

**UNC Workgroup 0693R Minutes  
Treatment of kWh error arising from statutory volume-energy  
conversion**

**Tuesday 16 June 2020**

**Via Teleconference**

**Attendees**

Lorraine O'Shaughnessy (Chair)	(LOS)	Joint Office
Karen Visgarda (Secretary)	(KV)	Joint Office
Andy Clasper	(AC)	Cadent
Carl Whitehouse	(CW)	Shell UK
David Mitchell	(DM)	SGN
Ellie Rogers	(ER)	Xoserve
Fiona Cottam	(FC)	Xoserve
Kirsty Dudley	(KD)	E.ON
Lorna Lewin	(LL)	Orsted
Luke Reeves	(LR)	EDF Energy
Mark Bellman	(MB)	ScottishPower
Mark Jones	(MJ)	SSE
Mark Palmer	(MP)	Orsted
Phil Lucas	(PL)	National Grid
Rhys Kealley	(RK)	British Gas
Rose Kimber	(RKi)	CNG
Sallyann Blackett	(SBI)	E.ON
Steven Britton	(SBr)	Cornwall Insight
Steve Walker	(SW)	PFP Energy

**Apologies**

Louise Hellyer	(LH)	Total Gas & Power)
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*\*via teleconference*

Copies of all papers are available at: <http://www.gasgovernance.co.uk/0693/160620>

The Workgroup Report is due to be presented at the UNC Modification Panel by 15 October 2020.

**1. Introduction and Status Review**

Lorraine O'Shaughnessy (LOS) welcomed everyone to the meeting and she informed the Workgroup that an extension had been granted to October 2020 at the May 2020 Panel with agreement of the Proposer.

**1.1. Approval of Minutes (21 April 2020)**

The minutes from the previous meeting were approved. (LOS explained the May meeting had been cancelled as the Proposer was not available to attend)

**1.2. Approval of Late Papers**

None.

### 1.3. Review of Outstanding Actions

**Action 0802:** Scottish Power (MB) to engage with Ofgem Jon Dixon (JD) regarding the legality of a sharing type treatment in relation to the Gas (Calculation of Thermal Energy) Regulations.

**Update:** MB said that JD had committed to seek legal guidance on this matter and as yet, an update was still outstanding, although from previous discussions, MB said both he and JD did not see this to be a legal issue. MB said this action could be closed and if anyone had any concerns to speak to him directly. **Closed.**

**Action 0901:** Xoserve to provide update on the meter temperature data exercise from the AUG Subcommittee.

**Update:** Fiona Cottam (FC) said that Xoserve had defined the procurement requirements, but that no further progress had been made to date, as they were waiting until the handover process had taken place with the new AUG, Engage Consulting, so she proposed this action was carried forward.

LOS suggested that it would be advisable if FC informed the new AUG that the UIG Workgroup would be closing in August 2020 and to make them aware that that UIG related topics would be discussed in the Distribution Workgroup from August 2020 moving forward. FC agreed to inform them. **Carried Forward.**

**New Action 0601:** Xoserve (FC) to inform the new AUG Engage Consulting that all UIG related topics would be encompassed within the Distribution Workgroup from August 2020 onwards, following the formal closure of the UIG Workgroup.

**0201:** Tony Perchard and Dave Lander to liaise on the Wallace Report and provide any further information available from the study.

**Update:** MB said that he had now reconnected with Dave Lander (DL) and Tony Perchard (TP) and that TP had provided an overview via an email in April 2020 in relation to Wallace Report and the different physical properties of how gas and water heated or cooled and that gas did heat and cool down more rapidly than water.

MB said that TP's comments on this matter were as follows:

*"Having considered this further I thought it worth pointing out the significant difference between the physical properties of water and methane as follows*

1. *Specific Heat Capacity (Cp) – the amount of energy required to heat 1kg of a substance by 1C. For water, Cp = 4,200J/kg/C. For methane it is ~2,180J/kg/C at the conditions we are interested in. This means that the same mass of water requires over 1.9x more energy to raise its temperature by 1C*

2. *Density (ρ) - For water ρ = 997g/m<sup>3</sup>. For methane at the conditions we are interested in (25C & 1atm), the density is only 0.657kg/m<sup>3</sup>. This means that the same volume of pipe will contain over 1,500x the mass of water than methane!*

*Taking these 2 effects together, it follows that for an identical pipe (same volume) containing either water or methane, the water will require over 2,900 times more energy to raise its temperature by 1C than the methane.*

*The above is a simple steady state case for a fluid stationary in a length of pipe. The case involving flow is more complex but there are theoretical ways to make an estimate. Note also that the rate of heat transfer is proportional to the temperature difference i.e. the gas temperature will increase more when it's colder (assuming the same room temperature)."*

MB then confirmed this action could now be closed. LOS requested that FC send an email to the new AUG Engage Consulting on this topic to ensure they were kept up to speed. FC agreed to this suggestion. **Closed.**

**New Action 0602:** Xoserve (FC) to contact the new AUG Subcommittee; Engage Consulting in reference to the Wallace Report findings; the gas and water-cooling properties.

**0202:** All to review previously presented analysis including Xoserve’s UIG Task Force findings and provide a view on the potential solutions/options at the March meeting.

**Update:** MB said that no one had put forward any other suggestions regarding this area so this action could now be closed. **Closed.**

**Action 0401:** ScottishPower (MB) and Xoserve (FC) to discuss the following items on the Options Matrix: AUG Weighting Factors, (See item 2.1 below) Impacts on LDZs, Allocation for Transporters and Adjusting allocation into Shippers.

**Update:** FC said this action could now be closed as this matter had now been discussed in depth and analysis provided. **Closed**

**Action 0501:** Joint Office (LOS) to seek an extension until October at the June Panel.

**Update:** LOS said this action could now be closed as the extension until October had been agreed by the May Panel. **Closed**

## 2. Consideration of Potential Solutions / Option

### 2.1. AUG Weighting Factors

FC provided an overview of the Options Analysis for Treatment of the Standard Conversion Factor Error which can be viewed in full via the link: <https://www.gasgovernance.co.uk/0693/160620>

She said that she welcomed comments and feedback and explained the information was over a year old and had been compiled from the UIG Taskforce Recommendations Tracker. She said she had segmented the options into overall broad categories of ones that might be feasible and or worthwhile and these were as detailed below:

**Option 5.** - Amend AUGE process to re-distribute UIG based on estimated impacts of conversion factors (forecast basis)

		Key:	Accurate/correct	Partially accurate/correct	Inaccurate/incorrect	
Option Number	Description	Lead time/dependencies	Impact on Allocation	Impact on Reconciled Energy	Impact on AQ	Alignment to Consumer Billing
5	Amend AUGE process to re-distribute UIG based on estimated impacts of conversion factors (forecast basis)	<b>Medium</b> – requires governance changes but probably no system changes. Will be at forecast temperatures, requires an estimate of	Under in winter, over in summer (due to use of standard factors in developing the NDM profiles). UIG is shared to EUCs which create	Under in winter, over in summer (due to use of standard factors in actual energy). UIG is shared to EUCs which create it, on an estimated	AQ could be over or under, depending on actual weather for the year	Allocated and reconciled energy are in line with consumer billing. Any error is in UIG, shared to EUCs which create it, on an

		actual metered temperatures	it, on an estimated basis.	basis.		estimated basis.
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FC advised that:-

- No System impacts were identified, assuming no change to UIG sharing process or structure of AUG Table,
- no Scale of impacts identified,
- the Governance would require a UNC Mod or a change to AUG Framework, Change Proposal and change to Contract with AUG. Medium impacts to AUG’s Calculation processes was identified.

**Option 6.** – Modification to introduce retrospective adjustment to allocations based on actual weather for the year

		Key:	Accurate/correct	Partially accurate/correct	Inaccurate/incorrect	
Option Number	Description	Lead time/dependencies	Impact on Allocation	Impact on Reconciled Energy	Impact on AQ	Alignment to Consumer Billing
6	Mod to introduce retrospective adjustment to allocations based on actual weather for the year	<b>Long-term.</b> Requires an estimate (national or LDZ?) of actual metered temperatures	Under in winter, over in summer (i.e. no change). Retro adjustment won't be accurate for every site every day, just for the average.	Under in winter, over in summer (i.e. no change). Retro adjustment won't be accurate for every site every day, just for the average.	AQ could be over or under, depending on actual weather for the year (i.e. no change)	Allocated and reconciled energy are in line with consumer billing. UIG is re-distributed to target to EUCs which contribute to conversion errors

FC advised that:-

- UK Link system would be impacted as it would need to perform the calculations and probably new invoice Charge Types would be required
- and/or file formats
- This would result in a Major Scale of Impact
- Would require a UNC Mod, Change Proposal Methodology and/or expert required to determine actual metered temperatures.

- Shippers (and Suppliers?) will probably need to make changes to their own systems to be able to replicate the calculations for validations/billing purposes.

**Option 7.** - Introduce an LDZ level conversion factor (permanent/per year/per month)

		Key:	Accurate/correct	Partially accurate/correct	Inaccurate/incorrect	
Option Number	Description	Lead time/dependencies	Impact on Allocation	Impact on Reconciled Energy	Impact on AQ	Alignment to Consumer Billing
7	Introduce an LDZ level conversion factor (permanent/per year/per month)	Probably long-term	Single LDZ figure still results in under-allocation in winter, over-allocation in summer. Any error is in UIG.	Consistent with allocation, under in winter, over in summer. Any error is in UIG.	AQ could be over or under, depending on actual weather for the year	Shipper allocation is aligned to consumer billing

FC advised that:-

- UK Link system would be impacted to store and apply different conversion factors. Publication route required for LDZ factors.
- Major scale of impact
- UNC Mod, Change Proposal. Methodology and or expert require to determine specific factors
- Shippers (and Suppliers?) will probably need to make changes to their own systems to replicate the calculations for validation/billing purposes.

**Option 10.** - Adjust LDZ daily gas inputs to use standard correction. (Would create energy gains/losses between NTS and LDZs which would need to be funded

		Key:	Accurate/correct	Partially accurate/correct	Inaccurate/incorrect	
Option Number	Description	Lead time/dependencies	Impact on Allocation	Impact on Reconciled Energy	Impact on AQ	Alignment to Consumer Billing
10	Adjust LDZ daily gas inputs to use standard correction. (Would create energy	Long. Would require a UNC modification and changes to GT/CDSP	Under in winter, over in summer (i.e. no change) but no longer a	Under in winter, over in summer (i.e. no change) but no longer a	AQ could be over or under, depending on actual weather for	Allocated and reconciled energy are in line with consumer

	gains/losses between NTS and LDZs which would need to be funded)	systems, and potentially changes to GT billing to recover the energy differences	cause of UIG, if temps at the meter match the temps at the LDZ input point. Creates a new source of UIG for sites with non-standard CF.	cause of UIG, if temps at the meter match the temps at the LDZ input point. Creates a new source of UIG for sites with non-standard CF.	the year (i.e. no change) but no longer a cause of UIG	billing. Estimated energy impact is removed from UIG and billed separately
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- Gemini or Upstream Transporter Systems impact
- Major Scale of Impacts
- UNC Mod Change Proposal, Changes to Transporter pricing to recover/distribute any gains/losses
- Possible third party impacts to Transporter systems/processes.

Mark Bellman (MB) thanked FC and said the analysis and options were very helpful and provided a good starting point to aid further discussions of what options might be feasible and worth exploring in more depth, and it showed which ones were not worth exploring further. MB added that clearly some of the options would need the next level of granularity to fully assess if they could be implemented, especially regarding the before and post cashout between D+1 and D+5, and he said that the post approach could be worthwhile.

Sallyann Blackett (SBI) said that she always preferred to assess like for like and her preference would be to correct off the LDZ,(Option 2) which she appreciated was hard, but if that was possible, it would make the calculations add up and would help with billing customers. and would go through settlement and confirm at D+5. FC said that this would create an unknown pot of energy, whether it would create change in volume – Physical volume eg: Warmer in the Summer and colder in the Winter reducing volume. SBI said that could be resolved by changing the volume and converting it into energy. FC said this would have to be measured in quality and quantity off the LDZ. LOS asked if some volumetrics could be provided to see how it could work, FC said it would require a methodology on loss and gain and LOS agreed it would be a big change.

Mark Palmer (MP) raised a concern in relation to offtakes, he said not all of them presently were correcting and this would require a change to go through allocations. FC said that if all the quantity was to be brought into the LDZ and if small sites used a specific conversion, it would give rise to a new source of UIG and cause the bills to increase. MP asked if there was a way to rule out some options in the first instance, to enable these to be quantified. FC said that some of the options were not an answer from an individual standalone aspect, as the most beneficial solution may be a mix of more than one of them. SBI and LOS said that a quantifying exercise needed to be undertaken to eliminate the options that were not suitable.

A lengthy discussion took place regarding temperature adjustments and conversion factors and MB said anything that undermined the correction factor was pointless and so that option should be discounted. FC said there would still be the standard correction factors, as per the usual NDM sample data, which addressed the warmer and cooler factors in the LDZ, i.e. over metering in the Summer and under metering in the Winter.

Phil Lucas (PL) asked what impacts have been identified from an Energy Balancing aspect and FC said the gas went into the LDZ with live conversions, where there would still be UIG positive in the Summer and negative in the Winter. PL said that clearly the Thermal Energy Regulations defined how these were applied and did it still adhere in this scenario? As he felt from an overall alignment perspective, there was a potential issue in relation to meter volumes and there could be a conflict. MB said this was a very valid comment and it needed more in-depth discussion, especially regarding the complexity and adherence to the Thermal Energy Regulations. SBI asked if there was possibly an option akin to the Shrinkage Factor Adjustment, as that would then be consistent with something that was already taking place, both MB and PL said that this would be worth exploring further as that would avoid any legality aspect. FC said that would still not remove the volatility and how it would be taken out of the allocation, where it would then become an extra charge to the Networks, and there was still the Winter and Summer fluctuations.

A further general discussion followed in relation to the percentages of UIG and the impacts of external factors. MB said there were different ways to assess UIG; for example; take a year and run the analysis, and temperature factors for example, together with the Dave Lander Wallace Report in 2014 requested by Ofgem, where the error of GB was assessed as a whole and LDZs. FC said based on the findings, UIG was in the region of 3% extra on a Winter day and 3% less on a Summer day. She added that this was not tied to any given day or time and so could not be associated or linked to certain issues or conversion factors.

LOS suggested in order to progress this area, she asked FC if the options could be re-categorised into areas that might be feasible with an associated timeline to allow the Workgroup to assess all the viable possibilities ahead of the next meeting on 28 July 2020. FC agreed to amend the options and she added that she would add in if the options were already aligned to the Thermal Energy Regulations and Energy Balancing.

**New Action 0603:** Xoserve (FC) to re-categorise the Options from feasible perspective and align them to the Thermal Energy Regulations and Energy Balancing.

**New Action 0604:** All to assess the Options Analysis Table in readiness for further discussion at the meeting on 28 July 2020 and to provide feedback directly to [Mark.Bellman@scottishpower.com](mailto:Mark.Bellman@scottishpower.com) and [fiona.cottam@xoserve.com](mailto:fiona.cottam@xoserve.com) by Monday 20 July 2020.

MB said that he and FC would produce a 1-page document to detail the Thermal Energy Regulations stipulations to assist the Workgroup in assessing the various option.

**New Action 0605:** ScottishPower (MB) and Xoserve (FC) to produce a 1 page summary of the Thermal Energy Regulations and where they are applied in the existing process.

## 2.2. Impacts on LDZs

As per item 2 encompassed in the Options provided by FC.

## 2.3. Allocation for Transporters

As per item 2 encompassed in the Options provided by FC.

#### 2.4. Adjusting allocation into Shippers

As per item 2 encompassed in the Options provided by FC.

### 3. Next Steps

LOS said her aspirations with regards to the next steps for the next meeting in July were:

- Review of the updated Options Analysis Table to include alignment to the Thermal Energy Regulations
- All to have reviewed the Options Analysis Table and have provided comments directly to FC and MB by Monday 20 July 2020 in readiness for further discussion at the meeting on 28 July 2020
- Potential Solutions/Options:
  - Review of Impacts on LDZs
  - Review of Allocation for Transporters
  - Review of Adjusting allocation into Shippers
- Development of Request

### 4. Any Other Business

None.

### 5. Diary Planning

Further details of planned meetings are available at: <https://www.gasgovernance.co.uk/events-calendar/month>

Workgroup meetings will take place as follows:

Time / Date	Paper Publication Deadline	Venue	Programme
10:30 Tuesday 28 July 2020	5pm Monday 20 July 2020	Via Teleconference	Review of the updated Options Analysis Table  Review of comments supplied from the Workgroup – Options Analysis Table  Potential Solutions/Options: AUG Weighting Factors, Impacts on LDZs Allocation for Transporters Adjusting allocation into Shippers.  Development of Request



			Workgroup Report
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**Action Table (as at 16 June 2020)**

Action Ref	Meeting Date	Minute Ref	Action	Owner	Status Update
0802	20/08/19	1.0	Scottish Power (MB) to engage with Ofgem Jon Dixon (JD) regarding the legality of a sharing type treatment in relation to the Gas (Thermal Energy) Regulations.	Scottish Power (MB)	Closed
0901	23/09/19	2.0	Xoserve to provide update on the meter temperature data exercise from the AUG Subcommittee.	Xoserve (FC)	Carried Forward
0201	25/02/20	2.2	DNV-GL (TP) and Dave Lander (DL) to liaise on the Wallace Report and provide any further information available from the study.	DNV-GL (TP) and Dave Lander (DL)	Closed
0202	25/02/20	3.0	All to review previously presented analysis including Xoserve's UIG Task Force findings and provide a view on the potential solutions/options at the May meeting.	All	Closed
0401	21/04/20	5.0	ScottishPower (MB) and Xoserve (FC) to discuss; AUG Weighting Factors, Impacts on LDZs, Allocation for Transporters and Adjusting allocation into Shippers.	ScottishPower (MB) & Xoserve (FC)	Closed
0501	19/05/20	1.0	Joint Office (LOS) to seek an extension until October at the June Panel.	Joint Office (LOS)	Closed
0601	16/06/20	1.3	Xoserve (FC) to inform the new E Engage Consulting that all UIG related topics would be encompassed within the Distribution Workgroup from August 2020 onwards, following the formal closure of the UIG Workgroup.	Xoserve (FC)	Pending
0602	16/06/20	1.3	Xoserve (FC) to contact the new AUGE Engage Consulting in reference to the Wallace Report findings; the gas and water-cooling properties.	Xoserve (FC)	Pending
0603	16/06/20	2.0	Xoserve (FC) to re-categorise the Options from feasible perspective and align them to the Thermal Energy Regulations and Energy Balancing.	Xoserve (FC)	Pending

**Action Table (as at 16 June 2020)**

<b>Action Ref</b>	<b>Meeting Date</b>	<b>Minute Ref</b>	<b>Action</b>	<b>Owner</b>	<b>Status Update</b>
<b>0604</b>	16/06/20	2.0	All to assess the Options Analysis Table in readiness for further discussion at the meeting on 28 July 2020 and to provide feedback directly to <a href="mailto:Mark.Bellman@scottishpower.com">Mark.Bellman@scottishpower.com</a> and <a href="mailto:fiona.cottam@xoserve.com">fiona.cottam@xoserve.com</a> by Monday 20 July 2020.	All	<b>Pending</b>
<b>0605</b>	16/06/20	2.0	ScottishPower (MB) and Xoserve (FC) to produce a 1-page summary of the Thermal Energy Regulations and where they are applied in the existing process.	ScottishPower (MB) and Xoserve (FC)	<b>Pending</b>