

Appendix B: Distributional effect of UNC modification proposals 642, 642A & 643 at varying levels of UIG (as currently defined)

In the section we describe how we arrived at the figures for the re-distributive effect of the proposals, as set out in Appendix 1.

Table B1: UIG weighting factors (2017/18)

The AUGE determines the UIG weighting factors each year. These seek to apportion UIG in a manner which the AUGE considers to be proportionate to the relative influence each End User Category and Product Class have on the root causes of UIG. So for instance, the AUEG considers that a large proportion of permanent unidentified gas is due to undetected theft, and that the majority of that is from smaller supply points. The AUGE’s rationale and methodology are published as part of its statement each year. The factors for 2017/18 are set out below.

Note: these factors have been uplifted by x10 in line with Xoserve practice – this reduces the number of decimal places, but does not affect proportion of allocation¹

Table B1: a) UIG weighting factors for 2017/18									
	EUC1 (< 73,200 KWh)	EUC2 (73,201 – 293,000 KWh)	EUC3 (293,001 – 732,000 KWh)	EUC4 (732,001 – 2,196,000 KWh)	EUC5 (2,196,000 – 5,860,000 KWh)	EUC6 (5,860,001 – 14,650,000 KWh)	EUC7 (14,650,001 – 29,300,000 KWh)	EUC8 (29,300,001 – 58,600,000 KWh)	EUC9 (58,600,001 KWh +)
Product 1	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18
Product 2	52.39	51.6	53.16	54.94	54.82	50.69	40.41	21.87	0.18
Product 3	52.43	51.5	53.11	55.05	55.13	51.14	40.89	22.29	0.18
Product 4	111.94	115.73	114.52	54.25	59.18	54.23	39.5	18.53	0.18

¹ Source: www.gasgovernance.co.uk/augenex/1718

Table B2: Aggregate throughput by consumption band and product type, as at Nov 2017²

Table B2: b) Aggregate AQ (GWh)										
	EUC1	EUC2	EUC3	EUC4	EUC5	EUC6	EUC7	EUC8	EUC9	Total
Product 1	0.1	3	9.5	67.7	277.4	2205.9	4158.4	9769	41354	57845
Product 2	0	0.7	0.7	0	15.8	44.8	78.1	91.7	74.3	306.1
Product 3	748.6	168	234.8	24.1	2.5	0	0	0	0	1178
Product 4	319787.1	28322.9	21875	24724.5	17212	13935	10717.5	7917.2	381.4	444872.6
Total	320535.8	28494.6	22120	24816.3	17507.7	16185.7	14954	17777.9	41809.7	504201.7

Table B3: Typical daily throughput

As UIG is calculated daily, for illustrative purposes we have divided the AQ by 365.

Table B3: c) Typical throughput (Aggregate AQ (GWh)/365)										
	EUC1	EUC2	EUC3	EUC4	EUC5	EUC6	EUC7	EUC8	EUC9	Total
Product 1	0.000	0.008	0.026	0.185	0.760	6.044	11.393	26.764	113.299	158.479
Product 2	0.000	0.002	0.002	0.000	0.043	0.123	0.214	0.251	0.204	0.839
Product 3	2.051	0.460	0.643	0.066	0.007	0.000	0.000	0.000	0.000	3.227
Product 4	876.129	77.597	59.932	67.738	47.156	38.178	29.363	21.691	1.045	1218.829
Total	1317.270	117.101	90.904	101.985	71.949	66.517	61.455	73.060	171.821	1381.375

² Source: First draft AUGS statement for 2018/9 - www.gasgovernance.co.uk/sites/default/files/ggf/book/2018-02/First%20Draft%20AUGS%20for%202018_19%20v1.0.pdf

Table B4: Weighted throughput

Multiplying the AQ associated with each End User Category and Product by the weighting factors gives the weighted throughput for each category. The aggregate weighted throughput is shown as value f).

Table B4: d) Weighted throughput - a) x c)										
	EUC1	EUC2	EUC3	EUC4	EUC5	EUC6	EUC7	EUC8	EUC9	Total
Product 1	0.000	0.001	0.005	0.033	0.137	1.088	2.051	4.818	20.394	28.526
Product 2	0.000	0.099	0.102	0.000	2.373	6.222	8.647	5.494	0.037	22.973
Product 3	107.532	23.704	34.165	3.635	0.378	0.000	0.000	0.000	0.000	169.413
Product 4	98073.885	8980.299	6863.356	3674.806	2790.702	2070.397	1159.839	401.933	0.188	124015.406
Total	98181.417	9004.104	6897.628	3678.474	2793.589	2077.707	1170.536	412.246	20.618	f) 124236.319

Tables B5 and B6: Share of UIG by Product class and EUC

Again, for illustrative purposes only we have assumed UIG to be the equivalent of 10% of average daily throughput (Table 3: AQ/365). This shows that the weighting factors ensure that the vast majority of UIG is allocated to smaller supply points (EUC1 being supply points with an AQ of <73,200 Kwh).

Table B5: e) Share of UIG for the day (GWh) - z) x d)/f)										
	EUC1	EUC2	EUC3	EUC4	EUC5	EUC6	EUC7	EUC8	EUC9	Total
Product 1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.03
Product 2	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.00	0.03
Product 3	0.12	0.03	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.19
Product 4	109.05	9.99	7.63	4.09	3.10	2.30	1.29	0.45	0.00	137.89
Total	109.17	10.01	7.67	4.09	3.11	2.31	1.30	0.46	0.02	Z) 138.14

Table B6: e) Share of UIG for the day (£ @ £0.02p/Kwh)										
	EUC1	EUC2	EUC3	EUC4	EUC5	EUC6	EUC7	EUC8	EUC9	Total
Product 1	£0.00	£0.03	£0.11	£0.77	£3.15	£25.02	£47.16	£110.80	£469.04	£656.08
Product 2	£0.00	£2.28	£2.34	£0.00	£54.58	£143.09	£198.87	£126.37	£0.84	£528.37
Product 3	£85,759.50	£545.18	£785.77	£83.60	£8.68	£0.00	£0.00	£0.00	£0.00	£87,182.72
Product 4	£2,077,799.19	£206,539.49	£157,851.54	£84,517.51	£64,183.85	£47,617.44	£26,675.34	£9,244.14	£4.33	£2,674,432.83
Total	£2,163,558.69	£207,086.98	£158,639.76	£84,601.88	£64,250.25	£47,785.55	£26,921.37	£9,481.31	£474.21	£2,762,800.00

Tables B7, B8 and B9: Impacts of UIG allocation on individual shippers under current UNC rules

The following tables seek to illustrate how the current UNC processes allocate gas to different types of shipper. As UIG varies each day and can be a positive or negative figure, we have sought to show the effects across a range of UIG values (i.e. replacing the z figure shown in green in the tables above).

Table B7: UIG as a % of daily throughput (f)										
-8%	-6%	-4%	-2%	0%	2%	4%	6%	8%	10%	20%
-110.51	-82.88	-55.25	-27.63	0.00	27.63	55.25	82.88	110.51	138.14	276.27

Scenario:

For the purpose of this illustration we have created the following scenario:

- Shipper A has a supply point portfolio representing 5% of throughput, all of which are Class 1 (DM) sites (EUC9)
- Shipper B also has a supply point portfolio representing 5% of throughput, but all of which are Class 4 (NDM) typically domestic sites (EUC1)
- Shipper(s) C is the residual 90% of throughput balanced across all settlement product Classes, pro rata to overall market (excluding shippers A and B)

Table B8: UIG allocation in GWh (total UIG x individual weighted throughput / total weighted throughput)											
	-8%	-6%	-4%	-2%	0%	2%	4%	6%	8%	10%	20%
Overall UIG	-110.510	-82.882	-55.255	-27.627	0.000	27.627	55.255	82.882	110.510	138.137	276.275
Shipper A	-0.011	-0.008	-0.006	-0.003	0.000	0.003	0.006	0.008	0.011	0.014	0.028
Shipper B	-6.877	-5.158	-3.439	-1.719	0.000	1.719	3.439	5.158	6.877	8.597	17.193
Shipper(s) C	-103.622	-77.716	-51.811	-25.905	0.000	25.905	51.811	77.716	103.622	129.527	259.054

Table B9: UIG allocation as % of shippers' throughput											
	-8%	-6%	-4%	-2%	0%	2%	4%	6%	8%	10%	20%
Shipper A	-0.02	-0.01	-0.01	0.00	0.00	0.00	0.01	0.01	0.02	0.02	0.04
Shipper B	-9.96	-7.47	-4.98	-2.49	0.00	2.49	4.98	7.47	9.96	12.45	24.89
Shipper(s) C	-8.33	-6.25	-4.17	-2.08	0.00	2.08	4.17	6.25	8.33	10.42	20.84

Table B10: 'UIG' allocation under UNC642A and UNC642/643 (based on AQ/365)

This table shows how the UIG would be split into a fixed value and a variable scaling factor under both UNC642A and UNC642/643.

Assumptions:

- LDZ throughput of 1381.375GWh, based on aggregate AQ/365;
- A 'UIG' value of +64.230 GWh based on the +4.65% average cited in the FMR;
- UNC642A fixed contribution: Product class 1 - 0.01% of relevant share of throughput; product classes 2 – 4, 2.5% of throughput;
- INC642/643 fixed contribution 1.1% of throughput, weighted across product classes using current weighting factors.

Product	Current baseline	UNC642A			UNC642/643		
		Fixed	Scaled balance	Total	Fixed	Scaled balance	Total
1	0.015	0.016	N/A	0.016	0.003	N/A	0.003
2	0.012	0.021	0.023	0.044	0.003	N/A	0.003
3	0.088	0.081	0.089	0.169	0.021	0.129	0.150
4	64.116	30.471	33.530	64.001	15.173	48.901	64.073
Total	64.230	30.588	33.642	64.230	15.200	49.030	64.230

Table B11: Redistributed energy and cost (@ £20,000/GWh) as compared to current baseline

Product	UNC642A			UNC642/643		
	Variance from baseline (GWh)	Annual equivalent (GWh)	£	Variance from baseline (GWh)	Annual equivalent (GWh)	£
1	0.001	0.401	£8,029	-0.011	-4.109	-£82,183
2	0.032	11.738	£234,762	-0.009	-3.309	-£66,185
3	0.082	29.888	£597,753	0.063	22.859	£457,177
4	-0.115	-42.027	-£840,545	-0.042	-15.440	-£308,808

Tables B12, B13, B14 and B15: UIG using final AUG statement for 2018/19³

On 28 June 2018, the Joint Office published the final version (v3.) of the 2018/19 AUGE statement. This final statement gives revised figures for both projected AQ and UIG weighting factors. We have therefore taken the opportunity to further revise our analysis using the 2018/19 UIG weighting factors, which are as follows:

Table B12: UIG weighting factors for 2018/19									
	EUC1	EUC2	EUC3	EUC4	EUC5	EUC6	EUC7	EUC8	EUC9
Product 1	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17
Product 2	43.06	43.06	43.06	43.06	43.06	44.54	32.41	4.38	0.17
Product 3	46.41	46.41	44.06	43.6	46.06	46.06	46.06	33.4	0.17
Product 4	94.64	109.77	107.52	43.76	43.2	42.65	42.33	42.24	0.17

As noted in our interim IA, whilst the AUGE figures had taken into account the effect of UNC625 which limits Class 1 to only those supply points above the mandatory threshold, with a commensurate reduction in Class 1 AQ, we considered that the projection of 64,222 supply points being registered to Class 3 was too low. The final supply point figures and associated AQ for Class 3 are now closer to those set out in our interim IA. As the AUG statement is now final, we use the figures for our final IA, as follows:

Table B13: Projected aggregate AQ (GWh) for 2018/19										
	EUC1	EUC2	EUC3	EUC4	EUC5	EUC6	EUC7	EUC8	EUC9	Total
Product 1	0	0	0	0	0	0	0	0	56,139	56,139
Product 2	0	5	9	66	303	2,073	4,033	9,965	0	16,454
Product 3	1,557	2,923	4,151	2,311	1,275	864	912	471	0	14,464
Product 4	313,663	23,052	15,776	20,222	14,740	12,273	9,394	7,531	0	416,651
Total	315,220	25,980	19,936	22,599	16,318	15,210	14,339	17,967	56,139	503,708

Using the same methodology and assumptions to derive daily UIG and distribution across product classes as shown above (replacing the data at tables B1 and B2 with that in tables B12 and B13), we consider that the 2018/19 redistributed energy and costs if either of the proposals were to be accepted would be as follows:

³ See: Final Allocation of Unidentified Gas Statement for 2018/19, published at: https://www.gasgovernance.co.uk/sites/default/files/ggf/book/2018-06/Final%20AUGS%20for%202018_19_V3.0.pdf

