

The Joint Office, relevant Gas
Transporters and other interested
parties

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Dear Colleague

**UNC642 and 642A: ‘Changes to settlement regime to address Unidentified Gas issues’; and
UNC643: ‘Changes to settlement regime to address Unidentified Gas issues including retrospective correction’.**

We have considered each of the UNC modification proposals UNC642, UNC642A and UNC643 submitted to us for a decision, including the issues set out in the Final Modification Report (FMR) dated 15 February 2018 and consultation responses to the earlier Joint Office consultation.¹

Our current view is that the implementation of any of the proposals would not better facilitate the achievement of the relevant objectives of the UNC²; we are therefore minded-to reject them. The purposes of this letter, is to seek the views of interested parties in relation to our minded-to position.

Background to the modification proposals

Prior to the implementation of UNC432³ on 1 June 2017, as part of the Project Nexus, any gas used within a Local Distribution Zone (LDZ) that was left over once allocations had been made for Daily Metered (DM) usage and shrinkage would be allocated to the Non-Daily Metered (NDM) sector. The amount of gas allocated to the NDM sector would be adjusted over time as meter readings came in, allowing for a reconciliation between the amount of gas initially allocated to individual sites and actual metered consumption. However, such reconciliation only took place for larger supply points. Smaller supply points, which typically include domestic premises, continued to be allocated an Annual Quantity (AQ) based proportion of whatever gas was left over once all other reconciliation had taken place. UNC432 removed this Reconciliation by Difference (RbD) process and required smaller supply points to be individually reconciled in the same way as larger supply points.

NDM consumption is no longer used as the *balancing figure* in each LDZ, for each day. Instead, an NDM demand algorithm uses actual weather data to derive a *bottom up* estimate. This estimate is subtracted from total LDZ throughput, along with DM measurements and an allowance for shrinkage, with any residual Unidentified Gas (UIG)

¹ Both the FMR and the consultation responses are published on the Joint Office website at: www.gasgovernance.com/0642

² As set out in Standard Special Condition A11(1) of the Gas Transporters Licence, see: <https://epr.ofgem.gov.uk/Content/Documents/Standard%20Special%20Condition%20-%20PART%20A%20Consolidated%20-%20Current%20Version.pdf>

³ UNC432: “[Project Nexus – Gas Demand Estimation, Allocation, Settlement and Reconciliation reform](#)”

usage being the new balancing figure. This daily UIG is apportioned across all supply points, in accordance with a weighted scaling factor determined by an independent expert, the AUGE⁴.

Prior to the implementation of Project Nexus, the industry had become accustomed to *permanent* Unidentified Gas estimates of around 1% of throughput. This figure represents the residual amount of gas still unaccounted for at the UNC cut-off date, i.e. after 3-4 years of reconciliation. However, the daily UIG figures since 1 June 2017 have generally been in excess of this and have shown considerable volatility (UIG can be a positive or negative value). This unpredictability makes it difficult for gas shippers to determine how much gas they should purchase in order to balance their daily positions. The issue is compounded by uncertainty over how much of the variance between allocated gas and actual consumption will be resolved through subsequent reconciliation, and when this will occur. In the meantime payment for energy - including the shipper's allocation of UIG - will become due.

The modification proposals

Whilst there have been several initiatives to address the underlying causes of UIG volumes and volatility since the new arrangement were implemented, these proposals seek to change the basis on which UIG is calculated and/or allocated to gas shippers. The proposals are summarised as follows:

UNC642 and UNC643

Both **UNC642** and **UNC643** seek to revert to the pre-Nexus gas nomination and allocation process for NDM supply points. Both proposals seek to separate UIG into a fixed volume of unidentified gas and a new variable volume of '*settlement error*', which would be any residual volume of gas (whether positive or negative) once known or fixed values have been removed from LDZ throughput. The unidentified gas volume would revert to a fixed percentage of throughput.

The primary difference between **UNC642** and **UNC643** is that the latter seeks to have retrospective effect from 1 June 2017, in effect unwinding all of the UIG allocation that has occurred under the prevailing arrangements.

UNC642A

UNC642A would maintain the existing gas allocation methodology, i.e. continue to derive NDM demand from a bottom up calculation, rather than apportion it all LDZ throughput once DM demand, shrinkage and own use gas are removed. However, **UNC642A** would also separate the existing UIG value, replacing it with a fixed UIG volume and a variable balancing factor. The UIG volume would be allocated across all shippers according to throughput market share, with initial values being set to 0.01% for Class 1 (mandatory DM) and 2.5% for Classes 2-4. To the extent these calculated volumes do not match LDZ throughput, a balancing factor would apportion the difference (whether positive or negative) to shippers with Class 2-4 supply points, pro-rata to their share of throughput.

UNC Panels recommendation

At its meeting of 15 February 2018, the UNC Panel voted to recommend the rejection of UNC642, UNC642A and UNC643.

Our current view

⁴ The Allocation of Unidentified Gas Expert, see: www.gasgovernance.co.uk/augenex

⁵ The UNC Panel is established and constituted from time to time pursuant to and in accordance with the UNC Modification Rules.

We note the apparent difficulty that some shippers are having in predicting and managing their exposure to UIG costs. However, the current gas allocation arrangements appear to be operating in accordance with the intent of the UNC modifications that introduced them. The issue appears to arise from the volume and volatility of UIG since its introduction as the daily balancing figure being greater than many parties anticipated, rather than the use of a daily balancing figure *per se*.

We recognise that some shippers would prefer the certainty of a fixed allocation of UIG, even if that certainty came at a premium to what would otherwise have been their variable allocation. We therefore acknowledge that these proposals are not as straightforward as some parties simply seeking to avoid or at least mitigate their exposure to UIG costs. However, we do not consider that any of the proposals would offer immediate or effective relief from this issue, not least as the earliest lead time for any of the proposals to be implemented would be at least 35 weeks from a decision to approve.

We are concerned that the proposals may be detrimental to competition between relevant gas shippers and suppliers. Any additional certainty that the proposals may offer to some DM focused shippers would be limited and possibly come at a cost premium, and the volatility of UIG for NDM shippers. At the same time, exempting the DM sector of the market from the variable effect of UIG, an effect that is already heavily weighted towards the NDM sector by the AUGE weighting factors, may dampen incentives to tackle some of the systemic causes of UIG that can apply the DM sector. We are of the view that industry attention would more appropriately be focused on addressing these systemic root causes, mitigating the impacts of UIG by reducing its volume rather than simply seeking to redistribute it.

We further consider that it is premature to conclude that the current gas allocation arrangements are inherently flawed, as UIG levels are being directly impacted by other aspects of the industry arrangements that are not currently operating to a reasonable standard. As noted above, the UIG arrangements were given effect through the implementation of UNC432 and UNC473 as recently as June 2017. Those modifications were the culmination of a lengthy and extensive period of development and consideration. The eventual implementation timeline for those modifications as part of Project Nexus was driven in part by the recommendations of the CMA. In its Energy Market Investigation final report the CMA had identified the prevailing gas settlement arrangements, including those relating to the allocation of unidentified gas, as contributing to an adverse effect competition.⁶

We also note that improvements to others aspects of the gas settlement regime have only recently been given full effect. For instance, UNC570 and UNC638 which give effect to the CMA Order to increase the frequency of meter read submissions into settlement were only implemented with effect 3 November 2017 and 1 April 2018 respectively.⁷ Such meter read submissions will, over time, improve the accuracy of the prevailing AQ. However, daily demand estimation will still be heavily dependent upon the accuracy of profiles and the underlying quality of samples. As shown in **Appendix C**, we calculate that the current demand estimate for End User Category 01 (<73,200 kWh) will be accurate to within ~6-7% for 95% of the relevant supply point population. Whilst the current sample sizes may have been sufficient for the previous arrangements, with error swept up into RbD, we do not consider them to be adequate for the new arrangements, given that their relative inaccuracy will directly contribute to volumes and volatility of UIG. We also set out in **Appendix C** the levels of sample size that we believe would be required in order to attain higher confidence levels and reduced margin of error, and without further change to the current arrangements.

⁶ Competition and Markets Authority: [Energy market Investigation – Final Report](#), June 2016

⁷⁷ UNC570: '[Obligation on Shippers to provide at least one valid meter reading per meter point into settlement once per annum](#)' and UNC638: '[Mandate monthly read submission for Smart and AMR sites from or 1 April 2018](#)'.

In conclusion, we consider that none of the proposals would reduce the overall volume and volatility of UIG (as currently defined) or provide greater certainty to the market as a whole. We further consider that exempting only a small sector of the market from those effects could detrimentally impact upon competition between relevant gas shipper and gas suppliers. We are therefore minded to agree with the UNC Panel recommendation to reject these proposals. However, noting the level of concern that have been expressed with the current arrangements and the importance that stakeholders place on this issue, we are providing opportunity for stakeholders to comment on our assessment of the proposals, as set out in Appendix A. In particular, we would welcome views on the following questions:

- 1. do you consider that we have appropriately identified and where possible quantified the impacts of the proposals;**
- 2. do you consider that there are additional impacts that we should take into account in our decision making process;**
- 3. do you agree that the current gas allocation arrangements should be assessed during a period in which all UNC obligations are being fully discharged and/or input processes are working as intended, before a conclusion can properly be made that further fundamental modification is appropriate; and**
- 4. Do you consider that the AUGE terms of reference should be amended such that it has the explicit objective of developing a methodology that incentivises shippers to reduce unidentified gas?**

Responses should be received by 5 July 2018 and sent to: jonathan.dixon@ofgem.gov.uk

Unless marked confidential, all responses will be published by placing them in Ofgem's library and on its website www.ofgem.gov.uk. Respondents may request that their response, or part of their response, is kept confidential. We shall respect this request, subject to any obligation to disclose information, for example, under the Freedom of Information Act 2000. Respondents who wish to have their responses remain confidential should clearly mark documents to that effect and include the reasons for confidentiality.

Rob Salter-Church
Interim Executive Director, Consumers and Markets

Signed on behalf of the Authority and authorised for that purpose

Appendix A: Impact Assessment of UNC modification proposals 642, 642A and 643

- 1.1 Set out in this appendix are our current views, which are subject to consideration of consultation responses.

Background

- 1.1 Prior to the implementation of the UNC modifications associated with Project Nexus, the basis on which energy was allocated, reconciled and subsequently settled was determined by the consumption level of the supply point, as prescribed in the UNC. Whereas DM supply points were always allocated gas and subsequently settled on the basis of submitted meter reads, NDM supply points were allocated whatever amount of throughput was left over once DM demand, and an allowance for shrinkage and the GTs own gas use had been removed. In order to achieve this, a scaling factor was applied to the NDM demand estimate, to ensure that it matches the residual balance.
- 1.2 Whilst larger NDM supply point were subsequently reconciled, those smaller supply points with an AQ of below 73,200 kWh were never individually reconciled. Instead, they received a proportionate share of any otherwise unaccounted for gas, the aggregate volume of which would constantly be adjusted, in a process known as Reconciliation by Difference (RbD). RbD was first introduced in 1998 in order to extend retail competition to the small supply point sector, as at the time it was not considered practicable or economically viable to individually reconcile all such supply points (which numbered around 20 million) based on actual meter readings. These arrangements meant that the smaller supply point sector bore both the temporary costs of any shortfall in gas allocation to DM or larger NDM supply points resulting from delays in meter read submission and reconciliation, and any irreconcilable or *unidentified* gas volumes due to theft, errors in shrinkage calculation, etc.
- 1.3 Our decision on UNC115/115A⁸ in October 2007 supported the principle of allocating some of the costs of unidentified gas to larger supply points, recognising that such costs were unlikely to have been created by and should not be borne by smaller supply points alone. We also considered that exposing shippers to those costs would better incentivise them to tackle their root causes. However, we did not consider that either UNC115 or UNC115 had sufficiently identified or quantified what those underlying root causes of unidentified gas were. We considered that this would be necessary in order to appropriately inform any decision on an alternative cost recovery mechanism. We therefore rejected each of those proposals.
- 1.4 In 2009, we issued an impact assessment on five further modification proposals that each sought to identify and apportion the costs of unidentified gas.⁹ Of those five proposals we subsequently directed the implementation of UNC229¹⁰, which inserted a table of fixed value contributions that each of the DM and NDM LSP sectors would make to the costs of unidentified gas. UNC229 required that those values be determined on the basis of an annual review of relevant evidence by an independent expert, known as the Allocation of Unidentified Gas Expert (AUGE).
- 1.5 In 2015/16, the final year in which the full process was completed prior to being superseded by the Project Nexus gas allocation arrangements, the AUGE determined that of 6,417 GWh of unidentified gas, 1,636 GWh should be reallocated to the NDM LSP sector. This represented a redistribution of £30.27m of cost at prevailing system average prices. The full allocation is shown in **Table A1** below.

⁸ UNC115/115A: '[Correct apportionment of NDM error](#)'

⁹ See: Ofgem ref 143/09 - [Identification and Apportionment of Costs of Unidentified Gas](#)

¹⁰ UNC229: '[Mechanism for correct apportionment of unidentified gas](#)'

Table A1: Unidentified Gas Volumes 2015/16

Unidentified Gas source	Aggregate Quantity of Unidentified Gas/GWh	Unidentified Gas Quantity/GWh		
		DM Supply Points	Larger NDM Supply Points	Smaller NDM Supply Points
IGT CSEPS	487	0	0	487
Shipper-less/unregistered	93	0	69	24
Meter errors	21	0	21	0
Balancing Factor (theft + other)	5816	0	1546	4270
Total	6417	0	1636	4781

1.6 Whilst aggregate unidentified gas levels actually increased between the first AUGÉ statement covering 2012/13 and the last of 2015/16, rising from 6,033 GWh to 6,417 GWh, the amount attributed to shipper-less or unregistered sites decreased from 704 GWh to 93 GWh. There may be various reasons for this including the availability of better quality data in the latter years. However, we believe that this may at least in part be due to a number of targeted UNC modifications being made following the first AUGÉ statement, aimed at addressing the causes of unregistered and shipper-less sites.¹¹ This would seem to reinforce our earlier assertion that when the root causes of unidentified gas costs are exposed, parties can be incentivised to tackle them at source.

Project Nexus

1.7 The UK link replacement systems that were introduced as part of Project Nexus allowed for all supply point to be individually reconciled and removed RbD. With the exception of the very largest sites consuming above 58,600,000 kWh per year, which are mandatorily registered as Class 1, shippers are now also able to choose between a further three settlement products for each of their supply points. There are no minimum consumption thresholds for these products, the shipper simply needs to be able to satisfy the relevant meter reads requirements in order to qualify. Those products are shown in Table A2:

Table A2: Gas settlement products

Product Class description	Day ahead gas nomination	Process for initial allocation	Process for energy balancing close-out	Read submission timescales	Read submission deadline
1 – Daily metered: time critical readings	Shipper nominates	User daily read	User daily read	By 11am on GFD+1	5 calendar days following the read date
2 – Daily metered: not time critical readings	Shipper nominates	GT estimate unless read received before 11am	User daily read	By end of GFD+1	5 calendar days following the read date
3 – Batched daily readings	GT nominates	Allocation processes	Allocation processes	Daily reads (or as many as are available) in batches	Month + 10 calendar days
4 – Periodic readings	GT nominates	Allocation processes	Allocation processes	Periodic	25 business days following the read date

¹¹ For instance see: UNC424: '[Re-establishment of Supply Meter Points – prospective measures to address Shipper-less sites](#)' and UNC425V: '[Re-establishment of Supply Meter Points – Shipper-less sites](#)'

- 1.8 Removing RbD also meant that a new balancing mechanism had to be found to account for any difference between daily Local Distribution Zone (LDZ) throughput and estimated demand. UNC432¹² removed any distinction in the weighting of unidentified gas between the DM, NDM LSP and NDM SSP market sectors and therefore removed the role of the AUGE. Instead, all unidentified gas on the Gas Day would initially be allocated to all shippers, using a common scaling factor to allocate the gas pro-rata to supply point consumption. The allocation would subsequently be adjusted as further meter readings allowed for the unidentified gas to be reconciled.
- 1.9 We accepted UNC432 on the basis that the revised approach to gas allocation and settlements would lead to a more accurate allocation of costs on the whole. However, in our decision we set out our concern that using a single scaling factor would offer a less accurate means of allocating unidentified gas than offered by the AUGE. We further stated that the aim should be to reduce unidentified gas rather than simply reallocate it and that in our opinion a universal scaling factor as set out in UNC432 would dilute existing incentives to do so.
- 1.10 We subsequently accepted UNC473¹³, which reinstated the AUGE arrangements. As before, AUGE is required to consider the evidence of the scale and sources of unidentified gas and propose a methodology for its allocation. However, rather than the former DM, NDM LSP and NDM SSP market sectors, or the single scaling factor proposed under UNC432, allocation would now be determined both according to which of nine End User Category (EUC) bands the supply point fall within, and to which settlement product it is registered. Unidentified gas, now termed *UIG*, would continue to be allocated as part of the initial gas allocation each day, but would now be weighted across 36 different scaling factors. The weighting factors for 2017/18 are set out in **Table B1** (appendix B).

The modification proposals

- 1.11 Whilst there have been several initiatives to address the underlying causes of UIG volumes and volatility since the new arrangement were implemented, these proposals seek to change the basis on which UIG is calculated and/or allocated to gas shippers. The proposals are summarised as follows:

UNC642 and UNC643

- 1.12 Both **UNC642** and **UNC643** seek to revert to the pre-Nexus gas nomination and allocation process for NDM supply points. Both proposals seek to separate UIG into a fixed volume of unidentified gas and a new variable volume of '*settlement error*', which would be any residual volume of gas (whether positive or negative) once known or fixed values have been removed from LDZ throughput. The unidentified gas volume would revert to a fixed percentage of throughput. This value would be set at 1.1% for the remainder of the 2017/18 Gas Year. The proposers' intent is that in subsequent years the AUGE would be tasked with setting a fixed value for each LDZ.
- 1.13 The AUGE would also be tasked with developing new '*Settlement Error Allocation Factors*' to apportion and reconciliation values across the sectors considered to create them, i.e. any supply points registered to settlement Class 3 or 4. Until such time as these settlement error allocation factors are created, the existing UIG weighting factors would be used.
- 1.14 The primary difference between **UNC642** and **UNC643** is that the latter seeks to have retrospective effect from 1 June 2017, in effect unwinding all of the UIG allocation

¹² UNC432: '[Project Nexus – Gas Demand Estimation, Allocation, Settlement and Reconciliation reform](#)'.

¹³ UNC473: '[Project Nexus – Allocation of Unidentified Gas](#)'

that has occurred under the prevailing arrangements. Also, whereas UNC642 would limit the reconciliation processes to Class 3 and 4, **UNC643** would also include any unread Daily Metered (DM) supply points within the smear.

UNC642A

- 1.15 **UNC642A** would maintain the existing gas allocation methodology, i.e. continue to derive NDM demand from a bottom up calculation, rather than apportion it all LDZ throughput once DM demand, shrinkage and own use gas are removed. However, **UNC642A** would also separate the existing UIG value, replacing it with a fixed UIG volume and a variable balancing factor. The UIG volume would be allocated across all shippers according to throughput market share, with initial values being set to 0.01% for Class 1 (mandatory DM) and 2.5% for Classes 2-4. To the extent these calculated volumes do not match LDZ throughput, the balancing factor would apportion the difference (whether positive or negative) to shippers with Class 2-4 supply points, pro-rata to their share of throughput.
- 1.16 **UNC642A** would also remove the role of the AUGER from the current process. The fixed UIG values would instead be determined each year by the Demand Estimation Sub-Committee (DESC).

Affected parties

- 1.17 We note that the Joint Office received a strong response to its consultation on these proposals, with 27 interested parties submitting representations. In addition to gas shippers and gas transporters who are Party to the UNC, representations were also received from metering agents, consumer groups, and directly from consumers themselves. All respondents who referred to the UNC relevant objectives, whether in favour or opposed to any of the three proposals, made their arguments in the context of relevant objective (d).
- 1.18 These proposals are concerned with the allocation of energy to gas shippers and that is the category of party that we consider to be primarily affected. To the extent that shippers cannot, or choose not to, absorb the risk and as yet unrealised cost of UIG allocation, their customers will be affected. We also consider that there may be an impact upon future gas consumers to the extent that the proposals would dampen incentives to reduce aggregate levels of UIG, which may result in higher bills for consumers. However, these impacts are consequential to, rather than separate to, the impacts on shippers. The focus of our assessment is therefore on the impact that the proposals would have on cost allocation, and consequently to competition between gas shippers. We therefore agree with respondents and the UNC Panel that the proposals should be considered against relevant objective (d) and that they would have a neutral or relatively immaterial impact upon the other relevant objectives.

Relevant objective (d): the securing of effective competition between relevant shippers and suppliers

- 1.19 Whilst there was varying degrees of support, none of the three proposals were supported by the majority of respondents, though there was stronger support for UNC643 than either UNC642 or UNC642A.
- 1.20 We note that several respondents raised concern over the limited development and assessment that has been undertaken on these proposals given the urgent timetable that has been followed. We have sympathy with these concerns and generally grant urgent status to modification proposals with reluctance, particularly where they are manifestly complex, as was the case with these proposals. However, as noted in our

urgency decision¹⁴ we must strike the appropriate balance between ensuring that the proposals are fully developed and assessed with an appropriate degree of rigour, and meeting the legitimate expectation of proposers that any significant issues they are facing will be looked at expediently. We are, therefore, grateful to all of the parties, including the Joint Office and Xoserve, which made significant efforts in contributing to the development of these proposals. Not least, Xoserve has provided an initial 'Rough Order or Magnitude' assessment of the delivery cost and timescales for the three proposals, as follows:

Table A3: Rough Order of Magnitude assessment of the proposals

	UNC642	UNC642A	UNC643
Expected build time	42 weeks	35 weeks	50 weeks
Estimated cost	£2m	£1m	£2.2m

1.21 Given the expected build time it is clear that, notwithstanding the urgent timetable that these proposals followed, none of them would offer any immediate relief to the issues that some shippers are facing with respect to UIG allocation. Whilst UNC643 sought retrospective application from the outset, the suggested delivery timescales also prompted the proposer of UNC642 to vary their proposal, such that it would have contractual effect from shortly after an Authority direction that it be implemented. We set out our views on retrospectivity below.

1.22 In terms of the potential impacts of the proposals on competition, we consider that there are four key issues that require consideration. These are:

- cost reflectivity;
- stability and predictability;
- distributional impacts;
- the potential for undue discrimination; and,
- retrospective effect.

Cost reflectivity

1.23 Competition between relevant gas shippers and suppliers is facilitated by cost reflective charging. The purchase of energy is a key component of gas shippers' and suppliers' costs, making up around 40%¹⁵ of the end consumer's bill. Efficient operators are therefore able to differentiate themselves from competitors by passing through efficiencies in the form of lower tariffs.

1.24 The current arrangements seek to ensure that there is an evidence-based independently determined allocation of UIG across EUC bands and settlement product, correlating to the extent to which each category of supply point is considered to contribute to UIG. For instance, a given volume of gas consumed at a Class 1 supply point would attract only 0.16% of the UIG that would be allocated to Class 4 small supply point consuming the equivalent amount of gas.

1.25 Shippers can therefore manage the extent of their exposure to UIG by increasing the frequency with which they submit meter reads in order to utilise the best available settlement product.¹⁶ As shown in **Table B1** (Appendix B), a smaller supply point which qualifies for Class 3 by being able to submit a meter read at least monthly, would

¹⁴ See: www.gasgovernance.co.uk/sites/default/files/ggf/book/2017-12/Ofgem%20Decision%20Letter%20on%20Urgency%200642%200643.pdf

¹⁵ See: www.ofgem.gov.uk/publications-and-updates/infographic-bills-prices-and-profits

¹⁶ Only Product 1 is exclusive to supply points with an AQ above 58,600,000 kWh.

attract approximately half the UIG allocation of a comparable supply point in Class 4. Whilst it is not currently explicit within the AUGE terms of reference to provide incentives to shippers, we consider this to be a helpful bi-product of its evidence-based approach to UIG allocation.

- 1.26 Whilst each of the proposals would continue to differentiate between supply points based on settlement product class, in seeking to impose a fixed contribution from only one or two of those product classes they would each skew the accuracy of UIG allocation as compared to the current weighting factors. We therefore consider that any of the proposals would, if implemented, result in charges that are less cost-reflective than they currently are.
- 1.27 Although **UNC642A** would require Class 1 to make a small contribution to UIG of 0.01% of throughput, all supply points below the mandatory Class 1 threshold of 58,600,000 kWh would be weighted the same at a fixed 2.5% of throughput. To the extent that daily UIG differed from the fixed values, a balancing factor would smear the difference across all Class 2 to 4 supply points, again based on an equally weighted proportion of throughput. Given that there are now only 300 supply points which qualify as Class 1, we consider that **UNC642A** would in effect return the arrangements for the vast majority of supply points to something closer to the original Project Nexus design as set out in UNC432, and subsequently modified by UNC473.
- 1.28 We remain of the view that unweighted UIG allocation that fails to distinguish between each settlement product class would negate any incentive shippers may have to register supply points into settlement Classes 2 or 3, rather than Class 4, or to tackle the root causes of UIG more generally. This would adversely impact upon settlement accuracy as a whole.
- 1.29 We consider the application of a 2.5% fixed allocation of UIG to Class 2 supply points would be particularly inappropriate given that this settlement product clearly shares closer characteristics to Class 1 than to either of Classes 3 or 4, notwithstanding the absence of a minimum consumption threshold. Specifically, assuming that shippers comply with the requisite submission of daily reads means, Class 2 supply points will present less risk to settlement accuracy, as they will not be reliant upon NDM demand estimation algorithms. To the extent that the error in demand estimation is a major contributor to UIG, we consider that this should appropriately be reflected in the allocation of costs.
- 1.30 **UNC642 and UNC643** also seek to exempt Class 2 supply points from what the proposers' consider to be *settlement error*. We have some sympathy to these arguments to the extent that DM supply points by definition have characteristics that increase the certainty of their actual consumption. However, this certainty is not absolute and we therefore do not agree that *settlement error* is an entirely NDM phenomena. For instance, our open letter of November 2017¹⁷, we highlighted concerns over the protected failure of shippers to submit valid meter reads for many DM supply points. More recently we were made aware that the majority of DM measurements for 2 May 2018 did not appear in the Gemini system, resulting in erroneously high unidentified gas values.
- 1.31 Instances such as these, together with more systemic issues such as meter errors that can apply equally to both the DM and NDM sectors, show that things can and do go wrong in what is a relatively complex set of gas allocation, reconciliation and settlement arrangements. We anticipate that in exposing the true nature and materiality of these issues parties will be better informed, empowered and incentivised to tackle them, wherever they may arise. We certainly consider that it is inappropriate

¹⁷ See Ofgem open letter: www.ofgem.gov.uk/system/files/docs/2017/11/uig_letter.pdf

for any associated costs to be borne by only a subset of the market, given the availability of data and means to allocate it in a more targeted and equitable manner.

- 1.32 We consider that the evidence-based weighting factors determined by the AUGE provide a more cost-reflective basis for the allocation of costs that could be achieved through any pre-determined fixed value. However, whilst we consider that none of the proposals would be more cost-reflective than the current allocation arrangements, we recognise that this could be off-set by other considerations, particularly if they facilitate competition and/or positive consumer outcomes and do not impinge upon the accuracy of final settled costs.

The role of the AUGE

- 1.33 We consider that the role of the AUGE has fulfilled at least some of the original intent of UNC229 insofar as there is now a fully evidenced and independent assessment of the root causes of unidentified gas. We consider that the transparency of the extent of those costs has prompted some valuable initiatives, not least around tackling shipper-less sites and theft. We consider that the having the fixed UIG values instead being subject to periodic review by the DESC as proposed in **UNC642A** would be a retrograde step. It is unlikely that the members of the DESC, which currently meets on a circa quarterly basis, would be able to dedicate resources comparable to those currently employed by the AUGE. It is also unlikely that the output of that committee (or of the UNC Committee if a matter is escalated to it), being made up of industry representatives, would have the same credibility as that of an independent expert.

- 1.34 Whilst recognising the independence of the AUGE, we also note the limitations of its current terms of reference.¹⁸ The UIG weighting factors determined by the AUGE represent as far as practicable an evidence-based approach to the allocation of UIG, using various tools and techniques to undertake research and analysis of historic data. We have noted elsewhere how this can, and we believe has, led to shippers being incentivised to tackle certain issues that contribute to UIG, such as unregistered and shipper-less sites. However, it is currently not within scope for the AUGE to develop the UIG weighting factors with the specific objective of, or with explicit regard to, influencing shipper behaviour. As things stand that can lead to some, perhaps unforeseen, anomalies. For instance, in its final table for 2017/18 the AUGE determined that there would be a lower weighting factor for supply points in EUC bands 4, 7 and 8 that used settlement product 4, than for equivalent supply points registered to settlement product 3. This suggests that all else being equal, shippers would receive a lower UIG allocation by using an inferior settlement product. A similar situation occurs again in the draft 2018/19 table in respect of EUC bands 5, 6 and 7.¹⁹

- 1.35 We consider that it would benefit the shipper community as a whole and eventually consumers if there is a greater take up of the more advanced settlement products. In the case of Class 2 this would directly reduce daily UIG, while Class 3 registered supply points would at the very least expedite reconciliation, if not better inform Xoserve's demand estimation processes. Therefore, whilst we value the independence of the AUGE and recognise that its data driven approach may occasionally throw up anomalies such as above, it may be appropriate to consider whether its terms of reference should be extended. Allowing the AUGE an appropriate degree of discretion to adjust its weighting factors in a transparent manner so as to avoid any unintended consequence of perverting shipper incentives, if not of explicitly seeking to create incentives, may better facilitate the higher objective of reducing UIG and its associated cost.

Stability and predictability

¹⁸ See: www.gasgovernance.co.uk/sites/default/files/ggf/AUGE%20Guidelines%20v4.0.pdf

¹⁹ See revised AUGE statement for 2018/19 at: https://www.gasgovernance.co.uk/sites/default/files/ggf/book/2018-05/AUGS%20Revised%20for%202018_19_V2.1.pdf

- 1.36 Several respondents in favour of one or more of the proposals suggested that the volumes and volatility of UIG since 1 June 2017 had made it difficult for shippers to make efficient gas purchasing decisions. The implications of which were compounded by a lack of certainty on when any UIG volumes may be 'returned' to them through reconciliation. To the extent that otherwise efficient gas shippers are unable to make accurate purchasing decisions, this could result in higher costs and tie up funds that may have been better utilised elsewhere in the business.
- 1.37 We note that the FMR refers to daily UIG as having averaged 4.65% of LDZ throughput for June to November 2017 and this appears to remain a reasonable approximation for the purposes of our assessment of these proposals. However, respondents also noted that the range in UIG had been as wide as -20% to +25% on an individual LDZ.
- 1.38 We agree with those respondents who suggested that daily UIG is made up largely of temporary settlement or profiling error that will be corrected through subsequent reconciliation rather than being permanent unidentified gas, though as noted above we do not consider that such settlement error is unique to the NDM sector. The extent of *settlement error* could be characterised as the differential between the daily UIG value and the expected volume of systemic unidentified gas. Again for the purposes of this assessment we consider the figure of 3.5% of throughput cited in the FMR (being the difference between the average UIG figure of 4.65% and the previous unidentified gas figure of 1.1%) to be a reasonable approximation for the scale of settlement error. However, we note that settlement error could be a positive or negative value on any given day.
- 1.39 Unlike some of the respondents, we understand this inclusion of settlement error to have been the intention of the gas allocation business requirements that were developed over several years, rather than being an unforeseen consequence of them. Specifically, we note from the Business Requirements Documents that the intention was to introduce "an industry-wide smear for Unidentified Gas *and any other gas not accounted for through initial measurements or allocations*".²⁰
- 1.40 We therefore do not consider that parties should have reasonably expected the daily UIG value to be comparable with the circa 1.1% of permanent unidentified gas value determined by the AUGE in its 2017/18 statement²¹. This is not a valid comparison. Not least, the AUGE figures are determined following analysis of historic data, and represent the residual amounts of unidentified gas at the Code Cut-Off date²² once all possible reconciliation has been undertaken. As noted above, in making UIG the balancing factor, the new arrangements essentially combine those volumes of systemic unidentified gas, together with temporary estimation error. Prior to Project Nexus, the application of a scaling factor to NDM demand estimates had compensated for that error. The forecast scaling factors applied to the NDM estimate in 2015/16 ranged from 0.8562 to 1.0306 (or -14.38% to + 3.06%).²³ A more reasonable, if rudimentary expectation of UIG values may therefore have been for something with a similar range, though we acknowledge that UIG values have regularly been outside of this.
- 1.41 We are sympathetic to the difficulties that the current volumes and volatility of UIG are presenting some shippers, and can understand why they are seeking greater stability and predictability. We can also see that the attraction that a fixed contribution may have, providing that it was set at the right level for those supply points and relevant shippers that qualify.

²⁰ For instance, see: [Project Nexus - Executive Summary of Business Requirements](#).

²¹ See: '[Revised Allocation of Unidentified Gas Statement for 2017/18](#)'

²² UNC currently allows for reconciliation to be undertaken up to 3-4 years after the day of consumption

²³ Source: National Grid's website - <http://marketinformation.natgrid.co.uk/gas/DataItemExplorer.aspx>

1.42 As noted above, each of the proposals seek to exempt DM supply points from some of the uncertainty arising from demand estimation, requiring them to instead make a UIG contribution based on a fixed percentage of throughput. **UNC642A** would limit the exemption to Class 1 supply points while **UNC642** and **UNC643** would also exempt Class 2 sites. We consider that the arguments in favour of these proposals have some merit insofar as DM supply points by their nature provide greater certainty of demand, though as noted above, issues relating to DM supply points can and do feed direct into UIG volumes. However, we also consider that any of the proposals would impact only a small number of, albeit large, supply points and given that the gas has to be allocated somewhere, any stability provided by these proposals would come at the expense of greater volatility elsewhere.

1.43 With the implementation of UNC625²⁴ on 1 April 2018, the only sites eligible to be registered to settlement product Class 1 are those above the mandatory DM threshold of 58,600,000 kWh per year, of which there are around 300. Any benefits of predictability arising from **UNC642A** would be therefore be limited to just these sites. Whilst **UNC642** and **UNC643** would also exempt Class 2 supply points from *settlement error*, as of mid-April 2018 there were only 679 such supply points. Although the number of supply points is expected to grow, and could reasonably include current NDM supply points, rather than only those that will no longer qualify to be Class 1, DM supply points may nonetheless represent a small sector of the market for the foreseeable future. There may be a number of reasons for this, which include the shippers' ability to cater for products 2 and 3 within their own systems. We are also aware of discussions that have taken place in relation to UNC619 and its alternatives, suggesting that exposure to ratchet charges may currently be deterring greater take up of Class 2.

1.44 Total LDZ throughput would be unaffected by the implementation of any of the proposals, and none of them would, of themselves, lead to a greater volume of that throughput being daily metered²⁵, or to an improvement in the accuracy of NDM demand estimation. Therefore, for any shipper whose portfolio is not exclusively Class 1 or 2, each of the three proposals would simply reclassify the existing volatility associated with UIG as a newly defined value, whether that be *settlement error* as in **UNC642/UNC643** or *marginal unidentified gas* as in **UNC642A**. We further consider that the application of a fixed contribution would skew the allocation of UIG, compounding its volatility with respect to Class 3 and 4 supply points, which we cover further under the section on distributional impacts. We consider that the proposals would, considered in the round, be detrimental to market-wide stability and predictability, rather than improve it. Unless and until greater numbers of supply points are able to benefit from the daily allocation and settlement offered by product Class 2, we consider that the biggest single contribution to reducing the volumes and volatility of UIG would come from improving the accuracy of NDM demand estimation.

NDM demand estimation

1.45 Whilst there are a number of factors that impact upon short term settlement accuracy²⁶, we consider that much of it will depend on the relative accuracy of NDM demand estimation, which in turn is heavily contingent upon there being a sufficiently large and representative sample from which to draw data. Generally speaking, a larger

²⁴ UNC625: '[Extension of 4 months to 10 months to transfer non-mandatory sites from Class 1](#)'

²⁵ Nothing in the proposals would require the reclassification of any supply point from Class 3 or 4 into Class 2, though we recognise that the option of a fixed contribution may in some cases be enough to incentivise shippers to do so. We have also recognised elsewhere within this assessment that the application of UIG costs (however they may be defined) should incentive shippers to address the root causes of such UIG, which may in due course have a marginal effect on aggregate demand and therefore LDZ throughput.

²⁶ For instance, the Performance Assurance Board currently tracks the [15 most material risks](#), from a total of 36 separate risks identified by an earlier [independent report](#).

sample size will allow for estimates that have a smaller margin of error (*confidence interval*) and for a greater confidence level.

- 1.46 In early 2017, Xoserve raised concerns with the DESC over the dwindling number of supply points to which it had access as a sample from which to derive demand estimates. In particular, the number of End User Category (EUC) '01B' sample sites (those with an AQ below 73,200 kWh) for each LDZ fell below 200 for the first time. On 13 February 2018 Xoserve reported to the DESC that it expected there to be still fewer available sites in Spring 2018. We understand that the UNC is silent on how sample sizes should be maintained or what should happen if they go below a certain threshold. Perhaps surprisingly Xoserve also noted that "there does not appear to be any statistical method used in setting the target sample numbers previously", but suggested prospective sample sizes to DESC²⁷. DESC subsequently endorsed a request to industry parties for relevant daily consumption data that would help it maintain if not improve upon the accuracy of current demand models and develop new ones as appropriate.
- 1.47 Based on the current sample sizes as set out in the presentation to DESC, we calculate that the demand estimate for EUC 01B will be accurate to within ~6-7% for 95% of the relevant supply point population. We therefore strongly support the identification of an optimum sample size and procurement of daily read data from adequate supply points to form that sample. We note that Xoserve suggested sample sizes that would be required to deliver a confidence level of 90% or 95% with a 5% margin of error. Whilst this would no doubt be a welcome improvement, we consider that such a margin of error could still feed through UIG volumes and volatility. Given the significant population of smart and communications enabled meters that now exists, we consider that Xoserve and DESC could achieve or at least work towards a narrower margin of error and/or greater certainty, with the target sample size being driven by the required level of demand estimation accuracy, not vice versa. Within the **Appendix C** we have also set out some calculations on the various sample sizes that would be required to do this.
- 1.48 We are therefore of the view that no modification to the current gas allocation arrangements is necessary in order to reduce daily UIG, simply better data that we consider to be reasonably available.

Distributional impacts

- 1.49 **Appendix B** sets out the relative allocations of UIG to each of the product classes, using the 2017/18 weighting factors and consumption data from November 2017. It is worth noting that the exact actual volume of UIG allocated to each product class will depend upon a number of variables, including: the volume of daily UIG; the number of suppliers points registered to each product class on that day; and, the relative AQ of the supply points in each product class.
- 1.50 **Tables B1 to B5** illustrate how the weighting factors distribute UIG across the four product classes and nine EUC bands. We have used aggregate AQ/365 to provide a value for *typical* throughput as a proxy for actual daily throughput, being 1381.375 GWh as shown in **Table B3**. It is notable that whilst product Class 1 accounts for 11.47% of that typical throughput, they would pick up only 0.02% of the UIG allocation. If the intent of the proposals is to limit the exposure of these supply points to UIG, the current weighting mechanism already ensures that is the case, at least in respect of those registered as Class 1.
- 1.51 **Tables B8 and B9** illustrate that under the current arrangements a shippers allocation of UIG is directly proportionate to the aggregate UIG value.

²⁷ See: DESC meeting 13 February 2018 - [Action DESC1201 – review of sample sizes](#)

1.52 In contrast to the proportionate evidence-based approach to allocating UIG, both **UNC642/643** and **UNC642A** seek to reintroduce a fixed contribution from DM supply points, whether limited to Class 1 in the case of **UNC642A** or extended to Class to in the case of **UNC642/643**.

1.53 The **UNC642A** approach to the fixed contribution is to require a contribution of 0.01% of Class 1 supply point throughput. Classes 2 to 4 would also be required to make a fixed contribution, though this would be augmented by variable balancing factor that negates much of the impact of the initial 2.5% contribution being fixed. In contrast, **UNC642/642** would fix UIG contribution to 1.1% of throughput, though this would also be subject to the UIG weighting factors, bringing the actual contribution of Class 1 supply points closely into line with that of **UNC643A**. Any residual balance would be applied to class 3 and 4 only, through a new scaling factor. As such, **UNC642/643** seeks to return NDM gas allocation to the pre-Nexus top-down approach, ensuring that any and all error is picked up by NDM supply points only. This would include any error that originates in the DM sector.

1.54 Using the average UIG value of +4.65% cited in the FMR, **Tables B10** and **B11** demonstrate the impact the implementation of either proposal would have on the allocation of gas and subsequent cost as compared to the current baseline. In order to give a better idea of materiality we have scaled these impacts up to reflect a 'typical' year (i.e. we have multiplied the results by 365) whilst retaining the average 4.65% value throughout, though we recognise that in practice UIG will deviate significantly from this average, albeit in either direction.

1.55 This analysis suggests that the impact on Class 1 in particular would be relatively small, particularly when set against the systems costs of £1m-22m to change the current arrangements, as set out in the Xoserve ROM.

1.56 The analysis also confirms that for any gain, there will be an equal and opposite loss to supply points registered to other settlement products. The biggest 'losers' under either scenario would be the supply points registered to settlement product 3, which would pick up the bulk of redistributed energy and cost if either proposal were to be implemented. We forecast that the redistribution of cost in 2018/19, using the methodology and data set out in **Appendix B**, would be as follows:

Product	UNC642A			UNC642/643		
	Variance from baseline (GWh)	Annual equivalent (GWh)	£	Variance from baseline (GWh)	Annual equivalent (GWh)	£
1	-0.005	-1.664	-£33,287	-0.013	-4.575	-£91,503
2	1.979	722.415	£14,448,294	-0.405	-147.909	-£2,958,190
3	1.044	381.056	£7,621,116	0.629	229.465	£4,589,292
4	-3.019	-1101.806	-£22,036,123	-0.211	-76.980	-£1,539,599
Net	0.000	0.000	0.000	0.000	0.000	0.000

1.57 Whilst it is interesting that the proposals could potentially be of benefit to both Class 1 and Class 4 supply points, this could create a perverse incentive over the adoption of newer products, in particular Class 3. As of mid-April 2018 there were over 120,000 supply points registered to product Class 3 and we would expect this number to grow rapidly.

1.58 As stated elsewhere, we consider that this product will offer significant benefits both to the shippers who adopt it and to the wider community, insofar as it can be expected

to facilitate more accurate AQs (with resulting improvements to demand estimation) and particularly the quicker reconciliation of any error. It would therefore appear that any disincentive placed on the take-up of this product would be an unintended consequence of any of the modifications proposals being implemented.

- 1.59 Further, whilst we recognise the difficulties some shippers are facing in adapting to the new gas allocation arrangements, we are concerned about the potential impact on consumers should shippers seek to pass those risks and/or cost through to them. As noted above, the UIG value is dynamic, being adjusted continually through to D+5, and thereafter subject to reconciliation and meter reads and other relevant data comes in. UIG volumes and cash flow implications for shippers are therefore transient, albeit significant.
- 1.60 The extent to which shippers absorb the temporary allocation of UIG and manage their cash flow accordingly, rather than seek to pass it through to suppliers and ultimately consumers, may be an indicator of how confident they are of the actual consumption across their portfolios and their degree of certainty in what their final reconciled positions will be. For instance, we note that shippers who were previously exposed to the RbD regime appear to be more comfortable with the UIG arrangements than those who were not. We therefore consider that any uplift attributable to UIG could be seen as a discretionary risk premium, rather than a tangible and realised cost.
- 1.61 We are also concerned that should shippers seek to pass through this risk premium, they may be creating the conditions for a windfall gain. That is, whilst the UIG allocation may be passed through as cost to the consumer in the short term, it is not clear whether and how such charges may be rebated when that energy and commensurate cost is reconciled. We are particularly concerned at the implications of a customer moving to another supplier, and no longer having a relationship with the original shipper/supplier. We are equally concerned that consumers who are aware of the prospect, whether real or not, of UIG related charges being rebated to them may feel compelled to stay with their current supplier in order to ensure they receive the rebate, effectively locking them in, at least temporarily.

Potential discriminatory effect

- 1.62 As noted above, the various categories of supply point attract a weighted allocation of UIG based on the extent to which supply points exhibiting those characteristics are determined by the AUGGE to contribute to the problem. This is an objective, evidence based approach that considers relevant factors and excludes those which are considered to be irrelevant (or otherwise out of scope, such as shrinkage calculation error). Therefore, whilst the AUGGE treats the supply point categories differently, this is *due* discrimination based on relevant differences.
- 1.63 In contrast, we are concerned that the application of fixed UIG contributions to Class 1 in the case of **UNC642A**²⁸ or Class 1 and 2 in the case of **UNC642 and UNC643**, supply points may constitute *undue* discrimination.
- 1.64 In requiring DM supply points to make a fixed contribution based on LDZ throughput rather than daily UIG, each of the proposals would expose relevant shippers to costs on days and at levels where they may not otherwise have incurred them. For instance, on days where UIG is negative, they would be incurring energy debits when they would currently have been receiving credits.
- 1.65 Even recognising that UIG is more likely to be positive to negative, the extent to which supply points making a fixed contribution are better or worse off will depend on

²⁸ Under UNC642A Class 2 would receive an initial fixed allocation of 2.5% of throughput, but would also be exposed to any subsequent balancing action, along with Classes 3 and 4.

the prevailing volume of UIG. However, as noted above, the fixed contribution would place a cap on relevant shippers' exposure on days when UIG values are relatively high. We therefore consider that a fixed contribution in return for being exempted from the variable impacts of UIG would, in effect, constitute insurance against UIG volatility.

- 1.66 We would not in principle be opposed to such a product if it could be structured and priced in an appropriate manner. However, given that **UNC642** and **UNC643** both seek to mandate that all shippers with Class 1 and 2 supply points buy that insurance, whilst at the same time excluding other supply points, we are concerned that it could have anti-competitive effect.
- 1.67 We consider that some shippers will be more comfortable than others with their ability to manage their exposure to UIG by effective asset management, investment and efficient purchasing decisions. This would appear to be borne out by the fact that not all shippers who service this sector of the market supported the proposals. Imposing a fixed UIG contribution on all shippers would remove a legitimate and important opportunity for them to differentiate themselves from competitors, either through more efficient purchasing decisions or from realising the benefits of investment. For instance, we note from UNC594R²⁹ that not all shippers had, at least at that time, invested in their systems such that were able to utilise settlement products 2 and 3.
- 1.68 We are also concerned that in limiting the fixed contribution to Class 1 and 2 supply points to the exclusion of Classes 3 and 4 the proposals could be considered to have an unduly discriminatory effect. We recognise that there are relevant differences between each of the settlement products; in particular Class 1 and 2 supply points are expected to have an actual daily meter read available on which to base the D+5 energy balancing close-out. Classes 3 and 4 in contrast would still be reliant upon the demand estimate processes used for day-ahead allocation. However it is not clear that this would of itself be sufficient to legitimately exclude such supply points from the insurance provided by a fixed contribution, rather than for instance coming at a higher premium.

Retrospective effect

- 1.69 Several respondents raised concerns about the proposed retrospective application of **UNC643**, and to a lesser extent to **UNC642** given that it is intended to have contractual effect in advance of the necessary systems changes being made. Several respondents considered that allowing retrospective effect would introduce considerable uncertainty and have material financial implications.
- 1.70 We share these concerns. However, we acknowledged that there may nonetheless be exceptional circumstances where a retrospective modification is justified. We have sought to clarify what these circumstances may be, publishing criteria that we have applied to previous decisions on modification proposals to the UNC and other industry codes. Those criteria, were arrived at by virtue of our public law duty to act reasonably in the exercise of our functions and subsequently published as a guidance note.³⁰ Whilst we are not bound by this set of criteria, we consider they provide a good basis on which to assess the reasonableness of any decision in relation to retrospectivity. Specifically, they refer to:
- a situation where the fault or error occasioning the loss was directly attributable to central arrangements;
 - combinations of circumstances that could not have been reasonably foreseen; or,

²⁹ UNC594R: ['Meter reading submission for advanced and smart metering'](#)

³⁰ See: ['Ofgem's Guidance on Modification Urgency Criteria'](#).

- the possibility of retrospective action having been clearly flagged to participants in advance and only the details and process being decided retrospectively.

1.71 We do not consider that **UNC643** meets any of these criteria. In particular, while we acknowledge that the volume and volatility of UIG has been greater than expected by many market participants, some respondents suggest that they are in line with expectations. Whatever the merits of the prevailing business rules, there is nothing to suggest that the central systems or allocation arrangements are being operated erroneously or in any way other than as intended. Nor do we consider that shippers' exposure to UIG was unforeseen, given that this was an explicit aspect of the Project Nexus business requirements and that they had several years notice of these changes. Perhaps more importantly, parties had been operating on the basis of the prevailing rules for several months in advance of these proposals being raised and whilst there have been several initiatives and modifications to reduce UIG volumes and volatility, those rules were being operated and in most cases adhered to in good faith. We do not consider that there is sufficient justification to retrospectively dis-apply those business rules and effect a redistribution of energy and cost from those who have managed to purchase gas accurately and efficiently, taking into account the application of UIG, to those who have perhaps not.

1.72 **UNC642** would also have a retrospective element to the extent that it would have contractual effect shortly after a direction to implement it, but with systems requiring several more months of development and testing before they are implemented. This would require a one-off unwinding and adjustment of gas allocations made from the time of contractual effect through to systems implementation. Some of the same arguments against **UNC643** would also apply to **UNC642** with respect to whether the current central arrangements are at fault and whether the circumstances could have reasonably been foreseen. However, **UNC642** the future effective date of **UNC642** would at least have flagged to market participants the possibility of retrospective action and allow them to take account of this in their planning and purchasing decisions.

Impact on sustainable development

1.73 Any energy consumed or lost to the system has an environmental impact, though the impacts will vary greatly depending on whether the gas has been consumed (i.e. burnt) or released into the atmosphere as natural gas. At present, it is not possible to say with any degree of certainty how much of the UIG volumes represent energy that is consumed but not metered, or at least not accurately, and how much is lost through undetected leakage before it reaches the consumer. For instance, we note that the AUGE considers permanent unidentified gas to be largely attributable to undetected theft. However, the AUGE has also raised concerns over the accuracy of the prevailing shrinkage calculations.

1.74 As noted above, we consider that none of the proposals would have a direct impact on volumes of UIG. We therefore consider that none of the proposals would have a direct impact on the environment, whether positive or negative. However, we remain of the view as set out in our Impact Assessment on **UNC229**, that the indirect consequence of better targeting the costs of unidentified gas is the incentive for parties to tackle the root causes. We are therefore concerned that to the extent each of the proposals seek to replace the evidence-based targeting of costs with a fixed contribution, they may all dampen incentives to reduce aggregate levels of UIG. As such, there would be a negative impact on the environment.

Impact on health and safety

1.75 We are not aware of any health and safety implications relating to any of the proposals.

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 allocation³¹

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

Table B2: Aggregate throughput by consumption band and product type, as at Nov 2017³²

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

³¹ Source: www.gasgovernance.co.uk/augenex/1718

³² Source: First draft AUGE statement for 2018/9 - www.gasgovernance.co.uk/sites/default/files/qgf/book/2018-02/First%20Draft%20AUGS%20for%202018_19%20v1.0.pdf

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

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 2018/19 projections

The Joint Office recently published version 2.1 of the 2018/19 AUGÉ statement. We have therefore taken the opportunity to repeat 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	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22
Product 2	42.25	42.25	42.25	42.25	42.25	42.71	31.98	4.56	0.22
Product 3	43.69	44.61	42.58	42.05	43.23	43.23	43.23	31.13	0.22
Product 4	94.01	104.08	105.9	43.38	42.11	42.34	42.02	41.94	0.22

Page 24 of the AUGÉ statement provides projected supply point and AQ figures for April 2019. These figures take 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. However, the AUGÉ projects that only 64,222 supply points would be registered to Class 3. Whilst we note that this figure takes into account a number of supply points that may have reverted to 'dumb' functionality upon a change of supplier, we nonetheless view this projected figure to be too low. We understand that as of mid-April 2018 there were 120,433 Class 3 supply points with a combined AQ of 15,578 GWh.³³ Therefore, we have scaled up the AUGÉ's projected Class 3 AQ to match this figure, whilst removing the equivalent volume from Class 4 in order to maintain the same aggregate volume.

We also note that the AUGÉ figures projected 3 EUC9 sites with a combined AQ of 210 GWh to be in each of Classes 2 and 3. Given that these sites would be mandatory DM, we have moved these volumes in Class 1, giving a revised aggregate AQ 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	42758	42758
Product 2	0	5	10	65	328	2357	4353	10507	0	17625
Product 3	6052	3719	5243	544	20	0	0	0	0	15,578
Product 4	309890	22851	15530	22770	16367	13323	10136	7416	0	418,283
Total	315942	26575	20783	23379	16715	15680	14489	17923	42758	494244

³³ Source: Xoserve email to Ofgem.

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

Product	Current baseline	UNC642A			UNC642/643		
		Fixed	Scaled balance	Total	Fixed	Scaled balance	Total
1	0.016	0.012	N/A	0.012	0.004	N/A	0.004
2	0.528	1.207	1.300	2.507	0.122	N/A	0.122
3	1.172	1.067	1.149	2.216	0.040	1.760	1.800
4	62.514	28.650	30.846	59.496	15.034	47.270	62.303
Total	64.230	30.935	33.295	64.230	15.200	49.030	64.230

Product	UNC642A			UNC642/643		
	Variance from baseline (GWh)	Annual equivalent (GWh)	£	Variance from baseline (GWh)	Annual equivalent (GWh)	£
1	-0.005	-1.664	-£33,287	-0.013	-4.575	-£91,503
2	1.979	722.415	£14,448,294	-0.405	-147.909	-£2,958,190
3	1.044	381.056	£7,621,116	0.629	229.465	£4,589,292
4	-3.019	-1101.806	-£22,036,123	-0.211	-76.980	-£1,539,599
Net	0	0	0	0	0	0

Appendix C: Impact of sample size on relative accuracy of demand estimation

Calculated Margin of Error (MoE) at current³⁴ sample sizes:

	SC	NO	NW	NE	EM	WM	WS	EA	NT	SE	SO	SW	WN	TOTAL
Population	2,014,503	1,248,986	2,796,538	1,417,383	2,403,832	2,074,276	873,133	1,951,171	2,306,299	2,584,837	1,727,445	1,584,555	258,460	23,241,418
Sample	201	221	225	220	222	221	232	251	211	216	229	234	0	2,683
MoE (+/- %) at 95% confidence	6.91	6.59	6.53	6.61	6.58	6.59	6.43	6.19	6.75	6.67	6.48	6.41	N/A	

Potential sample sizes:

Target MoE (+/- %)	Confidence	SC	NO	NW	NE	EM	WM	WS	EA	NT	SE	SO	SW	WN	TOTAL
5%	90%	271	271	271	271	271	271	271	271	271	271	271	271	270	3,522
	95%	384	384	384	384	384	384	384	384	384	384	384	384	384	4,992
	99%	665	665	665	665	665	665	665	665	665	665	665	665	665	8,645
4%	95%	600	600	600	600	600	600	600	600	600	600	600	600	600	7,800
	99%	1040	1040	1040	1040	1040	1040	1040	1040	1040	1040	1040	1040	1040	13,520
3%	95%	1067	1067	1067	1067	1067	1067	1067	1067	1067	1067	1067	1067	1067	13,871
	99%	1847	1847	1847	1847	1847	1847	1847	1847	1847	1847	1847	1847	1847	24,011
2%	95%	2398	2398	2398	2398	2398	2398	2398	2398	2398	2398	2398	2398	2398	31,174
	99%	4152	4152	4152	4152	4152	4152	4152	4152	4152	4152	4152	4152	4152	53,976
1%	95%	9558	9558	9558	9558	9558	9558	9558	9558	9558	9558	9558	9558	9558	124,254
	99%	16505	16505	16505	16505	16505	16505	16505	16505	16505	16505	16505	16505	16505	214,565

³⁴ Source: DESC meeting 13 February 2018 - [Action DESC1201 – review of sample sizes](#)