

**Gas  
Transmission**

**UNC0823**

**Work Group  
NTSCMF**

**6<sup>th</sup> December 2022**

**nationalgrid**



# Gas Transmission

$EQ_{En}$  can  
exceed  $EQ_{Ex}$

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# Example of how Entry Eligible Quantities ( $EQ_{En}$ ) could be higher than Exit Eligible Quantities ( $EQ_{Ex}$ )

Reminder of terms:

- CAP** means in respect of Entry or Exit capacity, the greater of zero (0) and the User's Net Firm Entitlement on the day at the Eligible Entry Point;
- EC** means the quantity of Entry Capacity procured via an Existing Contract
- A** means the User's gas flow entry allocation on the day at the Eligible Entry or Exit Point
- AQ** means the Apportionment Quantity
- IEQ** means the Initial Eligible Quantity
- EQ** The Eligible Quantity for which the Discounted Reserve Price applies

# Example of how Entry Eligible Quantities ( $EQ_{En}$ ) could be higher than Exit Eligible Quantities ( $EQ_{Ex}$ )

Holding capacity at the Exit Point, procured via Trade & Transfer (50 in this example), enables discounts at Entry:

$$EQ_{En} = 50$$

But this does not allow for discount at the Exit Point as the capacity holder is not the liable party:

$$EQ_{Ex} = 0$$

Shipper A Entry Point E				Shipper A Entry Point E Exit Point 1	
Date Booked	Source	Type	kWh	Type	kWh
01/04/2017	Existing	Firm	0	$CAP_{En1}$	50
01/01/2020	Auction	Firm	50	$EC_{En1}$	0
01/04/2020	Auction	Interruptible	0	$A_{En1}$	50
01/07/2020	Trade	Firm	0	$AQ_{En1}$	50
		Entry Flow	50		
				$IEQ_{En}$	50
				$IEQ_{Ex}$	50
Exit Point 1					
Date Booked	Source	Type	kWh		
01/01/2020	Auction	Firm	0	$EQ_{En}$	50
01/04/2020	Auction	Interruptible	0	$EQ_{Ex}$	0
01/07/2020	Trade	Firm	50		
		Entry Flow	50		



# The Question of Discrimination

# Current Process for Proration of Multi routes

0823 Mod Example: Calculated as separate Shippers using the current methodology

Shipper A Entry Point E				Shipper A Entry Point E Exit Point 1		Shipper B Entry Point E				Shipper B Entry Point E Exit Point 2	
Date Booked	Source	Type	kWh	Type	kWh	Date Booked	Source	Type	kWh	Type	kWh
01/04/2017	Existing	Firm	0	CAP <sub>En1</sub>	50	01/04/2017	Existing	Firm	0	CAP <sub>En2</sub>	50
01/01/2020	Auction	Firm	50	EC <sub>En1</sub>	0	01/01/2020	Auction	Firm	50	EC <sub>En2</sub>	0
01/04/2020	Auction	Interruptible	0	A <sub>En1</sub>	50	01/04/2020	Auction	Interruptible	0	A <sub>En2</sub>	50
01/07/2020	Trade	Firm	0	AQ <sub>En1</sub>	50	01/07/2020	Trade	Firm	0	AQ <sub>En2</sub>	50
		Entry Flow	50					Entry Flow	50		
				IEQ <sub>En</sub>	10					IEQ <sub>En</sub>	40
		Exit Point 1		IEQ <sub>Ex</sub>	10			Exit Point 2		IEQ <sub>Ex</sub>	40
Date Booked	Source	Type	kWh			Date Booked	Source	Type	kWh		
01/01/2020	Auction	Firm	150	EQ <sub>En</sub>	10	01/01/2020	Auction	Firm	50	EQ <sub>En</sub>	40
01/04/2020	Auction	Interruptible	0	EQ <sub>Ex</sub>	10	01/04/2020	Auction	Interruptible	0	EQ <sub>Ex</sub>	40
01/07/2020	Trade	Firm	0			01/07/2020	Trade	Firm	0		
		Entry Flow	10					Entry Flow	40		

Shipper A has overbooked when compared with their flow (i.e. 150 capacity v 10 flow).

Shipper B is independent and so not impacted by the actions of Shipper A.

# Current Process for Proration of Multi routes

## 0823 Mod Example: Calculated as single Shipper using the current methodology

The Single Shipper in this scenario has matched the combined booking levels of Shipper A and Shipper B.

In this scenario because the single shipper has overbooked at Exit Point 1 (150), the apportionment calculation is skewed towards Route E1 and so the  $EQ_{Ex}$  value for Route E2 is impacted.

The  $EQ_{Ex}$  for Route E2 (between Entry Point E and Exit Point 2) is decreased from 40 to 25.

Single Shipper Entry Point E				Entry Point E Exit Point 1		Entry Point E Exit Point 2	
Date Booked	Source	Type	kWh	Type	kWh	Type	kWh
01/04/2017	Existing	Firm	0	$CAP_{En1}$	75	$CAP_{En2}$	25
01/01/2020	Auction	Firm	100	$EC_{En1}$	0	$EC_{En2}$	0
01/04/2020	Auction	Interruptible	0	$A_{En1}$	20	$A_{En2}$	80
01/07/2020	Trade	Firm	0	$AQ_{En1}$	75	$AQ_{En2}$	25
		Entry Flow	100				
				$IEQ_{En}$	10	$IEQ_{En}$	25
<b>Exit Point 1</b>				$IEQ_{Ex}$	10	$IEQ_{Ex}$	25
Date Booked	Source	Type	kWh				
01/01/2020	Auction	Firm	150	$EQ_{En}$	10	$EQ_{En}$	25
01/04/2020	Auction	Interruptible	0	$EQ_{Ex}$	10	$EQ_{Ex}$	25
01/07/2020	Trade	Firm	0				
		Entry Flow	10				
<b>Exit Point 2</b>							
Date Booked	Source	Type	kWh				
01/01/2020	Auction	Firm	50				
01/04/2020	Auction	Interruptible	0				
01/07/2020	Trade	Firm	0				
		Entry Flow	40				

# Current Process for Proration of Multi routes

## 0823 Mod Example: Calculated as single Shipper using the current methodology

Reducing the Capacity booking for Exit Point 1 to any value less than or equal to 76 in this scenario (still more than 7 times higher than flow) gives the Single Shipper exactly the same  $EQ_{Ex}$  values as Shipper A and Shipper B had in the initial example.

A Decrease, Trade or Assignment of 74 units or more of Capacity at Exit Point 1 would achieve the same result in this scenario.

The Single Shipper in this scenario has acted to address an imbalance between their bookings and their flows at Exit Point 1 so hasn't missed out on the benefit at Route E2.

Single Shipper Entry Point E				Entry Point E Exit Point 1		Entry Point E Exit Point 2	
Date Booked	Source	Type	kWh	Type	kWh	Type	kWh
01/04/2017	Existing	Firm	0	CAP <sub>En1</sub>	60	CAP <sub>En2</sub>	40
01/01/2020	Auction	Firm	100	EC <sub>En1</sub>	0	EC <sub>En2</sub>	0
01/04/2020	Auction	Interruptible	0	A <sub>En1</sub>	20	A <sub>En2</sub>	80
01/07/2020	Trade	Firm	0	AQ <sub>En1</sub>	60	AQ <sub>En2</sub>	40
		Entry Flow	100				
				IEQ <sub>En</sub>	10	IEQ <sub>En</sub>	40
<b>Exit Point 1</b>				IEQ <sub>Ex</sub>	10	IEQ <sub>Ex</sub>	40
Date Booked	Source	Type	kWh				
01/01/2020	Auction	Firm	76	EQ <sub>En</sub>	10	EQ <sub>En</sub>	40
01/04/2020	Auction	Interruptible	0	EQ <sub>Ex</sub>	10	EQ <sub>Ex</sub>	40
01/07/2020	Trade	Firm	0				
		Entry Flow	10				
<b>Exit Point 2</b>							
Date Booked	Source	Type	kWh				
01/01/2020	Auction	Firm	50				
01/04/2020	Auction	Interruptible	0				
01/07/2020	Trade	Firm	0				
		Entry Flow	40				



# Side by side view

Overbooking of capacity at an Exit Point, whether intentional or not, can lead to lower Entry and Exit discount Eligibility

This is not a penalty in the way that an under-booking can lead to an Overrun charge, it is a missed opportunity, a consequence of booking to match peak flow rather than expected flow.

The same opportunity was available to all Shippers and so this should not be seen as discrimination.

		Separate Shippers		Single Shipper	
		Shipper A	Shipper B	Shipper A	Shipper A
		Entry Point E to Exit Point 1	Entry Point E to Exit Point 2	Scenario 1	Scenario 2
Entry Point E	Firm Capacity	50	50	100	100
	Flow	50	50	100	100
Exit Point 1	Firm Capacity	150		150	76
	Flow	10		10	10
Exit Point 2	Firm Capacity		50	50	50
	Flow		40	40	40
EQ <sub>En</sub> Route 1		10		10	10
EQ <sub>Ex</sub> Route 1		10		10	10
EQ <sub>En</sub> Route 2			40	25	40
EQ <sub>Ex</sub> Route 2			40	25	40

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## Principles of the Conditional NTS Capacity Charge Discount (CNCCD)

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# High Level Principles of the CNCCD – “Shorthaul”

If a User wishes to bypass the network they would need to commit to building a Pipeline.

A minimum pipe size requirement was set based on peak Exit Flow.

- Troughs in flow were not considered, as to truly bypass the network Users would have to build a pipe capable of accommodating their peak flow. A physical pipe cannot flex in size and cost based on lower than expected usage
- The costs are fixed at the point of bypass.

Based on Distance, pipeline costs were estimated, compared with system usage costs, and a likelihood of bypass was forecast route by route. The resulting relationship between distance and likelihood of bypass is the basis of the Discount levels available.

There was no “clustering” considered. Shippers using multiple routes were expected to require multiple pipelines.

# High Level Principles of the CNCCD – “Shorthaul”

UNC0823 introduces a form of flexibility, similar to clustering or aggregation, to the CNCCD calculation. Suggesting that a Shipper who has laid two bypass pipelines can flex the size of each accordingly rather than needing to construct both to their individual peaks.

It creates a new opportunity for multi-route shorthaul Shippers which isn't available to single route shorthaul Shippers.

NG are concerned that this proposal may undermine the original principles of the Shorthaul discount and so invalidates the basis of the discount calculation as it currently stands. Implementation of this change would require a review of the existing discount structure potentially requiring a new discount method to be proposed.

As discussions during the Shorthaul review group suggested, the concept and likelihood of clustering is difficult to quantify and becomes problematic:

- an appointed arbiter is required to assess each instance of clustering
- approval or rejection becomes subjective
- there is a lack of transparency and an inability for Users to replicate decisions

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# Potential Impacts

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# Aggregate of Remaining Routes – Pre-0785

Invoicing data for the period Oct-21 to Feb-22 has been used to calculate the following:

The **2** multi-routes remaining contributed circa **£2.10m** in combined Entry & Exit Revenues over this five month period.

Approximately **£1.37m** was socialised due to the discounts applied.

**£1.19m** of the socialisation is generated from approx. **1.47 TWh** of Entry Eligible Quantities. Sum of Entry Capacity Entitlements i.e. what we charge Users for, totalled **1.43 TWh**. Approximately **96.93%** of Entry Capacity Booking Entitlement was Eligible for discount.

**£183.5k** of the socialisation is generated from approx. **0.97 TWh** of Exit Eligible Quantities. Sum of Exit Capacity Entitlements i.e. what we charge Users for, totalled **9.08 TWh**. Approximately **10.64%** of Exit Capacity Booking Entitlement was Eligible for discount.

For the period, the socialisation averages to **£274k/month** with an efficiency of **22.68%**

# Aggregate of Remaining Routes – Post-0785

Invoicing data for the period Mar-22 to Sep-22 has been used to calculate the following:

The **2** multi-routes remaining contributed circa **£12.98m** in combined Entry & Exit Revenues over this five month period.

Approximately **£4.62m** was socialised due to the discounts applied.

**£3.76m** of the socialisation is generated from approx. **4.53 TWh** of Entry Eligible Quantities. Sum of Entry Capacity Entitlements i.e. what we charge Users for, totalled **4.65 TWh**. Approximately **97.31%** of Entry Capacity Booking Entitlement was Eligible for discount.

**£860.5k** of the socialisation is generated from approx. **4.55 TWh** of Exit Eligible Quantities. Sum of Exit Capacity Entitlements i.e. what we charge Users for, totalled **14.32 TWh**. Approximately **31.75%** of Exit Capacity Booking Entitlement was Eligible for discount.

For the period, the socialisation averages to **£661k/month** with an efficiency of **47.82%**

# Aggregate figures for remaining Routes

## Oct21 - Feb22 (pre UNC0785) - 5 months

	Revenue Contribution (£m)	Capacity Entitlement (TWh)	Eligible Quantity (TWh)	Booking Efficiency	Total socialised due to discount applied (£m)	Average Monthly Impact
Entry	0.21	1.47	1.43	96.93%	1.19	£237k
Exit	1.89	9.08	0.97	10.64%	0.18	£37k
<b>Combined</b>	<b>2.10</b>	<b>10.55</b>	<b>2.39</b>	<b>22.68%</b>	<b>1.37</b>	<b>£274k</b>

## Mar22 - Sep22 (post UNC0785) - 7 months

	Revenue Contribution (£m)	Capacity Entitlement (TWh)	Eligible Quantity (TWh)	Booking Efficiency	Total socialised due to discount applied (£m)	Average Monthly Impact
Entry	0.55	4.65	4.53	97.31%	3.76	£538k
Exit	12.43	14.32	4.55	31.75%	0.86	£123k
<b>Combined</b>	<b>12.98</b>	<b>18.97</b>	<b>9.07</b>	<b>47.82%</b>	<b>4.62</b>	<b>£661k</b>



# Potential Impacts based on Historical data

Under the principles of the Shorthaul discount, the Eligible Quantity is calculated as the minimum of the Firm Entry Capacity, Entry Flow, Firm Exit Capacity and Exit Flow.

To achieve the maximum available discount, i.e. 100% efficiency, Users would need to book and flow the same amounts at both Entry and Exit.

Post UNC0785 implementation the routes potentially affected by UNC0823:

- Entry Booking: **4.65** TWh
- Entry Flow: **4.53** TWh
- Exit Booking: **14.32** TWh
- Exit Flow: **4.55** TWh

For this 7 month period, if all flows and Exit bookings were matched exactly to the Entry Bookings, there is a potential **£108k** of additional benefits to these Users (excluding savings on Exit Bookings).

Scaled up to 12 months this could be to around **£186k/year** or an additional **£15.5k/month**, with a corresponding increase in prices for all other Users.

It is important to note that this is already achievable through more reflective booking behaviours without the need for UNC0823.

# Potential Future Impacts

Making the supposition that Modification UNC0823 was implemented on 1<sup>st</sup> October 2022, using the known long term bookings for GY 2022/23 and overlaying historical flows from GY 2021/22, a forecast of the potential impacts for the current GY have been calculated,

The aggregated figures across the routes over the current Gas Year suggest an increase in access to the discount for applicable Users, and a corresponding impact to others, of around **£1.62m**.

This is nearly ten times higher for the calculated figure for Gas Year 2021/22, the **£186k** suggested by the historical booking data.

Using the actual flow data available for the current Gas Year to date (1<sup>st</sup> Oct to 13<sup>th</sup> Nov at time of production) benefits for affected Users of approximately **£283k** may have been missed.

Over the same period using the forecasted flow data, the expected value was **£151k**, suggesting that the forecasts for GY2022/23 may downplay the benefits and subsequent impacts if the same trends are seen across the year.

# Potential Future Impacts

It's possible that a figure of **£1.62m** across a full year would be enough to impact Transmission Services Rates when calculated for future years.

It is likely however, that this impact will only be around **0.0001 or 0.0002 p/kWh** depending on rounding and other factors at play in the calculation of the Allowed Revenues.

Based on timescales to implementation, it's unlikely that any significant impact would be felt in the current Gas Year, therefore a Revenue Recovery Charge is unlikely to be triggered.

Any impacts in the first year of implementation will instead roll in to the "K" value for the following year.

Impacts for years beyond GY 2022/23 are difficult to calculate at this time as there are no known long term bookings in place for future Gas Years.

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Legal Text

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# Current Process for Proration of Multi routes

## TPD Section B

8.3.8 The “Election Entry Proportion” for a CNCCD Election and a Day is:

- (a) subject to paragraph (b), one (1);
- (b) where the User has made more than one CNCCD Election in relation to the same Eligible Entry Point, for the purposes of each such election, the proportion determined as:  
 $RQEx / \Sigma RQEx$

where  $RQEx$  is

- (i) for the purposes of paragraphs 8.3.3(b), 8.3.5 and 8.3.7(a), the User’s Fully Adjusted Available Firm NTS Exit Capacity at the Nominated Exit Point;
- (ii) for the purposes of paragraph 8.3.7(c), the User’s UDQO at the Nominated Exit Point;

# Potential Process for Proration of Multi routes

## TPD Section B

8.3.8 The “Election Entry Proportion” for a CNCCD Election and a Day is:

- (a) subject to paragraph (b), one (1);
- (b) where the User has made more than one CNCCD Election in relation to the same Eligible Entry Point, for the purposes of each such election, the proportion determined as:  
$$RQEx / \Sigma RQEx$$

where RQEx is the lesser of

- (i) ~~for the purposes of paragraphs 8.3.3(b), 8.3.5 and 8.3.7(a),~~ the User’s Fully Adjusted Available Firm NTS Exit Capacity at the Nominated Exit Point;
- (ii) ~~for the purposes of paragraph 8.3.7(c),~~ the User’s UDQO at the Nominated Exit Point;

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ROM Details

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# ROM Details

Analysis suggests a cost of approximately £102,000 – £132,000 to implement the change.

No expected ongoing costs.

Delivery time approximately 13-15 weeks including Post Implementation Support.

Project stand up time will be dependant on whether this is a stand alone project or if it is incorporated in to ongoing system enhancements (Gemini Sustain Plus)