











UNC Final Modification Report	At what stage is this document in the process?
<h1>UNC 0678D:</h1> <h2>Amendments to Gas Transmission Charging Regime including a Cost based Optional Capacity Charge</h2>	<div>01 Modification</div> <div>02 Workgroup Report</div> <div>03 Draft Modification Report</div> <div>04 Final Modification Report</div>
<p>Purpose of Modification:</p> <p>The purpose of this Modification Proposal is to amend the Gas Transmission Charging regime in order to better meet the relevant charging objectives and customer/stakeholder provided objectives for Gas Transmission Transportation charges and to deliver compliance with relevant EU codes (notably the EU Tariff Code).</p>	
	<p>Panel consideration is due on 23 May 2019.</p>
	<p>High Impact:</p> <p>All parties that pay NTS Transportation Charges and / or have a connection to the NTS, and National Grid NTS.</p>
	<p>Medium Impact:</p> <p>N/A</p>
	<p>Low Impact:</p> <p>N/A</p>

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Timetable		 0121 288 2107
Modification timetable:		Proposer: Anna Shrigley Eni
Ofgem decision on urgency	25 January 2019	 enquiries@gasgovernance.co.uk
Initial consideration by Workgroup	29 January 2019	 Anna.Shrigley@eni.com
Final consideration by Workgroup	10 April 2019	 02078633651 or 07932114602
Workgroup Report Finalised	10 April 2019	Transporter: National Grid
Publication of Draft Modification Report	12 April 2019	Systems Provider: Xoserve
Draft Modification Report issued for consultation	15 April 2019	 commercial.enquiries@xoserve.com
Consultation Close-out for representations	08 May 2019	
Final Modification Report available for Panel	15 May 2019	
Modification Panel decision	23 May 2019	
Final Modification Report issued to Ofgem	29 May 2019	

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1 Summary

What

This Modification proposes to introduce a new Gas Transmission Charging regime that produces stable and predictable transportation charging and is compliant with EU Tariff Code (Regulation 2017/460). This Modification also takes into account the decision to reject Modification 0621¹ and its Alternatives citing areas of non-compliance. This Proposal addresses the areas of compliance identified in this decision.

Why

The Transportation Charging Methodology currently in place for the calculation of Gas Transmission charges, and the methodology to recover Transmission Owner (TO) and System Operator (SO) revenue through Entry and Exit charges, have been in place for a number of years. Whilst there have been some incremental changes in the last ten years, the basic approach to calculating Entry and Exit Capacity charges and the approach to revenue recovery has not substantially changed.

A critique of the current Long Run Marginal Cost (LRMC) methodology (undertaken by the NTSCMF – concluding in January 2017² – with updated analysis presented during development of Modification 0621 in April 2018³) identified that it is too volatile, unpredictable and does not provide stability of charges for Users.

How

This Modification proposes to introduce changes to the charging framework by way of making changes to UNC TPD Section Y. It will also be necessary to make changes to other sections of the UNC TPD (Sections B, E and G), the Transition Document and EID (Section B).

At its core, this Modification proposes to move from a Reference Price Methodology (RPM) that calculates the capacity prices using the Long Run Marginal Cost (LRMC) method to one that is based on a Capacity

¹ See <https://gasgov-mst-files.s3.eu-west-1.amazonaws.com/s3fs-public/ggf/page/2018-12/Ofgem%20Decision%20Letter%200621.pdf>

² Material at <https://www.gasgovernance.co.uk/ntscmf/subg1page>

³ Material at <https://www.gasgovernance.co.uk/0621/200418>

Weighted Distance (CWD) approach. It also proposes an updated approach with changes to capacity pricing multipliers, capacity discounts and interruptible pricing review to better meet the required objectives.

It introduces some terminology from the EU Tariff Code, specifically 'Transmission Services Revenue' and 'Non-Transmission Services Revenue'. The revenues will map across to TO and SO revenues thereby not changing the total revenue to be collected through Transportation charges. The more material change will be the amendments to the charging methodologies in calculating the charges that will be applied to recover the allowed revenues from NTS network Users through the Transportation charges.

This Proposal also introduces, for some aspects of this methodology change, mechanisms to review and refine components of the charging framework, notably the Forecasted Contracted Capacity (FCC), capacity pricing multipliers and interruptible pricing, over time so they continue to better facilitate the relevant methodology objectives⁴ and support the evolution of the GB charging regime.

2 Governance

Justification for consideration as an Alternative to Modification 0678

This Proposal should be treated as an Alternative to National Grid's Modification 0678 as it differs from it in the following points:

- It introduces an Optional Capacity Charge and associated User commitments to replace the current Optional Commodity Charge which will be included within the Modification 0678 does not include any optional charge;
- It endorses implementation as soon as possible for legal and compliance purposes but, taking regard of industry views on the very low likelihood of achieving a 01 October 2019 date for new charges (with requisite notice periods), the Proposer recommends that charges arising from the new methodology take effect from 01 October 2020.

This Modification addresses the same issues that have been raised under Modification 0678; if either Modification were to be implemented then it would result in major changes to Section Y of the UNC, effectively introducing a new charging methodology for gas transmission. This Modification has many common features to Modification 0678, but the Proposer believes it improves on the solution being proposed by National Grid's Modification 0678 as it re-introduces the concept of an optional charge to avoid inefficient bypass of the NTS.

The timetable that has been set for finalising the Workgroup Report for Modification 0678 is very aggressive but approved by Ofgem under a request for urgency. Being conscious of the need for urgency and the arguments in support of urgency contained within Modification 0678, this Modification should as far as possible follow the same timetable as Modification 0678 so that both Proposals can be considered by Panel, Industry and Ofgem at the same time, making for an efficient governance process.

It is the view of the Proposer that raising this Modification as a new Modification, which may or may not be granted Urgent status, would result in a different timetable, would require separate Workgroup meetings, be consulted on separately, be considered by Panel separately and would therefore make for an

⁴ As described in Standard Special Condition A5: 'Obligations as Regard Charging Methodology' of the NTS Licence, paragraph 5.

unnecessarily complex and inefficient process. This could severely impact the intentions behind the urgency that has been granted for Modification 0678.

In summary, this Modification 0678D has been raised as a valid Alternative solution to the one being proposed under Modification 0678.

Justification for Authority Direction

This Modification Proposal is recommended to be sent to the Authority for direction as it is likely to have a material effect on commercial activities relating to the shipping, transportation and supply of gas because, if implemented, it is likely to have a material impact on the allocation of charges across NTS networks Users.

Requested Next Steps

This Modification should be treated as an Alternative to Modification 0678. It should proceed as such under the same timetable as agreed with the Authority for Modification 0678 as far as practicable.

3 Why Change?

Drivers

3.1. The methodology which is currently in place for the calculation of Gas Transmission Transportation charges, and the methodology to recover TO and SO revenue through Entry and Exit charges, has been in place for a number of years. Whilst there have been some changes in the last ten years, the basic approach to calculating NTS Entry and Exit Capacity charges and the approach to revenue recovery arrangements have not substantially changed. What has been seen is change in the patterns of capacity booking behaviours, and the impact on the charges as a result due to the interactivity inherent within the methodology, that were not anticipated. An additional regulatory driver for changes to the charging framework are:

3.1.1. The EU Tariff Code⁵; and

3.1.2. Ofgem's Gas Transmission Charging Review⁶ and decision on Modification 0621 and its Alternatives⁷. In addressing the decision letter to reject Modification 0621 and its Alternatives the Proposer is proposing changes outlined in this Modification and summarised in Appendix 1. This table highlights for awareness a comparison between Modification 0621 and this Modification Proposal and where specific areas of compliance need to be addressed. Addressing these areas of compliance better facilitates Relevant Objective (g) and Relevant Charging Methodology Objective (e) as outlined in Section 7 of this Modification Proposal.

⁵ http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv:OJ.L_.2017.072.01.0029.01.ENG&toc=OJ:L:2017:072:FULL

⁶ <https://www.ofgem.gov.uk/gas/transmission-networks/gas-transmission-charging-review>

⁷ <https://gasgov-mst-files.s3.eu-west-1.amazonaws.com/s3fs-public/ggf/page/2018-12/Ofgem%20Decision%20Letter%200621.pdf>

- 3.2. As a result of changing behaviours, such as increased uptake in short term zero-priced capacity, there is an increase in reliance on commodity charges to recover TO revenue. Zero priced capacity has arguably resulted in overbooking of capacity, surplus to User's requirements. The high TO commodity charges, driven largely by the zero-priced capacity can also result in unstable and unpredictable charges. Other charges, such as the NTS Optional Commodity charge (also referred to as 'shorthaul'), have also seen a significant increase in its use which has impacted on other charges in a way that was not originally envisaged.

Mapping Revenues

- 3.3. Within the collection of revenue there are some changes to the terminology used to assign the revenue for the purposes of ultimately calculating charges. These changes are required by the EU Tariff Code. This relates to mapping TO Revenue and SO Revenue to Transmission Services Revenue and Non-Transmission Services Revenue. This does not affect the actual allowed revenue National Grid will be required to recover through the charges.
- 3.4. There are a number of targeted charges in the current methodology and it is necessary to consider which revenue they will contribute towards:
 - 3.4.1. The Distribution Network (DN) Pensions Deficit Charge and NTS Meter Maintenance Charge, under the EU Tariff Code (Article 4), do not fall into the specific criteria for Transmission Services. This Modification proposes that these will be classified as Non-Transmission Services charges thereby contributing towards Non-Transmission Services Revenue.
 - 3.4.2. The St. Fergus Compression charge will be a Non-Transmission Services charge.
 - 3.4.3. The methodologies to calculate these charges (DN Pensions Deficit, NTS Meter Maintenance and St. Fergus Compression) are not proposed to be reviewed at this time. Whilst these could be considered as either Transmission Services or Non-Transmission Services, providing it is approved by the National Regulatory Authority (NRA), it is proposed this is a pragmatic way to charge for these items.
 - 3.4.4. Certain charges in respect of NTS Capacity (but not including Overrun Charges) or the surrender of NTS Capacity are classified as components of SO allowed revenue but as they are levied for in respect of a Transmission Service, need to be included within Transmission Services Charge revenue.

Reference Price Methodology (RPM)

- 3.5. The current RPM (including the adjustments applied in order to calculate capacity charges) produces charges that are volatile and unpredictable. This causes challenges for investment decisions and in predicting operational costs for connected parties year on year and as such, is a key area to be addressed.

- 3.6. Through an assessment of RPMs⁸, the main Alternative considered from the current method was the CWD model. By design this approach is generally more predictable, less volatile and more stable in nature and is more suited to a system that is about use and revenue recovery associated to use rather than linked to investment (marginal pricing).
- 3.7. The proposed use of CWD in the RPM resolves this issue by narrowing the range of prices and as such making them more predictable. This makes the RPM more relevant to how the NTS is used and expected to be used. It would better suit the current and future expectations for the NTS and maximising its use (driven through market behaviour) rather than using an RPM built on the foundation of continued expansion whilst continuing to provide some locational diversity in charges through the use of locational capacity and the average distances applied under the CWD approach.
- 3.8. As a result of changing the RPM, any adjustments, discounts and other charges must be reviewed in order to avoid unintended consequences and to ensure that a clear impact assessment (including any Ofgem Impact Assessment) can be carried out on the total impact of these adjustments, discounts and other charges to NTS customers and to the end consumer.
- 3.9. This Proposal considers EU compliance with the EU Tariff Code which has a deadline to implement the changes of 31 May 2019. Price changes would apply from 01 October 2020 or in line with a decision to implement. A 01 October date for the application of new charges is recommended to accommodate the commercial and contractual planning cycle of gas industry Participants.
- 3.10. This Proposal also seeks to establish a framework for review and update of key inputs to the newly established RPM which will further the objectives of the RPM. It also aims to simplify the charging methodology, limiting aspects of the methodology whereby some charges can materially impact other charges and also eliminating the influence between Transmission and Non-Transmission Services.
- 3.11. In respect of compliance with EU Tariff Code, Recital 3 states “...*in order to achieve and ensure a reasonable level of cost reflectivity and predictability ... transmission tariffs need to be based on a reference price methodology using specific cost drivers. ...Where the proposed reference price methodology is other than the capacity weighted distance reference price methodology, the latter should serve as a counterfactual for comparison with the proposed reference price methodology.*”
- 3.12. Noting that Gas Transportation costs are sensitive to both a) the distance over which gas is transported; and b) the capacity made available over that distance, a pricing model which calculates Reference Prices that takes account of these elements is *ipso facto* more cost reflective than models that do not take both into account. For example, in the case of a Postage Stamp RPM, the use of an aggregated cost driver results in the same unit costs for all GB points and is therefore not cost reflective given the sensitivities stated above. Effectively, in the Postage Stamp RPM any bespoke cost drivers for transportation to individual points (or groups

⁸ See <https://www.gasgovernance.co.uk/ntscmf/subg1model>

of points) is effectively ignored and is not sensitive to those elements which influence National Grid's costs.

- 3.13. In conclusion, this Proposal sustains that the use of a CWD RPM, and the way it is applied to GB, will deliver a regime that is more cost reflective than both the existing LRMC RPM and the alternative approach of a Postage Stamp RPM.

Forecasted Contracted Capacity (FCC)

- 3.14. The proposed changes to the charging regime may result in changes to commercial behaviours in the procurement of capacity rights. The Proposal for a Forecast of Contractual Capacity (FCC) will be a key input into the reference price calculation.
- 3.15. It is proposed that the FCC to be a forecast of capacity bookings at each Entry and Exit Point. The value will be determined in accordance with a methodology statement (the 'FCC Methodology') that will be referenced in the UNC but will not form part of Section Y of the UNC. The FCC Methodology is not proposed to be incorporated into the UNC in order to maintain a high degree of predictability in the process to determine the values using a developed methodology. Each year the methodology will be followed to produce tariffs for the applicable year. The use of a methodology contributes towards predictability for the tariffs to be calculated and a known set of values and logical steps to derive an FCC for the applicable year. Having the methodology in a statement outside of the UNC provides the flexibility around the process to update the FCC content and also ensures a timetable of change can be followed such that changes to the methodology can be completed and implemented in an efficient and timely manner in order to set tariffs. Incorporating the FCC Methodology into the UNC does not provide this assurance as the timetable for change may not be as certain. The use of an FCC should be flexible enough such that it can be updated to take account in a timely fashion of any relevant or useful information to incorporate into future FCC Methodology changes.
- 3.16. The FCC Methodology is proposed to take account of a range of inputs to inform a forecast for the gas year for which tariffs are to be generated. These inputs will look to take account of both historical and forecast data such as, and not limited to, a forecast of GB demand, historical sold capacity, and historical flows on the NTS applicable to each Entry and Exit Point. The resulting FCC will be applicable for the tariff (gas) year for which Reference Prices are being produced. The review of historical sold capacity will also review the historical capacity bookings (where capacity has been allocated at a price greater than zero at each Entry and Exit Point), and forecast flow levels to determine a value that will inform the proportion of capacity bookings for each specific Entry and Exit Point. The initial FCC methodology will be determined by National Grid and take effect in the event of implementation. Using sold capacity levels (only where a price greater than zero is the allocated price) takes account of the change in interruptible pricing. As there is a move away from a 100% discount to a 10% discount, the approach will reflect the booking levels where the payable price was greater than zero. The assumption on this particular item is that, as Users will have incurred a liability, this capacity is more sought after than that for which a 100% discounted (zero) price was payable.
- 3.17. In consultation with Users (including DNO Users), National Grid will propose to review the FCC Methodology when it believes this required. This review of the FCC Methodology will include consideration of any behavioural changes in capacity procurement observed under the revised

charging regime with the aim of aligning the FCC values derived to actual bookings. National Grid will propose any updates that it considers are consistent with overall NTS charging methodology. In this event, National Grid will notify industry of the revised FCC methodology alongside the relevant transportation charging statement and charging models.

- 3.18. The FCC for each Entry Point and Exit Point will be determined ahead of each tariff year and communicated to industry as part of the publication of charges. At the same time the FCC is reviewed and updated, there will be an additional adjustment to the reserve prices in order to account for the anticipated under collection driven by the application of any discounts (e.g. interruptible and specific capacity discounts).

Multipliers

- 3.19. Adjustments or separate charges can be applied in the calculation of the Entry and Exit Capacity Reserve Prices. These can serve a number of functions such as to acknowledge any potential risk associated with the type of Entry or Exit Capacity, to facilitate the recovery of revenues where relevant or beneficial to do so, and to encourage behaviours along with ensuring National Grid fulfils any relevant obligations.
- 3.20. Multipliers are applied to the Reference Price to produce the Reserve Price. Under the EU Tariff code (Article 13), the Multipliers for Interconnection Point (IP) quarterly standard capacity products and for IP monthly standard capacity products should be no less than 1 and no more than 1.5. For IP daily standard capacity products and IP within-day standard capacity products, the Multipliers should be no less than 1 and no more than 3. For the IP daily standard capacity products and IP within-day standard capacity products, the multipliers may be less than 1 but higher than 0 or higher than 3, where duly justified.
- 3.21. It is proposed a Multiplier of 1 for all capacity products as it is not wished to create an artificial incentive for procurement of one capacity product in preference to another product.
- 3.22. Given the Proposal for the Multiplier to be explicit in the UNC, any subsequent change to the Multiplier would be subject to the UNC change process. This aspect is neutral on cost reflectivity grounds as the other aspects of the RPM apportion the charges, this makes no distinction between long or short term capacity.
- 3.23. Beyond 30 September 2020, or in line with the implementation of this Modification, Multipliers for IPs need to be consulted on each year (as per Article 28 of the EU Tariff Code). Multipliers applicable to all Entry and Exit Points from the Effective Date are provided in the relevant part of section 5 (Reserve Prices produced from Reference Prices).

Discounts

- 3.24. The pricing of Interruptible (Entry) / Off-peak (Exit) capacity will change from the current pricing approach. It will be consistent with the EU Tariff Code Article 16 and applied to all points. The changes proposed permit an adjustment to the relevant firm entry or exit Reserve Price in the calculation of a non-zero Reserve Price and the calculation of that Reserve Price for interruptible products.
- 3.25. The adjustment applied takes account of the probability of interruption and will be forward looking based upon an expectation of interruption over the coming year. An adjustment factor

(‘A’ factor) may also be applied to reflect the estimated economic value of the product which will be factored into the assessment. Together, the probability of interruption and the ‘A’ factor make up the adjustment to be applied to the Reserve Price of the equivalent standard firm capacity product. The interruptible adjustment applicable to all Entry and Exit Points from the Effective Date are provided in the relevant part of section 5 (Interruptible (Entry) and Off-peak (Exit) Capacity).

3.26. Based on an assessment by National Grid of instances of interruption in the previous ten years, and their having applied the trends observed to a range of probability calculations, a discount above 10% is not supported. This remains the case even where an adjustment factor is applied and interruption levels at the most ‘problematic’ sites are taken in isolation. Overall, the probability of interruption for the great majority of sites is very low (but not zero). Given this, and to maintain a degree of consistency in respect of the value of the discount, a banding approach is adopted whereby the resultant discount value was rounded up to the nearest 10%. Consequently, the expectation is that a change to this discount will only be justified where there is a *material* change to the frequency of interruption on the System.

3.27. Within the EU Tariff Code there are requirements to apply further discounts for storage capacity, where that discount must be at least 50%. This minimum discount is specific to storage in order to avoid double charging and in recognition of the general contribution to system flexibility and security of supply of such infrastructure. This Modification proposes an enduring storage discount value but recognises that EU Tariff Code requirements for the charging regime to be reviewed, as a whole, at least every 5 years.

3.28. Any specific ‘site type’ discounts contemplated by the EU Tariff Code (Article 9) are applied to the Reserve Price to produce a final Reserve Price for the particular Firm Entry or Exit Capacity product at that particular point. The adjustment for Entry Points and Exit Points will be based on the values specified in the Transportation Statement. The specific capacity discount applicable to all Entry and Exit Storage Points from the Effective Date are provided in the relevant part of section 5 (Specific Capacity Discounts).

Revenue Recovery

3.29. The Proposals incorporate a mechanism to manage the consequence of under or over recovery of revenues from Transmission Services Capacity Charges. The approach advocated is a capacity based charge (which for the avoidance of doubt may be positive or negative) on an enduring basis and is levied to the Fully Adjusted Capacity (at any points) apart from that classified as ‘Existing Contracts’ in order to give full effect to the provisions detailed in Article 35 of the EU Tariff Code. The Fully Adjusted Capacity will be net of capacity trades and buy-backs.

3.30. From the Effective Date the charging framework would be expected to move towards dependency on a capacity forecast and a significantly reduced revenue recovery charge that would be capacity based achieving 100% capacity basis for recovery of Transmission Services revenue.

3.31. The calculation of the capacity prices will, at the time of calculation, take into account the revenue shortfall from any discounts referred to in paragraphs 3.24 to 3.28 of Section 3) in order to adjust the reserve prices such that the amount forecast to be under collected as a result of these discounts is reduced. This approach means that less revenue will be required to be

collected from the Transmission Services Revenue Recovery charges than if it were not carried out.

Managing inefficient bypass of the NTS

- 3.32. This Modification 0678D will introduce a new capacity based charge that discourages inefficient bypass of the NTS. The new NTS Optional Capacity charge is calculated by applying an equation which relates to the cost of providing pipeline capability to support a particular load size and distance travelled from a nominated NTS Entry Point to the particular NTS Exit Point to derive a unit cost in pence per kWh. The resultant cost from the equation is converted into a capacity cost by application of the site specific FCC and MNEPOR. The charge is then apportioned 50:50 between entry and exit and the Users opting to accept the charge commit to making payments equivalent to the cost of booking one year of capacity (at entry and exit) at the FCC level of the qualifying NTS Exit Point. The NTS Optional Capacity charge arrangements will, in the view of the Proposer, encourage greater use of the NTS by way of avoiding inefficient bypass (whether via onshore or offshore gas pipelines) and facilitate the delivery of gas to the GB market. It will also support the efficient flow of gas across all GB Interconnection Points.
- 3.33. In respect of the proposed 'Communication of Charge Cessation' arrangements in relation to the application of the existing Optional Commodity Charge, National Grid will be required to inform relevant Users of the termination of the current OCC charges. Normal central administration processes will apply in relation to Optional Capacity Charge offers and confirmation by Users that they wish to enter into an Optional Capacity Charge arrangement for a particular route for the specified annual period. Details are provided in Section 5.

Existing Contracts

- 3.34. Provisions to be applied for Entry Capacity (from 01 October 2020 or from the Effective Date, whichever is earlier) allocated up to 06 April 2017 are proposed. These are Existing Contracts, as outlined in Article 35 in EU Tariff Code where the *"contract or capacity booking concluded before the entry into force of the EU Tariff Code – 06 April 2017, such contracts or capacity bookings foresee no change in the levels of capacity and/or commodity based transmission tariffs except for indexation, if any"*.
- 3.35. The capacity procured and revenue expected to be recovered under Existing Contracts impacts the application of the CWD charging model (specifically when determining Reference Prices at Entry Points) and calculation of Transmission Services Revenue Recovery Charges.
- 3.36. EU Tariff Code Article 17 requires that *"...the level of transmission tariffs shall ensure that the transmission services revenue is recovered by the transmission system operator in a timely manner..."* and that *"...the under- or over-recovery of the transmission services revenue shall be minimised..."*.
- 3.37. Accordingly, to ensure that the Reference Prices determined by the proposed CWD RPM provide a level of revenue recovery as close to target as possible (thereby minimising amounts needing to be collected via revenue recovery mechanisms), the capacity already booked and revenue levels already 'set' in respect of Existing Contracts *are netted off* the aggregate capacity and aggregate revenue figures entered into the revenue allocation step (weighted cost) of the CWD RPM. Consistent with this aspiration, an additional scaling factor (as described in para 3.18) is applied to Reference Prices to account for the anticipated under collection driven by the application of any discounts (e.g. interruptible and specific capacity discounts). The impact of

this step is the same for all points within the RPM as the revenue additive is input as a feature of the RPM calculation in the CWD approach. This limits any potential distortions as proportionally all points pick up an uplift within the RPM proportionate the CWD reference price they receive.

- 3.38. The alternative approach of *inclusion* of capacity already booked and revenue levels already 'set' via Existing Contracts in the CWD RPM effectively 'double counts' any capacity and revenue for the relevant Entry Points and would have the consequence of setting Reference Prices at Entry Points *too low* to recover the target revenue. Inclusion of these elements in the CWD RPM would therefore be inconsistent, and arguably non-compliant, with Article 17.
- 3.39. Recognising that Article 6(3) of the EU Tariff Code requires that "...*the same reference price methodology shall be applied to all entry and Exit Points...*" it is nevertheless the case in GB that Existing Contracts only occur at Entry Points. Should Existing Contracts have additionally existed at Exit Points it would have been necessary for the equivalent netting off to take place in respect of Exit Point to ensure compliance. Given the GB position, application of this at Entry Points only is not in conflict with Article 6(3).

Effective Date for the charges driven by this Proposal

- 3.40. The Effective Date of this Proposal can be any date as determined by Ofgem. The Proposer recommends however that it is set on 01 October 2020. In any case, the Effective Date is required to provide at least two clear months' notice from the date of the Ofgem decision, thereafter, taking effect from the 1st day of the of the following month, or any specific date stipulated by Ofgem in its decision. For example, unless a different date was provided by Ofgem, if a decision is made during July, the charges would take effect from 1st October. If a decision is made in October then, unless otherwise specified by Ofgem, the Effective Date would be from 1st January.
- 3.41. To facilitate the changes as outlined in 3.40 it will be necessary to take into consideration actual and anticipated revenues to be collected up to this point to determine the target revenue to be applied for the remainder of the regulatory year.

Aspects of the GB Charging Regime where there are no Proposals for change:

The following is a list of items for which changes are not being proposed at this time but could be the next steps in the evolution of the GB charging regime.

- Auction Structure – All timings for auctions will be as per prevailing terms (including any changes implemented to comply with CAM).
- Entry/Exit Split – No change is proposed to the current 50:50 split.
- Gas Year/Formula Year – the Formula Year (April to March) and Gas Year (October to September) will be retained.
- DN Pensions Deficit Charge – No change to the calculation or the application of the charge.
- St. Fergus Compression Charge – No change is proposed to the calculation or the application of the charge.
- NTS Metering Charge - No change is proposed to the calculation or the application of the charge
- Shared Supply Meter Point Administration Charges - No change is proposed to the calculation or the application of the charge

- Allocation Charges at Interconnectors - No change is proposed to the calculation or the application of the charge
- Categorisation of Entry and Exit Points – Maintain the link to the Licence for categorisation.
- Seasonal Factors – Not used in current methodology and propose not to introduce.
- Fixed Pricing – As per Modification 0611, Amendments to the firm capacity payable price at IPs.
- Allowed Revenue – No change as per the Licence.
- Principles and application of Interruptible – As per prevailing terms. In respect of IPs, the terms implemented pursuant to Modification 0500, EU Capacity Regulations - Capacity Allocation Mechanisms with Congestion Management Procedures.

4 Code Specific Matters

Reference Documents

There are summary documents available on each of the topics (mentioned in the solution section of the Modification Proposal) which have been discussed at NTSCMF and sub-groups related to the gas charging review, which are available at: <http://www.gasgovernance.co.uk/ntscmf/subg1page> and <http://www.gasgovernance.co.uk/ntscmf/subg1model>.

Uniform Network Code (UNC) Section Y:

<https://www.gasgovernance.co.uk/TPD>

UNC European Interconnection Document (EID):

<http://www.gasgovernance.co.uk/EID>

EU Tariff Code:

http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv:OJ.L_.2017.072.01.0029.01.ENG&toc=OJ:L:2017:072:FULL

Implementation Document for the Network Code on Harmonised Transmission Tariff Structures for Gas (Second Edition)

https://www.entsog.eu/public/uploads/files/publications/Tariffs/2017/TAR1000_170928_2nd%20Implementation%20Document_Low-Res.pdf

Uniform Network Code (UNC) Section B:

<https://www.gasgovernance.co.uk/TPD>

NTS Transportation Statements:

<http://www.gasgovernance.co.uk/ntschargingstatements>

Customer and Stakeholder Objectives:

<http://www.gasgovernance.co.uk/ntscmf/060916>

Gas Transmission Charging Review (GTCR) and associated update letters:

<https://www.ofgem.gov.uk/gas/transmission-networks/gas-transmission-charging-review>

Knowledge/Skills

An understanding of UNC TPD Section Y Part A, NTS Transportation Statements, the UNC EID, UNC TPD Section B, the EU Tariff Code, GTCR documentation and the customer / stakeholder objectives developed within NTSCMF would be beneficial.

Definitions

Table 1 gives a definition of terms used in this Modification.

Table 1: Definitions used in the Modification

Term (Abbreviation)	Description
Capacity Weighted Distance (CWD) Model	<p>The CWD model produces the Transmission Services Reference Prices and, with additional adjustments, produces the Transmission Services Reserve Prices.</p> <p>The CWD approach fundamentally requires three main inputs:</p> <ul style="list-style-type: none"> • A revenue value, which will be the target revenue required to be recovered from Transmission Services Charges; • A distance matrix for the average connecting distances on the NTS; and • A capacity value for each Entry and Exit Point that will be the FCC (which is described later in this section).
Effective Date	<p>The date from which the Modification will take effect being either:</p> <ul style="list-style-type: none"> • 01 October 2020; or • the first day of the third month following the month in which Ofgem issues its letter directing implementation of this Proposal; or • any specific date stipulated by Ofgem in its decision letter.
Existing Contracts (ECs)	<p>Arrangements relating to Long Term Entry capacity allocated before 06 April 2017 (Entry into Force of EU Tariff Code).</p>
Forecasted Contracted Capacity (FCC)	<p>The capacity input to the RPM that will be used in the Transmission Services capacity charges calculation that will be determined via a CWD methodology. An FCC value is required for every Entry and Exit Point.</p>
Formula Year	<p>The period of twelve months commencing on 01 April at 05:00 hours.</p>
Long Run Marginal Costs (LRMC) Model	<p>The current underlying RPM used in the calculation of the Entry and Exit Capacity Prices. Whilst there are different approaches in Entry and Exit as to how secondary adjustments are applied, the underlying LRMC principles are there in both. The LRMC approach is an investment focused methodology where the intention is to</p>

	have strong locational signals to facilitate decision making. More information is available in TPD Section Y of the UNC.
Maximum NTS Exit Point Offtake Rate (MNEPOR)	The rate attributed at each site currently used for the calculation of the NTS Optional Commodity Rate.
Multipliers	The factor applied to the respective proportion (runtime) of the Reference Price to calculate the Reserve Price for non-yearly standard capacity product.
Network Distances (for the purposes of modelling in the RPM)	A matrix of distances used in the RPM that are the pipeline distances on the NTS.
Non-Transmission Services	The regulated services other than transmission services and other than services regulated by Regulation (EU) No 312/2014 that are provided by the transmission system operator.
Non-Transmission Services Revenue	The part of the allowed or target revenue which is recovered by non-transmission tariffs.
NTS Optional Capacity Charge (OCC)	Price for a capacity product for firm capacity applicable at qualifying entry and Exit Points in accordance with the OCC Methodology Statement. Note it is intended that Methodology Statement will be presented to Panel at the same time as completion of the Draft Workgroup Report.
Reference Price	Price for a capacity product for firm capacity with a duration of one year, which is applicable at entry and Exit Points and which is used to set capacity based transmission tariffs. This will be produced in p/kWh/a (pence per kWh per annum).
Reference Price Methodology (RPM)	<p>The methodology applied to the part of the transmission service revenue to be recovered from capacity based transmission tariffs with the aim of deriving Reference Prices. Applied to all entry and Exit Points in a system.</p> <p>The RPM therefore is the framework to spread certain costs / revenues (relevant to the methodology in place) to the Entry and Exit Points and thereby on to network Users.</p>
Reserve Price	<p>Reserve Price for Yearly standard capacity = the Reference Price</p> <p>Reserve Price for Non-yearly standard capacity is calculated by applying any Multipliers (if applicable).</p> <p>This will be produced in p/kWh/d (pence per kWh per day).</p>
Target Revenue	This is the revenue required to be recovered from a particular set of charges.

Transmission Services	The regulated services that are provided by the transmission system operator within the entry-exit system for the purpose of transmission.
Transmission Services Revenue	The part of the allowed or target revenue which is recovered by transmission tariffs.
Transportation Statement	The statement containing the Gas Transmission Transportation Charges applicable for a specific period.

5 Solution

This Modification seeks to amend TPD Section Y, Part A (The Gas Transmission Transportation Charging Methodology) of the UNC, by changing the methodology for the calculation of gas transmission transportation charges. Changes to TPD Sections B (System Use and Capacity), E (Daily Quantities, Imbalances and Reconciliation), G (Supply Points), the Transition Document and European Interconnection Document (EID) Section B (Capacity) are also required.

Mapping of the revenue to Transmission Services revenue and Non-Transmission Services revenue (see paras 3.3 and 3.4 in section 3)

Transmission Services Charges

It is proposed that Transmission Services charges will be collected via:

- Transmission Services Capacity charges made up of:
 - Transmission Entry Capacity charges (including NTS Transmission Services Entry Capacity Retention Charge);
 - Transmission Exit Capacity charges;
 - NTS Optional Capacity charges;
- Transmission Services Entry Revenue Recovery charges;
- Transmission Services Exit Revenue Recovery charges; and
- NTS Transmission Services Entry Charge Rebate.

Non-Transmission Services Charges

It is proposed that Non-Transmission Services charges will be collected via:

- General Non-Transmission Services Entry and Exit Charges;
- St Fergus Compression Charges;
- NTS Metering Charges;
- DN Pensions Deficit charges;
- Shared Supply Meter Point Administration charges; and
- Allocation Charges at Interconnectors.

It is proposed that for the purposes of determining revenue to be collected via Transmission Services charges and Non-Transmission Services charges:

- revenue expected to be recovered via Transmission Services Charges will be equal to the Transmission Owner (TO) allowed revenue; and
- revenue expected to be recovered via Non-Transmission Services Charges will be equal to the System Operator (SO) allowed revenue.

It is proposed that the following exceptions apply in respect of the above principles:

- NTS Metering Charges (as a component of TO allowed revenue) will be reflected as a component of Non-Transmission Services Charge revenue;
- DN Pensions Deficit Charges (as a component of TO allowed revenue) will be reflected as a component of Non-Transmission Services Charge revenue; and
- Those charges in respect of NTS Capacity (but not including Overrun Charges) or the surrender of NTS Capacity classified as a component of SO allowed revenue will be reflected as a component of Transmission Services Charge revenue.

Transmission Services Charges

Reference Price Methodology (see paras 3.5 to 3.13 in section 3)

It is proposed that a CWD approach is used in the RPM.

One RPM will be used for the calculation of Reference Prices for all Entry Points and Exit Points on the system. The RPM produces Entry and Exit Capacity Reference Prices for the applicable gas year which in turn through the relevant adjustments and calculation steps will determine the Entry and Exit Capacity Reserve Prices.

Final Reference Prices

It is proposed that the calculation of the final Reference Price for a given Entry Point or Exit Point cannot be zero. If application of the CWD methodology derives a zero price, or negative price, as a result of the FCC value or the Existing Contracts (EC) influencing the CWD calculation (see below), then the Reference Price to be used for such points will be based upon the price for the closest (in terms of Weighted Average Distance as opposed to geographically) non-zero priced Entry Point (for an Entry Point) or the closest (in terms of Weighted Average Distance as opposed to geographically) non-zero priced Exit Point (for an Exit Point).

The price for the relevant Entry Point or Exit Point will be equal to the Reference Price for the closest (in terms of Weighted Average Distance as opposed to geographically) relevant Entry Point or (respectively) Exit Point adjusted in line with pro-rata relationship between the two Weighted Average Distances.

Calculations within the CWD Model

Proposed CWD Model for calculating Entry and Exit Capacity Base Reference Prices:

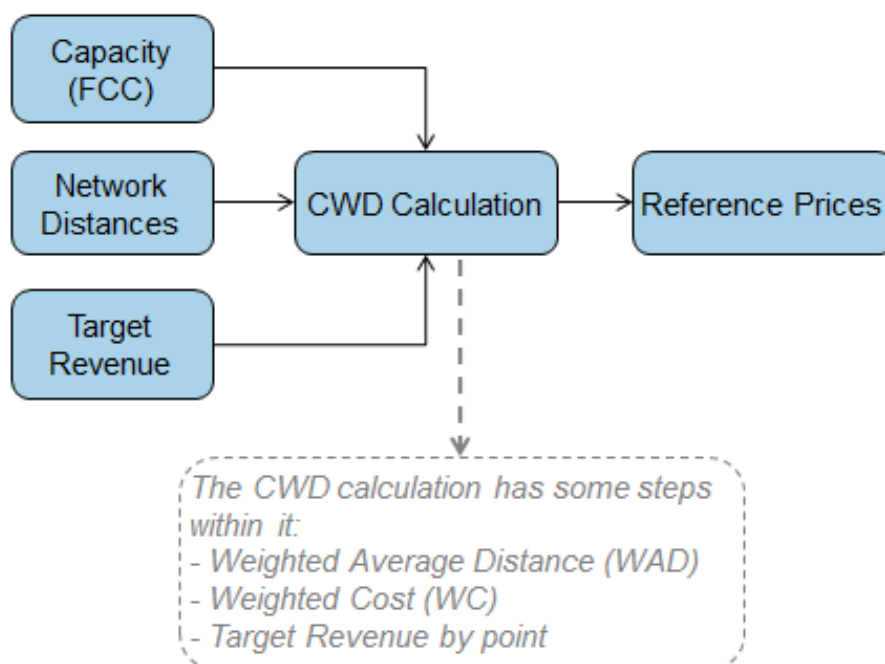
The proposed CWD approach fundamentally requires three main inputs (see Figure 1):

- Target Entry or Exit Transmission Services Revenue - Revenue which is Allowed Revenue net of known Existing Contracts (EC) revenue. Where Allowed Revenue is required to be determined in respect of a period of less than 12 months and that period is not 1 April to 31 March (National Grid's Formula Year), it is proposed that profiling factors will be applied separately to Entry and Exit annual

Allowed Revenue to determine appropriate values (respectively for Entry and Exit) for the relevant period. The target Entry and Exit revenue profiling factors will operate in such a way that within any Formula Year the tariffs will be set to minimise any under or over recovery in respect of Transmission Services;

- Network Distances – derived from a distance matrix for the average connecting distances on the NTS;
- Capacity (FCC) - FCC (by point) net of Existing Contracts (EC) capacity booked to recover the target Entry or Exit Transmission Services revenue. It should be noted that whilst TAR NC permits Existing Contracts at both Entry and Exit, there are no eligible Exit Existing Contracts in GB.

Figure 1: Proposed CWD Model for calculation of Entry and Exit Capacity Base Reference Prices



Key steps in the CWD calculations, see Table 2.

Table 2: Key steps in the CWD calculations

	Entry Capacity Calculation	Exit Capacity Calculation
Weighted Average Distance (WAD)	$\frac{(\text{Sumproduct Exit Point FCC} \times \text{Distance to Entry Point})}{\text{Sum Exit Point FCC}}$	$\frac{(\text{Sumproduct Entry Point FCC}^{\#} \times \text{Distance to Exit Point})}{\text{Sum Entry Point FCC}^{\#}}$
Weighted Cost (WC)	$\frac{\text{Entry Point FCC}^* \times \text{WAD}}{(\text{Sumproduct Entry Point FCC}^* \times \text{WAD})}$	$\frac{\text{Exit Point FCC} \times \text{WAD}}{(\text{Sumproduct Exit Point FCC} \times \text{WAD})}$
Target Revenue by point (TRP)	Entry Target Revenue x WC	Exit Target Revenue x WC

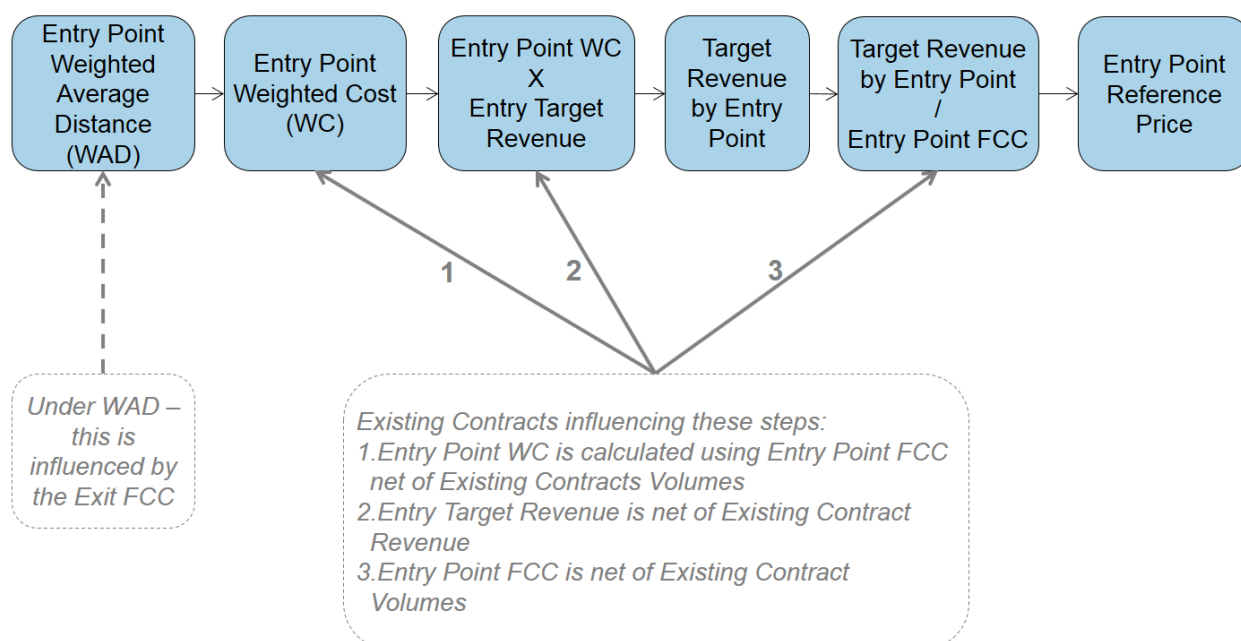
Reference Price (RefP)	Entry TRP / Entry Point FCC*	Exit TRP / Exit Point FCC
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#Entry Point FCC – this is Gross Entry Point FCC (not reduced by capacity associated with Existing Contracts)

*Entry Point FCC – this is the Entry Point FCC net of capacity associated with Existing Contracts.

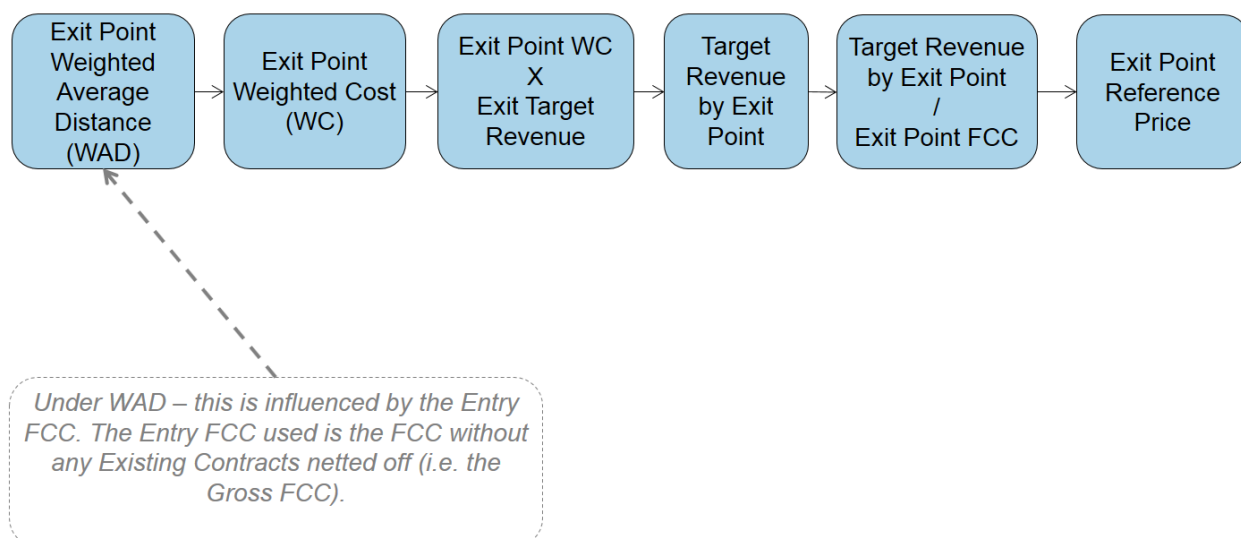
Entry Point Reference Prices are calculated in the following steps in the CWD model, see figure 2:

Figure 2: Entry Point Reference Prices calculation model



Exit Point Reference Prices are calculated in the following steps in the CWD model, see Figure 3:

Figure 3: Exit Point Reference Prices calculation model



There are no eligible Exit Existing Contracts and therefore the impact of including them is zero. The same approach or methodology is applied to Entry and Exit. Were there to be any Exit Existing Contracts they would be incorporated in the same manner as Entry. As there are none, the approach outlined is the same effect as if they are zero in any algebra.

Forecasted Contracted Capacity (FCC) (see paras 3.14 and 3.18 in section 3)

It is proposed that the FCC for an Entry Point or an Exit Point will be equal to a forecasted value determined by National Grid, in line with a new methodology statement (the 'FCC Methodology'). It is proposed that the FCC Methodology in Appendix 1 of this Proposal applies from the Effective Date for application within the relevant Gas Year(s). For the avoidance of doubt, it is not proposed that the FCC Methodology will form part of the UNC.

It is proposed that ahead of each Gas Year National Grid will determine the FCC value for each Entry Point and Exit Point and will be communicated to industry as part of the publication of charges.

It is proposed that where National Grid believes it necessary to review or update the methodology, it will run a consultation with stakeholders to review the FCC Methodology. Following the consultation, if the FCC Methodology is revised National Grid will notify industry of any revisions as part of the publication of charges. Any such consultation would be concluded in advance of setting the tariffs for the forthcoming tariff (gas) year.

It is proposed that any such revision will take effect from the date specified unless Ofgem (upon application by any Shipper or Distribution Network Operator within one month of the notice) directs that the change is not made as per its powers under Standard Special Condition A11(18) of National Grid's Licence.

Reserve Prices produced from Reference Prices (see paras 3.19 to 3.23 in Section 3)

It is proposed that Reserve Prices for capacity will be produced in p/kWh/d. The Reserve Prices will be calculated each year based on the latest available set of inputs and once published, these will be the Reserve Prices applicable for the relevant gas year regardless of when the capacity product is procured.

For example, the price payable for capacity procured in 2020 for a period in October 2025 will be the Reserve Price determined for gas year 2025/26 plus, where applicable, any premium payable. This premium will be equal to either:

- The difference between the allocated price and Reserve Price in the relevant auction when the capacity was initially contracted for ('*auction premium*'); or
- The amount specified in respect of entry capacity allocated via a PARCA Application as described in TPD B1.14 and the Entry Capacity Release Methodology Statement ('*PARCA premium*').

It is proposed that the Reserve Price for Firm capacity at an Entry Point or an Exit Point is determined by application of any applicable Multipliers to the relevant Reference Price.

It is proposed that the Multipliers applied to the Reference Prices for all Entry Point and Exit Points to determine the Reserve Price will be 1 (one).

Interruptible (Entry) and Off-peak (Exit) Capacity (see paras 3.24 to 3.26 in Section 3)

It is proposed that the Reserve Price for Interruptible Capacity at an Entry Point and Off-peak Capacity at an Exit Point is derived by application of an ex-ante discount to the Reserve Prices for the corresponding

Firm capacity products (the day ahead firm price at the relevant Entry Point and the daily firm price at the relevant Exit Point).

It is proposed that the discount applied in respect of Interruptible and Off-peak Capacity:

- At Entry Points is 10%; and
- At Exit Points is 10%.

Specific Capacity Discounts (see paras 3.27 to 3.28 in section 3)

It is proposed that Specific Capacity Discounts will be applied to the Reserve Prices in respect of Firm and Interruptible/Off-peak Capacity at the Points detailed below.

It is proposed that in respect of **storage sites**, (locations where the type of Entry Point/Offtake is designated as a 'Storage Site' in National Grid's Licence (Special Condition 5F Table 4B for Entry Points, and Special Condition 5G Table 8 for Exit Points) the applicable Specific Capacity Discount for a given gas year will be equal to 50%.

It is proposed that in respect of **Liquefied Natural Gas (LNG) sites**, (locations where the type of Entry Point is designated as a 'LNG Importation Terminal' in National Grid's Licence (Special Condition 5F Table 4B)) the applicable Specific Capacity Discount for a given gas year will be equal to 0%.

It is proposed that no other Specific Capacity Discounts are applied.

Additional Calculation Step under CWD for Reference / Reserve Prices (see para 3.18 and 3.37 in section 3)

It is proposed that the following step is applicable for Capacity Reference Prices on an enduring basis. Once the Reserve Prices have been calculated taking into account all the required Multipliers, Specific Capacity Discounts, Interruptible / Off-peak adjustment and OCC adjustment there will be an under recovery driven by the levels of discounts or adjustments (e.g. Interruptible / Off-peak adjustment, Specific Capacity Discounts and OCC adjustment). This anticipated under recovery will result in the need for an adjustment to be applied to the CWD calculation in order to recalculate Reference Prices, and therefore Reserve Prices, such that the under recovery is estimated to be zero or close to zero. This will be applied to the Entry and Exit Capacity calculations to recalculate the Entry and Exit Capacity Reference Prices and Reserve Prices for all Entry and Exit Points and in doing so will minimise the size of the Transmission Services Entry and Exit Revenue Recovery charges.

This step within the calculation is incorporated within the RPM. This is required in order to manage the tariffs such that they are being set to recover the target revenue.

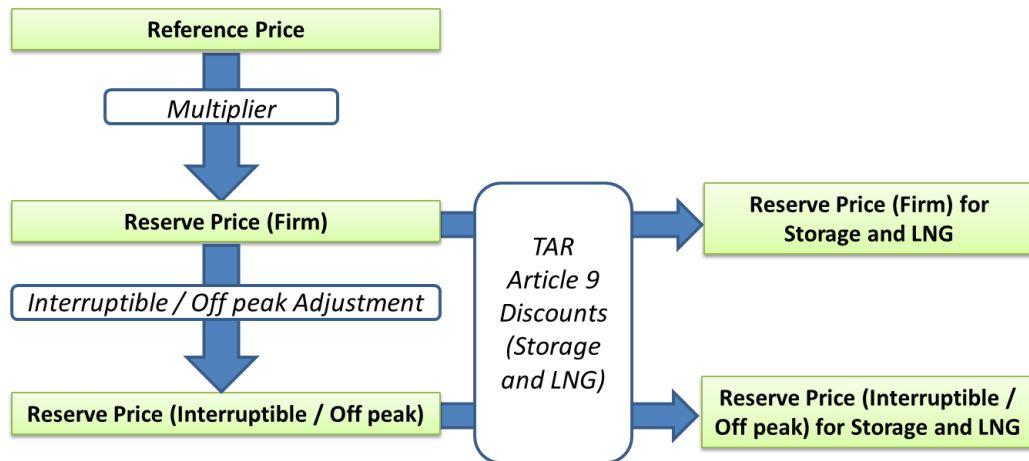
Minimum Reserve Price

It is proposed that Reserve Prices for Firm and Interruptible / Off-peak capacity (determined following the application of any relevant Multipliers, Specific Capacity Discounts, or Interruptible / Off-peak adjustments) will be subject to a minimum value (collar) of 0.0001p/kWh/d.

Summary of Reserve Price Derivation

The following diagram (see Figure 4) summarises the proposed approach to the derivation of Reserve Prices (from the applicable Reference Price) for both Firm and Interruptible / Off-peak Capacity products (including Capacity at Storage and LNG sites).

Figure 4: Reserve Price derivation



Capacity Step Prices

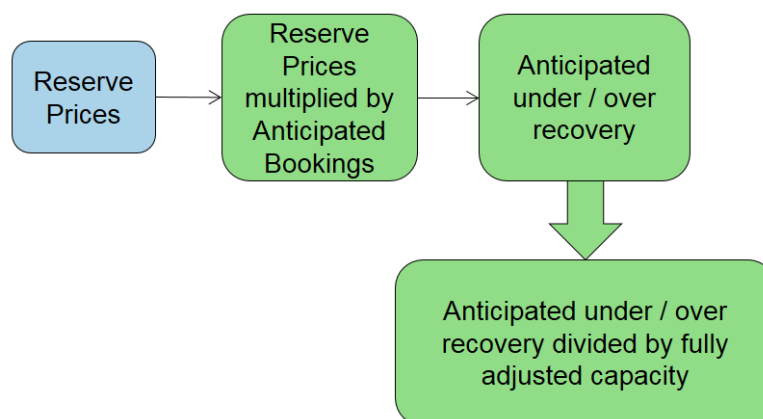
For the purposes of capacity step prices used in the QSEC Auction, it is proposed that these will be an additional 5% of the applicable Reserve Price or 0.0001 p/kWh/Day, whichever is the greatest, per step.

Transmission Services Revenue Recovery Charges (see para 3.29 to 3.31 in section 3)

It is proposed that where a proportion of revenue could be under/over recovered (i.e. compared to the target Transmission Services revenues) as a consequence of the application of Reserve Prices applicable for the following gas year, a revenue recovery mechanism is applied.

The Transmission Services Revenue Recovery charges (Transmission Services Entry Revenue Recovery charge and Transmission Services Exit Revenue Recovery charge) will be calculated after the Reserve Prices have been determined and will be calculated as follows (see Figure 5) for Entry and Exit in the same way.

Figure 5: Transmission Services Revenue Recovery Mechanism



It is proposed that the 'Anticipated Bookings' value will be based on National Grid's forecast of capacity bookings and will therefore be used to forecast the anticipated under or over recovery. The fully adjusted capacity value used to determine the Transmission Services Entry Revenue Recovery charge will exclude

Existing Contracts since the charge will not apply to Existing Contracts. It is proposed that the Transmission Services Revenue Recovery charge rate may be adjusted at any point within the gas year.

For the avoidance of doubt, such a charge rate adjustment would be subject to the existing notice requirements for variation of Transportation Charge rates.

It is proposed that the Transmission Services revenue recovery mechanism is capacity based and applied as additional capacity charges to all fully adjusted capacity except Existing Contracts. The Transmission Services Entry and Exit Revenue Recovery charges for this period will be produced in p/kWh/d. For the avoidance of doubt, any Entry Capacity (except Existing Contracts) or Exit Capacity booked for the applicable year would be subject to Revenue Recovery charges.

It is proposed that in respect of adjustments (including as a consequence of trades) to available Entry Capacity, where the adjustment is executed:

- Up to and including 05 April 2017, the Capacity will be treated as Entry Capacity procured via Existing Contracts; or
- Subsequent to 05 April 2017, the Capacity will not be treated as Entry Capacity procured via Existing Contracts.

NTS Optional Capacity Charge (see paragraphs 3.32 and 3.33 in Section 3)

Introduction

The new method will provide for alternate entry and exit capacity charges at applicable entry and exit system points, replacing the NTS Optional Commodity Rate. These charges will be derived from applying updated cost data from National Grid to an amended NTS Optional Commodity Charge equation (similar to the Option Two proposed in NGG discussion document GCD11⁹) to obtain a relationship between the cost of providing pipeline capability to support a particular load size and distance travelled from a nominated NTS Entry Point to the particular NTS Exit Point (OCC rate given in p/kWh), known as the OCC Route.

The results of the cost function are then converted into a capacity charge by reference to the FCC and MNEPOR for the relevant NTS Exit Point. Consistent with the approach advocated for recovery of Transmission Services revenue, the resultant cost in p/kWh/day is then split 50:50 to apply at the relevant NTS Entry Point and NTS Exit Point.

Users of a specific OCC route (the combination of a qualifying NTS Exit Point and nominated NTS Entry Point will, in aggregate, incur an Annual OCC Fee equivalent to the cost of building and maintaining a

⁹ <https://www.nationalgridgas.com/sites/gas/files/documents/42342-NTS%20GCD11%20-%20Optional%20Commodity%20Charge%20Change%20V1.3.pdf>

bypass pipeline, independent of the quantity of gas flowed from the NTS Entry Point to the NTS Exit Point (to be charged monthly or annually).

Methodology

Stage One – create the updated cost function (OCC rate)

The OCC rate (p/kWh) is created using the following steps:

- a) Use a pipeline portfolio that, through using flow rates and distances, allocates a specific pipe size from the portfolio to a certain distance and flow rate combination;
- b) Produce a cost for each distance/flow rate combination by using a fixed element, relating only to the pipe diameter (this can be thought of as the "connection cost" to the NTS and includes the costs such as Calorimetry, Pig Traps, Pressure Reduction) and a distance related (cost per km) element which applies to a range of pipe diameters (using updated price control based costs from National Grid for the larger diameter pipes);
- c) Produce an annual capital cost based on the applicable annuity factor (AF) (provided by National Grid and published within the Transportation Statement);
- d) Produce commoditised unit costs (in terms of p/kWh) by dividing by the assumed annual quantity (AQ) (which is derived from the specific site MNEPOR);
- e) Measure the average p/kWh using a comparison between the costs at 0km and 50km.

The OCC rate formula is calculated based on flow rates and pipeline distances. The form of the equation is as follows:

$$p/kWh = A \times M^{E1} \times D + B \times M^{E2}$$

where the applicable parameters for the equation, A, E1, B and E2, will be published on an annual basis within the Transportation Statement and the variable inputs (M and D) into the equation are as follows:

D is the direct distance of the site or non-National Grid NTS Pipeline to the elected Entry Terminal as the crow flies.

M is the Maximum NTS Exit Point Offtake Rate (MNEPOR) at the site, converted into kWh/day.

^ means 'to the power of.'

The applicable parameters for the 2019/20 Gas Year are as follows:

$$A = 862.64$$

$$B = 735.10$$

$$E1 = -0.79$$

$$E2 = -0.7$$

So the resultant OCC rate formula is:

$$OCC (p/kWh) = 862.64 * [(M)^{-0.79}] * D + 735.10 * (M)^{-0.7}$$

Stage Two – convert cost function into a capacity charge

The OCC formula produces a p/kWh based on an assumed peak flow per day. As the MNEPOR value is a maximum flow rate per day value it can be used to convert the OCC formula to a daily pipeline cost. This can then be divided by the FCC to create a capacity rate as per the following:

Daily pipeline cost (p/day) by application of the following:

$$\text{Daily Pipeline cost} = \text{OCC rate} * \text{MNEPOR}$$

NTS Optional Capacity rate (p/kWh/day) by application of the following:

$$\text{NTS Optional Capacity rate} = \text{Daily Pipeline cost} / \text{FCC}$$

where FCC is the Forecasted Contracted Capacity for the relevant NTS Exit Point (as determined by National Grid and published within the NTS Gas Transportation Charges Statement and the relevant charging model).

Stage Three – apportion the charge between entry and exit

Consistent with the approach advocated for recovery of Transmission Services revenue, the resultant cost in p/kWh/day is then split 50:50 to apply at the relevant NTS Entry Point and NTS Exit Point.

$$\text{NTS Exit OCC rate} = \text{NTS Optional Capacity rate} / 2$$

$$\text{NTS Entry OCC rate} = \text{NTS Optional Capacity rate} / 2$$

As Users will be booking NTS Entry and NTS Exit capacity through the usual methods, in order to arrive at the above level of charges, a rebate (or charge¹⁰) will need to be calculated and provide for difference between the actual NTS Entry and NTS Exit capacity charges and the revised charges as above. This will be calculated, and charges adjusted on a monthly basis.

It is proposed that the cost inputs going forwards will be updated for the relevant charging period via indexation using publicly published CPI figures¹¹ i.e. for the Gas Year beginning October 2020 the cost inputs will be updated using CPI from the 12 month period ending 31 January 2020. For each subsequent 12 month period the cost inputs will be updated using CPI from the previous 12 month period ending 31 January.

Example 1 Derivation of the NTS OCC charge

The following example shows how the charge would be calculated and applied:

Entry Point X

Exit Point Y

MNEPOR = 40,000,000 kWh/d

FCC (for the relevant NTS Exit Point) = 35,000,000 kWh/d

D = 10 km

¹⁰ A charge may apply for example where the User's WAPen is lower than the NTS Entry OCC rate by virtue of the value of Existing Contracts.

¹¹ For details, see <https://www.ons.gov.uk/economy/inflationandpriceindices/timeseries/l55o/mm23>

Stage one:

$$\text{OCC rate} = 862.64 * [(M)^{-0.79}] * D + 735.10 * (M)^{-0.7} = 0.0120 \text{ p/kWh}$$

Stage two:

$$\text{Daily pipeline cost (£)} = 0.0120 * 40000000 / 100 = £4808.84$$

$$\text{Capacity OCC rate (p/kWh/d)} = £4808.84 / 35000000 * 100 = 0.0137 \text{ p/kWh/d}$$

Stage three:

$$\text{NTS Exit OCC rate} = 0.0069 \text{ p/kWh/d}$$

$$\text{NTS Entry OCC rate} = 0.0069 \text{ p/kWh/d}$$

Application of OCC

The NTS Optional Capacity Reserve Charges will apply to an Applicable Quantity (Q) calculated on each gas day:

$$Q = \text{MIN} \{ \text{CAPen}, \text{CAPex}, \text{FLOWen}, \text{FLOWex} \} \text{ where}$$

CAPen = User's net firm entry capacity entitlement on the day at the applicable ASEP,

CAPex = User's net firm exit capacity entitlement on the day at the applicable Exit Point,

FLOWen = User's gas flow entry allocation on the day at the applicable ASEP, and

FLOWex = User's gas flow exit allocation on the day at the applicable Exit Point.

For an applicable entry and Exit Point combination, the NTS Optional Capacity Reserve Charges to be levied on the Applicable Quantity are calculated as follows:

$$\text{NTS Optional Entry Capacity Charge} = Q \times \text{NTS Entry OCC Rate}$$

$$\text{NTS Optional Exit Capacity Charge} = \text{OCCex} \times \text{NTS Exit OCC Rate}$$

where OCCex is the OCC exit capacity volume calculated as follows

$$\text{OCCex} = (\text{CAPex} - \text{FLOWex}) + Q$$

Example 2 Application of the OOC

From Example 1 where User books CAPex 35,000,000 kWh/d at the Exit Point, CAPen 20,000,000 kWh/d at the Entry Point and flows FLOWex 30,000,000 kWh/d:

$$\text{NTS OOC Entry Charge} = 20,000,000 \times 0.0069 = £1,380$$

$$\text{NTS OCC Exit Charge} = ((35,000,000 - 30,000,000) + 20,000,000) \times 0.0069 = £1,725$$

Non-Transmission Services charges and Transmission Services Revenue Recovery charges will not be levied on the Applicable Quantity (Q) or OCC Exit Capacity volume (OCCex). Justification for the exclusion of Non-Transmission charge can be found in the note prepared by WWA as part of the Modification 0621

development process¹². In relation to Transmission Services Revenue Recovery the application of this charge would not be cost reflective of the costs associated with building and maintaining a bypass pipeline.

Normal Transmission Services charges or Non-Transmission Services charges will apply, as appropriate, to those capacities or gas flows not covered by the Applicable Quantity (Q) or the OCC Exit Capacity volume (OCCex):

WAPen = the Shipper's weighted average price of relevant firm entry capacity entitlements held on the day;

WAPex = the Shipper's weighted average price of relevant firm exit capacity entitlements held on the day;

Where CAPen > Q, WAPen will apply to (CAPen – Q) units of the User's entry capacity entitlement.

Where CAPex > Q, WAPex will apply to (CAPex – OCCex) units of the User's exit capacity entitlement.

Where FLOWen > Q, Non-Transmission Services entry charges will apply to (FLOWen – Q) units of the User's entry allocation.

Where FLOWex > Q, Non-Transmission Services exit charges will apply to (FLOWex – Q) units of the User's exit allocation.

Example 3 Charges at the non-OCC Rate

Using the scenario from Example 2:

Entry Charges Non-Transmission (non-OCC) = 30,000,000 – 20,000,000 = 10,000,000 kWh/d x Non-transmission commodity rate

Exit Capacity Charges (non-OCC) = (35,000,000- 25,000,000) x WAPex

Exit Charges Non-Transmission (non-OCC) = 30,000,000 – 20,000,000 = 10,000,000 kWh/d x Non-transmission commodity rate

Note: The reason why Exit is treated differently to Entry is to reflect the capacity nature of the service and the contribution made to the cost of building and maintaining a pipeline as provided for via the Annual NTS OCC Fee. Where, for example, a User books Exit Capacity on an annual basis at the FCC rate, and flows are below the booked level, the capacity which is not used is charged at the OCC rate. This is consistent with the concept of operating a bypass pipeline and aligns the charges generated from the methodology with the volume of capacity booked. For the avoidance of doubt, where gas is supplied from an alternative Entry Point (not the nominated OCC Entry Point) it is charged at the non-OCC Exit Capacity rate.

The same approach cannot be applied at entry on the basis that Entry Capacity can be used to supply multiple offtakes.

Annual NTS OCC Fee

Users operating under the NTS Optional Capacity charge will commit to paying charges, which in aggregate are equal to the total annual costs of capacity at FCC levels, for the relevant NTS Exit Point, at both entry and exit. Where the level of NTS Exit Capacity bookings and/or the level of NTS Entry Capacity bookings are below FCC levels, then an additional fee will be levied on the User, so that:

¹² <https://gasgov-mst-files.s3.eu-west-1.amazonaws.com/s3fs-public/ggf/book/2018-02/SO%20derivationv3%20NW.pdf>

$$\text{Annual NTS Optional Capacity Fee} = (\text{FCC} \times \text{NTS Exit OCC Rate} + \text{FCC} \times \text{NTS Entry OCC Rate}) \times 365 - (\Sigma \text{OCC Entry Charges} + \Sigma \text{OCC Exit Charges})$$

Where $\Sigma \text{OCC Entry Charges}$ = sum of all Users OCC Entry Charges for the OCC Route

And $\Sigma \text{OCC Exit Charges}$ = sum of all Users OCC Exit Charges for the OCC Route

The Annual NTS Optional Capacity Fee is apportioned over each month of the 12 month period and charged, where applicable, at the end of each month across the specific OCC Route Users (or annually).

Where there is more than one User on a specific OCC Route the Annual NTS Optional Capacity Fee will be apportioned as follows:

$$\text{User Annual NTS Optional Capacity Fee} = \Sigma \text{User Q} / \Sigma \text{Q (could be annual or monthly) over that route}$$

Example A: Annual NTS OCC Fee: A Single User

From Example 1, where the annual Applicable Quantity (Q) is on average 25,000,000 kWh/d.

$$\text{Annual OCC paid by User} = (0.0069 \times 25,000,000 + 0.0069 \times 25,000,000) \times 365 / 100 = \text{£1,259,250}$$

$$\text{Annual NTS Optional Capacity Fee} = \text{£1,762,950} - \text{£1,259,250} = \text{£503,700}$$

The Annual NTS Optional Capacity Fee will be apportioned over each month of the 12-month period and charged, where applicable, at the end of each month (or end of each year).

Example B: Annual NTS OCC Fee: Two Users

From Example 1, where User A's Annual Applicable Quantity (Q) is on average 15,000,000 kWh/d and User B Annual Applicable Quantity (Q) is on average 10,000,000 kWh/d

$$\text{Annual Optional Capacity Fee (to be paid by User A and User B)} = \text{£1,762,950} - \text{£1,259,250} = \text{£503,700}$$

$$\text{User A Optional Capacity Fee} = 15/25 \times 503,700 = \text{£302,220}$$

$$\text{User B Optional Capacity Fee} = 10/25 \times 503,700 = \text{£201,480}$$

As above, each Users' Annual NTS Optional Capacity Fee will be apportioned over each month of the 12-month period and charged, where applicable, at the end of each month (or end of each year).

Where the $(\Sigma \text{OCC Entry Charges} + \Sigma \text{OCC Exit Charges}) > (\text{FCC} \times \text{NTS Exit OCC Rate} + \text{FCC} \times \text{NTS Entry OCC Rate}) \times 365$, Users will not be charged an Annual NTS OCC Fee.

NTS Optional Capacity charges will not apply where either the Entry or Exit Point is a gas storage facility or where the Exit Point is a NTS/DNO offtake. For the avoidance of doubt, the Exit Point must be an NTS Exit Point. An Exit Point can be associated with only one Entry Point/ASEP for the purpose of attracting NTS Optional Capacity Charges.

National Grid NTS will notify relevant Shipper Users of the NTS Optional Capacity rate and the date from which they are to apply for the OCC route, as they would for the normal set of transportation charges. The NTS Optional Capacity charge will be set for a period of 12 months "the OCC Period", with the commencement of the period being on 01 October each and every year. In addition, National Grid NTS will notify the Shipper Users of the Annual Optional Capacity Fee which will apply for the OCC route. For the avoidance of doubt, where there is more than one User applying for an NTS Optional Capacity Rate for a particular OCC route, the Annual Optional Capacity Fee notified to each individual User will be the aggregate Fee calculated on the basis of the applicable FCC at the qualifying NTS Exit Point. On

acceptance of the Annual Optional Capacity Fee, Users enter into a commitment to pay the Fee over the duration of the OCC Period.

A new OCC Period can commence following the expiry of an OCC Period, subject to Users making a commitment to pay the Annual Optional Capacity Fee over the duration of the OCC Period.

NTS Optional Capacity charge rates will be quoted or notified to an accuracy of 4 (four) decimal places and will be accompanied by the value of each variable in the relevant formula described above. The Annual Optional Capacity Fee will be notified in pounds and pence.

Transition Arrangements for NTS Optional Capacity charge

A transition run-in period will be the 150-day period date before the date on which charges from the new Proposals take effect or such period, if less, depending on the Effective Date as determined by Ofgem. A commencement date of 01 October 2020 is recommended, from which new charges should apply.

At the commencement of the transition run-in period, National Grid will:

- (a) Provide a written statement to each Shipper, that has Optional Commodity Charge arrangements in place, that details the NTS Optional Capacity charges to apply to the optional charge arrangements. The Shipper will be offered a one-off opportunity to terminate the optional charge arrangements for specified optional charge arrangements, in which case National Grid will cancel the arrangements accordingly on behalf of the Shipper. Shippers will have 1 month to respond to the offer to terminate; and
- (b) Notify Shippers holding optional charge supply point offers of the NTS Optional Capacity charges that will apply from the commencement date and that the terms of the offers will be deemed to be amended accordingly from that date.

Except where a User elects to terminate an optional charge arrangement in accordance with sub-paragraph (a) above, Users will be required to use the usual supply point administration processes to amend or cancel optional charge arrangements.

NTS Transmission Services Entry Charge Rebate

It is proposed that this will be applied as a Transmission Services entry capacity credit. The charge mechanism reduces any Transmission Services entry over recovery. The process may be triggered at the end of the Formula Year.

NTS Transmission Services Entry Capacity Retention Charge

NTS Entry Capacity Substitution is where National Grid moves unsold non-incremental Obligated Entry Capacity from one (donor) ASEP to meet the demand for incremental Obligated Entry Capacity at a different (recipient) ASEP. It is proposed that where a User elects to exclude capacity at potential donor ASEPs from being treated as substitutable capacity without having to buy and be allocated the capacity it is required to take out a “retainer”.

It is proposed that:

- The retainer is valid for one year, covering all QSEC auctions (including ad-hoc auctions) held in this period. National Grid will exclude the relevant quantity from the substitution process, but the retainer will not create any rights to the User to be allocated or to use the capacity. The retainer will not prevent Users (including the User taking out the retainer) from buying that capacity at the ASEP in question in the period covered by the retainer.

- The retainer is subject to a one-off charge which is payable via an ad hoc invoice raised within 2 months of the QSEC auction allocations being confirmed. If a User wishes to protect capacity for more than one year then a further retainer must be obtained each year and a charge will be payable each year for which a retainer is taken out.
- Where any capacity covered by a retainer is allocated, a refund of the retention fee may be made; for example, for a retainer taken out for Gas Year 2013/14 in January 2010, a refund can be triggered by an allocation at the relevant ASEP made during a QSEC auction in 2010, 2011 and 2012, and an AMSEC auction in 2013 and 2014.
- NTS Entry Capacity Retention Charges, regarding non-incremental Obligated Entry Capacity, are calculated based on the minimal capacity charge rate of 0.0001 pence per kWh per day applying over a time period of 32 quarters; this equates to 0.2922 p/kWh of Entry Capacity retained.
- NTS Entry Capacity Retention Charges and refunds regarding non-incremental Obligated Entry Capacity are treated as Transmission Services.

Non-Transmission Services Charging

It is proposed that revenue due for collection via General Non-Transmission Services Entry and Exit Charges will be equal to the Non-Transmission Services revenue minus the DN Pensions Charges, NTS Meter Maintenance Charges, St. Fergus Compressor Charges, Shared Supply Meter Point Administration Charges and Allocation Charges at Interconnectors.

The revenue due for collection via General Non-Transmission Services Entry and Exit Charges will be recovered through a flow based charge as a flat unit price for all Entry Points and Exit Points. It is proposed that the St. Fergus Compressor Charges and General Non-Transmission Services Entry and Exit Charge rates may be adjusted at any point within the gas year.

It is proposed that this is applied to all flows excluding Storage flows unless it is flowed as “own use” gas at the Storage point.

The General Non-Transmission Services charge will be produced in p/kWh.

Where Allowed Revenue for Non-Transmission Services is required to be determined in respect of a period of less than 12 months and that period is not 01 April to 31 March (National Grid’s Formula Year), it is proposed that profiling factors will be applied separately to Entry and Exit Annual Allowed Revenue in order to determine appropriate values (respectively for Entry and Exit) for the relevant period. The target Entry and Exit revenue profiling factors will operate in such a way that within any Formula Year the tariffs will be set to minimise any under or over recovery in respect of Non-Transmission Services.

Treatment of under/over recovery (K) – after each formula year

It is proposed that a separate under or over revenue recovery (otherwise known as the “K” value) will be calculated for Transmission Services and Non-Transmission Services for the Formula Year. This will be different to the TO and SO “K” values however the principle of reconciling Transmission Entry and Exit revenues separately will remain.

It is proposed that the approach and calculation will be specified in the UNC, to be approved by Ofgem. In addition to Transmission and Non-Transmission being reconciled this Modification also proposes to have reconciliation between Entry and Exit under Transmission Services.

Transmission Services Revenue:

It is proposed to maintain a 50/50 split between Entry and Exit (for the purposes of allocating revenues to the charges to recover Transmission Services Entry and Exit Revenues). It is also proposed to maintain the separate reconciliation of Entry and Exit for Transmission Services, as per the current approach for TO charges. This would continue to mean that Entry and Exit, under Transmission Services, when reconciled would not result in Entry impacting Exit or vice versa.

The applicable years Transmission Service Revenue will be split 50:50 between revenue to collect on Entry Capacity charges and revenue to collect on Exit Capacity charges. This value will then be added to any under/over recovery (Transmission Services K value) which was calculated in y-2 (two years ago) and split between Entry and Exit in the correct proportion, to make the applicable revenue which will be used in the CWD model to calculate the capacity charges.

Non-Transmission Services Revenue:

It is proposed that all those charges in respect of Non-Transmission Services shall contribute towards Non-Transmission Services revenue recovery. All charges are set on an ex-ante basis.

It is proposed that any under or over recovery attributed to the charges other than the Non-Transmission Services Entry and Exit Charge shall not be subject to reconciliation with any K value (Non-Transmission Services K value) adjusting the Non-Transmission Services Revenue recovery charge. Non-Transmission Services revenue charge will be added to the Non-Transmission Services K value which was calculated in y-2 (two years ago) which will be used to calculate the applicable years Non-Transmission Services Revenue which will be used for calculation of the Non-Transmission Services Charges.

Effective Date for the charges driven by this Proposal

The Effective Date of this Proposal can be any date as determined by Ofgem. The Proposer recommends however that it is set on 01 October 2020. In any case, it is proposed that the Effective Date will provide at least two clear months' notice from the date of Ofgem's decision and thereafter take effect from the 1st of the following month, unless an alternative specific date is stipulated by Ofgem in its decision as outlined in 3.40 of the Why Change section of this Proposal.

Where the Effective Date of the Proposal necessitates changes to reserves prices taking effect on dates other than 01 October, National Grid will require an Ofgem derogation from its obligation under Standard Special Condition A4(2) of its licence which limits changes to reserve prices to once a year and for such change to only take effect on the aforementioned date.

For the avoidance of doubt, for all Entry Points and Exit Points the revised arrangements will apply in respect of the payable price for capacity allocated for the Effective Date onwards. This rule applies regardless of whether the Effective Date falls within the overall period of tranche of capacity (i.e. within a period of a quarterly or annual allocation).

In any event, it will be necessary to take into consideration actual and anticipated revenues to be collected up to the Effective Date to determine the target revenue to be applied for the remainder of the Formula Year.

Reconciliations are undertaken under the current regime, such as reconciling commodity charges, updating flow values and incorporating the OCC and reconciliation of commodity charges to account for eligible flows. These will continue to ensure that charges for the applicable period up to the Effective Date are accurately charged.

Transportation Charges: Information Publication

It is proposed that information in respect of Transportation Charges will be published in accordance with table 3 below.

Table 3: Publication dates for Transportation Charges

	Data Item	Publication	Issued by*:
Transmission Services	Forecasted Contracted Capacity	Charging Model	2 months prior to Effective Date**
	CWD Distances	Charging Model	
	Capacity Reference Prices	Transportation Statement	
	Multipliers	Transportation Statement	
	Capacity Reserve Prices	Transportation Statement	
	Interruptible Adjustment (Entry)	Transportation Statement	
	Interruptible Adjustment (Exit)	Transportation Statement	
	Specific Capacity Discounts (Storage)	Transportation Statement	
	Specific Capacity Discounts (LNG)	Transportation Statement	
	Revenue Recovery Charge (Entry)	Transportation Statement	
	Revenue Recovery Charge (Exit)	Transportation Statement	
	NTS Optional Capacity charge formula parameters	Transportation Statement	
Non-Transmission Services	Non-Transmission Services Charges	Transportation Statement	
	DN Pension Deficit Charges	Transportation Statement	
	NTS Metering Charges	Transportation Statement	
	St Fergus Compression Charges	Transportation Statement	
	SSMP Administration Charges	Transportation Statement	
	Allocation Charges at Interconnectors	Transportation Statement	

*Issued by means the date by which the listed information will be consolidated and published in the relevant publication. The information in this table will be published and made available in steps via the relevant notice and supporting material which may be before the date listed. The publication dates may also be changed depending on the Effective Date.

** Unless the Authority provides the necessary approval for a shorter notice period to be provided.

6 Impacts & Other Considerations

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

N/A

Consumer Impacts

There will be impact on different consumer groups, but the allowed revenue collected by National Grid NTS will not change. The Gas Transportation Charges recover a set amount of monies from Users of the NTS that will not change in the event of implementation of this Proposal. These amounts are the allowed revenues determined in line with National Grid's Licence. Under these Proposals, the overall amount of money that is being recovered does not change in line with the Licence. This Proposal does provide a new overall framework that will essentially distribute the same amount over a changing base of Customers in a way that the Proposer believes is different to the current regime with all Users of the NTS contributing towards the costs of the NTS by picking up Transportation Charges.

The implementation of a cost-based Optional Capacity Charge will secure utilisation of the NTS, through disincentivising the construction of bypass pipelines which in turn will reduce the overall unit cost of using the NTS for all customers.

The nature of how the overall revenue is charged downstream from NTS Charging will depend on how other market Participants will accommodate charges into their respective charges.

Cross Code Impacts

None

EU Code Impacts

EU Tariff Code compliance is considered as part of this Proposal.

Central Systems Impacts

There will be impacts on Gemini and UK Link invoicing systems. These impacts are being assessed. The CDSP (Xoserve) has been consulted on all stages of development of this project and National Grid will continue to ensure this is the case.

7 Relevant Objectives

Table 4: Impact of the Modification on the Relevant Objectives

Impact of the Modification on the Relevant Objectives:	
Relevant Objective	Identified impact
a) Efficient and economic operation of the pipeline system.	Positive
b) Coordinated, efficient and economic operation of (i) the combined pipeline system, and/ or (ii) the pipeline system of one or more other relevant gas transporters.	None
c) Efficient discharge of the licensee's obligations.	Positive
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.	Positive

Demonstration of how the Relevant Objectives are furthered:

a) Efficient and economic operation of the pipeline system.

The whole charging package contained in this Modification 0678D has been designed to encourage fair and efficient access to the pipeline system. The expected more stable and predictable charges compared with what is generated from the current methodology should encourage more stable and predictable use of the system by Shippers - something that should in turn help National Grid generate accurate capacity usage forecasts for setting charges in future. The removal of free capacity products is an important aspect of the Proposal as is the inclusion of an NTS Optional Capacity charge (to replace the Optional Commodity Charge). Without an NTS Optional Capacity charge there will likely be an increased incentive for the use of some system bypass pipelines because some of the charges being generated by CWD produce counter-intuitive outcomes – high exit charges for large sites located close to Entry Points (the same argument could be made had the reference price methodology been Postage Stamp). By improving the predictability of the use of the system, National Grid should be better placed and better prepared to operate it in a more efficient manner. By encouraging efficient use of the system by Users (e.g. by avoiding inefficient bypass) National Grid will ensure that its

operations can be economically optimised so that costs are kept as low as possible on a pence / kWh flowed basis.

At the same time, this Modification 0678D recognises that the current level of Optional Commodity Charge discounts applied to Transmission Owner (TO) charging has become distorted in recent years by its structural link to the rising level of TO Commodity charges. The Modification is therefore designed to promote efficiency and economy in the use of the NTS pipeline system by reducing the level of revenue under-recovery to a more appropriate level, whilst increasing the costs paid by Users shipping along routes which qualify for the NTS Optional Capacity charge in line with the costs for building and maintaining a bypass pipeline of the same distance. Where Users/customers are able to choose between the costs of using the NTS or building and maintaining a bypass pipeline, and where the cost of using the NTS are a reasonable proxy for private ownership, the outcome will be efficient. A cost based Optional charging methodology provides a robust, enduring basis for dis-incentivising inefficient NTS bypass.

c) Efficient discharge of the licensee's obligations.

The proposed changes to TPD B and EID B (where applicable) support the implementation of the new charging methodology and arrangements. Standard Special Condition A5(5) of the NTS Licence sets out the relevant methodology objectives and the Proposer believes that these objectives are better facilitated for the reasons detailed below in Table 6 ('Impact of the Modification on the Relevant Charging Methodology Objectives').

d) Securing of effective competition between relevant Shippers.

The proposed changes to TPD B and EID B (where applicable) support the implementation of the new charging methodology and arrangements. To the extent that the application of a new Reference Price Methodology is expected to provide a more stable and predictable price setting regime, Shippers will have a greater level of confidence in their forecasts of prospective use of network costs and therefore set their own service costs more accurately (potentially with a lower risk margin) thereby enhancing effective competition.

The NTS Optional Capacity charge solution will allow Shippers to compete more effectively at proximate offtakes, including power stations, without having to build their own (inefficient) bypass pipelines. It will also facilitate gas flows across Interconnection Points, encourage gas trading and help to attract gas to the GB market. By ensuring that the NTS Optional Capacity charges applied on nominated routes are set in a manner reflective of the costs of building and maintaining a bypass pipeline, cross-subsidies between NTS OCC Users and non-NTS OCC Users will be eliminated. As such competition will be duly secured.

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.

The proposed changes provide for the implementation of the EU Tariff Code. The decision to reject Modification 0621 and its Alternatives highlighted three areas of compliance that Ofgem needed to be addressed (Interim Contracts, Transition Period and NTS Optional Charge). This Modification proposes changes that will address these. Appendix 1 gives a comparison between Modification 0621 and this Modification 0678D, highlighting steps taken to address compliance in line with Ofgem's Modification 0621 Decision Letter. To provide a compliant Proposal to address these areas, the Proposer is proposing:

- Not to propose the creation of Interim Contracts;
- Not to use a transition period for the introduction of the methodology changes; and

- An NTS Optional Capacity charge solution which is consistent with Ofgem's Modification 0621 Decision Letter in respect of EU Tariff code compliance in that charges are wholly capacity-based.

Moreover, this Proposal ensures a proper application of Article 35 of the EU Tariff Code by providing for Existing Contracts that their capacity price remains unadjusted for the entire duration of the relevant contracts.

The following table highlights the key components of this Proposal, the Articles of the EU Tariff Code that constrain the form and operation of those components and a brief description of how this Proposal complies with those requirements.

Table 5: High Level Summary of Proposal Compliance with EU Tariff Code

Aspect	EU Tariff Code Requirements	Addressed in this Proposal by:
Reference Price Methodology	Recital 3: requirement to use CWD as the counterfactual for proposed RPM	A variant of a CWD RPM is proposed. The CWD outlined in Article 8 should serve as the counterfactual where relevant.
	Article 6: RPM application - <ul style="list-style-type: none"> • approved by NRA; • provides a Reference Price; • same RPM applied at all Entry Points and Exit Points; and • adjustments only on basis of Article 9 or benchmarking by NRA, equalisation by the TSO or the NRA, or rescaling by the TSO. 	The proposed RPM: <ul style="list-style-type: none"> • is subject to Authority approval (required to implement this Proposal); • provides a Reference Price; • applies to all Entry Points and Exit Points; and • incorporates adjustments in line with Article 9 and rescaling (to minimise Revenue Recovery values).
	Article 7: Choice of RPM to comply with following requirements - <ul style="list-style-type: none"> • enable Users to re-produce the calculation; • take account of actual costs in providing Transmission Services; • non-discriminatory and no undue cross subsidisation taking account of Article 5; • no material volume risk assigned to end consumers; and • no distortion of cross border trade. 	In respect of the proposed RPM: <ul style="list-style-type: none"> • the calculation is capable of re-production as it is set out in the charging methodology; • target revenues are set taking account of actual costs (at price control); • it is designed to be non-discriminatory with no un-due cross subsidisation; • it recovers <i>capacity</i> charges from Network Users (i.e. not flow-based); and • it is not expected to distort cross border trade.
	Article 8: CWD as set out in (2) with the following parameters – <ul style="list-style-type: none"> • recovered via capacity charges; • uses a Forecasted Contracted Capacity; • combinations of Entry Points and Exit Points, where some Entry Points and some Exit Points can be combined in a relevant flow scenario • the Entry Exit target revenue is split 50:50. 	The proposed RPM is principally as detailed in this Article and features: <ul style="list-style-type: none"> • a capacity based Transmission Services charging regime; • Forecasted Contracted Capacity derived in accordance with a documented FCC Methodology; • there is no specific provision in the calculation of the Reference Prices as the assumption for the NTS is that all gas from an Entry Point can flow to any Exit Point; • target revenues are based on a 50:50 split between Entry Points and Exit Points.

Aspect	EU Tariff Code Requirements	Addressed in this Proposal by:
OCC	Article 4.2 Conditions for firm capacity products	The OCC product is firm and conditional upon use of a specified route between an entry and an Exit Point (excluding DN and storage points which are not “final” off-takers of gas) for 1 year. The User(s) of the route are bound by an agreement to pay a predetermined fee for the service irrespective of actual use (a condition of use). It ensures that charges are more cost reflective for Exit Points in close proximity to Entry Points, thereby disincentivising NTS bypass to the benefit of all Users of the NTS
Multiplier	Article 13: parameters for Multipliers – <ul style="list-style-type: none"> for quarterly and monthly capacity, between 1 and 1.5; and for daily and within day capacity, between 1 and 3 except in ‘duly justified cases’. 	A Multiplier of 1 is proposed for all capacity products which is within the parameters set by this Article
Interruptible / Off peak	Article 16: calculation of Reserve Prices for interruptible capacity - <ul style="list-style-type: none"> multiply firm Reserve price by difference between 100% and interruptible discount Interruptible discount determined on the basis of – <ul style="list-style-type: none"> probability of interruption; and adjustment factor representing the estimated economic value of the interruptible capacity product. 	A discount of 10% is proposed which has been determined taking account of the criteria identified in this Article. A discount of greater than 10% is not justified when taking these into account.
Discounts	Article 9: provision for discounts for – <ul style="list-style-type: none"> Storage, at least 50%; and LNG facilities may be applied in order to increase security of supply. 	A discount of 50% is proposed in respect of Storage which is the minimum prescribed by this Article. A discount of 0% has been proposed in respect of LNG which is not in conflict with this Article (this Article prescribes that application of a discount for LNG is optional).
Revenue Recovery	Article 4(3): Method of recovery – <ul style="list-style-type: none"> capacity based; with NRA approval and by exception, flow based. 	Capacity-based Transmission Services charges (including an Optional Capacity charges) and revenue recovery mechanism are proposed.
	Article 17: General rules including - <ul style="list-style-type: none"> requirement to minimise revenue recovery values. 	The proposed netting off of Existing Contracts and scaling (to take account of discounts) aims to minimise Revenue Recovery. Development of a robust FCC Methodology will also facilitate this aim.
	Article 18: Under and Over Recovery - <ul style="list-style-type: none"> calculated as difference between target revenue and actual revenue in the same tariff period. 	The proposed determination of revenue recovery is consistent with the calculation described in this Article.
Existing Contracts	Article 35: existing contracts <ul style="list-style-type: none"> EU Tariff Code rules dis-applied for capacity procured at any entry or Exit Point before 6 April 2017; and Existing contracts not able to be renewed prolonged or rolled over after expiry. 	Maintenance of existing terms and conditions for procured capacity is afforded to those falling within the definition of Existing Contracts. All other capacity products are subject to the proposed regime which is compliant with the other requirements of the EU Tariff Code.

Table 6: Impact of the Modification on the Relevant Charging Methodology Objectives

Impact of the Modification on the Relevant Charging Methodology Objectives:	
Relevant Objective	Identified impact
a) Save in so far as paragraphs (aa) or (d) apply, that compliance with the charging methodology results in charges which reflect the costs incurred by the licensee in its transportation business;	Positive
aa) That, in so far as prices in respect of transportation arrangements are established by auction, either: (i) no reserve price is applied, or (ii) that reserve price is set at a level - (I) best calculated to promote efficiency and avoid undue preference in the supply of transportation services; and (II) best calculated to promote competition between gas Suppliers and between gas Shippers;	Positive
b) That, so far as is consistent with sub-paragraph (a), the charging methodology properly takes account of developments in the transportation business;	Positive
c) That, so far as is consistent with sub-paragraphs (a) and (b), compliance with the charging methodology facilitates effective competition between gas Shippers and between gas Suppliers; and	Positive
d) That the charging methodology reflects any Alternative arrangements put in place in accordance with a determination made by the Secretary of State under paragraph 2A(a) of Standard Special Condition A27 (Disposal of Assets).	None
e) 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.	Positive

This Modification Proposal does not conflict with:

- (i) Paragraphs 8, 9, 10 and 11 of Standard Condition 4B of the Transporter's Licence; or
- (ii) Paragraphs 2, 2A and 3 of Standard Special Condition A4 of the Transporter's Licence;

as the charges will be changed at the required times and to the required notice periods.

Demonstration of how the Relevant Objectives are furthered:

- a) Save in so far as paragraphs (aa) or (d) apply, that compliance with the charging methodology results in charges which reflect the costs incurred by the licensee in its transportation business;**

The inclusion of a workable NTS Optional Capacity charge solution is critical to enhancing the cost-reflectivity of the methodology. CWD would produce counter-intuitive capacity charges for some combinations of entry and Exit Points, e.g. high entry and exit charges when the Exit Point is in close proximity to the Entry Point. In particular, as the derivation of the NTS Optional Capacity charge is based on the cost of National Grid building and maintaining a bypass pipeline of an equivalent distance, Users of the NTS Optional Capacity charge will pay cost reflective charges. Further, the annual indexation of the charge, based on CPI will ensure that the charge is updated, maintaining cost reflectivity. The use of CPI is consistent with Ofgem's RIIO-2 Framework Decision¹³ where it states:

“An accurate measure of inflation is important to ensure an accurate price control settlement. RPI is upwardly biased and has lost its credibility as an accurate measure of inflation”.

- aa) That, in so far as prices in respect of transportation arrangements are established by auction, either:**
- (i) no reserve price is applied, or**
 - (ii) that reserve price is set at a level -**
 - (I) best calculated to promote efficiency and avoid undue preference in the supply of transportation services; and**
 - (II) best calculated to promote competition between gas Suppliers and between gas Shippers; and**
- c) That, so far as is consistent with sub-paragraphs (a) and (b), compliance with the charging methodology facilitates effective competition between gas Shippers and between gas Suppliers**

The proposed utilisation of a new Reference Price Methodology which re-distributes National Grid's costs (revenues) on a geographical basis, weighted by capacity will enhance cost reflectivity and competition between gas Suppliers and between gas Shippers when compared to the current application of a Long Run Marginal Cost Methodology (LRMC). The proposed model is better suited to the current and expected future usage of the NTS whereas aspects of the current model are more suitable for an expanding network requiring an investment-based RPM.

A sub-group of the NTS Charging Methodology Forum identified that as the inputs into the LRMC model are varied the resulting price changes are not intuitive and the changes can cause unpredictable results, and the changes to prices can be volatile. Thus, similar offtake points (in terms of offtake volumes and distances from points of entry) may incur materially different charges. Use of a methodology which delivers more comparable costs distributed on a non-discriminatory basis would better facilitate these objectives.

Cost reflectivity is subjective and not defined. Relevant charging methodology objective (a) is furthered by the use of a charging framework with an RPM that aims to recover the majority, if not all, of Transmission Services revenues geographically and that distributes “costs” (revenue recovery) using specific cost drivers linked to capacity and distance. Whilst the current methodology also uses capacity and distance, these drivers are “diluted” owing to the nature of how adjustments to the RPM are applied. Furthermore, the RPM related charges recover only a small amount of the overall required revenues, requiring high non-cost-reflective postalised commodity charges to compensate. As such, a focused RPM, aiming to recover all of the allowed Transmission Services Revenue improves on the cost reflective nature of charges compared to the current LRMC based regime when comparing to how this is adopted within GB as an overall framework.

This Proposal affords equitable charging taking into account Existing Contracts and their treatment within the RPM. The method employed within the proposed RPM accommodating the Existing Contracts (fixed prices within GB) is a necessary consequence of EU Tariff Code requirements. To seek to unwind any such arrangements could represent a retrospective impact that would arguably be detrimental to competition and would limit the relevance of the current methodology. In the Proposer's view this would be less compliant with the EU Tariff Code than the Charging Methodology advocated by this Proposal.

In addition, it is considered that the CWD methodology generates charges which entail the risk that a number of customers will build private pipelines to bypass the NTS (due to the reasons identified in Charging Objective (a) above). With the establishment of a cost reflective NTS Optional Capacity

charge, bypass pipelines are less likely to be built, minimising the unit costs of transportation for all Users of the NTS while eliminating cross-subsidies. So, competition is better facilitated.

b) That, so far as is consistent with sub-paragraph (a), the charging methodology properly takes account of developments in the transportation business;

The proposed methodology relating to Transmission Services considers developments which have taken place in the transportation business, in particular that the network is no longer expanding. However, the challenges of operating the system are becoming more acute. Where it is the case that gas supplies from non-UK sources are required to satisfy demand, as is becoming increasing the case, it is essential that transportation charges are cost reflective for offtakes close to Entry Points. Inefficient NTS bypasses and/or inflated transportation charges could result in supplies being diverted to alternative markets, or gas prices being set at artificially high levels.

e) 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.

The EU Tariff Code compliance is considered in this Modification Proposal. Accordingly, implementation of this Proposal would ensure that the GB arrangements are compliant with the EU Tariff Code. The decision to reject Modification 0621 and its Alternatives highlighted three areas of compliance that needed to be addressed (Interim Contracts, Transition Period and NTS Optional Charge). This Modification proposes changes that will address these. In order to provide a compliant Proposal to address these areas, the Proposer is proposing:

- Not to propose the creation of Interim Contracts;
- Not to use a transition period for the introduction of the methodology changes; and
- To establish a cost reflective NTS Optional Capacity charge.

Additionally, this Proposal ensures a proper application of Article 35 of the EU Tariff Code, thus adequately protecting existing contractual rights and obligations.

Table 5 (above) highlights the key components of this Proposal, the Articles of the EU Tariff Code that constrain the form and operation of those components and a brief description of how this Proposal complies with those requirements.

8 Implementation

Implementation of this Modification (the 'Effective Date') is proposed to be in line with an Ofgem decision. The Proposer recommends that charges derived from the implementation of this Proposal should take effect from 01 October 2020 and/or that at least two months' notice periods for advising industry of transmission prices should be applied.

The Proposer considers that the Proposal can be implemented prior to 01 October 2020 to ensure compliance with relevant legislation as soon as possible and that the date from which resultant transmission charges take effect can then follow.

A 01 October start date for new charges to take effect and sufficient notice of new charges is recommended to enable Shippers and traders to efficiently plan and establish contractual arrangements with their counterparties without undue regulatory risk. It is the view of the Proposer that a 01 October 2019 charge effective date will be extremely difficult to achieve given the additional governance tasks likely to be undertaken by Ofgem following submission of the Final Modification Report, i.e. a possible Regulatory Impact Assessment and the consultation required by Article 26 of the EU Tariff Code.

9 Appendix 1: Differences between Modification 0621 and this Modification 0678D.

The following table highlights the differences between Modification 0621 (which was rejected for implementation by Ofgem) and this Modification (0678). A rationale is provided for those elements where a different approach has been taken in this Modification 0678 and extracts have been included from the Ofgem Modification 0621 Decision Letter which evidence the compliance concern.

Note: The table is presented in two halves for legibility.

	Component	Element	0621	Rationale in the context of 0621 Ofgem Decision	Extracts from Ofgem Decision Letter For Mod Proposal 0621	0678D
			v5.0 (1/5/2018)		20/12/2019	v2.0 (21/3/2019)
			National Grid		Ofgem	ENI
Transmission Services Charges	Capacity Reference Price	Reference Price Methodology (Interim)	Capacity Weighted Distance	Ofgem concluded that individual features of the transition period were non-compliant with TAR hence the interim arrangements have been removed	"TAR NC makes no provision ...for a transition period as proposed ... however, we note that any methodology in effect from 31 May 2019 must in itself be compliant with ... TAR NC".	N/A
		Reference Price Methodology (enduring)	Capacity Weighted Distance with adjustment to minimise Revenue Recovery			Capacity Weighted Distance with adjustment to minimise Revenue Recovery
		Target Revenue	Net of existing and interim contracts	Ofgem concluded that Interim Contracts were non-compliant with TAR hence the target revenue will only be net of Existing Contracts	"treatment by the UNC621 modifications of so-called "interim contracts" is not consistent with either a literal or a purposive reading of Article 35 TAR NC"	Net of Existing Contracts
		Treatment of zero Reference Prices	Uses Weighted Average Distance to determine price using nearest non-zero Reference Priced Entry or Exit Point's WAD.			Uses Weighted Average Distance to determine price using nearest non-zero Reference Priced Entry or Exit Point's WAD.
	Forecasted Contracted Capacity (FCC)	Interim arrangements	Obligated capacity for first 2 years	Ofgem concluded that use of obligated values was not consistent with TARs requirement for use of a forecast.	"obligated capacity does not amount to a "forecast" for the purposes of TAR NC ... the revenue reconciliation principle set out in TAR NC, [is] that under- or over recovery ... should be minimised to the extent possible"	N/A
		Enduring arrangements	National Grid Forecast (excluding Historical Capacity)	Ofgem concluded that Interim Contracts were non-compliant with TAR hence the FCC will only exclude Existing Contracts		National Grid Forecast (excluding Existing Contract capacity)
	Reserve Price - Firm and Interruptible	Multiplier (Annual Capacity Product)	1.0			1.0
		Multiplier (Quarterly Capacity Product)	1.0			1.0
		Multiplier (Monthly Capacity Product)	1.0			1.0
		Multiplier (Daily Capacity Product)	1.0			1.0
		Multipliers from year 2 onwards	1.0			1.0
		Interruptible / Off-peak adjustment (entry)	10%			10%
		Interruptible / Off-peak adjustment (exit)	10%			10%
		Interruptible /off-peak adjustments from Year 2 onwards	10%			10%
		Fixed or floating price	Floating			Floating
		Storage	50%			50%
	Reserve Price - Specific Capacity Discounts	Interconnection Points	None			None
		LNG	0%			0%
		Minimum Reserve Price	0.0001p/kWh/d			0.0001p/kWh/d
	Revenue Recovery Charges (Interim)	Target revenue apportionment	Pro-rated according to forecast flows at IPs / non-IPs versus forecast total flows	Ofgem concluded that use of a commodity (flow) based revenue recovery mechanism in the interim period was not compliant with TAR both in terms of the consequential proportion of revenue recovered via this mechanism and the question as to whether this was consistent with the requirement for such recovery means to be 'an exception'	"use of obligated capacity ... would lead to... more than 50% of ... revenue being recovered by this charge. ... use of a commodity-based charge to recover most of the ... revenue is inconsistent with the intention of Article 4(3) TAR NC, which provides "as an exception" that a "part" of the revenue may be recovered via a commodity-based charge"	N/A
		Duration	2 years			N/A
		IP application	Capacity charge (applied to fully adjusted capacity)			N/A
		IP Exclusions	None			N/A
		Non-IP application	Flow based charge applied to allocations (flow)			N/A
		Non-IP Exclusions	Non-own use gas allocations (flow) at Storage Connection Points			N/A

			0621	Rationale in the context of 0621 Ofgem Decision	Extracts from Ofgem Decision Letter For Mod Proposal 0621	0678D
			v5.0 (1/5/2018)		20/12/2019	v2.0 (21/3/2019)
			National Grid		Ofgem	ENI
Transmission Services Charges	Revenue Recovery Charges (Enduring)	Target revenue apportionment between IPs and non-IPs	n/a			n/a
		IP application	Capacity charge (applied to fully adjusted capacity)			Capacity charge (applied to fully adjusted capacity)
		IP Exclusions	None			Existing Contracts
		Non-IP application	Capacity charge (applied to fully adjusted capacity)			Capacity charge (applied to fully adjusted capacity)
		Non IP Exclusions	Historical Contracts for Capacity at Storage Connection Points	Ofgem concluded that Interim Contracts were non-compliant with TAR hence the exclusion will only extend to Existing Contracts		Existing Contracts
	NTS Optional Charge	Application	2 years			Enduring
		Method (rate derivation)	Existing formula, cost base subject to annual RPI adjustment		"Article 4(2) states that "Transmission tariffs may be set in a manner as to take into account the conditions for firm capacity products".... the NOC, ... is levied on flows, without reference to the underlying capacity booking. TAR NC requires any exempt flow-based charge to be calculated on the basis of forecasted or historical flows, or both, ... the NOC unit rate is derived taking into account the "maximum offtake rate" ("M") and distance. We do not consider "M" is a suitable proxy for "forecasted" or "historical" capacity allocations and flows	Existing OCR formula adjusted by RPI, cost base subject to annual CPI adjustment. Rate converted to a capacity charge using FCC
		Quantity (IPs)	Capacity deemed to have been used			Lesser of capacity and allocation (flow) at entry point and exit point.
		Quantity (Non-IPs)	Allocation (flow)			Annual reconciliation where actual bookings are less than FCC
		Alternative charges	Transmission Services Revenue Recovery charges and Non-Transmission Services (entry and exit) charges	Ofgem concluded that the Optional Charge was not complaint with the criteria for classification as a Transmission Services Charge.		Standard Transmission Services capacity charge and General Non-Transmission Services charges
		Limitations	60km distance cap			Not available for Storage Connection Points nor DN Offtakes
		Application at Bacton ASEPs	NTS optional flow at UKCS and IP pro rata in proportion to total flows at both			No specific provision
	'K'	Application	Existing principles			Existing principles
Non-Transmission Services Charges	St. Fergus Compression	Application	Existing principles			Existing principles
	NTS Metering	Application	Existing principles			Existing principles
	DN Pensions Deficit	Application	Existing principles			Existing principles
	SSMP Administration	Application	Existing principles			Existing principles
	IP Allocation	Application	Existing principles			Existing principles
	Entry and Exit Charges	Application	Allocation (flow) based charge to recover residual Non-transmission services revenue, except non-own-use at storage			Allocation (flow) based charge to recover residual Non-transmission services revenue, except non-own-use at storage
	'K'	Application	Existing principles			Existing principles
General	Publication of variables	Multipliers	Transportation Statement			Transportation Statement
		Interruptible Adjustment	Transportation Statement			Transportation Statement
		LNG Discount	Transportation Statement			Transportation Statement
		CWD Distances	Charging Model			Charging Model
		CWD FCCs	Charging Model			Charging Model
		Maximum allowed revenue forecast	No proposed obligations			No proposed obligations

Variation in treatment of element from UNC Modification Proposal 0621

10 Appendix 2: The FCC Methodology

The FCC Methodology (as referred to in Section 5) is published on the Joint Office website¹³ and is contained within the following document:



FCC Methodology
v1.0.pdf

¹³ FCC Methodology v1.0 15 March 2019 <https://gasgov-mst-files.s3.eu-west-1.amazonaws.com/s3fs-public/ggf/book/2019-03/Forecasted%20Contracted%20Capacity%20v1.0.pdf>

11 Appendix 3: Summary Analysis

The analysis set out here is specific to impact of introducing the OCC as proposed in Modification 0678D and in Modification 0678G. The impacts associated with implementing a CWD based methodology are considered in Modification 0678 and not repeated here.

The OCC analysis was performed by National Grid for Modification 0678G as the base data is commercially confidential.

Impacts of OCC

Table 1 shows the reduction in OCC flows under Modification 0678G compared to current flows. The actual level of the reduction is likely to be greater as the analysis assumes that all Entry Capacity “employed” in each OCC route is priced at the prevailing capacity reserve price. The analysis assumes that where the combined OCC charge (at entry and exit) is less than the standard transportation charge (the prevailing price of capacity at entry and exit) then the User will elect to use the OCC service. There may be some potential OCC Users who already hold Existing Contracted Entry Capacity at some Entry Points at prices that are lower than the prevailing price. In such cases it may be possible that some of the routes identified as OCC will be more expensive than the combined cost of Existing Contracted Capacity and the Exit Capacity Charge rendering the OCC as being uneconomic, hence the overstatement of OCC flow for 2019/20.

Table 1: OCC Flow comparison 2017/2018 and Modification 0687G 2019/20

2017/18	OCC flow (based on 2017/18 GY) GWh	244,508	244,508
2019/20	OCC flow (based on 2017/18 GY) GWh	143,292	143,292

Notwithstanding the limitations in the analysis identified, the minimum reduction in OCC flows is 101,216 GWh/Yr

OCC would be used over 17 routes at a maximum distance of 30km.

Table 2 compares the level of under recovery associated with the utilisation of OCC under the CWD model. As discussed previously the level of under recovery stated for both Entry and Exit is exaggerated as the analysis does not recognise the impact of Existing Contracts, which may limit the overall utilisation of OCC in some scenarios.

Table 2: Level of under recovery, Modification 0678 v Modification 0678G

			Entry	Exit
2019/20	678	Total Revenue Recovered (£):	327,187,973	320,717,255
		Target Revenue Recovery (£):	337,823,191	337,823,191
		Revenue Input Figure Adjustment (£):	-10,635,218	-17,105,935
2019/20	678G	OCC flow @ 678 capacity prices	45,929,336	21,578,437
		OCC flow @ 678G capacity prices	5,102,872	5,102,872
		Annual OCC Fee	5,928,056	5,928,056
		678G Under Recovery	-34,898,408	-10,547,509