



Demand Estimation Sub Committee
3rd Party NDM Daily Demand Analysis
(Gas Year 2016/17)

19th December 2017

Background

- Implementation of Project Nexus saw the introduction of Unidentified Gas (UiG) which forms part of daily gas allocation
- In response to industry concern, Workgroup 0631R was established to identify what is contributing to UiG volatility
- The accuracy of the NDM demand formula was an area of focus
- At the workgroup meeting on 25th October 2017, participants took an action to provide Xoserve with daily read data for NDM sites for Gas Year 2016/17 to enable an assessment using independent data

3rd Party NDM Daily Demand Analysis: Approach

Analysis has taken the following approach:

- Daily NDM consumption data obtained for Gas Year 2016/17 (from 7 shippers)
- Validation applied to daily NDM consumption data in order to exclude sites with suspicious or erroneous data (e.g. too many missing records)
- Calculate the % error of consumption against two bases:
 - **MODEL:** Allocated using 2016/17 ALPs, post Nexus DAFs and WCFs; NDM sample derived AQs
 - **RETRO:** Allocated using 2017/18 ALPs and DAFs (adjusted to day/holiday pattern in 2016/17); post Nexus WCFs and NDM sample derived AQs
- Assessments conducted by EUC (bucket bands only) for all LDZs for full year, summer/winter, month and day of the week
 - WAR (Winter Annual Ratio) analysis not completed as number of validated sites generally insufficient

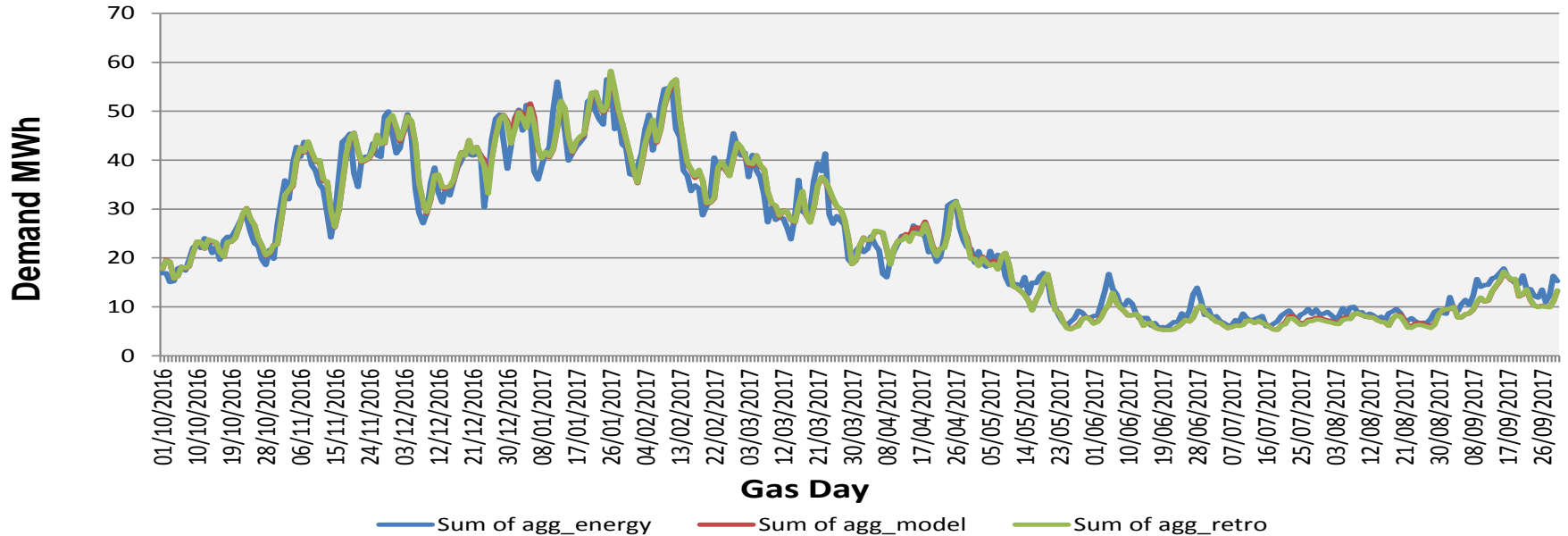
3rd Party NDM Daily Demand Analysis: Validated Sites

EUC	SC	NO	NW	NE	EM	WM	WN	WS	EA	NT	SE	SO	SW	ALL LDZs
01B	52	49	44	53	67	54	81	69	66	52	49	59	72	767
02B	131	855	507	144	458	483	210	527	146	451	379	467	187	4,945
03B	107	395	252	53	184	231	69	160	94	256	179	175	109	2,264
04B	53	142	132	32	96	105	40	84	79	169	113	104	63	1,212
05B	10	26	25	10	27	20	3	11	24	42	18	25	9	250
06B	5	5	8	4	9	7		3	10	17	5	8	3	84
07B	4	3			4					3		3	4	21
08B														0
Total	362	1,475	968	296	845	900	403	854	419	990	743	841	447	9,543

- Table shows breakdown of validated sample sites used in the 3rd party data analysis
- No assessment has been performed where the number of validated sites in any LDZ/EUC combination was less than 3 (highlighted in red - mostly affecting Bands 07 and 08)
- Some EUC & LDZ combinations contain only very few validated sample points which can skew the results significantly

3rd Party NDM Daily Demand Analysis: Daily Demands

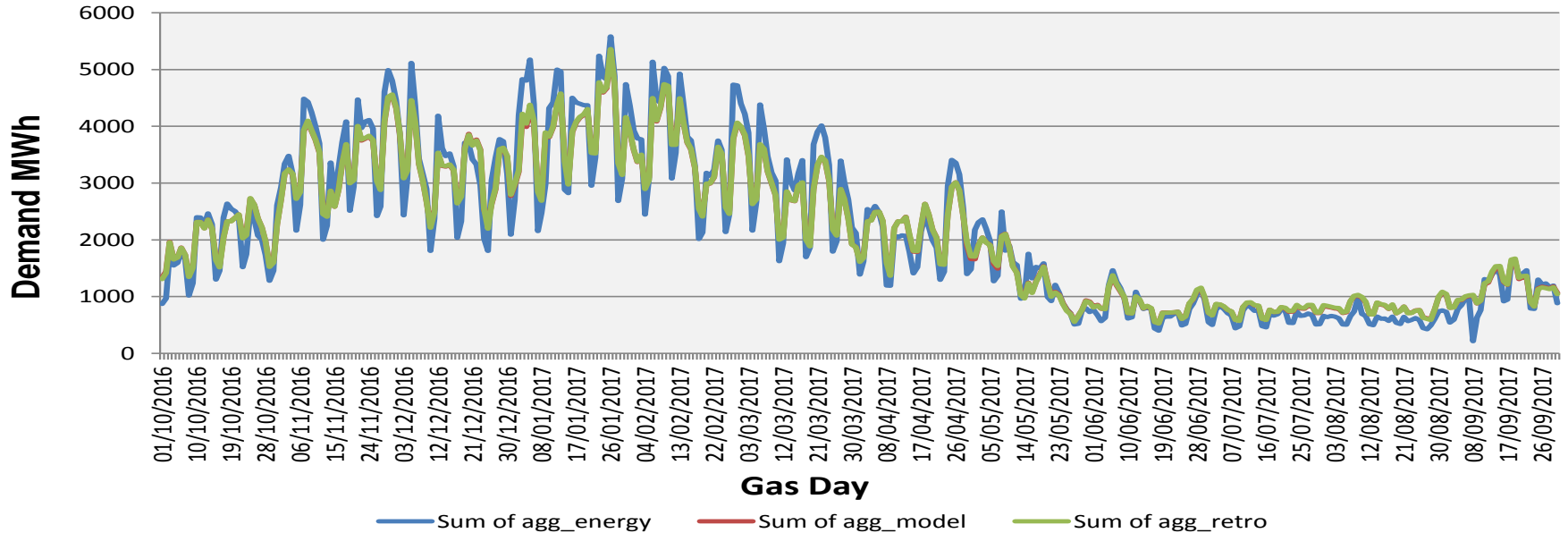
Daily Actual and Deemed Demands for 01B



- Chart shows daily actual and allocated demand for Band 01B (using 3rd party data)
- 99% of all '3rd Party' data used in 01B assessment were Pre Payment meters (domestic) whereas the assessment using 'Sample' data used Credit meters (domestic)
- Evidence of winter over allocation and summer under allocation

3rd Party NDM Daily Demand Analysis: Daily Demands

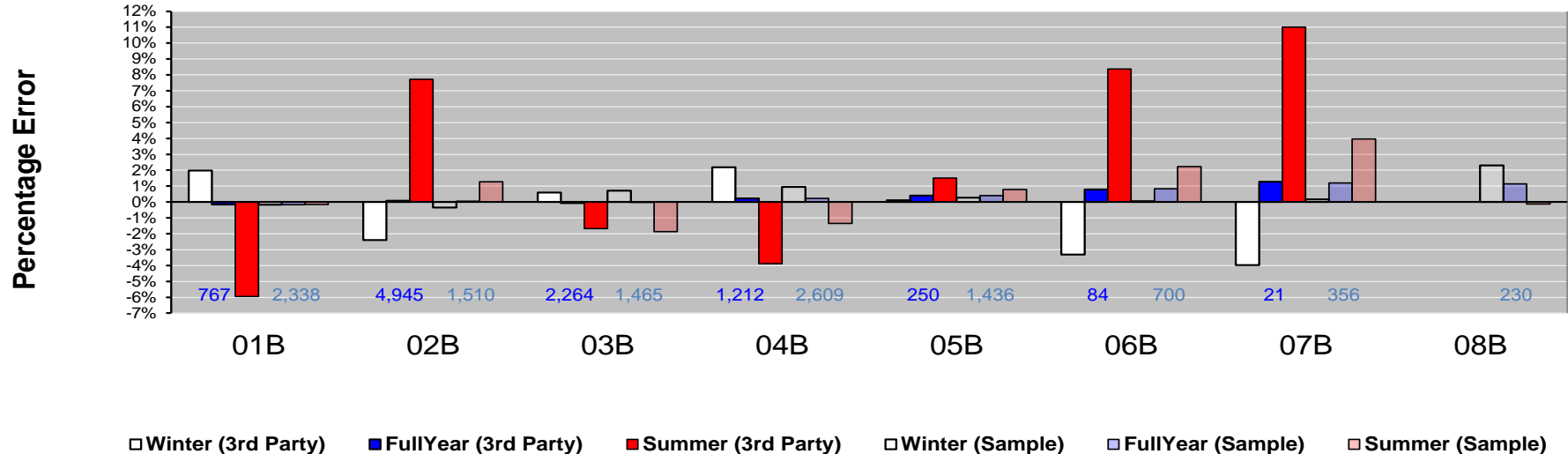
Daily Actual and Deemed Demands for 02B



- Chart shows daily actual and allocated demand for Band 02B (using 3rd party data)
- Results show overall winter under allocation and summer over allocation
- 3rd party sample data for 02B appears to be made up of a different composition of consumer types than the Sample data (which are used to derive the profiles)

3rd Party NDM Daily Demand Analysis: Error Summary

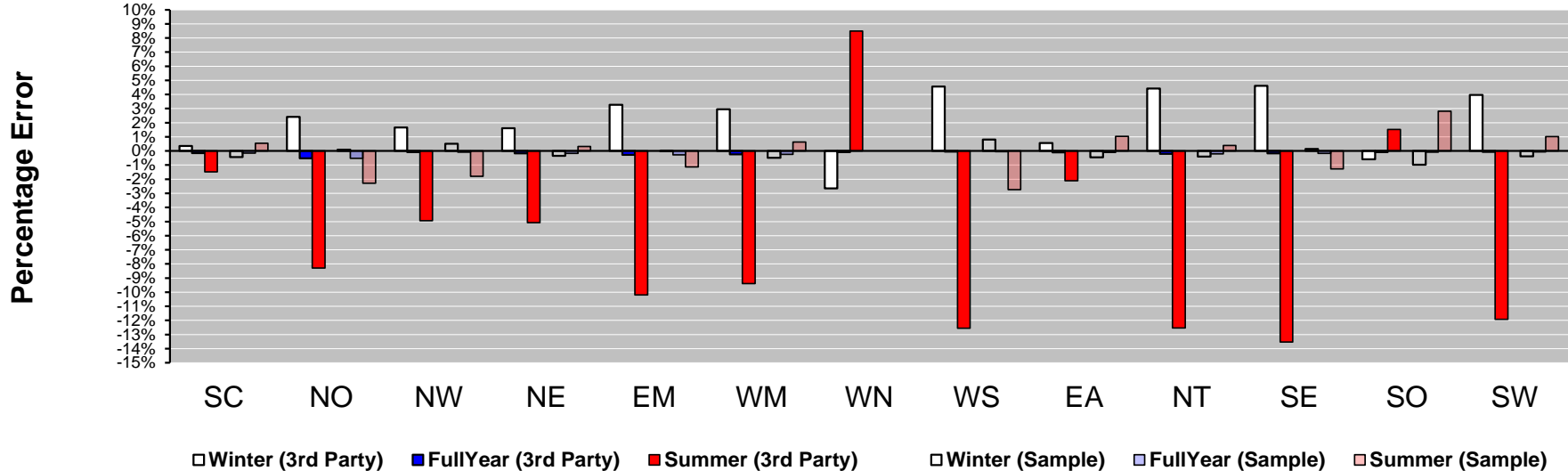
Percentage Error Summary (Model) All Bands



- Chart shows simple summary of the overall error on the 'Model' basis (weighted average across all LDZs) using the '3rd Party' data (Results from the 'Sample' data are shown for comparison)
- Positive errors denote over allocation and negative errors denote under allocation by the algorithms
- A notable difference between the two datasets is evident in Bands 01B, 02B, 04B, 06B and 07B
- Difference in 01B most likely due to difference in behaviour of PPM vs Credit meter customers
- 06B and 07B are made up of very few sites (84 & 21 respectively) so results not reliable

3rd Party NDM Daily Demand Analysis: Error Summary

Percentage Error Summary (Model) Band 01



- Chart shows % error over the winter, summer and full year by LDZ, for Band 01B using the '3rd Party' data (Results from the 'Sample' data are shown for comparison)
- Results show winter over allocation and summer under allocation is evident in all LDZs except WN and SO
- Analysis performed in summer 2014 confirmed profile for PPM customers is flatter than that of a standard Domestic credit meter customer

3rd Party NDM Daily Demand Analysis: Conclusions

NDM Daily Demand Analysis using 3rd Party data suggests:

- The allocation profile for Domestic Pre Payment customers is different to that of a Domestic Credit meter customer
- The NDM sample would benefit from the inclusion of a broader range of sample sites is all Bands

Full Year errors across individual LDZs are as follows:

- Band 01: -0.59% to +4.62% (Model); -0.47% to +5.18% (Retro)
- Band 02 to 07: -14.05% to +16.28% (Model); -14.20% to +16.73% (Retro)

Quick wins:

- Sites in Bands 3 to 8 should ideally be assigned to a WAR band (achieved by sufficient read submission during Nov to Apr) as bucket bands are generic