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Technical Work Group

EUC Modelling 2014/15 – Data Validations and Aggregations

TWG – 28th April 2014

Agenda

- Overview of Demand Estimation & Timetable
- Presentation of Current Completed Analysis
  - Modelling Basis
  - Small NDM – sample details, proposed aggregations and WAR band limits
  - Large NDM – sample details, proposed aggregations and WAR band limits
- Review and conclusions

Purpose of NDM Modelling

- Provides a method to differentiate NDM loads and provide profiles of usage
  - i.e. End User Category (EUC) Definitions
- Provide a reasonable equitable means of apportioning aggregate NDM demand (by EUC / shipper / LDZ) to allow daily balancing regime to work
  - i.e. NDM profiles (ALPs & DAFs)
- Provide a means of determining NDM Supply Point capacity
  - i.e. NDM EUC Load Factors
- The underlying NDM EUC and aggregate NDM demand models derived each year are intended to deliver these obligations only
- NDM EUC profiles are used to apportion aggregate NDM demand and do not independently forecast NDM EUC demand

Role of DESC and TWG

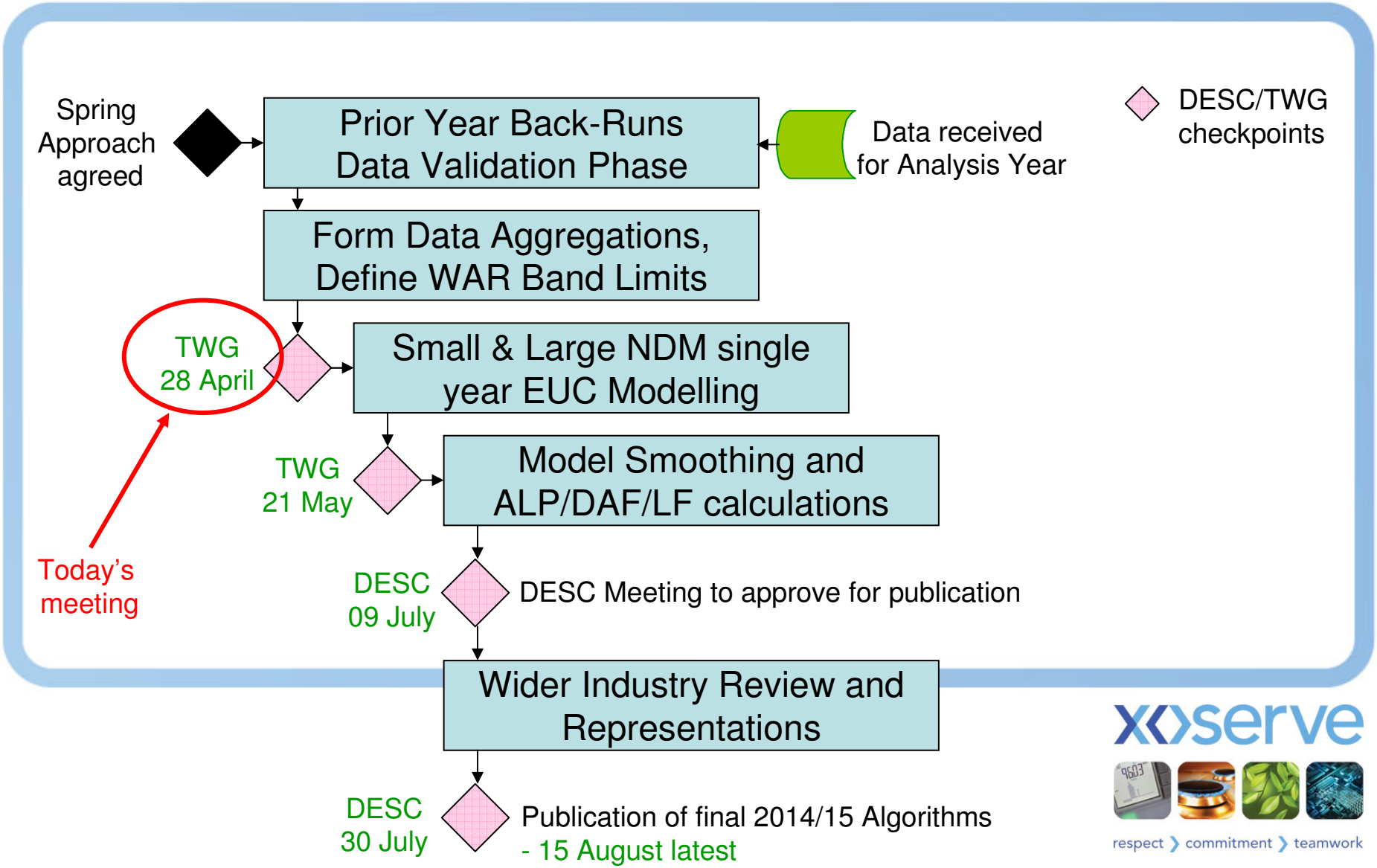
- Responsibilities for Demand Estimation changed following implementation of UNC Modification 331 on 3rd January 2012
- DESC collectively required by UNC to:
  - Submit proposals to Transporters and Users for each Gas Year comprising:
    - EUC Definitions
    - NDM Profiling Parameters
    - Capacity Estimation Parameters
  - In addition:
    - Analysis of accuracy of the allocation process
    - Derivation of CWV and Seasonal Normal
    - Consultation with Industry
- Xoserve acts as the common NDM Demand Estimation service provider

Agreed 2014 Modelling Workplan

- Workplan for 2014 Modelling included as part of Spring Approach document which was confirmed and agreed at 12 February DESC meeting

- Workplan provides more transparency of process and includes checkpoints for DESC/TWG review

Agreed 2014 Timetable



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Objectives of this Meeting

- Key objectives of April TWG Meeting
  - Inform TWG of numbers of validated data sets collected
  - Consider the most appropriate data sets and aggregations to apply to the most recently available sample data - i.e. 2013/14
  - Validation and analysis for Small NDM (up to 2196 MWh pa) and Large NDM (> 2196 MWh pa) are considered separately
- Tight timescales and unpredictable timings mean that Teleconference is chosen means of engagement
- Required Outcome – TWG agreement to sample sizes, agreed aggregations and WAR Band Limits – needed prior to commencing next phase of Modelling

Basis of 2014 Modelling

- Described in “Spring Approach” document, approved at February 2014 meeting
- Key aspects of EUC demand modelling basis for Spring 2014 analysis:
  - 13 month analysis for datalogger data sets (2013/14)
    - Data sets cover March to March to include Easter (as in 2008/09)
  - 13 month analysis for AMR data sets (2013/14)
    - Data sets cover March to March to include Easter (as in 2008/09)
  - Data validation rules same as last instance of 13m analysis (Spring ‘09)
  - CWV definitions and SN basis same as Spring 2013

Summary of Validated Data

– All EUCs

Summary of Validated Data

- Both AMRs & Dataloggers used in Small NDM Analysis (<2,196 MWH pa)
- NDM Sample Counts:

Sample Counts	*2013/14 data*	*2012/13 data*
0 to 73.2 MWh pa Range – AMR	2,981 Domestic	3,036 Domestic
73.2 to 2,196 MWh pa Range – AMR & Dataloggers	4,900	5,445
> 2,196 MWh pa Range – Dataloggers	2,972	3,412

- See spreadsheet TW_A_SAMPLE_VAL_SUMM_V1_280414.xls for further details of validation outcomes

Small NDM Analysis

<2,196 MWh

Small NDM

- Small NDM for Demand Estimation purposes <2,196,000 kWh
- Represents 88.6% of total NDM load (72.3% <73,200) and 99.97% of all supply points
- EUC consumption ranges not prescribed in Uniform Network Code
- Purpose of analysis:
  - Present validated sample data available and proposed data sets
  - View of results so far and proposed aggregations
  - Highlight any issues raised

Small NDM: Review of Validated Data

Consumption Range	*Comments on 2013/14 data*
0 to 73.2 MWh pa (EUC Band 1)	No sample size issues
73.2 to 293 MWh pa (EUC Band 2)	No sample size issues
293 to 732 MWh pa (EUC Band 3)	Low sample size in 1 LDZ – see spreadsheet TW_B_SAMPLE_POP_SMALL_V1_280414 for recommendations
732 to 2,196 MWh pa (EUC Band 4)	No sample size issues

Proposed Small NDM Investigations

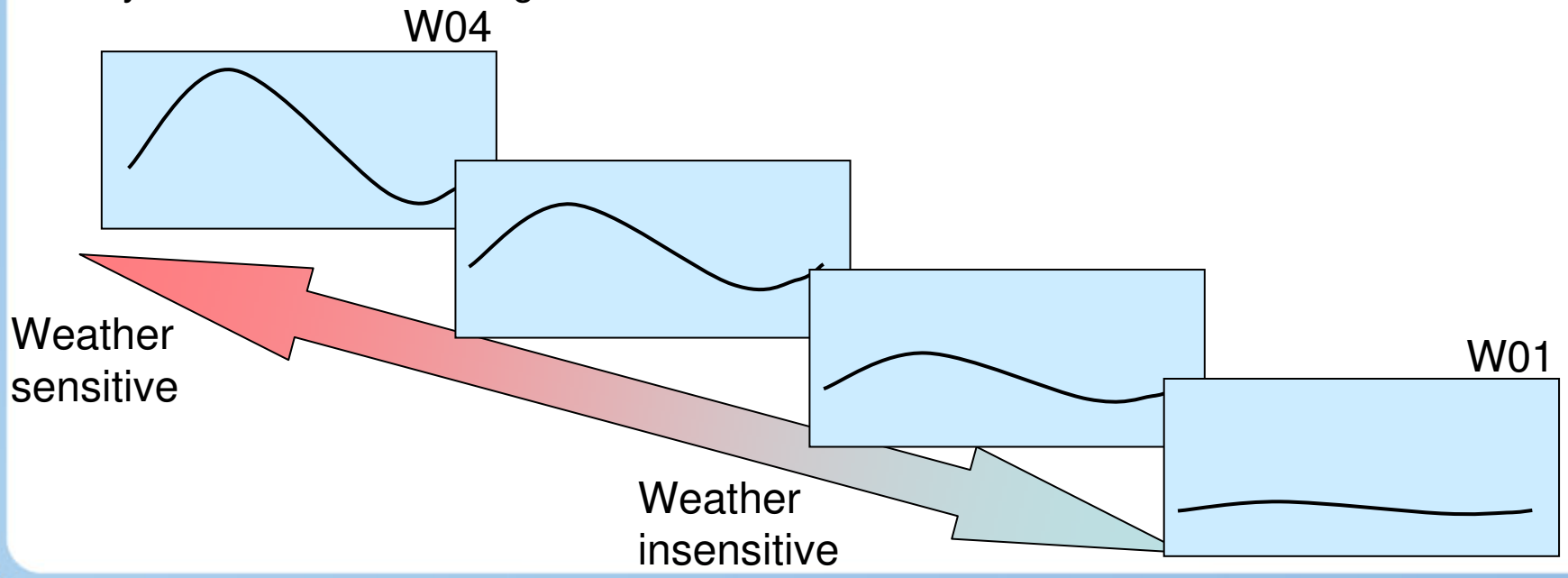
- Current EUC Bands Small NDM:
  - 0 – 73.2 MWh pa
  - 73.2 – 293 MWh pa
  - 293 – 732 MWh pa
  - 732 – 2,196 MWh pa
- There will be no changes to EUC definitions for Gas Year 2014/15
- Adhoc analysis of EUC Definitions was performed outside of 'modelling cycle' on appropriateness of current EUC definitions. TWG and DESC decided no changes to Small NDM bands

Small NDM <2,196 MWh

WAR Band Analysis

Winter:Annual Ratio (WAR) Band EUCs

- Higher AQ Bands where meter points are monthly read have a standard EUC plus 4 differential EUCs based on ratio of winter consumption to total annual consumption
- Sites with adequate read history allocated automatically to a WAR Band based on system calculation during AQ review



Winter to Annual Ratio (WAR) Band EUCs

- The WAR value of a supply point is defined as the actual consumption in the months December to March divided by the new supply point AQ
- Since the numerator is an actual demand and the denominator is a weather corrected annual consumption, WAR values change from year to year
- The limits defining WAR band EUCs are those applicable to the most recent winter (in this case winter 2013/14)
- This is essential because supply points will be assigned to these newly defined WAR band EUCs (for 2014/15) based on their (Dec-Mar) consumption behaviour over winter 2013/14

WAR Band Basics

- WAR values are affected by December to March weather experience:
  - 2013/14 was warmer than 2012/13, so thresholds can be expected to decrease this year
- When setting WAR band limits, the approach previously adopted is to aim for a 20%:30%:30%:20% split of sample numbers on a national basis
- There are practical limitations due to the actual distribution of WAR values of individual sample supply points in the consumption band
- For practical reasons we can only proceed to the modelling stage with one WAR band definition per band

All Small NDM EUCs
Proposed WAR Band Analysis

Consumption Range	*Comments on 2013/14 data*
0 to 73.2 MWh pa (EUC Band 1)	Not generally Monthly read – no WAR Bands
73.2 to 293 MWh pa (EUC Band 2)	Not generally Monthly read – no WAR Bands
293 to 732 MWh pa (EUC Band 3)	Propose to merge Band 3 & 4 data for WAR Band Analysis – Model all LDZs separately except: NW/WN combined WS/SW combined
732 to 2,196 MWh pa (EUC Band 4)	

•See spreadsheet TW_B_SAMPLE_POP_SMALL_V1_280414.xls for recommendations

Large NDM Analysis

>2196 MWh p.a.

Total NDM Population Counts: Supply Point & AQ

Consumption Range	% of Total NDM	
	Total AQ	Total Count
0 – 73.2 MWh pa	72.3%	98.81%
0 – 293 MWh pa	78.1%	99.67%
0 – 2,196 MWh pa	88.6%	99.97%
>2,196 MWh pa	11.4%	0.03%

- On an AQ basis:
  - Small NDM is by far the main component of the overall NDM sector
  - The range 0-73.2 MWh pa constitutes nearly 3/4 of overall NDM
  - The range 0-293 MWh pa constitutes nearly 4/5 of overall NDM
  - The range 0-2196 MWh pa constitutes nearly 9/10 of overall NDM
  - Large NDM is very much a minority component of overall NDM

Large NDM Analysis (>2,196 MWh pa)

- Defined for Demand Estimation purposes > 2,196,000 kWh
- Current EUC Bands Large NDM:
  - 2,196 to 5,860 MWh
  - 5,860 to 14,650 MWh
  - 14,650 to 29,300 MWh
  - 29,300 to 58,600 MWh
  - >58,600 MWh

1 Consumption Band
x4 Winter Annual Ratio (WAR) Bands

1 Contingency Band for sites which should be DM

- However, underlying demand modelling can be done on basis of more broadly aggregated bands
  - DESC have agreed as part of the adhoc analysis of EUC Definitions that the bands 14,650 to 29,300 (Band 7) and 29,300 to 58,600 (Band 8) are to be merged for modelling purposes in the Spring 2014 analysis.
- Identify sample data available post validation and propose aggregations

Large NDM Supply Points (>2,196 MWh pa)
Proposed Sample Data Aggregations

	Consumption Band Analysis – 2013/14 data
Band 05 2,196 to 5,860 MWh pa	Individual LDZ *(Individual LDZ)*
Band 06 5,860 to 14,650 MWh pa	Individual LDZ *(Individual LDZ)*
Band 07 and Band 08 combined 14,650 to 58,600 MWh pa	*Individual LDZs with NW/WN, SE/SO and WS/SW combined with alternative test of Individual LDZs (WS/SW, EA/NT, SE/SO and NO/NW/WN combined)* *(4 LDZ Groups were used for both Band 7 and Band 8 in 2012/13)*
Band 09 >58,600 MWh pa	National *(National)*

- Aggregation of sample data to allow sufficient sample analysis
- Overall consistent with 2012/13 Analysis - values shown *(x) for bands 5,6 and 9*
- *DESC agreed to merging bands 7 and 8. This makes individual LDZ analysis possible whereas 2012/13 analysis was in 4 groups of LDZs*
- See spreadsheet TW_C_SAMPLE_POP_LARGE_V1_280414.xls for recommendations

Large NDM >2,196 MWh

WAR Band Analysis

Large NDM Bands 5 to 8: 2,196 MWH – 58,600 MWH pa
Proposed WAR Band Analysis

Consumption Range	*2013/14 Analysis*	*2012/13 Analysis*
Band 05 2,196 to 5,860 MWh pa	By 4 LDZ Groups	By 5 LDZ Groups
Band 06 5,860 to 14,650 MWh pa	By 3 LDZ Groups	By 3 LDZ Groups
Band 07 14,650 to 29,300 MWh pa	By 2 LDZ Groups	National
Band 08 29,300 to 58,600 MWh pa		National
Band 09 >58,600 MWh pa	N/A - No WAR Bands	N/A - No WAR Bands

- Aggregation of sample data to allow sufficient sample analysis
- See spreadsheet TW_C_SAMPLE_POP_LARGE_V1_280414.xls for recommendations

Meeting Summary

Summary

- Summary of decisions reached
- Recap on agreed actions, owners and timescales
- Next steps:
  - Xoserve to commence single year modelling once all aggregations have been agreed
  - Xoserve may contact TWG for prompt decisions on modelling analysis (probably by email)
  - TWG meeting booked for Wednesday 21st May