Joint Office of Gas Transporters

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Demand Estimation Sub-Committee Minutes
Monday 10 December 2018
at Radcliffe House, Blenheim Court, Warwick Road, Solihull, B91 2AA

Attendees

Chris Shanley (Chair)	(CS)	Joint Office	
Kully Jones (Secretary)	(KJ)	Joint Office	
Dave Mitchell*	(DM)	SGN	Voting Member
Emma Buckton*	(EB)	NGN	Voting Member
Fiona Speake	(FS)	NPower	
Gareth Powell	(GP)	NPower	
Jason Blackmore	(JB)	British Gas	Voting Member
Louise Hellyer	(LH)	Total Gas	Voting Member
Mandeep Pangli	(MP)	Xoserve	
Mark Jones	(MJ)	SSE	Voting Member
Mark Perry	(MPe)	Xoserve	Voting Member Alternate
Mark Palmer*	(MPa)	Orsted	
Martin Attwood	(MA)	Xoserve	
Simon Bissett	(SB)	Xoserve	
Smitha Coughlan*	(SCo)	WWU	Voting Member

Apologies

Chris Warner	(CW)	Cadent Gas	Voting Member
Lorraine Edgcumbe	(LE)	E.ON	Voting Member

*_via teleconference_

Copies of papers are available at: http://www.gasgovernance.co.uk/DESC/101218

1. Introduction and Status Review

1.1. Apologies for Absence

Please refer to the above table.

1.2. Note of Alternates

Louise Hellyer for Lorraine Edgcumbe

Mark Perry for Chris Warner

1.3. Approval of Minutes (08 October and 08 November 2018)

The minutes from the previous meetings were approved.

1.4. Review of Outstanding Actions

0201: Xoserve (MA) to provide reconciliation analysis for the SSPs and LSP's (any additional months) for the next meeting.

Update: Mark Perry (MPe) provided an update explaining that this action was being taken forward by the UIG task force and that this is a lower priority task. He was hopeful that there would be something to present for the February meeting. DESC members agreed to close this action as the subject matter would be discussed as part of future meetings. **Closed**

0703: All to provide feedback on whether any of the current information is no longer required and what Users would like to see considered in the system going forward. Please send suggestions to the box account: Xoserve.demand.estimation@xoserve.com.
Update: MPe provided an update stating that there had been no feedback to date and that it would still be useful to know what additional information might be needed; what information is no longer required and which information is important to industry. DESC members agreed to continue with the current information so this action was closed. **Closed**

1001: DESC members to review the representatives for the DESC Technical Workgroup with the view of providing alternative representatives with appropriate expertise.
Update: CS confirmed that a nomination had been received from British Gas. Fiona Speak (FS) stated that she would also be suggesting Alex Picchler-Tennenberg to join the Technical Workgroup. MPe informed DESC members that there would be a considerable amount of work around CWV next year and further weather experts would be welcomed to join. **Closed**

1002: DESC members to review the approach documents: Summary of CWV Review 2015; and Final Approach to Seasonal Normal Basis 2015 via the Xoserve secured website (https://www.xoserve.com/index.php/our-systems/extranet-secured-sites). For any enquires contact: xoserve.demand.estimation@xoserve.com.
Update: MPe reminded DESC members that the documents were a good starting point for someone new to DESC. CS informed the Workgroup that he had had discussions with MPe about creating a DESC background information document and muted the idea that the SNR information could be included and that the plan was for the document to be published on the DESC home page. **Closed**

1101: DESC Shipper members to consider the implications of removal of the DE NDM snapshot report with the view to reaching a decision on the future of the report at the December meeting.
Update: Discussed under agenda item 6.0 and decision deferred to the February meeting. **Carried Forward**

1102: Xoserve to provide more background information (particularly data on the numbers and trends in equipment losses) to support the discussion at the December meeting.
Update: Discussed under agenda item 6.0 **Closed**

2. **Evaluation of Algorithm Performance for Gas Year 2017/18**

   2.1. **Strand 1 – Weather analysis**

Martin Attwood (MA) explained that three strands of analysis will be presented, which all reflect on the outcomes of the previous Gas Year 2017/18.

Strand 1 – weather analysis
Strand 2 – Unidentified Gas analysis
Strand 3 – NDM Daily Demand analysis

He also explained that Strand 4 – Reconciliation analysis will be reviewed at the February 2019 meeting.

The aim of each analysis strand is to:

- Provide statistical measures of performance
- Develop a more flexible approach for Algorithm Performance, and

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- Carry out 'regional' and 'year on year' comparisons.

Th purpose of Algorithm performance is to provide confidence in the NDM Supply Meter Point Demand formula and to identify possible areas of improvement for future demand modelling.
MA stated that this was the first time all 3 strands have been presented before the end of the year and a supporting document containing full examples and commentary for each strand will be published by the end of the year.

MA provided a brief overview of the End User Categories (EUC) and Demand Model Lifecycle and the NDM Supply Meter Point Demand formula before providing a walkthrough of Strand 1 – weather analysis (slides 6-13). Through his presentation he highlighted periods of unusual weather throughout the 2017/18 Gas Year. He stated that in order to derive charts/ summaries showing a national view, 'GB CWV' and 'GB SNCWV' values had been derived using weightings based on LDZ throughput over the five-year period between 2009 and 2013.

In conclusion, he stated that overall, the observed weather during Gas Year 2017/18 when compared to the current seasonal normal was that the majority of the year (Q1, Q3 and Q4) was generally warmer and Q2 (Jan to Mar 18) was generally colder.

In addition, the stand out periods of unusual weather included:
- April 2018 which was the 8th warmest April in 50 years with a notable 5-day warmer period between 18-22 April 2018. These days were also the top 5 warmer than normal days.
- All days in July 2018 were warmer than normal
- Top 5 colder than normal days were 01 Mar 18; 28 Feb 18, 02 Mar 18, 03 Mar 18 and 18 Mar 18

2.2. Strand 2 – UIG Analysis

Mandeep Pangli (MP) provided a walkthrough of the presentation titled _Strand 2 – UIG Analysis._ She reminded DESC members that following Nexus Go-Live, UIG is now the balancing figure in each LDZ for each gas day. She also stated that the causes of UIG on a daily basis are not considered as part of the presentation as they are being investigated as part of the work of the UIG Taskforce.

MP then briefly explained that the approach taken was analysis for 2017/18 by seasons and a comparison of the previous gas year).

MP provided a walkthrough of the analysis which was illustrated through the use of boxplots and distribution graphs illustrating how UIG varies by seasons and by LDZ (slides 6-17).

She concluded the presentation with the following summary:
- Average UIG has been positive in most cases with a national average (at D+5) of 4.4%
- Autumn: The national average UIG was 4.54%. LDZ SO had the smallest average UIG = 2.7% and NE had the largest average UIG = 6.7%. Overall, data appeared to be normally distributed.
- Winter: The national average UIG was 5.33%. LDZ SE had the smallest average UIG = 3.0% and WN had the largest average UIG = 8.4%. Overall, data appeared to be normally distributed.
- Spring: The national average UIG was 3.55%. LDZ SO had the smallest average UIG = -2.3% and NT had the largest average UIG = 8.5%. Overall, data appeared to be normally distributed.
- Summer: The national average UIG was -0.87%. LDZ NO had the smallest average UIG = 2.8% and EA had the largest average UIG = -6.6%. Overall, data does not appear to be normally distributed.

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- UIG taskforce continues to investigate reasons for current UIG volatility and levels and of course any improvements DESC make to the NDM demand models can assist with this objective.

CS mentioned that UIG taskforce recommendations will be shared with the DSC Change Management Committee on 12 December 2018.

2.3.   Strand 3 – NDM Daily Demand Analysis

MA provided a walkthrough of the presentation titled *Strand 3 Analysis - NDM Daily Demand Analysis*. Please refer to the slide pack provided for the meeting. He briefly explained the background and objective of the work which is to assess accuracy of the algorithms for Gas Year 2017/18 and identify possible areas of improvement for future demand modelling. It was noted that assessment is made on supply meter points which comprise the Demand Estimation sample and data provided voluntarily by Shippers.

In terms of the approach adopted, validation has been applied to daily NDM consumption data in order to exclude sites with suspicious or erroneous data. The calculation of % error of consumption has been undertaken against two bases:

- Model - Allocated using 2017/18 ALPs, DAFs and WCFs; NDM sample derived AQs
- Retro – Allocated using 2018/19 ALPs, DAFs (adjusted to day/holiday pattern in 2017/18); WCFs and NDM sample derived AQs.

The assessments were conducted by EUC (bucket bands only) for all LDZs for a full year, summer/winter, month and day of the week.

MA confirmed that the data sources included Xoserve and Network managed data plus data provided by third parties. Validation of this data excluded Supply Meter Points which were deemed not usable because of insufficient data, excessive consecutive zero consumption, excessive consumption spikes and non-NDM sites. MA thanked Shippers for the data provided as it has enabled analysis to be done for groups of end users that hasn't been possible previously.

CS asked about the table provided in slide 4 asking why the percentage of usable data from Network Managed was low (42%) compared with 61% from Xoserve Managed and 73% from Third Party data. In response, MA explained that there were many reasons for this including the exclusion of sites with zero consumption.

MA then went on to explain that the validation of the data used in the analysis had highlighted a number of anomalies (slide 5) which he wanted to raise awareness of:
- The recording of multiple days gas consumption against a single gas day
- Day of the week pattern
- 'Market Sector Flag' inaccuracies on UKLink.

He then presented slide 6 which provided a breakdown of validated sample sites that were available for the analysis explaining that analysis of Band 09 had not been undertaken due to the small number of NDM supply points.

A walkthrough of the analysis for Model Basis (slides 7-12) and Retro Basis (slides 13-21) was provided. In conclusion, MA summarised the following points:

NDM Daily Demand Analysis suggests:
- Bands 01 & 07 - the models (on Model & Retro assessments) have a tendency to under allocate in winter & over allocate in summer (i.e. profile is too flat)
- Bands 02, 03, 04 & 08 - the models (on Model & Retro assessments) are too peaky

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- Bands 05 & 06 - the models were slightly too peaky on Model assessment however analysis on Retro basis suggested models were slightly too flat.

Analysis of New EUC Profiles
- Allocation using specific new profiles for I&C sites in Band 01 and Domestic sites in Band 02 showed improvement during winter and summer which supports DESC's approach of creating additional EUCs in Bands 1 and 2.

Additional Data
- Including an increased amount of Third party sourced NDM sample data in future modelling will help make the profiles even more representative of the population as a whole.

MA then asked DESC members to consider if there is anything else that should be included in the 2019 Spring Approach or if there is any further ad-hoc work that might influence a future year's modelling.

The following points arose during the presentation:

MA clarified in response to a question from FS that the additional EUC profiles for Band 01 and 02 developed in Spring 2018 were not used because of the changes required to UKLink and because of a lack of industry readiness. Analysis of EUC01I and EUC02D had been performed (on the Retro basis) using the available Daily NDM consumption data for Gas Year 2017/18. A brief discussion took place in relation to the small sample size in Band 02 and also on the use of clustering methods (including K-means clustering) to help validate the samples easier in the future. Xoserve may contact JB for more information on the clustering techniques used by British Gas to profile sites.

CS asked a general question about whether the outcomes of the data validation are fed back to providers. In response, MA confirmed that there is no automatic process to do this but he recognised that this could be useful information for Shippers and this could be considered in future to help with data improvement.

3. **EUC Modelling Approach – Spring 2019**

MP provided an initial view of the approach to deriving EUCs and their demand models for use in Gas Year 2019/20 by proving a walkthrough of the presentation titled _EUC modelling Approach – Spring 2019._ She briefly explained the background, the development of EUCs and Demand models and the framework, as well as explaining why the modelling principles and methodologies have to be agreed in February. This is because there is not time in the Spring/Summer to make fundamental modelling decisions and gain agreement from all DESC members.

At the February 2019 DESC meeting approval for the Spring Approach documents will be gained with the objective of this meeting to formally launch the process for determining EUCs and Demand Models for Gas Year 2019/20.

A number of industry changes/discussions will impact the approach for 2019:
- New End User Categories for Bands 1 and 2 (change proposal – XRN4665). This introduces additional EUCs to represent Domestic in Band 2, Non-Domestic in Band 1 and Pre-payment in Band 1 and 2.
- UNC Modification 0654 (Mandating the provision of NDM sample data) implements on 01 March 2019 and is likely to lead to additional streams of sample data to CDSP.
- Investigations currently being performed by UIG Task Force include a review of NDM demand models. Recommendations from this work, where possible will be included in the Spring Approach.

Mark Jones (MJ) asked when useful data will be available from Modification 0654 given it will not be implemented until March 2019. MA suggested that this depends on the Shipper and whether they can provide 12 months of historical data and if they have already switched over to smart meters but confirmed that there is no requirement on Shippers to provide historical data.

Louise Hellyer (LH) stated that the Modification included 3 options for sending data which were monthly, quarterly and half-yearly with monthly being the default position. MPe suggested that a full 12 month of data is needed for the analysis to be meaningful, so it may only be used for the modelling for 2020 if they strictly adhere to their new obligations.

Slide 8 – in relation to the Demand Estimation changes it was noted that the UIG Taskforce supported the approach for additional EUC for Bands 1 and 2 in that there is a difference between the EUC1 Industrial/Commercial and Domestic behaviours. This corroborates the planned segmentation into EUCs based on the I/C & D split.

A brief discussion took place on the table showing the proposed EUC definitions and Demand Models for Bands 1 and 2 (slide 9). LH indicated that it would be helpful to understand the numbers in each category. MA stated that there are currently around 4,000 I&C pre-payment customers in band 1 and 46 I&C & 500 Domestic pre-payment customers in band 2. MP indicated that more information will be provided to inform DESC.

DESC members were broadly in agreement with the approach proposed.

MP then took DESC members through the Demand estimation changes (slides 11-12) reminding members that the draft Spring Approach document for the 2019 analysis will be published on the Joint Office website for DESC members to review in advance of the February meeting.

She then summarised the high-level modelling principles to be used in Spring 2019 including the recommended changes from the UIG Task Force (slides 13 - 20).

In relation to slide 15, JB suggested that there was quite a bit of variability in Band 2 and 3 and suggested also stratifying those AQ bands alongside Band 1. He also asked what the required number of sites would be in each sample to maintain the population composition. There was a brief discussion on sample sizes, the use of random sampling and concerns about the potential for bias to a particular Shippers portfolio. There was broad agreement to keep the same sites year on year where possible, particularly to keep the Xoserve Managed sample. Xoserve agreed to use the sample target sizes and use any additional sites for the model performance analysis.

Slide 16 – MPe indicated that the UIG Task Force findings in Sprint 4 stated that the standard meter correction factor which uses a standard temperature may not be appropriate for all weather conditions, particularly when it is very cold. The UIG Task Force have suggested a change to use a more weather related correction factor when converting volume to energy.

Mark Palmer (MPa) stated that large LDZ meters have built in correction factors for both temperature and pressure. If corrections are made to the Algorithm this could lead to a mismatch at an LDZ level and when reconciliation is performed.

MPe said that UIG Task Force wanted to check if industry support the proposal. CS suggested that a decision is deferred pending further information and an assessment of the level of support from the DSC Change Management Committee.

MP provided a brief overview of weather data (slide 17) and the modelling principles (slide 18) before describing the derived factors and fall-back position (slide 19). In relation to the derived factors, JB asked if uplifts should be included in the approach. MPe stated that EON had

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developed uplift factors as an interim approach and that DESC would need to determine whether they should be used in the future but at the moment there is uncertainty about how they would be calculated.

It was agreed that Xoserve should consider how to incorporate uplift factors if concerns remained about under allocation.

New Action 1201: Xoserve (MP) to consider how to incorporate uplift factors in the Spring Approach 2019 and the timetable for any supporting work

New Action 1202: DESC members to consider the types of issues that might need to be addressed through the use of uplift factors and consider what material would need to be reviewed/produced to determine the level of uplift.

MP concluded by confirming that the first draft of the Spring Approach document for the 2019 analysis would be available for review by the end of the year. Comments are requested to be sent to Xoserve's email account Xoserve.demand.estimation@xoserve.com.

4. **Seasonal Normal Review Update**

MPe provided a presentation for discussion titled *Seasonal Normal Review 2020*. He explained the objective is to discuss the proposed high-level approach for the review of the Composite Weather Variable (CWV) formula; the basis for the Seasonal Normal (SNCWV) and also to review the proposed timescales.

He reminded DESC members that the reason for this work is because of obligations set out in UNC Section H for DESC.

The last review of the CWV formula and Seasonal Normal basis was completed by DESC in 2014 and the revised values took effect from 01 October 2015. The values are not changed every year to maintain stability and the current cycle expires 30 September 2020. The review of CWV and SNCWV needs to be completed in 2019 in order that the spring modelling in 2020 can be performed using the new arrangements when profiles for Gas Year 20/21 will be produced.

MPe briefly described the high level activities for the review of the CWV (Slides 5-7) which include a review of the CWV formula. The timescales for this work are to complete the analysis by the end of Q1 2019.

A brief discussion took place on the use of the new additional parameters such as rainfall and solar to measure performance. JB suggested a visualisation tool to help identify the top 20% of outlier days that could be analysed to understand if they could be improved through the inclusion of other weather variables. He suggested the use of wind direction and storm days as other parameters that could be used.

In response to a question from CS, MPe confirmed that a decision had not yet been taken on the procurement of the weather data items and that he welcomed ideas from DESC members that might aid this analysis, as well as representatives with weather knowledge who could support the analysis.

There was general agreement for the approach proposed.

MPe then provided an overview for the approach for SNCWV including the high level activities needed to review and update the SNCWV. He indicated that the approach assumes a DESC decision to change the CWV formula so this work would be undertaken in parallel. The intention is to complete the calculations by the end of Q4 2019.

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The timetable for the Season Normal Review including the key milestones is set out below:

- 01 April 2019 - DESC decision whether to revise existing CWV
- 08 July 2019 - DESC define proposed CWV formula for next period i.e. GY 2020/21
- onwards
- 07 October 2019 - DESC confirm parameters for use in proposed CWV formula for Gas Year 2020/21

- 01 April 2019 - DESC decide whether to revise existing SNCWV
- 09 December 2019 - DESC confirm revised SNCWV values

A meeting on 01 April 2019 has been added to the diary as an additional DESC meeting will be required to support the approach documents and analysis work.

CS summarised the discussion to confirm that DESC members were generally very supportive of the approach.

5. DESC related modification/change updates

MPe presented a change proposal timeline for the following changes:
- XRN4717 – Use of up to date forecast weather data in first NDM Nominations run
- XRN4665 – Creation of new End User Categories
- XRN4770 – NDM Sample Data – Modification 0654 Delivery
- XRN4772 – Composite Weather Variable (CWV) Improvements

DESC members found this timeline of changes helpful and agreed that it should be included as part of this standard agenda item for future meetings.

MA presented a one-page summary of the minor file format differences between the published file format and those used by the UK Link System for Modification 0654 (Third Party NDM Sample Data).

New Action 1203: Shippers to consider the proposed changes to the Third Party NDM Sample data file format and highlight any issues to Xoserve by the close of play on Friday 14 December 2018.

6. Future of DE NDM Snapshot Report

MA explained that this item was in relation to action 1102 raised at the last meeting held on 08 November 2018 when Xoserve where asked to provide more background information on the numbers and trends in equipment losses to enable DESC to decide whether the DE NDM Snapshot report should continue.

He provided a short presentation explaining that the DE NDM snapshot report (provided every 2 months) to Shippers is not resulting in decreasing equipment losses. In fact, there have been many years since the introduction of the report when there have been large increases in missing AMR equipment during site visits, particularly in 2016 which showed a 47% equipment loss. Xoserve therefore, believe that the report is no longer necessary.

MA sought DESC views on whether the report should be decommissioned.

DESC members considered that more awareness was needed of the report and queried whether it is being sent to the right people. JB commented that those Shippers actively engaged with the smart meter rollout will not have this on their radar. In addition, DM reminded members that there is a DESC obligation in the UNC to act on this information.

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Smitha Coughlan (SCo) reported back from a network constituency meeting she attended stating that there is no tangible knowledge that the report is getting to the right people. She suggested that more information was needed from Xoserve on the distribution list and whether it is current.

DESC members agreed to defer the decision on decommissioning the report to allow Shippers to check details of their contacts; to allow more time to understand who is using the report.

> **DESC 1204:** Xoserve (MA) to contact the current recipients of the DE NDM Snapshot report in order to request feedback on its use and to check they are still the right people to receive the report and to copy in the DESC member.

7. Communication of Key Messages

It was agreed that Xoserve would produce the required Key Messages for circulation to the industry and these would include the following topics:

- Evaluation of Algorithm Performance for Gas Year 2017/18
- Modelling Approach – Spring 2019
- Seasonal Normal Review Update
- Future of DE NDM Snapshot Report.

8. Any Other Business

MPe informed DESC members that Simon Bissett had joined the demand estimation team at Xoserve.

9. Diary Planning

CS sought views on whether the meeting start time should be delayed to 10:30 to allow for more travelling time. DESC members agreed to continue with a start time of 10:00.

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

Workgroup meetings will take place as follows:

Joint Office of Gas Transporters

Time / Date	Venue	Workgroup Programme
10:00 Monday 11 February 2019 (DESC)	Radcliffe House, Blenheim Court, Warwick Road, Solihull B91 2AA	• Modelling Approach – Spring 2019 • NDM sample – Data request • Seasonal Normal Review Update • UIG Task Force Sprint Recommendations • Communication of Key Messages
10:00 Monday 01 April 2019 (DESC)	Radcliffe House, Blenheim Court, Warwick Road, Solihull B91 2AA	• Seasonal Normal Review Update • Communication of Key Messages
10:00 Tuesday 24 April 2019 (DESC Technical Workgroup)	Radcliffe House, Blenheim Court, Warwick Road, Solihull B91 2AA	• Spring Analysis – Data Validation and Model composition
10:00 Wednesday 15 May 2019 (DESC Technical Workgroup)	Radcliffe House, Blenheim Court, Warwick Road, Solihull B91 2AA	• Review progress on Single Year Modelling Results (2018/19 data)
10:00 Monday 08 July 2019 (DESC)	Radcliffe House, Blenheim Court, Warwick Road, Solihull B91 2AA	• 2019/20 NDM Algorithms: Review TWG responses Seasonal Normal Review Update • Communication of Key Messages
10:00 Monday 22 July 2019 (DESC)	Radcliffe House, Blenheim Court, Warwick Road, Solihull B91 2AA	• 2019/20 NDM Algorithms: • Response to Industry Representations • • Weather Station Review • Review Adhoc Workplan • Seasonal Normal Review Update • Communication of Key Messages
10:00 Monday 07 October 2019 (DESC)	Radcliffe House, Blenheim Court, Warwick Road, Solihull B91 2AA	• NDM Sample Update • Seasonal Normal Review Update • Communication of Key Messages

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10:00 Monday 09 December 2019 (DESC)	Radcliffe House, Blenheim Court, Warwick Road, Solihull B91 2AA	• Evaluation of Algorithm Performance for Gas Year 2018/19 • Modelling Approach – Spring 2020 • Seasonal Normal Review Update • Communication of Key Messages

Action Table (as at 10 December 2018)

Action Ref	Meeting Date	Minute Ref	Action	Owner	Status Update
DESC 1101	08/11/18	5.0	DESC Shipper members to consider the implications of removal of the DE NDM snapshot report with the view to reaching a decision on the future of the report at the December meeting.	DESC Members	**Carried Forward**
DESC 1201	10/12/18	3.0	Xoserve (MP) to consider how to incorporate uplift factors in the Spring Approach 2019 and the timetable for any supporting work.	Xoserve (MP)	**Pending**
DESC 1202	10/12/18	3.0	DESC members to consider the types of issues that might need to be addressed through the use of uplift factors and consider what material would need to be reviewed/produced to determine the level of uplift.	DESC Members	**Pending**
DESC 1203	10/12/18	5.0	Shippers to consider the proposed changes to the Third Party NDM Sample data file format and highlight any issues to Xoserve by the close of play on Friday 14 December 2018.	Shippers	**Pending**
DESC 1204	10/12/18	6.0	Xoserve (MA) to contact the current recipients of the DE NDM Sanpshot report in order to request feedback on its use and to check they are still the right people to receive the report and to copy in the DESC member.	Xoserve (MA)	**Pending**