-methodologies/methodologies
[2] Entry Capacity Release Methodology v4, Document Revision History





The issue is not exclusive to the Milford Haven ASEP and occurs across many of the Entry Points on the network. Chart 3 and Chart 4 show similar issues for the Isle of Grain Entry Point. Using the same scenarios (Estimated Project Value from Price Step 7 and using the highest price step for Isle of Grain) the combined cost of unsold capacity (£21.8m) and incremental capacity (£17.5m) is greater than the total Estimated Project Value (£33.5m).





Both LNG terminals are in the top 5 Entry Points in terms of Long Term bookings vs total baseline available[3], which can be seen in Table 1. Given the difficulties to pass the test at both LNG Entry Points it is fair to assume that most of other Entry Points on the network would face the same issue if attempting to signal Incremental Entry Capacity.

[3] From 1st January 2023 to 31st December 2030

Table 1

Entry Point	Sold Capacity (Gwh/day)	Total Available (GWh/day)	Percentage Purchased
Cheshire	16,886	17,366	97%
Hole House Farm	5,673	9,491	60%
Isle of Grain	12,605	22,390	56%
Milford Haven	8,970	30,400	30%
Caythorpe	810	2,880	28%
Easington	8,927	45,029	20%
Bacton	2,986	15,539	19%
Fleetwood	3,107	20,800	15%
Teesside	1,178	14,243	8%
Garton	980	13,440	7%
Hatfield Moor (Storage)	44	810	5%
Hornsea	206	7,459	3%
Barrow	128	10,880	1%
St. Fergus	151	53,462	0%
Theddlethorpe	0	19,542	0%
Glenmavis	0	3,168	0%
Partington	0	6,880	0%
Avonmouth	0	5,738	0%
Dynevor Arms	0	1,568	0%
Hatfield Moor (Onshore)	0	810	0%
Wytch Farm	0	106	0%
Burton Point	0	2,352	0%
Barton Stacey	0	5,523	0%
Canonbie	0	6,400	0%

Why the NPV test should be put into UNC

The NPV test is currently defined in the ECRM, which is not subject to the UNC governance process. Therefore, if the NPV test is not inserted into the UNC, it cannot be modified without a full review of the methodology statements. The UNC would be the more appropriate location for the NPV test to allow for a clear statement of the NPV test as amended and the provision of a more efficient review and refinement process to address both the issues noted above and any future required changes, ensuring the test remains fit for purpose.

The user commitment test associated with the release of Non-Incremental Capacity (i.e. a PARCA met through existing capacity or substitution) is already contained within UNC TPD Section B. Therefore the inclusion of the NPV test into UNC is consistent with the other Entry User Commitment tests and allows for changes that are applicable across the tests to be made consistently and timely in the future.

Given the current review of the charging regime (UNC Modification 0621) and the requirement for future methodologies to be consulted at least every 5 years (as per EU TAR)[4], this would also allow for more timely updates. The insertion of the NPV test into the UNC is consistent with the charging methodology which has been previously inserted into code (UNC Section Y), along with other charging topics (such as the Optional Commodity Charge).

Impacts

South Hook Gas believes that this Modification is relatively simple and builds on principles that have been previously used. For example previous methodologies (e.g. capacity charging and the optional commodity charge) have been inserted into UNC to allow for amendments via the Code Governance Process, which is a robust process allowing for development and implementation of code modifications.

The Incremental Capacity Premium is based on the Mandatory Minimum Premium which is a concept which is set out in EU TAR and is used for Interconnection Point Incremental Capacity Release in GB.

There are no resultant impacts on other users' charges as these alterations only ensure that the Incremental Revenue signal can be achieved as efficiently as possible based on the current usage of the NTS, as was initially intended by the test. The Incremental Capacity Premium also provides the industry with a greater degree of certainty that the PARCA Applicant is able to provide the required commitment to the project, given that the Incremental Capacity Premium will be fixed and applied in addition to the reserve price for any Incremental Capacity allocated.

If the changes are not implemented, South Hook Gas believes the impacts resulting from the current methodology may unintentionally disinsentive investment in the NTS and could restrict future gas supply projects.

4 Code Specific Matters

Reference Documents

Entry Capacity Release Methodology Statement –
https://www.nationalgrid.com/sites/default/files/documents/Entry%20Capacity%20Release%20Methodology%20Statement%20%28Approved%29%20v4.0%20-%20Effective%2031%20July%202017.pdf

Rules for Release of Incremental Capacity at Interconnection Points –
https://www.gasgovernance.co.uk/sites/default/files/ggf/page/2017-08/EID%20Section%20E%20-%20Rules%20for%20the%20Release%20of%20Incremental%20Capacity%20at%20Interconnection%20Points.pdf

[4] Article 27, Paragraph 5. https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32017R0460&from=EN

5 Solution

Insert the NPV test from Entry Capacity Release Methodology Statement, Chapter 6 into UNC TPD Section B – System Use and Capacity. For the avoidance of doubt the NPV test is deemed to have been passed if:

$$\frac{NPV}{PC} \geq 0.5$$

where:

NPV	means the output from the NPV test which is estimated present value of the revenue signals
PC	is the estimated NTS project cost (currently Estimated Project Value as per UNC TPD Section Y Part A1)

The NPV test is only required to be passed when Funded Incremental Obligated Entry Capacity is required to be released as part of the PARCA process. For the avoidance of doubt, where a PARCA solution does not require Funded Incremental Obligated Entry Capacity then the user commitment in UNC TPD Section B 1.17.7 (c) is applicable.

The NPV test then needs to be amended to allow for;

1) an "Incremental Capacity Premium" to be applied should the NPV test fail (i.e. revenues from the sale of incremental capacity will not achieve 50% of Estimated Project Value).

$$\frac{NPV}{PC} < 0.5$$

The Incremental Capacity Premium is initially calculated using the following formula:

$$ICP = \frac{RC}{Cap_{total}}$$

where:

RC	is the residual cost to be achieved from the Incremental Capacity Premium
Cap_{total}	is the total quantity of capacity signalled within the NPV test (including any unsold), expressed in kWh

As the Incremental Capacity Premium contributes towards the NPV test it will need to be discounted (in line with the revenue signals). The Incremental Capacity Premium will then be adjusted until the NPV test is passed (i.e. using a "Goal Seek" function).

For the avoidance of doubt;

- the Incremental Capacity Premium is an additional rate that is added to the applicable payable price, calculated to be the minimum value required to allow the NPV test to be passed, in the case where the allocation of all offered incremental capacity at the estimated reference price would not generate sufficient revenues for a positive NPV test outcome, and;

- All revenues associated with the Incremental Capacity Premium (including any current unsold baseline it is applied to) contribute towards NPV test. For current unsold capacity the difference between the applicable payable price and reserve price will be used for the NPV calculation.

2) A minimum requirement of Incremental Capacity to be signalled in 4 separate years over the 8 year PARCA period.

   For the avoidance of doubt;

   - this can mean a minimum signal of 1 quarter in each of the 4 separate years and they are not required to be consecutive years
   - The Incremental Capacity signalled in the 4 separate quarters is required to be for the full requested Incremental Capacity amount
   - The PARCA period is 8 years (i.e. a rolling 12 month years) beginning in the month the capacity is released and does not have to align to Gas or Calendar Years

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3) Clarifiation that the Incremental Capacity can be reprofiled ahead of the second NPV test prior to capacity allocation (at the end of PARCA Phase 2). This includes the recalculation of the Incremental Capacity Premium, if applicable.

   For the avoidance of doubt this needs to be in line with the rules stated within the PARCA agreement

4) The estimated project cost to be initially set at the value used for the first NPV test (prior to reservation at the end of PARCA Phase 1). Then at the time of the second NPV Test (prior to allocation at the end of PARCA Phase 2) the project value will be adjusted in line with the Retail Price Index (RPI)[5].

   The following formula sets out the adjusted project cost (PC_{adj});

$$PC_{adj} = PC_{Phase\ 1} \times RPI_{adj}$$

   where:

   $PC_{Phase\ 1}$ is the estimated project cost which was fixed at the time of the first NPV test

   RPI_{adj} means the index used for adjustment. It is calculated using the following formula:

$$RPI_{adj} = \frac{RPI_{Phase\ 2}}{RPI_{Phase\ 1}}$$

   where:

   $RPI_{Phase\ 1}$ is the arithmetic average of the Retail Price Index published for the 12 months prior to the first NPV test being passed

[5] https://www.ons.gov.uk/economy/inflationandpriceindices/timeseries/chaw/mm23

$RPI_{Phase\ 2}$ means the arithmetic average of the Retail Price Index published for the 12 months prior to the second NPV test being completed

For the avoidance of doubt the estimated project cost is currently the Estimated Project Value, inline with the Gas Transmission Charging Methodology (UNC TPD Section Y Part A1).

6 Impacts & Other Considerations

Does this modification impact a Significant Code Review (SCR) or other significant industry change projects, if so, how?

None.

Consumer Impacts

If implemented this modification proposal will reduce barriers to entry for investment in the GB network, having a positive impact on security of supply. There are no negative impacts to consumers as this modification proposal alters the arrangements between Shippers and National Grid Gas only.

Cross Code Impacts

None.

EU Code Impacts

There is no impact on EU Codes The proposed modification is compliant with current EU Codes.

Central Systems Impacts

It is not anticipated that this Modification Proposal has any Central System Impacts.

7 Relevant Objectives

Impact of the modification on the Relevant Objectives:	
Relevant Objective	**Identified impact**
a) Efficient and economic operation of the pipe-line system.	Positive
b) Coordinated, efficient and economic operation of (i) the combined pipe-line system, and/ or (ii) the pipe-line system of one or more other relevant gas transporters.	None
c) Efficient discharge of the licensee's obligations.	None
d) Securing of effective competition: (i) between relevant shippers; (ii) between relevant suppliers; and/or (iii) between DN operators (who have entered into transportation arrangements with other relevant gas transporters) and relevant shippers.	Positive
e) Provision of reasonable economic incentives for relevant suppliers to secure that the domestic customer supply security standards… are satisfied as respects the availability of gas to their domestic customers.	None
f) Promotion of efficiency in the implementation and administration of the Code.	None
g) Compliance with the Regulation and any relevant legally binding decisions of the European Commission and/or the Agency for the Co-operation of Energy Regulators.	None

Demonstration of how the Relevant Objectives are furthered:

a) This proposal furthers Relevant Objective (a) as it reduces potential barriers to entry for gas market investment in GB, therefore reducing the incentive for users to pursue private investment options bypassing the NTS and providing greater assurances in respect of GB security of gas supply.

This investment in private pipelines could have a negative effect on the operation of the pipeline given the levels gas now bypassing the NTS could be greater than the incremental amount requested, which could have knock on effects to the configuration of the network.

d) This proposal further relevant objective (d) by:

i. Making the incremental capacity NPV test consistent with the current market environment which does not incentivise long term capacity bookings;

ii. Minimising the requirement for shippers to book capacity in excess of their ability to flow when signalling incremental capacity, thereby minimising inefficient and uneconomic bookings;

iii. Not artificially limiting access to entry capacity for other shippers; and

iv. Reducing barriers to entry for gas market investment in GB

8 Implementation

A date for implementation is not explicitly prescribed, however given the current PARCA timescales South Hook Gas is subject to as part of its application, implementation is needed as soon as reasonably possible after a decision to provide certainty on the process.

No implementation costs are anticipated.

9 Legal Text

Text Commentary

Insert text here

Text

Insert text here

10 Recommendations

Proposer's Recommendation to Panel

Panel is asked to:

- Agree that Authority Direction should apply
- Refer this proposal to a Workgroup for assessment.

11 Appendix 1 - Incremental Capacity Premium Calculation

Example

- A user wants to signal 100GWh/day of capacity incremental capacity over 10 quarters
- The Estimated Project Value is £100m and therefore £50m signal is required to pass the NPV test
- The highest price step they can use is 0.0350 p/kWh/day

Calculations[6]

- $Incremental\ Revenue = Incremental\ Capacity \times Price \times Total\ days\ in\ period$

  (100,000,000 × 0.0350) × 900 = £31,500,00

- $Incremental\ Capacity\ Premium\ Revenue = Signal\ Required - Incremental\ Revenue\ Signalled$

  £50,000,000 − £31,500,000 = £18,500,000

- $Incremental\ Capacity\ Premium\ Price =$

  $Incremental\ Capacity\ Premium\ revenue\ /(Sum\ of\ Capacity \times Total\ days\ in\ period)$

  £18,500,000 / (100,000,000×900) = 0.0206 p/kWh/day

- The 0.0206 p/kWh/day Incremental Capacity Premium would be added to the 0.0350 p/kWh/day reserve price to for all Incremental Capacity.

[6] [1]For simplicity the calculation uses the following assumptions:

- There are 90 days in a quarter and therefore the total duration is 900 days.
- There is no discount factor applied.