

**UNC Workgroup 0754R Minutes  
Investigate Advanced Analytic Options to improve NDM Demand  
Modelling**

**Wednesday 12 May 2021**

**via Microsoft Teams**

**Attendees,**

Rebecca Hailes (Chair)	(RHa)	Joint Office
Helen Cuin (Secretary)	(HCu)	Joint Office
Ceirán Sheehan	(CS)	Total Gas & Power
Cosmin Popovici	(CP)	Total Gas & Power
Dan Stenson	(DS)	British Gas
Daniel Etheridge	(DE)	Ecotricity
David Mitchell	(DM)	SGN
Ellie Rogers	(ER)	Xoserve
Fiona Cottam	(FC)	Correla on behalf of Xoserve
John Jones	(JJ)	ScottishPower
Joseph Lloyd	(JL)	Correla on behalf of Xoserve
Luke Reeves	(LR)	EDF
Mark Perry	(MP)	Correla on behalf of Xoserve
Neil Crompton	(NC)	SSE
Robert Head	(RHe)	So Energy
Sallyann Blackett	(SaB)	E.ON
Sarah Palmer	(SP)	E.ON
Shiv Singh	(SS)	Cadent
Steve Mulinganie	(SM)	Gazprom ( <i>until 10:30</i> )

Copies of all papers are available at: <https://www.gasgovernance.co.uk/0754/120521>

The Workgroup Report is due to be presented at the UNC Modification Panel by 18 November 2021.

## **1.0 Introduction and Status Review**

Rebecca Hailes (RHa) welcomed all to the Workgroup.

### **1.1. Approval of Minutes (23 March 2021)**

The minutes from the previous meeting were accepted.

### **1.2. Approval of Late Papers**

No late papers have been submitted.

### **1.3. Review of Outstanding Actions**

**0301:** RHa and MP to seek input from National Grid NTS and/or Xoserve representatives involved with Gemini, regarding impacts of changes to Gemini on this Request Workgroup 0754R.

**Update:** RHa confirmed that in conjunction with Mark Perry, an email had been sent to a number of National Grid staff and other colleagues and no response had yet been received. Sallyann Blackett (SaB) suggested National Grid may need to wait for more information on the possible system changes.

Steve Mulinganie (SM) wished to raise a concern about National Grid not losing sight of the potential changes to Gemini during their procurement process, to avoid being unable to make changes. **Carried Forward.**

**0302:** Xoserve (MP) to identify a) what the cost would be for them to carry out an initial benefit analysis in relation to SND<sub>t</sub>, and b) what resources they would need in terms of data, time or funding to investigate the use of advanced analytics to trial alternative approaches for producing more accurate EUC demand models.

**Update:** See item 3.0. Within the Workgroup 0754R Presentation, Joseph Lloyd (JL) presented the potential areas for the Workgroup to investigate and an overview of systems set-up, costs and resources. Please refer to slide 17 for the detailed update. **Closed.**

**0303:** Workgroup to review the UIG taskforce recommendations to review before the next meeting. The recommendations can be found at: <https://www.xoserve.com/services/issue-management/unidentified-gas-uig/#task-force-findings-etc>

**Update:** MP provided a paper on the options for the Use of Machine Learning in Non-Daily Metered Gas Allocation and a reminder was sent to review the UIG taskforce recommendations. RHa reminded the Workgroup of the importance of reviewing the taskforce recommendations to enable thorough assessment of the options. **Ongoing.**

## 2.0 Workgroup Discussion

Mark Perry (MP) provided a presentation which provided the background to the Request, a detailed action update for Action 0302 and the next steps.

For a full detailed update, please refer to the published slides on the meeting page.

MP provided a recap of the first Workgroup meeting and the rationale for the Request to:

- Supports DESC's UNC obligation to review the NDM Algorithm.
- Explore the UIG Task Force findings.
- Investigate advanced analytical approaches.
- Increases visibility.
- Improve NDM Allocation, reduce Unidentified Gas (UIG) volatility and subsequent Meter Point reconciliation/UIG volumes.

MP summarised the key discussion points and the main headlines from the first meeting which provided an overview of the scope/objective and resources/support. The agreed approach was to proceed with the analysis as an academic exercise and at this stage not to be distracted or limit suggestions by considering any potential implementation issues.

MP provided an illustration on page 8 of the potential areas for Workgroup investigation picking out the key factors.

MP explained that the aim will be to investigate how advanced analytics can be used to improve NDM Demand Modelling, and the three areas CDSP have identified as most likely to yield results. These were:

- Area 1: Trial alternative approaches to deriving SND<sub>t</sub>
- Area 2: Improve Validation Processes
- Area 3: Review End User Category definitions.

MP explained Corella on behalf of the CDSP will also look to identify any improvement ideas not related to advanced analytics and those generated by Workgroup suggestions.

MP confirmed for each area CDSP intends to utilise advanced analytic investigation focussing on 1 or 2 LDZs as a test case. SM asked about selecting the test case LDZs and ensuring these represented the market well, having a good spread of End User Categories (EUCs).

MP suggested the success criteria should be primarily based on reducing modelling errors and a reduction in UIG volatility.

Dan Stenson (DS) wished to note that UIG will always have an element of volatility, and suggested the aim is to have the NDM part of the UIG equation being more predictable with a focus on reduction.

The Workgroup considered the success criteria and having too many criteria. It was suggested that focussing on the modelling errors may be the most appropriate focus. The consequential impact or removing modelling errors should reduce UIG volatility.

DS wished to note that lowering UIG may improve predictably in one area but result in the unpredictable areas of UIG more volatile. It was suggested that ultimately what is wanted is that the output of reducing modelling errors has an impact on UIG. Workgroup participants agreed with this narrowing of focus.

Joseph Lloyd (JL) went on to provide the Workgroup with an overview of the approaches for each of the areas provided earlier (see pages 10-15).

### **Area 1: Trial alternative approaches to deriving $SND_t$**

JL provided an overview of the objective, approaches, and the options.

The objective was to:

- Explore alternative modelling approaches (outside of linear regression) to identify whether a more accurate view of  $SND_t$  and subsequent ALPs, DAFs and PLFs exist.
- Identify any weaknesses, improvements and make recommendations which link to evidence of a reduction in NDM modelling error.

Neil Crompton (NC) asked how CDSP would take into account the demand patterns seen in the last 12 months and the appropriateness of using this data. JL wanted to be pragmatic as possible, taking into account the differences seen in demand and what the new normal may be going forward. It was acknowledged there is a lot of data at hand and a need to make sure the modelling is reflective taking into account any concerns of Covid and non-Covid periods.

DS wished to note that a viewpoint was provided by DESC in that business data may be unusable from March 2020. DS suggested that the Workgroup could consider how frequent the demand model should be re-trained / re-baselined as a new normal starts to emerge in 2021. MP noted that the consequences of more frequent training may mean that the ALPs no longer add up correctly over a year. This may require further exploration. Sarah Palmer (SP) suggested it might be worth considering the frequency of retraining and the benefits of this retraining, i.e. it may improve the model each month by 5% on a month-by-month basis and taking into account the cost versus benefit of doing this to an improved model.

### **Area 2 – Improve Validation Processes**

JL provided an overview of the validation processes and what can be done to improve this. JL explained the current checks, data and the cleansing techniques.

The objective was to:

- Explore use of advanced analytic techniques to improve validation routines prior to modelling.
- Identify any weaknesses, improvements and make recommendations which link to evidence of a reduction in NDM modelling error.

The Workgroup considered the quality of data and how best to address the observed weaknesses.

### **Area 3: Review End User Category definitions**

JL provided an overview of the End User Categories (EUC). This included the number of models for each EUC and the consumption bands. It was noted that Band 1 represented 74% of the total NDM being the largest EUC component followed by EUC Type 01BND – Domestic Non-Prepayment, which represented 66.7% of the total NDM AQ.

The Workgroup considered how best to come up with a set of profiles. It was agreed that Band 01BND should be the primary focus.

The Workgroup discussed the availability of data, the age of the data, access to meter point and pre-payment data from Shippers and how this cannot be obtained directly through DCC.

The Workgroup also considered the potential need for a Modification to improve data (adjusting/removing sites) from EUCs. It was suggested this was not within the scope of this review and this may want to be considered as a side output separately.

JL provided a table outlining the approach, data and systems.

The objective was to:

- Review the current line-up of 39 End User Categories (EUCs) per LDZ and explore whether a more appropriate set of definitions and models exist.
- Identify any weaknesses, improvements and make recommendations which link to evidence of a reduction in NDM modelling error.

It was agreed that the focus would be on Band 01BND. It was suggested another band may also warrant consideration such as one of the larger EUC bands.

### **Area 1-3: Data Availability**

JL provided a summary of the different areas of data required. This included weather, NDM Gas Consumption, Reconciliation Data, Supply Point Attributes and Calendar data.

The Workgroup considered additional groupings (SIC Codes - standard industry classifications) which identify an organisation in terms of its main sphere of business to help with additional consumer type (market sector code) information.

Daniel Etheridge (DE) enquired about the availability of effective temperature data and if this would be an avenue to explore as a variable. MP explained that the work undertaken on the Composite Weather Variable (CWV) optimisation and the parameters.

DS enquired about LDZs, precipitation, geographic spreads, and the relevance of precipitation.

The Workgroup also considered Solar and the hourly observations, for daily values and creating seasonal disparities.

### **Areas 1 to 3: Resources**

JL provided an overview of systems set-up, costs and resources. JL explained that there is significant amount of work required in 'setting up' before proceeding with analysis i.e. documenting approach/measures, collating relevant data, infrastructure/tooling set up.

The current understanding was that the existing service provision would support the analysis to be performed. The plan is also to use 'In House' Demand Estimation Team resources to support the Workgroup analysis.

Some additional suggestions were provided by Shippers for CDSP to consider. This covered prioritising Winter, Adjustments, and Demand Estimation reconciliation methodology (allocation/reconciliation apportionment).

MP provided an overview of what CDSP plan to do next and the potential approaches to provide a clearer view of the plan going forward. These were to:

- Review UIG Task Force Findings in more detail.
- Confirm 'Approach to Analysis' in more detail.

- Determine Data Requirements Measures and Success Criteria.
- System set up and familiarisation.

SP enquired about DESC BAU workload and resource availability, the timescales for this review and if some DEC BAU areas would need to be scaled back for DESC. MP noted that the July DESC meetings may wish to keep some focus areas smaller to allow CDSP to focus on the 0754R analysis in relation to DESC off-season work.

### 3.0 Completion of Workgroup Report

The Workgroup were not in a position to complete the Workgroup Report at this stage, further time was required for analysis. Please refer to the Next Steps.

### 4.0 Next Steps

- Update on Review of UIG Task Force Findings in more detail.
- Confirm 'Approach to Analysis' in more detail.
- Determine Data Requirements Measures and Success Criteria.
- Update on System set up and familiarisation.

These will form the basis of discussions at the next meeting.

### 5.0 Any Other Business

None.

### 6.0 Diary Planning

Further details of planned meetings are available at: [www.gasgovernance.co.uk/events-calendar/month](http://www.gasgovernance.co.uk/events-calendar/month)

Workgroup meetings will take place as follows:

Time / Date	Venue	Programme
Wednesday 30 June 2021 or Wednesday 07 July 2021  TBC after 24 May DESC TWG meeting	Microsoft Teams	Workgroup Analysis <ul style="list-style-type: none"> <li>• Review UIG Task Force Findings</li> <li>• Approach to Analysis</li> <li>• Data Requirements Measures and Success Criteria</li> <li>• System set up and familiarisation</li> </ul>
10:00 Wednesday 04 August 2021	Microsoft Teams	TBC

### Action Table (as at 12 May 2021)

Action Ref	Meeting Date	Minute Ref	Action	Owner	Status Update
0301	23/03/21	1.0	RH and MP to seek input from National Grid NTS and/or Xoserve representatives involved with Gemini, regarding impacts of changes to	Joint Office (RH) & Xoserve (MP)	Carried Forward

Action Table (as at 12 May 2021)

Action Ref	Meeting Date	Minute Ref	Action	Owner	Status Update
			Gemini on this Request Workgroup 0754R		
<b>0302</b>	23/03/21	1.0	Xoserve (MP) to identify a) what the cost would be for them to carry out an initial benefit analysis in relation to SNDt, and b) what resources they would need in terms of data, time or funding to investigate the use of advanced analytics to trial alternative approaches for producing more accurate EUC demand models.	Xoserve (MP)	<b>Closed</b>
<b>0303</b>	23/03/21	3.0	Workgroup to review the UIG taskforce recommendations to review before the next meeting. The recommendations can be found at: <a href="https://www.xoserve.com/services/issue-management/unidentified-gas-uig/#task-force-findings-etc">https://www.xoserve.com/services/issue-management/unidentified-gas-uig/#task-force-findings-etc</a>	All	<b>Ongoing</b>