





Draft Modification Report - Part I			At what stage is this document in the process?
<p>UNC 0621, 0621A, 0621B, 0621C, 0621D, 0621E, 0621F, 0621G, 0621H, 0621J, 0621L:</p> <p>Amendments to Gas Transmission Charging Regime.</p> <p>0621K: Amendments to Gas Transmission Charging Regime and the treatment of Gas Storage</p>			<div>01 Modification</div> <div>02 Workgroup Report</div> <div>03 Draft Modification Report</div> <div>04 Final Modification Report</div>
Purpose of Modification: 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).			
	This Draft Modification Report is issued for consultation responses at the request of the Panel. All parties are invited to consider whether they wish to submit views regarding this modification. PLEASE NOTE THIS FORMS PART OF A SUITE OF DOCUMENTS: Part I (THIS DOCUMENT) is the overarching Workgroup Report containing all the key material relating to Modification 0621 and the ten Alternative Modifications (0621A, 0621B, 0621C, 0621D, 0621E, 0621F, 0621H, 0621J, 0621K and 0621L). Part II provides an individual Workgroup Report for each Modification containing all the information specific to that Modification. The close-out date for responses is 22 June 2018 , which should be sent to enquiries@gasgovernance.co.uk . A response template, which should be used, is at www.gasgovernance.co.uk/0621 . The Panel will consider the responses and agree whether or not this modification should be made.		
	 High Impact: All parties that pay NTS Transportation Charges and/or have a connection to the NTS, and National Grid NTS		
	Proposer		
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Timetable

The Proposer recommends the following timetable:

Workgroup Report presented to Panel	17 May 2018
Draft Modification Report issued for consultation	18 May 2018
Consultation Close-out for representations	22 June 2018
Final Modification Report available for Panel	02 July 2018
Modification Panel decision	19 July 2018

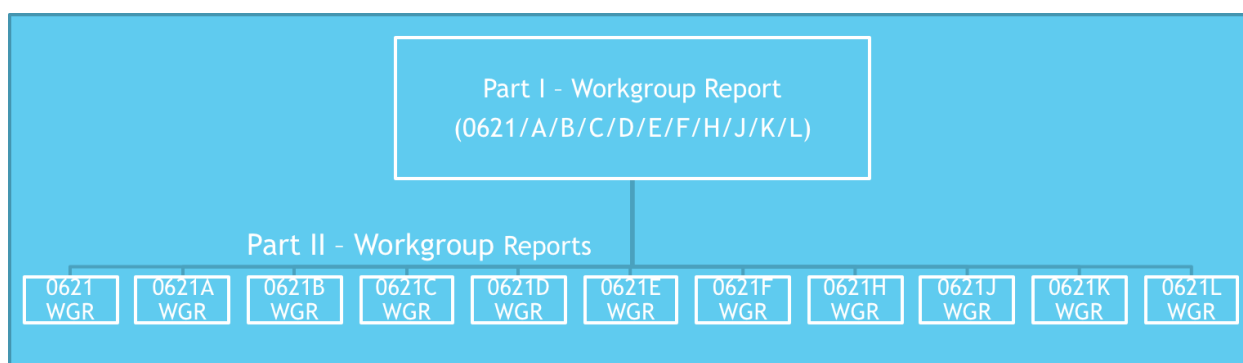
1 Report Structure and How to use the Report

Workgroups have been well attended with wide industry participation. Workgroup has met frequently to develop and discuss these proposals. Managing the number of Alternative Modifications (and amendments to these), combined with the timescales for delivery of the Workgroup Report to the Modification Panel, in line with Ofgem's Direction letter dated 08 March 2018 has constrained the debate on all aspects of all Modifications.

It has therefore been necessary to produce this Workgroup Report in a different way to what is normally presented.

The Workgroup Report is divided into two parts. Part I is the overarching Workgroup Report containing all the key material relating to Modification 0621 and the ten Alternative Modifications (0621A, 0621B, 0621C, 0621D, 0621E, 0621F, 0621H, 0621J, 0621K and 0621L). Note that the nomenclature 0621I was not used for clarity and that Modification UNC0621G was withdrawn. The content for this section comprises the following:

- How to use the report, including navigation;
- Comparison Tables – an 'at a glance' comparison of the key elements of Modification 0621 and the Alternative Modifications;
- Key Issues – provides Workgroup analysis and views of the key regime changes and differences in the proposed approaches;
- Relevant Objectives – contains the Workgroup assessment on how the Modifications better facilitate the objectives;
- Workgroup Conclusions and Recommendations; and
- Definitions.



Part II provides an individual Workgroup Report for each Modification containing all the information specific to that Modification. The content of each Part II report comprises the following:

- Modification (including Solution)
- Proposer's Analysis – Where provided by each proposer or National Grid to illustrate the impact of the Modification. Workgroup reviewed the additional information in these Part II reports but no Workgroup assessment was made for these sections due to the time constraints on the Workgroup process.
- Relevant Objectives – As provided by each proposer in the final version of their Modification.
- Legal Text – This is published as a separate document. Workgroup was unable to review the final legal text for any of the Modifications.

2 Introduction

National Grid submitted Modification 0621 to the UNC Modification Panel in June 2017 with the aim of designing an amendment to the gas charging regime which was to better meet the relevant charging objectives and customer/stakeholder provided objectives and deliver compliance with the forthcoming EU Tariff Code (Regulation 2017/460).

Modification 0621 and all of its alternative Modifications 0621A, 0621B, 0621C, 0621D, 0621E, 0621F, 0621H, 0621J, 0621K and 0621L aim to replace the current charging methodology, which is based on Long Run Marginal Cost (LRMC).

Modification 0621 and nine alternative Modifications 0621A, 0621B, 0621C, 0621D, 0621E, 0621F, 0621H, 0621K and 0621L all propose Capacity Weighted Distance (CWD) as the replacement methodology. Modification 0621J proposes Postage Stamp (PS) instead. Modification 0621G was withdrawn on 20 April 2018.

Whilst the underlying methodology of CWD or PS is proposed across the Modifications, these proposals also include additional charges/aspects that make up the overall charging framework for GB Transportation Charges. These include those charges for managing revenue recovery. These changes may be significant. (For further information regarding System Changes see Section 7).

3 Comparison Table

The comparison table has been developed to show how the alternative Modifications differ from the UNC Modification Proposal 0621. In the simplified and full version, blue cells show variation in treatment of that element from UNC Modification Proposal 0621. Workgroup thanked National Grid for its work to provide this useful table.

Note: the full comparison table has been used to aid in the formulation of the key issues section and the production of the legal text, especially where alternatives differ from the original National Grid UNC0621 proposal.

The Full and Simplified Comparison Tables are published here: <https://www.gasgovernance.co.uk/0621>

The Full Comparison Table is reproduced on the next page.

UNC Modification 0621, Counterfactual and Alternatives: Comparison of Key Elements

	Component	Element	COUNTERFACTUAL	0621	0621A	0621B	0621C	0621D	0621E	0621F	0621H	0621J	0621K	0621L
			v1.0	v5.0 (15/2018)	v5.0 (20/2018)	v5.0 (2/5/2018)	v5.0 (4/5/2018)	v4.0 (27/4/2018)	v3.0 (2/5/2018)	v4.0 (13/4/2018)	v3.0 (2/5/2018)	v3.0 (2/5/2018)	v2.0 (26/4/2018)	v2.0 (4/5/2018)
Transmission Services Charges			N/A	National Grid	Storergy	SSR	Centrica	Wales and West Utilities	Unijer	Unijer	ENI	RWE	Gateway LNG	Shell
	Capacity Reference Price	Reference Price Methodology (interim)	Capacity Weighted Distance	Capacity Weighted Distance	Capacity Weighted Distance	Capacity Weighted Distance	Capacity Weighted Distance	Capacity Weighted Distance (distance subject to square root)	Capacity Weighted Distance	Capacity Weighted Distance	Capacity Weighted Distance	Postage Stamp	Capacity Weighted Distance	Capacity Weighted Distance
		Reference Price Methodology (enduring)	Capacity Weighted Distance	Capacity Weighted Distance with adjustment to minimise Revenue Recovery	Capacity Weighted Distance with adjustment to minimise Revenue Recovery	Capacity Weighted Distance with flow based recovery	Capacity Weighted Distance with adjustment to minimise Revenue Recovery	Capacity Weighted Distance (distance subject to square root) with adjustment to minimise Revenue Recovery	Capacity Weighted Distance with adjustment to minimise Revenue Recovery	Capacity Weighted Distance with adjustment to minimise Revenue Recovery	Capacity Weighted Distance with adjustment to minimise Revenue Recovery	Postage Stamp with adjustment to minimise Revenue Recovery	Capacity Weighted Distance with adjustment to minimise Revenue Recovery	Capacity Weighted Distance
		Target Revenue	Gross Revenue (inclusive of existing and interim contracts)	Net of existing and interim contracts	Net of existing and interim contracts	Net of existing and interim contracts	Net of existing and interim contracts	Net of existing and interim contracts	Net of existing and interim contracts	Net of existing and interim contracts	Net of existing and interim contracts	Net of existing and interim contracts	Net of existing and interim contracts	Gross Revenue (inclusive of existing and interim contracts)
		Treatment of zero reference Prices	None. Zero permitted, no treatment prescribed.	Uses Weighted Average Distance to determine price using nearest non-zero Reference Price Entry or Exit Point's WAD.	Uses Weighted Average Distance to determine price using nearest non-zero Reference Price Entry or Exit Point's WAD.	Uses Weighted Average Distance to determine price using nearest non-zero Reference Price Entry or Exit Point's WAD.	Uses Weighted Average Distance to determine price using nearest non-zero Reference Price Entry or Exit Point's WAD.	Uses square root of Weighted Average Distance to determine price using nearest non-zero Reference Price Entry or Exit Point's WAD.	Uses Weighted Average Distance to determine price using nearest non-zero Reference Price Entry or Exit Point's WAD.	Uses Weighted Average Distance to determine price using nearest non-zero Reference Price Entry or Exit Point's WAD.	Uses Weighted Average Distance to determine price using nearest non-zero Reference Price Entry or Exit Point's WAD.	Use postage stamp price for entry / exit	Uses Weighted Average Distance to determine price using nearest non-zero Reference Price Entry or Exit Point's WAD.	Uses Weighted Average Distance to determine price using nearest non-zero Reference Price Entry or Exit Point's WAD.
	Forecasted Contract Capacity (PCC)	Interim arrangements	Obligated capacity for first 2 years	Obligated capacity for first 2 years	Obligated capacity for first 2 years	None	Obligated capacity for first 2 years	Obligated capacity for first 2 years	Obligated capacity for first 2 years	Obligated capacity for first 2 years	Obligated capacity for first 2 years	Obligated capacity for first 2 years	Obligated capacity for first 2 years	Obligated capacity for first 2 years
		National Grid Forecast (including Historical Capacity)	National Grid Forecast (including Historical Capacity)	National Grid Forecast (including Historical Capacity)	National Grid Forecast (including Historical Capacity)	Obligated capacity	National Grid Forecast (including Historical Capacity)	National Grid Forecast (including Historical Capacity)	National Grid Forecast (including Historical Capacity)	National Grid Forecast (including Historical Capacity)	National Grid Forecast (including Historical Capacity)	National Grid Forecast (including Historical Capacity)	National Grid Forecast (including Historical Capacity)	National Grid Forecast (including Historical Capacity)
		Multiplier (Annual Capacity Product)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0 for year 1	1.0	1.0
		Multiplier (Quarterly Capacity Product)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0 for year 1	1.0	1.0
		Multiplier (Monthly Capacity Product)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0 for year 1	1.0	1.0
Reserve Price - Firm and Interruptible		Multiplier (Daily Capacity Product)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0 for year 1	1.0	1.0
		Multipliers from year 2 onwards	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
		Interruptible / Off-peak adjustment (entry)	0%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%
		Interruptible / Off-peak adjustment (exit)	0%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%
		Interruptible/off-peak adjustments from Year 2 onwards	0%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10% at entry and non storage exit	10%
		Fixed or floating price	Floating	Floating	Floating	Floating	Floating	Floating	Floating	Floating	Floating	Floating	100% at Storage exit	100% at Storage exit
		Storage	50%	50%	50%	86%	86%	86%	50%	50%	50%	86%	86%	50%
		Interconnection Points	None	None	None	None	None	None	None	Bi-directional only, for 2 years + 50%, from 2021 + average weighted by forecast bookings (storage discount for proportion of matched in-out forecast bookings + 0% discount for unmatched)	None	None	None	None
		LNG	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
		Minimum Reserve Price	No minimum applies	0.0001p/kWh/d	0.0001p/kWh/d	0.0001p/kWh/d	0.0001p/kWh/d	0.0001p/kWh/d	0.0001p/kWh/d	0.0001p/kWh/d	0.0001p/kWh/d	0.0001p/kWh/d	0.0001p/kWh/d except at Storage Exit (where no minimum applies)	0.0001p/kWh/d
Revenue Recovery Charges (Interim)		Target revenue apportionment	None	Pro-rated according to forecast flows at IPs / non-IPs versus forecast total flows	Pro-rated according to forecast flows at IPs / non-IPs versus forecast total flows	Pro-rated according to forecast flows at IPs / non-IPs versus forecast total flows	Pro-rated according to forecast flows at IPs / non-IPs versus forecast total flows	Pro-rated according to forecast flows at IPs / non-IPs versus forecast total flows	Pro-rated according to forecast flows at IPs / non-IPs versus forecast total flows	Pro-rated according to forecast flows at IPs / non-IPs versus forecast total flows	Pro-rated according to forecast flows at IPs / non-IPs versus forecast total flows	Pro-rated according to forecast flows at IPs / non-IPs versus forecast total flows	Pro-rated according to forecast flows at IPs / non-IPs versus forecast total flows	Pro-rated according to forecast flows at IPs / non-IPs versus forecast total flows
		Duration	None	2 years	2 years	2 years	2 years	2 years	2 years at Entry and 3 years at Exit	2 years	2 years	2 years	2 years	2 years
		IP application	None	Capacity charge (applied to fully adjusted capacity)	Capacity charge (applied to fully adjusted capacity)	Capacity charge (applied to fully adjusted capacity)	Capacity charge (applied to fully adjusted capacity)	Capacity charge (applied to fully adjusted capacity)	Capacity charge (applied to fully adjusted capacity)	Capacity charge (applied to fully adjusted capacity)	Capacity charge (applied to fully adjusted capacity)	Capacity charge (applied to fully adjusted capacity)	Capacity charge (applied to fully adjusted capacity)	Capacity charge (applied to fully adjusted capacity)
		IP Exclusions	None	None	None	None	None	None	None	None	None	None	None	None
		Non-IP application	None	Flow based charge applied to allocations (flow)	Flow based charge applied to allocations (flow)	Flow based charge applied to allocations (flow)	Flow based charge applied to allocations (flow)	Flow based charge applied to allocations (flow)	Flow based charge applied to allocations (flow)	Flow based charge applied to allocations (flow)	Flow based charge applied to allocations (flow)	Flow based charge applied to allocations (flow)	Flow based charge applied to allocations (flow)	Flow based charge applied to allocations (flow)
		Non-IP Exclusions	None	Non-own use gas allocations (flow) at Storage Connection Points	Non-own use gas allocations (flow) at Storage Connection Points	Non-own use gas allocations (flow) at Storage Connection Points	Non-own use gas allocations (flow) at Storage Connection Points	Non-own use gas allocations (flow) at Storage Connection Points	Non-own use gas allocations (flow) at Storage Connection Points	Non-own use gas allocations (flow) at Storage Connection Points	Non-own use gas allocations (flow) at Storage Connection Points	Non-own use gas allocations (flow) at Storage Connection Points	Non-own use gas allocations (flow) at Storage Connection Points	Non-own use gas allocations (flow) at Storage Connection Points
		Target revenue apportionment between IPs and non-IPs	None	n/a	n/a	Pro-rated according to forecast flows at IPs / non-IPs versus forecast total flows	Pro-rated according to forecast flows at IPs / non-IPs versus forecast total flows	n/a	Pro-rated according to forecast flows at IPs / non-IPs versus forecast total flows	n/a	n/a	n/a	n/a	n/a
		IP application	None	Capacity charge (applied to fully adjusted capacity)	Capacity charge (applied to fully adjusted capacity)	Capacity charge (applied to fully adjusted capacity)	Capacity charge (applied to fully adjusted capacity)	Capacity charge (applied to fully adjusted capacity)	Capacity charge (applied to fully adjusted capacity)	Capacity charge (applied to fully adjusted capacity)	Capacity charge (applied to fully adjusted capacity)	Capacity charge (applied to fully adjusted capacity)	Capacity charge (applied to fully adjusted capacity)	Capacity charge (applied to fully adjusted capacity)
		IP Exclusions	None	None	None	None	None	None	None	None	None	None	None	None
		Non-IP application	None	Capacity charge (applied to fully adjusted capacity)	Capacity charge (applied to fully adjusted capacity)	Flow based charge applied to allocations (flow)	Capacity charge (applied to fully adjusted capacity)	Capacity charge (applied to fully adjusted capacity)	Capacity charge (applied to fully adjusted capacity)	Capacity charge (applied to fully adjusted capacity)	Capacity charge (applied to fully adjusted capacity)	Capacity charge (applied to fully adjusted capacity)	Capacity charge (applied to fully adjusted capacity)	Capacity charge (applied to fully adjusted capacity)
Revenue Recovery Charges (Enduring)		Non-IP Exclusions	None	Historical Contracts for Capacity at Storage Connection Points	Historical Contracts for Capacity at Storage Connection Points	Non-own use gas allocations at Storage Connection Points	Storage Connection Points	Historical Contracts for Capacity at Storage Connection Points	Historical Contracts for Capacity at Storage Connection Points	Historical Contracts for Capacity at Storage Connection Points	Historical Contracts for Capacity at Storage Connection Points	Historical Contracts for Capacity at Storage Connection Points	Historical Contracts for Capacity at Storage Connection Points	Historical Contracts for Capacity at Storage Connection Points
		Application	None	Enduring	Enduring	Enduring	Enduring	Enduring	2 years	2 years	2 years	2 years	2 years	2 years
		Method (date derivation)	None	Existing formula, cost base subject to annual RPI adjustment	Existing formula, cost base subject to annual RPI adjustment	Existing formula, cost base subject to annual RPI adjustment	Discount of CWD derived Reference Price with Revenue Rebate Adjustment	Not applicable	Existing formula, cost base subject to annual RPI adjustment	Existing formula, cost base subject to annual RPI adjustment	Existing formula, cost base subject to annual RPI adjustment	Existing formula, cost base subject to annual RPI adjustment	Existing formula, cost base subject to annual RPI adjustment	Existing formula, cost base subject to annual RPI adjustment
		Quantity (IPs)	None	Capacity deemed to have been used	Capacity deemed to have been used	Capacity deemed to have been used	Lease of capacity and allocation (flow) at entry point and exit point	Not applicable	Capacity deemed to have been used	Capacity deemed to have been used	Capacity deemed to have been used	Capacity deemed to have been used	Capacity deemed to have been used	Capacity deemed to have been used
		Quantity (Non-IPs)	None	Allocation (flow)	Allocation (flow)	Allocation (flow)	Allocation (flow)	Not applicable	Allocation (flow)	Allocation (flow)	Allocation (flow)	Allocation (flow)	Allocation (flow)	Allocation (flow)
		Alternative charges	None	Transmission Services Revenue Recovery charges and Non-Transmission Services (entry and exit) charges	Transmission Services Revenue Recovery charges and Non-Transmission Services (entry and exit) charges	Transmission Services Revenue Recovery charges and Non-Transmission Services (entry and exit) charges	Non Transmission Services Charges (entry and exit) charges	Not applicable	Transmission Services Revenue Recovery charges and Non-Transmission Services (entry and exit) charges	Transmission Services Revenue Recovery charges and Non-Transmission Services (entry and exit) charges	Transmission Services Revenue Recovery charges and Non-Transmission Services (entry and exit) charges	Transmission Services Revenue Recovery charges and Non-Transmission Services (entry and exit) charges	Transmission Services Revenue Recovery charges and Non-Transmission Services (entry and exit) charges	Transmission Services Revenue Recovery charges and Non-Transmission Services (entry and exit) charges
		Limitations	None	60km distance cap	60km distance cap	60km distance cap	Not available for Storage Connection Points, minimum distance 0.1km	Not applicable	60km distance cap	60km distance cap	60km distance cap	60km distance cap	60km distance cap	60km distance cap
		Application at Bacton ASFPs	None	NTS optional flow at UKCS and IP pro rata in proportion to total flows at both	NTS optional flow at UKCS and IP pro rata in proportion to total flows at both	NTS optional flow at UKCS and IP pro rata in proportion to total flows at both	NTS optional flow at UKCS and IP pro rata in proportion to total flows at both	Not applicable	NTS optional flow at UKCS and IP pro rata in proportion to total flows at both	NTS optional flow at UKCS and IP pro rata in proportion to total flows at both	NTS optional flow at UKCS and IP pro rata in proportion to total flows at both	NTS optional flow at UKCS and IP pro rata in proportion to total flows at both	NTS optional flow at UKCS and IP pro rata in proportion to total flows at both	NTS optional flow at UKCS and IP pro rata in proportion to total flows at both
		IP Application	Existing principles	Existing principles	Existing principles	Existing principles	Existing principles	Existing principles	Existing principles	Existing principles	Existing principles	Existing principles	Existing principles	Existing principles
		IP Allocation	Existing principles	Existing principles	Existing principles	Existing principles	Existing principles	Existing principles	Existing principles	Existing principles	Existing principles	Existing principles	Existing principles	Existing principles
Non-Transmission Services Charges		St. Fergus Compression	Existing principles	Existing principles	Existing principles	Existing principles	Existing principles	Existing principles	Existing principles	Existing principles	Existing principles	Existing principles	Existing principles	Existing principles
		NTS Metering	Existing principles	Existing principles	Existing principles	Existing principles	Existing principles	Existing principles	Existing principles	Existing principles	Existing principles	Existing principles	Existing principles	Existing principles
		ON Penalties Deficit	Existing principles	Existing principles	Existing principles	Existing principles	Existing principles	Existing principles	Existing principles	Existing principles	Existing principles	Existing principles	Existing principles	Existing principles
		SSMP Administration	Existing principles	Existing principles	Existing principles	Existing principles	Existing principles	Existing principles	Existing principles	Existing principles	Existing principles	Existing principles	Existing principles	Existing principles
		IP Allocation	Existing principles	Existing principles	Existing principles	Existing principles	Existing principles	Existing principles	Existing principles	Existing principles	Existing principles	Existing principles	Existing principles	Existing principles
		Entry and Exit Charges	Allocation (flow) based charge to recover residual Non-transmission services revenue, except non-own-use at storage	Allocation (flow) based charge to recover residual Non-transmission services revenue, except non-own-use at storage	Allocation (flow) based charge to recover residual Non-transmission services revenue, except non-own-use at storage	Allocation (flow) based charge to recover residual Non-transmission services revenue, except non-own-use at storage	Allocation (flow) based charge to recover residual Non-transmission services revenue, except non-own-use at storage	Allocation (flow) based charge to recover residual Non-transmission services revenue, except non-own-use at storage	Allocation (flow) based charge to recover residual Non-transmission services revenue, except non-own-use at storage	Allocation (flow) based charge to recover residual Non-transmission services revenue, except non-own-use at storage	Allocation (flow) based charge to recover residual Non-transmission services revenue, except non-own-use at storage	Allocation (flow) based charge to recover residual Non-transmission services revenue, except non-own-use at storage	Allocation (flow) based charge to recover residual Non-transmission services revenue, except non-own-use at storage	Allocation (flow) based charge to recover residual Non-transmission services revenue, except non-own-use at storage
		IP Application	Existing principles	Existing principles	Existing principles	Existing principles	Existing principles	Existing principles	Existing principles	Existing principles	Existing principles	Existing principles	Existing principles	Existing principles
		IP Allocation	Existing principles	Existing principles	Existing principles	Existing principles	Existing principles	Existing principles	Existing principles	Existing principles	Existing principles	Existing principles	Existing principles	Existing principles
		Publication of variables	Transportation Statement	Transportation Statement	Transportation Statement	Transportation Statement	Transportation Statement	Transportation Statement	Transportation Statement	Transportation Statement	Transportation Statement	Transportation Statement	Transportation Statement	Transportation Statement
		Maximum allowed revenue forecast	No proposed obligations	No proposed obligations	No proposed obligations	No proposed obligations	No proposed obligations	No proposed obligations	No proposed obligations	No proposed obligations	No proposed obligations	No proposed obligations	No proposed obligations	No proposed obligations

4 Key Issues

The table below sets out the key issues and differences as highlighted by the comparison table (4.1 to 4.8). Additional issues have also been identified through Workgroup discussions and these are added to the table (4.9 onwards). The Workgroup have provided an assessment of each of these issues in order to provide rationale for the approach taken. Where relevant the report also captures Workgroup members' views on the issues and any impacts on the Relevant Objectives.

Issue Reference	Charging Regime Element	Issue Description
4.1	Reference Price Methodology	<ul style="list-style-type: none"> Use of Capacity Weighted Distance (CWD) and Postage Stamp over the current LRMC methodology
4.2	Forecasted Contracted Capacity	<ul style="list-style-type: none"> Transition and enduring arrangements Obligated Capacity (during the 2 or 3 year transition period) and then National Grid forecast
4.3	Multipliers	<ul style="list-style-type: none"> Multiplier of 1.0 (year 1) and approach to setting it in future years (stay as 1.0 or subject to consultation)
4.4	Interruptible Discount	<ul style="list-style-type: none"> 10% (year 1) and approach to setting it in future years (stay as 10% or subject to consultation) and Exit interruptible at 100%.
4.5	Specific Capacity Discounts	<ul style="list-style-type: none"> Storage Discount - 50% or 86% Interconnector Points – none or 50% (for 2 years)/average weighted matched forecast (thereafter)
4.6	Revenue Recovery (Interim)	<ul style="list-style-type: none"> 2 years and being Flow based for non-IPs (except non-own-use at storage) / capacity or flow based for IPs (depending on the modification) Exclusions for IPs – none or historical contracts Exclusions for Non IPs – Storage or Storage and Historical Contracts
4.7	Revenue Recovery (Enduring)	<ul style="list-style-type: none"> Capacity based for all Exclusions for IPs – none or historical contracts Exclusions for Non IPs - Historical Contracts at Storage or Historical Contracts
4.8	NTS Optional Charge	<ul style="list-style-type: none"> 2 years/Enduring/3years/none Existing formula structure with cost base indexed to RPI. 60km cap. Alternative to Transmission Services Revenue Recovery Charge and Non-Transmission services charge. Additional Capacity discount

4.9	Legislative Compliance with EU Commission regulation 2017/460	<ul style="list-style-type: none"> Proposers advocate compliance for their proposals Concerns raised on specific areas on compliance
4.10	Periodic process to determine Parameters and information publication	<ul style="list-style-type: none"> No periodic consultation process outside of UNC change process proposed All values under Article 26 of EU Commission regulation 2017/460 subject to UNC change process if or when considered necessary
4.11	General Non-Transmission Services Charges	<p>General Non-Transmission Services Charges are net of any:</p> <ul style="list-style-type: none"> St Fergus Compression charge DN Pensions Deficit charges NTS Meter Maintenance charges Shared Supply meter point administration charges Interconnection Point Allocation charges <p>General Non-Transmission Services Charges - Flow based for non-IPs (except non-own-use at storage) Flow based for non-IPs (except non-own-use at storage)</p>
4.12	K Principles and adjusting revenues in subsequent years	<ul style="list-style-type: none"> Transmission Services K to be split between Entry and Exit <ul style="list-style-type: none"> Entry K to feed into Entry charges Exit K to feed into Exit charges Non-Transmission K to be aggregate value – no split between Entry and Exit
4.13	Security of Supply (SoS) and NBP impacts	<ul style="list-style-type: none"> Some concerns expressed Expectation will be considered in more detail as part of the Ofgem led Impact Assessment
4.14	Consequences of note	<ul style="list-style-type: none"> Capacity Reserve prices for Exit Points close to Entry points under CWD or PS proposals are higher than under LRMC. Geographic Distribution (mostly Exit) increases charges in specific parts of GB (see also section 4.17 DN Impacts). 'Outlier' charges – under CWD more than PS, certain points (notably St Fergus) are still higher relative to other Entry capacity reserve prices. Price differential between known fixed prices under Historical contracts compared to new capacity subject to updated RPM charges and impacts this may have.
4.15	Interaction between UNC0621 (incl. A, B, C, D, E, F, H, J, K, L), UNC0636 (incl.	<ul style="list-style-type: none"> Comments and concerns regarding the interaction between different modifications changing the same parts of UNC. Highlighting some Modifications that are in progress and how these interactions may be addressed.

	A, B, C, D) and UNC0653	
4.16	QSEC & AMSEC 2019 Interactions	<ul style="list-style-type: none"> Highlighting how the decision date may impact the charging arrangements for capacity, specifically for QSEC and AMSEC 2019.
4.17	DN Impacts	<ul style="list-style-type: none"> Analysis, observations and concerns on potential charge changes.
4.18	Independent Assurances on the development of any new Charging Models	<ul style="list-style-type: none"> Commentary on illustrative models is available and recognition of the need or assurances prior to using any charging model in setting actual charges.
4.19	Comparisons between the Modifications	<ul style="list-style-type: none"> Summary of comparisons between the Modifications on key areas and potential outcomes of the proposals. Assumptions made. Reference material for models and data. Summary of outcomes.

4.1 Reference Price Methodology (RPM)

The aim of the RPM and overall framework of charging is to recover the Transmission Services Revenue from Capacity based charges.

Analysis and critique of the current methodology and potential alternatives have been originally conducted through the NTSCMF and later, UNC0621 workgroups. The results of this assessment were published in January 2017 (<https://www.gasgovernance.co.uk/ntscmf/subg1page>) and the updated analysis presented April 2018 (<https://www.gasgovernance.co.uk/0621/200418>). From January 2017 the Workgroup considered that the current LRMC methodology is no longer suitable and should not be continued under the Gas Charging Review (that became UNC0621), this view was considered in the context of

- The EU Tariff Code;
- Measurement against relevant charging objectives; and
- Stakeholder objectives.

This continues to be the view and is reflected in the analysis.

The overall conclusion from this Workgroup is support for the approach to move away from LRMC.

A number of drivers have been considered for the change to the reference price methodology. This includes moving away from a forward-looking investment focused model (that does not deliver revenue recovery via capacity) to one that is more of a revenue recovery-based approach based on usage/capacity reservations. Workgroup supported this move away from an incremental focused model as the network is not expanding. CWD still provides some geographical diversity in charges whereas postage stamp provides uniform charges across the network.

All the proposals, with the exception of UNC0621J, have adopted CWD as the basis to underpin the methodology.

UNC0621J adopts a postage stamp (PS) model to underpin the methodology.

Moving away from LRMC was also supported by the UNC0621 Workgroup. The critique of the LRMC methodology highlighted that even small changes to the inputs to the methodology can drive significant variations in the charges. These arose mainly from the boundary issues of supply merit order requirement in the LRMC methodology that is not a feature of either CWD or PS. If adjusting the supply merit order and applying revenue adjustments, as highlighted in the analysis

<https://www.gasgovernance.co.uk/ntscmf/subg1page>)

then the resulting methodology is similar to a CWD approach, albeit more complicated. There is an expectation that CWD or PS will provide more stable and predictable charges than LRMC, to the extent that the inputs are stable that would positively contribute to the relevant objectives on competition and cost reflectivity:

- Competition – Stability, Predictability, Volatility – Addressing these key stakeholder objectives will promote competition (relevant objective (a)). Whilst not all Workgroup participants may agree this furthers this objective based on the outcomes of the calculations and different treatment within the proposals, the ambition of the methodologies is to further this objective. In all Modifications, the RPM is looking to improve these three key areas and also extended to the additional charges within the Charging framework, with particular emphasis on Transmission Services where most of the changes proposed under all Modifications are being made.
- Cost Reflectivity - LRMC is considered a cost reflective model that does use cost assumptions as one of the inputs. This approach assumes the NTS is expanding and is an investment focused model. In a network that is a) not generally expanding, b) seeing reduced demand and c) lower competition in auctions, it has been considered that this approach is less suited to the current arrangements.

Therefore, it was considered an alternative approach was more appropriate than attempting to modify the LRMC methodology.

Two proposals for the RPM are presented across the Modifications.

Justification of a revenue allocation (usage) focused RPM

Currently the LRMC model is an investment focused model. The intention behind the EU Tariff Code is not to be investment focused but to have a reasonable level of cost reflectivity and predictability in transmission tariffs; where revenue recovery is predominantly via capacity charges based on specific cost drivers such as capacity and the geographic distribution of points.

National Grid proposes that under the proposed methodology it should:

- Distribute charges differently across all network Users. Improvements to stability and predictability of charges with lower volatility compared to current arrangements could be beneficial to consumers as certainty of future prices may improve.
- Mean Users contribute to the costs of the NTS through the charging framework so that the capacity charges paid by Users of the NTS are more equitable than current arrangements where the costs can be vastly different with some Users paying large amounts and some paying very little for the same access (e.g. via the current discount or interruptible arrangements).
- Encourage efficient future usage of the system in combination with PARCA commitments.

- Recover costs already incurred. As a revenue allocation model, the charges recover the allowed revenue for each year. The allowed revenue can be seen as the costs for the NTS for the forthcoming year.
- Place more emphasis on revenue recovery of Transmission Services allowed revenue through the Capacity charges. These are based on cost drivers of capacity and distance. Whilst these cost drivers result in more “average” charges than current LRMC methodology (so the differential between the highest and lowest charges is reduced) they still retain some geographic differential to reflect the distance between points and the capacity bookings expected at each entry and exit point. The charges under CWD are not to incentivise specific actions by network users such as triggering investment signals (based on industry feedback – see this link to paper on LRMC, PS and CWD comparison:

<https://www.gasgovernance.co.uk/sites/default/files/ggf/book/2018-03/Comparison%20of%20Reference%20Price%20Methodologies%20-%20Charts.pdf>

as investment signals via pricing were now considered less relevant for industry stakeholders.

National Grid proposes that the majority of the revenue recovery is to be through capacity as the goal of the methodology. Whilst this is the overall ambition, it also recognises the transition as a step towards achieving this taking on board concerns on establishing an accurate forecast of capacity and using a transition period as a means to help inform this. National Grid’s expectation of the proposed methodology is that a) Shippers will book the volume of capacity closer to what is needed and b) the methodology will not give an incentive (where it is not considered necessary – see multipliers) between long term and short term against a backdrop of falling demand and lack of scarcity of capacity.

The charges under the proposals will predominantly recover the costs already incurred through the geographic distribution of charges using capacity and distance. The historical costs will feature in the allowed revenues for each year and therefore will be recovered through charges for new capacity bookings for all

All capacity will contribute to these historical costs however there will be a difference between fixed price contracts and the calculated reference price. The historical contracts will retain the fixed capacity price while the new contract price will be floating. The price difference is greater for all Modifications apart from UNC0621L which shares allowed revenue across all capacity bookings.

Under the current methodology, the cost reflectivity and cost recovery are aspects that have come under scrutiny in the discussions in developing the Alternatives. Cost reflectivity and how much it should be reflected in any charging approach has been a frequent topic of discussion.

Cost reflectivity is subjective and not defined. Workgroup participants could not reach a consensus on which proposal, if any, was more cost reflective. CWD uses two specific cost drivers (capacity and distance) and the methodology proposed uses these to collect the majority of the charges. Postage Stamp does not use these drivers but rather distributes allowed revenue across capacity bookings.

The goal proposed by National Grid is to collect 100% of allowed revenue via capacity charges in as short as possible a time frame, hence the short transition period. When it comes to the enduring period, the approach to charges for Transmission will be:

- Calculations for capacity reference prices take account of any forecast shortfall for interruptible or specific capacity discounts.
- This delivers the best chance to recover the transmission revenue via capacity reference prices.
- Any adjustment within year (i.e. driven by a variance between forecast and actual capacity bookings) will be via a capacity “top-up” charge.

- The capacity top-up charge will be a separate charge levied against Fully Adjusted Capacity that will not impact the CWD generated reference prices.

The Postage Stamp methodology also seeks to allocate and recover all of National Grid's allowed revenue via capacity charges but does so on a uniform basis, based on capacity as the single cost driver. The distance between entry and exit points is not included as a cost driver.

4.2 Forecasted Contracted Capacity

Inputs to RPM

The CWD methodology requires three main inputs:

1. FCC;
2. A target revenue; and
3. Distances on the network.

Two values are required for the FCC, depending on the modification where CWD is proposed. A gross FCC value for the total capacity at each Entry and Exit point and a net value (where used) deducting any Historical Contracts (those that attract a fixed price under the current regime). These values feed into to two steps of the CWD based calculations. All except UNC0621L and J require the two values.

1. A weighted average distance (WAD) for each Entry and Exit Point. This takes into account the Gross Capacity for all points. This does not net off Historical Contracts. Therefore, the WAD is the same irrespective of treatment of Historical Contracts when considering reserve prices and revenue recovery. This produces a WAD that is based on the total forecast capacity at each Entry and Exit point and the average shortest distances (using NTS pipeline distances) from each Entry to all Exit and each Exit to all Entry points.
2. A Weighted Average Cost (WAC) that is used to attribute an amount of money to recover at a specific Entry and Exit Point.
 - a. This step nets off any fixed price capacity and the revenue associated to them under UNC0621, A, B, C, D, E, F, H, J, K. The focus here is to set prices for capacity where updated prices can apply to recover the target revenue at each point from the target capacity at each point with the intention to not under or over recover. This means that any difference in price between the CWD reference price and the fixed price for historical contracts will be recovered in capacity prices for new entry bookings.
 - b. Where revenue is involved, in order to set charges such that it is aiming to recover the Transmission Capacity charges it is necessary to accommodate the fixed priced contracts and their known revenues.
3. UNC0621L does not net off these values at this step. The focus here is to set prices for capacity where updated prices can apply to recover the target revenue at each point from the target capacity at each point with the intention to recover the allowed revenue from each entry and exit point proportionate to its contribution to system costs. This method accepts there will be an under recovery from calculating prices that would not be applied to the levels of fixed prices and this will be dealt with under the revenue recovery charges.
4. An example of the WAD and WAC comparing UNC0621 and UNC0621L is shown below to illustrate the variances between the two steps in the calculation. This is for Entry only. Exit is not impacted by Fixed Price contracts regardless of whether they are included or excluded into the WAC for the

purposes of allocating revenues to a specific Exit point, in setting Exit Capacity Reference and Reserve prices.

Comparison for 19/20 Calculations between UNC0621 and UNC0621L to show the Entry WAD and WAC in the respective proposals								
Entry Point	UNC0621				UNC0621L			
	Forecast Contracted Capacity	Remaining Forecast Contracted Capacity (Net of Fixed Price Contracts)	Weighted Average Distance (WAD)	Weight of cost for a given entry point (WAC)	Forecast Contracted Capacity	Remaining Forecast Contracted Capacity (with Existing Contracts Removed if appropriate)	Weighted Average Distance (WAD)	Weight of cost for a given entry point (WAC)
Avonmouth	179,300,000	179,300,000	390	0.0251	179,300,000	179,300,000	390	0.0159
Bacton IP	1,297,800,000	1,208,541,081	305	0.1326	1,297,800,000	1,297,800,000	305	0.0901
Bacton UKCS	485,600,000	246,260,419	305	0.0270	485,600,000	485,600,000	305	0.0337
Burton Point	73,500,000	61,954,623	348	0.0078	73,500,000	73,500,000	348	0.0058
Barrow	340,010,000	294,893,556	385	0.0408	340,010,000	340,010,000	385	0.0298
Barton Stacey	172,600,000	82,353,425	378	0.0112	172,600,000	172,600,000	378	0.0149
Canonbie	0	0	383	0.0000	0	0	383	0.0000
Cheshire	542,700,000	27,181,479	306	0.0030	542,700,000	542,700,000	306	0.0378
Caythorpe	90,000,000	0	296	0.0000	90,000,000	90,000,000	296	0.0061
Dynevor Arms	49,000,000	49,000,000	416	0.0073	49,000,000	49,000,000	416	0.0046
Easington	1,407,150,000	701,340,901	294	0.0742	1,407,150,000	1,407,150,000	294	0.0942
Fleetwood	650,000,000	650,000,000	336	0.0787	650,000,000	650,000,000	336	0.0498
Glenmavis	99,000,000	99,000,000	509	0.0181	99,000,000	99,000,000	509	0.0115
Garton	420,000,000	0	282	0.0000	420,000,000	420,000,000	282	0.0270
Hole House Farm	296,600,000	12,383,452	301	0.0013	296,600,000	296,600,000	301	0.0204
Hatfield Moor (onshore)	300,000	300,000	270	0.0000	300,000	300,000	270	0.0000
Hornsea	233,100,000	181,793,452	290	0.0190	233,100,000	233,100,000	290	0.0154
Hatfield Moor (storage)	25,000,000	19,515,068	270	0.0019	25,000,000	25,000,000	270	0.0015
Isle of Grain	699,680,000	54,467,123	371	0.0073	699,680,000	699,680,000	371	0.0592
Milford Haven	950,000,000	20,961,644	562	0.0042	950,000,000	950,000,000	562	0.1217
Partington	215,000,000	215,000,000	315	0.0244	215,000,000	215,000,000	315	0.0154
Moffat (Irish Interconnector)	0	0	417	0.0000	0	0	417	0.0000
St Fergus	1,670,700,000	1,599,374,792	708	0.4079	1,670,700,000	1,670,700,000	708	0.2697
Teesside	445,090,000	363,295,994	352	0.0461	445,090,000	445,090,000	352	0.0357
Theddlethorpe	610,700,000	602,126,575	283	0.0615	610,700,000	610,700,000	283	0.0394
Wyth Farm	3,300,000	3,300,000	415	0.0005	3,300,000	3,300,000	415	0.0003

The above approaches put forward a methodology that aims to minimise the under or over recovery by recovering more from capacity-based charges. This is more evident in the Enduring periods from October 2021. UNC0621B has an enduring solution from October 2019 and does not have a step change in the methodology.

Under the proposal that uses Postage Stamp (UNC0621J):

The methodology requires two main inputs

1. FCC;
2. A target revenue.

The FCC is the amount of capacity, net of any capacity with a fixed price, to give the amount of capacity over which a target revenue is to be collected that would be setting prices aiming to have no under or over recovery charges.

The target revenue is the total revenue net of known revenue from fixed prices.

Under all these proposals it is accepted there will inevitably be an under or over recovery to manage over the course of the year and all proposals provide for Transmission Services Revenue Recovery charges.

This approach ensures the proposals further Relevant Objective (c) for competition and (aa) for calculating to charges best calculated to promote competition. All proposals except UNC0621B provide a framework to set charges to minimise under or over recovery. UNC0621B proposes minimum distortion of competition by employing a flow-based recovery charge. See also section 5 covering Relevant Objectives.

The proposals also provide a framework to manage under or over recovery where it occurs. This is to ensure that charges in any given year can be set in advance without any need for retrospective changes and also provide a mechanism (proposed differently across the Modifications) to manage anticipated under

or over recovery to minimise the amounts to be carried across from year to year. This will help minimise or mitigate the potential swings that could happen from managing under or over recovery.

Forecasted Contracted Capacity

The NTS CMF produced a paper¹ on the initial thoughts for the FCC and the FCC will need to be further developed by National Grid as part of the implementation of UNC 0621 or one of its Alternatives. FCC is a required value per Entry and Exit point under CWD. For PS, only an aggregate value for Entry and Exit is required. The FCC is required in order to calculate capacity reserve prices.

As mentioned above, the FCC is used in two steps in the calculation, in determining the WAD and WAC under CWD and the main denominator for Postage Stamp.

Transition

UNC0621B has an enduring solution from October 2019 with no transition period and so ensures stable and predictable charges with no step change between any transitional arrangements.

All the other Modifications have a transition period and propose Obligated capacity as the FCC:

- Values are published/publicly available and understood by stakeholders;
- Values are stable and the process for change is known; and
- Objectivity of the values is less of a concern as they are fixed as per the Licence.

Relevant Objective (d) Competition: For those Modifications with a transition period, the stable set of inputs aims to create more stable charges, more predictable outcomes and therefore better facilitate this Objective. UNC0621B has an enduring solution from October 2019 with no transition period and so ensures stable and predictable charges with no step change.

The driver behind any under recovery will be the relative difference between the actual bookings and the FCC. Due to Obligated levels being generally higher than expected capacity bookings, this will drive an under recovery in the transition period, to be recovered through Transmission Services revenue recovery charges.

Enduring

To reduce the Transmission Services revenue recovery charges, it is necessary to set the FCC closer to anticipated bookings. For the enduring approach the proposals, with the exception of UNC0621B, are to use a National Grid forecast for the FCC. As mentioned earlier, this forecast is to be produced nearer the time the enduring arrangements become effective. An obligation to produce this has been included into the solution along with the required explanation and rationale behind the proposed forecast.

Some Workgroup participants have concerns on the ability of National Grid to produce an accurate Entry and Exit point specific capacity forecast and the potential to compromise the stability / predictability of revenue recovery charges (within year changes) and / or K values (year + 2 under RIIO). Some Workgroup participants expressed concerns over the potentially high number of changes to revenue recovery charges and if this would require a Licence change.

¹ Link to FCC paper. https://www.gasgovernance.co.uk/sites/default/files/ggf/Forecasting%20Contracted%20Capacity%20v0%205_0.pdf

In the future Workgroup participants want changes to revenue recovery charges within a Gas Year no more frequently than under the current charging arrangements (i.e. once per year).

Fixed Prices in the GB regime and EU Commission regulation 2017/460 (EU Tariff Code)

In the GB regime there are fixed priced contracts. These are long term entry contracts for which the future year's liability can be secured in advance by committing to booking this capacity. This is only available under the AMSEC and QSEC auctions, therefore it is Entry only. The fixed prices are a feature of the GB entry regime. UNC changes and price changes have to date avoided applying retrospective changes to contracted prices. For Entry there is no feature that allows contracted commitments to be reduced, like there is on Exit.

EU Tariff Code Article 35 introduces the concept of Existing Contracts, in the GB regime this is being interpreted as applying to the fixed price component of long term entry contracts for capacity bookings. In the GB regime the proposals introduce the concept of Historical Contracts. These are the contracts where the prices are fixed as outlined above. In the absence of any change to the UNC, fixed prices are to be honoured in the proposals. Whilst there are some differing treatments on Historical contracts and Existing Contracts under the proposals for revenue recovery charges, all recognise the new terminology. Therefore, the contracts allocated between EU Tariff Code coming into force and the implementation/effective date of UNC0621 or its Alternatives need to be defined. These have been classified as Interim Contracts and, combined with Existing Contracts, these make up Historical Contracts.

There has been much discussion over the interpretation of Article 35 in respect of revenue recovery charges during Workgroup discussions. There has been solid agreement on the fixed nature of the fixed price contracts. Discussion has centred around the merits of applying a commodity or capacity-based revenue recovery charge.

Therefore, there is a need to introduce 'Interim Contracts' as a new term to accommodate fixed priced contracts.

FCC and Historical Contracts

The point specific capacity inputs to the CWD capacity calculations are either gross or net of Historical Contract capacity volumes, depending on the step in the calculation they are used. For the purposes of WAD they are gross, and where revenue is involved it is net (except for UNC0621L). The FCC for the WAD is gross in all proposals. When attributing the WAC, the process of allocating revenues to each point for the purposes of setting capacity charges, is therefore the non-Historical capacity bookings in the enduring period and Obligated in the transition period net of Historical Contract volumes and prices (except UNC0621L that proposes not to net off Historical Contract volume and revenues in the WAC step of the CWD model). This is the same across all the proposals using CWD. UNC0621J which uses Postage Stamp where aggregate capacity net of aggregate Historical Capacity is used when taking into account the revenue to be recovered from a target capacity.

This is to follow two principles:

- Capacity charges should be set to recover the target revenue from a target capacity. For any capacity for which the revenue is known (i.e. Historical) the revenue and capacity should be netted off. This retains the focus of the RPM that capacity charges are set to recover the required revenue. Exit does not have any Historical Contracts. If there were any they would be treated as Entry ones are.

- Historical Contracts are those that have procured the capacity under the cleared price auction (as defined in the UNC) under the current regime where it has been reasonable to say that the fixed capacity element of these prices could not have been foreseen to change.

At the same time, some Workgroup participants expressed concerns that it has not been foreseen that the revenue recovery charge will change format from currently commodity based to future capacity-based charge. Others expressed that revenue recovery charges vary under the current regime and therefore the revenue recovery charge is, for some Workgroup participants, not considered a fixed component of the Historical contract. This relates again to the different interpretations of Article 35 of EU Tariff Code.

Not all in the Workgroup agree with this approach. As it stands all the proposals, except UNC0621L, follow the same approach. In respect of Entry Reserve prices, this approach results in higher capacity charges compared with an alternative approach outlined in UNC0621L, where capacity inputs in the appropriate step would not be reduced by Historical Contracts. This alternative approach would increase the Transmission Revenue recovery charges but significantly decrease the difference in the price paid for new and Historical capacity bookings ensuring a more equitable approach to revenue recovery.

Some in the Workgroup, expressed concerns that, depending on the levels of interim contracts, this could mean that capacity booked, particularly in the enduring period (e.g. by new infrastructure projects), could face higher reserve prices.

Relevant Objectives (d) Competition: Some Workgroup participants felt that the impact was positive as this approach preserves the UNC contractual arrangements in place prior to any changes as a result of these Modifications.

However, some Workgroup participants felt that this approach was negative, as this could result in users paying very different prices for the same product, depending on when they procured it. This is not a new situation but the potential price difference under a new charging methodology could be much higher as it would be based on revenue allocation in the future.

4.3 Multipliers

Article 13 of EU Tariff Code (Level of multipliers and seasonal factors)

The Workgroup recognised that the proposal to include provision for capacity product specific multipliers (applied to the Reference Price to determine Reserve Prices) was proposed in order to comply with Article 13 of Regulation 2017/460. The EU Tariff Code permits multipliers within ranges for different capacity products. These ranges have the potential to increase or decrease prices relative to the annual reference price.

National Grid stated that it has proposed to apply multipliers of one (1.0) for all capacity products on the basis that it had not identified a need to incentivise procurement of one capacity product over another (i.e. to incentivise long term over short term or vice versa) and therefore this aspect of the pricing methodology would not influence Users' capacity procurement strategy if the payable price is ultimately the same. The Workgroup supported the proposed multipliers and noted that they were within the range permitted by Regulation 2017/460 Article 13(1). All proposals have the same multipliers of one (1.0).

Whilst multipliers (as a definition with associated ranges) are only mandated at Interconnection Points under the EU Tariff Code, the proposals apply this approach to all Entry and Exit points. Where possible, the approach of UNC0621 (and the Alternatives) is to have the same approach and methodology at all points. It is National Grid's view that this furthers Relevant Objective (aa) in that these charges are intended to avoid undue preference by levying charges to Users of the NTS on an equitable basis with no alternative

treatment on this aspect between Interconnection Points and Non-Interconnection Points. This is also considered positive for Relevant Objective (aa) and (c) on the grounds of competition with the same treatment across all Entry and Exit Points. Therefore, these proposals better meet these specific objectives GB that also happen to be compliant with EU Tariff Code Articles 2 and 13 providing a positive impact for Relevant Objective (e).

For information - Earlier versions of the UNC0621 proposal advocated that the post-year 1 multiplier values were directly subject to, and therefore potentially revised, as a consequence an annual consultation process managed by National Grid. The obligation under Article 26 of EU Tariff Code is on the National Regulatory Authority. Concerns were expressed by some Workgroup participants, and the regulatory view was that this could be looked at ahead of year 2 of the new regime (i.e. prior to October 2020). National Grid revised its Proposal such that the Multiplier value of 1.0 is enduring to the extent that it may be subject to subsequent Modification made pursuant to the UNC Modification Rules. Workgroup participants support the revised (latter) approach. All proposals have the same approach.

4.4 Interruptible Discount

The Workgroup explored the impacts on pricing stability of historical zero priced interruptible capacity products. It also considered the requirements contained in Regulation 2017/460 (Article 16) in relation to the extent of the future discount which can be applied to determine Reserve Prices for Interruptible Capacity. The discount is a product of the predicted probability of interruption allows the economic value, of the interruptible capacity product, to be taken into consideration. National Grid presented analysis (covering the previous ten years) to the Workgroup, to support the basis for the proposed discounts and although the probability was found to be very low, it was agreed that it was not zero. Workgroup participants, therefore gained a greater level of understanding in relation to the proposed level of discount.

National Grid recognised the views of some Workgroup participants, that attractiveness of the Interruptible capacity product is dependent upon it having a material discount to the equivalent Firm product. On this basis, National Grid put forward a banding approach such that the interruptible discount derived from the calculation prescribed by Regulation 2017/460 Article 16 was rounded up to the nearest 10%. This recognises the “economic value” aspect of Article 16.

Workgroup participants noted that any income from sales of Interruptible capacity would contribute to Non-Transmission Services Charges. Workgroup expressed the view that, logically, that Interruptible capacity should be a Transmission Service charge and revenue should feed into the Transmission Owner price control but that this is constrained by the current price control arrangements. Some viewed this as a compliance issue.

Earlier versions of the Proposal advocated that the post-year 1 interruptible discount were directly subject to, and therefore potentially revised by, an annual consultation process managed by National Grid. In response to reservations about this approach expressed by the Workgroup, National Grid revised its Proposal such that the interruptible discount of 10% (at Entry Points and at Exit Points) is proposed to be enduring to the extent that it may be subject to subsequent Modification Proposal.

The Workgroup recommended that the proposer of UNC0621K provided further justification for the use of 100% discount for exit interruptible, noting that all other proposals have a lower figure of 86% (storage discount) + 10% (interruptible discount) or 50% + 10%.

Whilst interruptible, under EU Tariff Code requirements, is only required at Interconnection Points, the proposals apply this approach to all Entry and Exit points (noting the alternative values under UNC0621K). Where possible, the approach of UNC0621 is to have the same approach and methodology at all points. This, in National Grid's view, furthers Relevant Objective (aa) in that these charges are intended to avoid

undue preference by levying charges to Users of the NTS on an equitable basis with no alternative treatment on this aspect between Interconnection Points and Non-Interconnection Points. This is also considered positive for relevant objective (aa) and (c) on the grounds of competition with the same treatment across all Entry and Exit Points. Therefore, this is a proposal that better meets these specific objectives for GB that also happens to be compliant with EU Tariff Code Articles 2 and 13 providing a positive impact for Relevant Objective (e).

Options proposed:

1. 10% discount (UNC0621, A, B, C, D, E, F, H, J, L)
2. 100% discount for exit storage interruptible (UNC 0621K).

The proposers of UNC0621K's view is that Articles 2 and 16 of EU Tariff Code place limitations on parameters for the calculation of reserve prices for standard capacity products for interruptible capacity for Interconnection Points. Modification UNC0621 extends these parameters to include all entry and exit points, however, the Regulation allows for different parameters for non-interconnection points and therefore different discounts to be applied for non-interconnection points whilst still remaining fully compliant with the regulations (which would cover UNC0621K's proposal of 100% interruptible discount at storage).

4.5 Specific Capacity Discounts

Storage

The Workgroup recognised that the requirement for application of at least a 50% discount to the Reserve Price at Storage Connection Points was proposed in order to comply with Article 9 of EU Tariff Code.

Options proposed:

1. 50% discount (UNC0621, E, H, L); or
2. 86% discount (UNC0621A, B, C, D, F, J, K)

Where 50% is proposed, it is stated that this is proposing the minimum level of discount prescribed by Article 9(1) in order to avoid double charging and to deliver compliance with the Regulation. Where the proposals are at 50% it is believed this is sufficient to cover this obligation under EU Tariff Code even if the "benefit" may be less than 50%. Where it is 50%, whilst it may not be material in influencing the charges of other users as revenues are redistributed, it still does mean there are parts of charges not paid by some parties that will and therefore paid by others.

Under UNC0621 the proposals are minimising any amounts redistributed across Users where charges are not levied on some parties and resulting revenues are therefore picked up in other charges.

Where 86% is proposed, it is stated that this level of discount is proposed based on that prescribed by Article 9(1) in order to avoid double charging and to sufficiently reflect storage's contribution to system flexibility and security of supply (as given in Article 9(1)) and to deliver compliance with the Regulation.

Summary of Storengy Paper concerning Security of Supply and NBP

Storengy published a paper on the concerns around Security of Supply and National Balancing Point (NBP) price on 17 April 2018. The paper can be found here <https://www.gasgovernance.co.uk/0621/270418>.

Security of supply impacts

Storengy states that without an enhanced discount for NTS capacity products at storage points, the additional costs incurred by Storage Users would prohibit the ability of such Users to "capture" price spread opportunities, thereby limiting cycling activity. In turn, the value of storage is diminished and undermines

its commercial viability. It is argued that such an outcome would compromise the contribution which storage makes to security of supply, which, theoretically could be compensated by high cost and inefficient investment in the gas network.

Other impacts

Storengy identified a number of additional impacts, including:

- NBP impacts – high transmission costs at storage would limit storage utilisation which in turn would increase gas price volatility.
- Balancing costs – high transmission costs at storage would increase the cost of balancing for shippers and for National Grid, in its role as SO.
- Electricity market impacts - high transmission costs at storage would increase the cost of flexible gas supplies and feed through to electricity prices, on the expectation that gas generation is the marginal supplier of power.

Charging Relevant Objective a): Cost reflectivity is the primary objective from the proposers of UNC0621A, B, C, J, K for proposing 86% discount. The proposals put forward a way that recognises Storage points do not have access to the NTS Optional Charge (or 'shorthaul') arrangements.

UNC0621D's proposal of 86% is proposed on the basis of the likely marginal cost associated with flowing gas in and out of storage.

LNG

The Workgroup recognised the proposal to include the potential provision for application of discount to the Reserve Price at LNG Connection Points. Article 9 of Regulation 2017/460 says this may be applied. All Modifications propose a 0% discount, effectively as a placeholder for compliance purposes, as, unlike the case of Storage Connection Points, there is no minimum level of discount prescribed in the Regulation.

Workgroup participants supported the proposed level of LNG discount. This level can be changed in the future through a UNC Modification.

Interconnection Points (IPs)

UNC0621F proposes a discount to physically bidirectional interconnection points which is equal to the discount applied to storage points. The proposer believes this is necessary to avoid a current market distortion and to ensure effective competition in the provision of seasonal flexibility whether via access to continental storage through physically bi-directional interconnection points, or via storage.

For the transition period the same discount as applied to storage is applied against the obligated capacity levels given this is used for forecasting bookings. For the enduring period the discount is only applied to the proportion of anticipated entry bookings at the physically bi-directional IPs which, over the same year, equals the anticipated exit bookings at the IP. Any additional entry/or exit bookings would receive no discount and thus would be treated in the same as any other entry or exit point. By combining these two discount levels in proportion to the anticipated bookings to determine a weighted capacity reserve price, it ensures an enduring solution that can adapt to, and reflects in an appropriate way, future variations in how the interconnectors may be used.

One workgroup participant suggested a counter to the justification in terms of the relevant objectives of the proposal is that access across the physically bi-directional interconnector provide more optionality for Users over domestic Storage which could be seen as reducing competition across GB users and potentially discriminating.

Relevant objectives for the proposed physically bidirectional interconnection points discount - effective Competition between Interconnector Users and Storage Users.

The proposer of UNC0621F argues effective competition will be enhanced through the equal charging treatment of storage and physically bi-directional interconnection points. It will remove a market distortion for shippers using continental storage via the interconnectors to meet GB's seasonal flexibility. It will create more of a level playing field for different sources of seasonal flexibility available to shippers, and ultimately to GB consumers. It increases the choice of shippers when procuring seasonal flexibility - they can consider Continental Storage accessed via physically bi-directional IPs or GB-located storage, without the distortion of differential National Grid charges. This is particularly relevant to the GB market and GB consumers following the closure of the Rough storage facility. Improved access to Continental Storage, on a levelled and competitive charging basis, would be a step in the right direction to meet the market's current structural needs. It also ensures compliance with the Regulation (EC) No 715/2009 (known as the Third Package: <https://ec.europa.eu/energy/en/topics/markets-and-consumers/market-legislation>) by removing a distortion to cross border trade.

Some workgroup participants questioned whether Interconnection Points qualify under the prescribed rules under Article 9 (2) of EU Tariff Code. This provides for discounts to be applied if chosen to do so for "infrastructure developed with the purpose of ending the isolation of Member States in respect of their gas transmission systems." This will likely have different interpretations as to whether discounts may be compliant under Article 9 (2) of EU Tariff Code.

4.6 Transmission Revenue Recovery Charges (transition period)

Historical / Existing Contracts

The Workgroup was in agreement with National Grid's interpretation of Article 35 of EU Tariff Code that while entry capacity was relevant, exit capacity was not, on account of exit capacity already being subject to a variable capacity price. It was concluded that Existing Contracts therefore relate to entry capacity booked prior to 06 April 2017 (which is the entry into force date of EU Tariff Code). National Grid recognised that there is a disconnect between the entry into force date of EU Tariff Code, and the implementation date of the related UNC Modification proposal. National Grid therefore created the category of 'Interim Contracts' to cover entry capacity allocated between these two dates (see section titled Fixed Prices in the GB regime and EU Commission regulation 2017/460 (EU Tariff Code)). Together the Existing Contracts and Interim Contracts are defined as Historical Contracts. National Grid also stated its belief that Article 35 does not cover revenue recovery charges.

The existing/historical contracts matter because they are subject to fixed prices and they are subject to different rules; Entry contracts cannot be reduced whereas on Exit, capacity obligations can be reduced under the UNC. There was some Workgroup debate around the treatment of Existing Contracts, including a paper produced by Eni (<https://www.gasgovernance.co.uk/NTSCMF/050917>) which recognised the status and contribution of Existing Contracts, and argued for special consideration under the new regime where no capacity based revenue recovery charge should be levied on Historical Contracts (because the current regime revenue recovery charge is in commodity form, and if a User does not flow, this top-up does not apply). This is only apparent in the enduring period. National Grid confirmed in its Modification that Historical Contracts (see section Forecasted Contracted Capacity) do not feed into the CWD or Postage Stamp models (as part of the capacity inputs to specific steps in the calculations) for producing prices. This recognises the revenue and associated capacity subject to fixed prices. Additionally, a rule was added in around Revenue Reconciliation charges, so that the historical entitlement at Storage sites will not attract a capacity reconciliation charge. The justification for this is that uniquely, Storage sites have a zero commodity charge at present (and it is not considered a variable charge under the current methodology)

and where linked to the fixed price capacity, it is considered relevant to exclude this particular category, therefore the reconciliation charge will continue to be zero for this capacity. It was noted that this 'exempt' capacity at storage sites will naturally fall away to zero with time.

Other Modifications have included further special rules for the treatment of Existing/Historical contracts with regards to Transmission Services Revenue Reconciliation.

Use of Transition period (relevant to all proposals except UNC0621B)

The Transition period for UNC621, A, C, D, F, H, J, K and L is between October 2019 and September 2021, inclusive. UNC0621E is the same for Entry, with Exit between October 2019 and September 2022. UNC0621B uses the same transition solution as UNC0621A as an enduring solution.

Bridging between two regimes is achieved via a transition period. Ideally, the methodology proposed under these proposals that have a transition period from 2019 for an FCC would produce reserve prices that will recover most of the transmission services revenue. This is the objective when it moves into the enduring proposals. The main benefit identified in having a transition period is to allow time to see behavioural responses, and benefit from using the data provided, in the fundamental changes to the charging framework and to develop a more informed capacity forecast. Without this, there are risks (in terms of unpredictable charges) of relying on a capacity forecast for both the calculation of reference and reserve prices and for the Transmission Services Revenue Recovery charges, where there is a likelihood of significant behavioural change due to the changes proposed. Without data to review and assist in the production of a forecast, this could be acting against Relevant Objectives (aa) where charges may be set too materially inaccurate. With a process and a path towards the development and use of a forecast that will take into account the data from the transition period (or as much as can be taken in time to set charges from 2021) this will further Relevant Objective (aa) in that it will look to avoid undue discrimination by setting charges that are more informed than they would otherwise be. Most Workgroup participants agreed with this approach.

Some were concerned that the behavioural responses would not be sufficiently 'bedded in' after only 15 months, such that the FCC in the enduring regime may not be accurate. UNC0621B and UNC0621E proposed different mechanisms to counter this.

Moving from low capacity charges, high commodity charges to a framework with high capacity charges and low, or zero revenue recovery (commodity) charges is a fundamental shift in the charging methodology.

Moving to a completely new methodology from that currently in place, resulting in prices that can be materially different with the addition of a transition period allows market participants time to adapt.

The scope and depth of changes is significant and in terms of the impact on Users of the NTS, a transition period would provide time to understand the impacts and to provide data to better inform a forecast.

Buying behaviours will change and, with the removal of zero prices, this is unpredictable.

Relevant Objectives for the Transition Period

Relevant Objective (d). Competition is based on having stable and predictable charges which can only be generated if National Grid has reliable data on which to build a capacity forecast. This data is expected to be generated during the transition period as behavioural responses emerge e.g. reaction to the removal of zero reserve prices.

Some Workgroup participants recognised that charges may be stable and predictable within the transition period and potentially within the enduring period (if the forecasts are accurate). However, the movement between transition and enduring periods leads to a step change in itself, both in total transmission charges and capacity element of charges.

Revenue Recovery Charges are required in order to manage the collection of National Grid's allowed revenue within year.

For any anticipated revenue shortfall from capacity charges (or any other dedicated charges) the revenue recovery charges are required and typically adjusted within year with the aim that there is no or little under or over recovery by the end of the year. Changes to these recovery charges are only on an ex-ante basis with the exception of the Entry Rebate.

Transition

Under all proposals the Transmission Services Revenue Recovery charge is commodity based at Non-IPs. Due to the uncertainty on the capacity forecast in the transition period as this new methodology comes into place, it was considered helpful to not place too many burdens on the capacity forecast as the risk of under or over recovery could be more significant without gaining more certainty on the capacity values expected. This would have the potential to add more risks on revenue recovery in the event the forecast is incorrect and capacity bookings are expected to change from 2019.

Workgroup participants noted that it would have been useful to demonstrate the effects on charges to the variation in the FCC. This would have been carried out given more Workgroup time.

Given it is an established method and understood and considered to be effective in managing revenue recovery, the use of a flow based commodity Transmission Services charge is to be applied at Non Interconnection Points. This is similar to the TO Commodity charges in place currently. This will not be applied to any storage flows (except own-use gas).

At Interconnection Points it is not possible to levy a commodity charge for the purposes of revenue recovery for Transmission Services. However, the prospect of not levying a revenue recovery charge is material and would place additional revenue recovery on non-Interconnection Points. National Grid proposes a capacity charge in the interim period for Interconnection Points that will be applied to all Fully Adjusted Capacity.

4.7 Transmission Services Revenue Recovery Charges (Enduring period)

It is necessary to have these in order to manage revenue recovery taking note that the capacity reserve prices can only be changed once per year.

In National Grid's view Revenue Recovery charges should be the exception rather than the norm for the enduring period. In SSE's view, proposer of UNC0621B, it is more important to have non-distortive charging by use of a flow-based recovery charge rather than aiming for full capacity based recovery.

Under UNC0621 all Fully Adjusted capacity will pay the Transmission Services Revenue Recovery in the enduring regime, with the exception of historical storage contracts. In the Alternatives there are differing treatments for the Transmission Services revenue charges with some variations on how these are applied particularly on Historical or Existing Contracts.

The top up charge is necessary in order to manage the difference between the FCC's used and the anticipated bookings (and in the case of UNC0621B and 0621L for the impact of any Specific Capacity Discounts and interruptible treatment). Any anticipated under recovery driven by any capacity discounts (e.g. storage, interruptible) will be managed by an ex-ante adjustment in the RPM to adjust the reserve prices.

As a result, it is expected that the Transmission Services Revenue Recovery charges should be minimal and over the whole capacity demand base (except historical storage) it will be a small charge.

4.8 NTS Optional Charge

All proposals except UNC0621D propose an NTS Optional Charge. Views expressed in the Workgroup on the benefits of having such a charge have included it being required:

- To encourage use of the NTS and therefore avoid inefficient bypass;
- To attract gas to the GB market
 - Conducive to cross border trade;
- To potentially help overcome some of the counter intuitive outcomes from the RPM, such as exit prices close to entry points being high.

Some of the Workgroup expressed the view that the product cannot be justified or the suggested benefits do not justify the product being required or permitted.

Through the Workgroups, the majority of participants support the inclusion of a NTS Optional Charge although its application results in some varying treatment across some of the modifications.

UNC0621B and UNC0621C propose a methodology for the NTS Optional Charge that is enduring and does not have a defined end for the methodology proposed. All other Modifications (except UNC0621D) propose NTS Optional Charge arrangements that will end at the end of the transition period prescribed (i.e. ending 30 September 2021 or 30 September 2022 for UNC0621E) as a consultation is proposed to develop the arrangements to be effective after this period.

The options in the proposals:

1. Same formula structure as today, costs indexed by RPI each year, exemption from Transmission and Non-Transmission revenue recovery charges for eligible volumes, distance cap of 60km. Under this proposal the product does not “time-out”. (This is UNC0621B).
2. Same formula structure as today, costs indexed by RPI each year, exemption or discounts to Transmission and Non-Transmission revenue recovery charges for eligible volumes, distance cap of 60km. End date of product at the end of the transition period. (This is UNC0621, A, E, F, H, J, K)
3. Discounted Transmission Services Capacity charge Transmission Services Revenue recovery charges payable on eligible quantities. Exemption from General Non-Transmission Services Revenue Recovery Charges. (This is UNC0621C).
4. No NTS Optional Charge (This is UNC0621D).

Updating costs for RPI

The cost inputs to the NTS Optional Charge are based on historical values from 1998. It is proposed these are indexed to 2019 for the first year and then by RPI into each subsequent year where these are used in the NTS Optional Charge proposals (UNC0621, A, B, E, F, H, J, K). As there is a limited cost base to update costs with confidence, the use of RPI was used as it is a publicly available value. RPI was considered more preferable than CPI as RPI is a feature of the RIIO-T1 price control.

This is on an average cost basis and does not take into account geographic variation of costs that would be incurred if building a bypass or costs of existing infrastructure that could be utilised to bypass the NTS.

Use of a distance cap

Several of the Modifications, propose the use of a distance cap of 60km (for details see: <https://www.gasgovernance.co.uk/0621/201217>). The cap (measured in km) is a straight line distance between the two nominated points. No other distances are being proposed for the distance cap. The use of the distance cap is to keep the product “short” in nature without having known routes for NTS Optional Charge ‘just missing out’ (e.g. if there were currently two routes utilised of 55 and 57km, a cap of 56 would mean the 57km route just misses out – a scenario proposals are looking to avoid). The range of routes

showed that there is a plateau beyond 60km and was a reasonable limit to adopt (see <https://www.gasgovernance.co.uk/0621/201217>).

Some have expressed views that there should not be a distance cap or that 60km is arbitrary. Other views have been raised which question the logic behind the 60km value not being linked to investment costs, although no proposals put forward a distance cap different to 60km. The 60km value does not represent an analysis of what is an efficient or viable investment to bypass the NTS. It is trying to make the charging arrangements more equitable by reducing the amount not paid by NTS Optional Charge users and borne by Non NTS Optional Charge users. In the development of the changes to the NTS Optional Charge, a review of costs was considered, however simply adjusting (increasing) the costs did not address the issue whereby high commodity charges incentivise use of NTS Optional Charge and this in turn increases the commodity which again incentivises use of the NTS Optional Charge. The use of a distance cap does limit the access to the NTS Optional charge to what could be considered a more reasonable distance. Originally it was not envisaged to be taken over the large distances it is currently being utilised for.

On the use of a distance cap, some Workgroup participants thought that it would adversely impact large customers and including Interconnection Points who avail themselves of the NTS Optional Charge.

Enduring arrangements

A review of the whole NTS Optional Charging arrangements was considered beneficial if there was sufficient time. Rather than continue the current arrangements and consider how it could work in a mostly capacity based regime, most of the Workgroup supported a more comprehensive review. For those Modifications that do not have an NTS Optional Charge beyond the transition period, it is required that a UNC review will be proposed to look at the future of the NTS Optional Charge to be effective from the end of the transition period. This will be a separate UNC change outside of UNC0621. Whilst this is expected to be raised in mid-2018, some concerns have been expressed in the Workgroup where, under proposals that have no NTS Optional Charge beyond the end of the transition period, there is no certainty of an NTS Optional Charge in the respective UNC0621 Modifications. The conclusion of any separate Modification on the review of the NTS Optional Charge would only deliver a new arrangement if implemented. Without such a change to the UNC, the NTS Optional Charge ends at the end of the transition phase.

UNC0621B and UNC0621C propose to have enduring arrangements for the NTS Optional Charge. UNC0621B and UNC0621C proposes an approach from 2019 and this will continue for all years to follow.

UNC0621D proposes that the current NTS Optional Charge will end on implementation of this proposal and by definition is an enduring solution.

In all proposals except UNC0621C where there is an NTS Optional Charge, the current NTS Optional Commodity charge will end on implementation to be replaced by the NTS Optional Charge and all Users will be required to apply for the charge to be effective from 01 October 2019.

For UNC0621C, Users will be deemed to apply for the charge to be effective from 01 October 2019.

Methodology for the NTS Optional Charge

All proposals except UNC0621C propose that National Grid produces and maintains a methodology statement for the NTS Optional Charge formula. This methodology statement will be referenced in UNC. UNC0621D does not require a methodology as it does not propose an NTS Optional Charge.

UNC0621C has the methodology for the NTS Optional charging as part of its solution and the inclusion of the method will be in the UNC.

Under UNC0621 the NTS Optional Charge caters for the differences to the Revenue Recovery charges. National Grid undertook an action (Action number 120418:0409) to illustrate how this applies to the following scenarios:

- Non IP to Non IP
- Non IP to IP
- IP to Non IP
- IP to IP

The results of this analysis is published here: <https://www.gasgovernance.co.uk/0621/Analysis> This shows the NTS Optional Charge works for these potential NTS Optional Charge routes under UNC0621.

4.9 Legislative Compliance

The Workgroup recognised and acknowledged that elements of the Proposal are driven by a need for the GB arrangements to comply with EU Regulation 2017/460. Principle areas of the proposed methodology subject to such compliance issues are:

- the Reference Price Methodology (*Articles 6 to 8*);
- the categorisation of Transmission and Non-Transmission Services (*Article 4*);
- the transition to a capacity based charging regime (*Article 4(3)*); and
- the application and extent of site and capacity product specific discounts (*Articles 9 and 16*).

The broad Workgroup consensus was that all the Proposals could be considered compliant with Regulation 2017/460. However specific concerns expressed by one or more individual members of the Workgroup are recorded in the relevant section/s of this impact assessment where there are questions regarding compliance on certain aspects of the proposals across the modifications or to any specific proposal.

It is accepted that there are a number of areas that are open to interpretation where such questions are focused. Some of these questions relate to the netting off of fixed price contracts (Historical Contracts) at certain steps in the capacity calculations and to the proposed method of dealing with zero prices (where they can occur). On these two items, National Grid provided the following view:

- **Fixed Price contracts.** (also see specific paragraphs under section 4.2 on Fixed Prices in the GB regime and EU Commission Regulation 2017/460 (EU Tariff Code)). EU tariff Code makes no prescribed treatment on how any contracts covered under Article 35 should be treated. As previously noted, for GB, it is essential to recognise fixed price contracts (also referred to as Historical or Existing or Interim Contracts across the modifications) as part of the overall methodology to recognise the fixed price applied. The netting of as part of the WAC calculation is necessary (under UNC0621, A, B, C, D, E, F, H, J) so that the charges set via the RPM recovery the required revenue) and to do not calculate prices that will not be applied to some capacity. UNC0621L proposes a slightly different approach for specific reasons outlined in the proposal that will calculate some prices that will not be applied to Historical Contracts. In either approach, this treatment of Historical Contracts is part of the overall RPM. Similar to the calculation step in most of the modifications (noted exclusions in UNC0621B and L) where there is a calculation step to adjust the reference price to cater for anticipated shortfalls from interruptible and storage capacity discounts), this is therefore accounted for as part of the Reference Price methodology.
- **Zero Prices.** Like with the steps mentioned under Fixed Prices, the treatment of zero prices is catered for as part of the overall RPM. EU Tariff Code arguably did not envisage zero prices as it assumes all capacity that is “priced” has these prices applied. However, it would be difficult to envisage the necessary considerations in a generic code to cater for all of the specifics needed to work for GB. For GB, due to either the obligated capacity or the potential capacity (net of Historical

Contracts), the WAC could be zero therefore the prices could be zero. In these events capacity may still be bought and it would need a price. To this end a methodology that uses the WAD of points (therefore the gross capacity i.e. does not net off Historical Contract or Fixed Price capacity volumes) to generate a price. This is done as part of the overall methodology and the same approach applied to Entry and Exit.

Under both these categories it is considered by the proposers that this is therefore treating all points with the same RPM to both entry and exit. The fact there are a number of steps that are followed, ultimately are part of one overall process to determine the reference prices to apply.

This aims to further relevant objective (aa) in that it does not unduly discriminate and takes into account fixed prices and their treatment too. There are some consequences of doing this and any concerns on this and supporting material are noted in the relevant part of this workgroup report.

Some workgroup participants had some concerns with the above and refer to the Relevant Objectives section for further details.

4.10 Periodic process to determine Parameters and information publication

For Multipliers (all set at '1'), Interruptible adjustments (10%) and LNG discounts (0%), in all the proposals these values will be in the UNC. Any subsequent changes to these values will require a UNC change.

The reasoning behind this is that until such time as it is considered necessary or required to review/update these values, changes would be subject to the known UNC Modification process which has solid, transparent, governance process to consider changes to the UNC.

This furthers Charging Relevant Objective (aa) whereby it does not unduly discriminate between parties. The use of the UNC governance arrangements means that should there be future merit in changing any of these elements proposals can be made through the established and well developed UNC change process.

4.11 Non-Transmission Services Charges

Non-Transmission Services Revenue is recovered through a number of charges. These are:

- (i) St Fergus Compression Charge;
- (ii) NTS Meter Maintenance Charges;
- (iii) DN Pensions Deficit Charges;
- (iv) Shared Supply Meter Point Administration Charge;
- (v) Interconnection Point Allocation Charge;
- (vi) General Non-Transmission Services Charges.

These charges are not Transmission Services as they are not considered to fall under the definition 4.1 of TAR NC. The charges can be attributed to Transmission or Non-Transmission, subject to approval by the NRA (in this case Ofgem). The proposals are that these are treated as Non-Transmission Services. This is the same under all the proposals.

The Calculation and application of all the above charges are to be the same as under the current methodology. The General Non-Transmission Services Charges (Entry and Exit) are to be calculated in the same manner as the current SO Commodity Charges in that the other charges are forecasted then deducted from the target Non-Transmission Services Revenue to derive the amount to be recovered through the General Non-Transmission Services Charges (GNTSC).

There is limited change in approach between the current SO charging methodology and the proposed Non-Transmission Services charging methodology. Workgroup participants supported the proposals including the exemption from the General Non-Transmission charges under the NTS Optional Charge rules.

Some Workgroup participants highlighted concerns around the treatment in the licence of SO revenue from interruptible capacity release.

4.12 'K' Principles and adjusting revenues in subsequent years

'K' is the under or over recovery from a previous revenue or formula year (i.e. April to March) that is added to or subtracted from the allowed revenue for the year in which charges are being set. Under the RII0-T1 price control there is a two year lag, i.e. if K was an under recovery in the formula year 18/19 it would be added to the allowed revenue for the formula year 2020/21. If K was an over recovery it would reduce the allowed revenue. The recovery of any value under 'K' will therefore be added or subtracted to the part of the revenue to be recovered in the relevant year. K will continue to be split between Entry and Exit for Transmission Services, like it is in the current Transmission charges. Therefore, an over recovery on Exit will reduce Exit charges in a subsequent year but not impact Entry. Likewise, Entry will not influence Exit in the same manner.

All the proposals put forward the same approach.

Workgroup participants supported the proposals as they also reflected comments and feedback through the development of the proposals that Entry K values should only influence Entry charges and Exit K values should only influence Exit charges.

The enduring aim of the methodology proposed by all Modifications with the exception of UNC0621B is to recover the majority of Transmission Services Revenue through capacity charges. There is an aspiration to keep the Transmission Services revenue recovery charges as low as possible.

- With the overall changes to the charging framework, the industry feedback was to allow aspects of the methodology to bed in for a period;
- Ultimately a move to 100% capacity requires a forecast or a methodology to produce a forecast of capacity bookings. This would benefit from having data on behavioural changes to capacity bookings, especially with the removal of zero priced capacity and changes to interruptible pricing. National Grid has proposed a two year period for the transition whereby there is a fixed approach for setting the charges (i.e. obligated capacity), then the transition to an enduring approach that will use a forecast of capacity and will, in addition to developing a strawman and method for creating a forecast, also benefit from taking into account the capacity bookings up to that point and the behavioural changes from the new methodology.
- A transition with a specified end point provides certainty of when the changes take effect. Given the aspirations of National Grid's proposal, in line with the EU Tariffs Code to achieve a majority of Transmission revenue via capacity, this provides a short and predictable path to deliver this objective.

4.13 Security of Supply (SoS) and NBP impacts

Workgroup raised some concerns on this and all expected this to be explored and developed further as part of the Impact Assessment and responses to the Impact Assessment. Some parties have proposed some views for consideration in this workgroup report and these are outlined below.

See section 4.5 for a summary of Storengy Paper concerns relating to Security of Supply and NBP price. This highlights the impacts on security of supply and the National Balancing Point (NBP) price and any potential unintended consequences.

Several Workgroup participants requested analysis relating to the impact of all the 0621 Modifications on security of supply. Several Workgroup participants suggested the consequences of the proposed changes are that they may have a detrimental effect on security of supply, such as increasing charges for GB storage facilities which may deter investment in new and existing facilities and limit operational capability (high costs of cycling gas supplies, potential closure of facilities). The reduced operability and closure of storage facilities would require further investment at NTS entry points to meet market needs (and Pass N-1 test). Other potential consequences with regards to charges at entry points, in particular St Fergus, where potential charge increases may lead to economic decisions which could affect the viability of the facilities at the entry point, with concomitant effects on those North Sea fields supplying gas to the GB market through such facilities and potential development of West of Shetland resources.

Changes to charges at Interconnection Points may also affect the NBP with more liquidity provided where flow to the GB market was favourable compared with other destinations and vice versa.

The Workgroup as whole recognised that any quantified analysis of this nature would not be provided by National Grid and therefore requested that the Regulator assess this factor in its Regulatory Impact Assessment.

4.14 Potential consequences

Outcomes of the methodology all combined for Transmission has some effects that some parties have raised as concerns on aspects of the resulting charges. Some that have been identified are:

- Geographic distribution of prices. Under CWD the geographic distribution plays a part, however it creates more of a level playing field with the ranges of charges between points being narrower than under CWD. In some cases, this does mean prices rise from current levels and others fall.
- Prices of points, specifically Exit points that are close to Entry points. Similar to above, for some prices do rise from current levels.
- Whilst the size of the band of prices is narrower under CWD than LRMC, there are some prices that are potentially more significantly higher than others, even if in keeping with the methodology applied. Perhaps more noted in the enduring for Entry (St Fergus).
- Comparisons between the Existing or Historical Contract prices and all others generated under the RPM.
- Higher storage costs are expected to limit the cycling of gas, limiting storage facility ability to react to market needs. This is likely to result in increased price volatility and increased market balancing costs, with these additional costs potentially being passed on to consumers in higher long-term bills.
- Higher electricity prices due to an increase in NTS Exit capacity costs which could also potentially be passed on to consumers.

4.15 Interaction between UNC0621 (incl. A, B, C, D, E, F, H, J, K, L), UNC0636 (incl. A, B, C, D) and UNC0653

A number of Workgroup participants expressed concerned about the overlapping and interacting timescales of Modifications UNC 0621 and its alternatives and other Modifications that are in progress, including Modifications UNC 0636/0636A/0636B/0636C/0636D and UNC 0653.

At the UNC Modification Panel meeting held on 19 April 2018, Ofgem requested that Workgroup 0621 further consider the interactions between UNC 0621 (incl. A, B, C, D, E, F, G, H, J), UNC 0636 (incl. A, B, C, D) and UNC 0653. The Workgroup also considered the interactions of UNC0636 with UNC 0621K and UNC0621L as these were referred to the Workgroup after the Modification Panel on 19 April 2018.

The Workgroup has considered the interactions and these can be found below:

The main concern with regards to UNC0621 and its alternatives is that subsequent change to the UNC baseline following a decision on any other Transmission charging related Modification could cause complications and/or delays with regards to the Authority decision on UNC 0621 that is required to enable compliance with the TAR Regulation in EU law. If, for example, UNC 0636 was decided upon after the Final Modification Report (FMR) for UNC0621 and its Alternatives is submitted, there is no defined process of what changes, if any, to the Modifications/Workgroup Report/FMR that may be required to inform Ofgem in its decision making.

UNC 0621 and its Alternative Modifications propose new NTS Optional Charging arrangements from 01 October 2019. After 30 September 2019 the NTS Optional Commodity Charge ends and is replaced with the NTS Optional Charge (NOC). Most of these Modifications have the same formula structure to the current NTS Optional Commodity Charge with exemptions from Revenue Recovery charges on eligible volumes. UNC 0621C proposes a new approach to managing inefficient bypass through the charging framework (via the use of an Optional Charge), that is materially different in structure to the proposals of UNC0621 and UNC0636 (and the Alternatives).

UNC0636 proposes changes to the NTS Optional Commodity charge prior to 01 October 2019, potentially with effect from 01 October 2018 (a year earlier).

UNC0653 proposes an alternative charging arrangement for the NTS Optional Charge, similar to that proposed in UNC0621C. It is anticipated that UNC0653 may follow the same timeframes as UNC 0636 for consultation and decision, but with a different implementation date of 01 October 2019 (for UNC 0653).

UNC 0621 and UNC 0636 (and the Alternatives) are proposing to change the same part of UNC Section Y, UNC Section B and EID, although to differing degrees, with UNC 0621 proposing a more fundamental change than UNC 0636.

The analysis for UNC 0621 shows the potential impacts comparing to current arrangements. It is not possible to show what the changes would be from any of the UNC 0636 Modifications as there has been no decision reached on this proposal at the time of consideration (early May 2018). In the event of a decision to implement one of the UNC 0636 Modifications, this does not change the analysis carried out for UNC 0621 in terms of what the charges would change to upon any implementation of UNC0621. It would, however, change the baseline from the UNC (legal text and/or analysis) and charges that it would change from, which could mean any proposed change would have to be developed on the new baselined UNC rules (i.e. post UNC 0636, A, B, C, D or UNC 0653 decision).

Given the combinations of options that could be assessed, it is not considered practical to assess these (i.e. all of the five UNC 0636 Modifications each, with all 11 UNC 0621 Modifications). The overall proposals between UNC 0636 and its Alternatives are very different to the overall proposals for UNC 0621 and its Alternatives. It would only be prudent to assess if, or when, UNC 0636 was decided upon (post 0636 consultation). It is recognised that this would be difficult given the major differences between the proposals of UNC 0621 and its alternatives and UNC 0636 and its alternatives and it may not add material value in producing any comparisons.

Some Workgroup participants considered that this could also impact the required ACER consultation required under the Tariff Code depending on the timing of any decision on UNC 0636, but others indicated that this would not be the case as this process is planned for later in the year (following the 'minded to' decision by Ofgem).

Similar situations have occurred before notably with the Funding Governance and Ownership and the Nexus changes. If required any changes could potentially be accommodated through the UNC Panel and

Modification process as required, subject to Ofgem/UNC Modification Panel views. Options to address this could include:

- Suspend consideration of UNC 0636 or UNC 0621 until a decision has been made on the other proposal;
- Require the Legal text amendments to be updated to reflect the changed baseline then re-submitted without or with little Workgroup development;
- Sending back to Workgroups and follow the UNC change process to update the Workgroup report, including Legal text.

This situation is rare where separate Modifications are proposing to change the same parts of the UNC with different dates for implementation and in particular overlapping consultation periods. The UNC Modification rules do not provide clarity on how to deal with a situation where there are overlapping Modification timetables (including consultation periods and decision timeframes).

The summary of each proposal can be seen through the analysis presented in the respective Workgroup reports and supporting analysis/papers. UNC 0636 can be reviewed independent of UNC 0621. If UNC 0636, A, B, C or D were implemented then it would not change the summaries provided under UNC 0621, A, B C, D, E, F, H, J, K and L). The two Modifications are independent. The only change would be **the baseline it was changing from**. UNC 0636 proposes only changes to the NTS Optional Commodity Charge. UNC 0621 proposes changes to the whole charging framework. Therefore, some Workgroup participants considered that to analyse the differences between current and post UNC 0636 would only present a comparison of one part of the many aspects of UNC 0621 (which is a package of interacting changes).

When comparing UNC 0636 and UNC 0621, at a high level, the NTS Optional Charge aspects, (which is only one part of the UNC 0621 proposals) the following can be noted:

- National Grid has calculated that rates for eligible volumes would generally be lower under UNC 0621 than UNC 0636 except for UNC 0636B and certain Optional Charges under UNC 0636C and UNC 0636D where they will be higher (e.g. where the nominated Entry or Exit point is an Interconnection Point). Some Workgroup participants considered that the proposals and assessment against the relevant objectives for UNC 0621 may need to be reviewed in light of any changes implemented from UNC 0636 as the justification of the proposed changes could be materially different.
- Accessible “routes” would be limited to 60km under UNC 0621 (noting the exception to the different approach under UNC 0621C). This will reduce the eligible quantities compared to all proposals for UNC 0636.
- UNC 0621C cannot be compared in this way given the different method of including the NTS Optional Charge into the overall methodology proposals. It is not a comparable model to UNC 0636 but is very similar to UNC 0653.

Workgroup View

Some of Workgroup participants thought that if any of the UNC 0636 proposals were to be implemented this could jeopardise GB's ability to comply with EU Commission Regulation 2017/460 (also referred to as EU Tariff Code).

A Workgroup participant, highlighted that Modifications 0636C and 0636D were raised to address concerns around compliance with EU Commission Regulation requirements in relation to a single consultation process (with adjacent market parties and regulators). The participant further

highlighted, that these proposals would also exclude interconnection points from the effects of changes to the Optional Commodity Charge until the final ACER consultation is complete.

An alternative view was that there were legal interactions between the two Modifications and any issues could be dealt with by Ofgem as part of their decision-making process.

However, some Workgroup participants disagreed with the above view, as Modification UNC0636 is seeking to promote compliance with existing EU Regulations whereas Modification 0621 will be implemented from October 2019 to ensure compliance with EU Commission Regulation 2017/460.

4.16 QSEC and AMSEC 2019 Interactions

All 0621 Modifications have an effective date of 31 May 2019 (or earlier as directed by an Authority decision). The Workgroup highlighted that the QSEC auction (for GB Entry points) is impacted by the Ofgem decision timeline with a final decision expected in early 2019 (and a 'minded too' decision expected in late 2018).

QSEC timelines are:

- Preparation of prices - January
- Auctions invite - February
- Auction period - March (over a max 10 rounds)
- Allocation of capacity – May (could be earlier but depends on any capacity substitution).

It should also be highlighted that the AMSEC auction is also impacted as this has similar timelines and would affect any monthly capacity purchased from October 2019. Workgroup participants discussed how to treat the QSEC 2019. The key issues highlighted were (subject to an Authority decision date):

- Shippers would not have clarity on the capacity offered / purchased in the auction in terms of capacity treatment i.e. (interim – Historic Capacity) or new capacity which has different 'terms'.

Shippers would not have clarity on the price of the capacity (either fixed or floating).

An unintended consequence of this may be a reluctance of Shippers to buy capacity on a long-term basis through this auction, or it may encourage Shippers to buy increased amounts of capacity, to the possible detriment to other smaller or new entrants in later years.

There was a suggestion that the effective date should be 31 May, but others felt the effective date needed to be introduced well ahead of the QSEC auction. This would ensure clarity over the 'terms' of the auction were clear to Shippers wishing to participate in the QSEC.

Another suggestion was to delay the 2019 QSEC auction, however this would need to be considered in detail as this may impact other auction timelines and have unintended consequences.

The Workgroup considered that the timing of Ofgem's decision is critical to the timeline as detailed and this matter was highlighted to Ofgem.

If an early decision is received from Ofgem before the timeline as described in the UNC above, it would provide clarity for the forthcoming QSEC auction. The Workgroup concluded that if no clear Ofgem decision were forthcoming, it may be necessary to propose a new Modification to clarify what is being bid for as part of the QSEC 2019 auction.

4.17 DN Impacts

The four DNs jointly updated Workgroup on 26 April 2018 and again on 02 May 2018. Revisions to the material was submitted on 04 May 2018 and can be found here:

<https://www.gasgovernance.co.uk/0621/Analysis>

DN Customer Impacts Summary

Currently Shippers on GDN networks pay NTS exit commodity charges and GDN capacity charges that include recovery of NTS exit capacity charges. The enduring impact from Modification UNC0621 on GDN customers resulting from the removal of NTS exit commodity charges is likely to be a redistribution of charges to those with 'peakier' demands from those with less peaky demands.

The reason for this is in the enduring period from October 2021 (or 2022 according to UNC0621E) NTS charges will be recovered by GDNs through capacity charges as NTS exit commodity charges to Shippers will cease, and all NTS exit revenue from customers on GDN networks will be recovered by means of NTS exit capacity charges to GDNs. GDNs in turn recover this from their charges to Shippers and by means of capacity charges.

However, in both the transition and enduring periods there will be substantial redistribution of charges between LDZs due to the move to the new NTS charging model, and these changes may swamp the effect described above. In addition to this, GDNs have allowances set in their price control for the NTS exit capacity and are allowed to collect the allowance with any under-recovery being subject to a two year lag. Therefore, the long term effect on GDN customer charges is a complex interaction of the effects described above.

There is an obligation on GDNs to *plan and develop* a system to meet the expected demand on a peak day. GDNs ensure they meet these demands via Exit Capacity², Storage and Interruption services.

DN impacts

For DNs as opposed to customers on DN networks the impact is only related to the NTS exit capacity charges because the current NTS exit commodity charges are paid by Shippers.

Therefore DNs will typically see an increase in the charges they receive from NTS as we move into the enduring period as the commodity charges disappear. DNs have allowances in their price control to enable them to recover these costs. Any discrepancy between the allowances and the charges will lead to working capital impacts on DNs as there is currently two year lag between before these differences are reflected in charges. Therefore any errors in NTS forecasts or large k factors will have an impact on DNs. Currently DNs do not experience k factor impacts as these are recovered by means of commodity charges.

DN key concerns

- a) Better facilitating the charging objectives.
- b) Reducing charging volatility
- c) Communication of this change
- d) Sufficient assurance around the models and time given to the process

² A GDN will ensure they have enough capacity (mainly enduring and annual capacity products) booked from the NTS to cover the expected 1 in 20 demand at either an offtake or an LDZ level.

a) Better facilitating the charging objectives.

NTS and GDNs have the same charging objectives. Of particular concern is cost reflectivity. Two key aspects of this are:

- The lack of constraint in the CWD model compared with physical reality.
- The increased proportion of revenue recovered from GDNs due to the assumed basis for Forecast Contract Capacity (FCC) in the enduring period.
- There has been no cost justification for moving from recovering 50% of exit capacity revenue from GDN's to 80% as proposed in the enduring³.
- There has been no substantial analysis of whether differing user groups are cross subsidising others (either Geographically or by load type).
- It appears that charges and total revenue level may not be appropriate and proportionate to the stable and long term forecastable DN bookings made.

b) Reducing charging volatility

DNs have seen no evidence to suggest that charges will be less volatile. There are interactions between the publication of prices and forecasts by NTS and the DN price setting process. The timeline for agreeing the methodology used for FCC in the enduring period is a cause for concern. The interaction with the forthcoming price control is of further concern.

c) Communication of this change

Clearly articulating the change to all parties, especially the changes for Scotland and the North and especially to those that have not been engaged with the process is hugely challenging.

d) Sufficient assurance around the models and time given to the process

There is a need for independent assurance and validation to ensure the model calculations reflect the intent set out in the UNC and that the inputs made into that model reflect the underlying data they represent.

4.18 Independent Assurances on the development of any new Charging Models

For the calculation of Transmission Services Capacity and Transmission Services Revenue Recovery charges some illustrative models have been developed and shared with industry and form the foundation of the analysis presented and referred to in this document. The latest versions of these can be found here:

Independent assurance has been requested to be done. This has only been done to the extent of:

- Models have been developed by National Grid;
- Models have been shared with industry with version history and discussed at industry forums (NTSCMF including sub-workgroups) and UNC0621 workgroup meetings;
- Comments and feedback has been encouraged and received from industry stakeholders to help refine and develop the models;
- Models contain self-contained, transparent calculations.

These models are intended to provide sensitivity analysis to enable the modelling of multiple scenarios and to be illustrative of the potential changes.

³ See Slide 4 https://www.gasgovernance.co.uk/sites/default/files/ggf/book/2018-05/GDN%20Impacts_Revised%20040518.pdf

At such time as when these models would need to be used in calculating actual charges they will need to undergo an assurance process to provide confidence they are calculating in line with the UNC and any methodology that is approved.

4.19 Comparisons between the Modifications

Further analysis entitled “Summary of comparisons between the modifications on key areas and potential outcomes of the proposals” was submitted to the Joint Office at 23.46 on (Bank Holiday) Monday 07 May 2018, potentially for inclusion in the Workgroup report. Workgroup thanked National Grid for its significant effort since the last Workgroup meeting on Thursday 03 May 2018.

Workgroup was unanimous in its concern at the timing of the submission and therefore the inability of the Workgroup to review and discuss the impact of the analysis. Workgroup participants acknowledged that some of the Modifications were not finalised until Friday 04 May 2018. This has contributed to the late submission.

The material submitted is available to view here:

<https://www.gasgovernance.co.uk/0621/Analysis>

5 Relevant Objectives

For every Relevant Objective an assessment has been made by the relevant proposer stating whether the impact of the Modification Solution is negative, neutral (“none”) or positive. The text provided by the proposer should explain the Impacts of their Modification. It is not enough for the proposer to simply state that, for instance, a Modification has a positive impact on competition between shippers (Objective d); a full rationale of specifically how competition is furthered must be demonstrated.

The Workgroup must also provide an assessment against all the Relevant Objectives. Modification 0621 and each Alternative Modification will be assessed against each Relevant Objective in turn to determine if the Workgroup agrees or disagrees that the Modification demonstrates that the Relevant Objectives are furthered as set out in the Modification Proposal(s).

Where this is the case, the Workgroup Report has changed the status to indicate that the Relevant Objective is ‘impacted’. Where the Workgroup has differing views to that proposed in the Modification, the Workgroup Report captures a statement of the summary of the reasons why the Workgroup consider the impact to be different (positive or none or negative). Workgroup wished to highlight the compressed nature of the assessment and given more time, would have spent much more time on each section entitled Workgroup Statement.

Where supporting evidence is provided, this has been cross-referenced to the analysis of the impacts against the Relevant Objectives. This approach does not preclude Workgroup 0621 participants from providing additional views and evidence as part of the consultation process.

Table One - A summary of each Modification and the proposer’s assessment against each Relevant Objective.

The table below provides a summary of the proposer’s assessment against each Relevant Objective and, in a column on the right-hand side is the Workgroup view of impacts. It also includes details of the version of the Modification (and the Relevant Objectives contained within it) which has been considered as part of the Workgroup’s assessment of the Relevant Objectives. Where the Modifications were amended subsequent to Workgroup assessment.

Relevant Objective	0621 National Grid	0621A Storengy	0621B SSE	0621C Centrica	0621D WWU	0621E Uniper	0621F IUK	0621H ENI	0621J RWE	0621K Gateway	0621L Shell	Workgroup View of Impacts
a) Efficient and economic operation of the pipe-line system.	None	Positive	Positive	Positive	Positive	None	None	None	None	Positive	None	Impacte d – 0621A/B /C/D/K
b) Coordinated, efficient and economic operation of (i) the combined pipe-line system, and/ or (ii) the pipe-line system of one or more other relevant gas transporters.	None	None	None	None	None	None	None	None	None	None	None	None
c) Efficient discharge of the licensee's obligations.	Positive	Positive	Positive	Positive	Positive	Positive	Positive	Positive	Positive	Positive	Positive	Impacted – All Modificati ons
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	Positive	Positive	Positive	Positive	Positive	Positive	Positive	Positive	Positive	Positive	Impacted – All Modifications
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	None	None	None	None	None	None	None	None	None	None	None
f) Promotion of efficiency in the implementation and administration of the Code.	None	None	None	None	None	None	None	None	None	None	None	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	Positive	Positive	Positive	Positive	Positive	Positive	Positive	Positive	Positive	Positive	Impacted – All Modificatio ns

a) Efficient and economic operation of the pipe-line system

0621A: Based on analysis carried out by Storengy and WWA there is a clear relationship between the physical operation of storage facilities and the pipe-line system.⁴ 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 (On the day Commodity Market OCM) or any other contractual arrangements it may choose to enter into as part of its network balancing toolbox.

The level of discount should be consistent with the contribution to system flexibility (EU Tariff Code) and the proposer of 0621A believes that the application of the minimum 50% discount does not fulfil this requirement. A discount of 50%, according to the EU Tariff Code simply avoids storage users being "double charged" for the use of the system. On this basis, the proposer contends that a discount of 86% 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 50% 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.

0621B: The NTS Optional Charge is an important aspect to maintain efficient and economic operation of the pipeline system. Without a suitable NTS Optional Charge product allowing a reduction to Transmission and Non-Transmission charges, one can expect the increased use of private bypass pipelines. For example, a private pipeline of 400m could connect St Fergus to Peterhead. Once built, a private bypass pipeline would allow a shipper to avoid all future Transmission and Non-Transmission charges. The revenue then forgone by National Grid would have to be recovered across a smaller remaining customer base. In general, this would increase costs to some NTS customers and result in a duplicate of pipeline infrastructure - hardly an efficient outcome.

Based on analysis carried out by Storengy and WWA there is a clear relationship between the physical operation of storage facilities and the pipe-line system. 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.

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 50% discount does not fulfil this requirement. A discount of 50%, according to the EU Tariff Code simply avoids storage users being "double charged" for the use of the system. On this basis, the proposer contends that a discount of 86% not only better reflects the contribution made by storage facilities in relation to the efficient and economic

⁴ WWA and Storengy papers can be found here. <https://www.gasgovernance.co.uk/ntscmf/170717>

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 50% 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.

0621C: The whole charging package contained in this proposal 0621C has been designed to encourage fair and efficient access to the pipe-line system. The expected more stable and predictable charges compared with what is generated from the current methodology should encourage more stable and predictable use of the system by shippers - something that should in turn help National Grid generate accurate capacity usage forecasts for setting charges in future. The removal of free capacity products is an important aspect of the proposal as is the inclusion of a meaningful and sustainable solution for the Optional Charge (or 'shorthaul'). Without 'shorthaul' there will likely be an increased incentive for the use of some system bypass pipelines because some of the charges being generated by CWD produce counter-intuitive outcomes – high exit charges for large sites located close to entry points (the same argument could be made had the reference price methodology been Postage Stamp.) By improving the predictability of the use of the system, National Grid should be better placed and better prepared to operate it in a more efficient manner. By encouraging efficient use of the system by shippers (e.g. by avoiding inefficient bypass) National Grid will ensure that its operations can be economically optimised so that costs are kept as low as possible on a pence/ kWh flowed basis.

At the same time, this Proposal 0621B recognises that the current level of 'shorthaul' discounts applied to Transmission Owner (TO) charging has become distorted in recent years by their structural link to the rising level of TO Commodity charges. The Proposal is therefore designed to promote efficiency and economy in the use of the NTS pipeline system by reducing the level of discounts to a more appropriate level, whilst addressing the underlying structural design of Transmission Owner 'shorthaul' charging methodology and thus providing a robust, enduring basis for dis-incentivising inefficient NTS by-pass.

0621D: The amendments in particular the removal of the optional charge will facilitate efficient and economic operation of the pipeline system in compliance with Gas Act section 9.

0621K: Based on analysis carried out by Storengy and WWA there is a clear relationship between the physical operation of storage facilities and the pipe-line system.⁵ The strong, positive correlation between aggregate gas demand and storage withdrawals and 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.

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 50% discount does not fulfil this requirement. A discount of 50%, according to the EU Tariff Code simply avoids storage users being

⁵ WWA and Storengy papers can be found here. <https://www.gasgovernance.co.uk/ntscmf/170717>

“double charged” for the use of the system. On this basis, the proposer contends that a discount of 86% better reflects the contribution made by storage facilities in relation to the efficient and economic operation of the pipe-line system.

With regards the proposed 100% discount for Off Peak capacity at storage Exit Points, this is justified on the basis that pipeline capacity is constructed and paid for by storage users through the acquisition of Firm Capacity, in particular Entry Capacity. The 86% discount reflects the additional benefits provided by the operation of the storage, however, given that storage Users only inject gas into facilities at times of Off-Peak, any charge for the purchase of this product results in National Grid recovering surplus revenue. Firstly, the capacity costs have been recovered, through revenue collected from firm capacity sales, and that the additional infrastructure can be used on a bi-directional basis, Secondly, access to zero priced interruptible exit capacity has facilitated storage cycling with facilities filling and emptying on average 3 times a year. Storage cycling operates counter to capacity demands for which the pipeline system is designed to meet. Storage exits gas from the pipeline system into storage at times of relative low demand (i.e. when there is spare pipeline system capacity) and injects gas back into the network at times of relative high demand (i.e. when there is high demand for pipeline system capacity). This cycling therefore does not utilise network capacity designed to meet peak demand; indeed, it reduces the level of pipeline capacity that is required by other Users and needs to be provided by National Grid.

Workgroup Statement for Standard R.O. a)
<p>Comments by exception only.</p> <p>Some Workgroup participants expressed concerns on the wording from UNC0621K as to the adoption of a 100% discount (UNC0621K storage exit interruptible) and discrimination issues with storage getting a higher discount for exit off-peak capacity, not made available to other Users without due justification.</p> <p>See key issue discussion section 4.4.</p>

c) Efficient discharge of the licensee's obligations.

0621/0621A/0621B/0621D/0621E/0621F/0621H/0621J/0621K/0621L:

The proposed changes to TPD B, EID B and Transition Document (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 proposers believe that these objectives are better facilitated for the reasons detailed below ('Impact of the modification on the Relevant Charging Methodology Objectives').

0621C: The proposal will ensure that necessary enhancements and changes are made to the charging methodology holistically, enabling Users to comprehend the implications for the whole suite of gas transmission charging. This is much more preferred and efficient than had the changes been made in a fragmented or incomplete manner.

0621D: The proposer believes that the removal of the Optional Charge from October 2019 better facilitates A5(5).

0621L: Removing existing contract volumes and revenue prior to calculation of Reference Prices leads to higher reference prices for the remaining unsold capacity. It is proposed to include existing contracts

in the calculation to ensure that there is no undue distortion between existing capacity holders and parties purchasing capacity in the future, thus facilitating the Licensee's obligations by setting the reference price at a level best calculated to avoid undue preference in the supply of transportation services.

Furthermore, including existing contracts in the CWD calculation ensures the share of allowed revenue collected from each entry and exit point is proportionate to its contribution to the costs of the provision of system capacity. Where existing capacity bookings make up approximately 50% of all capacity bookings, including such contracts avoids undue preference in the supply of transportation services by ensuring that transmission services revenue is obtained on an equal basis from all entry and exit points.

Workgroup Statement Standard R.O. c) Efficient discharge of the licensee's obligations.

Workgroup participants identified the following impacts on this relevant objective c) as part of the key issues discussions under the following topics:

- Storage – Specific Capacity Discount (Section 4.5) UNC0621A, B, C, D, J and K propose a higher discount (86%) on the grounds of cost reflectivity.

Workgroup noted that removing fixed price (Historical) Revenue and contract volumes as prescribed in this report as part of the calculation of reference prices does lead to relatively higher reference prices for the remaining unsold capacity. It is a feature of the GB regime that it has always been possible for there to be a disparity between the price paid by existing capacity holders and parties buying capacity in the future.

In the enduring period this difference is expected to increase notably from moving from Transition into Enduring (only where this is a feature of the proposal). Workgroup debated at length whether the size of the difference was appropriate or whether it was undue preference. These issues are highlighted in the graph provided by a Workgroup participant which can be found here (Average Price Comparison: <https://www.gasgovernance.co.uk/0621/Analysis>)

Whilst existing contracts may have lower charges, they are locked in to paying these prices because they cannot profile their capacity especially once the enduring period begins. Existing capacity is held on quarterly blocks and future bookings cannot be changed, whereas other new capacity bookings can be purchased daily and profiled to meet requirements. This could have an effect on competition. Some Workgroup participants were of the view that this constituted undue preference whilst others did not agree.

Workgroup participants acknowledged that this is not just a pricing issue and that further analysis is appropriate in this area but the timescales did not allow for this to be robustly assessed, noting there are other issues at play here that are not a feature of the method to calculate Transportation charges (for example the difference between entry and exit capacity products).

It is hoped that it will be covered in the Regulatory Impact Assessment to be carried out by Ofgem.

d) Securing of effective competition between relevant shippers and between DN operators (who have entered into transportation arrangements with other relevant gas transporters) and relevant shippers (0621D).

0621/0621A/0621D/0621E/0621F/0621H/0621K/0621L: The proposed changes to TPD B, EID B and Transition Document (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.

0621B: The proposed changes to TPD B, EID B and Transition Document (where applicable) support the implementation of the new charging methodology and arrangements. Charges derived from the Capacity Weighted Distance (CWD) methodology will only be stable and predictable if the FCC (Forecasted Contracted Capacity) values are stable. FCC values based on Obligated capacity, are published in advance in National Grid's (NG's) licence and change infrequently, they will be more stable than values based on forecasts derived by National Grid using a methodology that is yet to be defined and exposed to annual change. More predictable and stable charges will facilitate competition because, all else being equal, greater cost certainty will lower risk and will result in lower cost of capital for Shippers which will reduce barriers to entry and facilitate competition. Therefore, a stable Forecasted Contracted Capacity (FCC) based on Obligated baseline values in the licence is expected to improve competition compared with an FCC based on forecasts.

0621C: The proposal is expected to result in more stable and predictable capacity charges which will be conducive to enhancing competition in gas shipping and gas supply. This is further helped by not applying capacity-based Transmission Services revenue recovery charges to Historical capacity (except for Interim Contracts at Interconnection Points), providing shippers with confidence that once a contract for capacity has been struck it will, as far as legal requirements permit, be honoured. The discount to capacity charges for gas storage has been set to help keep these important facilities economically viable and available to shippers.

0621C's Optional Charge/ short-haul solution will allow shippers to compete more effectively at proximate offtakes, including power stations, without having to build their own (inefficient) by-pass pipelines. The solution will provide for this during both the transitional and enduring periods.

0621D: The removal of the Optional Charge better facilitates competition between Distribution Network (DN) operators and relevant Shippers because it removes a cross subsidy in favour of large gas consumers directly connected to the NTS. This is a considerable disincentive to connect to DN networks.

0621F: Additionally, effective competition will be enhanced through the equal charging treatment of storage and physically bi-directional interconnection points. It will remove a market distortion for shippers using continental storage via the interconnectors to meet GB's seasonal flexibility. It will create more of a level playing field for different sources of seasonal flexibility available to shippers, and ultimately to GB consumers. It increases the choice of shippers when procuring seasonal flexibility - they can consider Continental Storage accessed via physically bi-directional IPs or GB-located storage, without the distortion of differential National Grid charges.

This is particularly relevant to the GB market and GB consumers following the closure of the Rough storage facility. It is widely recognised that the GB market now has a relatively low level of seasonal storage within national boundaries. Improved access to Continental Storage, on a levelized and competitive charging basis, would be a step in the right direction to meet the market's current structural needs.

0621H: This is further helped by not applying capacity-based Transmission Services revenue recovery charges to historical capacity, providing shippers with confidence that once a long-term contract price for capacity has been struck it will be honoured. This proposal will in particular provide the right solution for long-term historical capacity contracts that cannot be utilised. Such contracts will not be forced to pay any additional charges that were not expected to be paid when these contracts were concluded and when the charging regime and market context were radically different. The implementation of this proposal will ensure the fair treatment of historical capacity holdings in the new regime, avoid a serious distortion of competition and ensure that the market is efficient and certain:

- Efficient, because it will allow historical capacity holders to make appropriate contributions towards revenue recovery based on the original contractual arrangements; and
- Certain, because it will ensure sanctity of contracts and avoid exposing users to unacceptable levels of unforeseen regulatory risk.

This approach will encourage future long-term capacity bookings because shippers will be more willing to book long-term capacity in the future and, in turn, this will stabilise charges and make them more predictable.

0621J: There has been no objective justification for the inclusion of a distance driver in the determination of tariffs for Transmission Services. TAR NC describes CWD but does not require it to be implemented only to serve as a counterfactual. The GB NTS is a highly meshed pipeline system, with multiple entry and exit points. Shippers book entry capacity and exit capacity independently and nominate flows without specifying specific routes and therefore it is extremely difficult to allocate flows to specific assets. Reference Prices set to recover allowed revenue should not provide undue advantages to any particular set of network users. This will best facilitate efficient use of the network. Where there are differences in the charge faced by similar users there should be a clear reason and an understandable link from those variances to the benefit the user receives. We cannot identify any additional benefits associated with location that justify using anything other than the single cost driver of Capacity as utilised in the Postage Stamp methodology.

Tables 1 and 2 below show the distribution of tariffs set under the Postage Stamp method and CWD. The distribution in the Postage Stamp prices arises from application of an 86% storage discount; for the CWD method the distribution is caused by the inclusion of distance as a cost driver together with a storage discount.

Table 1a: Minimum, Maximum and Weighted Average Reference Prices based on Postage Stamp

POSTAGE STAMP 2019/20	Entry (p/kWh/day)	Exit (p/kWh/day)
Minimum Price	0.0020	0.0016
Maximum price	0.0142	0.0111
Weighted Average Price	0.0108	0.0101

Table 1b: Minimum, Maximum and Weighted Average Reference Prices based on CWD

CWD 2019/20	Entry (p/kWh/day)	Exit (p/kWh/day)
Minimum Price	0.0046	0.0043
Maximum price	0.0243	0.0180
Weighted Average Price	0.0126	0.0106

Table 2a: Minimum, Maximum and Weighted Average Reference Prices based on Postage Stamp

POSTAGE STAMP 2021/22	Entry (p/kWh/day)	Exit (p/kWh/day)
Minimum Price	0.0086	0.0031
Maximum price	0.0611	0.0220
Weighted Average Price	0.0597	0.0215

Table 2b: Minimum, Maximum and Weighted Average Reference Prices based on CWD

CWD 2021/22	Entry (p/kWh/day)	Exit (p/kWh/day)
Minimum Price	0.0154	0.0073
Maximum price	0.0847	0.0352
Weighted Average Price	0.0597	0.0215

Table 3: Shows exit points close to an entry point see significant reserve price increases caused by the high average distance.

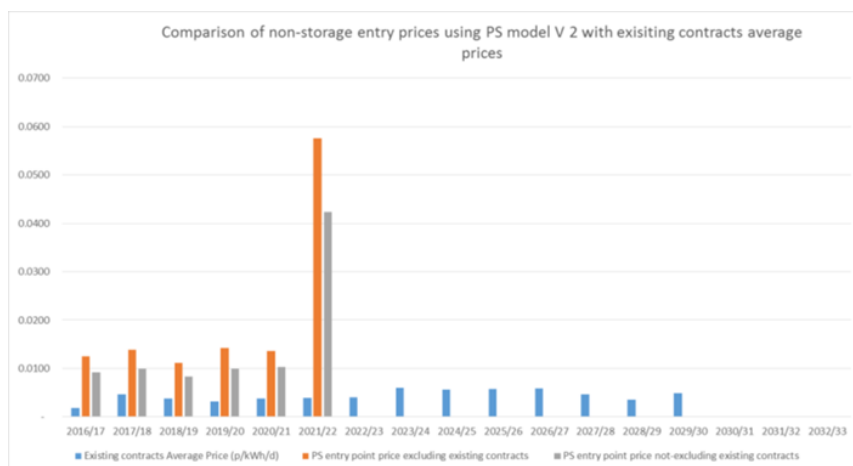
Exit Point	Average Distance (km)	Distance to nearest entry point (km)	Current Reserve Price (p/kWh/d)	CWD Reserve Price 2019/20 (p/kWh/d)
Aberdeen	611	63	0.0001	0.0164
St Fergus PS	670	0	0.0001	0.0175
Kinknockie	656	16	0.0001	0.0172
Pembroke PS	547	7	0.0001	0.0166
Upper Neeston Milford Haven Refinery	553	.15	0.0001	0.0168

Table 4 below shows that some exit points relatively far from an entry point have relatively low reserve prices, caused by the low average distance.

Exit Point	Average Distance (km)	Distance to nearest entry point (km)	Current Reserve Price (p/kWh/d)	CWD Reserve Price 2019/20 (p/kWh/d)
Rugby	273	141	0.0142	0.0093
St Neots PS	303	156	0.0117	0.0097
Stratford-upon-Avon	296	126	0.0172	0.0100
Tur Langton	281	150	0.0118	0.0092
Willington PS	306	158	0.0184	0.0098

The postage stamp methodology ensures shippers pay same price for the same service across entry and exit, removing distortions that arise as a result of CWD creating artificial and unjustified differences in charges. In turn, this will support effective competition between suppliers and shippers in the gas market and in the wider electricity energy and capacity markets.

0621L: By excluding existing contracts from the CWD calculation, the magnitude of the discrepancy between the average price paid for existing capacity holders and the postage stamp price for future capacity bookings, can be seen in the table below. From 2021, at the start of the enduring regime, this marked difference risks distorting competition between shippers as it gives a competitive advantage to shippers holding existing capacity. This distortion could run long in to the future and as late as 2035.



Workgroup Statement - standard R.O. d)

Workgroup participants summarised that there was no overwhelming consensus but Workgroup recognised the individual arguments presented above.

Workgroup participants identified the following impacts on this relevant objective as part of the key issues discussions under the following topics:

- **Forecasted Contracted Capacity (Section 4.2)** The use of the transition period is justified in order to provide more stable charges and more predictable outcomes.
- **FCC and Historical Contracts (Section 4.2)** The approach preserves the UNC contractual arrangements in place prior to any changes as a result of these Modifications though some highlighted the negative consequence of a larger difference when paying different prices for the same product, particularly in the enduring.
- **Revenue Recovery in transition period (Section 4.6)** The use of the transition period is justified in order to provide more stable charges and more predictable outcomes allowing time for data to be generated to help inform a credible capacity forecast.

Notwithstanding the above, some Workgroup participants still felt there were issues caused by stable charges and predictable outcomes being wholly dependent on stable inputs to the charging model used in the RPM. Some Workgroup participants felt that 0621B achieves better stability as the inputs are known and there is no step change from interim to enduring period.

Whilst existing contracts may have lower charges, they are locked in to paying these prices because they cannot profile their capacity especially once the enduring period begins. Existing capacity is held on quarterly blocks and future bookings cannot be changed, whereas other new capacity bookings can be purchased daily and profiled to meet requirements. This could have an effect on competition. Some Workgroup participants were of the view that this could impact competition whilst others did not agree.

Workgroup participants debated the effect on competition of the expiry of existing contracts. Workgroup participants noted their significant concern that the forecast for FCC for the enduring period is to be developed at a later date using an as yet unknown methodology, so this question

cannot be answered at this stage. Charges from the beginning of the enduring period are essentially unknown at this stage and will not be known until around 6 months before. This has significant consequences for pricing of contracts in the electricity market capacity mechanism (T-1 or T-4). It was highlighted that an early insight into this forecast would be beneficial and Workgroup noted that this should be monitored under the NTSCMF.

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.

0621/0621A/0621B/0621D/0621E/0621F/0621H/0621J/0621L/0621K: The proposed changes to TPD B, EID B and Transition Document (where applicable) support the implementation of the new charging methodology and arrangements including those elements required to comply with the EU Tariff Code.

0621C: A key driver for change is the requirement to fully implement the EU Tariff Network Code by 31 May 2019 and this proposal will ensure that the obligation is fulfilled.

0621E: Longer Transition Period at Exit (2019-2022)

Under the current charging arrangements, parties can make a reasonable assessment of future gas transportation costs as the structure, nature and trend of charges is generally well understood. In Modification 0621, National Grid Gas has proposed a transition period of 2019-2021, moving from capacity / commodity to full capacity based charges. Although the base capacity prices will differ from now (due to the implementation of the CWD model), the use of a FCC value of 100% of obligated capacity will result in a commodity based revenue recovery charge, like the current arrangements. Analysis conducted during the Modification development process has shown that the move to full capacity based charges will result in significant changes to payable charges for certain points on the network with some large locational shifts in charge levels.

At the time parties participated in the recent Electricity “T-4” Capacity Auction (February 2018), which requires parties to bid four years ahead of electricity capacity delivery, neither the inputs to the CWD model nor the overall structure of the charging regime were finalised, meaning that it was almost impossible for parties to make an accurate assessment of the full capacity based Exit charges that would be payable in 2021. To avoid unfairly penalising parties for commercial decisions made on the best available facts, it is therefore proposed that the transition arrangements at Exit continue until 30 September 2022. This would mean that the existing capacity / commodity arrangements at Exit would effectively continue into the Gas Year for which the recent T-4 auction applied (2021-22).

In the proposer’s view, this aspect of the proposal would therefore better facilitate Relevant Objective (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*), as it would maintain a “level playing field”, by avoiding imposing unforeseeable costs on Generator Users, which had they been known at the time of the T-4 auction, could have been fully factored into Capacity Market bids. As this was not realistically possible for any party, there is a risk of significant, unavoidable costs being levied which could harm competition between Shippers and ultimately have unintended consequences for both gas and electricity consumers.

0621E - Specific Proposals:

Longer Transition Period at Exit (2019-2022)

Under the current charging arrangements, parties can make a reasonable assessment of future gas transportation costs as the structure, nature and trend of charges is generally well understood. In Mod 0621, NGG has proposed a charging transition period of 2019-2021, moving from capacity / commodity to full capacity based charges. Although the base capacity prices will differ from now (due to the implementation of the CWD model), the use of a FCC value of 100% of obligated capacity will result in a commodity-based revenue recovery charge, similar to the current arrangements. Analysis conducted during the Mod development process has shown that the move to full capacity based charges will result in significant changes to payable charges for certain points on the network with some large locational shifts in charges. In addition, the key change between “transition” and “enduring” is a shift from “low capacity / high commodity” to “high capacity / low (or zero) commodity”, which particularly impacts flexible but low load factor generation plant - many of which are now contracted in the Electricity Capacity Market for Gas Year 2021-22.

At the time parties participated in the recent Electricity “T-4” Capacity Auction (February 2018), which requires parties to bid four years ahead of electricity capacity delivery (i.e. Gas Year 2021-2022), neither the inputs to the CWD model nor the overall structure of the charging regime were finalised, meaning that it was impossible for parties to make an accurate assessment of the full capacity based Exit charges that would be payable in 2021, based on best available information at the time.

To avoid unfairly penalising parties for decisions made on the best available facts at the time the T-4 auction took place (Feb 2018), it is therefore proposed that the transition arrangements at Exit continue until 30 September 2022. This would mean that the existing capacity / commodity split arrangements at Exit would continue into the Gas Year for which the recent T-4 auction applied (2021-22) and therefore reduce the potential for unexpected, significant changes to charges. Going forward, parties will be much better informed of likely gas transportation costs so they can be factored into Capacity Market bids appropriately.

In the proposer’s view, this aspect of the proposal would therefore better facilitate Relevant Objective (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*), as it would maintain a “level playing field”, by avoiding imposing reasonably unforeseeable costs on Generator Users, which had they been known at the time of the T-4 auction, could have been fully factored into Capacity Market bids. As this was not realistically possible for any party in February 2018 (due to ongoing Mod development) there is a risk of significant, unavoidable costs being levied which could harm competition between Shippers and ultimately have unintended consequences for both gas and electricity consumers (e.g. if certain Generation plant were to close earlier than previously expected).

Historical Contracts

In the proposer’s view, it is necessary to maintain the existing approach of applying a commodity-based revenue recovery charge for revenue recovery purposes to Entry Capacity committed to by Shippers before implementation of these charging reforms in October 2019. Full-capacity based revenue recovery charges for existing contracts, as proposed under NGG’s Mod 0621 would, in the proposer’s view, impose undue costs on Shippers, which could not have reasonably been foreseen at the time the contracts were struck many years ago. Furthermore, such a change would likely have a “chilling” effect on long-term entry capacity bookings as it would create regulatory uncertainty for Shippers about the possible future treatment of such contracts, as NGG’s proposal, if implemented would set a new

precedent. Moves between transmission charging models in the past has not resulted in material changes to charges for Entry capacity already booked.

Maintaining a capacity / commodity split for Existing Contracts would ensure fair treatment of all Shippers, incentivising those who can adjust their capacity bookings to reflect flows to do so (e.g. new bookings) but not unduly penalising those who cannot (i.e. existing bookings). Implementation, therefore, could be considered to better facilitate Relevant Objective (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”*).

0621F: Key objectives of the EU third energy package⁶ are to facilitate efficient gas trade and competition across borders. Given that physically bi-directional IPs compete with GB storage and that the unequal treatment distorts cross border trade, the Modification 0621F solution is necessary to ensure GB compliance with:

- Tariffs for access to networks under Regulation (EC) No. 715/2009:
Article 13.1 of *Tariffs for access to networks* in Regulation (EC) 715/2009 which says *“Tariffs, or the methodologies used to calculate them, shall be applied in a non-discriminatory manner.”* And *“Tariffs, or the methodologies used to calculate them shall facilitate efficient gas trade and competition”*
And 13.2 which requires *“Tariffs for network access shall neither restrict market liquidity nor distort trade across borders of different transmission systems”*
- Commission Regulation (EU) 2017/460 (the Tariff Code)
Under Article 7(e), TSOs must ensure that the reference prices do not distort cross-border trade.

It should be noted that a discount for physically bi-directional IPs is entirely consistent with the Tariff Network Code given TSOs can make adjustments to the application of the reference price methodology in accordance with Article 6.4 or Article 9.

Under Article 6.4(a), TSOs can make adjustments to reference prices at any given entry or exit point to meet the competitive level of the reference price.

0621H: This proposal also ensures a proper application of article 35 of the EU Tariff Code by providing for Historical Contracts that their capacity price remains unadjusted for the entire duration of the relevant contracts.

Workgroup Statement standard R.O. g)
<p>Workgroup participants noted that all the proposers state their Modifications are compliant. Workgroup participants noted that participating organisations may have sought legal advice on compliance but these are unlikely to be shared with the group. Please note that the Workgroup is not qualified to make judgements on the legal compliance. The Workgroup felt that the</p>

⁶ <https://ec.europa.eu/energy/en/topics/markets-and-consumers/market-legislation>

decision as to whether a Modification is compliant or not must be taken by the Regulator, Ofgem.

The approach taken here is to summarise concerns raised and any further supporting views from the proposers.

Some Workgroup participants have requested clarification from National Grid and all other proposers on legislative compliance of the Modification proposals with reference to the EU Tariff Network Code.

A Workgroup participant provided considerable material which was reviewed by the Workgroup and highlighted the following key points:

- Art. 6.3: The RPM includes existing contracts for exit price calculations but excludes them for entry price calculations. Effectively different FCC values are used for entry and exit price calculations (All Modifications except 0621L)
- Art. 6.4: Amending data inputs by netting off existing contracts at entry points is not one of the adjustments allowed. Where there is a zero price the adjustment from zero does not fit with one of those allowed. This is less of an issue for 0621B since this uses Obligated Capacity (All Modifications except 0621L). Art. 7 b) and e) (All Modifications except 0621B and 0621J) From the start of the enduring period there will be more uncertainty in forecast charges due to no definition of how FCC will be set.
- Art. 8. A zero value for FCC effectively excludes that part of the network from the CWD calculations so the reference prices do not reflect the network. (All Modifications though less of an issue for 0621B and 0621L)
- Art. 8.1 A FCC value of zero effectively eliminates certain combinations of Entry/Exit flows even though flow scenarios between the points are possible. The 'relevant flow scenarios' change from transition to enduring period this needs further explanation (All Modifications though less of an issue for 0621B and 0621L)
- Art. 13 Multipliers and Seasonal factors and Article 16 Interruptible capacity pricing Note that all the Modifications apply these at points beyond IPs.
- Art. 35 Protection for Existing Contracts. This is applied differently in the different Modifications in relation to revenue recovery (see comparison table in section 3 and key issues section 4).

Other Workgroup participants expressed views that the Modifications were compliant with EU Tariff Code and highlighted the following as further justification:

- Comparison to counterfactual (basic CWD) – see comparison table for comparison to UNC0621 (and alternatives). This justifies aspects of the UNC0621 (and alternatives) proposals to make the CWD methodology work and prevent a massive under recovery. Essentially it is an approach which reflects the significant volume of existing entry capacity contracts.

- Existing contracts and Article 35 interpretation (see key issues section 4 for further justification for different approaches for different Modifications).

Table two - A summary of each Modification and the proposer's assessment against each Charging Methodology Relevant Objectives.

The table below which provides a summary of the proposer's assessment against each Charging Methodology Relevant Objective. It also includes details of the version of the Modification (and the Relevant Objectives contained within it) have been considered as part of the Workgroup's assessment of the Charging Methodology Relevant Objectives.

Relevant Objective	0621 National	0621A Storeng	0621B SSE	0621C Centrica	0621D WWU	0621E Uniper	0621F IUK	0621H ENI	0621J RWE	0621K Gatewa	0621L Shell	Workgr oup View of Impacts
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	Positive	Positive	Positive	Positive	Positive	Positive	Positive	Positive	Positive	Positive	Impacte d – All Modifica tions
aa) That, in so far as prices in respect of transportation arrangements are established by auction, either: no reserve price is applied, or 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	Positive	Positive	Positive	Positive	Positive	Positive	Positive	Positive	Positive	Positive	Impacted – All Modifications
b) That, so far as is consistent with sub-paragraph (a), the charging methodology properly takes account of developments in the transportation business;	Positive	Positive	Positive	Positive	Positive	Positive	Positive	Positive	Positive	Positive	Positive	Impacted – All Modificati ons
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	Positive	Positive	Positive	Positive	Positive	Positive	Positive	Positive	Positive	Positive	Impacted – All Modification s
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	None	None	None	None	None	None	None	None	None	None	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	Positive	Positive	Positive	Positive	Positive	Positive	Positive	Positive	Positive	Positive	Impacted – All Modificati ons

0621/0621B/0621D/0621E/0621F/0621H/0621J/0621K:

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.

- 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;**

0621/0621D/0621E/0621H/0621L: Proposers believe that the proposed utilisation of a new Reference Price Methodology which re-distributes National Grid's costs on a geographic 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 (link to material). As a result, 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 would better facilitate these objectives.

0621A: Storengy as proposer of 0621A believes that the proposal better reflects the costs incurred by the licensee. In particular, in relation to gas storage the application of an 86% discount combined with the non-application of Revenue Recovery Charges during the transition and enduring phases, 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 and are unable to benefit from Optional Commodity Rates, its application results in a non-equitable allocation of costs.

As set out in the WWA paper⁷ 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 86% 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 86% 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.

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

⁷ <https://www.gasgovernance.co.uk/ntscmf/170717>

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 in either the transition or the enduring periods (note that Modification 0621 proposes that such charges should be applied to non-Historical Capacity holdings in the enduring period 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). From 2019, Modification 0621 proposes the continuation of this approach. 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 (<https://www.ofgem.gov.uk/gas/transmission-networks/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 recovery⁸.

0621B: The proposer believes that the proposed utilisation of a new Reference Price Methodology which redistributes National Grid's costs on a geographic basis, weighted by capacity will enhance this objective compared to the current application of a Long Run Marginal Cost Methodology (LRMC) only when an NTS Optional Charge is employed.

However, there are unintended consequences which affect the distribution of charges to NTS customers and to the end consumer. For example, regardless of which FCC is chosen, the RPM does not demonstrate Cost Reflectivity for Exit points that are physically close to Entry points. This lack of cost reflectivity is a concern given the material impact on these customers. This concern can be partly mitigated by continued use of the NTS Optional Charge. Without an NTS Optional charge the CWD and postage stamp methodologies will not further cost reflectivity compared with the LRMC methodology.

The CWD methodology also generates high charges for exit and entry in the North of GB where there is spare capacity but has relatively lower charges for exit in the South and South West of GB where there is less spare capacity. This lack of cost reflectivity may result in inefficient investment and customers will incur additional costs because it signals connection where additional investment would be required and disincentivises connection where spare capacity exists.

A postage stamp capacity based methodology will not reflect costs either with its uniform charge, irrespective of capacity constraints. Use of a Postage Stamp methodology at this time would be too extreme a departure from the current LRMC given the need for a) an element of locational signal at exit, b) points given current PARCA requests and c) future coal powered generator replacement.

A hybrid CWD methodology which seeks to retain an element of flow based charges will be more cost reflective and have a less distortive effect than a pure capacity based recovery regime which exacerbates the unintended consequences described above and in Relevant Objectives aa) (I) and c).

0621C: The Capacity Weighted Distance (CWD) basis for allocating costs and setting reference prices is expected to provide a platform for more stable and predictable capacity reserve prices compared with the current Long Run Marginal Cost methodology. Some shortcomings with the CWD approach have been identified, in particular the production of some relatively high exit capacity prices close to some entry points. However, the inclusion of optional charging (or 'shorthaul') arrangements in this 0621C proposal provide a

⁸ <https://www.gasgovernance.co.uk/ntscmf/170717>

means of correcting such anomalies and provide a more intuitively correct outcome when considering the cost-reflectivity of the charges.

The current Long Run Marginal Cost (LRMC) reference price methodology was designed to provide economic signals on where it would be economic for customers to acquire capacity on the NTS, i.e. it provided locational price signals. This approach was relevant during the period when the network was expected to expand so that informed and efficient network usage would be encouraged. Today, however, expansion of the network is likely to be limited and gas demand has been following a generally downward trend in most recent years. Therefore, an LRMC approach is not best suited to the current usage and requirements of the NTS and will not provide such a relevant, cost-reflective approach to charging as it has in the past.

A new approach to paying for these costs, reflecting how the NTS is now used, is therefore required; a methodology that more fairly distributes costs among the users of the system and that recognises that historical decisions on how the network was developed over many years should not in future unduly dictate how charges are set in future. A Postage Stamp methodology has its appeal – it's simple and generally equalises entry and exit charges for users. However, a Postage Stamp method could be considered a relatively extreme departure from an LRMC approach and would be a step too far at this point in time because there will remain some additional use of the NTS in future (witness the number of PARCA windows being opened) for which an element of locational price signal would remain relevant and cost-reflective.

A Capacity Weighted Distance (CWD) charging methodology sits somewhere between LRMC and Postage Stamp. It significantly flattens capacity charges across the range of entry points and range of exit points whilst still maintaining a degree of locational price signal. A CWD reference price methodology has therefore been adopted in this 0621C proposal to provide a balanced cost-allocation approach, one which recognises the changing use of the NTS yet one that retains some locational price signals. It is the view of the proposer of 0621C that CWD provides a more reasonable basis for setting cost-reflective reference prices during this phase of the NTS' life but it requires and relies on the addition of an Optional Charge (or 'shorthaul') solution to make it work.

The inclusion of a workable Optional Charge (or 'shorthaul') solution is critical to ensuring the cost-reflectivity of either a CWD or Postage Stamp methodology. Both of these Reference Price Methodologies would produce counter-intuitive capacity charges for some combinations of entry and exit points, e.g. high entry and exit charges when the exit point is in close proximity to the entry point, such as St Fergus and Peterhead power station or Bacton UKCS and the Interconnector UK exit point. It is therefore essential to incorporate a meaningful and enduring Optional Charge solution to resolve such anomalies in order to provide a holistic solution that results in cost-reflective charges. This 0621C Modification proposal provides such a solution with a new Optional Charge approach that is based on the cost allocation principles contained in the CWD reference price methodology. The result is a consistent, holistic solution that works for both the transitional period and, critically, for the enduring period without resort to any artificial restrictions such as 'shorthaul' distance caps.

The proposed discount for storage facilities should act to equalise the cost of transporting gas from an entry point to an exit point via a storage facility with the cost of transporting the gas directly from the entry point to the exit point. The effect is to remove any spurious transportation cost because gas is temporarily held in storage. This can be likened to storing gas as linepack in the NTS.

0621F: By removing double charging of bi-directional IP flows a market distortion will be removed. The solution ensures a level playing field for users of GB storage and seasonal flexibility via physically bi-directional IPs.

0621H: The proposed changes to the balance of reserve prices among capacity products of different durations will ensure that a much fairer price is paid by shippers generally compared with the current situation where short-term entry and exit capacity can be readily purchased free of charge. This will help to significantly reduce the situation where parties that choose, or for business reasons are required, to purchase capacity on a long-term basis are disadvantaged and who, because of revenue under-recovery provisions such as has been witnessed with TO commodity charges, end up paying well in excess of their fair share of transmission costs. This rebalancing of charges and fairer allocation of costs is conducive to better promoting competition between gas suppliers and between gas shippers.

0621J: Neither CWD nor Postage Stamp are cost reflective as both, by design, are set to recover National Grid's historical costs rather than setting forward looking charges that aim to signal the marginal cost of providing capacity at different network locations. The proposer believes that the proposed utilisation of a new Reference Price Methodology which allocates and recovers National Grid's costs on a uniform basis ensures revenue recovery is fair and proportionate across all users of the network and will enhance competition between gas suppliers and between gas shippers when compared to the current application of a Long Run Marginal Cost Methodology (LRMC). The proposed Postage Stamp model is better suited to the current and expected future usage of the NTS where marginal costs are low or close to zero and entry capacity and exit capacity charges are set to ensure revenue recovery.

0621K: Gateway as proposer of 0621K believes that the proposal better reflects the costs incurred by the licensee. In particular, in relation to gas storage the application of an 86% discount combined with the non-application of Revenue Recovery Charges during the transition and enduring phases, 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 and are unable to benefit from Optional Commodity Rates, its application results in a non-equitable allocation of costs. As set out in the WWA paper⁹ 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 86% 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 86% 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.

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 in either the transition or the enduring periods (note that Modification 0621 proposes that such charges should be applied to non-Historical Capacity holdings in the enduring period 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).

⁹ <https://www.gasgovernance.co.uk/ntscmf/170717>

From 2019, Modification 0621 proposes the continuation of this approach. 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 (<https://www.ofgem.gov.uk/gas/transmission-networks/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 recovery¹⁰

The 100% discount for Off Peak capacity at storage Exit Points ensures that the cost of providing this capacity is correctly reflected in the product tariff. The combination of the level of revenue recovered via the application of tariffs on firm capacity products for a single pipeline which is used and paid for on a bi-directional basis with the use of this capacity during non-peak demand periods means that the cost of provision for National Grid is zero. In fact, it is argued by WWA and Storengy (see footnote 8) that the existence and symbiotic nature of the relationship between storage flows and aggregate demand results in investment savings for National Grid, which are not recognised in the charging methodology.

0621L: Where the distance matrix is an input to the RPM and assuming distance is a cost driver, excluding certain valid routes from the matrix (e.g., Milford Haven and Isle of Grain in the enduring period), changes the Weighted Average Distance of all points and makes the prices less reflective of the network flow scenarios and therefore less cost reflective. As these contracts expire these routes will be reintroduced in to the flow scenarios and the weighted average distance and consequently, price will change as a result of contract expiry. Including existing contracts in the CWD calculation ensures tariffs remain cost reflective and more predictable.

Workgroup Statement: Charging R.O. a)

Workgroup discussed at length whether any of the Modification proposals were more cost reflective than the current GB UNC methodology noting that the changes being proposed are driven by revenue allocation, appropriate to a non-expanding network. This is discussed in key issue Section 4.1 and 4.2.

A Workgroup participant provided considerable material which was reviewed by the Workgroup and highlighted the following key points:

- Article 7(b) & (e). If allowed revenue is a proxy for cost incurred then removing part of it by netting off existing contracts is inconsistent with cost reflectivity. Reference prices are high at exit points close to entry points which demonstrates they are not reflective of the cost of using only a small part of the network. (All Modifications).

Another concern highlighted was the use of the transition and enduring and whether the charges can be considered cost reflective in both periods.

Other Workgroup participants expressed views that compliance with Article 35 bring about a question as to how to best accommodate fixed price contracts within the RPM. Different interpretations are reflected and compliance with different articles of the EU Tariff Code can be read as conflicting.

¹⁰ <https://www.gasgovernance.co.uk/ntscmf/170717>

- 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

0621/0621A/0621D/0621E/0621H/0621K/0621L:

Proposers believe that the proposed utilisation of a new Reference Price Methodology which re-distributes National Grid's costs on a geographic 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 (link to material). As a result, 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 would better facilitate these objectives.

0621A: The application of an 86% discount and exemption from Revenue Recovery Charges for storage Users better achieves this objective. Firstly, as described in the Storengy and WWA reports¹¹ 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, <https://www.gasgovernance.co.uk/ntscmf/170717>).

In terms of cost distribution, analysis carried out by WWA and presented at the 28 March Modification 0621 workgroup¹² the impact on charges of applying an 86% discount is marginal. During the transition phase the entry CRRC (Revenue Recovery Charge) (applied to non-IPs) and the entry capacity top up charge (applied to IPs) does not increase when compared with a 50% discount. At exit, the exit CRRC increases by 0.98% and the IP exit capacity top-up charge increases by 0.54%. In the enduring phase (October 2021) there is no perceptible increase in capacity charges as a result of the increase of the discount from 50% to 86%. 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 86% discount.

0621B:

Promoting Efficiency and Economic principles associated with network charging

There are a number of economic principles which are typically associated with the definition of network charges. These are largely focused on ensuring efficient market outcomes. First, it is typically argued that

¹¹ <https://www.gasgovernance.co.uk/ntscmf/170717>

¹² <https://www.gasgovernance.co.uk/0621/280318>

network charges should be cost reflective. This means that they should reflect the (forward looking) costs which users impose on the network through a change in their use. This is important to achieving an economically efficient outcome: if charges are cost reflective, users will internalise the network costs which they cause when making a decision about how to use the network. This will in turn ensure that overall value chain costs are optimised.

The fact that it is forward looking costs which should be reflected is critically important. If there is a historical cost which exists but cannot be changed in any way going forward by different use of the network by shippers, there is no value in terms of economic efficiency in sending a signal to shippers about that cost. Cost reflectivity should therefore only relate to new costs which would be created in the future or existing costs which can be avoided in the future as a result of a particular change in use.

This argument points to network prices being set according to forward looking marginal costs, as these are the costs incurred or avoided by incremental use. It has been argued that marginal cost related signals may be less relevant for some networks than others. This is not supported by economic theory, which suggests it is always relevant to send marginal cost related prices.

However, it is important that marginal cost as a concept is interpreted correctly. When there is an excess capacity in some locations as a result of reduction in network use over time, then the marginal cost of use may be close to or at zero. If there is spare capacity everywhere, the marginal cost everywhere may be zero. At this point, marginal cost based signals look very similar to commoditised flow based/ postage stamp charges. Second, it is obviously important that network companies can recover their allowed revenue. It is also clear that efficient cost reflective charges, as defined above, may not recover all costs which have been incurred. Therefore, additional charges are required to recover costs.

It is typically argued that such charges should have as an objective creating minimal changes in behaviour relative to a set of efficient charges. This is because, as previously established, there is no efficiency related reason to target historical costs at a particular set of users. By definition, they cannot be “un-incurred” and so there is no point in targeting them at a certain set of users as to do so will change behaviour in a way which reduce efficiency.

Basis for locational signals

CWD is not a marginal cost based methodology. It is a way of allocating total costs locationally (in this sense it is an average cost approach). This is clear from the calculation steps involved: entry and exit points are given a weighting dependent on capacity and distance, and then *total allowed revenue* is recovered proportionately to these weights. There is no separate step of calculating cost reflective charges and then applying additional charges to recover total costs.

The fact that CWD is not based on marginal costs does not necessarily mean it is inappropriate. Empirically, CWD may have desirable properties in the correct conditions such as stability and predictability. However, the absence of a marginal cost basis means the chances of it deviating from a reasonable estimate of “stable” marginal costs is non-trivial. If it does so, economic theory suggests it will result in inefficient outcomes. The same can be said for a capacity based Postage Stamp model too where there is not spare capacity everywhere. Therefore, the more revenue collection that is allocated to up front capacity charges, rather than residual commodity charges risks greater distortion, UNC0621B avoids this.

For example, if CWD happens to allocate significant cost to an entry point where there is spare capacity, this might increase the risk of cheap available gas at that entry point being priced out of the market, to the detriment of customers. If that entry point were a cross-border point, there is also a good case that the application of CWD could risk distorting efficient inter-state trade (one of the criteria for tariffs set out in NC TAR - the Tariff Network Code).

When comparing against the alternative modifications in an impact assessment, this potential downside of pure capacity CWD and Postage Stamp would need to be assessed against the benefit of an increase in the stability of charges, and a potential reduction in the cost of capital for shippers or reduction in risk premiums charged to customers.

Basis for revenue recovery

Objectives in relation to cost recovery

First, it is important to understand the objective behind the definition of cost recovery charges.

In its GTCR documentation (<https://www.ofgem.gov.uk/gas/transmission-networks/gas-transmission-charging-review>), Ofgem states that *“we do not believe that the current use of non-locational commodity charges, levied for the purposes of managing under- and over-recovery of transmission services revenue should be continued as we do not consider them to be cost reflective in the context of EU Tariff Code as their derivation does not incorporate the required cost drivers”*.

Ofgem states that the approach is *“to move towards a more cost reflective tariff regime”* and interprets EU Tariff Code as meaning that *“transmission tariffs should reflect costs incurred... including all historical network costs”*. Ofgem appears to believe there can be a cost driver which links network use to these historical costs.

It is interesting to compare this to statements Ofgem has made elsewhere. In particular, in their Targeted Charging Review (TCR) document in electricity, <https://www.ofgem.gov.uk/system/files/docs/2017/03/tcr-consultation-final-13-march-2017.pdf>

Ofgem states that: *“Cost-reflectivity is less directly relevant for residual charges; however, it is important that residual charges do not unduly distort the signals provided by the forward-looking charges which are intended to be cost-reflective... residual charges do not relate to specific costs that any user imposes”*.

In the TCR debate, Ofgem is similarly clear that cost reflectivity is not a valid objective when considering charges which recover residual revenue. Instead, Ofgem proposes three different principles for assessing approaches to residual charging: *“reducing distortions, fairness and proportionality and practicality considerations”*. In power, Ofgem has suggested a capacity recovery charge because this minimises the distortions arising from behind the meter generation and embedded vs transmission connected generation. A gas commodity charge arguably achieves these goals for residual revenue recovery, because there are no similar concerns relating to behind the meter gas production or storage.

Ofgem's TCR position is closer to an approach which economic theory suggests should result in greater efficiency and hence improved overall welfare for GB customers. There is clearly a risk that charging historical costs to users who then change their behaviour *increases* the overall cost of serving gas to meet GB demand.

Capacity or commodity

Ofgem's position in relation to gas network charges is not entirely consistent with what economic theory might suggest. From an economic efficiency perspective, a key difference between capacity and commodity prices lies in differences in their ability to be passed through to wholesale prices by shippers, and hence the likelihood of the charges resulting in changes in behaviour which result in inefficiency.

Consider the situation at entry points, and suppose shippers face an additional uniform commodity charge of £X/MWh at entry points which does not reflect forward looking costs but helps to recover allowed revenue.

Each shipper will face the same charge of £X for each MWh of gas they move through the entry point. Therefore, when considering the price at which they would sell gas at the NBP, each shipper's cost would be £X higher per MWh than it otherwise would be. Compared to the situation with no commodity charge at entry, NBP prices should be expected to be £X/MWh higher. In other words, the entry commodity charge has been 100% passed through to buyers at the NBP. As a result, there has been no change in the competitive position of any shipper, and there should be no change to the way in which gas is supplied to GB customers. If the supply mix was efficient before the charge, it would be as efficient after the charge.

Now contrast this to a capacity price with a uniform incremental element of £Y per unit of contracted capacity to recover revenue.

Having purchased capacity for a year, including this incremental element, the cost of capacity is sunk to a shipper. They should use the capacity they have purchased whenever the price of gas at the NBP is greater than their cost (or opportunity cost) of gas. They cannot pass through the cost of £Y to wholesale gas prices.

Profit made selling when the NBP price is greater than their cost will help cover the cost of the capacity charge. If some shippers do not make enough profit (e.g. because they have higher cost supplies) they will cease to be able to afford the capacity charge and will not purchase capacity. This will effectively result in the exit of higher cost / lower profit supplies from the GB supply mix. In other words, because capacity charges cannot be passed straight through to the NBP price, they can change the supply merit order and the way in which demand is satisfied and could reduce economic efficiency as a result. It is also worth noting that a capacity charge increases risks to shippers compared to a commodity charge, because its recovery is outside their control. Arguably, they are not as well placed to manage this risk as customers, resulting in an increase in the cost of capital charged for its management.

Alternatively, if capacity is purchased on the day of use to reflect incremental need, higher capacity costs arising from the CWD model will feed into the marginal cost of supply and the wholesale NBP price will increase.

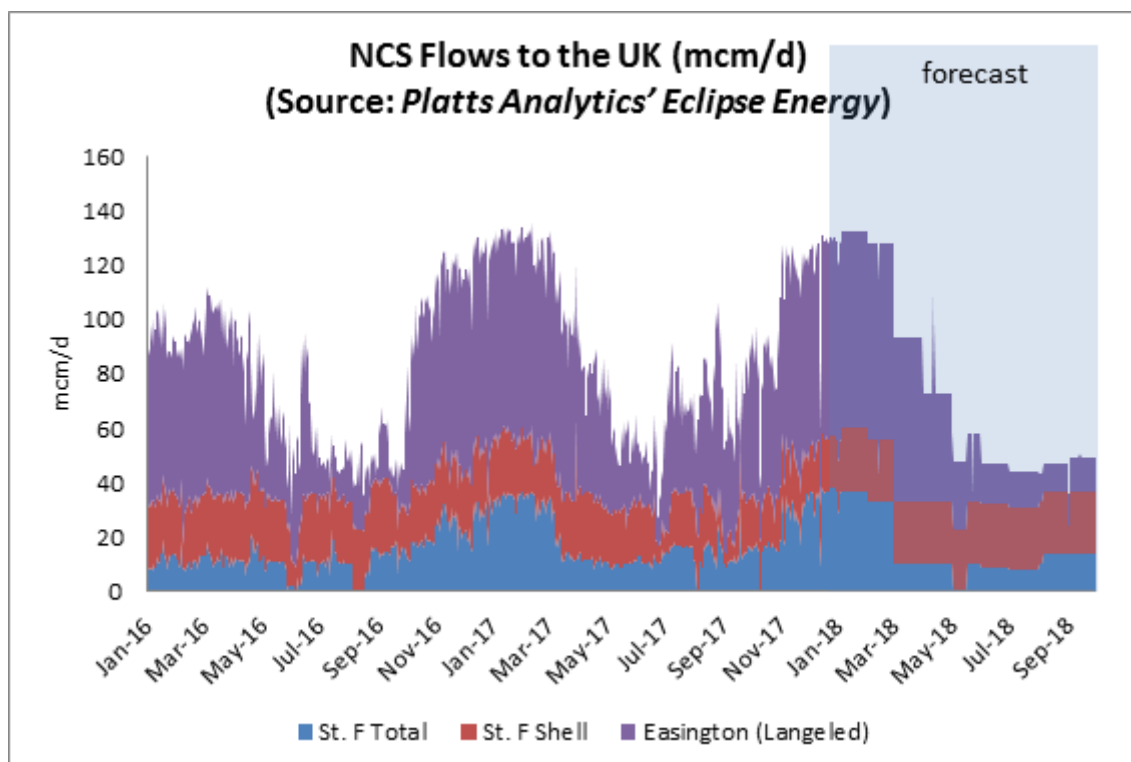
The higher capacity charges in Modification 0621 are less efficient than the 0621B charges as illustrated in the examples below:

Increased costs to customers. Capacity Mechanism

Risk of capacity substitution means that exit capacity at electricity generators may be purchased in advance. The increased capacity costs at exit will increase fixed costs that are bid into the electricity Capacity Mechanism Auction. Comparing 621 with 621b, post transition, and using Pembroke as an example would result in an increase in cost of 0.0325-0.00184 p/kwh/d which equates to £2.3 /kW based on 96 GWh/day. If this plant were marginal and set the clearing price then, all else being equal, the increase in cost across a typical 50 GW auction volume would be £115m/year charged to and paid by increases to customer bills. There may be a fall in power cost of £0.25 MWh due to the reduction in TO commodity charges of 0.7 p/th. This could reduce power costs by £75 m/yr based on 300 TWh/yr resulting in a net increase in costs to power customers of £40 m/yr.

Increased costs to customers. More expensive NBP price

St Fergus will have the most expensive entry capacity charge in a 621 Enduring capacity only regime at 0.0811 p/pkWh/day. St Fergus currently receives gas every day from Norway as shown below.



In the future, If flows are incremental and discretionary on the day, then all else being equal, one can expect the marginal capacity cost to feed into the cost of wholesale gas at the NBP. The difference between 621 and 621B, post transition, including commodity revenue recovery charge is. 0.0811-0.0612 = 0.02 p/kWh/d. Applied to annual gas demand of 900 TWh.

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/632523/Chapter_4.pdf

This equals a cost increase of £179m/year to customers.

Increased costs to customers. More expensive DN capacity charge

After the Transition period, higher capacity charges for DNs in 0621 compared with 0621B will increase charges to domestic customers. Although this will be offset to a degree by a reduction in flow based revenue recovery charges the higher fixed costs will have a disproportionate effect on low use, vulnerable energy customers.

0621C: The proposed changes to the balance of reserve prices among capacity products of different durations will ensure that a much fairer price is paid by shippers generally compared with the current situation where short-term entry and exit capacity can be readily purchased free of charge. This will help to significantly reduce the situation where parties that choose, or for business reasons are required, to purchase capacity on a long-term basis are disadvantaged and who, because of revenue under-recovery provisions such as has been witnessed with TO commodity charges, end up paying well in excess of their fair share of transmission costs. This rebalancing of charges and fairer allocation of costs is conducive to better promoting competition between gas suppliers and between gas shippers.

0621F: By removing double charging of bi-directional IP flows a market distortion will be removed. The solution ensures a level playing field for users of GB storage and seasonal flexibility via physically bi-directional IPs.

0621H: The proposed changes to the balance of reserve prices among capacity products of different durations will ensure that a much fairer price is paid by shippers generally compared with the current situation where short-term entry and exit capacity can be readily purchased free of charge. This will help

to significantly reduce the situation where parties that choose, or for business reasons are required, to purchase capacity on a long-term basis are disadvantaged and who, because of revenue under-recovery provisions such as has been witnessed with TO commodity charges, end up paying well in excess of their fair share of transmission costs. This rebalancing of charges and fairer allocation of costs is conducive to better promoting competition between gas suppliers and between gas shippers.

0621J: Neither CWD nor Postage Stamp are cost reflective as both, by design, are set to recover National Grid's historical costs rather than setting forward looking charges that aim to signal the marginal cost of providing capacity at different network locations. The proposer believes that the proposed utilisation of a new Reference Price Methodology which allocates and recovers National Grid's costs on a uniform basis ensures revenue recovery is fair and proportionate across all users of the network and will enhance competition between gas suppliers and between gas shippers when compared to the current application of a Long Run Marginal Cost Methodology (LRMC). The proposed Postage Stamp model is better suited to the current and expected future usage of the NTS where marginal costs are low or close to zero and entry capacity and exit capacity charges are set to ensure revenue recovery.

0621K: The application of an 86% discount and exemption from Revenue Recovery Charges for storage users better achieves this objective. Firstly, as described in the Storengy and WWA reports¹³ 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 reports¹⁴).

In terms of cost distribution, analysis carried out by WWA and presented at the 28 March Modification 0621 Workgroup¹⁵ the impact on charges of applying an 86% discount is marginal. During the transition phase the entry CRRC (applied to non-IPs) and the entry capacity top up charge (applied to IPs) does not increase when compared with a 50% discount. At exit, the exit CRRC increases by 0.98% and the IP exit capacity top-up charge increases by 0.54%. In the enduring phase (October 2021) there is no perceptible increase in capacity charges as a result of the increase of the discount from 50% to 86%. 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 86% discount.

With regards to the proposed 100% discount for Off Peak capacity, as has been previously stated, storage facilities ability to cycle and hence, provide flexible gas will be significantly impacted if this product attracts the proposed charge in Modification 0621. This reduction in availability of flexible gas will add to Suppliers costs, increase price volatility which will ultimately be passed on to consumers, In the extreme, security of supply issues may arise should a supply or demand stress impact the market when storage levels are depleted.

In terms of inter-User costs, the following data has been extracted from the CWD Model v2.2. Assuming an 86% discount, in the enduring regime the average cost per unit of Off Peak capacity is 0.00226 p/kwh (0.066 p/th). The model assumes a level of Off Peak capacity booking for storage Exit Points (and all Exit

¹³ <https://www.gasgovernance.co.uk/ntscmf/170717>

¹⁴ <https://www.gasgovernance.co.uk/ntscmf/170717>

¹⁵ <https://www.gasgovernance.co.uk/0621/280318>

Points) of @73 GWh/d. At the same time it assumes a total storage Exit Capacity booking of 141 GWh/d (combined firm and interruptible). Historical bookings are 1,379 GWh/d and Obligated levels are 621 GWh/d.

If it is assumed that Historical flows (which feeds the Enduring Exit Capacity booking scenario) is a reasonable proxy for future flows and bookings (albeit it is likely to be conservative in the opinion of the Proposer) then total annual bookings are @52 TWh/yr. With an aggregate storage working gas volume of @14TWh (figure estimated by Storengy & Gateway), this suggests that storage cycle 3 times per year, on average. Again, this is based on historical data and the proposer expects that the cycling frequency will increase in future. Using the average tariff for Off Peak capacity, with an 86% discount for storage, the overall increased cost burden for storage Users equates to £1.15m per year (assuming that all 52 TWh of Exit Capacity bookings are Off Peak). For reference purposes, the average cost of Off Peak capacity at storage Exit Points, under Mod 621 with a 50% discount, is 0.008 p/kwh/d (0.234 p/th). This generates a total cost burden of £4.1m per year for the same level of Exit Capacity booking as described above.

In summary, a combination of an 86% discount on capacity prices and a 100% discount for Off Peak capacity at storage Exit Points will result in an increased cost to non-storage Users of approx. £1.15m per annum in the enduring regime.¹⁶ This will be recovered via an adjustment to the initial reserve prices.

This small additional cost (noting the overall revenue allowance of £424m) is more than offset by the benefits which accrue to all Users of the operation of storage. Without access to Off Peak capacity with a 100% discount storage facilities will cycle less, which in turn will place upward pressure on gas prices as described previously. The cycling of storage is highly price-sensitive; an Exit Price higher than the current Off-Peak arrangements will limit the ability for storage users to “capture” market spreads and inevitably reduce the amount capacity bookings. As a result the real net impact of a 100% discount on TO Revenue will actually be lower than the figure calculated above

0621L: Where the distance matrix is an input to the RPM and assuming distance is a cost driver, excluding certain valid routes from the matrix (e.g., Milford Haven and Isle of Grain in the enduring period), changes the Weighted Average Distance of all points and makes the prices less reflective of the network flow scenarios and therefore less cost reflective. As these contracts expire these routes will be reintroduced in to the flow scenarios and the weighted average distance and consequently, price will change as a result of contract expiry. Including existing contracts in the CWD calculation ensures tariffs remain cost reflective and more predictable.

Workgroup Statement: Charging R.O. aa)

Workgroup participants highlighted a range of views and that the concept of cost reflectivity is highly subjective. As such no consensus could be reached.

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

0621/0621D/0621E/0621F/0621H/0621J/0621L: 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.

¹⁶ Note that in the transition period the cost will be far lower due to the reduced reserve price levels

0621A: 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. The development of storage assets connected to the transmission grid has also been factored into the WWA analysis presented at the 28 March Workgroup¹⁷. 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 86% on the CRRC capacity top up charges are robust for 5 years, at the very minimum.

0621B: The update to the Transmission Services methodology proposal takes into account developments which have taken place in the transportation business. Given the future uncertainty over sources of supply and variable demand on any given day the hybrid approach to CWD charging in 0621B provides an element of forward looking marginal price signals and recovery of allowed revenue for NG on a fair, non-discriminatory basis, where users pay for the benefits they obtain by using the network. The RPI indexation applied to the NTS Optional Charge also furthers this Objective.

0621C: From a legal and regulatory perspective, the new methodology will ensure that the requirements of EU network codes can be fully adhered to, thus ensuring that the required transportation developments, especially, at Interconnection Points, are realised. From an operational perspective, the transportation business will need to change to meet changing demand patterns and changing sources of gas supply, presenting it with a challenge for the long-term transportation of gas to consumers and with a need to provide more flexibility to meet more unpredictable within-day changes to supply and demand patterns. The new charging approach under this proposal provides a significantly more balanced suite of capacity purchase options that will lead to more predictable costs for shippers and more appropriate payments in respect of the use of the day to day and within-day use of the system.

0621D: The proposer believes that this premise will require National Grid to make changes to its policy on the availability of flexible capacity and its reinforcement policy otherwise there is an inconsistency between a charging methodology that assumes an unconstrained network and policies on flexible capacity and reinforcement that assert that capacity is constrained.

0621K: 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. Storage has reduced the need for network expansion and its operation will continue to support the operation on the gas network going forward. The discount package reflects the benefits provided by storage to the transportation business and will limit the requirement for future investment in the network. This is particularly the case if current trends continue, resulting in further demand for system flexibility, as opposed to any growth in peak demand.

Workgroup Statement: Charging R.O. b)
Workgroup did not have any statement to make on this Relevant Objective.

- 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**

¹⁷ <https://www.gasgovernance.co.uk/0621/280318>

0621/0621A/0621D/0621E/0621F/0621H/0621J/0621K/0621L: Proposers believe that the proposed utilisation of a new Reference Price Methodology which re-distributes National Grid's costs on a geographic 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. As a result, 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 would better facilitate these objectives.

0621A: The application of an 86% discount and exemption from Revenue Recovery Charges for storage users better achieves this objective. Firstly, as described in the Storengy and WWA reports¹⁸ 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 reports¹⁹).

In terms of cost distribution, analysis carried out by WWA and presented at the 28 March Modification 0621 Workgroup²⁰ the impact on charges of applying an 86% discount is marginal. During the transition phase the entry CRRC (applied to non-IPs) and the entry capacity top up charge (applied to IPs) does not increase when compared with a 50% discount. At exit, the exit CRRC increases by 0.98% and the IP exit capacity top-up charge increases by 0.54%. In the enduring phase (October 2021) there is no perceptible increase in capacity charges as a result of the increase of the discount from 50% to 86%. 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 86% discount.

0621B: To minimise the impact of competitive distortion described above a flow based commodity revenue recovery charge is preferable to high capacity based charges as would be the case in 0621B. Particularly, it avoids reduced supply competition and reduced security of supply due to storage curtailment from increased capacity costs.

Even with an 86 % discount to storage capacity costs and exemption from all enduring revenue recovery charges and non-transmission charges, overall transportation charges will increase for Hornsea and Aldbrough storage assets in 0621 and 0621J, post transition, compared with 0621B, this has 2 impacts:

Ultimately, it is likely that the increased capacity based transportation charges will adversely affect profitability of storage assets. SSE states in its annual reports that storage has been loss making for the last two years. For gas storage operators it is a question of how long assets can be maintained without the

¹⁸ <https://www.gasgovernance.co.uk/ntscmf/170717>

¹⁹ <https://www.gasgovernance.co.uk/ntscmf/170717>

²⁰ <https://www.gasgovernance.co.uk/0621/280318>

prospect of making economic returns. With the closure of Rough and the decline of UKCS production any further closure of GB storage will reduce competition in supply and adversely impact security of supply.

In the short term, use of on the day bookings of high cost capacity will result in incremental capacity costs being internalised in operational dispatch. This means that gas price will have to rise higher or fall lower before storage operation can become economic. Higher volatility can be expected to lead to higher customer prices because of increased price risk and imbalance penalties for shippers and suppliers. This increased risk will increase the cost of capital for Shippers and will be detrimental for competition by rising barriers to entry.

Note: The following text is repeated from relevant objective aa) for efficiency and undue preference. The unintended consequences of a pure capacity charge in the enduring period will also have an impact on competition, relevant objective c).

Promoting Efficiency and Economic principles associated with network charging

There are a number of economic principles which are typically associated with the definition of network charges. These are largely focused on ensuring efficient market outcomes. First, it is typically argued that network charges should be cost reflective. This means that they should reflect the (forward looking) costs which users impose on the network through a change in their use. This is important to achieving an economically efficient outcome: if charges are cost reflective, users will internalise the network costs which they cause when making a decision about how to use the network. This will in turn ensure that overall value chain costs are optimised.

The fact that it is forward looking costs which should be reflected is critically important. If there is a historic cost which exists but cannot be changed in any way going forward by different use of the network by shippers, there is no value in terms of economic efficiency in sending a signal to shippers about that cost. Cost reflectivity should therefore only relate to new costs which would be created in the future or existing costs which can be avoided in the future as a result of a particular change in use.

This argument points to network prices being set according to forward looking marginal costs, as these are the costs incurred or avoided by incremental use. It has been argued that marginal cost related signals may be less relevant for some networks than others. This is not supported by economic theory, which suggests it is always relevant to send marginal cost related prices.

However, it is important that marginal cost as a concept is interpreted correctly. When there is an excess capacity in some locations as a result of reduction in network use over time, then the marginal cost of use may be close to or at zero. If there is spare capacity everywhere, the marginal cost everywhere may be zero. At this point, marginal cost based signals look very similar to commoditised flow based/ postage stamp charges. Second, it is obviously important that network companies can recover their allowed revenue. It is also clear that efficient cost reflective charges, as defined above, may not recover all costs which have been incurred. Therefore, additional charges are required to recover costs.

It is typically argued that such charges should have as an objective creating minimal changes in behaviour relative to a set of efficient charges. This is because, as previously established, there is no efficiency related reason to target historic costs at a particular set of users. By definition, they cannot be “un-incurred” and so there is no point in targeting them at a certain set of users as to do so will change behaviour in a way which reduce efficiency.

Basis for locational signals

CWD is not a marginal cost based methodology. It is a way of allocating total costs locationally (in this sense it is an average cost approach). This is clear from the calculation steps involved: entry and exit points are given a weighting dependent on capacity and distance, and then *total allowed revenue* is

recovered proportionately to these weights. There is no separate step of calculating cost reflective charges and then applying additional charges to recover total costs.

The fact that CWD is not based on marginal costs does not necessarily mean it is inappropriate. Empirically, CWD may have desirable properties in the correct conditions such as stability and predictability. However, the absence of a marginal cost basis means the chances of it deviating from a reasonable estimate of “stable” marginal costs is non-trivial. If it does so, economic theory suggests it will result in inefficient outcomes. The same can be said for a capacity based Postage Stamp model too where there is not spare capacity everywhere. Therefore, the more revenue collection that is allocated to up front capacity charges, rather than residual commodity charges risks greater distortion, 621B avoids this.

For example, if CWD happens to allocate significant cost to an entry point where there is spare capacity, this might increase the risk of cheap available gas at that entry point being priced out of the market, to the detriment of customers. If that entry point was a cross-border point, there is also a good case that the application of CWD could risk distorting efficient inter-state trade (one of the criteria for tariffs set out in NC TAR).

When comparing against the alternative modifications in an impact assessment, this potential downside of pure capacity CWD and Postage Stamp would need to be assessed against the benefit of an increase in the stability of charges, and a potential reduction in the cost of capital for shippers or reduction in risk premiums charged to customers.

Basis for revenue recovery

Objectives in relation to cost recovery

First, it is important to understand the objective behind the definition of cost recovery charges.

In its GTCR documentation, Ofgem states that *“we do not believe that the current use of non-locational commodity charges, levied for the purposes of managing under- and over-recovery of transmission services revenue should be continued as we do not consider them to be cost reflective in the context of TAR NC as their derivation does not incorporate the required cost drivers”*.

Ofgem states that the approach is *“to move towards a more cost reflective tariff regime”* and interprets TAR NC as meaning that *“transmission tariffs should reflect costs incurred... including all historical network costs”*. Ofgem appears to believe there can be a cost driver which links network use to these historical costs.

It is interesting to compare this to statements Ofgem has made elsewhere. In particular, in their Targeted Charging Review (TCR) document in electricity, <https://www.ofgem.gov.uk/system/files/docs/2017/03/tcr-consultation-final-13-march-2017.pdf>

Ofgem states that: *“Cost-reflectivity is less directly relevant for residual charges; however, it is important that residual charges do not unduly distort the signals provided by the forward-looking charges which are intended to be cost-reflective... residual charges do not relate to specific costs that any user imposes”*.

In the TCR debate, Ofgem is similarly clear that cost reflectivity is not a valid objective when considering charges which recover residual revenue. Instead, Ofgem proposes three different principles for assessing approaches to residual charging: *“reducing distortions, fairness and proportionality and practicality considerations”*. In power, Ofgem has suggested that a capacity recovery charge because this minimises the distortions arising from behind the meter generation and embedded vs transmission connected generation. A gas commodity charge arguably achieves these goals for residual revenue recovery because there are no similar concerns relating to behind the meter gas production or storage.

Ofgem's TCR position is closer to an approach which economic theory suggests should result in greater efficiency and hence improved overall welfare for GB customers. There is clearly a risk that charging historic costs to users who then change their behaviour *increases* the overall cost of serving gas to meet GB demand.

Capacity or commodity

Ofgem's position in relation to gas network charges is not entirely consistent with what economic theory might suggest. From an economic efficiency perspective, a key difference between capacity and commodity prices lies in differences in their ability to be passed through to wholesale prices by shippers, and hence the likelihood of the charges resulting in changes in behaviour which result in inefficiency.

Consider the situation at entry points, and suppose shippers face an additional uniform commodity charge of £X/MWh at entry points which does not reflect forward looking costs but helps to recover allowed revenue.

Each shipper will face the same charge of £X for each MWh of gas they move through the entry point. Therefore, when considering the price at which they would sell gas at the NBP, each shipper's cost would be £X higher per MWh than it otherwise would be. Compared to the situation with no commodity charge at entry, NBP prices should be expected to be £X/MWh higher. In other words, the entry commodity charge has been 100% passed through to buyers at the NBP. As a result, there has been no change in the competitive position of any shipper, and there should be no change to the way in which gas is supplied to GB customers. **If the supply mix was efficient before the charge, it would be as efficient after the charge.**

Now contrast this to a capacity price with a uniform incremental element of £Y per unit of contracted capacity to recover revenue.

Having purchased capacity for a year, including this incremental element, the cost of capacity is sunk to a shipper. They should use the capacity they have purchased whenever the price of gas at the NBP is greater than their cost (or opportunity cost) of gas. They cannot pass through the cost of £Y to wholesale gas prices.

Profit made selling when the NBP price is greater than their cost will help cover the cost of the capacity charge. If some shippers do not make enough profit (e.g. because they have higher cost supplies) they will cease to be able to afford the capacity charge and will not purchase capacity. This will effectively result in the exit of higher cost / lower profit supplies from the GB supply mix. In other words, because capacity charges cannot be passed straight through to the NBP price, they can change the supply merit order and the way in which demand is satisfied and could reduce economic efficiency as a result. It is also worth noting that a capacity charge increases risks to shippers compared to a commodity charge, because its recovery is outside their control. Arguably, they are not as well placed to manage this risk as customers, resulting in an increase in the cost of capital charged for its management.

Alternatively, if capacity is purchased on the day of use to reflect incremental need, higher capacity costs arising from the CWD model will feed into the marginal cost of supply and the wholesale NBP price will increase.

The higher capacity charges in 621 are less efficient than the 621B charges as illustrated in the examples below:

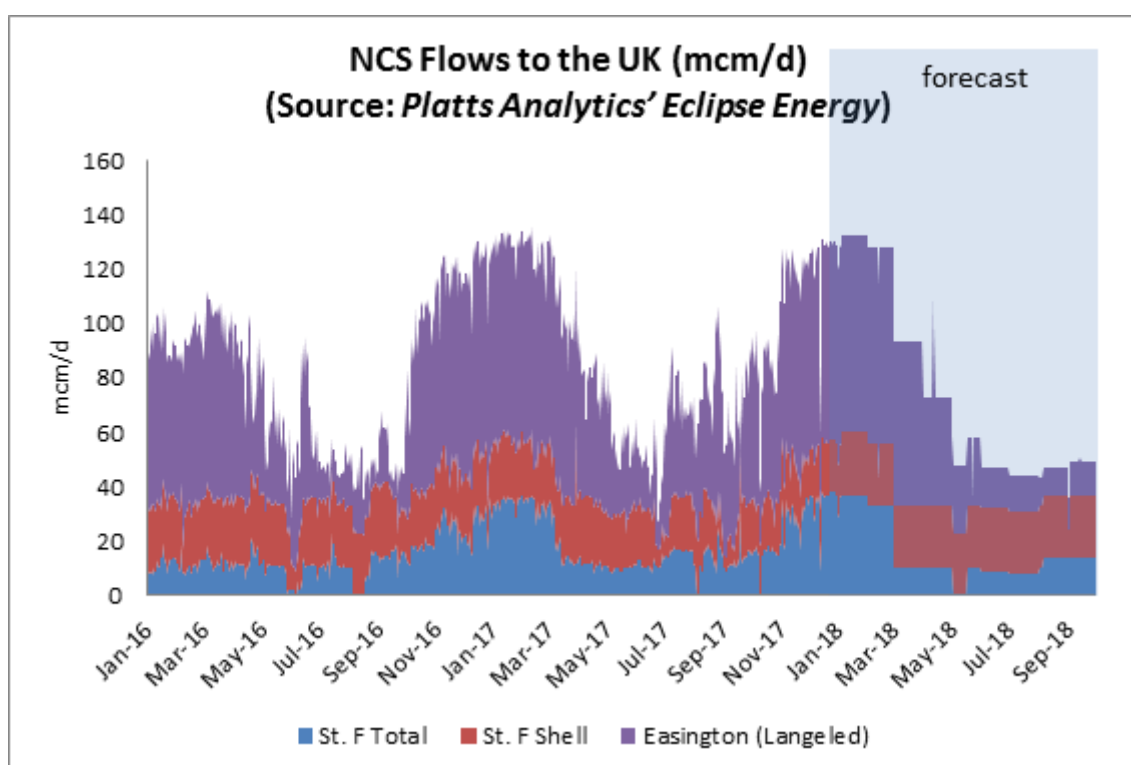
Increased costs to customers. Capacity Mechanism

Risk of capacity substitution means that exit capacity at electricity generators may be purchased in advance. The increased capacity costs at exit will increase fixed costs that are bid into the electricity

Capacity Mechanism Auction. Comparing 621 with 621b, post transition, and using Pembroke as an example would result in an increase in cost 0.0325-0.00184 p/kwh/d which equates to £2.3 /kW based on 96 GWh/day. If this plant were marginal and set the clearing price then, all else being equal, the increase in cost across a typical 50 GW auction volume would be £115m/year charged to and paid by increases to customer bills. There may be a fall in power cost of £0.25 MWh due to the reduction in TO commodity charges of 0.7 p/th. This could reduce power costs by £75 m/yr based on 300 TWh/yr resulting in a net increase in costs to power customers of £40 m/yr

Increased costs to customers. More expensive NBP price

St Fergus will have the most expensive entry capacity charge in a 621 Enduring capacity only regime at 0.0811 p/pkWh/day. St Fergus currently receives gas every day from Norway as shown below.



In the future, If flows are incremental and discretionary on the day, then all else being equal, one can expect the marginal capacity cost to feed into the cost of wholesale gas at the NBP. The difference between 621 and 621B, post transition, including commodity revenue recovery charge is $0.0811 - 0.0612 = 0.02$ p/kWh/d. Applied to annual gas demand of 900 TWh.

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/632523/Chapter_4.pdf

This equals a cost increase of £179m/year to customers.

Increased costs to customers. More expensive DN capacity charge

After the Transition period, higher capacity charges for DNs in 621 compared with 621B will increase charges to domestic customers. Although this will be offset to a degree by a reduction in flow based revenue recovery charges the higher fixed costs will have a disproportionate effect on low use, vulnerable energy customers.

0621C: The expected greater predictability and stability of charges will help gas shippers to better plan their future deliveries of gas to the market, will lead to less uncertainty for new entrants and generally provide a better basis for promoting competition in gas shipping and gas supply. The proposed discount for storage facilities will help to ensure that these important assets can remain economically viable and provide gas shippers with options for efficiently attracting and delivering gas to the market. The retention of these facilities will also help to encourage competition.

0621F: The proposer believes effective competition will be enhanced through the equal charging treatment of storage and physically bi-directional interconnection points. It will remove a market distortion for shippers using continental storage via the interconnectors to meet GB's seasonal flexibility. It will create more of a level playing field for different sources of seasonal flexibility available to shippers, and ultimately to GB consumers. It increases the choice of shippers when procuring seasonal flexibility - they can consider Continental Storage accessed via physically bi-directional IPs or GB-located storage, without the distortion of differential National Grid charges.

This is particularly relevant to the GB market and GB consumers following the closure of the Rough storage facility. It is widely recognised that the GB market now has a relatively low level of seasonal storage within national boundaries. Improved access to Continental Storage, on a levelized and competitive charging basis, would be a step in the right direction to meet the market's current structural needs.

0621H: Moreover, the expected greater predictability and stability of charges will help gas shippers to better plan their future deliveries of gas to the market, will lead to less uncertainty for new entrants and generally provide a better basis for promoting competition in gas shipping and gas supply.

0621J: There has been no objective justification for the inclusion of a distance driver in the determination of tariffs for Transmission Services. TAR NC describes CWD but does not require it to be implemented only to serve as a counterfactual. The GB NTS is a highly meshed pipeline system, with multiple entry and exit points. Shippers book entry capacity and exit capacity independently and nominate flows without specifying specific routes and therefore it is extremely difficult to allocate flows to specific assets. Reference Prices set to recover allowed revenue should not provide undue advantages to any particular set of network users. This will best facilitate efficient use of the network. Where there are differences in the charge faced by similar users there should be a clear reason and an understandable link from those variances to the benefit the user receives. We cannot identify any additional benefits associated with location that justify using anything other than the single cost driver of Capacity as utilised in the Postage Stamp methodology.

Tables 1 and 2 below show the distribution of tariffs set under the Postage Stamp method and CWD. The distribution in the Postage Stamp prices arises from application of an 86% storage discount; for the CWD method the distribution is caused by the inclusion of distance as a cost driver together with a storage discount.

Table 1a: Minimum, Maximum and Weighted Average Reference Prices based on Postage Stamp

POSTAGE STAMP 2019/20	Entry (p/kWh/day)	Exit (p/kWh/day)
Minimum Price	0.0020	0.0016
Maximum price	0.0142	0.0111
Weighted Average Price	0.0108	0.0101

Table 1b: Minimum, Maximum and Weighted Average Reference Prices based on CWD

CWD 2019/20	Entry (p/kWh/day)	Exit (p/kWh/day)
Minimum Price	0.0046	0.0043
Maximum price	0.0243	0.0180
Weighted Average Price	0.0126	0.0106

Table 2a: Minimum, Maximum and Weighted Average Reference Prices based on Postage Stamp

POSTAGE STAMP 2021/22	Entry (p/kWh/day)	Exit (p/kWh/day)
Minimum Price	0.0086	0.0031
Maximum price	0.0611	0.0220
Weighted Average Price	0.0597	0.0215

Table 2b: Minimum, Maximum and Weighted Average Reference Prices based on CWD

CWD 2021/22	Entry (p/kWh/day)	Exit (p/kWh/day)
Minimum Price	0.0154	0.0073
Maximum price	0.0847	0.0352
Weighted Average Price	0.0597	0.0215

Table 3: Shows exit points close to an entry point see significant reserve price increases caused by the high average distance.

Exit Point	Average Distance (km)	Distance to nearest entry point (km)	Current Reserve Price (p/kWh/d)	CWD Reserve Price 2019/20 (p/kWh/d)
Aberdeen	611	63	0.0001	0.0164
St Fergus PS	670	0	0.0001	0.0175
Kinknockie	656	16	0.0001	0.0172
Pembroke PS	547	7	0.0001	0.0166
Upper Neeston Milford Haven Refinery	553	0.15	0.0001	0.0168

Table 4 below shows that some exit points relatively far from an entry point have relatively low reserve prices, caused by the low average distance.

Exit Point	Average Distance (km)	Distance to nearest entry point (km)	Current Reserve Price (p/kWh/d)	CWD Reserve Price 2019/20 (p/kWh/d)
Rugby	273	141	0.0142	0.0093
St Neots PS	303	156	0.0117	0.0097
Stratford-upon-Avon	296	126	0.0172	0.0100
Tur Langton	281	150	0.0118	0.0092
Willington PS	306	158	0.0184	0.0098

The Postage Stamp methodology ensures shippers pay same price for the same service across entry and exit, removing distortions that arise as a result of CWD creating artificial and unjustified differences in charges. In turn, this will support effective competition between suppliers and shippers in the gas market and in the wider electricity energy and capacity markets.

0621K: The application of an 86% discount and exemption from Revenue Recovery Charges for storage users better achieves this objective. Firstly, as described in the Storengy and WWA reports²¹ 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 reports²²).

In terms of cost distribution, analysis carried out by WWA and presented at the 28 March Modification 0621 Workgroup²³ the impact on charges of applying an 86% discount is marginal. During the transition phase the entry CRRC (applied to non-IPs) and the entry capacity top up charge (applied to IPs) does not increase when compared with a 50% discount. At exit, the exit CRRC increases by 0.98% and the IP exit capacity top-up charge increases by 0.54%. In the enduring phase (October 2021) there is no perceptible increase in capacity charges as a result of the increase of the discount from 50% to 86%. 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 86% discount.

With regards to the proposed 100% discount for Off Peak capacity, as has been previously stated, storage facilities ability to cycle and hence, provide flexible gas will be significantly impacted if this product attracts the proposed charge in Modification 0621. This reduction in availability of flexible gas will add to Suppliers costs, increase price volatility which will ultimately be passed on to consumers, In the extreme, security of

²¹ <https://www.gasgovernance.co.uk/ntscmf/170717>

²² <https://www.gasgovernance.co.uk/ntscmf/170717>

²³ <https://www.gasgovernance.co.uk/0621/280318>

supply issues may arise should a supply or demand stress impact the market when storage levels are depleted.

In terms of inter-User costs, the following data has been extracted from the CWD Model v2.2. Assuming an 86% discount, in the enduring regime the average cost per unit of Off Peak capacity is 0.00226 p/kwh (0.066 p/th). The model assumes a level of Off Peak capacity booking for storage Exit Points (and all Exit Points) of @73 GWh/d. At the same time it assumes a total storage Exit Capacity booking of 141 GWh/d (combined firm and interruptible). Historical bookings are 1,379 GWh/d and Obligated levels are 621 GWh/d.

If it assumed that Historical flows (which feeds the Enduring Exit Capacity booking scenario) is a reasonable proxy for future flows and bookings (albeit it is likely to be conservative in the opinion of the proposer) then total annual bookings are @52 TWh/yr. With an aggregate storage working gas volume of @14TWh (figure estimated by Storengy & Gateway), this suggests that storage cycle 3 times per year, on average. Again, this is based on historical data and the proposer expects that the cycling frequency will increase in future. Using the average tariff for Off Peak capacity, with an 86% discount for storage, the overall increased cost burden for storage Users equates to £1.15m per year (assuming that all 52 TWh of Exit Capacity bookings are Off Peak). For reference purposes, the average cost of Off Peak capacity at storage Exit Points, under Mod 621 with a 50% discount, is 0.008 p/kwh/d (0.234 p/th). This generates a total cost burden of £4.1m per year for the same level of Exit Capacity booking as described above.

In summary, a combination of an 86% discount on capacity prices and a 100% discount for Off Peak capacity at storage Exit Points will result in an increased cost to non-storage Users of approx. £1.15m per annum in the enduring regime.²⁴ This will be recovered via an adjustment to the initial reserve prices.

This small additional cost (noting the overall revenue allowance of £424m) is more than offset by the benefits which accrue to all Users of the operation of storage. Without access to Off Peak capacity with a 100% discount storage facilities will cycle less, which in turn will place upward pressure on gas prices as described previously. The cycling of storage is highly price-sensitive; an Exit Price higher than the current Off-Peak arrangements will limit the ability for storage users to “capture” market spreads and inevitably reduce the amount capacity bookings. As a result the real net impact of a 100% discount on TO Revenue will actually be lower than the figure calculated above

0621L: Where the distance matrix is an input to the RPM and assuming distance is a cost driver, excluding certain valid routes from the matrix (e.g., Milford Haven and Isle of Grain in the enduring period), changes the Weighted Average Distance of all points and makes the prices less reflective of the network flow scenarios and therefore less cost reflective. As these contracts expire these routes will be reintroduced in to the flow scenarios and the weighted average distance and consequently, price will change as a result of contract expiry. Including existing contracts in the CWD calculation ensures tariffs remain cost reflective and more predictable.

Workgroup Statement: Charging R.O. b)
See Workgroup Statement on Standard Relevant Objective c)

²⁴ Note that in the transition period the cost will be far lower due to the reduced reserve price levels

e) Compliance with the Regulation and any relevant legally binding decisions of the European Commission and/or the Agency for the Co-operation of Energy Regulators.

0621/0621A/0621D/0621E/0621F/0621J/0621K/0621L: The EU Tariff Code compliance is taken into account in these Modification proposals. Accordingly, implementation of these Proposals would ensure that the GB arrangements are compliant with the EU Tariff Code.²⁵

0621B: The proposer of 0621B believes the Modification is fully compliant with the Commission Regulation (EU) 2017/460, of 16 March 2017, establishing a network code on harmonised transmission tariff structures for gas. One area that may benefit from further clarification is Article 4(3), Transmission and non-transmission services and tariffs.

The default position is that the transmission services revenue shall be recovered by capacity based tariffs but “as an exception” and subject to the approval of the national regulatory authority, a part of the transmission service may be recovered by (a) flow based charge; or (b) complementary revenue recovery charge (being identified as “commodity based transmission tariffs”) provided that they meet the requirements contained in Article 4(3)(b), summarised below:

- The complementary revenue recovery charge shall be :
 1. Levied for the purpose of managing revenue under recovery.
 2. Calculated on the basis of forecasted flows
 3. Applied to points other than IPs
 4. Applied after the NRA has made an assessment of cost -reflectivity and on cross - subsidisation between IPs and non-IPs.
- To the extent that use of such commodity based transmission tariff is approved there is no time period for which this must apply – i.e. there is nothing that would prohibit long term use of a commodity based transmission tariff and make the 621 proposal more favourable/compliant with the Regulations;

There is a reference to the application of a commodity based transmission tariff being potentially permitted for a part of the transmission services. Whilst this is a matter of interpretation (“part” could mean the entire part for example) this suggests that a commodity based transmission tariff would be used together with a capacity based transmission tariff, as is the intention of 0621B.

The “exception” for the GB gas market is important because without it customers will be exposed to the increased costs highlighted in the above relevant objectives and to reduced levels of supply and decreased security of supply.

Case for exception for GB (c.f. TAR Article 4(3b))

The “exception” for the GB gas market is important because without it customers will be exposed to the increased costs highlighted in the above relevant objectives and to reduced levels of supply and decreased security of supply.

The GB gas transmission system is exceptional in the context of EU Member States in several ways.

²⁵ The proposer of 0621D accepts National Grid’s statement but understands that not all the proposals in 0621 are required for EU Tariff Code compliance and that a clear statement of which parts are required would be helpful. This would be particularly useful if the Authority decided to direct implementation of those provisions required for EU Tariff Code compliance

The most significant difference is that the system was designed and expanded to meet the peak entry requirements related to UKCS gas production. DUKES 2017²⁶ reports that gas production has fallen to “just over a third of the peak level recorded in 2000”. Similarly, exit capacity is generally unconstrained, although scope exists for local or temporary congestion to become an issue in the future (e.g. due to new CCGT investment or outages).

This context of permanent excess capacity presents specific issues for structuring charges in a manner to recover historic costs in the least distortive manner.

For this reason, it is logical to adopt an approach to setting transmission tariffs in GB that is exceptional when compared to other jurisdictions covered by the TAR NC. In particular, it is reasonable to consider the role of commodity charges as permitted by Article 4 (3b). Modification 0621B presents a pragmatic compromise – the slightly dampened locational price signal in capacity charges proposed in 0621B (relative to 621) reduces the risk of distorting trade between the UK and Norway (as a consequence of punitively high entry charges at St Fergus in particular) whilst preserving a locational signal which might be factored into the next wave of CCGT investment.

Levying a commodity charge is the fairest means to manage revenue under-recovery in this context as it is fairer on domestic customers and can be efficiently passed through to other market participants as an uplift in the gas price or as a marginal increase in the cost of electricity generation (without affecting the merit order of CCGT).

0621C: The proposed new charging methodology has been derived by taking account of the various provisions of the EU Tariff network code to ensure compliance with it. It strikes an appropriate balance between those code provisions whilst also ensuring that the transition from the current to the new charging regime can be effected in a way that provides users with some time to adjust to the new charging arrangements before the full suite of enduring provisions come into force. The proposed methodology adequately protects existing contractual rights and obligations, especially in respect of H.

0621F: Key objectives of the third energy package are to facilitate efficient gas trade and competition across borders. Given that physically bi-directional IPs compete with GB storage and that the unequal treatment distorts cross border trade, the proposer believes the Modification 0621F solution is necessary to ensure GB compliance with:

- Tariffs for access to networks under Regulation (EC) No 715/2009:
Article 13.1 of *Tariffs for access to networks* in Regulation (EC) 715/2009 which says “*Tariffs, or the methodologies used to calculate them, shall be applied in a non-discriminatory manner.*” And “*Tariffs, or the methodologies used to calculate them shall facilitate efficient gas trade and competition*”
And 13.2 which requires “*Tariffs for network access shall neither restrict market liquidity nor distort trade across borders of different transmission systems*”
- Commission Regulation (EU) 2017/460 (the TAR Code)
Under Article 7(e), TSOs must ensure that the reference prices do not distort cross-border trade. It should be noted that a discount for physically bi-directional IPs is entirely consistent with the TAR Code given TSOs can make adjustments to the application of the reference price methodology in accordance with Article 6.4 or Article 9.

²⁶ Digest of UK Energy Statistics (DUKES) 2017 <https://www.gov.uk/government/statistics/digest-of-uk-energy-statistics-dukes-2017-main-report>

Under Article 6.4(a), TSOs can make adjustments to reference prices at any given entry or exit point to meet the competitive level of the reference price.

0621H: The EU Tariff Code full compliance is taken into account in this modification proposal. Accordingly, implementation of this Proposal would ensure that the GB arrangements are compliant with the EU Tariff Code, including a proper application of article 35 thereof, thus adequately protecting existing contractual rights and obligations.

0621J: In particular, we believe that implementing Postage Stamp:

- (a) enables network users to reproduce the calculation of reference prices and their accurate forecast;
- b) takes into account the actual costs incurred for the provision of transmission services considering the level of complexity of the transmission network;
- c) ensures non-discrimination and prevents undue cross-subsidisation including by taking into account the cost allocation assessments set out in Article 5;
- d) ensures that significant volume risk related particularly to transports across an entry-exit system is not assigned to final customers within that entry-exit system;

0621L: EU Tariff Code Article 6.3 stipulates that the same reference price methodology shall be applied to all entry and exit points in a given entry-exit system. Including Existing Contracts for exit reference price calculations and excluding them for entry reference price calculations is inconsistent with this Article and so this proposal to include Existing Contracts for entry and exit reference price calculations ensures changes to the UK charging regime are compliant with EU Tariff Code.

EU Tariff Code Article 6.4 stipulates that adjustments to the application of the reference price methodology to all entry and exit points may only be made as a result of benchmarking, equalisation, rescaling or to account for tariff discounts. Amending data inputs by netting off existing contracts at entry points is not one of the permissible adjustments. By including existing contracts in the CWD calculation, this proposal ensures compliance with the EU Tariff Code.

Moreover, where existing contracts are netted off and the model results in a zero price, using the price from the nearest point, which in the case of entry points can be a considerable distance, represents an adjustment to the application of the reference price, which is not in accordance with this Article. Including existing contracts in the FCC and RPM resolves these issues and ensures the proposal is NC TAR compliant.

EU Tariff Code Article 7(b) & (e) states that the reference price methodology shall comply with Article 13 of Regulation (EC) No 715/2009 and...shall aim at: b) taking into account the actual costs incurred for the provision of transmission services considering the level of complexity of the transmission network. By including existing contracts in the RPM and FCC, reference prices will reflect costs incurred.

Workgroup Statement – Charging Relevant Objective e)

(note this is the same as for Standard Relevant Objective g))

Workgroup participants noted that all the proposers state their Modifications are compliant.

Workgroup participants noted that participating organisations may have sought legal advice on compliance but these are unlikely to be shared with the group. Please note that the Workgroup is not qualified to make judgements on the legal compliance. The Workgroup felt that the decision as to whether a Modification is compliant or not must be taken by the Regulator, Ofgem.

The approach taken here is to summarise concerns raised and any further supporting views from the proposers.

Some Workgroup participants have requested clarification from National Grid and all other proposers on legislative compliance of the Modification proposals with reference to the EU Tariff Network Code.

A Workgroup participant provided considerable material which was reviewed by the Workgroup and highlighted the following key points:

- Art. 6.3: The RPM includes existing contracts for exit price calculations but excludes them for entry price calculations. Effectively different FCC values are used for entry and exit price calculations (All Modifications except 0621L)
- Art. 6.4: Amending data inputs by netting off existing contracts at entry points is not one of the adjustments allowed. Where there is a zero price the adjustment from zero does not fit with one of those allowed. This is less of an issue for 0621B since this uses Obligated Capacity (All Modifications except 0621L). Art. 7 b) and e) (All Modifications except UNC0621B and UNC0621J) From the start of the enduring period there will be more uncertainty in forecast charges due to no definition of how FCC will be set.
- Art. 8. A zero value for FCC effectively excludes that part of the network from the CWD calculations so the reference prices do not reflect the network. (All Modifications though less of an issue for UNC0621B and UNC0621L)
- Art. 8.1 A FCC value of zero effectively eliminates certain combinations of Entry/Exit flows even though flow scenarios between the points are possible. The 'relevant flow scenarios' change from transition to enduring period this needs further explanation (All Modifications though less of an issue for 0621B and 0621L)
- Art. 13 Multipliers and Seasonal factors and Article 16 Interruptible capacity pricing Note that all the Modifications apply these at points beyond IPs.
- Art. 35 Protection for Existing Contracts. This is applied differently in the different Modifications in relation to revenue recovery (see comparison table and key issue section 4).

Other Workgroup participants expressed views that the Modifications were compliant with TAR NC and highlighted the following as further justification:

- Comparison to counterfactual (basic CDW) – see comparison table for comparison to UNC0621 (and alternatives). This justifies aspects of the UNC0621 (and alternatives) proposals to make the CWD methodology work and prevent a massive under recovery. Essentially it is an approach which reflects the significant volume of existing entry capacity contracts.
- Existing contracts and Article 35 interpretation (see key issues section 4 for further justification for different approaches for different Modifications).

6 Stakeholder Objectives

Industry participants formulated this set of stakeholder objectives as a desirable set of outcomes during late 2016²⁷ at NTSCMF to be considered alongside a) the relevant Objectives in UNC and b) the license objectives.

Issue	What does this mean to people? (examples to aid discussion)
Minimise Volatility	Minimise magnitude of changes within year; sensitivity of inputs in the overall reference price methodology and overall framework (inclusive of all adjustments, alternative products)
Predictability	Use of charges in their own charging frameworks, timing of changes and transparency. Including ability to understand methodology and reproduce/forecast charges
Stability of prices	Minimise magnitude of changes year to year, sensitivity of inputs in the overall framework
Fairness	Equitable treatment for users where appropriate; how the design and application of discounts, exemptions and alternative products is done
Security	Promote competition, facilitate cross border trade and supply of gas from domestic and non-domestic sources. Charges should facilitate delivery of new and flexible supplies as well as demand side response.
Network efficiency	Charges should encourage efficient use and operation of the system. In a future of falling demand, changing supply patterns and probable decommissioning of system points the charging framework should facilitate optimal utilisation of the network including delivery of new investment and signalling of redundancy

*Consideration to be given to any legal obligations in force at the time



Workgroup participants felt that, in general, these objectives are met by all the Modifications under consideration and can be viewed as extensions of the UNC Relevant Objectives. In particular minimising volatility, predictability and stability of prices all relate to competition (Standard Relevant Objective d) and Charging Relevant Objective c)). Security relates to both Ofgem's Statutory objectives and to compliance (Standard g) and Charging e)) and cross border trade correlates to EU Tariff Code Article 7e). Fairness correlates to Article 7c) Cost Allocation Assessment and Article 7c d). Network Efficiency correlates to Standard Relevant Objective a) and potentially Charging Relevant Objective b).

Most proposals are expecting security (especially cross border trade) to be assessed by the Regulatory Impact Assessment)

7 Impacts and Other Considerations

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

These Modifications do not impact a current SCR.

Most Workgroup participants and many UNC Panel Members considered Modification 0621 should itself have been presented as a Significant Code Review.

²⁷ Discussed at September and October 2016 NTSCMF:

<https://www.gasgovernance.co.uk/sites/default/files/ggf/NTS%20Charging%20Review%20Objectives%20v3%20%28from%20WWA%29.pdf>

Consumer Impacts

There will be impact on different consumer groups but the allowed revenue collected by National Grid NTS will not change. Please see section 4.17 for details on the DN customer impacts.

Cross Code Impacts

None.

EU Code Impacts

EU Tariff Code compliance is considered as part of this Proposal. Further information can be found on this topic within the section 5 on relevant objectives since Relevant Objective g) covers “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”.

Central Systems Impacts

There will be impacts on Gemini and UK Link invoicing systems.

At Workgroup on 04 April 2018 National Grid gave an update²⁸ which summarised that the system changes were being progressed in two parts, A and B. Part A comprises some changes required to systems and processes driven from Modification UNC0621 and MIPI enhancements (NORD07). Part B comprises changes required to systems and processes from Modifications UNC0621, UNC0597, UNC0611 and others in development related to the Treatment of Capacity at Combined ASEPs. Requirements for all UNC0621 Alternative Modifications will be analysed during the Part B Analysis and Design phase. Part A is due for implementation in November 2018 and Part B is due for implementation in September 2019, though is to be confirmed.

The Workgroup requested an update from Xoserve, the CDSP which was communicated to Workgroup on 20 April 2018. Analysis of system changes associated to Part B of the National Grid led GB/EU Charging 2019 project began week commencing 30 April 2018. For the avoidance of doubt the requirements of all the respective Alternative Proposals have been fed into the Analysis and Design process.

This Part B analysis stage will take approximately two months to complete and will consider the UNC0621 Modification (and all its alternatives) alongside other associated requirements, (however it should be noted that any system changes arising from the alternative Modifications will require scope assessments in terms of timescales and cost). At the end of this stage the change implications (additional to the original Modification UNC0621) of each of the Modifications will be understood, enabling a set of baselined requirements to be taken into the build phase of the project.

A March 2019 Authority decision as to which Modification is to be implemented means National Grid and Xoserve will need to progress build and test activities at risk. This approach is consistent with previous EU changes (2015) where Xoserve needed to be mindful of timescales and delivery due to compliance. Change of scope will be considered as the team moves through the project lifecycle, the closer to the implementation date any final decision are made could impact costs and user impacts.

National Grid Transmission continues to work closely with Xoserve to agree and progress appropriate risk mitigations.

²⁸ Workgroup 0621 meeting on 04 April 2018

https://www.gasgovernance.co.uk/sites/default/files/ggf/book/2018-04/EUGB%20Charging%202019%20Slides%20for%20CMF%204%20April%202018%20Version%201_0_0.pdf

Progress of the GB/EU Charging 2019 project will be routinely communicated to the industry within the DSC Change Management Committee²⁹ in conjunction with National Grid Transmission Business Change project updates in order to ensure parties are kept fully informed.

8 Implementation

Whichever of these Modifications is implemented and the resulting methodology change will take effect for prices from October 2019, in order to achieve compliance with the EU Tariff Code.

The transition between the application of the prevailing and proposed methodology/rules in respect of Reserve Prices for capacity auctions is expected to take effect as illustrated in the Appendix 1 of this Proposal.

9 Workgroup Conclusions

Workgroup noted the Ofgem Direction on National Grid Gas, dated 08 March 2018, and understood the need to send the Workgroup report to May UNC Modification Panel for consideration.

At its final Workgroup meeting on 08 May 2018, Workgroup explored the likely discussion at UNC Panel and Ofgem noted Paragraph 9J Standard Special condition A11³⁰. This is mirrored in the UNC Modification Rules Section 12.5.2 and 12.5.3³¹.

In light of the above, National Grid stated it strongly believed it had met the 'reasonable endeavours' requirement to send the Workgroup report to May UNC Modification Panel for consideration.

Many Workgroup participants viewed that the work undertaken was reasonable given the Direction but were concerned that the timescales allowed for consideration of the impacts were not sufficient to complete a robust assessment.

Workgroup therefore asks Panel to make the decision as to whether the Workgroup Report should be sent out for consultation.

10 Workgroup recommendation for further analysis and assessment

Workgroup participants were concerned that there were areas that would ordinarily have been completed prior to submission which they agreed in this case the Workgroup had not had sufficient time and

²⁹ DSC Change Management Committee <https://www.gasgovernance.co.uk/DSC-Change>

³⁰ Standard Special Conditions – Gas Part A <https://www.ofgem.gov.uk/licences-industry-codes-and-standards/licences/licence-conditions> and <https://epr.ofgem.gov.uk/Content/Documents/Standard%20Special%20Condition%20-%20PART%20A%20Consolidated%20-%20Current%20Version.pdf>

³¹ UNC Modification Rules <https://www.gasgovernance.co.uk/sites/default/files/ggf/page/2018-05/Modification%20Rules.pdf>

opportunity to complete. This includes a robust and more detailed assessment of the impacts on competition of the move from transition to enduring (acknowledging that some participants' views on the impacts are unlikely to change).

Workgroup acknowledged that having not explored this area fully, it was not known whether the results would be significant.

Workgroup acknowledged the analysis material entitled "Summary of comparisons between the modifications on key areas and potential outcomes of the proposals" submitted by National Grid on 07 May 2018³² and would have liked to consider this more fully if time had permitted.

Workgroup acknowledged the complexity and interactions of the changes to the Charging Framework. This included the significant number of Alternative Modifications. These challenges, combined with the Ofgem Direction, have led to some of the areas which Workgroup would have liked to further consider and assess; Workgroup has had to make many innovations and adjustments in the method and order in which it has carried out its duties.

Workgroup participants recommend that Ofgem considers inclusion of the following questions and topics in its Regulatory Impact assessment:

- The Impact of Modification UNC0621 and any Alternatives need to be assessed against the counterfactual and the current methodology;
- The impact on the GB gas market in terms of:
 - NBP liquidity (Impact on the volatility and price); including in relation to other hubs in North-West Europe, especially TTF;
 - GB competitiveness in relation to North-West European markets;
 - Wholesale prices, including volatility and risk of extreme prices;
 - Wholesale market competition;
 - Competition in supply;
 - Attractiveness of GB as a destination for gas, within EU and globally;
 - Security of Supply and price;
 - Impact on the availability of flexible gas and on the operation of the NTS;
 - Impact on gas balancing costs.
- Impact on the volatility and price level of the electricity market ;
- Consider the impacts on volatility of the publication of GDN prices;
- Impact on Security of Supply and on required network investment to pass N-1 test;
- Cross market impacts with electricity; impact on volatility and prices for wholesale electricity, capacity mechanism, balancing costs and any issues arising from different approaches to charging
- Environmental impacts, if any.

³² Available here: <https://www.gasgovernance.co.uk/0621/analysis>

11 Recommendations to Panel

Panel's Recommendation to Interested Parties

The Panel have recommended that this report is issued to consultation and all parties should consider whether they wish to submit views regarding this modification.

12 Appendix 1: Impacts of Proposal on NTS Capacity Auctions

Acronym	Full name	Dir.		Class			Product				Transition		Calculation and Publication*				Published Price (at time of auction)	Payable Price
		Entry	Exit	Firm	Interruptible	Off Peak	Annual	Quarterly	Monthly	Daily	Last 'Old Rules' Auction	First 'New Rules' Auction	Last Old Calculation	Last Old Publication	First New Calculation	First New Publication		
INTERCONENCTION POINTS																		
IPAY	Interconnection Point Annual Yearly	Y	Y	Y			Y				Jul 2018	Jul 2019	Oct 2017	May 2018	Oct 2018	May 2019	Y1: actual Y2-15: indicative	Prevailing price plus premium
IPAQ	Interconnection Point Annual Quarterly	Y		Y				Y			May 2019	Aug 2019	Oct 2017	May 2018	Oct 2018	Jan 2019	actual	Prevailing price plus premium
			Y	Y				Y					Mar 2019	May 2019	Feb 2019	May 2019		
IPRM	Interconnection Point Rolling Monthly	Y		Y					Y		Aug 2019	Sep 2019	Jun 2018	1 Jul 2018	Feb 2019	May 2019	actual	Prevailing price plus premium
			Y	Y					Y				Mar 2018	May 2018				
IPDA	Interconenction Point Day Ahead	Y		Y	Y					Y	29 Sep 2019 (F: 15:30, I: 16:30)	30 Sep 2019 (F:15:30, I: 16:30)	Jun 2018	Jul 2018	Feb 2019	May 2019	actual	Prevailing price plus premium
			Y	Y	Y					Y			Mar 2018	May 2018				
IPWD	Interconnection Point Within Day	Y		Y	Y					Y	30 Sep 2019 (00:00 - 00:30)	30 Sep 2019 (18:00 - 01:30)	Jun 2018	Jul 2018	Feb 2019	May 2019	actual	Prevailing price plus premium
			Y	Y	Y					Y			Mar 2018	May 2018				
NON-INTERCONNECTION POINTS																		
QSEC	Quarterly Stytem Entry Capacity	Y		Y				Y			Mar to May 2019	Mar to May 2020	Oct 2018	Jan 2019	Oct 2019	Jan 2020	indicative	Prevailing price plus premium
MSEC	Monthly System Entry Capacity	Y		Y					Y		Feb 2019	Feb 2020	Jul 2018	31 Jul 2018	Feb 2019	May 2019	M1-6: actual M7-18: indicative	Prevailing price plus premium
RMTTSEC	Rolling Monthly Trades and Transfer System Entry Capacity	Y		Y					Y		Aug 2019	Sep 2019	Jun 2018	1 Jul 2018	Feb 2019	May 2019	actual	Prevailing price plus premium
DADSEC	Day Ahead Daily System Entry Capacity	Y		Y	Y					Y	29 Sep 2019	30 Sep 2019	Jun 2018	Jul 2018	Feb 2019	May 2019	actual	Prevailing price plus premium
WDDSEC	Within Day Daily System Entry Capacity	Y		Y						Y	30 Sep 2019	1 Oct 2019	Jun 2018	Jul 2018	Feb 2019	May 2019	actual	Prevailing price plus premium
EAFLEC	Enduring Annual Flat Exit Capcity		Y	Y			Enduring, sold Annually				Jul 2018	Jul 2019	Mar 2018	May 2018	Feb 2019	May 2019	Y4+: indicative	Prevailing
AFLEC	Annual Flat Exit Capacity		Y	Y			Y				Jul 2018	Jul 2019	Mar 2018	May 2018	Feb 2019	May 2019	Y1: actual Y2-3: indicative	Prevailing
DADNEX	Day Ahead Daily NTS Exit Capacity		Y	Y		Y				Y	29 Sep 2019	30 Sep 2019	Mar 2018	May 2018	Feb 2019	May 2019	actual	Prevailing price plus premium
WDDNEX	Within Day Daily NTS Exit Capacity		Y	Y						Y	30 Sep 2019	1 Oct 2019	Mar 2018	May 2018	Feb 2019	May 2019	actual	Prevailing price plus premium

F - Firm

I - Interruptible

* these dates are starting points for the respective calculation and publication processes

13 Appendix 2: Definitions

Term (Abbreviation)	Description
Capacity Weighted Distance (CWD) Model	<p>The CWD approach fundamentally requires three main inputs:</p> <ul style="list-style-type: none"> • A revenue value is required, which will be the target revenue required to be recovered from Transmission Services; • 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 Forecasted Contracted Capacity (FCC) (which is mentioned 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 earlier of:</p> <ul style="list-style-type: none"> • the last day of the month in which Ofgem issues its letter directing implementation of this Proposal; and • 31 May 2019
Existing Contracts (ECs) (for the purposes of this modification)	Arrangements relating to Long Term Entry capacity allocated before 6 April 2017 (Entry into Force of EU Tariff Code)
Forecasted Contracted Capacity (FCC)	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.
Historical Contracts (HCs)	The combination of Existing Contracts (ECs) (for the purposes of this modification) and Interim Contracts (ICs) and in relation to Transmission Services Revenue Recovery Charges at Storage includes adjustments to available capacity (including transfers) executed up to and including the Effective Date.
Interim Contracts (ICs)	Arrangements relating to Long Term Entry capacity allocated between 6 April 2017 and the Effective Date excluding Interconnection Point Entry Capacity.
Long Run Marginal Costs (LRMC) Model	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.
Multipliers	The factor applied to the respective proportion (runtime) of the Base Reference Price in order to calculate the Reference Price for non-yearly standard capacity product

Network Distances (for the purposes of modelling in the RPM)	A matrix of distances used in the RPM that are the pipeline distances on the NTS.
Non-Transmission Services	The regulated services other than transmission services and other than services regulated by Regulation (EU) No 312/2014 that are provided by the transmission system operator;
Non-Transmission Services Revenue	The part of the allowed or target revenue which is recovered by non-transmission tariffs
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 produced in p/kWh/a (pence per kWh per annum).
Reference Price Methodology (RPM)	<p>The methodology applied to the part of the transmission service revenue to be recovered from capacity based transmission tariffs with the aim of deriving Reference Prices. Applied to all entry and exit points in a system.</p> <p>The RPM therefore is the framework to spread certain costs / revenues (relevant to the methodology in place) to the Entry and Exit points and thereby on to network users.</p>
Reserve Price	<p>Reserve Price for Yearly standard capacity = the Reference Price</p> <p>Reserve Price for Non- yearly standard capacity is calculated by applying any Multipliers (if applicable).</p> <p>This will be produced in p/kWh/d (pence per kWh per day).</p>
Target Revenue	This is the revenue required to be recovered from a particular set of charges.
Transmission Services	The regulated services that are provided by the transmission system operator within the entry-exit system for the purpose of transmission.
Transmission Services Revenue	The part of the allowed or target revenue which is recovered by transmission tariffs.
Transportation Statement	The Transportation Statement containing the Gas Transmission Transportation Charges