

**DEMAND ESTIMATION TECHNICAL FORUM**  
**and**  
**DEMAND ESTIMATION SUB COMMITTEE**  
**Minutes**  
**Friday 05 June 2009**  
**Energy Networks Association, Dean Bradley House,**  
**52 Horseferry Road, London SW1P 2AF**

**Attendees (for both meetings)**

Bob Fletcher (Chair)	(BF) Joint Office
Lorna Dupont (Secretary)	(LD) Joint Office
Anna Taylor	(AT) Northern Gas Networks
Dean Johnson (Transporter Agent)	(DJ) xoserve
Fiona Cottam	(FC) xoserve
Gavin Stather (Alternate)	(GS) ScottishPower
Jonathan Aitken (Member)	(JA) RWE npower
Louise Gates (Alternate)	(LG) EDF Energy
Louise Hellyer	(LH) Total Gas & Power
Mark Linke	(ML) British Gas
Mark Perry	(MP) xoserve
Matthew Jackson	(MJ) British Gas
Russell Somerville	(RS) Northern Gas Networks
Sally Lewis (Member)	(SL) RWE Npower
Sallyann Blackett (Member)	(SB) E.ON
Sarah Maddams (Alternate)	(SM) E.ON
Steve Thompson	(ST) National Grid NTS

**Attendee for DETF only**

Thomas Osnes	(TO) StatoilHydro
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**Attendee for DESC only**

Dave Parker	(DP) EDF Energy
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**DEMAND ESTIMATION TECHNICAL FORUM**

**1. Introduction**

BF welcomed all attendees.

## **2. Progress on Non-Daily Metered (NDM) profiling and capacity estimation algorithms for 2008/09**

MP (xoserve) gave an overview of Demand Estimation, its associated consultation timetable, and presented the current completed analysis (including the modelling basis, and the results of the Small NDM analysis and Large NDM analysis). MP pointed out that this was not a way of forecasting demand, but of apportioning demand on a daily basis.

Queries and views were invited on Transporter recommendations during or following on from the presentation.

### **2.1 Timetable**

It was confirmed that the NDM draft proposals, based on the recommendations made at this meeting, would be published on the xoserve website by 30 June 2009, and that User representations should be made by 15 July 2009. Consultation will then take place, and any representations received would be discussed and responded to at the next DESC meeting (provisionally arranged for 24 July 2009). The final proposals will be published on the xoserve website by 15 August 2009.

### **2.2 Modelling**

Key aspects of the modelling basis (as previously agreed with the Demand Estimation Sub Committee) were explained; these remain broadly unchanged from Spring 2008, and smoothed models will be produced using three years of data. A 13 month analysis (March – March) was performed for datalogger sets for 2008/09 to ensure that the Easter period was covered. There were no new CWV definitions since the Spring 2008 analysis.

MP explained that the purpose of the DETF was to offer an opportunity for the comparison of data and model accuracy and appropriateness. A description of the proposed modelling components was given, together with data set identification and impacts, and modelling impacts in terms of Indicative Load Factors (ILFs). The statistical tools and mechanisms used to identify the recommended way forward were also presented, including Root Mean Squared Error (RMSE) and  $R^2$  Multiple Correlation Coefficients. The WAR value of a supply point was defined and MP pointed out that the limits defining WAR band EUCs were a little higher than those of last year as winter 2008/09 was colder than winter 2007/08. Supply points will be assigned the newly defined WAR band EUCs for 2009/10 based on their consumption behaviour over the previous winter.

### **2.3 Small NDM Analysis (up to 2,196 MWh pa)**

Small NDMs represented a significant proportion of the total NDM load (almost 90%) and 99.9% of all Supply Points.

#### **Small NDM Data Recorders – available sample data**

MP advised that the population of active data recorders within the sample had decreased by 64 over the analysis period. Installation programmes were ongoing and there were no issues in respect of the modelling. The volume of data collected and validated was greater than for last Spring and the sample size was still robust.

### **Small NDM Dataloggers – available sample data**

The number of validated supply points available for modelling had increased for Bands 2, 3 and 4 over the analysis period.

### **Small NDM: Proposed Data Sets for Analysis**

MP described the proposed data sets for analysis and explained that the small NDM analysis was undertaken at individual LDZ level. He confirmed that there had been an increase of 79 Supply Points in Band 1 and an increase of 467 Supply Points in Bands 2 - 4 compared to the previous year; the samples provided sufficient data for analysis and would have no impact on the modelling.

The current small NDM EUC Bands were then identified and the appropriateness of the bandings had been investigated. The analysis from 2008 gave no significant reason for changing the EUC bandings. The 2009 analysis would investigate the most appropriate consumption bandings, looking at the inclusion of non-domestics within Band 1, and splitting Bands 2 and 4. MP briefly revisited the results of previous analyses (Spring 2007 – January 2009) and confirmed that in each case no compelling statistical grounds had been demonstrated to indicate that a change to the current arrangements was required. The Spring 2009 analysis investigated inclusion of non-domestics in 0 – 73.2 MWh pa modelling.

The results were then presented. MP advised that the model results shown was for the 2008/09 data and included all holiday / weekend factors etc, however the graphs shown represented Monday to Thursday non-holiday demand data only.

### **Band 1 (0 – 73.2MWh) Data Set Identification and Impacts - Domestic and Non-Domestic Inclusion**

The model results were presented for Band 1, one set containing only domestic supply points and another including some non domestic supply points. The Smoothed Model results that included some non domestic sites appeared to make the model worse as it had adverse effects on Weekend Scaling Factor values and it was suggested that only domestic sites should be used. An example slide showing the Demand against CWV was presented, demonstrating a good fit for Band 1.

SB queried the results on Slide 21 for Band 1 and the effects on the Scaling Factor. MP agreed to clarify the calculations and impacts for this slide and the estimated effects to the SF and feed the results back to DESC.

**Action TF1064: xoserve to provide update note to DESC clarifying smoothed model results for Band 01B for domestic only model and model including non-domestic sites as shown on slide 21.**

The proposed approach was therefore to continue to source the data from Domestic Supply Points only and to continue the same approach as for Spring 2008 and previous years, ie no change.

### **Band 2 Small NDM 73.2 to 293 MWh pa split at 145 MWh pa, Consumption Band Analysis: ILF Comparison and Historical ILF Comparison**

MP advised that analysis had been undertaken on a Band 2 split at 145 MWh pa. Aggregation of 5 LDZs was required to allow for sufficient sample analysis. Differences in the ILF values across the sub bands were found to be generally small and were inconsistent across LDZ groups both within and between years. No obvious trends were apparent; therefore it was not proposed to split Band 2. This conclusion was further supported by the fact that no overall improvement in RMSE analysis of model accuracy could be identified. RMSE analysis showed degradation in model/profile accuracy when splitting EUC Band 2. An example slide showing the Demand against CWV was presented, demonstrating a good fit for Band 2.

The proposed approach for Band 2 was therefore to continue as before, ie no split.

### **Band 3 and Band 4: Small NDM 293 to 2,196 MWh pa split at 1,465 MWh pa, Consumption Band Analysis: ILF Comparison and Historical ILF Comparison:**

Analyses of Band 3 (293 – 732 MWh pa), and Band 4 using the current breadth (732 – 2,196 MWh pa) as well as a split (732 – 1,465 MWh pa, and 1,465 – 2,196 MWh pa) were presented. MP gave examples of the modelling undertaken.

There was very little difference overall and no real trends evident. The sample size was quite high in Band 4 and it was possible to carry out individual LDZ analysis. No aggregation was required.

ILF variations for Band 4 were quite small and inconsistent across LDZ groups both within and between years; there was no improvement in RMSE when splitting the Band.

MP pointed out that updated figures had been obtained since the presentation had been published on the website and a replacement Slide 31 would be made available.

**Action TE1065: xoserve to provide updated replacement for Slide 31.**

**Post meeting Note:** Replacement presentation including updated slide 32 provided and published on the website. **Action closed**

The proposal for Band 4 was therefore to retain the current approach, ie no EUC split at 1,465 MWh pa.

### **WAR Band Analysis 293 – 2,196 MWh pa**

The Winter Annual Ratio (WAR) Band analysis was summarised. The analysis showed that WAR Band limits had moved towards 'one' as a result of the 2008/09 'colder' winter, compared to winter 2007/08. MP reported that the results for Band 1 were slightly worse than last year's, and this appeared to be due to the effect of the current protracted economic recession. Example graphs were used to demonstrate the identified reduction in energy consumption.

The model results for Bands 2, 3, and 4 appeared to be equally as good as last year's.

The proposal was therefore to retain the current approach.

### **Small NDM: EUC Smoothed Models**

MP then reviewed the provisional results for Small NDM bands (EUC smoothed models) and explained the cut-offs applied and the associated effects. It was thought that the 'flipping' of cut-offs was unlikely to have a material impact on NDM demand attribution

The workplan for November will look at cut-offs, and analysis to see what effect there is on the modelling will be presented in November.

The proposal was therefore to retain the current approach as the current analysis has not highlighted any requirements for change.

Recommendations were made by xoserve on behalf of the Transporters in respect of the Small NDM Analysis.

## **2.4 Large NDM Analysis (>2,196 MWh pa)**

A description of the prescribed data sets was given.

MP reported that since 2008 there had been an increase of 520 validated supply points in the Large and Small validated sample, and explained that there was a different spread across various bands but that this was still a good representation of the population.

The sample data aggregations were similar to that of the previous year, with the bandings remaining constant. No analysis is required to define the appropriateness of the bandings.

MP confirmed that the available sample data counts were sound and the modelling outputs were satisfactory.

Comparison was made of the count of Sample Supply Points to the Total Market Supply Points and the data presented was discussed. Although the numbers appeared to be quite low, in terms of percentage of the population they were quite healthy.

### **Bands 5-9 Consumption Band Analyses – ILFs**

The ILFs were all representative; the  $R^2$  Multiple Correlation Coefficients were all good, and there were no obvious areas for concern. The more detailed examples of SC LDZ Band 7 and aggregated SC/NO/NW/WN LDZs Band 8 were singled out for demonstration.

This was followed by the WAR Band analysis. WAR Band limits had moved towards 'one' as a result of the 'colder' winter in 2008/09 compared to the previous winter.

MP pointed out that it had been possible to avoid merging Bands 7 and 8 for yet another year. It was recognised that a potential merger may not be conducive to a good fit in either Band but a merger may have to be accommodated if AQs continued to move downwards, or perhaps WAR

Bands could be done without for these particular Bands. He confirmed that xoserve would continue to monitor the position.

MP also pointed out that some external effects of the current economic recession on demand behaviour had been identified and could be observed in WAR Band 1 EUC Model analysis.

**Consumption Band 5 (2,196 – 5,860 MWh pa):** Despite small sample numbers in SC LDZ WAR Band 4 the model fit remained good and the 5 LDZ group basis of data aggregation as applied in 2008 and 2007 remained appropriate for 2009.

#### **Remaining Consumption Bands**

**Band 6 (5,860 – 14, 650 MWh pa):** Three LDZ aggregations were applied; no issues were identified.

**Band 7 (14, 650 – 29,300 MWh pa):** National aggregations were applied; no issues were identified.

**Band 8 (29,300 – 58,600 MWh pa):** National aggregations were applied; sample sizes were insufficient for any lower level of aggregation to be considered.

In summary, the EUC Smoothed Models analysis showed no significant differences to the previous years' analyses. There were 273 EUCs in total, The numbers of EUC models with cut-offs in 2008/09 was compared to the requirements for 2009/10 which revealed an increase of 4 (moved from 53 to 57).

As previously stated, it was thought that the 'flipping' of cut-offs was unlikely to have a material impact on NDM demand attribution.

## **2.5 Recommendations**

Recommendations for 2009/10 were made by xoserve on behalf of the Transporters, and representations were invited by 15 July 2009.

## **2.6 Note on Actions**

Actions generated through this Demand Estimation Technical Forum will be progressed through subsequent Demand Estimation Sub Committee meetings, and documented on the Action Logs and Minutes of those meetings.

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## DEMAND ESTIMATION SUB COMMITTEE

### 1. Introduction

BF welcomed all attendees.

### 2. Confirmation of Membership and Apologies for Absence

#### 2.1 Membership and alternates

The membership was confirmed and the meeting was declared quorate.

#### 2.2 Apologies

Apologies were received from Emma Emin (EDF Energy).

### 3. Review of Minutes and Actions from the Previous Meeting

#### 3.1 Minutes

The minutes from the meeting held on 11 May 2009 were accepted.

#### 3.2 Actions

Outstanding actions were reviewed (see Action Log below).

**Action DE1061:** Raise a modification to clarify the use and inclusion of EP2 data within the UNC.

**Update:** Modification Proposal 0254: "Facilitating the use of Forecast Data in the UNC" was raised by EDF Energy on 29 May 2009, and will be discussed at the next UNC Modification Panel meeting. **Action closed.**

**Action DE1062:** DESC members to review the EP2 modification and provide feedback.

**Update:** Completed. **Action closed.**

**Action DE1063:** xoserve to hold a session with the Transporters to update them on the DESC response received at the meeting; DESC to be provided with an update from the Transporters on 05 June 2009.

**Update:** See agenda item 4, below. **Action closed.**

### 4. Seasonal Normal Review Update

DESC's response had been discussed with the Transporters and DJ reported that Transporters had agreed to use EP2 data when determining the new seasonal normal basis from 2010. This was based on the understanding that UNC Modification 254 would proceed through consultation and will be implemented without any further issues being raised. AT reiterated this point.

It was questioned what would happen if Ofgem did not make a decision on Modification Proposal 0254 before the end of September 2009. SB thought that the data as it stands could be used for this year, but it may need to be reviewed earlier. SB repeated that her concerns with the alternative proposed

basis still stand, and suggested that there needed to be a decision point for DESC to agree on the way forward, before the end of September when the analysis starts. FC responded that it was a matter of definition whether EP2 could be used, and this was not clear under UNC; the Transporters would like to see UNC modified formally first.

SB pointed out that EP2 data was not solely forecast data (an average of forecast and historical data). FC responded that interpretation of various clauses in UNC gave rise to uncertainty and the Transporters felt that further clarity would provide certainty in the ability to use the data. AT added that the Transporters have some issues with the use of the data without the prior approval of Modification Proposal 0254 and would find it difficult to support the use without that reassurance. SB stated that if it was clear that it was getting close to the point where the time for a decision was appearing to 'run out' then the Transporters may contact Ofgem to try and secure a decision within the timeframe. DESC agreed that the focus should be on trying to get the MOD approved, rather than what to do if it was not approved.

BF confirmed that the Modification Proposal was going before the UNC Modification Panel that afternoon (Friday 05 June 2009) and was likely to be issued for consultation and then returned to the July UNC Modification Panel (16 July 2009).

DJ said that xoserve would be monitoring the progress and outcome of the Modification Proposal, and suggested that, assuming that the next DESC meeting scheduled for 24 July 2009 (Solihull) was to go ahead, this would be a good time to review progress. An additional September meeting could also be arranged to discuss progress of MOD254 further (if required). DJ also stated that any practical or technical points associated with the detail of the modelling and how EP2 is implemented would be discussed at future meetings.

**Action DE1066: The Joint Office to schedule a meeting during the first week in September to review the progress of Modification Proposal 0254.**

## **5. NDM Sample Update**

MP presented an update on the NDM sample numbers.

### **Band 1 (0 – 73.2MWh) Data Recorders**

Results indicated that actual recorder sample sizes were well above the target numbers for the majority of LDZs.

However there was an ongoing issue of 'lost' data recorders in the event of a meter exchange being carried out. Although contact details were provided on the equipment, persons replacing the meters were failing to follow these through and 56 data recorders had been lost so far in 2009. MP welcomed any assistance from DESC members/attendees that would help to reduce the losses, and a number of Shippers responded that they would be keen to help if xoserve would provide them with details of any site(s) in their ownership from which a data recorder had been lost.



**Action DE1067: xoserve to provide Shippers with details of any site(s) in their ownership from which a data recorder had been lost, to enable remedial action to be taken/internal process gaps to be addressed. Shippers to report back on problem to DESC.**

MP reported that xoserve was continuing discussions in respect of the replacement of current data recorder equipment with new AMR technology; it was recognised that such replacement would require a UNC Modification to bring about and this hopefully would be supported by DESC. DJ added that xoserve would need to keep the integrity of the current process throughout any transition process.

### **Datalogger Supply Points (>73.2 MWh)**

Generally across the LDZs Bands 4 – 8 were currently below sample requirements. Active recruitment of new sites was in progress and an increase in the installation of new loggers in some areas had been noted recently. Numbers continue to be monitored and Transporters were informed of the sample numbers; these will be reviewed and reported on for the November meeting. DESC may need to review target numbers at the higher band if the sample targets becomes unrealistic to continue with, ie population smaller than target.

AT asked how new sample sites were selected and MP responded that it was the practice to select sites that were more easily accessible, letters were sent out and a service provider was contacted. Geographical split and the spread across LDZs and sub bands was also taken into account. DP questioned that if easy accessibility was a high criterion there was perhaps a predisposition to attract new build sites – these would be better insulated and demand would therefore be less; an increasing predominance of sites of this type would affect the results. GS suggested that start dates could be interrogated on systems and this would be likely to give an idea of new/old build status. FC responded xoserve was keen not to disrupt the samples and that historically many sites had less accessible meters (inside) but these now tended to be located outside. At present there was a very random sample and there appeared to be no problems with the models.

## **6. Approval of the Demand Estimation Technical Forum Proposals**

The DESC gave its approval to the draft proposals put forward by xoserve at the Demand Estimation Technical Forum.

The initial proposals will be published by 30 June 2009 and final proposals will be published by 15 August 2009.

## **7. Review of Work Plan**

Dates for 2009 scheduled meetings are set out below, together with the topics expected to be covered.

<b>Date</b>	<b>Work Items</b>	<b>Venue</b>
<b>24 July 2009</b> (if required)	1) Response to representations on EUC definitions and demand models 2) Finalisation of proposed revisions	10:00am 31 Homer Road, Solihull B91 3LT
<b>10 November 2009</b>	1) Re-evaluation of NDM Sampling sizes 2) Re-evaluation of EUC definitions and demand model performance: Scaling Factor and WCF analysis 3) Re-evaluation of Model smoothing methodology 4) Seasonal Normal update 5) Review of demand attribution for EUC models newly with/without cutoffs in 2008/09	10:00am Energy Networks Association, Dean Bradley House, 52 Horseferry Road, London SW1P 2AF
<b>22 December 2009</b>	1) CWV Review: Present revised CWVs for all LDZs	10:00am 31 Homer Road, Solihull B91 3LT

Should the need arise, then a further date in September will be added to the programme to address any actions that may need to be taken in respect of the progress of Modification Proposal 0254. It is likely that the business at such a meeting will be carried out through teleconference.

## **8. Any Other Business**

### **8.1 Calculation of Large EUC Peak Load Factors (PLFs)**

MP raised this topic and gave a brief overview of the formulae for both Small EUCs and Large EUCs.

Up until Gas Year 2008/09 PDN and  $SNDN_m$  have been sourced from the Transporters' forecast processes, however from Gas Year 2009/10 it was agreed that aggregate NDM demand used in calculating DAFs would be derived from a historical model based on 3 years of Gemini data. The max  $SNDN$  value required for max WCF when calculating Large EUC PLFs will therefore be sourced from this model.

If the PDN value continued to be derived from the Transporters' forecasting process then the modelling basis for PDNs and  $SNDNs$  would be different, which could lead to inconsistent Large NDM EUC PLFs.

To ensure consistency in approach and more stable PLFs, xoserve proposed that the PDN value should be sourced from the historical model by simulation. As the continuation of a number of changes implemented with DESC's support over the past year this final change to the source data used in the calculation of PLFs will remove all aspects of the Transporters' forecast data in the derivation of parameters required for Demand Estimation.

It was therefore recommended that for Gas Year 2009/10 onwards '1 in 20' peak day aggregate NDM demand used in the calculation of WCF as set out in UNC Section H4.3.2(b) will be derived from simulation using the historical model.

There was unanimous agreement with this recommendation.

### 9. Date of next meeting

If required (see the Table in 7, above) the next meeting will be held at 10:00am on Friday 24 July 2009 at 31 Homer Road, Solihull B91 3LT.

If the July meeting is not required then the next meeting will be held at 10:00hrs on Tuesday 10 November 2009, at Energy Networks Association, Dean Bradley House, 52 Horseferry Road, London SW1P 2AF.

#### Action Log: UNC Demand Estimation Sub Committee 05 June 2009

Action Ref*	Meeting Date(s)	Minute Ref	Action	Owner**	Status Update
DE1061	11/05/09	3.1	Raise a modification to clarify the use and inclusion of EP2 data within the UNC.	EDF Energy (SLe)	<b>Closed</b>
DE1062	11/05/09	3.1	DESC members to review the EP2 modification and provide feedback.	ALL	<b>Closed</b>
DE1063	11/05/09	3.1	xoserve to hold a session with the Transporters to update them on the DESC response received at the meeting; DESC to be provided with an update from the Transporters on 05 June 2009.	xoserve (FC/MP)	<b>Closed</b>
TF1064	05/06/09	2.0	xoserve to provide update note to DESC clarifying smoothed model results for Band 01B for domestic only model and model including non-domestic sites as shown on slide 21.	xoserve (DJ/MP)	
DE1065	05/06/09	2.0	xoserve to provide updated replacement for Slide 31.	xoserve (DJ/MP)	Provided. <b>Closed</b>

Action Ref*	Meeting Date(s)	Minute Ref	Action	Owner**	Status Update
DE1066	05/06/09	4.0	The Joint Office to schedule a meeting during the first week in September to review the progress of Modification Proposal 0254.	Joint Office (BF/LD)	
DE1067	05/06/09	5.0	Loss of data recorders following a meter exchange - xoserve to provide Shippers with details of any site(s) in their ownership from which a data recorder had been lost, to enable remedial action to be taken/internal process gaps to be addressed.  Shippers to address problems and report back to DESC.	xoserve (DJ/MP) and ALL	

\* TF – Technical Forum

\*\* Key to initials of action owner: ALL: all present, FC: Fiona Cottam, MP: Mark Perry, DJ: Dean Johnson