Joint Office of Gas Transporters

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Demand Estimation Sub-Committee Minutes
Monday 10 February 2020
Radcliffe House, Blenheim Court, Warwick Road, Solihull B91 2AA

Attendees

Loraine O'Shaughnessy (Chair)	(LOS)	Joint Office	
Kully Jones (Secretary)	(KJ)	Joint Office	
Shipper Member			
John Jones*	(JJ)	Scottish Power	Voting Member
Louise Hellyer*	(LH)	Total Gas & Power	Voting Member
Mark Jones*	(MJ)	SSE	Voting Member
Sarah Palmer	(SP)	E.ON	Voting Member - alternate
Zoe Ireland*	(ZI)	British Gas	Voting Member
Transporter Member			
David Mitchell*	(DM)	SGN	Voting Member
Paul O'Toole	(PO'T)	Northern Gas Networks	Voting Member - alternate
Sanjeev Loi	(GD)	Cadent	Voting Member
Xoserve Representatives			
Fiona Cottam	(FC)	Xoserve	Non-Voting (agenda item 9.1)
James Hallam-Jones	(JHJ)	Xoserve	Non-Voting (agenda item 5.0)
Joseph Lloyd	(JL)	Xoserve	Non-Voting
Mark Perry	(MP)	Xoserve	Non-Voting
Mike Maguire	(MM)	Xoserve	Non-Voting
Observer			
Irina Bertrand	(IB)	Brook Green Supply	Non-Voting – joined late
Jason Blackmore	(JB)	Observer	Non-Voting
Mark Palmer*	(MPa)	Orsted	Non-Voting
Nicky White	(NW)	Npower	Non-Voting
Shiv Singh*	(SS)	Cadent	Non-Voting
Apologies			
Anupa Purewal	(AP)	E.ON	Voting Member
Emma Buckton	(EB)	Northern Gas Networks	Voting Member

Copies of papers are available at: http://www.gasgovernance.co.uk/DESC/100220

1. **Introduction and Status Review**

Loraine O'Shaughnessy (LOS) welcomed everyone to the meeting and confirmed the meeting was quorate. In particular, she welcomed Zoe Ireland from British Gas as a Shipper Member replacing Jason Blackmore and Sanjeev Loi (SL) as a Transporter Member replacing Guv Dosanjh as the Cadent representative. LOS advised that Jason Blackmore had provided a late paper under 9.1 and asked members to confirm that they were happy for this to be presented which members agreed.

1.1. Apologies for Absence

Please refer to the above table.

1.2. Note of Alternates

Sarah Palmer for Anupa Purewal.
Paul O'Toole for Emma Buckton

1.3. Approval of Minutes (09 December 2020)

The minutes from the previous DESC meetings were approved.

1.4. Review of Actions Outstanding

There were no outstanding actions.

2. Seasonal Normal Review 2020 Update

Mike Maguire (MM) provided a walkthrough of the presentation titled *Seasonal Normal Review 2020 Update* providing a recap of the Seasonal Normal Review activities, results of 2019 modelling using the new weather basis and an overview of modelling activities to be completed during 2020.

MM introduced his presentation by confirming the objectives and providing a recap of the main DESC obligations delivered in 2019. These included the introduction of Solar Radiation, optimisation of the parameters in the revised Composite Weather Variable (CWV) formula leading to approval of the revised formula and parameters at the 07 October meeting. In addition, DESC approved at the 09 December 2019 meeting the new Seasonal Normal Composite Weather Variable (SNCWV) to be used from 01 October 2020. A document detailing 2019 work is published on the secure section of Xoserve's website 'UKLink Docs' (Folder: 18.NDM Profiling and Capacity Estimation Algorithms > 2020-21 Gas Year > 5. Seasonal Normal 2020 > Seasonal Normal Review 2020.pdf)

MM briefly explained the approach to the analysis to consider the indicative impacts of the new CWVs and SNCWVs. He highlighted that Xoserve have refreshed the 2019 Gas demand EUC Modelling using 3 individual years 2016/17, 2017/18 and 2018/19 and then followed this with Demand Model Smoothing to derive a set of Annual Load Profiles (ALPs), Daily Adjustment Factors (DAFs) and Peak Load Factors (PLFs).

Modelling results to show the movement as a result of the change in weather basis were shared (slides 6-8) for R-Squared values, EUC ratios and Peak Load Factors. MM emphasised that the re-run of the Gas Demand EUC Modelling using the latest view of CWV and SNCWVs was mainly to obtain indicative movement in some of the key calculations which use the Demand Estimation Gas Demand Profiles. The 'real' values will be produced once the 2020 Gas Demand EUC Modelling is completed. He reiterated that the indicative 2019 results suggest there will not be significant changes in AQs and SOQs as a result of the change approved by DESC as part of the 2020 Seasonal Normal Review. In addition, any movement in AQs and SOQs due to normal changes in consumption for reasons such as conservation is not included.

MM concluded his presentation by outlining the next steps for Q1, Q2 and Q3 2020 (slide 10).

The following comments/observations were made by DESC:

    a. Zoe Ireland (ZI) asked if the AQ ratios are signed-off. Mark Perry (MP) indicated that there is no requirement for the committee to approve AQ Ratios. Louise Hellyer (LH) suggested that it would be helpful if DESC could demonstrate that checking/validation

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has occurred. Some participants expressed concern about the timing and questioned whether an update in July was too late. MP stated that the July timing is necessary because the models are reviewed at the beginning of June and industry have until mid-July to approve them. He added that June is the earliest time when the ALPs and DAFs will be available and acknowledged that a more detailed explanation of the calculations to reassure industry is needed.

New Action 0201: CDSP (MM) to provide more information and detail on the calculations in relation to AQ Ratios including the checks undertaken as part of the update on Seasonal Normal Review at the 06 July meeting.

b. MP summarised that the majority of the work on Seasonal Normal was carried out in 2019 and 2020 is mostly about updates and ensuring that systems are in place for implementing decisions. He highlighted the need to raise awareness with industry and reminded the committee that Xoserve have their regular communications and asked if DESC had any further suggestions for appropriate forums that could be contacted. LH suggested that awareness is raised with the Performance Assurance Committee.

New Action 0202: CDSP (MM/MP) to provide an update to the Performance Assurance Committee (PAC) of the DESC work on Seasonal Normal Review.

3. **Modelling Approach – Spring 2020**

Joseph Lloyd (JL) provided a walkthrough of the presentation titled 'Modelling Approach 2020'. He introduced his presentation by providing an overview of the background and modelling approach. He reminded the Committee that for each Gas Year, DESC are required to develop or revise the definitions of the EUCs for the LDZ and the Gas Demand Models for each EUC. The annual process for determining the EUCs and Gas Demand Models for the following gas year begins with the production of a Modelling Approach document which was published on the Joint Office website on 20 January 2020. He added that formal approval of the Modelling Approach is required at the meeting. DESC's Technical Workgroup (TWG) have also had an opportunity to review and comment on the document.

JLthen provided a brief overview of slide 4 showing the EUC and Demand Model Lifecycle he highlighted that the yellow circles in the boxes indicate DESC/DESCTWG checkpoints and/or industry consultation

In terms of timescales he confirmed that collation and validation of Daily Gas Consumption data for the most recent winter period cannot start until early April. The Final EUCs and Gas Demand Profiles must be approved and submitted to the Authority and loaded to CDSP's systems by 15 August. Between April and August the Daily Gas Consumption Data validation results are reviewed, WAR Band ratios are set, End User Categories (EUCs) are defined, Gas Demand EUC Modelling is performed and reviewed, Demand Model Smoothing is applied, draft Gas Demand Profiles are produced and reviewed. There is also an industry Consultation in early June.

JL then took the Committee through the Modelling Approach for 2020 (slides 8-10) stating that Gemini and SAP-ISU systems need to be updated with ALPs and DAFs which will be impacted by the change to CWV (to include Solar Radiation and new optimised parameters) and SNCWV. He added that the Central Data Services Provider (CDSP) will be using new a platform/software to perform the end to end Gas Demand EUC Modelling Process. He also reminded DESC members that there is still an opportunity for industry to shape some of the output from the May TWG meeting and June publication of modelling output information.

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JL indicated that in February 'Back Runs' for this year's process will be done using the new system which is designed to provide more flexibility and more static information. Handling and processing of daily gas consumption data and daily weather data is not in scope of this year's implementation.

JL highlighted that the layout of the modelling approach document for 2020 has changed as well as standardisation of the language/naming to make it easier for industry to understand the process.

In terms of daily gas consumption data, JL highlighted the importance of this data to the production of the gas demand profiles. He reminded DESC members that the data sources include sampling managed by Xoserve and the Distribution Networks and also from Shippers. He emphasised the need to have data in relation to Pre-Payment Meter Points.

Jason Blackmore (JB) suggested that he could provide more details in relation to validation checks as part of the Stratification approach introduced and adopted in 2019.

New Action 0203: Jason Blackmore (JB) to provide more information on a formal validation check of the Stratification approach for EUC Bands 01 and 02 for discussion at the April meeting.

JL confirmed that the CWVs used will be those approved by DESC on 07 October 2019 and the SNCWs will be those approved on 09 December 2019. The weather stations will be the same except for Yeovilton which will be used for LDZ SW and Durham will be used for the solar radiation data for LDZ NO.

There will be 39 EUCs used per LDZ in the analysis. The analysis will assess the impacts of:

- Warm Weather in order to identify those models which exhibit 'Summer Reductions' and / or 'Cut-Offs'
- Weekend and Holiday effects
- Holiday Code rules are set out in Appendix 5 of the Modelling Approach 2020 document

Results of the Gas Demand EUC Modelling will be available for review and approval at the 18 May DESC Technical Workgroup meeting.

JL reminded DESC that consideration is still needed in relation to whether or not to apply 'Uplift Factors' in order to influence UIG. He added that the uplift has only applied to DAFs this year. LH expressed concern stating that the uplift factor had been implemented to improve the algorithm formula and did not think it was sensible to apply it at the same time as implementing other adjustments.

JB asked if any analysis will be performed on the revised CWV when considering the UiG simulation work which will be done on Gas Year 2019/20 for DESC to review. In response, MP confirmed that Xoserve will consider what analysis could be carried out.

MP added that the previous analysis on the calculation of uplifts was undertaken by a DESC member and asked if this was needed again. There was general agreement that the uplift analysis was no longer required.

JL asked DESC members to review the membership information for the Technical Workgroup on the Joint Office website to ensure it is correct as this will ensure that correspondence during the modelling period (April to July) reaches the correct member.

New Action 0204: DESC members (all) to review the DESC Technical Workgroup membership on the Joint Office website (https://www.gasgovernance.co.uk/DESC/TWGRepresentatives) to ensure it is correct and notify Joint Office of any changes that need to be made.

JL concluded his presentation by asking DESC members to approve the 2020 Modelling Approach.

LOS requested voting members to confirm if they were in agreement to the Modelling Approach.

DESC Members approved the 2020 Modelling Approach.

4.   **NDM Sample Update**

MP provided an update on the NDM sample data focussing on the consumer data needed in order to produce all of the required EUC demand models and some of the data issues that have been encountered in relation to third party data submissions.

MP reminded DESC members that Modification 0654S - Mandating the provision of NDM sample data implemented on 01 March 2019 placed a requirement on Shippers with a portfolio of >25k to submit Daily Gas Consumption Data to Xoserve to support Demand Estimation processes. The data is used to develop gas demand EUC models and assess the performance of the gas demand profiles for the most recent year. He emphasised that any issues with daily gas consumption data should not be the reason for any inevitable imperfections in the modelling approach.

In terms of the sample size, he stated that realistically Xoserve will be short of data in all areas and particularly in relation to pre-payment and domestic data for all LDZs. He added that no pre-payment data has been received and made a request to Shippers to help support submission of this data.
He further added that the data quality from third parties is also poor in general making it unusable and so ultimately these data errors need to be removed.

MP then explained some of the more common data errors in detail:

Incorrect Daily Volumes

MP explained the most common issue is in relation to the day of the week where the volume received does not correctly reflect the volume consumed for the stated read date. The daily volume should be provided against the meter read date.

Another data error is in relation to the grouping of multiple days to provide an aggregate consumption against a single day. This provides an unrealistic consumption.

Other errors are in relation to smart meter reads provided a few minutes either side of midnight and incorrect market sector codes on UK Link.

MP encouraged Shippers to undertake more data cleansing before submitting reads. He also indicated that Xoserve contact Shippers who have submitted incorrect meter reads to raise awareness as well as raising awareness with DESC members.

Negative volume and volume spikes

MP reported that Xoserve regularly receive daily volumes that are less than zero when they should be positive and also observe a significant number of daily spike volumes, for example with erroneous daily volumes of 999,999 which are most likely to have been caused following a meter exchange.

He concluded this section by asking DESC members to help their organisations to perform checks on their daily gas consumption data before submitting to Xoserve.

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A brief discussion took place on what checks are required. MP indicated that the file format is key as well as addressing the aggregate consumption issue as missing data is preferred than aggregated date for a single day as this is misleading.

Sarah Palmer (SP) suggested that it would be helpful to have guidelines on how to address these data issues.

New Action 0205: CDSP (MP) to consider the development of guidelines for Shippers to address data quality issues.

In relation, to the file format, MP stated that DESC agreed a change to the file format to allow for 2 decimal places in uncorrected and corrected volume and that approval of this change is currently going through the DSC Change process.

In terms of the Xoserve managed daily gas consumption data, MP indicated that the numbers are being impacted by the rollout of SMART meters. The sample size is reducing for 2020 and 2021 to less than 2000. In addition, he highlighted an issue in relation to the 5 year guaranteed battery life which will be passed from September 2020 onwards. He indicated that a decision needs to be taken on whether to undertake a wholesale replacement exercise for all the batteries or as and when needed. He said that a low battery indicator exists. Whilst no formal vote was required, the general consensus supported Xoserve's view that it did not seem viable to replace all batteries at this stage but on a as need basis.

JB asked what the long-term solution was whether it was Class 3 data or 3rd party supplier data. He acknowledged that improvements on the quality of data were needed.

MP concluded his presentation by saying that Simon Bissett is the lead for this work and any queries or suggestions for data improvement should be directed to him.

5. **Update on Machine Learning**

James Hallam-Jones (JHJ) joined the meeting to provide a verbal update on progress of the work on machine learning algorithms by the UIG Task Force.

He reported that work is now complete on:

- Demonstrating whether the benefits of Machine Learning extend beyond EUC01 to other EUCs: only EUC2 shows a material improvement from Machine Learning, the higher EUCs perform similarly to the current NDM model.
- Investigating the potential impact of physical losses from the system on daily UIG volatility: minimal impacts identified
- Demonstrating that the Machine Learning algorithm maintains its performance advantage over the current NDM algorithm in more recent gas years: ML algorithms consistently outperform the existing NDM algorithm on both base UIG and volatility measures
- UIG forecasting model has been developed, but it is only possible to forecast 24 hours ahead, and even then, with limited accuracy. The prediction has been developed using both linear regression and advanced AI based modelling, but with similar results for each method.

The final outputs from the analytics partner will be translated into a format DESC are familiar with for discussion and shared with the wider industry in the same way as the findings from the first phase of the project.

JHJ agreed to provide a further update at the next meeting. He added that material is being published on the UIG page and released as it becomes available (http://www.xoserve.com/uig).

6. Ad-hoc Work Plan

MP stated that this is a standard agenda item that allows for any new items arising from the meeting to be added to the workplan.

He reminded DESC members that the UNC Transportation Principal Document - Section H Demand Estimation and Demand Forecasting at Paragraph 2.2.2 requires DESC to review the operation of the NDM Algorithm formula every 3 years. He suggested that DESC consider adding to the workplan a requirement to look at the outputs from the machine learning (neural network) project as a valid option for taking forward work on non-daily metered (NDM).

He asked DESC members to consider the Section H requirement in terms of what it should be and how you DESC would approach it.

> **New Action 0206:** DESC members (all) to review the UNC Section H requirement at paragraph 2.2.2 and consider the approach to this work

JB suggested that it would be a big shift to move to neural network approach and that this may negatively impact some Shippers who are not equipped to do it.

7. DESC Related Modification/Change Updates

MP provided a brief update on the DSC Change Proposal XRN 4772 - *Composite Weather Variable (CWV) Improvements,* indicating that it is on track to go 'live' in June 2020.

8. Communication of Key Messages

A summary of the key messages agreed during the meeting are published separately and can be accessed here: http://www.gasgovernance.co.uk/desc/summarykeymessages**.**

9. Any Other Business

9.1. Dashboard - Levels of Total Unidentified Gas

JB provided a paper for discussion in relation to a new dashboard which has been created to support industry and DESC analysis of Unidentified Gas.

The dashboard currently provides information on the following:

- The latest prevailing view of UIG for the current day
- LDZ detail for the current day
- A history and forecast of UIG across the LDZs
- A detailed table of total UIG nationally and across the LDZs for the current day

The dashboard is available at https://www.gasanalytics.co.uk.

JB indicated that the dashboard is in development and welcomed any comments or views on how to improve the dashboard.

Fiona Cottam (FC) was also interested in DESC views stating that Xoserve as part of the work on the UIG Task Force currently publish details of daily UIG levels once a week. She acknowledged that once a week was not ideal.

10. Diary Planning for 2020

LOS asked Committee members to note that the 18 May 2020 meeting start time has been updated from 9:30 to 10:00 which is the normal start time for DESC meetings.

MP informed members that because of the timing of the analysis it will not be possible to provide papers for the April meeting 5 working days before the meeting and papers will be provided by 23 April 2020. This was acknowledged and agreed by DESC members.

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

Time / Date	Venue	Workgroup Programme
10:00 Monday 27 April 2020 Papers will be published on 23 April 2020 as agreed by DESC	Radcliffe House, Blenheim Court, Warwick Road, Solihull B91 2AA	Standard agenda, plus • Modelling Analysis 2020 – Data Validation and Model composition
10:00 Monday 18 May 2020 (please note that this date has changed from 19 May)	Radcliffe House, Blenheim Court, Warwick Road, Solihull B91 2AA	Standard agenda, plus • Review progress on Single Year Modelling Results (2019/20 data)
10:00 Monday 06 July 2020	Radcliffe House, Blenheim Court, Warwick Road, Solihull B91 2AA	Standard agenda, plus • 2020/21 NDM Algorithms: Review TWG responses • Seasonal Normal Review update (including update on action 0201)
10:00 Wednesday 22 July 2020	Radcliffe House, Blenheim Court, Warwick Road, Solihull B91 2AA	Standard agenda, plus • 2020/21 NDM Algorithms: • Response to Industry Representations • Weather Station Review • Review Adhoc Workplan • Seasonal Normal Review Update
10:00 Monday 05 October 2020	Radcliffe House, Blenheim Court, Warwick Road, Solihull B91 2AA	Standard agenda, plus • NDM Sample Update • Seasonal Normal Review Update •
10:00 Monday 07 December 2020	Radcliffe House, Blenheim Court, Warwick Road, Solihull B91 2AA	Standard agenda, plus • Evaluation of Algorithm Performance for Gas Year 2019/20 • Modelling Approach – Spring 2021

Joint Office of Gas Transporters
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Action Table (as at 10 February 2020)

Action Ref	Meeting Date	Minute Ref	Action	Owner	Status Update
1201	09/12/19	2.1	CDSP (MM) to undertake some analysis to show a comparison view of the annual degree day chart using existing CWV and SNCWV values by LDZ level. Xoserve (MM) to undertake some analysis to show a comparison view of the annual degree day chart using existing CWV and SNCWV values by LDZ level.	CDSP(MM)	**Closed**
0201	10/02/20	2.0	CDSP (MM) to provide more information and detail on the calculations in relation to AQ Ratios including the checks undertaken as part of the update on Seasonal Normal Review at the 06 July meeting.	CDSP(MM)	**Pending**
0202	10/02/20	2.0	CDSP (MM/MP) to provide an update to the Performance Assurance Committee (PAC) of the DESC work on Seasonal Normal Review.	CDSP (MM/MP)	**Pending**
0203	10/02/20	3.0	Jason Blackmore (JB) to provide more information on a formal validation check of the Stratification approach for EUC Bands 01 and 02 for discussion at the April meeting.	Jason Blackmore (JB)	**Pending**
0204	10/02/20	3.0	DESC members (all) to review the DESC Technical Workgroup membership on the Joint Office website (https://www.gasgovernance.co.uk/DESC/TWGRepresentatives) to ensure it is correct and notify Joint Office of any changes that need to be made.	DESC members (ALL)	**Pending**
0205	10/02/20	4.0	CDSP (MP) to consider the development of guidelines for Shippers to increase data quality issues.	CDSP (MP)	**Pending**
0206	10/02/20	6.0	DESC members (all) to review the UNC Section H requirement at paragraph 2.2.2 and consider the approach to this work	DESC members (ALL)	**Pending**