

## Demand Estimation Sub-Committee Minutes

Monday 07 October 2019

at Radcliffe House, Blenheim Court, Warwick Road, Solihull B91 2AA

### Attendees

Alan Raper (Chair)	(CS)	Joint Office
Loraine O'Shaughnessy	(LO)	Joint Office
Helen Bennett (Secretary)	(HB)	Joint Office

### Shipper Member

Anupa Purewal	(AP)	E.ON	Voting Member
Jason Blackmore	(JB)	British Gas	Voting Member
John Jones	(JJ)	Scottish Power	Voting Member
Louise Hellyer	(LH)	Total Gas & Power	Voting Member
Mark Jones*	(MJ)	SSE	Voting Member

### Transporter Member

Guv Dosanjh*	(GD)	Cadent	Voting Member
Emma Buckton*	(EB)	Northern Gas Networks	Voting Member
Smitha Coughlan*	(SC)	Wales & West Utilities	Voting Member

### Xoserve Representatives

James Hallam-Jones	(JHJ)	Xoserve	Non-Voting
Mark Perry	(MP)	Xoserve	Non-Voting + Alternate for SGN
Mike Maguire	(MM)	Xoserve	Non-Voting
Simon Bissett	(SB)	Xoserve	Non-Voting

### Observer

Fiona Speake	(FS)	npower	Non-Voting
Josh Mallett	(JM)	npower	Non-Voting
Sarah Palmer	(SP)	E.ON	Non-Voting

### Apologies

Dave Mitchell	(DM)	Scotia Gas Networks	Voting Member
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\*via teleconference

Copies of papers are available at: <http://www.gasgovernance.co.uk/DESC/071019>

## 1. Introduction and Status Review

AR welcomed everyone to the meeting and confirmed the meeting.

### 1.1. Apologies for Absence

Please refer to the above table.

### 1.2. Note of Alternates

Xoserve for David Mitchell

### 1.3. Approval of Minutes (22 July 2019)

The minutes from the previous DESC meetings were approved.

#### 1.4. Review of Outstanding Actions

None outstanding.

## 2. Seasonal Normal Review

### 2.1. Review of Composite Weather Variable Optimisation

Mark Perry (MP) presented a review of Composite Weather Variable (CWV) Optimisation presentation and introduced Mike Maguire as a new member to the Demand Estimation Team at Xoserve.

He confirmed that the main objective for the meeting would be for members to consider the recommendations for the revised CWV parameters and provide approval for their use from 01 October 2020.

MP went on to remind the Committee of the high-level approach and work plan for performing this analysis that was approved by DESC at the 10 December 2018 meeting:

- **01 April 2019:** DESC decided to consider a revision to the existing CWV formula and confirmed the template for its 'benchmark' results.
- **01 April 2019:** DESC decided to revise the existing SNCWV.
- **08 July 2019:** DESC defined the proposed CWV formula for the next period.

#### Next Steps:

- **07 October 2019:** DESC to confirm the parameters for use in the proposed CWV formula for Gas Year 2020/21
- **09 December 2019:** DESC to confirm the revised SNCWV values

MP continued and described how DESC had approved CWV formula definition for Gas Year 2020/21 and advised that the CWV formula had now been updated to include a term for Solar radiation and precipitation with the aim to improve accuracy of the formula for predicting demand.

MP went on to present DESC with the proposed set of optimised parameters for each LDZ for use in the new formula. The results included comparisons to the existing parameters in order to prove that an improvement has been found on average across the number of years analysed.

MP advised the Committee that the tool Jason Blackmore had devised provided a new method of processing solar data and calculating the Seasonal Normal Effective Solar (SNES) terms and with the addition of a "solver tool" the model can be used finds the best combinations of parameters in order to reduce the overall error.

MP provided a reminder of the weather stations that have been used in the analysis and advised that as Filton has closed down, Yeovilton is now being formally used.

In conclusion, MP advised that Xoserve have been working closely with Jason Blackmore by providing a supportive role and revalidating the calculations.

Jason Blackmore (JB) then provided an update on the analysis for the CWV 2020 parameters and explained that members had a teleconference a few weeks ago in order to familiarise themselves with the information being presented.

JB went through a number of analysis slides selected from his presentation which provided DESC with clarification on the new CWV parameters. All analysis can be found in the presentation provided for the meeting.

He provided further clarification on the following points:

- In terms of the solar effect on demand Solar Radiance Effect – on a bright day this gives a warmer CWV.
- The solar effect, measuring the radiance of brightness into the home, is a significant measure in the warmer months.

- The parameter terms - rainfall is a parameter – allowed the parameters to change across the LDZs. He advised that there had been a recent change made regarding the LDZ Wales North where the maximum CWV was a little out of line with the other LDZs, this was amended to show more similar numbers.
- The Durham Weather station is new.
- The SNES includes Friday to Sunday.

Anupa Purewal (AP) asked for clarification that CWV as to why is only reviewed every 5 years, MP confirmed the reason it is every 5 years is for stability. He also confirmed that any parameters that require further investigation over the next 5 years, the industry would need to decide if it wanted to revise the CWV which would need to be put forward as a proposal.

JB added that rainfall could be looked at next year in the hope of getting a set of parameters and suggested looking at incorporating Friday, Saturday and Sunday, confirming that the optimisation tool could be set to include the extra days.

MP showed the proposed 2020 Parameters on slide 14 and advised the table represents the final set of CWV parameters which have been optimised against NDM demand and weather data for Gas Years 2010/11 to 2017/18. This table is what DESC will vote on.

### Approval

DESC were asked to vote to approve the new parameters and for Xoserve to continue with their work on the Seasonal Normal Review process.

All DESC members present agreed and approved the approach. The vote was passed unanimously.
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MP will provide the values of the SNET and SNES on the Xoserve secure area and will inform DESC once they are available.

### 2.2. Approach to Seasonal Normal Basis (SNCWV)

MP provided the Committee with a reminder of DESC's UNC Section H obligations, in terms of advising the UNCC on re-calculations of Seasonal Normal CWV.

Talking through the Seasonal Normal Composite Weather Variable (SNCWV) Data Requirements, slide 8, MP explained that many of the weather stations history for solar is incomplete but a complete set of hourly observations for Temperature and Wind Speed for the period 1960 to 2018/19 is available.

The main milestone to deliver a revised set of SNCWVs for DESC to vote upon is planned for the December DESC meeting.

Mike Maguire (MM) described the Solar Radiation Infill slide (9), advising one of the results for the methodology explained the years where there is no data, or days where there is short periods of missing data, Xoserve are currently working on an approach to infill this missing data using a combination of interpolation and the seasonal normal profile.

MM went on to talk through the proposed approach for SNCWV explaining that it is the intention to follow a similar approach to that used in 2014 but using a different set of increments from the future projections.

In addition to this, a decision will be needed as to how to 'rebase' the subsequent Gas years since the last calculation.

Xoserve are currently preparing a detailed methodology.

<b>New Action 1001:</b> Joint Office to add agenda item to UNCC meeting on 17 October 2019.
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MP confirmed the document for the methodology for the infill will be sent out for review in the next couple of weeks and will be followed up with a teleconference.

MM explained the next steps for this process:

Proposed approach for setting SNCWV:

- Prepare a draft methodology for deriving the SNCWV, including reference to an infill methodology for Solar Radiation
- Confirming DESC approval for methodology  
*Post meeting update: An adhoc teleconference has been arranged for Tuesday 05 November.*
- Application of methodology and calculation of revised SNCWVs for each LDZ
- DESC approval of SNCWVs – proposed for DESC (9th December meeting)
- UNCC approval for DESCs approach to the review

### 3. NDM Sample Update

Simon Bissett (SB) provided an NDM Sample Update and confirmed that Xoserve are currently in the Model Performance stage. (Reference slide 2) and described how this work feeds through into developing the Model Principles.

The objective of this piece of work is to review current NDM Sample numbers against the ideal target number for each EUC and LDZ combination and to identify any actions that may be required in order to boost the NDM Sample in readiness for the Autumn 2019 Algorithm Performance analysis which is due to be presented at the December 2019 DESC meeting.

In conclusion, SB advised that current sample numbers for large sites meets the target sized for most LDZs. Additional sample data will be required to improve the analysis of the demand model performance during Gas Year 2018/19, in particular Domestic; PrePayment and LDZs WN and WS across all EUC bands.

A request was made for Shippers to please provide sample data for the period Gas Year 2019/19.

The next steps for this process are:

- Processing the NDM Sample Data
  - Collating and validating sample data covering gas year 2018/19
- Evaluating the Algorithm Performance along a number of strands
  - Strand 1 – Weather Analysis
  - Strand 2 – Unidentified Gas Analysis
  - Strand 3 – NDM Daily Demand Analysis (using validated sample data collected for gas year 2018/19)

### 4. Update on Machine Learning

James Hallam-Jones provided a Machine Learning update and advised Xoserve are starting the third phase of UIG advanced analytics, focussing on three overall outcomes:

#### 1. UIG Volatility at Allocation

Xoserve are taking two approaches:

- Firstly, Xoserve are refocussing the machine learning algorithms to target volatility reduction over base UIG reduction, to see whether the current inputs that the Machine Learning models are using can be used to reduce volatility. Also, Xoserve are including some new data items in the model to try and improve the prediction.
- Secondly, Xoserve are investigating to see if the physical properties of gas and the network cause a disconnect between the times that inputs and outputs are metered, and therefore contribute to day-on-day volatility.

## **2. UIG predictive model.**

Using the findings and tools developed to date, Xoserve are exploring the creation of a predictive model that could forecast UIG levels ahead of the day.

## **3. Demonstrating the full market benefit of Machine Learning based Allocation.**

The results to date are based on EUC 1 only. These activities scale the Machine Learning modelling across the wider market. Xoserve will use the outputs to inform the business and benefits case for change, bringing their customers on the journey and enabling them to make an informed decision on whether Machine Learning technology should be incorporated into the Demand Estimation processes and outputs.

This work is underway and should run until the end of the year. Xoserve will provide regular updates on the progress and outcomes of this work in their UIG executive summaries. Please email [uigtaskforce@xoserve.com](mailto:uigtaskforce@xoserve.com) or visit [www.xoserve.com/uig](http://www.xoserve.com/uig) if you would like to know more.

## **5. Agreement of Ad-hoc Work Plan**

This is a standing agenda item and should be titled 'Work Plan, this will be changed on the agenda for the next meeting.

MP advised Xoserve are currently testing a new demand estimation modelling system. Updates on this would be provided in due course.

## **6. DESC Related Modification/Change Updates**

MP provided an update on two Change Proposals that are currently being processed:

### **XRN4665 – Creation of New EUCs**

MP confirmed that this change had now new been implemented and for information Xoserve provided DESC with a breakdown of proportions of AQ for EUC Bands 1 and 2 for gas day 01 October 2019 that would fall into the new EUC sub-bands.

### **XRN4772 – CWV Improvements**

MP advised this Change Proposal is currently targeted for the June 20-20 release. Internal discussions are ongoing to confirm system requirements which can be accelerated once DESC confirm the parameters.

## **7. Communication of Key Messages**

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

## **8. Any Other Business**

None

## **9. Diary Planning**

### **Proposed 2020 dates:**

Monday 10 February 2020  
Monday 27 April 2020  
Tuesday 19 May 2020  
Wednesday 08 July 2020  
Wednesday 22 July 2020  
Monday 05 October 2020  
Monday 07 December 2020

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

Time / Date	Venue	Workgroup Programme
10.00 Tuesday 05 November 2019	Teleconference	Approval of the Seasonal Normal Composite Weather Variable (SNCWV) Methodology
10:00 Monday 09 December 2019	Radcliffe House, Blenheim Court, Warwick Road, Solihull B91 2AA	Standard agenda, plus <ul style="list-style-type: none"> <li>• Evaluation of Algorithm Performance for Gas Year 2018/19</li> <li>• Modelling Approach – Spring 2020</li> <li>• Seasonal Normal Review Update</li> <li>• Communication of Key Messages</li> </ul>

**DESC Action Table (as at 07 October 2019)**

Action Ref	Meeting Date	Minute Ref	Action	Owner	Status Update
1001	07/10/19		<p><b><i>Approach to Seasonal Normal Basis (SNCWV)</i></b></p> <p>Joint Office to add agenda item to UNCC meeting on 17 October 2019.</p>	Joint Office	<b>Pending</b>