

The Joint Office, Relevant
Gas Transporters, Shippers and other
interested parties

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Our reference: Final AUGS for 2019/20

Dear Colleague

The following query has been received by the AUGS concerning the Final AUG Statement for 2019/20.

Query

We are hoping you can help provide some advice/clarity regarding a comparison of the UiG Factor tables from the 18/19 and 19/20 Gas Years. The attached spreadsheet shows:

- Step 1 – A snapshot of National Demand (as of Dec-18)
- Step 2 – A normalisation of the 18/19 and 19/20 UiG Factors, using this National Demand data
- Step 3 – Ratios of these normalised factors for each EUC Band and Meter Class
- Step 4 – A volume weighted average of these ratios (0.885)

[Figures shown on following page]

We were expecting that this 0.885 figure would be much closer to 1. However, if taken in isolation, a figure of 0.885 presumably implies that a lower level of total UiG is inherent within the 19/20 UiG Factors. Would you agree?

Conscious though that will be other things at play here. In particular, the National Demand data (and implied mix) used in this example is presumably not that used for the 19/20 Factors (and clearly not for the 18/19 Factors).

Any comments or advice you can provide about this would be very much appreciated.

Step 1 Take national demand data and calculate mix by EUC band and meter class												
National Demand (GWh, as at Dec-18)					National Demand % Mix					Sum	100.0%	
Meter Class					Meter Class							
EUC	1	2	3	4	EUC	1	2	3	4			
1	0	0	1,106	323,845	1	0.0%	0.0%	0.2%	58.4%			
2	0	2	2,966	24,314	2	0.0%	0.0%	0.5%	4.4%			
3	0	8	3,891	16,475	3	0.0%	0.0%	0.7%	3.0%			
4	1	43	2,566	21,250	4	0.0%	0.0%	0.5%	3.8%			
5	5	225	1,385	15,306	5	0.0%	0.0%	0.2%	2.8%			
6	20	1,758	1,045	12,923	6	0.0%	0.3%	0.2%	2.3%			
7	109	3,495	836	10,484	7	0.0%	0.6%	0.2%	1.9%			
8	1,253	6,921	745	8,769	8	0.2%	1.2%	0.1%	1.6%			
9	88,884	901	0	3,318	9	16.0%	0.2%	0.0%	0.6%			
Step 2 Take the 18/19 and 19/20 UiG Factors tables and normalise, using the national demand data												
18/19 UiG Factors					Normalised 18/19 UiG Factors					Sum	100.0%	
Meter Class					Meter Class							
EUC	1	2	3	4	EUC	1	2	3	4			
1	0.17	43.06	46.41	94.64	1	0.0%	0.0%	0.1%	78.7%			
2	0.17	43.06	46.41	109.77	2	0.0%	0.0%	0.4%	6.9%			
3	0.17	43.06	44.06	107.52	3	0.0%	0.0%	0.4%	4.5%			
4	0.17	43.06	43.60	43.76	4	0.0%	0.0%	0.3%	2.4%			
5	0.17	43.06	46.06	43.20	5	0.0%	0.0%	0.2%	1.7%			
6	0.17	44.54	46.06	42.65	6	0.0%	0.2%	0.1%	1.4%			
7	0.17	32.41	46.06	42.33	7	0.0%	0.3%	0.1%	1.1%			
8	0.17	4.38	33.40	42.24	8	0.0%	0.1%	0.1%	1.0%			
9	0.17	0.17	0.17	0.17	9	0.0%	0.0%	0.0%	0.0%			
19/20 UiG Factors					Normalised 19/20 UiG Factors					Sum	100.0%	
Meter Class					Meter Class							
EUC	1	2	3	4	EUC	1	2	3	4			
1	0.20	4.07	24.23	163.68	1	0.0%	0.0%	0.0%	93.5%			
2	0.20	4.07	15.33	110.79	2	0.0%	0.0%	0.1%	4.8%			
3	0.20	4.07	10.20	17.92	3	0.0%	0.0%	0.1%	0.5%			
4	0.20	3.89	7.71	12.51	4	0.0%	0.0%	0.0%	0.5%			
5	0.20	3.50	6.75	7.87	5	0.0%	0.0%	0.0%	0.2%			
6	0.20	2.86	6.20	4.31	6	0.0%	0.0%	0.0%	0.1%			
7	0.20	1.96	4.93	2.14	7	0.0%	0.0%	0.0%	0.0%			
8	0.20	0.78	1.82	1.70	8	0.0%	0.0%	0.0%	0.0%			
9	0.20	0.20	0.20	0.20	9	0.0%	0.0%	0.0%	0.0%			
Step 3 Calculate ratios of the normalised UiG factor tables												
Delta of Normalised UiG Factors												
Meter Class												
EUC	1	2	3	4								
1	0.81	0.06	0.36	1.19								
2	0.81	0.06	0.23	0.69								
3	0.81	0.06	0.16	0.11								
4	0.81	0.06	0.12	0.20								
5	0.81	0.06	0.10	0.13								
6	0.81	0.04	0.09	0.07								
7	0.81	0.04	0.07	0.03								
8	0.81	0.12	0.04	0.03								
9	0.81	0.81		0.81								
Step 4 Calculate a volume weighted average of these ratios												
Volume Weighted Delta			0.885									

Response 2019_26:

In order to answer this query we first summarise the calculation process applied in the figures above, to ensure that there is a common understanding of the method and the output produced.

The calculations carried out in the “normalisation” process shown above create estimates of the proportion of UIG arising from each EUC/PC category, based on the factors and the magnitude of the throughput for the category in question. The ratios of these proportions for 2018/19 and 2019/20 are calculated for each EUC/Class combination, and finally a flow-weighted average of these ratios across the whole market is produced.

As described in the AUG Statement, the UIG factors represent a physical quantity of gas – their units are GWh of Unidentified Gas per 10 TWh throughput. The nature of the UIG split between EUCs and Product Classes is such that the calculations are dominated by PC4 EUC 01B. This is because this single category is responsible for up to 65% of throughput (depending on which estimate is used) and 94% of UIG (2019/20 figures). This creates the following effects:


- Changes to the factors for all other categories have only a marginal effect on the flow-weighted ratio.
- Changes to the factor for PC4 EUC 01B have the opposite effect to that expected:
 - An increase in the factor results in a decrease in the flow-weighted ratio
 - A decrease in the factor results in an increase in the flow-weighted ratio

This is due to the change in the single factor for PC4 EUC01B resulting in opposing changes in all the other factors, which together act to outweigh the PC4 EUC01B change in the flow-weighted ratio calculation. As such:

- An increase in the factor for PC4 EUC01B represents an increase in the underlying estimate of total Unidentified Gas, and this results in a decrease in the flow-weighted ratio.
- A decrease in the factor for PC4 EUC01B represents a decrease in the underlying estimate of total Unidentified Gas, and this results in an increase in the flow-weighted ratio.

Therefore, the fact that the flow-weighted ratio lies below 1 actually represents an increase in our estimate of underlying Unidentified Gas rather than a decrease in it. This is reflected in the figures from the Unidentified Gas calculations for the two years, further details of which can be published on request. This data shows that for the 2018/19 factors, the best estimate of total permanent Unidentified Gas for the forecast year was 3826 GWh, or approximately 0.8% of throughput (AUG Statement for 2018/19 Section 7.9.7). For the 2019/20 factors, this estimate increased to 5958 GWh, or approximately 1.3% of throughput (AUG Statement for 2019/20, Section 7.11.8). This difference is due to improvements in the data and methods used for the most recent Unidentified Gas calculations, which lead to greater confidence in the latest figure. In particular, the latest analysis includes:

- A higher proportion of meters with valid reads.
- Consumption corrections.
- Improvements in the calculation process, particularly in the areas of
 - Temperature and pressure correction
 - Theft



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Note that in the case of the calculations in the query, the National Demand has been used to represent throughput. We have carried out the same process using the aggregate AQ values by EUC/PC from the asset data, which is the data used in the full Unidentified Gas calculations, and the results are very similar.

Sincerely
for DNV GL

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