














UNC Modification		At what stage is this document in the process?
<h1>UNC 0678F:</h1> <h2>Amendments to Gas Transmission Charging Regime – Treatment of Unprotected Entry Capacity and Storage</h2>		<div>01 Modification</div> <div>02 Workgroup Report</div> <div>03 Draft Modification Report</div> <div>04 Final Modification Report</div>
Purpose of Modification: <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>		
	The Proposer recommends that this Modification should be treated as an Alternative to Modification 0678 and therefore it should proceed as such under the timetable as that agreed with the Authority for Modification 0678 as far as practicable.	
	High Impact: All parties that pay NTS Transportation Charges and / or have a connection to the NTS, and National Grid NTS.	
	Medium Impact: N/A	
	Low Impact: N/A	

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Timetable

The Proposer recommends the same timetable as set for Proposal 0678 is adhered to as far as practicable:

Workgroup 1 - "Approach. Compliance"	29 January 2019
Workgroup 2 - "Integration of RPM, FCC, Revenue Recovery and existing contracts"	31 January 2019
Workgroup 3 - "Multipliers and Discounts. 'Shorthaul' approach" (part of NTSCMF)	05 February 2019
Workgroup 4 - "Compliance. FCC"	11 February 2019
Workgroup 5 - "Non-transmission charges. Final overview"	13 February 2019
Workgroup 6 - "Workgroup Report"	14 February 2019
Workgroup 7 - "Workgroup Report"	18 February 2019
Workgroup 7a - "Assessment of Alternative solutions"	20 February 2019
Workgroup 8 - "Workgroup Report"	25 February 2019
Workgroup 8a - "Assessment of Alternative solutions"	26 February 2019
Workgroup 9 - "Workgroup Report"	27 February 2019
Workgroup 9a - "Assessment of Alternative solutions"	28 February 2019
Workgroup 10 - "Workgroup Report. Compliance"	04 March 2019
Workgroup 10a - "Assessment of Alternative solutions" (part of NTSCMF)	05 March 2019

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Workgroup 11 – “Finalise Workgroup Report”	06 March 2019	
Draft Modification Report issued for consultation	08 March 2019	
Consultation Close-out for representations	05 April 2019	
Final Modification Report available for Panel	12 April 2019	
Modification Panel decision	18 April 2019	
Final Modification Report issued to Ofgem	23 April 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 the forthcoming EU Tariff Code (Regulation 2017/460). This Modification also takes into account the decision to reject UNC0621¹ and its Alternatives citing areas of non-compliance. This Proposal addresses the areas of compliance identified in this decision.

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

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 UNC Modification Proposal 0621 in April 2018³) identified that it is too volatile, unpredictable and does not provide stability of charges for Users.

How

This Modification 0678F 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) 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 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, UNC 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.

Finally, this Proposal sets out a mechanism to permit those Users who acquired QSEC capacity in the Annual 2018 or Ad hoc 2018 auctions to surrender capacity back to National Grid where the price of their capacity (the relevant QSEC Reserve Price) increases by more than [5%] on the effective date. For each subsequent year, these Users will retain the ability to surrender capacity where the price of their capacity increases by more than RPI on the previous year's price (previous Gas Year QSEC Reserve Price).

This Proposal differs from National Grid's 0678 Modification and is requesting that it should be treated as an Alternative as it differs in the following key areas:

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

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

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

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- Classification of QSEC capacity acquired in either of the 2018 Annual or Ad hoc QSEC auctions as Unprotected Entry Capacity Contracts;
- Establishment of a new process to permit Users holding Unprotected Entry Capacity Contracts to surrender some or all of the capacity subject to prices increasing beyond specified triggers
- A higher discount of 80% for storage capacity; and
- The exclusion of all storage capacity from the application of the Transmission Services Revenue (capacity) Recovery Charge, for the avoidance of doubt this includes any such capacity which has been transferred.

2 Governance

Justification for Consideration as an Alternative to Modification 0678

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 0678. In many respects, this Modification 0678F is to Modification 0678 what Modification 0621A was to Modification 0621, in relation to the proposed changes to the Storage Discount and the non-application of Revenue Recovery Charges for Storage Capacity. The additional provisions relating to Unprotected Entry Capacity Contracts (as defined later) did not form part of Modification 0621A.

The timetable that has been set for finalising the Workgroup Report for Modification 0678 has been 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 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 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.

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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. Additional regulatory drivers 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 UNC0621 and its Alternatives⁷. In addressing the decision letter to reject UNC0621 and its Alternatives the Proposer is proposing changes outlined in this Modification and summarised in the comparison table provided on the JO website. This table highlights for awareness a comparison between UNC0621 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.

- 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

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>

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 Proposal 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 changes 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.

Pricing Methodology

- 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

⁸ See <https://www.gasgovernance.co.uk/ntscmf/subq1model>

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 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 changes can materially impact other charges and also eliminating the influence between Transmission and Non-Transmission Services.
- 3.10. 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.”
- 3.11. 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 of points) is effectively ignored and is not sensitive to those elements which influence National Grid's costs.
- 3.12. In conclusion, the Proposer does not believe a Postage Stamp RPM meets the criteria set out in Recital (3) given the lack of cost reflectivity when compared to a CWD RPM (being the 'counterfactual' comparison RPM mandated by Recital (3)). 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)

- 3.13. The proposed changes to the charging regime may result in changes to commercial behaviours in the procurement of capacity rights. The proposal for a Forecasted Contracted Capacity (FCC) will be a key input into the reference price calculation.
- 3.14. 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 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.

- 3.15. 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
- 3.16. In consultation with Users (including DNO Users), it is proposed to review the FCC Methodology when National Grid believes this is 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.
- 3.17. 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

- 3.18. 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.
- 3.19. 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.
- 3.20. Storengy has proposed a Multiplier of 1 for all capacity products as it does not wish to create an artificial incentive for procurement of one capacity product in preference to another product.
- 3.21. 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.
- 3.22. 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

- 3.23. 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.
- 3.24. 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).

- 3.25. Having reviewed instances of interruption of the previous ten years, and 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 vast 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 has been 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.
- 3.26. 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. Storengy proposes an enduring storage discount value of 80% but recognises that EU Tariff Code requirements for the charging regime to be reviewed, as a whole, at least every 5 years.
- 3.27. 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

- 3.28. Storengy's proposal incorporates 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 all Capacity bookings at all Entry and Exit Storage Points. Storengy does not maintain the view that Existing Contracts should be excluded from the application of a Revenue Recovery Charge to ensure compliance with Article 35 of the EU Tariff Code. The Fully Adjusted capacity will be net of capacity trades and buy-backs.
- 3.29. 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.

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 [Error! Reference source not found.](#) to 3.27 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.

- 3.30. 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 (known as “Shorthaul”)

- 3.31. Storengy does not, as part of this Proposal, propose to retain a charge that discourages inefficient bypass of the NTS. National Grid has initiated a review under UNC governance (Request Group 0670R ‘Review of the charging methodology to avoid the inefficient bypass of the NTS’⁹) and Storengy believes that it is inappropriate at this point to include provision for such under this Proposal and thereby pre-empt the outcome of this work.
- 3.32. Noting that the EU Tariff Code does not *require* the implementation a bespoke charge to disincentivise inefficient bypass of a network, the lack of inclusion of such is not in conflict with EU Tariff Code. Our preferred approach to this aspect of the NTS Charging Methodology is to work with interested stakeholders to develop a robust and sustainable charging mechanism which is agreeable with the majority of, or all, stakeholders which meets the objectives of such a charge
- 3.33. This requires comprehensive assessment of any potential charging arrangements which seek to discourage inefficient bypass of the NTS and how these would operate within the charging framework, including assessment of compliance with Retained EU Law. This assessment, in the context of the charging methodology that would be introduced by this Modification, will be considered as part of UNC 0670R
- 3.34. In respect of the proposed ‘Communication of Charge Cessation’ arrangements, a ‘reasonable endeavours’ obligation on National Grid is specified on the basis that the timescales for effective implementation of the Proposal may not be sufficient to allow assessment of the impacted User and/or issue of the notices in accordance with any specific timescales.

Existing Contracts

- 3.35. The Proposer proposes provisions to apply for Entry Capacity (from 01 October 2019 or from the Effective Date, whichever is later) allocated up to 06 April 2017. 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”*.
- 3.36. 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.

⁹ <http://www.gasgovernance.co.uk/0670>

- 3.37. 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...*”.
- 3.38. 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 3.17) 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.
- 3.39. 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.
- 3.40. 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).

Unprotected Entry Capacity Contracts

3.41. Provisions are proposed here to apply to Unprotected Entry Capacity (for 01 October 2019 of from the Effective Date whichever is later) allocated after 12 February 2018 but before 20 December 2018 (the date on which the Authority published its decision to reject UNC 0621 and all of its Alternatives). The motivation for this treatment of QSEC capacity acquired in the two qualifying auctions is the inconsistency in the information presented to industry in the associated National Grid QSEC Invitation Notices between 2017 and 2018.

In the 2017 QSEC invitation, National Grid made explicit reference to the fact that QSEC capacity allocated from the auction would not be subject to any protection afforded by Article 35 of the EU Tariff Code. This explicit clarification was not provided in either of the QSEC invitations published in 2018. In all of the QSEC invitations published in 2017/18, Users were directed to the Joint Office website and recommended to review any Modifications which may affect capacity during this transaction period. In the case of those modifications which were relevant at the time, UNC 0621 and all of the Alternatives included the concept of Interim Contracts, affording them protection equivalent to that afforded to Existing Contracts (Article 35 contracts)¹⁰.

Based on the change in emphasis provided in the QSEC invitations relating to the treatment of Existing Contracts and the fact that all of the UNC 0621 modifications included protections for Interim Contracts¹¹, it should be considered that Users who acquired QSEC Capacity in either of the 2018 QSEC auctions had realistic expectations that their Capacity would be afforded protection akin to that set out in Article 35 of the EU Tariff Code.

As such, it is proposed that QSEC Capacity which qualifies as Unprotected Entry Capacity can be surrendered by the capacity holders in the event that prescribed price triggers are satisfied. The details of the mechanism facilitating the surrender of Unprotected Entry Capacity are provided in Section 5 of the Modification Proposal.

Effective Date for the charges driven by this proposal

3.42. The Effective Date of this proposal can be any date as determined by Ofgem. 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

¹⁰ All UNC 0621 Modifications can be found at <http://www.gasgovernance.co.uk/0621>.

¹¹ Interim Contracts were defined in all of the UNC 0621 Modifications as: Arrangements relating to Long Term Entry capacity allocated between 6 April 2017 and the Effective Date excluding Interconnection Point Entry Capacity

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October. If a decision is made in October then, unless otherwise specified by Ofgem, the Effective Date would be from 1st January.

- 3.43. To facilitate the changes as outlined in 2 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:

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<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 the 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
Annual Unprotected Quarterly System Entry Capacity Surrender Invitation	An invitation published by National Grid setting out the Reserve Prices for Quarterly System Entry Capacity for the next Gas Year <ul style="list-style-type: none">The first Invitation will be published as soon as is practicable after the Effective DateIn subsequent years publication will be at least four weeks before the publication of the Annual Invitation to Participate in the Auction of Quarterly System Entry Capacity.
Capacity Weighted Distance (CWD) Model	The CWD model produces the Transmission Services Reference Prices and, with additional adjustments, produces the Transmission Services Reserve Prices.

	<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). <p>The CWD model produces the Transmission Services Reference Prices and with additional adjustments produces the Transmission Services Reserve Prices.</p>
Effective Date	<p>The date from which the Modification will take effect being either:</p> <ul style="list-style-type: none"> • 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>
Formula Year	<p>The period of twelve months commencing on 01 April at 05:00 hours;</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>
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 have strong locational signals to facilitate decision making. More information is available in TPD Section Y of the UNC.</p>
Multipliers	<p>The factor applied to the respective proportion (runtime) of the Base Reference Price to calculate the Reference Price for non-yearly standard capacity product.</p>
Network Distances (for the purposes of modelling in the RPM)	<p>A matrix of distances used in the RPM that are the pipeline distances on the NTS.</p>
Non-Transmission Services	<p>The regulated services other than transmission services and other than services regulated by Regulation (EU) No 312/2014 that are</p>

	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.
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>
Surrendered Unprotected Entry Capacity Contracts	Unprotected Entry Capacity Contracts which have been surrendered by Users.
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 specified period.
Unprotected Entry Capacity Contracts	Arrangements relating to Long Term Entry capacity allocated between 12 February 2018 and 20 December 2018.

5 Solution

This Modification Proposal 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) 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;
- 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

In relation to Transmission Services and the derivation of Reserve Prices, the following steps will be applied twice prior to the publication of the final charges.

(Indicative) Notice of Revised NTS Entry Capacity QSEC Reserve and Step Prices – QSEC Reserve Prices which will be included in the Annual Unprotected Quarterly System Entry Capacity Surrender Invitation.

(Final) Notice of Revised NTS Entry Capacity QSEC Reserve and Step Prices – Following the conclusion of the QSEC Surrender process, National Grid will review and potentially alter the FCC's applied at those points where QSEC capacity has been surrendered. Following this second iteration it will publish the final charges in the usual manner.

Reference Price Methodology (see paras 3.5 to 3.11 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 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:

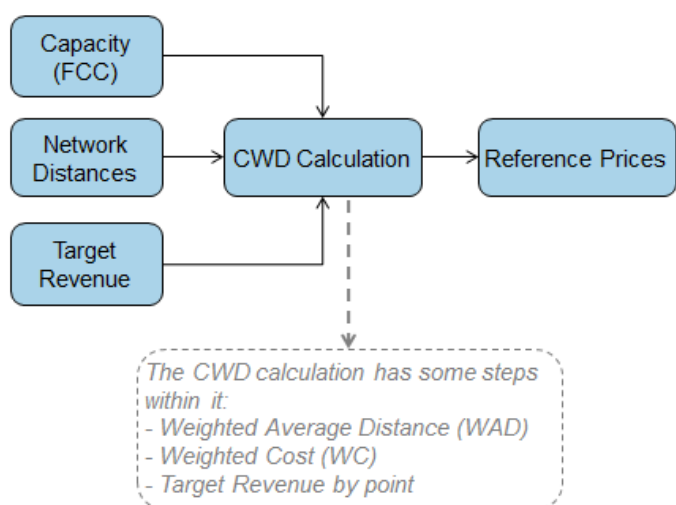
The proposed CWD approach fundamentally requires three main inputs (see Figure 1):

- 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 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 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

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- Capacity (FCC) - FCC (by point) net of Existing Contracts (EC) capacity booked to recover the target Entry or Exit Transmission Services revenue. Note that the final FCC's are likely to change following the surrender of Unprotected Entry Capacity contracts prior to the derivation of the final charges. 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

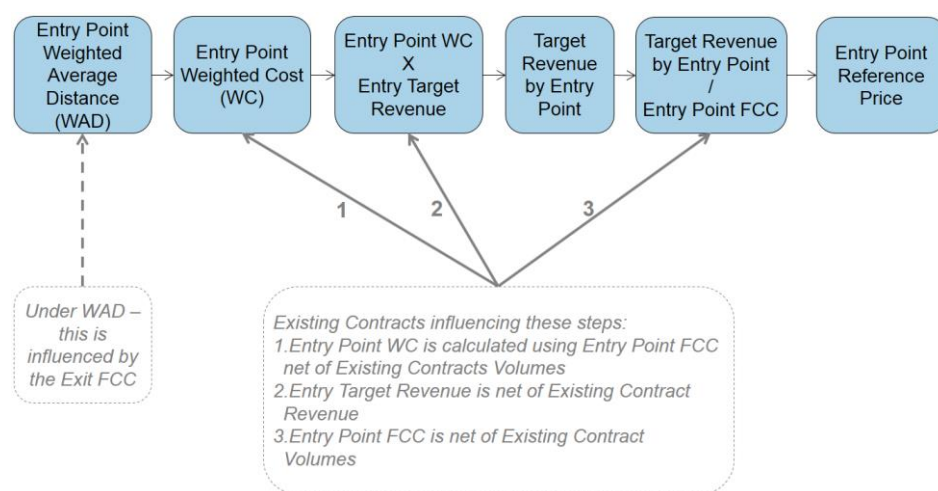
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#Entry Point FCC – this is Gross Entry Point FCC (not reduced by capacity associated with Existing Contracts)

*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

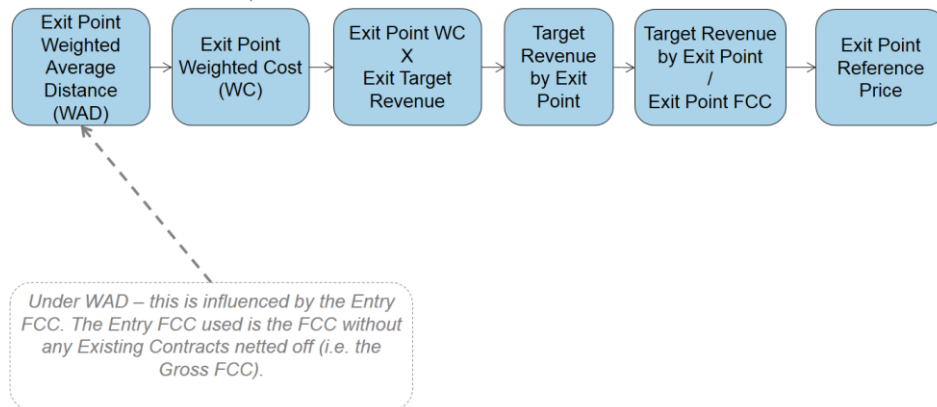
Figure 2: Entry Point Reference Prices calculation model



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

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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 3.13 and 3.17 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 2 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

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.

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For example, the price payable for capacity procured in 2019 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 Multiplier 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

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 3.26 to 3.27 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 80%.

In its decision letter to reject Modification Proposal UNC0621 and its Alternatives, Ofgem recognised the deleterious impact on storage facilities' net revenues of moving away from the current charging methodology. Based on the analysis carried out by Baringa¹² net revenues would likely decrease by between 3% and 31% depending on whether the storage discount is set at 50% or 86%.

Further, Ofgem stated that any discount above 50% would need a clear justification. The derivation of the 80% is based on analysis carried out by WWA as set out in its report to the Gas Storage Operators

¹²

https://www.ofgem.gov.uk/system/files/docs/2019/01/ofgem_gas_charging_review_baringa_report_final.pdf

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Group¹³, which the Proposer contends provides sufficient evidence to justify the proposed level of discount.

In addition to providing a quantitative basis for establishing a discount of 80% the report sets out numerous benefits of storage which reinforce the case for a discount, which when considered in aggregate, might reasonably result in a level greater than 80%. In summary, these benefits include:

- Storage flows are highly correlated to demand, or changes in demand. The main driver for this is that demand is the primary driver of price (again a very high correlation exists between these variables) and Users employ storage to capture the intrinsic value associated with market price spreads over various durations (commonly known as time shifting the value of gas). Both National Grid and customers benefit from this interaction between storage flows and demand/price as it provides assistance in balancing the network while dampening price volatility and delivering positive externalities, or societal benefits, by reducing price spreads across a range of time periods.
- Storage delivers transmission benefits in terms of avoided investment in additional capacity. The fact that it is embedded in the network, close to demand, and operates in harmony with changes in demand means that storage delivers significant cost savings to the NTS and ultimately customers.
- Security of supply is enhanced by gas storage. Gas stored in the facilities provides cost effective and reliable insurance against supply disruptions and demand spikes. The benefits will be twofold: delivering gas to the market in which it is located; and dampening the price of gas by adding volume to the available supply

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

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 and Interruptible / Off-peak adjustment there will be an under recovery driven by the levels of discounts or adjustments (e.g. Interruptible / Off-peak adjustment and Specific Capacity Discounts). 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 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

¹³ <https://gasgov-mst-files.s3.eu-west-1.amazonaws.com/s3fs-public/ggf/book/2019-02/WWA%20GSO%20NTS%20CapacityDiscountsReport270219finaldraftv0%2005.pdf>

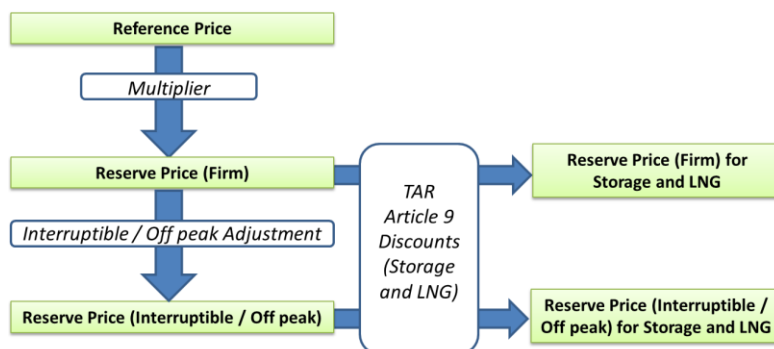
Minimum Reserve Price

It is proposed that Final 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

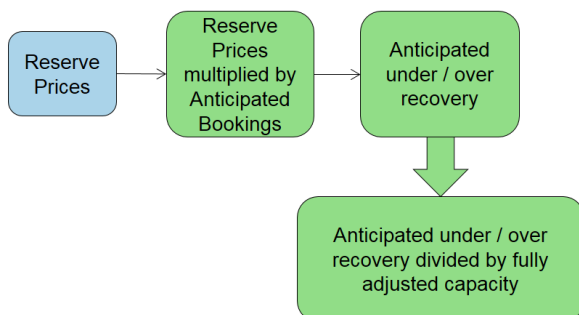
For the purposes of capacity step prices used in the QSEC Auction, it is proposed that these will be an additional 5% of the applicable Reserve Price or 0.0001 p/kWh/Day, whichever is the greatest, per step.

Transmission Services Revenue Recovery Charges (see para 3.28 to 3.30 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 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 be used to forecast the anticipated under or over recovery. 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 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 capacity booked at Storage points (for the avoidance of doubt, this includes relevant Existing Contracts for Storage and all subsequent capacity bookings for Storage).. 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, or Exit Capacity booked for the applicable year, except capacity booked at Storage points, (irrespective of when this capacity was procured from National Grid) would be subject to Revenue Recovery charges.

The exclusion of capacity booked at Storage points is consistent with the findings of Ofgem in its Gas Transmission Charging Review¹⁴ on the basis that flows to and from storage (or capacity booked at an entry to deliver gas to, or an exit point to ultimately offtake from) have already made a contribution to historical cost recovery.

Further, this exclusion ensures the charging structure accommodates common practice of storage operators in relation to the acquisition and subsequent release of entry capacity to Users of their facilities. In a number of cases, Entry Capacity at storage facilities will have been acquired by a nominated User, often to trigger National Grid investment to build and release the required volume of capacity. The sale of storage services by operators is often bundled with the transfer of entry capacity from the nominated shipper holder of Entry Capacity to the entity acquiring storage services. If a Revenue Recovery Charge is applied to Existing Capacity transferred at any time after the 7th April 2017 "cut-off date" then, in the case of Modification Proposal UNC 0678, the acquiring User would be subject to a Revenue Recovery Charge, on the basis that it is not the original holder of the Existing Capacity. This approach will result in the additional costs being incurred by the storage operator and is, quite clearly discriminatory. The

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https://www.ofgem.gov.uk/sites/default/files/docs/2015/11/qtr_confirmation_of_policy_view_and_next_steps.pdf

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charging arrangements should not differentiate between Users, using the same product, but acquiring indirectly via a third party, nominated User instructed to purchase the capacity by virtue, of for example, the storage operator not being a UNC registered User.

In short, the exclusion of Revenue Recovery Charges on adjusted Capacity at Storage will ensure that storage owners are able to offer storage services to the third party Users on a equivalent basis to Users who acquired capacity prior to and including 05 April 2017.

NTS Optional Commodity Rate¹⁵ (see para 3.31 to 3.34 in Section 3)

It is proposed that the existing NTS Optional Commodity Rate (OCR) is removed.

The existing OCR will no longer be available from the Effective Date.

It is proposed that National Grid will use reasonable endeavours to provide (after a decision has been made and affording as much notice as is practicable prior to the Effective Date) notification to each User at a Point with an existing OCR of the cessation of the OCR with effect from the Effective Date. Any User electing the OCR after the date of Ofgem's decision to implement this Proposal and before the Effective Date will be informed as part of the confirmation of the OCR that it will no longer be available after the Effective Date and any current election will end from that Effective Date.

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.

¹⁵ As defined in TPD B1.8.5(d)

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- 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.

Deleted:

Surrender of Unprotected Entry Capacity (see para 3.41 in Section 3)

A mechanism to permit the surrender of QSEC Capacity acquired in specified QSEC auctions is proposed to be introduced as follows:

- Where the initial price for Capacity booked for the 2019/20 Gas Year, as calculated for the purpose of the Annual Invitation to Participate in the Auction of Quarterly System Entry Capacity, as stated in the Notice of Revised NTS Entry Capacity QSEC Reserve and Step Prices Notice, increases by more than 5% of the price at which the capacity was allocated, then the User may surrender some, or all of the capacity back to National Grid for all qualifying capacity from the effective date, without further charge.
- Where the initial price for Capacity booked for any subsequent Gas Year, as calculated for the purpose of the Annual Invitation to Participate in the Auction of Quarterly System Entry Capacity, increases by more than 5% + RPI for the relevant charging period (i.e. for October 2020 the RPI from the 12 month period up to the month of publication of the Annual Unprotected Quarterly System Entry Capacity Surrender Invitation) of the price at which the capacity was allocated, then the User may surrender some, or all of the capacity back to National Grid, without further charge.
- In relation to Oct 2019 (or any alternate Effective Date), Unprotected Entry Capacity may be surrendered within 10 Business Days following the publication of the Annual Unprotected Quarterly System Entry Capacity Surrender Invitation which will be published as soon as practicable after the Reference Prices for the Effective Date have been calculated. Such capacity will be termed Surrendered Unprotected Entry Capacity Contracts. Once surrendered, capacity will be removed from the User's registered capacity holdings at the relevant Entry Point.
- A User is restricted in terms of the volume of capacity it is able to surrender, where the volume of Unprotected Entry Capacity exceeds the volume of adjusted Entry Capacity at the relevant Entry Point (e.g. where the User has transferred a volume of capacity to a third party), then the maximum volume of capacity which can be surrendered is equal to the volume of adjusted Entry Capacity.
- In subsequent years, National Grid will publish the Annual Unprotected Quarterly System Entry Capacity Surrender Invitation at least four weeks prior to the publication of the Annual Invitation to Participate in the Auction of Quarterly System Entry Capacity. Users will have 10 Business Days following the publication of the Annual Unprotected Quarterly System Entry Capacity Surrender to inform National Grid of its surrender quantity.

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- The prices set out in the Annual Invitation to Participate in the Auction of Quarterly System Entry Capacity will be calculated following the exclusion of revenues and resetting of FCC's associated with Surrendered Unprotected Entry Capacity Contracts
- At such time as all Unprotected Entry Capacity has been surrendered the Annual Unprotected Quarterly System Entry Capacity Surrender process will terminate.

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 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 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.

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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. 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*:
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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	
	Annual Unprotected Quarterly System Entry Capacity Surrender Invitation	New Publication	
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. 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 Proposer believes is fairer and more proportionate than the

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current regime with all Users of the NTS contributing towards the costs of the NTS by picking up Transportation Charges.

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. In terms of storage, the level of discount and exclusion from the application of a Revenue Recovery Charge will protect customers from further deterioration in the volumes of storage capacity available, ensuring gas price volatility is dampened and security of supply protected.

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 pipe-line system.	Positive
b) Coordinated, efficient and economic operation of (i) the combined pipe-line system, and/ or (ii) the pipe-line system of one or more other relevant gas transporters.	Positive
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 pipe-line system

Based on analysis carried out by Storengy and Waters Wye Associates (WWA) there is a clear relationship between the physical operation of storage facilities and the pipe-line system.¹⁶ The strong, positive correlation between aggregate gas demand and storage withdrawals/injections means that National Grid, in its role as SO, benefits from gas storage, at no cost. The flexibility provided by gas storage provides direct support to National Grid in its role as system balancer through; contributing to linepack management and reduced activity and costs associated with National Grid's participation in the balancing market (OCM) or any other contractual arrangements it may choose to enter into as part of its network balancing toolbox.

By setting that storage discount at the minimum permissible level of 50% analysis performed by the proposer and WWA indicates that in the absence of any other changes to the determination of NTS charges that the aggregate costs incurred by storage owners would escalate significantly, as shown in Table 5 below (see also Appendix 3, Table 1)

Table 5: Costs to storage of alternative discounts

Scenario	Entry Cap (firm) £/a	Exit Cap (Int) £/a	Total £/a
LRMC 18/19	1,315,980	0	1,315,980
Modification 0678	5,553,868	2,554,754	8,078,622
Modification 0678A	7,342,406	2,839,605	10,182,011

¹⁶

WWA paper can be found here <https://gasgov-mst-files.s3.eu-west-1.amazonaws.com/s3fs-public/ggf/book/2019-02/WWA%20GSOG%20NTS%20CapacityDiscountsReport270219finaldraftv0%205.pdf>

Storengy paper can be found here <https://gasgov-mst-files.s3.eu-west-1.amazonaws.com/s3fs-public/ggf/book/2019-03/GCR%20Gas%20Storage%20Benefits%20Document%20v1.3%20%28provided%20by%20Alex%20Nield%29.pdf>

Mod 678F	2,159,314	1,046,579	3.205.893
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The impact of these cost increases will lead to reduced storage cycling as the variable costs incurred by storage owners will diminish opportunities for capturing value in shorter term spreads. In turn, system balancing costs will increase, as storage will less frequently make a positive contribution to the overall balance of the network and limit access to an essential balancing tool for shippers and National Grid as the balancer of last resort. The impact on storage profitability is highlighted in the Ofgem UNC 0621 letter and the accompanying Baringa analytical report, which states:

"Although the largest share of costs of storage facilities relate to CAPEX and is therefore sunk, a reduction in net revenues of 20-30% or more would significantly impact the profitability of storage facilities. If operating costs are sufficiently low, storage facilities are likely to remain open but revenues may not be sufficiently high to justify any significant further investment, including refurbishment costs. Hence, under a number of alternative tariff methodologies, storage facilities may encounter challenges in continuing operations in the medium-to longer-run."

In addition, Baringa understands that any changes to tariffs will be considered differently to shifts in market conditions and as a result will be "burdened" by the storage operator in terms of service offerings.

"The impact of changes in the tariff methodology would be seen as permanent and would therefore not be assessed in the same way."

The level of discount should be consistent with the contribution to system flexibility (EU Tariff Code) and the proposer believes that the application of the minimum permissible discount does not fulfil this requirement. The minimum, according to the EU Tariff Code simply avoids storage users being "double charged" for the use of the system, reflecting the "parking service" unique to storage located within a national network. On this basis, the proposer contends that a discount of 80% not only better reflects the contribution made by storage facilities in relation to the efficient and economic operation of the pipe-line system, but also preserves the ability for gas storage to provide an economic means for balancing the pipeline system. The additional costs imposed on storage users through the application of the minimum discount, and in particular the related significant escalation in the cost of off peak capacity, would result in undesirable market impacts, such as increased between day and within day price volatility. These market impacts conflict with this objective by inflating the costs associated with balancing the system.

b) Coordinated, efficient and economic operation of

(i) the combined pipe-line system, and/ or

(ii) the pipe-line system of one or more other relevant gas transporters

Storage provides support to the entire network. Its proximity to demand and flow response to changes in aggregate demand levels ensures that overall system pressures are supported, benefiting the NTS and connected networks. In the absence of storage, marginal gas supplies would be more distant from demand which in turn may result in operational issues for DNs, in the absence of additional investment in the NTS.

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 5 ('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. Where the treatment of storage better reflects the costs/benefits of it on the system, it improves the overall cost reflectivity of charges and as such better facilitates competition through diminished cross-subsidisation.

The Proposal to allow Users who acquired Unprotected Entry Capacity Contracts to surrender this capacity where specific price triggers are exceeded ensures that those Users are not disadvantaged nor discriminated against after acting in good faith based upon information provided by National Grid in its Annual and Ad hoc QSEC auction invitations published between 12 February 2018 and 20 December 2018. Where Users are presented with inconsistent information and clarity about the explicit treatment of certain types of capacity (Existing Contracts) compared to others (non-Existing Contracts) by the seller of a product, it is reasonable that the purchaser provided with an opportunity to "reverse out" of the transaction where the underlying price changes beyond a reasonable level. Were this not the case, Users who acquired this capacity are encumbered with an excessive fixed cost, putting them at a competitive disadvantage to those able to adopt an alternative purchasing strategy aligned with the features of a new charging regime.

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 to TPD B and EID B (where applicable) support the implementation of the new charging methodology and arrangements including those elements required to comply with the EU Tariff Code. The decision to reject UNC0621 and its Alternatives highlighted three areas of compliance that needed to be addressed (Interim Contracts, Transition Period and the NTS Optional Charge). This Modification Proposal 678F proposes changes that will address these. A comparison table is provided on the JO website. This table highlights for awareness a comparison between Modification Proposal UNC0621 and this Modification 0678F, highlighting steps taken to address compliance in line with Ofgem's 0621 Rejection Letter. 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;
- The removal of the charge to manage avoidance of inefficient bypass (as highlighted in this Proposal, National Grid has raised a separate review group (UNC0670R) to address this aspect of charging in the longer term);
- Include price triggers for voluntary surrender QSEC capacity acquired in either of the 2018 QSEC auctions to reflect a reasonable expectation of the future cost of such capacity bookings at the time of acquisition; and
- Appropriate treatment of storage with a discount more properly reflecting the contribution to system flexibility and security of supply of such infrastructure. In addition, the exclusion of capacity booked at Storage points from the Revenue Recovery Charge is consistent with the requirement of EU TAR Article 9 to avoid double charging at Storage Points, as confirmed by Ofgem in its GTCR Confirmation of policy view.

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It should be noted that in other Member States; Belgium will apply a discount of 50% on capacity held at storage Entry points and a 100% discount on associated Exit capacity; Germany will apply a 75% discount on all storage related capacity products and France currently applies a discount at an average level of 85%

It should also be noted that the concept of capacity price triggers and the surrender of capacity is applied in Germany and will continue to be applied following implementation of the EU Tariff Code. In its Agency Report¹⁷, ACER did not state that this approach was non-compliant with the EU Tariff Code.

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; 	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;

¹⁷ https://acer.europa.eu/Official_documents/Acts_of_the_Agency/Publication/Agency%20report%20-%20analysis%20of%20the%20consultation%20document%20for%20Germany.pdf

Aspect	EU Tariff Code Requirements	Addressed in this Proposal by:
	<ul style="list-style-type: none"> • 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. 	<ul style="list-style-type: none"> • 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.
Multiplier	<p>Article 13: parameters for Multipliers –</p> <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	<p>Article 16: calculation of Reserve Prices for interruptible capacity -</p> <ul style="list-style-type: none"> • multiply firm Reserve price by difference between 100% and interruptible discount <p>Interruptible discount determined on the basis of –</p> <ul style="list-style-type: none"> • probability of interruption; and • adjustment factor representing the estimated economic value of the interruptible capacity product. 	<p>A discount of 10% is proposed which has been determined taking account of the criteria identified in this this Article.</p> <p>A discount of greater than 10% is not justified when taking these into account.</p>
Discounts	<p>Article 9: provision for discounts for –</p> <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 80% is proposed in respect of Storage which is consistent with 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	<p>Article 4(3): Method of recovery –</p> <ul style="list-style-type: none"> • capacity based; • with NRA approval and by exception, flow based. 	Capacity-based Transmission Services charges and revenue recovery mechanism are proposed,
	<p>Article 17: General rules including -</p> <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.
	<p>Article 18: Under and Over Recovery -</p> <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	<p>Article 35: existing contracts</p> <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, with the exception of Revenue Recovery Charges being applied to Existing Contracts, except at storage points; 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. Existing terms and conditions include the levying of a Revenue Recovery Charge, in the form of a TO Commodity Charge, except at storage points. All other capacity products are subject to the proposed enduring regime which is compliant with the other requirements of the EU Tariff Code.
Unprotected Entry	There is no reference to such capacity in the EU Tariff Code which by extension means	The ability to surrender or cancel capacity contracts following a change in the

Aspect	EU Tariff Code Requirements	Addressed in this Proposal by:
Capacity	that its construction is not non-compliant. Article 35 is concerned with the treatment of capacity which is classified as 'Existing'. Unprotected Entry Capacity is not proposed to be treated in the same way as Existing Capacity and should not be considered to be a 'subset' of Article 35.	underlying price is a common feature in EU Member States, for example Germany has and will continue to allow the cancellation of contracts in future.

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

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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 Proposer believes that the Proposal better reflects the costs incurred by the licensee. In particular, in relation to gas storage the application of an 80% discount combined with the non-application of Revenue Recovery Charges, better facilitates this objective. The requirement for a minimum 50% discount for

storage related capacity in the EU Tariff Code insulates storage users from double charging and nothing more, however, given that storage facilities are embedded in the network its application fails to appreciate the relative costs of delivering gas directly to offtakes compared to those incurred by routing gas via storage.

As set out in the WWA paper the fact that flows to and from offtakes located close to storage facilities are cheaper, in terms of transportation costs, than the cost of flowing gas to the same offtakes, but via storage (including a 50% discount), suggests that a 50% discount is not cost reflective. The application of an 80% discount ensures that the costs incurred under these two flow scenarios are equivalent, and that the costs of transporting gas to and from storage are as cost reflective as the costs of transporting gas directly between non-storage entry points and non-storage exit points.

Further, the application of an 80% discount ensures that the benefits, or negative costs which are delivered by storage in terms of investment savings attributable to the transmission owner are to some degree represented in the cost of using storage (see footnote 16).

The fact that the benefits of embedded entry points located within DN networks receive discounted DN transportation costs, or even credits, suggests that a discount which is set to singularly remove double charging is inconsistent with the approach taken in other pipeline networks. The additional level of discount provides a mechanism for recognising the benefits afforded by embedded entry points (and exit points) and is in line with the cost reflective charging methodologies approved and employed at the DN level

Finally, in relation to the application of Revenue Recovery Charges, the Proposal recommends that no charges are applied to storage (note that Modification 0678 proposes that such charges should be applied to non-Existing Capacity holdings on a capacity top-up basis). Currently, storage flows are exempt from the application of TO Commodity Charges (the mechanism employed to recover revenues not recovered from the sale of capacity products). On the basis that it is accepted that storage flows and indeed storage related capacity bookings should not be double charged then it must be the case that whatever Revenue Recovery Charge mechanism is employed that storage users should be exempt from its application. This approach is consistent with the findings of Ofgem in its Gas Transmission Charging Review on the basis that flows to and from storage (or capacity booked at an entry to deliver gas to, or an exit point to ultimately offtake from) have already made a contribution to historical cost recovery (see WWA report in footnote 16).

- 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 Proposer believes that the proposed utilisation of a new Reference Price Methodology which re-distributes National Grid's costs 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 and the current model is 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. The application of a Revenue Recovery Charge in relation to Existing Contracts reflects the current treatment of such capacity, insofar as a TO Commodity Charge is applied on all flows, independent of the time of booking. On this basis, it is reasonable to ascertain that Existing Contract holders would expect to make a contribution to revenue under-recoveries at the time of acquiring capacity, with the exception of Entry Capacity held at storage. The Proposer believes that excluding Existing Contracts from the application of a Revenue Recovery would be discriminatory, exposing any non-Existing Contract capacity bookings to an unfair distribution of costs, resulting in charges which are unreasonably high. Where costs are unfairly distributed, competition between shippers is compromised. In the Proposer's view, the EU Tariff Code does not provide protection to Existing Contracts beyond "fixing" the price of the capacity product secured at the time of allocation i.e. the auction price.

The application of an 80% discount and exemption from Revenue Recovery Charges for storage users better achieves this objective. Firstly, as described in the Storengy and WWA reports (footnote 16) gas storage provides shippers with access to physical flexibility to manage any physical portfolio imbalances which occur for a variety of reasons. Gas storage is an essential tool for a large number of shippers which contract directly with storage operators, but also provides wider benefits to all shippers as a result of enhanced security of supply and well-understood, significant positive externalities. These wider benefits dampen price volatility and reduce the likelihood of network constraints, gas deficit issues and cost escalation (see WWA and Storengy reports in footnote 17).

In terms of cost distribution, analysis carried out by WWA the impact on charges of applying an 80% discount is marginal. In isolation the move from a 50% to an 80% discount would reduce revenue recovery by approximately £7m across all entry and exit points in 2019/20. To put this into perspective this accounts for 1% of total allowed revenue. In relation to the removal of the Capacity Revenue Charge, again the wider impacts on non-storage users would be immaterial.

Based on the outputs from the UNC 0678 model, an 80% discount would result in Revenue Input Adjustments of £12M at Entry and £23M at Exit. On average, including non-Existing storage capacity the cost per kWh of capacity booked of these adjustments would be 0.19p/kWh/d at entry and 0.36 p/kWh/d at exit on average.

In terms of the Revenue Recovery Charge, exclusion of storage capacity from its application will have minimal impact on other Users. Analysis provided in Appendix 3 shows that were Transmission Revenues to be under-recovered by 5% then the Revenue Recovery Charge at Entry would increase by 0.04 p/kWh/d and at Exit by 0.002 p/kWh/d were storage capacity to be excluded from its application.

On this basis, there is no cross-subsidy between storage and non-storage users, beyond perhaps that as a result of the security of supply and broader societal benefits (externalities) non-storage Users are net beneficiaries of the 80% discount.

For reasons established in Relevant Objective d above the Proposer believes that Users that acquired Unprotected Entry Capacity Contracts should be presented an option to surrender some, or all of this capacity. In the event that capacity is surrendered, Users have exercised their right to acquire additional capacity on the same basis as other Users. Any changes to FCCs following the surrender process will result in reserve prices and charges which represent a level playing field for all Users as they will properly represent the capacity requirements and bookings of all Users in full awareness of the charging regime in which they are operating. In the event that all capacity bought in the qualifying auctions is surrendered the total cost, in the form of committed expenditure is £41m over the period Q14 2019 to Q3 2034 (see Table 1 in Appendix 3). The realised cost is dependent upon the level of subsequent bookings made by Users to 'replace' capacity surrendered, but will likely greatly exceed £41m.

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

The update to the Transmission Services methodology proposal takes into account developments which have taken place in the transportation business, in particular that the network is no longer expanding. Considering the lead time required for the development of such assets, assumptions on storage flows for the modelling of the impact of a discount of 80% on the Transmission Revenue Recovery Charges are robust for 5 years, at the very minimum.

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 Proposal UNC0621 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
- The removal of the charge to manage avoidance of inefficient bypass (as highlighted in this Proposal, National Grid has raised a separate UNC Request (UNC0670R) to address this aspect of charging in the longer term.

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- Appropriate treatment of storage with a discount more properly reflecting the contribution to system flexibility and security of supply of such infrastructure. In addition the exclusion of capacity booked at Storage points from the Revenue Recovery Charge is consistent with the requirement of EU TAR Article 9 to avoid double charging at Storage Points, as confirmed by Ofgem in its GTCR Confirmation of policy view.
- A capacity surrender mechanism which is not excluded in the EU Tariff Code and reflects the fact that Users participating in the qualifying QSEC auctions were not made aware, to any reasonable extent, that the price at which the contract was entered into would not be maintained at a future date.

Please see also the comparison table provided on the JO website. This table highlights for awareness a comparison between UNC0621 and this Modification and where specific areas of compliance needed to be addressed.

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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.

Additional considerations

Consistency with the Ofgem Electricity TCR principles

Ofgem has set out three principles to guide their work in the Electricity Targeted Charging Review. It would be reasonable to assume that the same principles will apply in its consideration of any wholesale changes to the gas transmission charging regime. To this end, the Proposer recommends that this Proposal is consistent with these principles, as follows:

1) Reducing harmful distortions

The replacement of the TO commodity charge with a capacity-based charging regime is consistent with EU TAR and ensures a fairer distribution of costs across Users and customers. A capacity-based approach reduces any distortions caused by excessive residual charges. In relation to storage, without adequate recognition of the costs imposed by the operation of storage facilities and the myriad of benefits which storage provides to the system operator, the users of the network, and ultimately customers, harmful distortions would be created which will manifest in the form of net societal costs. The treatment of storage related capacity in this Proposal goes some way to removing these distortions. Voluntary surrender or Unprotected Entry Capacity Contracts removes distortions in prices created by incomplete and inconsistent auction information presented to industry by National Grid in its 2018 QSEC Auctions invitations. Where this capacity has been acquired on the basis of expectation of charges which are no longer applicable this results in FCC's and associated Transmission Services charges being distorted.

2) Fairness

The Proposal results in a fairer allocation of network charges, more closely aligned to the costs and benefits which can be reasonably targeted at storage. The charge, in the form of a discount to standard charges, combined with an exemption from the application of a Revenue Recovery charge is simplistic, transparent, and predictable and we believe wholly justified by the analysis carried out to support, in particular, the level of the discount. The low-cost of supporting the charging arrangements for storage users also ensures that the impact on non-storage users and customers is minimal, in fact, the Proposer would argue it is far lower than the benefits which are generated by the existence and operation of storage.

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In relation to Unprotected Capacity Contracts it is clear that Users who acquired QSEC capacity in the 2018 QSEC Auctions were treated unfairly on the basis of the information presented by National Grid in its Auction Invitations. This is particularly the case when considering the information provided in the 2017 Auction Invitation and also in the more recent 2019 Auction Invitation, which links directly to the Ofgem UNC0621 Decision. The Proposer deems that any User who acquired Unprotected Capacity Contracts will be treated unfairly when compared to other Users able to modify their capacity purchasing strategy in light of the information which is now available.

3) Proportionality and practical considerations

Overall the Proposal is straightforward to implement and will have minimal impacts on central or User systems, however, it should be understood that market processes, in particular contracting for gas storage occurs within a Gas Year (the Storage Year runs from May) could be unduly impacted. In order for the market to respond to and accommodate any changes to the underlying transmission charging regime, sufficient notice must be provided prior to the commencement of the offering of storage services. Ideally, the implementation of any significant changes to charges, in particular capacity-related charges, should take place at the beginning of a Gas Year.

The volume of Unprotected Entry Capacity acquired in the 2018 auctions for Gas Year 2019 was 108 GWh/d. In the event that the capacity is surrendered, the impact on other Users in 2019 will be a maximum of £29,000, which is the total value of the surrender capacity. Of course, it should be expected that those Users which surrendered capacity will acquire capacity to support flows during 2019 at prices set in accordance with the CWD methodology

8 Implementation

Implementation of this Modification (the 'Effective Date') is proposed to be

- the first day of the third month following the calendar month in which Ofgem makes its decision; or
- another day, being the first Day of a month, not earlier than 1 October 2019 (and subsequent to the date of Ofgem's decision) which Ofgem specifies in its decision

9 Legal Text

Text Commentary

To be provided later

Text

To be provided later

10 Recommendations

Proposer's Recommendation

The Proposer recommends that this Modification should be treated as an Alternative to Modification 0678 and therefore it should proceed as such under the same timetable as that agreed with the Authority for Modification 0678 as far as practicable.

11 Appendix 1: Differences between Modification 0621 and this Modification 0678.

Note that for ease of reference, the comparison table, displaying the differences between Modification Proposal 0621 (which was rejected for implementation by Ofgem) and this Modification Proposal (0678F) and all other Alternatives, including Modification 0678 is published on the Joint Office website

12 Appendix 2: The FCC Methodology.

The FCC Methodology (as referred to in Section 5 is published on the Joint Office website¹⁸ and is contained within the following document:



FCC Methodology
v1.0.pdf

¹⁸ 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>

13 Appendix 3: Summary Analysis.

The analysis performed considers the impact of an 80% Storage Discount. The impacts associated with implementing a CWD based methodology are considered in Modification Proposal UNC 0678 and not repeated here.

Impact of QSEC Surrender mechanism

Only QSEC capacity acquired in either of the two QSEC 2018 auctions qualifies for surrender, in the event that the price trigger is activated. Table 1 shows the total cost of all capacity acquired in each of the auctions.

Table 1: Cost of QSEC Capacity in the 2018 QSEC auctions (Q4 2019 to Q3 2034, over 16 years)

Ad-hoc QSEC 2018	Cost at Auction	QSEC 2018	Cost at Auction
Bacton UKCS	2,080,719	Cheshire	260,985
Cheshire	150,132	Fleetwood	522,962
Easington	568,283	St. Fergus	18,812
Milford Haven	24,464,500	Teeside	13,204,980
TOTAL	27,263,634	TOTAL	14,007,740

In a worst case scenario, where all capacity acquired in both of these auctions is surrendered, then the total cost, in terms of committed expenditure by the relevant capacity holders is £41,271,274 over 16 years. Looking forward, it should be expected that Users will acquire Entry Capacity at the same Entry Points to align with future flows. Clearly, the form of capacity product and associated volume which will be acquired is not possible to estimate in any meaningful way, however, there is an expectation that the total costs incurred by these Users will exceed the surrender costs (noting that 2019/20 Reserve Prices increase by up to 20,000% at the listed Entry Points)

Comparison of impact of Storage Discount

Modification Proposal UNC 0678F sets the Storage Discount at 80%. Table 2 compares the costs to storage of operating under a number of charging scenarios: the current LRMC regime v UNC Modification 0678 (CWD with a 50% discount) v UNC Modification Proposal 0678A (PS with a 50% discount) and Modification Proposal

0678F (CWD with an 80% discount). In order to calculate annual costs, storage volumes for each facility have been stated and an assumed cycling frequency, based on historical data has been computed (volumes offtaken and entered at the storage site compared to storage volume). For the purposes of calculating Exit costs, it is assumed that Users of storage acquire Off-Peak Exit Capacity.

Table 2: Comparison of Entry and Exit costs to storage

Entry	Storage Volume		NTS Bookings		678	678A	LRMC	678F
	WGV	WGV	Cycling	Cycling	GY19/20	GY19/20	GY19/20	GY19/20
	mcm	GWh	Times	TWh	£/annum	£/annum	£/annum	£/annum
Stublach	400	4,400	4	17.6	2,340,800	3,185,600	17,600	932,800
Holford	160	1,760	4	7.0	936,320	1,274,240	7,040	373,120
Hill Top		374	1	0.4	48,994	67,694	374	19,822
Hornsea		2,623	2	5.2	645,356	949,671	724,058	257,093
Aldbrough (Garton)		2,100	2	4.2	499,798	760,196	524,998	201,599
Hatfield Moor	70	770	2	1.2	265,650	209,055	36,960	53,130
Humbley Grove (Barton Stacey)	300	3,300	2	5.0	796,950	895,950	4,950	321,750
TOTAL				40.6	5,533,868	7,342,406	1,315,980	2,159,314

Exit	Storage Volume		NTS Bookings		678	678A	LRMC	678F
	WGV	WGV	Cycling	Cycling	GY19/20	GY19/20	GY19/20	GY19/20
	mcm	GWh	Times	TWh	£/annum	£/annum	£/annum	£/annum
Stublach	400	4,400	4	17.6	1,108,800	1,232,000	0	457,600
Holford	160	1,760	4	7.0	443,520	492,800	0	183,040
Hole House + Hill Top		374	1	0.4	23,188	26,180	0	9,350
Hornsea		2,623	2	5.2	283,327	367,276	0	115,430
Aldbrough (Garton)		2,100	2	4.2	222,599	293,999	0	92,400
Hatfield Moor	70	770	2	1.2	62,370	80,850	0	25,410
Humbley Grove (Barton Stacey)	300	3,300	2	5.0	400,950	346,500	0	163,350

TOTAL				40.6	2,544,754	2,839,605	0	1,046,579
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In total, under UNC Modification Proposal 0678F the cost to storage Users would be £3,205,893 in 2019/20, compared to £1,315,980 under the current arrangements. Both Modification Proposal 0678 and 0678A which include a 50% Storage Discount would result in costs approximately 6 to 8 times higher than those identified in the current regime.

Impact of 80% Storage Discount

A Storage Discount will result in a revenue under-recovery. In accordance with the methodology set out in this UNC Modification Proposal UNC0678F requires that the expected under-recovery is fed back into the calculation of Entry and Exit Capacity Reference Prices so as to minimise the size of any Transmission Services Entry and Exit Revenue Recovery Charges. Table 3 shows the size of the Revenue Under-recovery caused by the Storage Discount and the Interruptible Capacity Multiplier where the Storage Discount is set at 50% and 80% respectively.

Table 3: Under-recovery of Revenue under 50% and 80% Storage Discount

Expected Revenue Recovery	Under-recovery £m		Unit Cost of under-recovery p/kwh	
	50% discount	80% discount	50% discount	80% discount
Entry	11	12	0.175	0.19
Exit	17	23	0.19	0.36

Table 2 shows that the total under-recovery with a 50% Storage Discount is £28m compared to £35M with an 80% discount. This £7m increase equates to around 1% of total allowed revenue for Transmission Services. Based on the FCC's provided in the 0678 Model the average cost per unit of capacity increases by 0.015 p/kwh/d at entry and 0.17 p/kwh/d at exit.

Impact of non-application of Revenue Recovery Charge at storage points

Where a Revenue Recovery is applied, and as described in Section 5 of this Proposal.

It is expected that the level of under-recovery will be minimal, on the basis that adjustments to revenues are made for storage discounts and the interruptible multiplier, and that the FCC's are accurate. For illustrative purposes, Table 4 considers a revenue under-recovery scenario of 5% of total revenues and sets out the resultant p/kwh/d unit charge on capacity bookings, including and excluding storage capacity.

In this scenario, the exclusion of storage capacity from the Revenue Recovery Charge results in a 0.04 p/kwh/d increase in the charge for Entry Capacity holdings and a 0.02 p/kwh/d increase in the charge for Exit Capacity holdings.

Table 4: 5% revenue under-recovery scenario

2019/20	FCC	5% UR (£17m)
Total FCC Entry	6,276,997,538	0.14
Total Storage FCC Entry	1,511,886,521	
Difference	4,765,111,017	0.18
Total FCC Exit	6,338,310,337	0.13
Total Storage FCC Entry	483,587,690	
Difference	5,854,722,647	0.15

