# UNC Demand Estimation Sub-Committee Minutes
# Tuesday 15 February 2017
# Consort House, 6 Homer Road, Solihull B91 3QQ

## Attendees

| | | |
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| Helen Cuin (Chair) | (HCu) | Joint Office |
| Chris Shanley (Secretary) | (CS) | Joint Office |
| Andy Smith | (AS) | British Gas |
| Dean Pearson | (DP) | Northern Gas Networks (Alternate) |
| Fiona Cottam | (FC) | Xoserve |
| Fiona Speak | (FS) | RWE npower (Member) |
| Hilary Chapman | (HCh) | Scotia Gas Networks (Member) & (Alternate for NGGD) |
| Janet Coley | (JC) | National Grid NTS (Alternate) |
| Jason Blackmore | (JB) | British Gas (Member) |
| Mandeep Pangli | (MPa) | Xoserve |
| Mark Perry | (MP) | Xoserve |
| Martin Attwood | (MA) | Xoserve |
| Nigel Sisman | (NS) | Sisman Energy Consultancy |
| Robert Wigginton | (RW) | Wales & West Utilities (Member) |
| Sallyann Blackett | (SB) | E.ON UK (Member) |
| Tony Davey | (TD) | SSE (Member) |

## Apologies

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|---|---|---|
| Chris Warner | (CW) | National Grid Gas Distribution (Member) |
| Joanna Ferguson | (JF) | Northern Gas Networks (Member) |
| Phil Clough | (PC) | National Grid NTS (Member) |
| Dr Xiaolin Chen | (XC) | EDF Energy (Member) |

*Copies of papers are available at: http://www.gasgovernance.co.uk/DESC/150217*

## 1. Introduction

### 1.1 Note of Alternates

Dean Pearson for Joanna Ferguson (Northern Gas Networks)

Janet Coley for Phil Clough (National Grid NTS)

Hilary Chapman for Chris Warner (National Grid Distribution)

## 2. Review of Minutes (15 November 2016)

The minutes of the previous meeting were approved.

## 3. Evaluation of Algorithm Performance for Gas Year 2015/16
MA provided the Evaluation of Algorithm Performance 2015-16 and a presentation Summary of Algorithm Performance 2015-16. The presentation provided the NDM Sample Analysis for strand 3, which sought to compare the actual demand from the NDM sample data with allocated demand.

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The monthly consumption charts provided focused on the actual consumption measured against best estimates for 2015 and 2016.  In summary, the analysis suggested:

- The best estimate 2015 - bands 01, 02, 05, 06, 07 & 08; under allocation (+ve errors) in the winter and over allocation (-ve errors) in the summer. Profile too flat. For bands 03 and 04; over allocation (-ve errors) in the winter and under allocation (+ve errors) in the summer. Profile too peaky
- The best estimate 2016 - bands 02, 05, 06 & 07; under allocation (+ve errors) in the winter and over allocation (-ve errors) in the summer. Profile too flat.  For bands 01, 03, 04 and 08; over allocation (-ve errors) in the winter and under allocation (+ve errors) in the summer. Profile too peaky.

In conclusion, the NDM sample analysis may not be necessarily representative of the population as a whole.  The sample suffers from small numbers of contributing meter points at the higher consumption bands.

RW concluded that the results appeared good but enquired if there were any industry set tolerances to measure them against.  MA confirmed there were no tolerances but work could be undertaken to compare them to the previous 3 years.  SB explained that the summer and shoulder months are particularly difficult to get right and it doesn't have to be out far for it to have a significant cash-flow impact.  However, this is consistent and Shippers expect to have to use scaling factor forecasts over the summer.

NS enquired about customer behaviour changes coming from smart meters and whether there will be a need to adapt the algorithms or if shippers will have to take account of real demand. SB explained shippers will have to take into account behaviours when estimating Unidentified Gas.  She explained if shippers had every customer on a smart meter, took smart reads and moved all users to category 2, Shippers would still need to use an algorithm for forecasting what the Transporter will use to charge shippers and this may not necessarily be what customers have used.  Shippers can use information and assumptions where the algorithm may not be so good.  Shippers can also assume an over allocation and choose to input less gas into the system to account for changes.

FC enquired if shippers would make an assumption that non-smart meter customers will act in the same way as smart metered customers.  NS acknowledged the very virtue of having a smart meter may change people's behavior.  SB explained predicting customer behaviours is difficult.

4. **Adhoc Work Plan items: Summer Algorithm Performance**

MP provided the Review of Summer Modelling performance presentation, recapping the approach agreed in the November meeting.  DESC had concluded that they would like to see for EUC 01B revised ALPs and DAFs produced from models, which have different conditions around the Holidays and Summer Reduction tests

MP explained that three years of data (Summers 2011, 2012 and 2013) had been used to train the model.  RW asked what the trade-off of using 5 years of data rather than 3, and would 5 years make the models more reliable or more stable. SB explained that customers change and reactions to weather can be less sensitive.

MP then explained that three models would be compared to the 'baseline results' from the current approach and the same relevant source data is used in each. The three models were then provided for the committee to consider.

Model 1 – Holidays removed from Baseline Model

The presentation included charts of the 'GB WCF' for 2013 to 2016 to help members understand some context of the weather when reviewing the results.  A comparison of the regressions for the baseline model and model 1 was made, showing that the results were very similar.

MP also provided a table of the smoothed holiday factors for each LDZ and holiday codes and explained that the Smoothed Holiday Factors would result in an overall mean of 0.972,

a 3% reduction in allocation.  A number of graphs were then presented to illustrate the allocation results.

MP concluded that a change in approach would not provide a significant improvement for this Gas Year but some marginal improvements could be seen:

- For "All LDZs" for the 'Seasons' all 4 Gas Years show a marginal improvement
- For "All LDZs" for the 'Quarters', 14 of the 16 quarters showed a marginal improvement
- At an LDZ level, 2 of the 4 Gas Years showed a consistent improvement and the other 2 Gas Years revealed a more mixed picture of results
- Over the 4 years analysed it appears there may be some benefit in adopting this approach for 01B (excluding holidays) although improvements are not statistically significant.

Model 2 – Revised Summer Reductions

MP explained that Model 2 changed the way Summer Reductions tests are treated; the individual year test was halved from 5% to 2.5% and the smoothed year test was halved from 10% to 5%.

MP provided an overview of the results and summarised the conclusions as follows:

- For "All LDZs" for the 'Seasons' there were no gas years where both seasons showed an improvement
- For "All LDZs" for the 'Quarters', 9 of the 16 quarters showed a marginal improvement
- At an LDZ level some LDZs showed improvement in the July to September quarter for 2 of the Gas Years
- The change in tolerance for summer reductions did not affect 7 models for all 4 gas years
- Over the 4 years analysed it does not appear that this change on its own would bring significant benefits.

Model 3 – Combination of Models 1 and 2

MP explained that Model 3 was a combination of both models 1 and 2.  MP provided an overview of the results and summarised the conclusions as follows:

- For "All LDZs" for the 'Seasons' there were 2 gas years where both seasons showed an improvement
- For "All LDZs" for the 'Quarters', 14 of the 16 quarters showed a marginal improvement
- At an LDZ level, 2 of the 4 Gas Years showed a consistent improvement with the other 2 Gas Years revealing more of a mixed picture of results
- The change in tolerance for summer reductions did not affect 6 models for all 4 gas years
- Over the 4 years analysed it appears there may be some benefit in adopting this approach for 01B (excluding holidays) although improvements are not statistically significant (confirmed by a t-test).

Unidentified Gas (UG)

MPa provided an overview of the analysis and referred to the Supporting Document - Review of Summer Modelling Performance.  MPa explained there is a new concept of daily Unidentified Gas (UG) in the post Nexus regime and the analysis assesses the impact of using the alternative modelling approaches (models 1 and 3).

MPa concluded that although the results showed an improvement in UG, the difference was statistically insignificant (confirmed by a t-test).

RW suggested this might be another area where tolerances may help the industry

understand/measure what they would consider as good.

Load Factor Impacts

MP provided the analysis results for the Load Factors when using models 1 and 3. In summary the analysis showed that making either type of change would have an impact to 01B load factors:

- For model 1 - 7 LDZs did not have a change in load factor but for the 6 that did, 5 showed a decrease in load factor (4 of 0.1% and 1 of 0.4%). This would result in an increase in SOQ.
- For model 3 - 9 LDZs showed a change in their load factor and 6 of these showed an increase starting at 0.2% to 0.7%. This would result in a decrease in SOQ.

Conclusions and Recommendations

MP provided the overall conclusions as follows:

- The results for both the revised models allocation compared to the actual sample data do not reveal a difference that is statistically significant.
- The current Baseline approach is designed to produce models that are robust and stable.
- Lowering Summer Reduction thresholds for individual years / smoothing may introduce a risk that the models will 'flip-flop' between Summer Reduction and No Summer Reduction from one year to next.
- The aim of reducing volatility in the models and improving predictability remains a challenge
- Due to the overall results showing marginal differences, implementing a change to the modelling approach for 01B for producing models for Gas Year 2017/18 does not guarantee an improvement in performance.

MP provided a summary of the recommendations, highlighting that Xoserve would lean towards Model 1 but as the observed improvements are not statistically significant, one option could be to continue with modelling 'as-is'.

SB asked when the UNC DESC agreed to consider a regression based model approach post project Nexus implementation. FC suggested it may be within 3 years.

A decision from DESC on the analysis required to either continue with 'as - is' approach or use Model 1 or Model 3. Model 2 had already been discounted.

The committee discussed the 3 options.

JB enquired about the analysis excluding Christmas, to establish if there is a Christmas effect. He believed some further work could be done to improve the year-on-year variability for Summer Reductions. He acknowledged there were some marginal improvements and asked if model 3 was chosen would this allow further adaption. FC explained that this could not be done at this stage for 2017.

TD expressed concern about the impact of the cold 2015 summer on all models.

FS was concerned with the flip-flop effect with Model 3.

RW indicated he was inclined to stay with as-is but could be convinced to go with Model 3 if Shippers preferred it.

Further discussion was undertaken on the merits of Model 1; is marginally positive, wouldn't increase volatility and wouldn't change load factors significantly. Model 1 seemed to achieve the objectives of the analysis.

The Committee considered the models and voted by majority for Model 1 with 7 members out of 9 casting a vote for this model.

## 5. Spring 2017: Approach to Modelling

RW wished to understand the objective before Xoserve presented their findings.

MP explained the DESC would be required to make a decision on the principles for the methodology that is to be followed when completing the modelling process for the coming year. MP then provided the DESC Spring Approach 2017 Modelling presentation.

MP explained that the Spring Approach 2017 is required ultimately to deliver a set of derived factors for use from Gas Year 2017/18.

On 1st June 2017 the NDM Algorithm formula, which DESC are responsible for providing factors for, will have changed:

- Scaling Factor (SF) will no longer be needed
- Weather Correction Factor (WCF) will be based on weather variables, hence there is no longer a requirement to create a set of pseudo SNDs
- Daily Adjustment Factor (DAF) will no longer need aggregate NDM output.

MP highlighted that there has been a steep decline in the sample of NDM gas consumers, particularly as Smart Meters are replacing the AMR recording equipment. MP asked for Shipper support to help bolster the daily consumption data for 01B sites.

NS asked for views on the risk associated with a sample size of less than 200. FC explained that historically the sample size had been between 200 and 250 and the fewer numbers in the sample, the less representative the sample will be. This could then have an impact and make the model less accurate, which could lead to both an increase in scaling factors and the variability of unidentified gas.

The Shippers agreed to look at the possibility of providing data to bolster the sample.

**Action DESC 0201: To ensure the NDM sample size is more representative Shippers are to provide daily consumption for Domestic 01B sites (March 16 – March 17) for all LDZs except EA, EM, SO, WN. More details are available in the Third Party NDM Sample Data v4.0 at www.gasgovernance.co.uk/desc**

The committee considered the fall-back arrangements in the event the NDM proposal derived from the Spring 2017 analysis are rejected by DESC. The models from Spring 2016 would be used as the fall-back.

MP explained that the output of this work is an NDM Report summarising the process and model parameters (including the earlier decision with regards to model 1) and it can be obtained from Xoserve's secure SharePoint site (UK Link Documentation).

MP asked Shippers to consider their Technical Workgroup (TWG) Representatives to ensure they are the most appropriate contacts and are up to date with the phases of work that the TWG may need to conduct

All members approved the approach.

Post-meeting note: The final version of the Spring 2017: Approach to Modelling document has been published alongside the other documents for this meeting (17 February 2017).

## 6. Review DESC Terms of Reference

The committee considered the Draft DESC Terms of Reference

It was agreed to replace Xoserve with "the CDSP" and alter the text surrounding alternates to a process similar to that used for Panel alternates.

The committee also noted that there is no reference to iGT representatives and this ought to also be considered. It was noted that TPD Section H Section 1.11.3 stipulates up to 5 Transporters and up to 5 Users (Shippers) and any change in membership would require a UNC Modification. In the first instance, it was suggested the committee would need to consider the definition of Transporters and if this would include iGTs.

FC confirmed that Modification 0440 changed TPD Section H to include iGTs, separately.

FC also noted that the TOR may also need to be updated for Post Nexus.

RW also asked about the reference to the 1 in 20.

RW agreed to amend the DESC ToRs and issue to the committee via the JO for further comments/approval.

**7.    Review DESC Technical Workgroup Terms of Reference**

The DESC committee briefly reviewed the Draft DESC Technical Workgroup Terms of Reference and acknowledged that similar changes would be required.

RW agreed to amend the DESC TWG ToRs and issue to the committee via the JO for further comments/approval.

**Action DESC0202: WWW (RW) to update the DESC and DESC TWG TOR and provide an updated version for approval by members/representatives via email.**

**8.    Communication of Key Messages**

It was agreed that the following key messages should be communicated to all UNC parties:

- Agreement in relation to using model 1 (holidays removed from Baseline Model for EUC 01B) and any impacts on Load factors.

- To ensure the NDM sample size is more representative Shippers are asked to provide (where possible) daily consumption for Domestic 01B sites (March 16 – March 17) for all LDZs except EA, EM, SO, WN.  More details are available in the Third Party NDM Sample Data v4.0 at www.gasgovernance.co.uk/desc

HCu confirmed this would be added to the March Joint Office Newsletter and the quarterly UNCC update.

**9.    Review of Actions Outstanding**

**DESC 1101:**  DESC to review both the DESC's and the Technical Workgroup's Terms of Reference and identify the changes to be made in response to the requirements under the FGO arrangements and Modification 0565.  All comments to be provided to the Joint Office: enquiries@gasgovernance.co.uk prior to the next meeting (by 06 February 2017). **Update:** See item 5 and 7.  **Closed**

**10.    Any Other Business**

**10.1.    Updated Unidentified Gas Analysis**

MPa provided the DESC Unidentified Gas Analysis 1516 Full Year update, confirming the data used in the analysis, and the updated position.

MPa provided an overview of the results, concluding that on average, UG is more likely to be negative across the majority of LDZ's and it is most likely to be negative in the summer and positive in the winter.

NS asked about the cause of the uncertainty shown in some of the statistics (+/- 12%~). MA explained if there is an LDZ measurement error this can have an impact.

FC explained this is an estimate, and on some days UG will be negative, it can be volatile and shippers needs to be prepared for the volatility.

The committee considered the elements of UG such as theft of gas, unregistered sites and how Project Nexus will also have an impact.

FC explained Xoserve will be keeping a close eye on the reporting of UG and working closely with National Grid NTS who conduct the investigations into it.  NTS may need to consider the setting of a tolerance for what needs to be investigated.

RW enquired of the purpose of this reporting and FC explained that this was preparation for the regime post Nexus.

TD asked if there is a confidence interval by LDZ available. MPa agreed to look into the data and provide further analysis.

**Action DESC 0203: Xoserve to provide information of the Unidentified Gas Confidence intervals by LDZ.**

### 10.2. Modelling Processes

MP provided a presentation on the DESC Modelling Processes providing some background about the possibility of upgrading the modelling processes and systems.

MP highlighted that the current processes and systems have been in place for around 20 years and although they have successfully enabled Demand Estimation parameters to be produced for use in UK Link and Gemini, Xoserve has been exploring the possibility of upgrading the modelling processes and associated systems. MP felt the move towards a new UK Link solution and a new set of industry rules, suggested now seems the right time to be looking towards implementing a new system and processes.

MP provided an overview of the modelling process improvements captured to date. Xoserve welcomed feedback from DESC to help Xoserve to identify any further future requirements.

RW enquired about the budget for the work. FC confirmed a budget has not yet been put in place and this would be subject to a business case that has yet to be defined. MP confirmed this initiative was still at the information gathering stage and he will keep DESC informed of progress.

### 10.3. Demand Estimation FAQs page

MP confirmed that Xoserve are publishing a Frequently Asked Questions (FAQs) at: http://www.xoserve.com/index.php/demand-estimation-faqs

### 10.4. Post Nexus Parameters

MP provided an update on the DESC Post Nexus Parameters as a reminder of the ALPs, DAFs and WCF calculations and which ones to use pre and post 01 June 2017.

### 10.5. Presentation Material

HCu enquired about the provision of information and the level of detail covered in the meeting. The committee felt the level of detail presented in today's meeting was appropriate and felt it was useful that other supporting documents and appendices were also made available for review outside of the meeting.

### 10.6. Seasonal Normal

SB asked when will DESC need to start work on the Seasonal Norms and running of the associated tendering process.

FC explained that with the changes to the AQ Review process brought about by Nexus, DESC might need to start thinking soon about the approach to be used in the re-evaluation of Seasonal Normal calculations in 2019. The tendering approach would need to begin in late 2017 for 2018 implementation if the committee decided to undertake an update of the Climate Change Methodology.

The committee considered what work would need to be undertaken and what further analysis would be required following the implementation of Project Nexis for algorithms in 2017/2018.

It was agreed to table an item for discussion in July 2017.

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## 11. Diary Planning

*Further details of planned meetings are available at: [www.gasgovernance.co.uk/Diary](http://www.gasgovernance.co.uk/Diary)*

**DESC and DESC Technical Workgroup Meetings 2017**

| Time/Date | Venue | Meeting | Programme |
|---|---|---|---|
| 10:00, Wednesday 26 April 2017 | *Teleconference* | **DESC Technical Workgroup** | • Confirm modelling runs to take forward based on aggregations/WAR band definitions |
| 10:00, Wednesday 17 May 2017 | Consort House, 6 Homer Road, Solihull B91 3QQ | **DESC Technical Workgroup** | • Review single year modelling results and approve commencement to model smoothing |
| 10:00, Wednesday 12 July 2017 | Solihull *(venue to be confirmed)* | **DESC Technical Workgroup,** *followed by* **DESC** | • Review TWG and DESC responses to draft proposals<br>• Communication of Key Messages |
| 10:00, Wednesday 26 July 2017 | Solihull *(venue to be confirmed)* | **DESC** | • Review industry representations<br>• Agree Ad hoc work plan<br>• Current Weather Station review<br>• Seasonal Normal<br>• Communication of Key Messages |
| 10:00, Wednesday 15 November 2017 | Solihull *(venue to be confirmed)* | **DESC** | • Ad hoc analysis progress and NDM sample update<br>• Communication of Key Messages |
| 10:00, Monday 11 December 2017 | Solihull *(venue to be confirmed)* | **DESC** | • Evaluation of Algorithm Performance for GY 16/17<br>• Communication of Key Messages |

| DESC Action Table (as at 15 February 2017) | | | | | |
|---|---|---|---|---|---|
| **Action Ref** | **Meeting Date(s)** | **Minute Ref** | **Action** | **Owner** | **Status Update** |
| **DESC 1101** | 15/11/16 | 9.1 | DESC to review both the DESC's and the Technical Workgroup's Terms of Reference and identify the changes to be made in response to the requirements under the FGO arrangements and Modification 0565. All comments to be provided to the Joint Office: enquiries@gasgovernance.co.uk prior to the next meeting (by 06 February 2017).<br><br>(The DESC ToR and the Technical Workgroup ToR are located at: http://www.gasgovernance.co.uk/desc) | DESC Members | **Closed** |
| **DESC0201** | 15/02/17 | 5.0 | To ensure the NDM sample size is more representative Shippers are to provide daily consumption for Domestic 01B sites (March 16 – March 17) for all LDZs except EA, EM, SO, WN. | All Shippers | **Pending** |
| **DESC0202** | 15/02/17 | 7.0 | WWU (RW) to update the DESC and DESC TWG TOR and provide an updated version for approval by members/representatives via email. | WWU (RW) | **Pending** |
| **DESC0203** | 15/02/17 | 10.1 | Xoserve to provide information of the Unidentified Gas Confidence intervals by LDZ. | Xoserve (MPa) | **Pending** |