

Gas Transmission

Analysis Actions on Methodology 2 and 0678A

NTSCMF/UNC0670R:
28 January 2020



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01

Scope of the
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Scope of analysis

The analysis was to model the OCC approach under 0678H/J (Postage Stamp with OCC) to account for the following:

- Use FCC instead of MNEPOR in the NTS Optional Capacity Charge Methodology formula with annual fee (from 0678 H/J) as a basis for qualifying sites – how many sites then qualify? What is the level of cross subsidy (aggregate discount) which results from the tariffs generated under this adjusted formula?
- Use pipeline distance instead of straight-line distance and then proceed as above. (trying to look at shortest route)
- The above relates to OCC 'Methodology 2' or as referred to in Ofgem's Impact Assessment on UNC0678/A/B/C/D/E/F/G/H/I/J.
- By way of summary, Methodology 2 requires the rate equation to determine a p/kWh, then a pipeline cost, then the OCC Rate
- This uses UNC0678A (Postage Stamp) as the basis for calculations of charges.

02

Approach and Assumptions



Approach / Assumptions

Summary of the key steps of Methodology 2: extracts from UNC0678J

- Stage 1: create and apply the updated cost function (OCC rate) – updated for annuity rate, costs and load factor (these update A, E1, B and E2)
 - $p/kWh = A \times M^{E1} \times D + B \times M^{E2}$; and by way of example using 19/20 GY
 - $OCC (p/kWh) = 862.64 \times [(M)^{-0.79}] \times D + 735.1 \times (M)^{-0.7}$ (M = MNEPOR, D = Distance)
- Stage 2: convert cost function into a capacity charge
 - Daily Pipeline cost = OCC rate * MNEPOR
 - NTS Optional Capacity rate = Daily Pipeline cost/FCC
- Methodology 2 also applies a minimum fee
 - Annual NTS Optional Capacity Fee = (FCC x NTS Exit OCC Rate + FCC x NTS Entry OCC Rate) x 365 – (\sum OCC Entry Charges + \sum OCC Exit Charges)

Approach / Assumptions

Introduction to approach

- To replace the MNEPOR with FCC needs to be thought about in steps and how the rate equation is designed and applied.
- MNEPOR is used in two stages in Methodology 2. Firstly in the initial p/kWh calculation and secondly in the pipeline cost calculation which in turn is used in setting the OCC rate. In combination, these determine the alternative charge a Shipper would pay under Methodology 2.
- Methodology 2 uses the equation produced from using updated pipeline costs in line with GCD11, which applied inflation to the portfolio of pipeline costs in the current OCC equation and added in three additional pipe sizes.
 - This equation uses peak flows and allows use of a load factor. In Methodology 2, the load factor is 100%.
 - This equation also uses an annuity period. In methodology 2, the annuity rate is 0.10272 (same as the annuity rate in the LRMC methodology, using 45yrs)
- To replace FCC with MNEPOR could therefore relate to a number of potential areas of change. This analysis considers three. Stage 1, Stage 1 & 2 and underlying load factor that feeds Stage 1 to facilitate discussion. This also looks at pipeline over straight line distance.

Approach / Assumptions

Assumptions, steps to analysis

1. Replace MNEPOR with FCC in the Rate calculation (Stage 1) as part of Methodology 2.
This would not change any of the equation constants
2. Replace MNEPOR with FCC in the Pipeline Cost (Stage 1 & 2) as part of Methodology 2.
This would not change any of the equation constants
3. In addition to 1 and 2 above, replace the Load Factor in the equation derivation, therefore changing the constants that are used in the rate calculation (as in 1 above). Amending this would adjust the constant A and B in the rate equation.
 - The load factor used was determined as a ratio of total FCC to total MNEPOR (46%) based on active short-haul routes
 - The annuity was not amended in this analysis – kept 45yrs as per Methodology 2.
4. Using the outputs from (1, 2 and 3) and replace straight line distance with pipeline distance
 - The following slides compare four sets of calculations for comparison
 - They also compare against UNC0678H/J to provide a comparison against an example set of prices from this methodology and from the prevailing methodology.
 - Where relevant this also presents Transmission and Non Transmission

Approach / Assumptions

General Assumptions

- If the calculated alternative charge is in excess of the charges they would be an option to, it is assumed that the User would no longer wish to pay the alternative charge so the standard charges would apply.
 - i.e. assumes a User will pay the lower of the alternative charge or the standard charges.
 - The original analysis focused on Transmission Services only. This brings in Non-Transmission to provide an approximate impact where the proposal considered being an alternative from Non Transmission charges in addition to the Transmission Services Capacity reserve prices.
 - This focuses on the nominated routes (as at Sep-18) so they can be compared.

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Analysis

General Comments

- This analysis builds on previous analysis done for 0678 (and alternatives).
- It models 20/21 for determining prices
- This includes Non-Transmission Charges which is the OCC rate under Methodology 2 is an alternative to in addition to the Entry and Exit Reserve charges.
- Only models “known routes”, those for which there is an Optional Charge nomination.

Analysis

All based on Straight line distances

	Prevailing OCC	0678H/J	FCC into Stage 1	FCC into Stage 1 & 2
Potential TS Socialisation (£)	£97,559,664.09	£65,207,293.37	£60,920,174.44	£68,121,703.66
Gen Non-TS Socialisation	£57,983,030.86	£42,648,739.22	£39,072,506.45	£42,648,739.22
Total as % of MAR	20.6%	14.3%	13.2%	14.6%
Routes Considered	37	14	12	14
Max Effective Rate Discount	99.3%	97.6%	95.7%	98.3%
Longest Route Considered	244.0	53.0	27.0	53.0

Note:

TS refers to Transmission Services

General Non-TS refers to General Non-Transmission Services

Longest route considered only includes options where Firm capacity can be procured for Entry and Exit

Analysis

All based on Pipe line distances

	Prevailing OCC	0678H/J	FCC into Stage 1	FCC into Stage 1 & 2
Potential TS Socialisation (£)	£97,559,664.09	£62,745,855.80	£56,481,504.60	£64,261,240.84
Gen Non-TS Socialisation	£57,983,030.86	£37,652,317.37	£37,251,003.03	£37,652,317.37
Total as % of MAR	20.6%	13.3%	12.4%	13.5%
Routes Considered	37	12	11	12
Max Effective Rate Discount	99.3%	97.6%	94.4%	98.3%
Longest Route Considered	244.0	37.0	37.0	37.0

Note:

TS refers to Transmission Services

General Non-TS refers to General Non-Transmission Services

Longest route considered only includes options where Firm capacity can be procured for Entry and Exit

Analysis

All based on Straight line distances

	0678H/J	Constants adjusted by Load Factor	FCC into Stage 1 w/ Load Factor	FCC into Stage 1 & 2 w/ Load Factor
Potential TS Socialisation (£)	£65,207,293.37	£51,432,266.57	£41,987,062.10	£51,432,266.57
Gen Non-TS Socialisation	£42,648,739.22	£37,173,017.92	£32,547,186.55	£37,173,017.92
Total as % of MAR	14.3%	11.7%	9.9%	11.7%
Routes Considered	14	11	10	11
Max Effective Rate Discount	97.6%	96.4%	90.7%	96.4%
Longest Route Considered	53.0	27.0	23.0	27.0

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Distance vs Calculated Rates



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Observations

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Observations

Comparing to Methodology 2 as written and using in combination of 0678A:

1. Using Methodology 2, to update FCC in place of MNEPOR in Stage 1 alone, where FCC would likely be lower than MNEPOR, OCC rates would increase
2. Using Methodology 2, to update FCC in place of MNEPOR in Stage 1 and Stage 2, where FCC would likely be lower than MNEPOR, OCC rates would reduce
3. To update for a load factor of less than 100% places an upward pressure on the p/kWh equation
4. Updating pipeline distance in place of straight line distance generally increases the distance, therefore increasing the calculated OCC rates and making fewer routes viable overall.