

# UNC Demand Estimation Sub-committee Technical Workgroup Minutes

Wednesday 15 January 2014

Consort House, 6 Homer Road, Solihull B91 3QQ

## Attendees

Helen Cuin (Chair)	(HC)	Joint Office
Lorna Dupont (Secretary)	(LD)	Joint Office
Christian Ivaha*	(CI)	British Gas
Duncan Bucknell*	(DB)	British Gas
Fiona Cottam	(FC)	Xoserve
James Hanks*	(JH)	EDF Energy
Joseph Lloyd	(JL)	Xoserve
Mandeep Pangli	(MPa)	Xoserve
Mark Perry	(MP)	Xoserve
Mo Rezvani	(MR)	SSE
Penny Rowland	(PR)	E.ON UK
Sallyann Blackett	(SB)	E.ON UK

\*via teleconference

Copies of papers are available at: [www.gasgovernance.co.uk/DESC/150114](http://www.gasgovernance.co.uk/DESC/150114)

## 1. Introduction

The meeting was declared quorate.

### 1.1. Apologies for absence

S Marland (National Grid NTS), C Thomson (Scotia Gas Networks), C Warner (National Grid Distribution), and R Pomroy (Wales & West Utilities).

### 1.2. Note of Alternates

FC (Xoserve) for S Marland (National Grid NTS), C Thomson (Scotia Gas Networks), C Warner (National Grid Distribution), and R Pomroy (Wales & West Utilities).

## 2. Status Review

### 2.1. Minutes

The minutes from the previous Technical Workgroup (27 November 2013) were approved.

### 2.2. Actions

**1101:** Xoserve to review old and new temperature/wind data and provide a view on the impact to CWV.

**Update:** JL provided a [Weather datasets analysis Spring 2014 modelling presentation](#). See 3.1, below. The DESC TWG agreed to provide a recommendation to DESC to use the Gas Industry weather data for the Spring 2014 analysis. **Complete.**

**1102:** Xoserve to provide a workplan with timelines to include an investigation, and a view on how long it would take to fill the gaps in historical weather data.

**Update:** MP reminded TWG that this action (along with 1101) was raised in order to address TWG's request to change the weather data source used in the Spring 2014 modelling. MP provided a draft workplan in response to Action DTW1102, and gave an overview of the predicted workload. He explained that the first phase of the CWV optimisation work needed to be completed in the first quarter of 2014 (but before this

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was started an approach needed to be agreed). The overall Seasonal Normal Review project (including the climate change methodology element) needs to be delivered by the end of December 2014 for October 2015. The other main work areas were Annual Algorithms, Ad hoc work (model smoothing, EUC definitions, etc), Xoserve's Desktop software transformations and support to the UK Link Replacement project. The Desktop transformation will require testing of processes to make sure they still operate correctly on upgraded desktop platform and that, for example, any existing macros still work.

MP explained a number of meetings with DESC and DESC TWG will be required to ensure the essential activities and interactions are all planned in to ensure complete coverage.

In addition to the very busy schedule for 2014, MP also highlighted the issues that would require addressing should a change of weather data used in the Spring 2014 modelling be implemented:

- The alternative weather data, derived from the Weather Station Substitution Methodology (WSSM) project, has an incomplete temperature and wind speed series back to 1960 and so requires an agreed approach for filling in the data;
- There is an outstanding issue with the Heathrow wind speed data. Dave Parker (EDF) had noted an error that needed correction and MP was in discussion with Met Office (MO) – due to MO resource issues the dataset may not be available until Q2 2014. JL suggested the methodology could be reviewed to ensure no other errors exist;
- CWV data gaps – MP stated that the WSSM dataset ended on 30 September 2012 and explained how this year's modelling requires data up to 07 April 2014. This means that should it be requested that the alternative weather history be used then a 'hybrid' of both datasets would need to be created which would mean the CWVs used in modelling would be different to those held in Sites & Meters (S&M) and therefore AQ review. This topic opened up further discussion on how 'missing' data is 'filled in' currently post Sept 2012. SB observed that if using the history for the analysis, continual additions would have to be made ad infinitum.
- Sites & Meters (S&M) - The weather data in S&M is provided by the Transporters' weather service provider. FC wondered how this was gap filled when it was not possible to retrieve an actual observation. SB believed it might be forecast data, rather than a replacement station, that was used to fill the gaps. Clarity was required on this aspect if the S&M data was itself to be used for gap filling. CI suggested it would be useful to have data for primary stations and any potential replacement, though this would add to the complexities. FC observed that a better understanding of the basis used for gap filling and what the DESC TWG might consider to be useful was required. Should there be ranked alternatives? What should be done to provide an 'instant' backfill if required? An understanding was required of what was happening and then the group needs to decide if it was satisfied with the approach/need to act. Also what needs to be applied to future substitutions and what history should be agreed/created. It was agreed that this would need to be considered as part of the approach to CWV optimisation and this is where the issue can be addressed rather than the Spring 2014 modelling process.

FC reiterated that 'backfilling' was likely to be a prominent topic over the coming year and confidence was required in the data currently being used. It was noted that the Weather Station Substitution Methodology does not cover the gap filling for any day-to-day problems encountered. Another question was how to get the Transporters' Service

Provider to operate a complex methodology and how an acceptable position can be reached. In S&M Xoserve just see an 'actual' and not multi views. If in future, allocation is closing out at D+5 and the new algorithm is using actual weather there should be useable data within the D+5 window.

MP re-iterated that with the work detailed above already scheduled in, then the gap filling exercise for Weather Station substitution may be hindered for this year in relation to the NDM profiles for 2014/15, however work still needs to be undertaken for CWV optimisation. MR was concerned about the extent of the work required and the timescale available. FC encouraged the group to consider the way forward and how this piece of work is to be completed. It was suggested that some gap filling is completed over the next few months and an update provided in due course.

The TWG was happy with the draft work plans as presented and agreed to close this action as it had been superseded, however the gap filling exercise was still required for the CWV optimisation work which needs to be completed in the first quarter of 2014. It was agreed to amend the action to reflect this.

**Revised Action DTW1102:**

**a) Xoserve to provide a workplan with timelines to include an investigation. Complete.**

**b) Xoserve to provide a view on how long it would take to fill the gaps in historical weather data, and by when. Carried forward.**

**1103:** Shippers to look at the data gaps and consider a gap filling interpretation methodology.

**Update:** SB provided a suggested [Gap filling](#) methodology. PR and SB explained how this might work (by creating an expected series and scaling) to try and maintain the expected shape. It was weather pattern specific. PR explained in more detail; it needs to be moved away from zero for it to work. It could provide a reasonable approach; it can potentially be applied to any variable that could be expected to produce a shape. Where the Met Office is unable to provide reliable data this would give a mechanism to apply. Gap filling for larger breaks may have to be done slightly differently, using a couple of years either side. MP suggested that it should be tested out and results shared to give a better understanding of how it would work.

MR suggested using the EP2 output back to 1971 to assist in filling in gaps.

Specific years that required gap filling were mostly within the 1960s span. PR suggested that if the larger and smaller gaps could be identified an acceptable method could be developed (expected shape, values, line, level). FC observed that 1960 had been deliberately selected to specifically capture the cold winter of 1962/63. SB suggested that some of the missing years could be examined through nearby weather stations to assess an expected shape. It was suggested that a method for calculating expected shapes should be considered and agreed.

Looking at the 1960s span, FC believed there could be 30 days in 1963 with no reliable data for odd hours. It was noted that for Southampton 1967/8/9 the data would need to be substituted data because it is currently missing within the WSSM data series.

It was suggested that the Shippers should define how to work out an expected value for each weather variable and provide analysis to see how it might fit/performance/could be applied. It was agreed to amend the action to reflect this.

**Revised Action DTW1103:**

**Shippers to look at the data gaps and consider a gap filling interpretation methodology (i.e. define how to work out an expected value for each weather variable and provide analysis to see how it might fit/performance) and how it is to be applied. Carried Forward.**

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**1104:** Shippers to consider the volatility results and provide a view whether to continue with the current approach or not.

**Update:** MP provided a [Spring Approach to Modelling 2014 update](#). See 3.2, below. The DESC TWG agreed to provide a recommendation to DESC to accept the proposal to keep the weighting as it is now. **Complete.**

**1105:** Xoserve to look at the shape of demand profiles across different EUCs in the sample data.

**Update:** MPa provided an update on the [Review of EUC Definitions](#). See 3.3, below. **Complete.**

### 3. Draft Spring Approach to Modelling 2014

#### 3.1. Weather history

In response to Action DTW1101, JL provided a [Weather datasets analysis Spring 2014 modelling presentation](#). The current Gas Industry dataset was compared with the outputs from the Weather Station Substitution Methodology (WSSM) and the analysis was explained. A number of graphs illustrated the findings, and JL explained the details. The analysis showed for SC, for example, that where data has had to be filled in there were more inconsistencies and bigger differences; it was his opinion that this was caused by the different approaches to data filling.

There was very little difference towards the end of the period (slide 6) – this confirms an earlier view.

*SC Temperature Differences* - Five substitute weather stations were used at various times and the Gas Industry dataset used a different method to gap fill, other than Method 6.

*Impact of CWV on Demand* - The data was reviewed across various LDZs. JL observed there were no real differences, but pointed out that since 2002 the model used for the Gas Industry data seems a better fit (WM LDZ); in NT LDZ there were pretty small differences; in SW LDZ 1998/99/00 the differences may be due to a weather station change – a number of negative numbers implies the Gas Industry model is a better fit; the biggest  $R^2$  difference was noticed in WS LDZ. SB pointed out that the current CWV parameters were optimised using the current gas industry weather data. Summarising, JL reiterated there were very little differences in terms of  $R^2$ , with both CWVs producing strong models.

The DESC TWG agreed to provide a recommendation to DESC to use the existing Gas Industry weather data for the Spring 2014 analysis.

#### 3.2 Model smoothing approach

In response to Action DTW1104, MP provided a [Spring Approach to Modelling 2014 update](#). He confirmed the presentation had been provided previously but had undergone some updates (highlighted as **\*\*Slide Updated\*\***). The Workgroup considered the information presented on the updated slides.

The DESC TWG agreed to provide a recommendation to DESC to accept the proposal to keep the weighting as it is now, i.e. the weighting to remain at 34:33:33.

#### 3.3 EUC boundary definitions

In response to Action DTW1105, MPa provided an update on the [Review of EUC Definitions](#), confirming that this now included information relating to Band 1.

The Band 1 graphical information was reviewed and discussed. Referring to the Daily Average Consumption 2011/12 results (slide 21) it was remarked that the Band 3 and 4 profiles looked suspiciously similar compared to the other bands that exhibited more variation. The shapes were commented on in more detail and FC confirmed that the data had been double-checked to ensure what was being used was correct. CI suggested

splitting the band to obtain different profiles. FC reminded the group that under RbD different profiles for Band 1 were not feasible, but once the regime moves away from RbD more flexibility would be possible – to be borne in mind for the future. FC added that Bands 3 and 4 also looked very similar, given the breadth of the consumption range; very strong day of the week and weather relationships were exhibited. MR suggested consideration be given to the merging of these two bands. FC observed that merging Bands 3 and 4 and running the models together would reduce the amount of time spent in having to review models; it would not change any of the EUC definitions in the system.

Reviewing the ALPs 2011/12, it was noted that Bands 2 and 3 looked very similar, as did Bands 7 and 8; some trends were apparent, but with different scales of sensitivity. FC commented that where there were areas of similarity across Bands 1-8; the modelling could be used in different combinations without changing any EUCs and definitions. It was noted that it was highly unlikely that the higher Band sample sizes would improve greatly. Potential mergers were discussed, and it was agreed to try merging Bands 7 and 8 (because of decreasing AQs), and give consideration to merging Band 3 with Band 4, or Band 2 with Band 3 next year.

The DESC TWG therefore agreed to provide a recommendation to DESC to merge EUC Bands 7 and 8 for modelling purposes, without changing any EUC definitions.

### **3.4 TWG Recommendation of Spring Approach**

Following the above discussions MP will now revise the Spring Approach Document, and Xoserve will re-publish the document. Parties were encouraged to review the revised document and provide feedback for discussion at the next DESC meeting on 12 February 2014.

**Action DTW0101: *Spring Approach Document* - All to review the revised document and provide feedback for discussion at the next DESC meeting on 12 February 2014.**

## **4. Any Other Business**

### **4.1. TWG views on CWV discrepancy**

FC provided a [NE CWV Communications update](#).

Since 29 November 2012 the data received for the NE LDZ related to Linton-on-Ouse weather station, instead of the DESC agreed station Nottingham Watnall. Although located in NE LDZ, Linton-on-Ouse is not the agreed station and corrective action needs to take place. The communication detailed the issue and the impacts.

The error only affected NE LDZ. It was noted that Linton is slightly warmer than Watnall, and if not corrected then AQs may be marginally too high. A large proportion of AQs across the period may have been affected. Resetting of pseudo SNDs was not anticipated.

To address the error a planned date must be agreed for the reversion back to Watnall and the restatement of any affected data. Xoserve had identified and proposed some corrective actions and these were discussed. FC stated that the CWV values would be available on the UK Link Docs shared area once corrected.

FC stated that Xoserve were also currently looking at the feasibility of updating the National Grid website but wanted opinions on whether this was something the Shippers wanted. SB was not too concerned about this, however CI and JH thought it should be done if possible. MP mentioned that he had received a note from Npower also asking for the website to reflect the revised values. It was agreed, if possible, that the values on the National Grid website should be updated, and that a monitoring/check/review process would be put in place to guard against the future occurrence of any similar accidental substitution. CI suggested that such a review process might be formalised in a document to provide some reassurance that use of the agreed Weather Stations would be regularly examined. FC noted this and added that whenever a change was

made to a different Weather Station it would be automatically identified and logged as a risk.

The proposed corrective actions will be taken and Xoserve will issue progress communications and a final note confirming when everything necessary has been completed.

#### 4.2. Spike Validation

MPa referred to a query on daily consumption spike validations that had arisen in April 2012 that was added to the Adhoc work areas log and advised that she was reviewing this. The TWG were asked if there was anything in particular relating to this that it would like MPa to look at. SB suggested that MPa consider the outliers and what effect there might be if these were left in/left out, i.e. to see if something really is wrong or whether the combination of circumstances/factors that had produced the spike were 'acceptable'. There was a reluctance to discard any data unless there was a high degree of certainty that it could be proved to be of no use.

### 5. Diary Planning

Meetings will take place as follows:

#### DESC and DESC Technical Workgroup Meetings 2014

Time / Date	Venue	Meeting	Programme
10:30 Wednesday 12 February 2014	Energy Networks Association (ENA), 6 <sup>th</sup> Floor, Dean Bradley House, 52 Horseferry Road, London SW1P 2AF	<b>DESC</b>  ----- <i>followed by</i> <b>DESC TWG</b>	<ul style="list-style-type: none"> <li>Evaluation of Algorithm Performance: Strands 2 and 3 – RV and NDM Sample data</li> <li>TWG recommendation for Spring 2014 Approach</li> </ul> ----- <ul style="list-style-type: none"> <li>CWV Optimisation</li> </ul>
10:30 Tuesday 25 March 2014	Teleconference	<b>DESC</b>	Climate Change Methodology
10:30 Monday 28 April 2014	Teleconference	<b>DESC TWG</b>	Confirm modelling runs
10:30 Wednesday 21 May 2014	Solihull – <i>venue tbc</i>	<b>DESC TWG</b>	Review modelling results and approve commencement of model smoothing stage
10:30 Wednesday 25 June 2014	Teleconference	<b>DESC TWG</b>	Review responses to draft NDM proposals and agree key messages for DESC
10:30 Wednesday 09 July 2014	Solihull – <i>venue tbc</i>	<b>DESC</b>	Review and approval of 2014/15 NDM Algorithms
10:30	Teleconference	<b>DESC</b>	Review representations (if any) and

Wednesday 30 July 2014			consider response
10:30 Wednesday 12 November 2014	Energy Networks Association (ENA), 6 <sup>th</sup> Floor, Dean Bradley House, 52 Horseferry Road, London SW1P 2AF	<b>DESC</b>	Evaluation of Algorithm Performance: Strand 1 – SF and WCF

#### Action Table: Demand Estimation Sub-committee

Action Ref	Meeting Date(s)	Minute Ref	Action	Owner	Status Update
			<i>None outstanding</i>		

#### Action Table: Demand Estimation Sub-committee – Technical Workgroup

Action Ref	Meeting Date(s)	Minute Ref	Action	Owner	Status Update
<b>DTW1101</b>	27/11/13	3.1	Xoserve to review old and new temperature/wind data and provide a view on the impact to CWV.	Xoserve (FC/JL)	<b>Closed</b>
<b>DTW1102</b>	27/11/13	3.1	a) Xoserve to provide a workplan with timelines to include an investigation	Xoserve (FC/JL)	<b>Complete</b>
<b>Revised</b>	15/01/14		b) Xoserve to provide a view on how long it would take to fill the gaps in historical weather data, and by when.	Xoserve (FC/JL)	<b>Carried forward</b>
<b>DTW1103</b>	<del>27/11/13</del>	3.1	Shippers to look at the data gaps and consider a gap filling interpretation methodology (ie define how to work out an expected value for each weather variable and provide analysis to see how it might fit/perform) and how it is to be applied.	Shippers	<b>Carried forward</b>
<b>Revised</b>	15/01/14				
<b>DTW1104</b>	27/11/13	3.2	Shippers to consider the volatility results and provide a view whether to continue with the current approach or not.	Shippers	<b>Complete</b>
<b>DTW1105</b>	27/11/13	3.5	Xoserve to look at the shape of demand profiles across different EUCs in the sample data.	Xoserve (FC/MPa)	<b>Complete</b>
<b>DTW0101</b>	15/01/14	3.4	<i>Spring Approach Document</i> - All to review the revised document and provide feedback for discussion at the next DESC meeting on 12 February 2014.	ALL	<b>Pending</b>